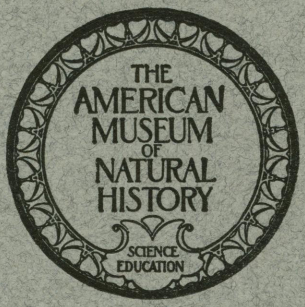
ANTHROPOLOGICAL PAPERS
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

VOLUME XXXII, PART II

EXCAVATIONS AT TICOMAN

By George C. Vaillant



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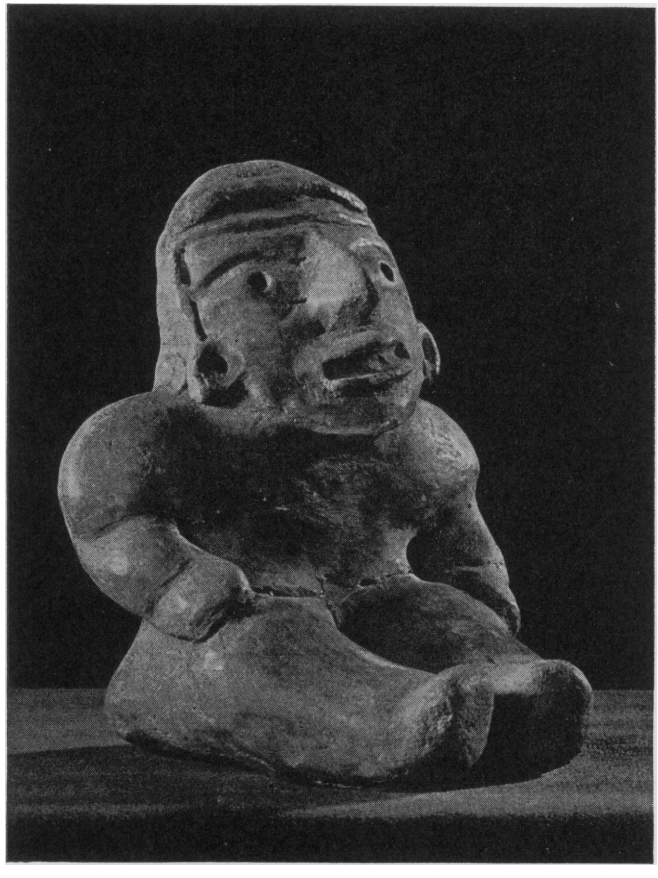

Frontispiece

Seated Figure, Type Hiii, Trench B, Northwest Ramus (30.0–7875).

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FOREWORD

The acknowledgment of one's debts to others should never be a matter of brevity, but it is superfluous to have two introductions to a single volume even though it be in two parts. Therefore, in Part I, *Excavations at Zacatenco*, the writer's profound thanks will be found, more fully expressed, to Mr. Clarence L. Hay, who not only sponsored this project but also collaborated in its execution; to Messrs. José Reygadas Vertiz and Eduardo Noguera of the Departamento de Monumentos Prehispanicos of the Mexican Government under whose courteous inspection and supervision this work took place; and to his other fellow-workers in the Valley of Mexico—Madame Zelia Nuttall, Professor Alfonso Caso, Doctor Manuel Gamio, Mr. Juan Palacios, and Mr. Robert Weitlaner for their generous and friendly counsel. The writer also desires to express his obligations to Professor and Mrs. Paul J. Sachs for so graciously permitting him to use the fund given by them to the Museum in memory of Angelo Heilprin, for the work at Ticoman and to Mr. E. L. Beck for defraying the expense of the survey made by Mr. Thomas L. Rowe.

The presentation of archæological material requires no less care and attention than the methods of its acquisition and the manner of its study. In this age we recognize the lack of finality about any conclusion and the necessity for conserving data for future students who, with greater knowledge and consequently broader views, will be better equipped than those of the present for the interpretation of historical problems. But these future students will lack a critical foundation if the archæologists of today do not themselves boldly present their conclusions in respect to the knowledge of their own time. In the excavation of a site so much interpretation and judgment are necessary that even should one so wish, he could not transmit the raw data of his finds. Yet, every time a site is dug, just so much ground as is moved is lost for the future. Moreover, only a few sites are suitable for stratigraphical studies such as this excavation of Ticoman.

Therefore the writer has tried to make his work as useful as possible to the technical student. In the first place, only a relatively small portion of Ticoman has been dug, so that plenty of test sections remain for future work; secondly, the sheep of fact have been separated as much as possible from the goats of interpretation. Accordingly, this report falls into five divisions as: I, the introduction explaining why this work was done with its relation to what has previously been done;

II, an account of the physical condition of the ground wherein the finds occurred; III, a classification and historical evaluation of the finds, including the burials; IV, conclusions and a statement of future problems; V, an illustrated presentation of the finds, both objects and burials, with maps and plans, showing their relative positions.

I

INTRODUCTION

The excavations at Ticoman, made from November 1929 to January 1930, form part of a program of coherent archæological research in the Valley of Mexico being carried on by the Department of Anthropology of the American Museum of Natural History. The aim of this work is to obtain, by means of stratigraphical and comparative studies of material remains, data on the history of the peoples of the Valley and to produce, *pari passu* with the progress of the project, short papers describing the seasonal results and containing an illustrative corpus of material sufficiently great to allow other workers to draw their conclusions independently. Doctor Clark Wissler, Curator-in-Chief of the Division of Anthropology, and Mr. Clarence L. Hay, Trustee of the Museum and Research Associate in the same Division, planned and organized the program. Mr. Hay, moreover, not only sponsored the work, but also collaborated fully with the writer, to whom were entrusted the details of excavation and of publication. The present Direccion de Monumentos Pre-Historicos, formerly the Direccion de Arqueologia y Etnologia of the Secretaria de Educacion Publica in Mexico, offered every facility, in their supervision and inspection of our work, for its prosecution; and we have striven to do our part in complying with the laws of the Republic and in cooperating with the activities of the Mexican archæologists. The historical problems of the Valley of Mexico alone are too vast to be elucidated by one institution and only by such hand-in-hand endeavors as have characterized the research of the Departamento de Monumentos Historicos, the Carnegie Institution of Washington, and the American Museum of Natural History, can we hope to reconstruct the past in Mexico.[1]

This sanction and support of the Mexican Government enabled the branch of research undertaken by the Museum to pursue an orderly course, which was to begin with the earliest cultures found in the Valley and thence trace the evolution of culture and movements of people upward to historic times. The months of February to June, 1928, were devoted to reconnaissance in which a site on the edge of Zacatenco, a hamlet near Guadalupe Hidalgo, D. F., was selected as the point for the next season's operations.

In November, 1928, the initial trenches were opened and in early March, 1929, the excavations ended. The results of this research are

[1]Kidder, 1931, 101–104.

contained in *Excavations at Zacatenco.*[1] For the sake of compactness in presentation and of avoiding the tedium of unnecessary back reference, it will be well to summarize the Zacatenco finds before considering the discoveries made at Ticoman the succeeding winter of November, 1929, to January, 1930, which are described in this, Part II, of the same volume.

Zacatenco yielded three time periods which were distinguished stratigraphically by changes in the figurine types and by differences in the form and frequency of pottery types. This ceramic sequence had also a pale reflection in the development of certain types of artifacts. The method evolved for the classification of pottery types from Zacatenco and Ticoman is not an absolute technical arrangement but a more or less eclectic grouping that, while following basal similarities in composition, at the same time lays stress on the stylistic vagaries which, resulting from the whims of fashion, reveal in consequence chronology. Figurines are sorted on a similar basis, according to the classification worked out originally by Mr. C. L. Hay in this Museum and later elaborated by him and the writer to cover the mass of fresh material encountered at Zacatenco.

The bewildering number of designations for pottery styles and of letters to indicate figurine types need not unduly intimidate the student as they are meant purely to facilitate brevity and accuracy in exposition and reference. Eventually, when the groundwork for a chronology will have been completed, the student will be able to seize the main definitive types of each period and the elaborate preliminary nomenclature will be happily forgotten. Yet, in these first steps one must follow a fairly refined system of grouping material, lest one slur over details that might hold subsequent importance.

However, to simplify this detail as much as possible, we have labeled by the term, time-bearer, the more important chronological indications of the following digest of elements comprising culture sequence at Zacatenco. Footnotes have been added to show what types under the writer's system of nomenclature correspond to those described by the earlier writers on the ceramics of the Early Cultures, Haeberlin, Kroeber, and Gamio. The Plate references in the following digest are to *Excavations at Zacatenco.*[2]

[1]This volume, Part I.
[2]This volume, Part I.

Early Zacatenco Period

POTTERY

Bay ware ollas, of reddish brown clay, the characteristic neck form of which was a gradual narrowing of the body gently everting to form the lips. A scattering of other more constricted types of neck which rise slowly in frequency as the "vague" neck form declines. Pl. I, Figs. t–d′. Time-bearer.

Bay ware cajetes, wide-mouthed bowls of large size with wall and bottom elements, their rims being reinforced with an applied strip of clay, thickened, flaring or everted, and more rarely flattened on top. Pl. I, Figs. k–n, p–s.[1]

Bay ware bowls, a few specimens with the simple silhouette of a hemispherical form. Pl. I, Fig. o.

Russet ware ollas, a variant of bay ware, but with more red in the slip and a bottle neck, yielding a small per cent of little variation. Occasionally a variant, white-on-brown, is made which is very rare. Pl. III, Figs. h, j, w.

White ware, bowls for the service of food, set sometimes on small teat tripod legs, occasionally incised, small but constant quantity. Pl. II, Figs. b, e–f.[2] Time-bearer.

White-on-red ware, a bay ware variant with a red slip made into bowls of sloping walls and curved bottoms. Occasionally, deep simple silhouette bowl and olla forms. Design in thick white in simple geometric forms. Small per cent reaching its peak in the middle of the Early Period and declining toward its close. Pl. II, Figs. g–o.[3] Time-bearer.

Black ware, base clay like bay ware, but a black slip, occasional decoration by incision; shapes like white-on-red. The largest class of service ware in the Early Period. Reaches its peak in the middle of the Early Period and tends to subside towards its close. Pl. I, Figs. f–j,[4] Time-bearer.

Thin black, a finely kneaded variant of black ware, thinner walls, occasional incised decoration, a small constant per cent that tends to fall at the close of the period. Pl. I, Figs. b–d.[5]

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[1]Kroeber, 1925, 388, Border-dented, wavy borders. Although occurring here in Early Zacatenco, the specific position of his wares is with Middle Zacatenco. See Footnote, 1, p. 213.
[2]Haeberlin, 1919, Third Type, Fig. 3; Kroeber, 1925, 386, Incised white.
[3]Kroeber, 1925, 386, Painted, red, white and yellow.
[4]Kroeber, 1925, 388, Grooved ware (perhaps).
[5]Kroeber, 1925, 386, Lines incised before firing; 388, Corrugated or cuneiform; Gamio, 1921, Ceramica Grabada. Cf. Footnote 6, p. 213. Kroeber's sherds are from Copilco, a Middle Zacatenco site.

FIGURINES AND OTHER OBJECTS

Figurines of Type Ci, Cii, Ciii, distinguishable by lavish use of a filleted presentation of features and of headdress. Pls. X–XIII. Time-bearer.

Figurines of Type D, finely executed heads made by incision. Modeling finer than in Type C, although bodies show connection. Pl. XVIII–XX. Time-bearer.

Figurines of Type F early, crude and rare. Pl. XXV, top row, Nos. 1–3.

Eccentric forms like animals, rare. Pl. XVI, bottom row Nos. 1–4.

Pottery whistles very rare, one form like a bird. Pl. XXXVIII, top row No. 3.

Pottery discs, Pl. XXXIX, bottom row Nos. 6–8, and cut down potsherds, Pl. XXXVIII, middle row Nos. 3, 5.

Spindle whorls, rare, one of a cut down potsherd, one of stone. Pl. XXXVIII, top row No. 6, bottom row No. 5.

Pottery balls, unslipped or unpolished, small, rare, crudely made.

Lava manos and metates, rare perhaps because of character of débris, but specimens like those of later periods. Pls. XLVI–XLVII, Pl. XLV, bottom row Nos. 1, 3.

Obsidian tools, leaf-shaped points, tendency to crude workmanship and relative scarcity. Pl. XLII, middle row Nos. 1, 7, bottom row Nos. 1, 6. Probably time-bearer.

Blades and flakes of obsidian common, doubtless used as tools without further treatment. Pl. XLIII.

Quartz tools very rare, one reworked fragment and several cores. Pl. XLV, top row No. 2.

Stone balls rare, one of trachyte. Pl. XLV, middle row No. 1.

Bone and antler tools, rare, but probably destroyed by disintegration. Pl. XLVIII–XLIX.

Burials, flexed and extended, practice of mat-wrapping. Map I, Nos. 1–4.

Middle Zacatenco Period

WARES HOLDING OVER FROM EARLY PERIOD

Bay ware ollas, styles originating in the Early Period, "vague" neck most common, but falling frequency from the Early Period on. Simple restricted neck rising in frequency toward close of period. At close of period entry of small per cent of straight necks, flattened at lip,

simple necks with reinforced lip or "roll," and "flaring" necks, due perhaps to overlapping strata. Pl. III, Figs. i, k–v.

Bay ware cajetes common. Little change in frequency from Early Period in reinforced, thickened, and flaring rims, but a general tendency to diminish. Rise in per cent of flattened rims which are sometimes painted in red. Pl. III, Figs. x–b'.[1]

Bay ware bowls, fluctuating frequency of simple forms, on the whole, slightly greater than the Early Period, a slight occurrence of incurved rims beginning in transition from Early to Middle Period débris, occasional decoration by incision or by the addition of fillets of clay. Pl. I, Figs. n–o, Pl. III, Fig. z.

Russet ware ollas, little specific difference from Early Period. White-on-brown ollas, almost absent from Middle Period. Pl. III, Figs. h, j, w.

White ware, highest frequency at beginning of Middle Period, but almost complete disappearance at close. Pl. VI, Fig. f.[2]

Red-on-white, strong rise in frequency in transitional deposits continuing through beginning of period, but disappearing at close; change in form from flat plates to deep bowls of simple silhouette. Design tends to change from continuous to panel patterns. Pl. V, Figs. a–e, g–n.[3] Time-bearer.

White-on-red, disappearance after commencement of Middle Period. Pl. II, Figs. g–o.[4]

Thick black ware, strong representation in beginning of period, but marked diminution at close, increased perfection in composition. Pl. III, Figs. e–g, possibly Figs. a–d.[5]

Thin black, strong representation in transitional deposits reaching peak at close of period, with stabilized form of incurved walls with vertical chord and incised decoration, also gourd and annular base forms. Pl. IV, Figs. c–m, o–q.[6] Time-bearer.

WARES ORIGINATING IN MIDDLE PERIOD

Granular white ware, a thin-walled pottery of well-kneaded clay with a characteristic granular surface, first diagnostic appearance in transitional débris with peak at beginning of Middle Period, diminishing at close. Pl. II, Fig. p, Pl. VI, Fig. e. Time-bearer.

[1]Kroeber, 1925, 388, Border dented, Wavy borders. Although some sherds of Kroeber's Copilco wares occur in Early Zacatenco, their specific time-level is with Middle Zacatenco; Gamio, 1921, Ceramica Modelada.

[2]Kroeber, 1925, 386, Incised white; Haeberlin, Third type, Fig. 3.

[3]Kroeber, 1925, 385, Painted red and white.

[4]Kroeber, 1925, 386, Painted red white and yellow.

[5]Kroeber, 1925, 386, Grooved ware, perhaps.

[6]Kroeber, 1925, 386, Lines incised before firing; 388, Corrugated or cuneiform; Gamio, 1921, Ceramica Grabada.

Blue-white, a well-made clay with a very hard, almost enameled, surface, scattering occurrence in transitional and beginning of Middle Period deposits. Pl. VI, Fig. g.

Yellow-white ware, two types: *a*, a hard interior with hard well-burnished slip, chiefly in simple silhouette bowl forms: Pl. VI, Figs. i, j; *b*, soft flaky base with hard yellow-white slip, generally straight wall, convex base type of composite silhouette. Pl. VI, Figs. h, k–m. Yellow-white ware *a*, scattering appearance at close of Early Period growing stronger through transitional deposits, peak in full Middle Period. Yellow-white ware *b*, scattering insignificant appearance in Early Period reaching peak in full Middle Period. Time-bearer.

Red-on-yellow early, a soft flaky clay slipped in brownish yellow, usually in simple silhouette bowl forms resting on a low annular base, insignificant occurrence at close of Early Period reaching peak at Middle Period. Pl. IV, Figs. a, b.[1] Time-bearer.

Red-on-black, scattering olla sherds at close of Middle Period.

Polished red, dull burnished slip on clay of the bay ware group. Simple silhouette bowl forms occasionally incised. Scattering occurrence throughout Middle Period, including its transition from the Early. Pl. IV, Fig. n, Pl. V, Fig. f.

Fine orange, well-kneaded, carefully sifted clay shaped into thin-walled bowls of simple silhouette. Slip hard and well burnished. Probably a trade ware. Pl. VI, Fig. a.

Orange lacquer, a soft flaky base clay covered with a hard more finely grained slip, made into flat dishes or straight-walled bowls of composite silhouette. Possibly allied to yellow-white *b*. Color ranges according to firing from light orange to black. Occasional decoration by incision after firing. Possibly a trade ware. Pl. VI, Figs. b–d.[2]

FIGURINES AND OTHER OBJECTS

Type A, rounded bodies, three-dimensional presentation, countersunk mouth and nose. Pl. XXI. Time-bearer.

Type B, flat bodies, low relief of features, two-dimensional presentations. Pl. XXII–XXIII. Time-bearer.

Type B–C, like Type B in flat body, like Type C in prognathism and turban, found in transitional deposit between Early and Middle Periods. Pl. XV, top row Nos. 1–3, middle row Nos. 1–3. Time-bearer.

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[1]Kroeber, 1925, 386, Painted red and yellow.

[2]Kroeber, 1925, 386, Lines incised after firing; Gamio, Ceramica Raspada. Kroeber may mean this ware, but the writer did not find this abundant in Middle Zacatenco. Gamio refers to red-on-yellow incised according to the classification used in these pages.

Type F, a very crude type, looking like a degenerate Type C, in which type doubtless lies its origin. Pl. XXV. Time-bearer.

Type J, simple crude narrow face, badly waterworn, one example of doubtful provenience, which may be Late. Pl. XVII, top row No. 5.

Types B and F probably originated from Type C, but Type A had no prototype in the Early Period.

Animal figures, generally adornments to bowls or whistles. Pl. XXX, top row Nos. 6, 7; Pl. XXXIX, top row, Nos. 2–4.

Whistles made of pottery common. Forms simple and in animal effigy. Pl. XXXVIII, top row Nos. 1, 2, 4; Pl. XL, top row, No. 4.

Discs of worked sherds common. Pl. XXXVIII, middle row Nos. 3–4; bottom row Nos. 1–4.

Earplugs of pottery, cylindrical with everted end or in ring shape. Pl. XL, bottom row Nos. 1, 3; Pl. XLI, top row Nos. 3–4.

Spindle whorls rare, perforated disc. Pl. XXXVIII, middle row No. 7.

Gorgets, discs of clay with perforations for suspension. Pl. XXXIX, bottom row Nos. 1–3.

Rattles, hollow balls of clay with handles. Pl. XXXVIII, middle row No. 1.

Ladles, clay, shallow bowls and thick handles.

Balls of clay, commonly unslipped, but infrequently slipped in brown and polished. Pl. XXXIX, middle row Nos. 1, 3, 5, 7.

Metates of lava, low tripod support very common. Pl. XLVI.

Manos of lava, triangular, varied size and proportion, very common. Pl. XLVII.

Obsidian, arrow points, scrapers, and knives, points generally simple, appearance of formal tools, but many blades and fragments used without secondary preparation. Pls. XLII–XLIV.

Quartz tools rare, fragments increasing over the Early Period. Pl. XLV, Nos. 1, 3.

Stone balls, of polished limestone, common, also frequent in trachyte, lava, and pumice. Pl. XLV, top row Nos. 8–13; middle row Nos. 5 and perhaps 6–8. Time-bearer.

Appearance of ornaments of jade and other stones. Pl. XL, top row No. 1, bottom row No. 2; Pl. XLI, top row No. 2, bottom row Nos. 2, 5.

Ornaments of shell. Pl. XL, top row No. 3.

Bone and antler tools common, including awls, bodkins, spatulas of bone, and picks, grainers, and pestles of antler. Pl. XLVIII–XLIX.

Burials no change. Map I, Figs. 5–13.

Late Zacatenco Period

Wares holding over from Middle Period

Bay ollas, vague neck, small per cent decreasing to virtual absence at close, simple neck continuing with a slightly higher frequency over the Middle Period. Three other types of olla neck in predominance, straight neck surmounted by a flattened lip, high percentage at close; roll lip strong in early phases of Late Period diminishing at close; flare lip rare in early phases very strong at close. Pl. VII, Figs. a–g, i–t[1].[1] Time-bearer.

Bay ware cajetes, scattering, almost to absence during Late Period.

Bowls with simple silhouette strong early in Late Period, diminishing toward close. Pl. VII, Figs. h, Pl. VIII, Figs. s–u, Pl. IX, Fig. m.

Russet ollas, fairly constant low per cent in aggregate less than preceding periods. White-on-brown high per cent at beginning of Late Period. Pl. III, Figs. h, j, w.

Granular white ware, scattering sherds of insignificant quantity. Pl. II, Fig. p; Pl. VI, Fig. e.

Thin black ware, scattering sherds in first level of occupation probably occurring through wash. Pl. IV, Figs. d–m.

Red-on-black ware, scattering sherds in one cut only.

Fine orange ware, scattering sherds in first cut of Late Period. Pl. VI, Fig. a.

Orange lacquer ware, scattering sherds only. Pl. VI, Figs. b–d.

Wares originating in Late Period

Dun, dirty white ware, bowls with flaring rims often on tripod support. Possibly a variant of red-on-yellow or late black-brown. Occasionally used for ollas. Low consistent per cent at close of period. Pl. VIII, Figs. f, i; Pl. VII, Fig. f. Time-bearer.

Red-on-yellow, late, shallow open bowls with strongly everted wall elements merging into deep convex bases. Often tripod support. Made of well-kneaded heavy clay slipped in yellow ranging to brown. Decoration in red paint with a tendency to run, often incised after firing to show nature of pattern. Pl. VIII, Fig. d, Pl. IX, Fig. a–g, j.[2] Time-bearer.

Red-on-brown, ollas related probably to red-on-yellow, small per cent disappearing at close of Late Period with scattering prototypes in Middle Period.

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[1] Kroeber, 1925, 401.

[2] Kroeber, 1925, 386, Lines incised after firing; 398, Lines incised after firing, colored and incised perhaps also R–Y; Gamio, 1921, Ceramica Raspada; Haeberlin, 1919, First Type, Fig. 1.

Red-on-black, ollas, doubtless firing variant of red-on-yellow.

Polychrome, like red-on-yellow, with heavier patterns on red outlined by white, which do not run. Low but growing frequency. Tripod support. Pl. IX, Figs. h–k.[1] Time-bearer.

Polished red, well-kneaded brown clay made into bowls of deep bottom elements with walls reduced to rims, slipped in red on interior and exterior, slipping usually confined to rim. Tripod support. Scattering frequency at first, but fairly strong at close. Pl. VIII, Figs. e, g, j–k, p, r.[2] Time-bearer.

White-on-red, bowls with white paints of varying thickness applied to bowls of polished red.[3]

Late black-brown, variable pastes and slips with wide range of fineness and with colors extending from light brown to black. Usually shapes like polished red, but other forms like red-on-yellow, etc., fairly common. Often incised decoration, or decorative modeling of the vestigial wall or rim element. Tripod support. Relatively high stable frequency for a decorative ware. Pl. III, Figs. a–d, Pl. VIII, Figs. a–c, l–n, o, q.[4] Time-bearer.

Late Red-on-white, rare, bowls and small decorative ollas. Pl. VIII, Fig. h, Pl. IX, Figs. i, l.[5] Time-bearer.

FIGURINES AND OTHER OBJECTS

Type E, small flat figures seated or standing. Technique of earlier periods, but less attempt at naturalism. No transitional examples from a Type B origin. Pl. XXVI. Time-bearer.

Type G, very crude presentation of features, small, bodies carefully modeled according to established conventions. Polished surface. Pl. XXVII. Time-bearer.

Type I, carefully modeled small faces, polished but some filleting of features. Pl. XXX. Time-bearer.

Type H, a few specimens assigned as degenerate or proto-typical Hiv forms. Pls. XXVIII, XXIX.

Type L, large face, filleted features, polished surface, one example, doubtful evolution from Early Period. Pl. XXXI.

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[1]Kroeber, 1925, 398, R–W–Y; Gamio, 1921, Ceramica Pintada; Haeberlin, 1919, Fourth Type, Fig. 4.

[2]Kroeber, 1925, 398, Colored and Incised (perhaps); Gamio, 1921, Ceramica pulida; Haeberlin, 1919, Second Type, Fig. 2 (perhaps).

[3]Kroeber, 1925, 398, R–W perhaps.

[4]Kroeber, 1925, 398, Corrugated, line incised (perhaps). Evident confusion between this ware and thin black described by him on pp. 386–388, as well as in the ware decorated by "lines incised after firing."

[5]Kroeber, 1925, 398, R–W (perhaps).

Animal figures rare, sometimes adorning bowls. Pl. XXX, top row, Fig. 4.

Whistles of pottery rare and simple in form. Pl. XXXVIII, top row No. 5.

Earplugs rare, thick solid discs of pottery. Pl. XLI, bottom row No. 3. Time-bearer.

Ornament of pottery and stone common. Pl. XL, top row No. 2, bottom row No. 4.

Ladles common.

Balls of pottery very common generally slipped in red or brown and polished. Some unslipped examples. Pl. XXXIX, middle row Nos. 2, 4, 6, 8, 9. Time-bearer.

Metates and manos of lava like preceding period. Pls. XLVI, XLVII.

Obsidian tools, higher percentage of tools to flakes and chips. Arrowheads show more elaborate chipping about the butt. Pls. XLII–XLIV, esp. XLII, top row Nos. 1–6. Time-bearer.

Quartz tools rare. Some spalls. Pl. XLV, top row Nos. 4–5.

Balls of stone. Limestone absent probably. Trachyte rare. Lava and pumice fairly common. Pl. XLV, middle row Nos. 2–4. Probably a time-bearing trait.

Jade Celts and ornaments traded in, Pl. XL, top row No. 2, Pl. XLV, bottom row Nos. 4-5.

Bone and antler tools. Common forms unchanged from Middle Period. Pls. XLVIII–XLIX.

Burials, Map I, Fig. 14.

From this outline one can judge that while much of the Middle Period at Zacatenco evolved out of the Early, many new elements in pottery and figurine types very likely entered from some other source. Thus there is a strong probability of the fusion of two peoples. The Late Period at Zacatenco, on the other hand, shows in its service pottery and its figurines a very sharp break from the Middle Period tradition. Such evidence leads one to assume either a reoccupation by the Late Zacatenco people of a site abandoned by a Middle Zacatenco folk or else a conquest and dispersal of the original settlers by them.

At the close of the Zacatenco season, however, we were less concerned with the fates of peoples than with the erection of a continuous series of chronological floors extending from early to Aztec times. With the establishment of the succession of figurine and pottery types at Zacatenco, it was possible to fit in at one end or the other of the time scale

for this site such elements not contained in our series as might be encountered at other localities. On the other hand, to classify as pre- or post-Zacatenco a typology as varied as this residue would be insufficient, for from such a range of styles it ought to be possible to extract further and more precise time-relations.

During various excursions made during the season of 1928–1929, we had bought specimens of the villagers in a number of communities round about Mexico City. At Ticoman, a site very near to Zacatenco, had been found a large quantity of figurines, classified as Types E, G, and H, which gave evidence that this place was occupied during Late Zacatenco times and after, and would be, therefore, most suitable to excavate the following season of 1929–1930. The proximity of Ticoman to Zacatenco would make it likely that the same human and natural forces operative at Zacatenco would obtain at Ticoman and there would be therefore a good opportunity to use the experience gained at one site in the elucidation of the other. Thus the extension of the time series for the early cultures would be carried out virtually *in situ*.

Ticoman had been known to collectors for some time. Professor Boas first brought it to archæological notice in 1911 by publishing several plates of pottery and figurines from there in his Album,[1] and Professor Kroeber published in 1925 a study of its ceramics as part of his report on "Archaic Culture Horizons in the Valley of Mexico."[2]

[1]Boas, 1911–1912, Pls. 47–53; 1912, 176–179, Ticoman described, but not mentioned by name.
[2]Kroeber, 1925.

II

PHYSICAL COMPOSITION OF TICOMAN

Guadalupe-Hidalgo lies at the tip of a range of hills dividing the lake of Texcoco from the northwestern arm of the drained lake in which Mexico City is situated. The western shore of the hills, for several miles, makes an inward curve, at the ends of which lie Ticoman and Guadalupe, with Zacatenco at the center of the arc. Like a string to this bow runs the road from Guadalupe to Cuautepec which is traversed several times daily by an auto stage. The town of Ticoman is one of the stops on this line, so that if one does not mind a scant half-hour's jolting, the site is readily and cheaply accessible.

The archæological site lies at the western edge of Ticoman on a steep and rocky peninsula projecting into the lake from the hills which at this point form part of the lower slopes of a small mountain, called from its shape El Chiquihuite (carrying basket). The Spanish colonial aqueduct from Tlalnepantla passes just south of the peninsula and circles the lake shore through Ticoman, Zacatenco, and Sant' Ysabel Tola on its way to Guadalupe. The southeastern corner of the peninsula is being slowly blasted away by quarrying, but the greater part is used to raise meager crops. Modern habitations encroach but little on the zone of archæological occupation. Mounds of detritus left by Aztec salt workers lie a few hundred meters away in the modern town, a distance sufficiently great to avoid mixture of remains. Thus the site is singularly free from the violent disturbances after abandonment that so complicated our researches at Zacatenco.

Permission to work on the site was most courteously granted by the three owners of the peninsula, Mr. Rafael Mena, the owner of the quarry, Doña Inquilina, an old woman in the village, and the municipal delegate of Ticoman, who was in charge of the communal lands. A gang of six men were hired in the town and their foreman provided a shed for the storage of tools and finds. His sister's family washed potsherds and specimens, so that the excavation became a family party with consequent mutual confidence. The workmen rapidly grasped the principles of their task and were in every way satisfactory helpers.

A glance at the map shows the value of the archæological site of Ticoman as a dwelling place. The lake, which is now drained almost completely, surrounded the peninsula save at the northeast. Around the greater portion of the periphery, rocky cliffs, volcanic in origin, rose almost perpendicularly to the top, whence more gradual slopes

leading to the isthmus afforded suitable ground for the main center of habitation. The isthmus was bare rock and connected on the mainland with a low cliff. This formed the base of another hill which merged gradually into the main slopes of El Chiquihuite. At the foot of these mainland hills were rich deposits of eroded earth that made excellent cornfields. (Map III.)

The advantages of this situation are quite obvious. In the first place, the lake would yield fish and ducks, and the fields, when cleared, would produce rich harvests. Enemies approaching by land would have to ascend the mainland hills before climbing down the steep cliff to the isthmus, which was of sufficient length to prevent an enfilade of the settlement from the mainland. A foe approaching by water would be blocked by the steepness of the cliffs from attacking Ticoman in the rear. The shore near the isthmus was a glacis of almost bare rock, offering no cover to the enemy and making at the same time an excellent manoeuvring ground for the defenders of the peninsula.

If the immediate foe of the Ticomanos had been human, the heaviest occupation would have been at the crest of the hill. But in the winter a strong cold wind blows from the northwest and this factor probably accounts for our finding the greatest quantity of human remains on the eastern slopes where there is protection from the wind.

The tangible evidence of occupation consisted of potsherds and stubs of walls. These indications spread in the shape of a fan from the summit of the hill down along its gentler slopes to form a wide belt along the north and northeastern shores. The upper slopes had long been used for a cornfield so that the probable thinness of the soil and its churned condition from years of agriculture rendered it unfit to examine for superposed remains. Lower down bare stretches of rock alternated with turfed-in sections bounded by revetment walls. The number and character of these crude buttresses would serve no useful purpose for modern agriculture since the spaces were too small for ploughing; indeed, the covering of turf showed that there had been little cultivation practised for some time. But, if these walls were ancient, then there must be behind them relatively undisturbed masses of débris that could be handled perhaps through vertical stratigraphy should they prove too shallow for horizontal analysis. Remnants of human bones in the neighborhood of pot hunters' trenches confirmed our judgment that these sectors had not been unduly disturbed. (Maps III, IV, VI).

A belt of bare or very nearly bare rock separated the revetted area from the masses of débris along the eastern periphery of the hill. Here

there had been considerable disturbance through erosion, but there was every prospect of deep accumulations. Moreover, if the heavy showers of the rainy season wash away soil today when grass and walls tend to conserve the earth, how much more likely that the débris would have washed away rubbish in early times when the surface was bare and rocky. Therefore, one could expect with some confidence accumulations of contemporaneously eroded refuse underneath this later wash. (Map VI).

Thus at the outset two courses of action lay open and each was important. The first was to trench for depth and for the superposition of remains. The second was to explore the terraced region for house plans, for vertical stratification, for data relating to the nature of the depositions and redepositions of débris below, and to secure, if possible, burials which would yield information on racial type and grave furniture.

Thirteen excavation units were undertaken, five for depth and eight for exploration. The first trench for depth was Trench B, where two pits, Trench B First Excavation and Trench B Second Excavation, were dug, each in three sections, Cuts I, II, and III, to determine stratigraphy; and a third trench, B Northwest Ramus, was run up the hill from the second pit to explore the source of the depositions (Map IV). The fourth trench, D, was sunk to locate the southeastern limit of occupation and Trench E achieved the same purpose at the northeast. The B system was highly productive of material; Trench D was sterile; and Trench E showed a curious mixture of contemporary deposition, erosion, and redeposition. (Maps III, IV; Map VI, Figs. I–VII).

The main exploratory trench, A, began with the glacis of bare rock that separated the débris preserved by revetments from the littoral accumulations. When the first revetment was reached, the trench divided and one arm continued sectioning walls and débris, while the other arm, now called Trench C, more or less uncovered various sections of revetment. Also in Trench C some stratigraphical studies were made. Both Trenches A and C were productive of burials. Just west of the crest of the occupied slope of the hill was a relatively large zone of débris. Trench F was the original exploratory trench in that section and almost immediately began to produce burials. As the preceding trenches, B system, E, C, and A were completed the men were thrown into this zone and Trenches G, H, and I were started. With the finding of many walls, thought at first to be foundations, these trenches converged and in the course of the work became the seventh and eighth exploratory trenches, Wall Digging South Extension, and Wall Digging East Extension. As

there was a hard layer running about a third of the distance from the surface to rock bottom, care was taken to segregate the material from above and below this "floor." Hence the designations Above and Below Floor were devised to distinguish such material. (Maps III, IV, Map VI, Figs. VIII–XVII).

A consideration of these trenches will facilitate discussion of the material, and, after a description of ground conditions in the stratigraphical trenching, the exploratory trenches will be considered. As the controlling basis for our work was gleaned from the B group, we shall begin with Trench B, First Excavation.

TRENCH B, FIRST EXCAVATION (Maps III, IV; Map VI, Figs. I, V)

In this sector lay a mass of steeply sloping débris from which protruded lines of low wall. The débris terminated in rocky outcrop with thorny vegetation growing in its interstices, as the hill rose steeply toward its summit. But at the base of the deposit the ground tended to level out. Where the change in gradient took place lay a long line of wall, a condition which argued for a relative immutability of the débris behind it. We decided first to sink a trench to bottom in front of the wall to determine its age and the succession of types in the débris below it. Later our intention was to pierce the wall, since, if it were old, the accumulations against it ought to be later than the refuse it terraced.

Accordingly, we dropped a trench waist deep six meters east of the wall, Trench B First Excavation Cut I. At first the earth was composed of relatively clean sand and loam, clearly the accumulations made by rain, after the abandonment of the site. Yet, after further penetration sherds and Type H figurines began to appear, showing the absence of wear which characterizes objects from a primary deposition. Our experience at Zacatenco taught us to recognize two types of refuse: primary, the accumulation of débris by human dumping, and secondary, the accumulation by natural agencies of débris eroded from such dumps. Besides these two types there are also débris of construction and of destruction. Adobe formed a proportion of the soil great enough to indicate the proximity of houses in ancient times. A small segment of adobe wall was uncovered, but careful exploration revealed no trace of groundplan. It must then have been a block of wall that fell en masse. Just in front of the long stone revetment extending north and south the earth was fairly free of sherds, but underneath the wall lay a large figurine of Type L. The wall, on being cleaned, had no jogs nor joints to indicate its being part of a dwelling. Although the débris was less heavy

immediately against it than a little further away, the lenses of sherds and of white ash showed the accumulation to have occurred after the erection of the wall, which must therefore be ancient. (Map VI, Fig. V.)

We then moved back to the eastern end of the trench and dropped down another meter, Cut II. The earth was soft and judging from the shape of the sherd and ash lenses the débris seemed to have been accumulated by primary deposit. The tightly-packed laminations of Zacatenco did not appear. The sherds were most frequent at the southern half of the trench, while the north was occupied by a big sand lens, as if there had been formerly a big puddle. In contrast to the H types of figurine found in the top cut, here we encountered Types E and G. As direct proof of a primary deposit and removing the possibility of a reverse stratification, were two burials. The first, No. 8, was a baby flexed on its face, and the second, No. 9, was a young child. The child lay under the revetment in a grave about 60 cm. deep, dug from a surface 40 cm. below the base of the wall which must therefore have been erected some time after the burial. It was accompanied by a polychrome pot supported by three hollow rattle legs, placed mouth outward at the left shoulder of the child. (Map I, Figs. 1–2; Map VI, Fig. V.)

The third cut gave the appearance of a secondary deposit. The soil was sandy and full of large boulders which, undermined by the rains, must have rolled to the foot of the hill. The sherds were battered looking and figurines were scarce. Yet there was nothing to invalidate their early deposition for Types E, G, and an early type of I were represented. (Map VI, Figs. I, V).

From our experience at Zacatenco, we knew the utility of figurine types and the occurrence of specimens of the H group overlying G and E examples gave us an idea of the poles of occupation. The presence of the burials ensured the stability of the strata, which in turn dated the wall at the head or west end of the trench as pre-Conquest, and probably toward the close of the Ticoman occupation.

Trench B, Second Excavation (Maps III, IV; Map VI, Figs. I–II, VI–VII)

The next step was to see what lay behind the wall and at the same time to check over the stratigraphical data obtained from our first cut. Adjacent to the first cut in Trench B we opened a narrow slit before the wall, taking therefrom two large white slipped heads of the H group. After removing the wall we found the earth to be soft and churned, but our fears as to disturbance by modern agencies were dispelled when we

encountered skeleton No. 16, a very old woman buried on her face with an unbroken pot over her head. We next hit the stub of a wall running east and west and our digging became divided in Trench B and Trench B North Extension, since we wished separate material in case of vertical stratification. Further investigation showed a thin layer of small stones superimposed on the heavier blocks of the original wall. (Map VI, Figs. II, VI, VII; Map I, Fig. 3)

At this point the gradual upward slope of the earth shifted to a steep incline surmounted by a thin wall of stones running north and south. The lenses of potsherds and of ash tilted westward up the slope and northward off the stone wall we had just found. As we moved into the hill, sherds and figurines grew increasingly common, and the upper earth yielded H types with reasonable consistency while the lower produced Type G specimens with fair frequency. The sharp tilt of the earth made it inadvisable to try to peel the strata, for the line of demarcation would have been too indistinct and variable to follow. (Map VI, Fig. VI.)

In the course of this digging we found the adult female No. 22 buried in an earthen cist, the walls of which were earth wetted and patted. She had two fine carved earplugs of excellent workmanship. The top of the cist had been blocked by stones and the little earth around the bones indicated mat wrapping. Stuck to the pelvic alae were some fragments that, although badly rotted, looked very much like the remnants of a feather blanket. To the left of this burial we found a similar cist and investigation showed it to be an underground oven, lined with blackened and burned rocks interspersed with fragments of charcoal. (Map I, Fig. 4.)

The stone wall which crowned the top of the slope had been too badly washed out to conserve the débris behind it, and just before we passed it we began to strike a heavy sherd layer with Type G and E figurines. Soon we uncovered rock bottom, which rose upward very steeply. Then G and L figurines occurred, giving way shortly to specimens of the H group, which occur near bottom. The earth was tightly packed and heavily laminated as if by frequent wash. In this deposit we uncovered the elderly female No. 26, who had an olla sherd just back of her hips as grave furniture. As the earth was growing rapidly shallower and Trench B North Extension could be used for further definition of the deposit, the men were sent back to the beginning of their trench to make Cut II. (Map VI, Fig. VI; Map I, Fig. 5.)

The upper part of the soil at the beginning of Cut II was hard packed and sandy. Below it, however, there was a sherd layer that produced an

abundance of pottery and figurines, which were almost entirely G, I, L, and E types. As we worked into the hill the sand belt at the top of the cut began to thin out and the texture of the soil showed more loam and ash. But soon, at the north end of the trench, we ran into sand and then rock, which we cleaned for the width of the trench. (Map VI, Figs. I, VI, VII.)

The sloping rock at the head of the trench ended Cut II very much sooner than Cut I. There remained a little wedge left between the rock and the east wall of the trench which we dug as Cut III. Sherds were few and we soon struck tepetate which sloped south as well as east. The figurine range did not differ from Cut II. Two badly rotted burials were found near the junction between the first and second series of Trench B cuts: No. 32, an adolescent, had no furniture, but No. 33, an elderly male, yielded three bone needles and an obsidian knife, and was covered in by rocks. These burials were on the same general level with skeletons No. 8 and No. 9 of Cut II of Trench B, First Excavation. But the tepetate bottom dipped sharply where the Second Excavation impinged upon Trench B, South. Before summarizing the general situation let us consider Trench B, Northwest Ramus. (Map VI, Figs. I, VI, VII; Map I, Figs. 7–8.)

Trench B, Northwest Ramus (Map VI, Figs. II, VII)

This trench began when we had encountered an east-west wall early in our operations in Cut I, Trench B, Second Excavation. Desiring to conserve all stratigraphical data, we had kept as a separate unit the section between this wall and the northern edge of the trench. Whereas from the débris south of the wall described in Trench B, Second Excavation, Cut I, we had been taking out mainly H group heads with a relatively small per cent of Types G and L, this zone north of the wall yielded almost exclusively G and E. (Map VI, Fig. II.) Soon, however, the men struck rock which rose steeply, and coincidently the character of the earth began to change from the laminations of ash as if there had been some sort of disturbance resembling a land slip. The figurines began to represent very strongly the H group, although from a more stable zone of refuse along bottom occasional E group types appeared. Trench B, Northwest Ramus ended where an enormous boulder projected from the refuse and marked the beginning of rocky ascent on which no habitation was possible. (Map VI, Fig. VII.)

Conclusions on the B System

The ground explored by the trenches of the B group was composed of refuse deposited from the top of the hill of Ticoman immediately west of the dump and from the more gradual slopes along the glacis to the north. The first accumulation seems to have been redeposited débris from settlements to the north. When a mass of material had accumulated in this wise, rubbish of primary deposition began to be distributed, as the settlement began to move out into the lake or over ground too rocky for habitation without such a covering of earth. (Map VI, Fig. I.) This ground was free of rocks and owing to its tractability for excavation with a digging-stick became a useful burial place, as skeletons Nos. 5, 9, 32, and 33 attest (Map I, Figs. 1–2, 7–8). About this time the east-west wall that separated Trench B, Second Excavation, Cut I from Trench B, Northwest Ramus must have been built, that is, when Type G figurines were fashionable and those of Type H were just coming in. (Map IV; Map VI, Fig. II.) Although these people may have argued that because they dumped from north to south they could build a wall from west to east, their revetment could not have been of much avail against the west-east drainage down the slope of the cliff-side, which must also have affected strongly the accumulation of débris. (Map VI, Figs. VI, VII.) Therefore a wall was built from south to north paralleling the side of the hill and cutting the former construction. (Map IV; Map VI, Figs. I, V–VII.) However, the drainage from above must have made this attempt at conservation equally unsatisfactory, for burials Nos. 16 and 22 indicate a certain amount of disuse and the low wall at the head of Trench B, Second Excavation shows another effort to retain the sliding earth. (Map I, Figs. 3–4; Map VI, Fig. VI.) Probably a series of such terraces contoured the hill and kept washing out, for this top wall was in ruins and skeleton No. 26 was just behind it. Moreover, Trench B, Northwest Ramus is full of soft earth which apparently slumped from above. This extensive terracing must have been about the time of the makers of the Type H figurine. (Map VI, Fig. VII.)

In short, the zone was habitable as the oven attests, in the time of the Type G figurine makers, when the upper hillside was bare, but when attempts were made to utilize those slopes through terracing, the progressive collapse of revetments in the seasonal rains must have made occupation so arduous that dwelling there became impossible.

The burials seem to represent three phases, of which the earliest comprises Nos. 5, 9, 31, and 32, the second is represented by Nos. 16 and 22, and No. 26 is doubtless the latest.

Trench D (Map III; Map VI, Fig. IV)

Since none of the material in Trench B showed signs of having been affected by water, like the sherds in Trench E South of Zacatenco[1], we chose a point some twenty meters southeast of Trench B, First Excavation, to look for signs of a lake shore and also for evidences of occupation as far back as the Early and Middle Zacatenco periods. When we opened the trench we found clean earth which contained no sherds nor any other human artifact and this sterility continued until tepetate or rock bottom was reached at a depth of two meters. The bottom of Cut III, Trench B, First Excavation, is covered by forty centimeters of sand which might be indicative of beach conditions and, since the bottom of Trench D is three meters lower than the bottom of Trench B, presumably the zone was not occupied because it was covered with water. When we summarize completely the physical conditions at Ticoman, we shall discuss this point further.

Trench E (Map III; Map VI, Fig. III)

Behind the westernmost houses of the modern Ticoman lies a large cornfield which reaches up to the slopes of the peninsula of Ticoman and the mainland hills. There were many sherds in the field and it must have received much of the detritus eroded from the early settlements near the isthmus. Although most of the material must have been redeposited we saw here a chance of recovering not only Early and Middle Zacatenco material, but also, perhaps through contemporaneous wash, additional stratigraphical data on Ticoman.

The surface soil had been churned over by ploughing and by wash, but buried just below the surface occurred skeleton No. 34 which was buried in a seated posture and accompanied by a full equipment of leather worker's tools in stone and bone, together with blanks for the manufacture of others. At the same level lay a very much disturbed burial, No. 35. Across one corner of the trench, running roughly from southwest to northeast, occurred one of the ubiquitous revetments of roughly piled stone. Although the figurines of sure diagnostic type were very mixed, the impression given from fragments was that there was an H group majority. Dropping below the wall, clear evidence began to appear of redeposit with sand lenses and sherd pockets. The material from this lower level seemed to equate with the lowest cuts of the Trench B system, for Type G was in the majority, with representation from Types L and E. (Map I, Figs. 9–10; Map VI, Fig. III.)

[1]Vaillant, this volume, 29.

A check pit was dug alongside of the first excavation of Trench E, the upper layers of which were churned and relatively clean of sherds. Farther down toward bottom, layers of sand yielded a few sherds and an E–G transitional figurine and two curious specimens of a new type, M. This situation seemed to prove the redeposited character of whatever finds were met low down in Trench E, for, while the first trench hit a series of sherd pockets the second ran through much more sterile earth. (Map VI, Fig. III.)

The bottom of the trenches was the same soft clean tepetate that had formed the floor of the B system and the level was about the same in both places. The evidence then from the Trench B system, D, and E showed that there was a lake which hindered occupation below a certain point and that point lay approximately at the level of the floors of Trench E and the B System. The earth seemed to have accumulated early by secondary deposit and afterwards it passed through a terraced stage, but later it was abandoned and used for burials. The data gained from these deep trenches will become more significant when we consider the exploratory Trenches A, C, F, etc.

Trench A (Maps III, IV; Map VI, Fig. X)

Trench A was the initial exploratory trench of the series undertaken in the terraced area at the northeastern part of the hill. It began on the bare glacis of rocks at the skirts of the hill and ran through black stony earth at a very shallow depth. There must have been denudation, however, for two burials, Nos. 1 and 2, came out in bad condition from wash and the action of grass roots. (Map I, Figs. 11–12.) After some ten meters of digging, the earth deepened at a point where the top stones of a revetment wall protruded, Wall A. At this point Trench C was begun, to uncover this wall, while the original Trench A pushed through it straight up the hill. Hardly had we passed through the retaining wall before we found skeleton No. 4, disturbed and incomplete, buried high in the débris; and soon we uncovered another revetment, Wall B, running southwest. A thin line of débris containing H figurines, ran off from this. The lower dirt was very clean, however. This southwestern extension soon ended in a confusion of wall stubs and fallen wall. To complete the disarray on rock bottom lay skeleton No. 6 which was accompanied by a yellow-white bowl with a red interior. The lower earth in the trench was still clean and the sherd layers lay through the upper earth. (Map IV; Map I, Figs. 11, 12, 14, 16.)

At this point the character of the digging changed. A Type L figurine fragment gave an early date to the débris, which was relatively scant in respect to sherds and other artifacts, but was, however, productive of several burials, Nos. 7, 10, 11, 15, 17. The choice of the burial ground seemed explicable by the presence of some large boulders which in jutting from the ground would hinder agriculture or house building, but at the same time would provide nooks and crannies most suitable for tucking away a corpse. Several of the burials might have been interred before the revetment was built, thereby reversing the process of burying in abandoned ground. Skeleton No. 7, buried on rock, was without furniture, but No. 10, a male, interred later than No. 7, was equipped with a white tripod bowl and part of a polychrome bowl with ball legs set mouth outward to the left of his head and shoulders. Skeleton No. 11, an adult male, lay at about the same level as No. 10 and likewise was richly furnished with an olla, two bone awls, an obsidian blade, an earplug, and two shell ornaments. Beyond these two burials was a section without sepultures. Yet, in one corner of the trench, near rock, was found a complete polished red pot. A short distance away two humeri, No. 15a, lay under a large rock, but were not in close relation to the bowl. The following day we found a necklace imbedded in cinnabar and a short distance from it a quartzite pot covered with that material on the same side of the trench as the bowl, and these two finds were perhaps associated with skeleton No. 15, an adult female. It is difficult to see how the polished red bowl could have been associated with this burial, since not only was skeleton No. 15 wrapped in a mat, but the grave was covered with rocks (Map I, Figs. 17–19, 22).

The rock had been rising steadily since we left the walls and the sherd yield had been small. A large Type I figurine from near the rock gave some indication that the lower débris must be early, but the shallowness of the earth gave no strong indications of relative age for the burials. They may have been early, with the later accumulations washed away, or else, very recent, for as it now exists, it would be perfectly easy to bury from the present surface (Map VI, Fig. X).

A large figurine of late type came out high in the ground, together with two earplugs; and underneath the stratum which produced them close to rock occurred the rich burial of an adult, No. 17, who had a pot near the right side of his head, an outfit of tools at his lap, and a ceremonial equipment of sixteen gopher teeth. After this burial the earth ran relatively sterile save for many fragments of manos, metates, and comals, i.e., grinding stones, mortars, and cooking stones, until the

way was blocked by the revetment walls, C, D, and E, following, as usual, the contour of the hills (Map I, Fig. 23).

These revetments were three in number and were roughly parallel. The first wall, C, rested on about a meter of débris and three courses of roughly piled stone remained, which seemed to have been buttressed by a row of slabs extending downward below the base of the wall and acting as a splatter board. It ran north until it disappeared in a pot hunter's excavation and south into Trench C, under which heading it will receive further discussion. The second wall, D, seemed of a less permanent character. It rested high on the débris and only two courses remained. Between it and the first wall, C, was a layer of packed earth that may have been an occupation surface, and reached about to the top of the stones. This surface continued across to a third wall, E, the base of which rested on débris above the surface. Wall E was in very bad condition and its course could hardly be traced. The débris banked against these revetments was very late, for figurines of the Hiv group, earplugs which were elaborately carved, and ornate feet of pots were found at this level. The débris on which the walls were founded yielded E types low down, although on the level at which the walls were built a few little figurines of the H group came out. The rock of the hill rose steeply at this point so that the débris must have spread downward more or less sharply from an upper bed that was almost level. In consequence of the change in slope we assume that the Ticomanos built their walls to guard the upper plane from erosion (Map IV; Map VI, Fig. X).

Yet it was hard to see how the upper earth held its position against the rains and winds, until further excavation revealed large rocks that might have been fallen wall. Once these had been passed, the character of the débris changed and specimens of the E group began to appear, together with potsherds bearing rude decorations in red outlined by incision. The G group of figurines was little in evidence. We struck a fifth wall stub, F, laid on rock which dipped behind it to form a pocket yielding more E group figurines and red-on-yellow incised sherds. Floating human bones appeared apparently from disturbed burials and near the surface a woman and two children, Nos. 36, 37, 38, were uncovered in a single shallow grave. The E group figurines still came out as the ground grew more shallow until a strip of rocky outcrop terminated digging in this sector (Map VI, Fig. X; Map II, Figs. 2–5).

Trench A developed important data to supplement the results of the digging for depth in the trenches of the B system and E. In

the lowest and therefore earliest strata of the B system trenches, the burials in which indicated a certain stability and obviated that bugbear, reverse stratification, an equal mixture of Types E and G had come out and their upper strata yielded H types and a scattering of G figurines. But the last débris bed dissected in Trench A produced figurines almost purely Type E. Hence, by the simple equation: if H+G is later than G+E, therefore G+E must be later than E, then the upper reaches of Trench A were composed of the earliest débris yet encountered in Ticoman (Fig. 6, p. 268).

From our experience at Zacatenco, confirmed by the excavations for depth at Ticoman, we had observed the tendency of people in the course of their occupation of a site to move out over their own heaps of débris, leveling and strengthening them by retaining walls. It seemed probable that the original Ticomanos lived on the bare slopes of the hill where the surface was most flat and by revetting pushed their way down almost to the water's edge. The terracing in Trench A probably represents a double movement over the same terrain. The first occupants heaped their débris and walled it, creating a second débris bed in the rocky zone when the large boulders were found. This area also was used as a burying ground. In late times this lower bed was walled and as the contour of the rock was reflected by the gradients of the covering, additional walls were also erected to hold back the earth above the original terraces. Since there was no foundation for the masonry the walls kept washing out and it was due to this factor that the three lines of wall had to be built (Map IV; Map VI, Fig. X).

While our evidence of occupation in Trench A on the basis of the figurine yield is confined to the latest and the earliest periods of Ticoman, we may assume an intermediate occupation, the remains of which have been churned over during the course of the burials or washed away to form the deposits in Trench E.

Trench C (Maps III, IV; Map VI, Figs. VIII, IX, XI)

Trench C, we have seen, opened out of Trench A to follow the first of the revetment walls encountered in that original exploratory excavation. Wall A seemed to have been built in two sections, an original line of stones, and an additional one set above, but not founded on, the first structure. If we are to judge by the number of stones in the denuded earth before the wall, erosion must have been heavy, for much of it was destroyed. A number of H type figurines came out of the débris, together with a numerous body of potsherds. As the trench moved

south, the earth became thinner until there was barely earth enough to cover two adult skeletons, Nos. 3 and 5, which had suffered much disturbance from previous erosion (Map IV; Map VI, Figs. VIII, IX; Map I, Figs. 13, 15).

Since the soil was so thin, we turned westward and went through the wall. Immediately behind it the earth was quite clean, but upon entering deeper, sherd lenses became more evident. The upper earth was full of charcoal and yielded many fragments of metates and manos. A floating femur, No. 18, showed that somewhere nearby a skeleton had been disturbed. A Type G and an Iiii figurine fragment gave evidence that some of the débris was more or less early. This section ended in two superimposed walls, the first of which was rough and little more than a pile of boulders. The second, which set back a little from the first and rested on a pile of débris, was better laid up. These walls doubtless corresponded to Wall B found in Trench A, but erosion had made the connection too difficult to trace securely. In the débris piled against this upper wall of Trench C lay H type figurines which dated the revetment as late ; but since these two walls must have retained débris of different periods, we tried to peel the depositions stratigraphically (Map IV; Map VI, Fig. IX).

Uphill from the upper wall, the ground had been disturbed by pot hunters who had drifted for about six meters into the hill and had left a vertical bank. Digging down to undisturbed earth we retraced the path of our predecessors in order to clear off the disturbed earth and leave ourselves a clear road. The pot hunters fortunately had not been thorough, for we found three disturbed burials, Nos. 12, 13, 14, which gave the appearance of having been mixed up in early times (Map I, Figs. 20–21). Near No. 12 lay a cache of five arrowheads and a deep polished red tripod bowl with a white lip in almost perfect condition. No. 13 was represented by its legs only and the objects found with No. 12 may have been associated with it entirely or in part. No. 14 was likewise out of position, having its entire upper body detached and revolved so that the head was near the pelvis. This digging, all in all, was more productive of loot than data, so we moved back to the upper wall and cleaned off the earth behind it, down to the top of the rough pile of boulders we had called the lower wall. The earth immediately behind the upper wall was black and loamy and clean of dirt, a condition paralleled several times in other trenches and suggesting that the retaining walls frequently were built in the clear, and clean earth was packed in behind them. The débris yielded Types I, J, and L figurines, but

rising rock made us suspend operations until we had cleaned out the earth behind the lower wall. The earth of this third cut was tightly compressed as if the débris had been redeposited and subjected to much wash. An erect Type E figurine came out of this cut, which ended also on the rock of the hill (Map VI, Fig. IX).

At the completion of this third cut, we were faced with a bank of débris a meter and three-quarters thick, completely exposed down to rock, for we had closed our second cut when rock appeared at its floor level. Consequently, we moved up to the floor of the first cut, preserving thereby a control over the finds from the resulting upper and lower layers which would be thus dug separately. Almost immediately we found a child wrapped in a mat, No. 19, and buried near the surface of the ground (Map I, Fig. 24). On the floor of the trench lay the scattered bones of skeleton No. 20, accompanied by a fine pot in the form of a human head. A little later yet another disturbed skeleton, No. 21, was uncovered at the same level, furnished with two pots, a tripod brown bowl nested over a polychrome hollow leg specimen. Although the occurrence of so many disturbed burials in a single trench was very unusual, a contributory cause was found in skeleton No. 23, a complete burial which yielded two bowls, one with tall conical legs and the other polychrome with claw feet. Under the hips of No. 23 lay a skull which probably belonged to No. 21. Thus the interment of No. 23 quite clearly brought about the scattering of the bones of skeleton No. 21 and possibly No. 20, but it does not seem probable that it could have so mixed Nos. 12, 13, and 14 unless the burial party had dug into Nos. 12, 13, and 14 first and sought clean ground elsewhere. On uncovering Nos. 20 and 21 they might have despaired of finding soil unencumbered with interments and dumped the body then and there. However, when the belt of skeletons in Trench A is considered, it seems probable that this area was a favorite burial spot, being near to the village and having soft earth easily removable with simple tools. Consequently repeated burials would have created successive disturbances. It is also likely that rodents like the pocket gopher did their part in disturbing the graves by making burrows in the soft earth around a sepulture (Map IV; Map I, Figs. 25–26).

Two burials came out near the surface just below the turf layer. No. 24 was a child who bore a shell bead and black tripod pot as funeral furniture; and a young adult No. 25 lay with his head resting on a large olla. The surrounding earth produced such late occupation traits as carved earplugs and H group heads. Since the floor of the trench touched

rising rock, we moved back to the undug portion of the trench and cleaned off the rock. This section produced few objects but among them was a Type I head (Map I, Figs. 27–28; Map VI, Fig. IX).

The next step was to drive directly for Wall C, the first of the series of three walls which by this time had been uncovered by Trench A. The upper earth was full of rocks collapsed from this first wall, but underneath stretched a sherd layer and below that a bed of yellow earth that looked almost vegetable. Near the rock were some scattered foot bones (No. 29) and the fragments of a polychrome olla with modeled birds set in the shoulders, but the association of the bones and the pot was a doubtful one. Nearby we found an Ii figurine complete (Map VI, Figs. IX, XI).

After cleaning off Wall C and assuring ourselves, through the presence of the stone slabs used as splatter boards, that it was the first wall of the group occurring at this point in Trench A, we turned south and followed it until it ended against an outcrop. Although the line of wall was continuous it represented at least two, if not three, periods of building. The first part with slabs ended very soon, probably because of a washout, but curving away to the northwest ran another section, C-sub, founded on bottom. This we judged to connect with Wall F, the low revetment in Trench A, which lay behind the series of the three high walls, C, D, and E. This low section continued for a time, growing gradually higher, and resting upon débris which increased in depth until it ended, in turn, and another crude structure founded on rock began. Not wishing to weaken or destroy these remnants unnecessarily, we did not trace them into Trench A, but they were probably part of a system of revetments which was laid down during the early occupation (Map VI, Fig. XI; Map IV).

The rubbish in front of the Trench C retaining walls represented two periods. Where the slab wall, C, was standing we took out H group figurines and beautifully carved earplugs. The skeleton of a very young baby, No. 27, was buried in the midst of this late detritus near the point where the wall had washed out. Down the slope, a short distance east and south of this baby, lay the young male No. 30 who had probably also been buried late. This individual wore at his neck four bone beads and was covered with the broken fragments of an olla. Two degenerate-looking pots lay at his hips. With this burial the late débris ended, for erosion had removed much detritus and black layers in the upper soil showed where grass had formerly grown (Map II, Fig. 1).

The slab wall, C, we have seen, was founded on débris which yielded a Type I figurine. When we reached the first segment of the low section,

C-sub, Type E figurines began to appear and predominated the rest of the way along the trench. This early layer yielded a single burial, that of the baby, No. 28, which had been disturbed by a rodent burrow. The presence of the E type figurines dated the wall segments quite clearly as early, and added further weight to the hypothesis that they connected with the Trench A series (Map IV; Map VI, Fig. XI).

Conclusions for Trenches A, and C (Maps III, IV; Map VI, Figs. VIII–XI)

The accumulations studied in Trenches A and C were the same, for conditions encountered in one were quite closely paralleled in the other. The deposition of the remains seems to have taken place in somewhat the following way.

The original population of Ticoman lived on the upper slopes of the hill and on the ledges of rock where the hill began to flatten out before making a final dip to the lake shore. Owing to rains and natural slipping from the forces of gravity, piles of rubbish accumulated, which the Early Ticomanos revetted with stone to make a level place to build houses. Consequently these walls, F, C-sub, and possibly B-sub were irregular, and the low height and rough piling of unmortared stones caused them to be frequently broken down and washed out, necessitating constant, if casual, repairs. Considerable débris seeped through to the broken rock of the final descent to the lake shore, which made an excellent burying ground since this area had at first no utilitarian use owing to its rough surface. The Ticomanos of the Intermediate Period left little impression in this zone and from the accumulations in the B system and E trenches, they must have lived well down near the lake shore (Maps III–IV; Map VI, Figs. I–XI).

Perhaps because of the frequent burials, as the number and disturbance of the interments attest, the upper reaches of Trench A and C fell into disuse as a dwelling place for a time. In consequence the Early Period walls washed out and were silted over. Yet, as the Late Period advanced, this zone was reoccupied and above the old walls new revetments were piled up. It is possible that their builders had been driven out from the B zone on account of the erosion that took place there. The burial ground, however, still continued in use, first at the foot of the new walls, C, D, E, which were as badly constructed and as deficient in logical plan as those of the Early Period. New walls, A and B, were also built below the burial ground. The numbers of manos and metates show the proximity of dwellings, so that the above outline is not too

fanciful. After the abandonment of the site, all this area began to be washed out until most of the ground had been denuded down to the Early Period walls, and, to this destruction, the pot hunters contributed a very fair share (Map VI, Figs. IX–XI).

Trench F (Maps III, IV; Map VI, Figs. XII–XIII)

The trenches hitherto described were on the eastern drainage of the hill, but the trench complex to be analyzed in this and the following sections lay on the watershed dividing the eastern drainage from the northwestern, where the peninsula, narrowing, slopes down to the isthmus connecting with the mainland hills. At this point there was a small field which had been somewhat cultivated and had yielded human bones from its drainage ditches. The fact that there was enough earth for the modern people to farm made it likely that there were accumulations of débris retained by walls, for we had observed that the hillside was bare rock when artificial aids for the retention of soil were lacking (Map IV).

The opening of Trench F was inauspicious, but the discovery of a retaining wall as we advanced southeastward gave us a hope for profitable digging which was vindicated by the discovery of skeletons Nos. 39–42 shortly after we had pierced the wall. The soil was very soft and dry, due to the excavation of the graves and to modern agriculture, aided doubtless by a relatively unobstructed drainage. Sherds were relatively few, but E figurines within and without the wall showed the rubbish to be early. Owing to the softness of the earth which might have accumulated by the depositions of wind and rain, and to some extent perhaps by human transport, the burials rested on bottom and were covered with rocks, a practice which prevented exposure resulting from erosive factors or disturbance by dogs and other animals. No. 39 was equipped with two bowls, one brown with incurved rim, the other white with black interior, obsidian knives, bone awls, needles, and a necklace of dog or coyote teeth. No. 40 was found across the trench from No. 39 and had been disturbed to the extent of losing its lower legs. No. 41, an elderly male under whom lay a polished red bowl nested over a small black one and at whose neck seven shell beads had been placed, had been buried in the grave of a young adolescent, No. 42, whose funeral furniture consisted of a red-on-yellow incised bowl, somewhat out of formal position. The proximity of these burials to one another indicated a second burying ground like that of Trenches A and C and the disturbance of remains showed its continued use. But the loss of the leg bones of No.

40, and of the tibia of No. 41, was perhaps occasioned by gophers, since subsequent work did not produce additional interments (Map II, Figs. 6–8; Map IV; Map VI, Fig. XII).

Skeletons Nos. 43–45 lay under a pile of rocks at the west of the trench beyond No. 39. Two adolescents were piled on top of an adult female, probably their mother, and a polished red bowl sufficed as a mortuary offering for all three. This triplicate burial must have caused the disturbance of the skeleton of the adult female, No. 46, which, although retaining many of the rocks piled over her, had lost her head and had her long bones disarranged. The débris, to judge from the G, I, and M figurines which occurred, was still early. Shortly after cleaning Nos. 43–46 the earth began to thin out until a ledge of rock made further digging impossible (Map II, Figs. 9–13; Map IV, Fig. XII).

Accordingly, we reversed our direction and moved downhill again into thicker accumulations which gave the trench, when completed, the shape of the letter U. Striking features of the débris were the softness of the dirt, which completely lacked laminations and the large size of the potsherds. Mano and metate fragments indicated the proximity of a settlement. Skeleton No. 47 was soon discovered, an adolescent in bad condition with whom three solid earplugs and an obsidian blade were most likely associated. A little higher up near the grass roots lay the elderly male, No. 49, in fragmentary condition (Map II, Figs. 14–15; Map IV; Map X, Fig. XIII).

At this point a wall began to appear, and although we dug both before and behind it, it had at first no significance. Behind and above the wall stretched a hard, trodden layer like a living surface. As Trench I had been commenced at this time, we left to it further exploration of the wall and worked along the front or west side of the segment uncovered. In front of this wall, in the grass roots, was a badly disturbed skeleton, No. 50, which had a jade bead wedged against its cervical vertebræ. Cleaning down to rock we discovered a probable cause for the disturbance of No. 50, the formal interment of No. 51, an elderly individual whose bones were too rotten to make sex distinctions possible. No. 51 was flexed on its right side with its head uphill to the southeast. In a line running from the face to the knees, were placed, in this order: a small rectangular metate, a small red-on-yellow olla with further decoration by lost-color in black, a bowl on its side, with long tripod legs mouth outward, in the lap a small mano, and in the general dirt an obsidian blade. Over the top of the grave three big slabs of stone were placed. This interment seems to have been relatively late, for it apparently

destroyed the junction made by the wall we had just been following with the revetment first found at the beginning of Trench F (Map IV). The slabs were on a level with the base of the segment of wall surviving in the sector where we found No. 51. There is a possibility, however, that No. 50 was buried into the other wall, the stones of which were later utilized as a covering, but when No. 51 was interred this covering of stones, together with the remains of No. 50 was thrown out, only to be dumped indiscriminately over the slab covering (Map II, Figs. 16–17; Map IV; Map VI, Fig. XIII).

The last burial found in Trench F was No. 54, a tightly flexed adult which had on its chest a small yellow bowl containing a gopher tooth. The presence of this tooth recalled the sixteen incisors buried with the leather worker of Trench A, No. 17 (Map I, Fig. 23; Map II, Fig. 18). The earth was churned and soft and when, after ten meters of sterile digging nothing seemed to be gained by further excavation, we closed the trench (Map VI, Fig. XIII).

The character of Trench F was superficially that of the Trench A–C system, namely an area given over to inhumation, but there was this strong difference in that the Trench F terrain was most suitable for habitation, in contrast to the boulder-strewn burial field of Trenches A and C. The manos and metates found in the débris show that dwellings must have been near at hand, even though the powdery earth and the absence of sherd lenses do not indicate the gradual accumulations of a rubbish pit. More probably there had been once a deposition, but continual burying had churned the earth over and over. Moreover, the constant practice of piling rocks over the graves suggests that the deposits never were deep nor free from erosive action (Map IV; Map VI, Figs. XII–XIII).

Trench G (Map III)

Trench G was designed to parallel Trench F in running south of the latter to search for burials farther uphill. It was soon abandoned owing to the shallowness of the ground of the upper slopes, but in producing E, G, and L figurines its débris was of about the same period as that of Trench F.

Trench H (Map IV; Map VI, Fig. XVII)

Trench F was shaped like the letter U with its original arm extending southeast up the hill and then turning back downhill northeast and northwest to complete the bowl and the other arm of the letter, since the increasing shallowness and sterility of the ground made it impossible to

continue in a straight line. Trench H was begun some distance east of Trench F and followed almost due south up the crest of the watershed between the east and west drainage of the north apex of the peninsula.

The ground was soft and turned over, as though frequently disturbed by rains and by agriculture. Few objects came out at first, except fragments of manos and metates too heavy to be displaced by the factors just mentioned. The earth tended to deepen as we progressed uphill and in time we encountered skeletons Nos. 52, 55, and 56, all very much disturbed. Skeleton No. 52, a young male, lay near bottom and may have been disturbed by gophers. Skeleton No. 55, an adult male, seemed to have been thrown out of position by No. 56, an adult of indeterminate sex, and an animal burrow which, in passing through the burials, had shuffled the bones even more. At the right shoulder of skeleton No. 55 were found an obsidian blade and arrowhead, which may very well have been his mortuary equipment (Map II, Fig. 21; Map IV; Map VI, Fig. XVII).

Soon after uncovering these human remains we struck a low stone wall, I. A half-meter above it stretched a hard layer of dirt, perhaps a living surface, perhaps merely a former surface of the ground. This upper layer joined with Trench I, which will be described in the next section, and from the time of the junction of the two trenches, the digging was known, because of the discovery of walls, as Wall Digging, East Extension. Many fragments of bone and pottery came from this upper surface, and an Hi head showed that some of the débris must have been late. The body of a Teotihuacan figurine was found on this same level, almost the only evidence of that civilization found at Ticoman. We shall defer a summary of Trenches F, G, and H until we have discussed Trench I, and the Wall Digging (Map IV).

Trench I (Map IV; Map VI, Fig. XIV, XVI)

Trench I, designed like Trenches G and H, to supplement the grave hunting in Trench F, began a little east of the northern arm of that trench. In dropping down, the adult male No. 48 was uncovered 120 cms. from the surface and resting prone on rock bottom. His funeral furniture consisted of a polished red bowl at his hips, an obsidian blade in his lap, and a bone needle near his neck. The débris yielded four Type E figurines and a pair of Type G legs, dating the débris as early. Sealing in the lower débris and the surface from which No. 48 was buried there was a hard surface which extended from behind the wall in the north arm of Trench F and which resembled that at the head of Trench H (Map II, Fig. 19; Map VI, Fig. XIV).

To trace this surface we widened the face of Trench I so that it connected with Trench F, just behind the little wall segment and, in the course of this digging, took out near rock the adult female No. 53. A shell bead at her neck, a black bottle at her feet, and a Type Cii head under her leg, constituted her grave furniture (Map II, Fig. 20; Map VI, Fig. XIV).

At the east side of the trench we struck a low wall running north and south. Investigation of the first stone which had been pecked into an oblong shape disclosed a corner with another wall leading eastward. The subsequent work in this area will be described in the following section, Wall Digging, South Extension (Map IV; Map VI, Fig. XVI).

Wall Digging, South Extension (Maps III, IV; Map VI, Figs. XIV–XVI)

The discovery of a room corner at the southeast of Trench I and a wall at the head of Trench H necessitated careful procedure, for it seemed that we were on the point of disclosing architecture. Our first step was to clear off some of the living surface found above the walls in both trenches, to give room for the dissection of this zone.

The stones laid bare by Trench I seemed to be the corner of the foundations of two rooms; Room I, the western, and Room II, the eastern structure, the long axes of which ran north and south. The north wall of Room II was set a few centimeters south of that of Room I and the north walls of both were made of slabs roughly pecked into oblongs. The west wall of Room I was made of boulders as was its east wall which was common to both. The east wall of Room II was too vague to follow more than a short distance and except for two or three stones, making a corner with the west wall of Room II, a south wall was lacking to either. The space enclosed was packed solid with rocks and earth and as the walls nowhere exceeded in height more than two or three stones—for this piling up of rocks cannot be dignified by the term course—the whole structure must have been a sort of floor to a house of adobe or some other perishable material (Map IV).

We cleared off another section above the living surface which rose with the hill and discovered the upper portion of an atlantean incense burner of lava, representing doubtless the Fire God so frequently found in sites of higher culture in the Valley of Mexico. The living surface rose steeply south of Rooms I and II, conforming to the increasing steepness of the hill and the piles of masonry we were later to discover. (Map VI, Fig. XVI).

Just south of the wall dividing Room I from Room II and situated on the rising rock nearly half a meter above them, was a large rock pecked into a rough cube. We cleared off another section of surface which produced an adult female, No. 57, buried virtually in the grass roots. Her right shoulder had disappeared, but at her feet were recovered a small white-on-brown olla and, in doubtful association, a pottery ball. Southwest of this burial lay another female, No. 58, who yielded a very fine obsidian blade, undoubtedly a knife, which was between her ribs. It is far less likely that she was murdered, however, than that the knife placed under the chest had worked upward with the slumping of the bones that followed the disintegration of the flesh (Map II, Figs. 22–23; Map VI, Figs. XV–XVII).

Both the bodies lay above the surface of packed dirt, but a curious situation developed during the excavation of the ground between the two burials. A floor of pinkish plaster, made of lime (?) ash and crushed stone, was found south of Room II and it overlay our previous working surface. When the floor was cleaned, it revealed an irregular shape, for erosion had destroyed much of its former extent. The northern or downhill edge of the floor almost projected above ground and indeed the disappearance of some of it may be accounted for in this way. But as the floor was level, the southern or uphill end was relatively deeply covered by later accumulations which contained another earth surface, more probably one of abandonment, than of occupation. The plaster floor, moreover, ended north of the rising peñasco or bed rock of the hill. The surface of abandonment disintegrated as the ground became shallower southward up the slope (Map IV; Map VI, Figs. XV–XVI).

The original trodden surface was early, since we took out E group figurines above it. The plaster floor, on the other hand, was undatable, for, although it was perhaps out of the architectural tradition of Tiquisman, there were no sherds nor other remains to assign it to such subsequent epochs as Toltec of Teotihuacan, Aztec, Spanish Colonial, or Modern.

Perplexing as this "above-floor" digging was, even greater confusion attended the digging beneath it. We had thought that the large pecked stone south of Room II marked the foundation for a wooden column. Instead we found just beyond it, the ends of three walls which ran southward uphill. Since the ground sloped north and west, it was a natural assumption that these walls faced outward. The first wall at the west, A, was founded on débris and in front of it the ground was soft and churned and full of sherds, since it was part of the débris bed we found

in Trench F. Two Type E figurines dated this dump as early. Rising rock brought an end to the trench about three and a half meters from its beginning (Map IV).

The second wall, B, half a meter east of Wall A, was set nearer rock, perhaps because of the slope of the peñasco, perhaps because of prior construction. This ended even with Wall A, and the southern half of it was composed of large slabs of stones. Other slabs bridged the gap between Walls A and B, as if to seal in a burial or ceremonial deposit. When careful troweling produced nothing, hopes for a cache or a rich grave vanished. Thereupon we cleaned out the ground east of Wall C which paralleled Wall B a few centimeters east of the latter. This digging yielded no less than nine pottery balls, four of stone, and two figurine torsos, assignable to Types E and L. The ground, in contrast to the soft soil west of the walls, was hard and compact. Three or four aligned stones were found on the floor of the trench, but as they did not join Wall C they had, doubtless, no significance. However, at the point where these three walls, A, B, and C, ended we found a fourth wall, D, that ran east, and although its projection would have made an angle with Wall C, a few centimeters of space intervened. We were again faced with the possibility of another house foundation (Map IV; Map VI, Figs. XV–XVI).

A space remained between the rock and Wall D and the southern termination of Walls A, B, C. We cleaned out this corner, noting how the original living surface blanketed the walls and dipped over on the rising rock. The plaster floor had ended north of Wall D and the third surface was discernible above the high rock. Between these two levels, made by natural and living surfaces, we found the fragmentary skeleton No. 60, a male whose left femur had fractured and healed (Map II, Fig. 24). The upper surface was intact. The débris below the lower surface yielded a Type A and a Type B figurine head, but the sherds were not contemporary with these Middle Zacatenco types (Map VI, Fig. XVII). In the lower layer was found a Type E figurine, which showed that it must have been formed relatively early. The trench, however, disclosed a perplexing feature. Wall D faced south, but there was little more than a meter of width from the face of the peñasco which formed a nearly vertical surface opposite it. This masonry ended without forming the corner one would expect, if Walls C and D were part of a house foundation. Moreover, the vertical rock face opposite Wall D had been prolonged by the erection of several stone slabs, which had served merely to face up the soil and not to enclose anything (Map VI, Figs. XV–XVII; Map IV).

There is not enough tangible evidence to lay off a reasoned sequence of the walls built in Wall Digging, South Extension, but Rooms I and II certainly resemble house foundations and perhaps the corner enclosed by Walls C and D represents a house foundation reconstructed as a revetment. Walls B and A doubtless indicate successive attempts at terracing. Yet, all this work must have been carried out at an early date, judging by the material found in the débris. Additional data on this situation were yielded by the work in Wall Digging, East Extension.

WALL DIGGING, EAST EXTENSION (Map IV; Map VI, Figs. XV, XVII)

Whereas Wall Digging, South Extension describes a sector running south from Rooms I and II, Wall Digging, East Extension contains the zone excavated east of them. The same living surface that we had been previously observing covers this region also.

The ground above the surface was soft and churned, but yielded many small objects and fragments of metates and manos. The figurines were E types, a double figure showing an E and G embraced, and two unslipped G or Eii bodies. Earlier, when we had joined Trenches H and I, a Type H head had been found. Several pottery earplugs which appeared were mainly solid, giving additional evidence that the débris was early (Map VI, Fig. XVII).

When we dug further into the deepening earth, we found that the surface had become the floor of a terrace of rammed stone faced by the Walls I, II, and III, to be described in the next paragraph. A cache of nine nodules and fifty-three fragments of obsidian were found and a floating skull and scapula to which we gave the number, 59. The above floor digging ended by the discovery of outcrop surmounted by a line of slabs which were the facing of another terrace, Wall IV (Map VI, Figs. XV, XVII).

When we had removed the upper layer, which followed conditions in the South Extension by rising steeply with the hill as masonry accumulated, we struck a series of three revetments numbered from north to south I, II, and III. The face of Wall I was roughly in line with the north walls of Rooms I and II, but it was in no sense a prolongation of the latter, for a meter and a half of sandy soil separated the structures. Moreover, this gap extended beside the east wall of Room II as far as the third revetment III. Sherds and an Eii and Eiii head came out of this zone. The rubbish accumulated against Wall I to the north was scant, but a Type E body showed it to be early. The wall ran on in a southeasterly direction until it passed underneath Wall II and

acted as a foundation for it. Later it swung south and disappeared. Since Wall I rested on rock and underlay Wall II, it must therefore have been very early (Map IV; Map VI, Fig. XVII).

Wall II stretched immediately behind Wall I. It rested a little above the rock which rose so steeply behind Wall I as to make its top in places lower than the base of Wall II. Wall II was separated, moreover, from Room II by the gap we mentioned in the preceding paragraph. In the space between the walls we found nothing (Map IV; Map VI, Fig. XVII).

Wall III first appeared as a row of slabs set south of the termination of the east wall of Room II. The ground between Walls II and III was full of broken stones, but underneath them was a layer of soil full of sherds. The construction of Wall III seemed to alternate between piled stone and the slabs set up on end. From the space between Walls II and III we took out an Iiii figurine head, two E heads, and four bodies. This accumulation seemed to place Wall III as earlier than Wall II which had been built into the débris against it with rock fill to level off any hollows between the two wall tops. The surface of trodden earth becomes therefore subsequent to this latest wall, II (Map VI, Fig. XVII).

We cleaned out then behind Wall III and found that it was a terrace of rammed earth and rocks which extended out into the southeast quarter of Room II. Now the above floor digging of this East Extension had revealed a line of slabs, Wall IV, which was founded a little below the top of Wall III. Tracing this wall west, we found that it ended in a mass of packed stone and dirt south of Room II. Presumably this terracing had been faced in continuation of Wall IV, but the slabs had fallen or had been removed. Apparently this terrace is associated with the peñasco enclosed by Walls C and D of the South Extension (Map IV; Map VI, Figs. XV, XVII).

Time and funds did not permit further dissection of this confusion of building.

Conclusions for Trenches F, G, H–J and Wall Digging, East and South Extension (Map IV; Map VI, Figs. XII–XVII)

The zone covered by this trenching was originally base rock sloping off to the northeast and the northwest. The slope of the rock was fairly regular, but here and there it pushed up sharply, producing steps ranging between a half meter and a meter in height. This area must have been appealing for building as the rock would afford dry floors to the houses of the Ticomanos and might be counted upon to reflect and retain the heat

of the sun. After the occupation had lasted for some time, débris began to accumulate and seizing this chance for acquiring more level ground, the Ticomanos built the wall at the beginning of Trench F and Wall I, of the East Extension, and the foundations or terrace facings like Rooms I and II and like walls C and D were laid down. With steep slopes such as are possessed by the hill of Ticoman, no inhabited zone with another above it could exist for long without the accumulation of débris from above and without the constant attrition of soil to areas below. Hence, a level area would soon be reduced to a sloping gradient, for the forces of gravity and of erosion would make every surface tend to be parallel with the contours of the base rock (Map IV; Map VI, Figs. XII, XVI, XVII).

After some such situation had taken place, Walls III and IV were built and stones and soil were rammed behind them to form a solid foundation. Walls C and D were reinforced by Wall B and the packing of stone and earth was extended from the terraces faced by Walls III and IV into the regions south of Rooms I and II. All this activity took place during the early occupation. Perhaps as repair elements to the terraces, Walls A and II were built and around the flanks of the revetments great beds of débris accumulated (Map IV; Map VI, Figs. XV–XVII).

The development of the building we have just described is paralleled quite closely by the sequence of walls uncovered in Trenches A and C. Wall I of the East Section is probably a segment of the revetment found in the westernmost extension of Trench A. Wall II and Wall III tie in perhaps with the fallen rock behind and below the three late walls of Trench A, which seems to be the remnant of a terrace connecting with Wall C-sub. At all events, these structures in Trenches A, C, and the Wall Digging are contemporaneous, for they all have the same type of débris banked against them.

In the Room Digging and in Trenches F, G, H, and I, there is the same absence of Type G or Intermediate Period occupation that we have noted in Trenches A and C, but there is a similar use of the ground as a burial field. Here again we have doubtless an example of the area being abandoned, but there is little evidence of a Type H or Late occupation as in the A and C trenches. A possible cause of this permanent abandonment may be the vicious wind that sweeps across this area in winter. Thus once the habit of living in that place was broken, there was no reason, sentimental or practical, for return. During the abandonment and use of the ground as a cemetery, the débris must have

accumulated against the walls so that the living surfaces were extended from the level floors of the terraces out over the beds of rubbish. The formation of this surface was probably aided further by the adobe washed from the fallen and deserted houses, packing and hardening on the adjacent terrain.

Conclusions to Physical Composition of Ticoman (Maps III, IV, V, VI)

The general nature of the accumulations by human agency at Ticoman suggests continuity of occupation, for no very prolonged period of time. The great heaps of detritus that characterized the settlement at Zacatenco are lacking, and in spite of erosion, the débris at Ticoman seems much more freshly deposited. Although estimates cannot be made for the length of time the two sites were occupied, since we have no means for computing the yearly rate of accretion nor a method for determining the number of the population, just on the basis of the mass of the débris and character of change in the material culture, Ticoman seems to have been occupied for much less time than Zacatenco.

The digging at Ticoman disclosed no strata of humus below the layers of human refuse and we may therefore assume that the surfaces of the hill of Ticoman were rocky and bare at the time of its occupation. While a few examples of figurine heads representing the Early Zacatenco group C and the Middle Zacatenco groups A and B occur, they appeared sporadically and not in association with equivalent pottery types that would indicate settlement in those times. Their source may well have been the site of El Arbolillo, which is a half-kilometer northwest of Ticoman and lies among the talus slopes of the mountain, El Chiquihuite, where the Ticomanos farmed. As this site produces mainly Early and Middle Zacatenco figurines it would be natural that such specimens would be picked up and carried as lucky pieces or mere curios to the settlement at Ticoman, whence sooner or later they would find their way into the débris.

In the course of the digging for depth in the B system, D, and E trenches, we had sought traces of an Early and Middle Zacatenco population. Since we had found at Zacatenco some evidence of a rise in lake level, we looked for its presence at Ticoman low down on the hillside and put in Trench D at a point where the ground presented the definitely plane surface of a Valley of Mexico lake bottom. Such information was absent, but we did find instead more or less the lacustrine limits of the Ticoman settlement of which the Early Period was coeval

more or less with Late Zacatenco. A comparison then seemed in order between the level of the lowest débris at Ticoman and of the suspected high lake level at Zacatenco of which evidence occurred in the débris beds yielding material transitional from the Early to the Intermediate Period (Map V; also, this volume, Part I, pp. 28–29, 53, Maps III, IV).

Mr. Thomas Rowe undertook this survey. The Ticoman levels were run from an arbitrary base line of 10 meters, situated away from the peninsula in the level ground of the lake bottom. Trench D, which was sterile, showed bottom at 10.10 m. and its top soil measured 12.10 m. In Trench E débris stopped and rotten tepetate began at 13.60 m. with solid tepetate appearing at 13.20 m. Sterile soil was found at 13.60 m. in Trench B, First Excavation and a solid tepetate or rock bottom at 13.18 m. Hence the intermediate levels between the bottoms of Trenches B and E at 13.18 m. and the top of the sterile Trench D at 12.10 m. we can assume to have had very little evidence of occupation (Map V).

The Zacatenco sections had been made from levels based upon an arbitrary 60 m. height given to the top of a concrete marker erected by the engineers of the Mexican Government in its Topographical Survey of the Valley of Mexico. According to the 10 m. base level at Ticoman, the height of the Zacatenco marker was equal to 20.14 m. From the Zacatenco sections it was therefore possible to compute rock bottom below the Zacatenco Early Period deposits in Trench D at 8.60 m. and the top of the bed at 12 m. From 12 m. to 13 m. the sherds of the early Middle Period showed a yellowish coating and were rotten in texture, as if alternately dried and wetted by the falling and rising of shoals by a lake shore as the dry season waxed or waned. From 13 m. to 14 m. in Trench D the débris was redeposited from sources further uphill of the full Middle Period (Map V; this volume, part I, Map III).

In Trench E, South Extension, at Zacatenco sherds were found which had the same rotten appearance as those found in the Trench D deposits of the beginning of the Middle Period and associated with these sherds were figurines showing the transition between the Early and the Middle Periods. The sloping rock bottom of this trench yielded levels from 13.50 m. to 12.70, while the top of the rotted sherd layers occurred at 13.50.

The lack of débris below 13.60 in Trenches B and E at Ticoman coincides very neatly with the 13.50 level of the top of the rotted sherd piles in Trench E, South, at Zacatenco. The difference in level between the 13.60 m. of rotted sherds of Trench E, South, and the 12 m. to 13 of Trench D in the Zacatenco trenches may be caused by the gradual rise

of the lake over open faces of rubbish. The masses of dry material above both deposits are composed of débris that has been rapidly eroded and washed so that the accumulation must have been made en masse.

The significance of the possible flooding of the Valley is great when one takes into account the displacements of people which would ensue and the possibility as at Zacatenco of the fusion of two groups and the amalgamation of their material cultures. Hence, the data adduced by the comparison of occupation zones at Ticoman and Zacatenco must be corroborated. The writer proposes, therefore, in his next field season to take levels at the Middle Zacatenco sites of Copilco, San Juanico, and El Arbolillo, and the Late Zacatenco and Ticoman site of Cuicuilco, to prove or disprove the rise of water in the Valley at the beginning of the Zacatenco Middle Period and the presence of this lake throughout the occupation of Ticoman. The effects of the lava flow of the Pedregal upon this lake must also have had great significance for the populations living in the Valley at that time.

The probabilities are then that the lake was high, at the level of Aztec and Conquest times, when the Ticomanos took up residence on their peninsula. Perhaps because from previous experience they wished to live out of the flood range or perhaps because the warm dry surface of the rock appealed to them as a good foundation for houses, they chose the upper slopes of the hill for dwelling. A constant factor operative in their choice must have been the element of defense. For if, as the evidence of the objects found seems to indicate, they were newcomers with a material culture out of the tradition of those previously inhabiting the Valley, they must have received some rough handling before reaching this haven.

As their débris spread below them, as their population multiplied, as perhaps the level of the lake remained constant, they began to move out over the lower slopes of the hill. Constant efforts were made to keep level ground for house foundations and doubtless many walls were built to hold back sufficient earth to grow produce.

By the Ticoman Intermediate Period, masses of rubbish began to accumulate on the shores of the lake and these were utilized as dwelling places. At the same time, the disposal of the dead, which at first must have entailed a more or less arduous search for ground deep enough for permanent inhumation, became easier as piles of débris had formed in close proximity to the dwellings. Possibly as the labor of burial lessened, respect for the dead became weaker, so that if a skeleton lay in

the way when a new grave was opened, its bones were removed and reburied with the soil covering the fresh interment (Maps I–II).

In the Late Ticoman period the population seemed to be spread over the whole southeastern exposure of the hill, but the forces of erosion have removed many traces of this settlement. Yet the high ground of the Early occupation and the shore deposits of the Intermediate are both covered with remains of the Late Period. Eventually Ticoman was abandoned and no trace remains of the cause, or of subsequent reoccupations, save a sherd and a figurine body of the Teotihuacan period and the cornfields of modern times.

III
ARCHÆOLOGICAL COMPOSITION OF TICOMAN

The little clay figures of Ticoman had the same value as the Zacatenco figurines for indicating chronology. Consequently, in the segregation of masses of pottery for statistical treatment, the character of the typology of figurines in a given trench governed largely the zones from which the potsherds were taken. But, lest the personal equation select the material unduly, we made true stratigraphical cuts in the deep trenches. When we had studied some fifty-two groups of potsherds from different sections of a trench and compared our results with figurines of the same areas, it became evident that we were dealing with an autochthonous evolution. In other words, the development of the material culture was self-contained and was subject neither to the amalgamation of foreign with indigenous elements, like the evolution of the Middle from the Early Period of Zacatenco, nor to the replacement of one culture by another like supplanting of the Middle Period of Zacatenco by the Late Period. While each class and style of object went through change in the course of its history at Ticoman, there was really no simultaneous shift such as one would expect were fusions or dispersals of peoples involved. Hence in discussing the archæological composition of Ticoman each class of object is best presented by a full discussion of its entire history, and at the close of such a description of all the finds, by a table showing what objects and styles best define the Early, Intermediate, and Late Periods at Ticoman. Since no ethnic factors seem to be involved, there would be no gain and much repetitious confusion in describing the finds period by period.

Material was much more important from some zones than from others, as the preceding discussion of the physical composition of Ticoman very clearly shows, since naturally a place torn up frequently by burials or formed by the redeposition of débris would give a distorted history in comparison to one where the débris had accreted in a regular manner, or where a wall had protected and stabilized a mound of refuse. Accordingly, as the basis for our statistical studies, we selected twenty-five areas as yielding relatively sure material and compared them with the top three cuts of Trench D at Zacatenco which bore Late Zacatenco-Early Ticoman material. For convenience in description during the course of statistical work, each mass of material received a letter for the trench and numbers for the cut. A list is given below of the cuts selected as chronologically important and of the reference numbers which head he frequency graphs.

Early Period

Cut I Trench D Zacatenco = 1 Z
Cut II Trench D Zacatenco = 2 Z
Cut III Trench D Zacatenco = 3 Z
Below Floor Wall Digging, East and South Extensions = BF
Trench F = F
Extension behind Walls C-E Trench A = 7 A
Extension behind Wall F Trench A = 8 A
Digging before Wall C-sub, Trench C, first and second selections = 13–14 C

Intermediate Period

Cut III First Excavation Trench B = 19 B (Note: This is the earliest B system deposit and is doubtless on the border of the Early and the Intermediate Periods.)
Cut III Second Excavation Trench B = 16 B
Cut III Trench E = E III
Cut II Trench E = E II
Cut II Second Excavation Trench B, three selections = 9, 10, 15 B.
Sector walled by east-west revetment at north of Cut I Second Excavation Trench B, two selections = 3–5 B
Cut II First Excavation Trench B = 6 B

Late Period

Cut I Trench E = E I
Note: Much wash
Sector walled by north-south revetment across B system, Cut I Second Excavation Trench B, three selections
First half = 8 B
Middle = 13 B
Last half = 14 B
Note: The débris in this sector must be earlier than in the succeeding selections, for the Northwest Ramus overlaps this refuse and the débris against the north-south revetment must be later than that behind it. Cf. also Fig. 6.
Northwest Ramus Trench B last half two selections = 1–17 B
Northwest Ramus Trench B middle = 18 B
Northwest Ramus Trench B first half = 7 B
Cut I First Excavation Trench B = 2 B
Cut I Second Excavation Trench B in front of north-south revetment = 11 B
Trench C, Late débris in front of Wall C = 7 C
Trench C, Cut I = 11 C
This list is repeated in the introduction to Section V with references added to the figures of Map VI which show the cross-sections of the various trenches.

The sequences in which these trenches have been placed will become more apparent chronologically when the figurines have been described and their frequencies discussed. Since the control of digging was effected through examination of these examples of sculpture in clay, a consideration of them is necessary before passing to the analysis of the pottery, clay objects, and implements of bone and stone.

Figurines

Five main groups of figurines occur at Ticoman, which are designated under the Hay-Vaillant classification as Types E, G, I, L, and H. To facilitate precise definition these have been subdivided into smaller groups. When we have examined them in the order of their appearance, beginning with the earliest, we shall also consider, each in turn, a number of odd types that we found.

Type E (Pls. LV–LVI, LXVI)

Type E, the standard early type, is characterized by an unslipped surface and the formation of the features and position by the application of fillets of clay to the larger elements forming the head and trunk. While details of the face and of adornment were often picked out in red ochrous paint after firing, the body received no such attention. The majority of the figurines were female with the sex indicated by incision on the original modeling of the body or by the application of small perforated discs of clay. The erect and the seated posture were commonly shown. Of all the styles of figurine found at Ticoman this E group has its roots most obviously in the Type C plastic of the Zacatenco Early Period, although transitional stages are completely lacking. Four subdivisions arise from a morphological consideration of the E group, Ei, Eii, Eiii and Eiv (Pls. LV, LVI, LXVI; this volume, Part I, Pl. XXVI).

Ei most closely approaches the C group in its possession of a relatively well modeled body and a prognathic face with filleted features like the nose, mouth, earplugs, and occasionally eyes. The general eye form is the indication of the pupil in its socket by two strokes increasing in depth away from their center. Quite rarely, an eyebrow is added by making a curved incision. The headdress of which the most common form is a sort of fleur-de-lis is depicted by filleting strips to the flattened forehead and incising further embellishment. Type Ei is far evolved from the C group in that in addition to the eye and headdress form, the backs of the heads are flat, the sizes of the figures small, and the relation between the features and the cheek planes normal (Pl. LV, top and middle rows).

Type Eii is a simplification of Ei since the face of the head element is pinched outward and a wedge-shaped cut is made to form the mouth. Single incisions indicate the eyes. These figurines are very small with their anatomical details much conventionalized and the headdress fillets are in general more delicately portrayed. Details of sex are less

emphasized than in Type Ei. As a great rarity one male was recovered. The trefoil or fleur-de-lis headdress is characteristic of both Ei and Eii (Pl. LVI).

Type Eiii likewise is an evolution from Ei, but one of complication instead of simplification like Eii. The body form appears only in a transitional example from the Ei group, but the head form is characterized by the flatness of the face and the small proportion the nose and mouth fillets occupy in relation to the rest of the features. The eye, delineated by two gouges making an obtuse angle and surmounted by an incised eyebrow, occupies a large part of the face plane and is a diagnostic for this type. The size of the Eiii heads is sometimes quite large and in one example the surface was polished. In contrast to Types Ei and Eii orthognathism is the rule (Pl. LV, bottom row).

Eiv is a scantly represented group whose existence at Ticoman may be attributed to trade or even to a sculptor's whim. Three examples occurred characterized by a prognathism so extreme that it was almost animal. The body is formed by two thick legs united just below the head so that although the arms may be filleted on, there is no room to present the details of the torso. The head of one was enlarged and hollowed out to serve as the bowl of a whistle[1] (Pl. LXVI, top row Nos. 1–3).

The percentage of occurrence of the E group in respect to the total of E, G, I, L, and H figurines in the localities enumerated above as chronologically significant, is given in the following chart (Fig. 1).

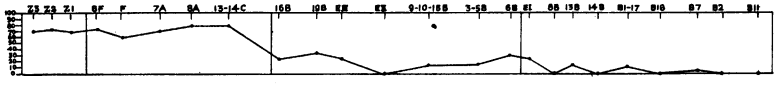

Fig. 1. Percentage of Frequency of Figurines Type E.

The Late Period at Zacatenco (Z1, Z2, Z3) shows a high frequency of over 70 per cent of the E group which is paralleled by the Below Floor Digging (BF), Trench F (F), the upper reaches of Trench A (7–8 A), and the southwest projection of Trench C in front of Wall C-sub (13–14C). The lowest cuts of Trench B (16–19 B) and Trench E (EIII) show a pronounced drop in frequency. The second cut of the first excavation in the B system (6 B) shows a rise in proportion over the second cut of the second excavation (9–10–15 B) probably because the

[1]Similar specimens from Ticoman are shown in the Boas Album (Boas, 1911–1912), Pl. 52, No. 12, Pl. 53, No. 17. Type Eiv is also found at Cuicuilco.

first Cut II extends lower than the second. The zone of débris sealed off by the east-west wall in the B Second Excavation, Cut I, (3–5 B), being anterior to the débris south of it (8–13–14 B), shows a percentage approaching the frequency of Type E in the underlying Cut II (9–10–15 B). The Northwest Ramus of Trench B (1–17–18–7 B) shows a relative absence of E figurines, as do the top cut of Trench B, First Excavation (2 B) and the digging before the north-south revetment in Trench B, Second Excavation (11 B). That the top cut of Trench E (E I) yields more E figurines than the cut below it (E II) is doubtless caused by the redeposit of débris from zones above it and to some extent by burial; and the presence of E figurines in the top cuts of Trench B, Second Excavation (13 B) is also due to this wash.

Thus specimens of the E group are virtually absent in débris beds of proven lateness, and the greater proportion of those types found in the upper stretches of the hill, in contrast to the low cuts of the B and E trenches, is attributable probably to the occupation of the shores of the lake some time after the original settling of Ticoman had taken place.

Although Types Ei and Eii are equally common to both, Eiii is scarce at Ticoman and absent from Zacatenco. Type Eii, however, seems to have wider distribution throughout the Valley in that it occurs at Azcapotzalco, Tetelpan, Papalotla, Coatepec, and Jalapazco in Puebla,[1] where, according to Seler's photographs Ei has not been observed or occurs infrequently. Moreover, this seemingly purposeless subdivision of a typology already burdensome has some further justification when we realize that of all the figurine types from the early cultures, Eii most nearly approaches the heads selected by Doctor Gamio as transitional to the types found at San Juan Teotihuacan,[2] and to the early types found by Tozzer at Coyotlatelco.[3]

TYPE G (Pls. LVII–LVIII)

Type G comprises a group of small figurines which are most elusive to classify. Their origins seem to lie in the E group, more particularly with Eii, but some transitions may be traced to Ei, a condition that is very natural since both the latter types seem to have been made at the same time. On the whole, the best blanket definition of Type G is that these figurines are characterized by small size, variety of features and posture, and, in many cases, polished surfaces. For convenience in

[1]Seler, 1915, Tafel XXII–2.
[2]Gamio, 1922, Tomo I, vol. I, Lamina 89, a–b′; Lamina 91, a–d.
[3]Tozzer, 1921, Pl. 9, Fig. e–f.

description, two sub-groups may be formed on the basis of the head form, Gi, figures with human heads, Gii, figures with grotesque heads.

Type Gi follows the usual method of the early cultures in the Valley of Mexico by which a figure is formed by adding to the head and body elements smaller bits of clay to represent limbs, features, and ornament. The bodies on the whole received little attention. The legs are usually shown extended and are characterized by bulbous thighs and projecting buttocks often separated by a deep groove. The arms when pendent are short and stubby, but often they are filleted to the body or raised against the head. The faces are pinched out like a bird's, but the mouth and eyes are often clay fillets applied to the head mass and incised (Pl. LVII). Some transitional forms from the E group show a natural proportion between the features and the face planes (Pl. LVII, bottom row, Nos. 1–3), but the majority of specimens have their faces crowded by their features, a condition resulting from the small size of the objects. One figure was made with the face projecting out from the forehead and neck, a variation which gave the specimen a most peculiar appearance (Pl. LXXIX, Fig. a).

Many specimens are polished and the features thereby lose even more details. There is a tendency, in this polishing of the figure, toward the skill displayed in the H groups, but the traditional habits of filleting seem to linger, thus impeding a skilful portrayal of the human body. The earlier specimens found in association with E material are generally unpolished and the transitional specimens are all unpolished.

Type Gii comprises the grotesque figurines of the G group. This distinction is without chronological significance, but it may serve in later work as an ethnological connection, since we recovered relatively few at Zacatenco. The chief diagnostics are the occasional polishing of the body, and the heads which are probably prognathic developments out of Gi involving the loss of human appearance, or possibly conscious attempts to portray the head of an animal, most likely that of the tusa or pocket gopher. The bodies are generally human, and are shown in erect or seated postures, but animal bodies are known and also such variations as the portrayal of childbirth or the hollow bell-shaped skirt that may be the bowl of a whistle. Other eccentric forms comprise figures with enormous breasts and a specimen with two heads. The recurrence of conscious attempts to show a gopher head seems to indicate the presence of a divinity defined by the possession of such an attribute. Partial contemporaneity with Type E is shown by the rodent-headed figure holding an Eii baby in its arms and this double

figure makes it very evident that a distinction between the human and animal forms existed in the minds of the sculptors so that the Gii grotesques were not totally the result of ineptitude (Pl. LVII).

The accompanying graph (Fig. 2) presents the percentage of Type G in relation to the total number of E, G, I, L, and H types found in the selected excavated zones.

Comparison of the curves in the graph shows a mounting frequency toward the middle of the series in contrast to the peak of the E group at the left hand of the first graph (Fig. 1). Zacatenco shows Type G frequencies comparable with the bottom cut of the second excavation of Trench B (16 B) and the higher per cents are to be found in the low cuts of the E system (E II, E III) and Cut III of the first Trench B (19 B), in the second cuts of the first and the second B excavations (6 B and 9–10–15 B), and in the walled-off space at the north of Cut I, Trench B, Second Excavation (3–5 B). Immediately behind the north-south

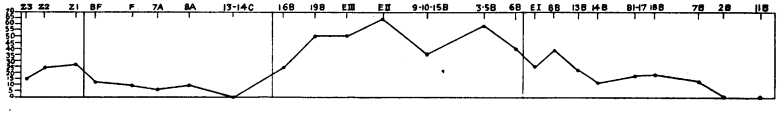

Fig. 2. Percentage of Frequency of Figurines Type G.

wall in Trench B, Second Excavation Cut I (8 B), we find a high occurrence of G, but in the Northwest Ramus (1–17–18–7 B) there is a successive falling off until in the top cuts of Trench B in front of the north-south revetment the type disappears. The rarity of Type G in the early deposits found near the low walls of the upper reaches of A and C (7 A, 8 A, 13–14 C) and Trench F and under the surface of the wall digging (F and B F) throws the high percentages of G into even stronger relief as an Intermediate Period trait.

In a theoretical evolution of an art, elaboration and variety may be considered likely to succeed the conventionalization which first results from the mastery of a form of plastic representation. This condition is fulfilled by the experiments carried out in the Type G sculpture in contrast to the relative rigidity of Type E. Not only was a new technique, like polishing the figure, introduced, but also new positions and new representations, like the figures of Gi with their hands to their heads and the gopher-headed figurines of Gii. Yet it is possible to find in Type Eii the origin of the Gi group and there is nothing in Gi which cannot be elaborated into Gii. The G style is found all over the Valley and Gi seated torsos occur at Cuicuilco, the lava-circled pyramid at Tlalpam,

and the elaborate group of pyramids near Cristobal Tecatepec in Puebla. (This volume, Part I, Pl. XXVII).

TYPE I (Pl. LIX)

Type I is a well-made and interesting style with a development which partakes little of the evolutionary history of the E and G groups. It is best considered in three divisions, Ii, Iii, and Iiii, which are based upon factors of time and morphology. In general, it may be called an Intermediate Period time-bearer, although its occurrence ranges from the Early to the Intermediate Periods. Its numbers are not large in proportion to the other styles, but its form is distinct and its distribution relatively wide throughout the Valley (Pl. LIX; this volume Part I, Pl. XXX).

Type Ii is characterized by the use of a shiny brown slip, heads that are relatively square, with their thickness diminishing toward the top, and features formed by fillets of clay grooved twice for the eye and once or twice for the mouth. A naturalistic type without turbans and a conventionalized one with headdress are found in different sections. Having recovered only one complete specimen, it is difficult to judge of the shape of the body, but the modeling of the torso is, on the whole, accurate and good, males and females being portrayed. The physical traits and techniques of Type Ii and the G groups seem to have been combined to form Types Hi and Hii (Pl. LIX top row Nos. 4–6, middle row Nos. 1–5; Pls. LVII–LVIII, LXI). Yet a more or less contemporaneous evolution took place into Type L (Pl. LX).

Type Iii is relatively rare. The size of the heads is large and the plastic, owing to the greater and consequently freer surfaces for work, more massive. The bodies seem to have been large and relatively crude, so that they are indistinguishable from the torsos and limbs of Types L and Hiii. Moreover, this Type Iii seems to evolve into Hiii. Here are shown the complications involved in our classification of figurines, since in this case chronology necessitates a finer distinction than would be warranted on broadly morphological grounds. On the other hand, in the H and G groups there are striking varieties of form in groups that are contemporaneous. As we have pointed out, however, chronological considerations have been deemed more important than morphological (Pl. LIX bottom row Nos. 2–5, Pl. LX, Pl. LXIII).

Type Iiii is slipped in white instead of being brown and polished like Ii and Iii. The size is variable, but is generally small. Although the features were undoubtedly built up by the application of small fillets

of clay the slipping has obscured the details of the process. The upper and lower lids of the eyes are carefully indicated and the mouth is hollowed out, with a small block remaining to show the upper teeth. Since Type Iiii is found almost exclusively under Early Period conditions, this laboriously executed style might be grouped under another letter, but wherever possible we have striven to consolidate. The shape of the mouth of Iiii, particularly shown by bottom row No. 1 on Pl. LIX, recalls very strongly the mouths on the "tiger mask" and human stone carvings from southern and southeastern Mexico, both of which occur presumably by trade in the Valley[1] (Pl. LIX, top row Nos. 1–3, bottom row No. 1).

The accompanying graph (Fig. 3) indicates the frequency of occurrence of the I group throughout the occupation of Ticoman. The frequencies exhibit a very irregular curve. The I group is absent from the top three cuts of Trench D at Zacatenco, but two heads of Type Ii were found in another late pocket. The Ticoman

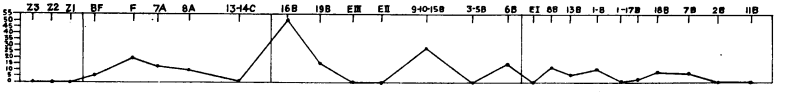

Fig. 3. Percentage of Frequency of Figurines Type I.

trenches characterized by the high percentage of Type E specimens (BF, F, 7 A, 8 A, 13–14 C) show a low frequency that becomes very significant when one realizes that Sub-type Iiii occurred between the terraces II and III of the East Extension of the wall digging, twice in the upper reaches of Trench A, in an early deposit in Trench C, and waterworn in Trench B, First Excavation, Cut III, while one example each of Type Ii and Iii were found in Trench F. Hence this sub-type is established as an Early Period diagnostic. Sub-type Ii was most commonly found in the undisturbed strata below the burial fields in Trench C, a sector not utilized in the statistical studies owing to the absence of proportionate representation from other figurine groups, but presumably Early-Intermediate. Yet this particular lot resembles the Zacatenco specimens more closely than the types found in the second cuts of the B system (9–10–15–6 B). The massive Iii heads are sporadic and rare, so that, although morphologically interesting for the transition from Type I to Hiii, they are statistically unimportant. The fairly constant percentage of I types throughout the trench sectors yielding few E types

[1]Saville, 1929, Figs. 83–95; Gamio, 1922, Tomo I, Vol. I, Laminas 97–99.

(8–13–14 B and 1–7–17–18 B) is explained by our efforts to identify bodies so that a number of polished torsos that seemed atypical as H specimens were counted as Type I. The fact that no I type heads occurred in these top cuts of the B system militates strongly against this diagnosis. Hence in summing up the data, we find from the foregoing discussion, that Type I, on the basis of its heads, is an Early and Intermediate style, with Iiii being quite surely Early, and Ii bridging over the transition from the Early to the Intermediate Period. It is conceivable, however, that the H type head was evolved before the H type body and the condition resulted of I type bodies retained after the heads had been discarded for more sophisticated treatment.

TYPE L (Pl. LX)

Another manifestation of the variety found in polished brown slipped figurines is Type L. This class is readily recognizable by the massive heads, features indicated by filleting and the gross bodies.

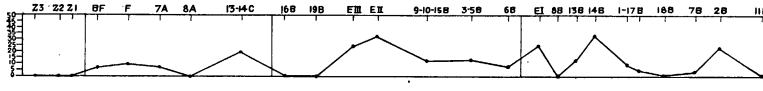

Fig. 4. Percentage of Frequency of Figurines Type L.

This class seems to be exclusively female. Although the heads of the larger examples are quite distinct, much confusion is caused in dating Type L torsos by the large brown-slipped bodies of the Hiii sub-type (Pl. LXIII). Type L is closely related to the I group and had we known of the contemporaneity of both styles when we made our original classification in Part I of this volume we should have included it as a sub-type of I. Yet the absorption of a designated group into another class with its letter being used to indicate yet another style would create an uncanny confusion. Hence we must retain the letter L to designate this group (Pl. LX; this volume, Part I, Pl. XXXI).

A glance at the preceding graph (Fig. 4) gives one the impression of a distribution parallel to that of Types G and I shown in the graphs, Figs. 2–3. Although absent from the Zacatenco cuts (Z 1, Z 2, Z 3), a specimen was recovered from a late deposit in another sector of that site. Sporadic occurrences give a low per cent during the Early Period at Ticoman and the first 20 per cent peak in the deposits before the early walls in Trench C (13–14 C) is due to the small number of any figurines recovered in that area, a condition which probably explains the absence of Type L from

the bottom cuts of Trench B (16–19 B). A fairly regular curve is maintained throughout the Intermediate Period deposits in Trenches E and B. The sudden rise found behind the north-south revetment of Cut I, Trench B, Second Excavation (13–14 B) is paralleled by the presence of many G figurines (cf. Fig. 2) and may have arisen from transitional factors involving retention of body forms, while the heads changed from the L to the Hiii type. The top cut of Trench B, First Excavation shows a high percentage owing to the presence of two specimens, a transitional form in the débris and a body under the north-south revetment wall. The small quantities involved in Types L and I give a very unbalanced graphic presentation, which transitional factors by no means mitigate. Yet, when Types G, I, and L are combined in Fig. 6, these anomalies will vanish.

This consideration of the morphology of Types G, I, and L has involved a laborious description of what, in last analysis, are transitional features between the E and the H groups and represent an intermediate stage. Yet the variety and range, in time, of these groups and subgroups necessitate an accurate mode for designation, the value of which will be seen in our consideration of the next and latest figurine group, Type H.

TYPE H (Pls. LXI–LXV)

Type H comprises an ideal group of figurines definable by chronological position, by technology, and by morphology. These principal characteristics are occurrence in Late Period deposits, the practice of slipping and painting the figure, modeling rather than filleting the features in all except one sub-type (Hiv), and a finished and settled manner of portraying the human body. The style achieves the ends striven for in the Intermediate Period Types G, L, and I, which drew away from the E group conventions to explore fresh methods of representation and new means of composition. To make analysis more precise and presentation more complete, five sub-types Hi, Hii, Hiii, Hiv, Hv, have been created. The first two might have been included under a single head, but when the Hay–Vaillant classification was published in 1930, in Part I of this volume, there was no secure evidence of contemporaneity (This volume, Part I, Pl. XXVIII).

Type Hi is composed of small figures disposed in erect or seated postures. To the central head and body elements are joined limbs and features by the application of fillets of clay. Occasionally there is no surface treatment other than smoothing but, in general, the brown sur-

face of the base clay is polished, or else a white slip is spread over the whole. The representation by filleting of the eye is abandoned in this style, for we have seen in the G group how the presence of the small particles of clay representing the features hindered the artisan in polishing the surface. The nose and mouth fillets were made larger to withstand the pressure of the burnishing tools. By filleting the arms a greater variety of position was possible, since the body or the head supported the slender clay strips representing those members. Headdress forms on the whole are simple. (Pl. LXI, top row).

The Hii sub-type, which is distinguishable from Hi by the presentation of the eye through a characteristic triangular incision made before slipping and, by a more sophisticated representation of the human figure on the whole, is more commonly slipped in white. The headdress, in many cases seemingly the method of dressing the hair, is often painted red. Hi and Hii are almost exclusively female, although one or two representations of people lying in bed have been recovered (Pl. LXI, middle and bottom rows).

Morphologically, the origins of these two subdivisions of Type H are found most markedly in Type I and less obviously in Type G. The bodies of these groups are distinguishable with difficulty. On Pl. LXII a series of bodies has been drawn together from Groups E, I, G, and Hi-ii which shows the individuality of the basal forms and the diffusion of these traits in transitional examples. Top row Nos. 1–4, 6–7, comprise E group bodies without slips, erect, and with more or less fixed positions of the arms. Top rows Nos. 8–10 and middle row Nos. 1–3 show the slipped bodies and legs with bulbous thighs of Type G. Middle row Nos. 4–9 represent crude bodies, polished and stylized, that we assigned tentatively to Group I, although several examples were found in Late deposits and may have had Type H heads. The bottom row comprises bodies which are almost all of the H group, but certain of these figurines occur in Intermediate Period débris, where H heads do not yet appear (Pl. LXII).

In discussing groups I and L were mentioned the difficulties of distinguishing bodies and even heads from the sub-type Hiii which supplanted them (Frontispiece and Pl. LXIII). Figurines of this group are large and although slipped occasionally in white are more generally burnished, thus retaining the brown of the base clay. Arms are usually filleted to a crude torso and seated or erect positions are common. The features are in more or less anatomical proportion, comprising a massive nose, the fillet composing which is worked

back into the base clay, and eyes which are sometimes incised and sometimes filleted. In the latter case the fillet is apt to be worked back into the base clay or slipped over. Hiii is relatively rare at Ticoman. Although quite closely connected with Hi and Hii, it has affinities with Groups L and I, particularly in respect to the torso, but many examples found here and in other localities link Hiii more closely to Types Hi–ii (Pls. LIX–LXIII; this volume, Part I, Pls. XXVIII–XXXI), and to Type Hiv (Pl. LXIV; this volume, Part I, Pl. XXIX).

Type Hiv is scarcely represented at Ticoman, and is characterized by the archaistic treatment of the features, by filleting, and by the very late circumstances of its occurrence. Eyes, eyebrows, nose, earplugs, mouth, and often the chin are portrayed by separate fillets of clay attached to a very small face. In addition, several fillets are used to delineate the coiffure and its adornment. Details are accentuated sometimes by red paint applied after firing (Pl. LXIV; this volume, Part I, Pl. XXIX).

Type Hiv (Pl. LXIV) most closely connects with Hi-ii by way of Hiii (this volume, Part I, Pls. XXVIII–XXIX). It does not occur at Ticoman except in the débris accumulated against the very late revetment walls, C–E, which were built during the Late Period reoccupations of the high ground in Trenches A and C. The style occurs in the upper layers of Cuicuilco, scatteringly in the Valley, and in the State of Morelos; and it has been found as far north as San Juan del Rio in Queretaro. For purposes of comparison we have included on Pl. LXIV, bottom row Nos. 1–5, figurines found at Chupicuaro, Guanajuato, which seem to have been derived from this type. No. 3 was found underlying Nos. 4 and 5, while the complete specimens Nos. 1 and 2 were found in a grave. It is significant that through Hiv alone the H group connects with later cultures in Mexico. The only other possible plastic link between the Early Cultures and the later civilizations of the Valley is the relation between Type Eii of the Ticoman Early Period and Gamio's *tipo de transicion* (cf. p. 255).

Type Hv, although logically associable with Hi and Hii, was not recognized until the excavations at Ticoman had been commenced (Pl. LXV). It is characterized by massive size, white slip, and triangular eyes incised before slipping. The bodies seem to be always female and the headdress is simple and often painted red. The quantity is small and there can be no question but that this form is a large variation of Types Hi–ii (Pl. LXI). Type Hv occurs very rarely throughout the

Valley. Outside of the Ticoman specimens like those figured on Pl. LXV, only two examples, both from Azcapotzalco, are known to the writer. One is figured in Part I of this volume, Pl. XXXI, bottom row No. 4, and the other is in the Peabody Museum of Harvard University (C–9617).

The following graph (Fig. 5) illustrates the frequencies of the H group at Ticoman.

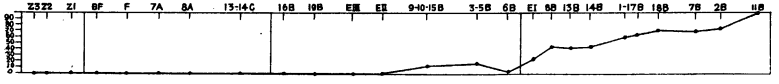

Fig. 5. Percentage of Frequency of Figurines Type H.

A few specimens occur in the second cuts of Trench B, First Excavation (6 B) and Second Excavation (9–10–15 B), and behind the east-west wall in Cut I, Trench B, Second Excavation (3–5 B). The style then predominates with growing intensity in the sector behind the north-south wall of Trench B, Second Excavation, Cut I (8, 13, 14 B), the Northwest Ramus of Trench B (1, 7, 17, 18 B), reaching its peak in Cut I, Trench B, First Excavation (2 B) which lay before the north-south wall. The sector before this wall in Trench B, Second Excavation, yielded two specimens of Hv and more of the other sub-types.

ODD TYPES (Pl. LXVI, Table I)

A number of figurines occur that are too distinct to be included in the five major groups of Ticoman figures, but are too scarce to have any statistical significance. The sub-type Eiv by a stretch of the imagination was included in that large group, but it might well have been designated by another letter. It is, however, quite definitely of the Early Period, owing to its E group association in Trench A (Pl. LXVI, top row, Nos. 1–3).

Type M is a crude and curious plastic style of which we recovered only three examples. The bodies with small filleted breasts and heads are crude. The nose is pinched up from the head and the eyes are indicated by a circle of tiny perforations with a large one in the center. The mouths are shown by incision. Necklaces and, in one case, the umbilicus were represented like the eyes with rows of tiny shallow perforations. Two examples were recovered from the almost sterile soil of the second pit of Trench E under such circumstances that an early Intermediate Period date may be adduced, and the other comes from Trench F, which, with its 60 per cent E and 40 per cent G–I–L figurine

yield, ought to fall at the close of the Early Period. Two other examples are in the Peabody Museum of Harvard University (Pl. LXVI, top row Nos. 4–6).

A pair of specimens which cannot be included in any other category form Type N. Two long strips of clay are joined together to make the legs and body, two other fillets act as arms, and another indicates the male sex. The strips which compose the body and legs are pinched together and a cusp is drawn outward to make the face. Two small fillets are added for eyes. The general effect is crude and grotesque. The specimens occurred at the top of the Early deposits in Trenches A and C but very close to Type H figurines, a condition which places them probably as Late. In the collections accessible to the writer, no parallels occur, unless at Cuicuilco (Pl. LXVI, bottom row Nos. 1, 2).

Type J was represented by a body found in Trench C under early conditions beneath the burial zone. A complete figure and a head were purchased at the site while a third much waterworn head was found near the surface at Zacatenco. The figurines are characterized by a smooth unmodeled torso and a head with high projecting nose and low receding forehead. The two bodies found by us are seated with the legs drawn up before them. Tall figurines, erect, with long legs, were found in the lowest level at Cuicuilco, and their heads were roughly classifiable in the Type J category. In discussing the Zacatenco head (this volume, Part I, Pl. XVII) there seemed to be some connection through Type J with western Mexico. Judgment must be deferred, however, until more data present themselves. (See Pl. LXVI, bottom row Nos. 3–6; this volume, Part I, Pl. XVII, top row).

Two curious bodies in seated posture are unattributable to a plastic style, even though the circumstances of their finding suggests an early date. (Pl. LXVI, bottom row Nos. 7–8). Another specimen makes a doubtful connection with either the E or the Hiv groups (Pl. LXVI, top row No. 7). Again we must await further data.

This apparently needless complication of giving separate classification letters to odd types is defensible, in view of possibility of trade. Were we not to distinguish these types from the mass of standard figurine styles, it would be difficult on discovering their source, to describe them as emanations of a style foreign to Ticoman. In forming Type L in the original Hay–Vaillant classification, one specimen of the style now designated as Hv was included because it was unique (cf. this volume, Part I, Pl. XXXI, bottom row No. 4), but the work at Ticoman disclosed other specimens which were later in date and clearly in the Type H

category (Pl. LXV). Hence the necessity of designating new styles arises, even though their examples be rare, to prevent the confusion attendant to changing an original nomenclature.

A fragment of a Teotihuacan style of figurine was found in the East Extension of the Wall Digging above the floor (Pl. LXXX, middle row No. 2). Its presence in the digging raises interesting points for speculation, since it might have been contemporaneous with the débris in which it was found. On the other hand, someone may have dropped it on the hill in recent times and during the cultivation of the fields there, it may have become mixed in with the Ticoman remains. We shall discuss the point more fully in the section on general conclusions.

Other curious fragments recovered were some unfired wads of clay that had a roughly human form (Pl. LXXXI, fourth row No. 8). These did not show traces of filleting nor of the welding together of separate elements of clay, so that the most justifiable supposition is that they were not unfired figurines in the process of manufacture, but the efforts of children or the result of someone's idle toying with a bit of clay.

EARLY AND MIDDLE ZACATENCO STYLES (Pl. LXVII)

A number of figurines were found which belong to the Early and Middle Periods at Zacatenco and were therefore previous to the beginning of the Ticoman occupation which corresponds to Late Zacatenco. In general, these Early styles were found in zones yielding evidence of the Early Period at Ticoman, but there were no traces of pottery cœval with them that would indicate an actual occupation of the site during Early and Middle Zacatenco times.

These specimens are shown on Pl. LXVII and cover such Early Zacatenco styles as Ci (this volume, Part I, Pls. X–XI), Cii (this volume, Part I, Pl. XII), Ciii (this volume, Part I, Pl. XIII), Civ (this volume, Part I, Pl. XIV), Cv (this volume, Part I, Pl. XV). An early style of Type F was recovered (this volume, Part I, Pl. XXV, top row Nos. 1–3) and also a specimen attributable to the fully developed F group of Middle Zacatenco (this volume, Part I, Pl. XXV). An example each of the standard Middle Zacatenco groups A and B came out behind Wall D in the South Extension of the Wall Digging but, as in all the other cases, there were no contemporaneous potsherds (this volume, Part I, Pls. XXI–XXIII).

Since the proportion of figurines to potsherds is almost that of one to a thousand, had the Ticoman site been occupied in Early or Middle Zacatenco, we should have recovered sherds accompanying the seven-

teen figurines from these early periods. No such evidence was found, however. Hence, the possibility of occupation previous to the Late Zacatenco–Early Ticoman period may be ruled out. El Arbolillo, a site yielding Early Middle Zacatenco material, is less than a kilometer from Ticoman and lies among the fields that the Ticomanos must have cultivated. It would be very natural for these people to pick up heads from former occupations and keep them for luck or as curiosities, even as the modern Mexican farmer does today. The fact that a Cv head accompanied skeleton No. 53 shows that in some cases the heads were kept as lucky pieces, for this is the only case among the seventy-nine burials uncovered at Zacatenco and Ticoman where a figurine was buried with the dead. Yet most of these early heads must have been retained as knickknacks for a while and then turned out into the rubbish. As to the Early and Middle Zacatenco heads occurring generally in Early Ticoman rubbish, one may advance the notion that the Ticomanos found no novelty after a time in encountering heads in the fields and ceased to pick them up. Naturally one does not assume that only the adults collected the little heads, for children are ever zealous in hoarding things that interest them (Pl. LXVII).

OTHER SCULPTURE IN CLAY (Pl. LXVIII)

The art of sculpturing clay did not confine itself solely to figurines, typologically definable, for we find human and animal forms depicted as embellishments to pots, on legs of vessels, as whistles, and as incensarios. These manifestations we shall consider under the above categories. A few examples were recovered of animal sculpture, like dogs and a deer that were made apparently by whim unsubjected to stylistic laws (Pl. LXVIII, top row Nos. 2–3, bottom row Nos. 1–2). Aside from two legs of vessels that harmonize with the plastic of Type Hii (Pl. LXVIII, bottom row Nos. 3–4), the embellishment of vessels was carried out with freedom from convention and the monkeys (Pl. LXVIII, top row Nos. 4–5) and the turtle (Pl. LXVIII, top row No. 6) illustrate this freedom. The addition to pots of animal heads is perhaps more of a Late than Early Ticoman tendency, but the practice is so generalized throughout the Ticoman occupation that it has no chronological significance.

CONCLUSIONS (Pls. LV–LXVIII)

The description of figurine types in the foregoing pages makes it evident that the history and the ethnology of Ticoman are epitomized by Types E, G, I, L, and H, but the odd and early figurines do not

affect the evolution of sculpture at Ticoman. To produce an impression of a tribal group the normal must be stressed, not the abnormal. Consequently, in summing up the major groups we find that an era of plastic simplicity of convention, shown by the E group, preceded a period of experiment and change, as attested by the rise of Types G, I, and L. In turn, in the Late Period of Ticoman this exuberance settled into the satisfactory and adequate plastic representation expressed by the H group. Fig. 6 illustrates this development very strikingly, for we have treated Types G–I–L as a single group that their numerical totals might be comparable to those of the large E and H types.

The three periods display themselves very clearly. Type E predominates at Zacatenco in its Late Period (Z 1–3), which corresponds very closely to the Below Floor Wall Digging (B–F), Trench F (F), the latter part of Trench A (7–8 A) and before Wall C–sub at the end of Trench C (13–14 C). Then the proportion changes and

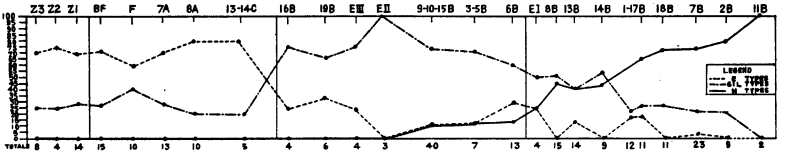

Fig. 6. Percentage of Frequency of Early, Intermediate, and Late Figurines contrasted.

Types G, I, and L are more common than Type E. This aspect is chiefly visible in the lower cuts of the B system, namely the lowest cuts (16, 19 B), the second cuts (9–10–15 B), and the refuse walled by an east-west revetment at the north of the second Cut I (3–5 B). Comparable with these frequencies are proportions found in the lower cuts of Trench E, although the figurines were few and the soil redeposited. But in the second cuts of Trench B (9–10–15 B, 6 B) we find entering in a low, relatively constant proportion of H types. The Late Period H types and the Middle G, I, and L are nearly equal in the sector of Second Trench B, Cut I, that is preserved behind the revetment running from south to north across the entire Trench B system. Type E figurines are scattering and attributable to wash. The full Late Period exists, however, in the Northwest Ramus (1–17, 18, 7 B) where the quantity of H types is much greater than G–I–L, and also in the accumulations against the north-south revetment in the B system. The latter half of the Northwest Ramus (1–17 B) yields a relatively high per cent of Type E for

there is a likelihood of some redeposition (cf. p. 226) over an early refuse bed.

Thus, the physical composition of the trenches and the evolution of the figurines agree very well and when we consider in the following pages the pottery of Ticoman, we shall be able to judge the chronological significance of a ware by its reflection of these time conditions.

The period in which Types G, I, L occurs most frequently is overlapped by Types E and H as Fig. 6 attests. Consequently, we did not feel ourselves justified in calling this intermediate stage in Ticoman history by so strong a title as Middle Period. The pottery and other finds showed a gradual drift from Early to Late with the transitional stages occurring in these very cuts in which Types G, I, and L predominate. Therefore, to give the impression of vagueness and, also perhaps of shortness of time, we have called this episode in the history of Ticoman the Intermediate Period to distinguish it from the well-defined cultural horizons of Early and Middle Zacatenco, Late Zacatenco-Early Ticoman, and Late Ticoman. To guide the eye of the reader of these pages, vertical lines have been drawn in the preceding and succeeding graphs to mark off in order, Late Zacatenco, Early, Intermediate, and Late Ticoman.

Pottery

The pottery of Ticoman does not lend itself to clear-cut chronological definition. Wares and styles were taken up for a time and then almost abandoned only to be resuscitated again later. Yet certain wares can be associated with definite periods (Table II).

On the technical side, it is difficult to assign every piece to a distinct group, since colors are subject to change according to the nature of the firing and compositions vary in respect to the proficiency in clay mixture shown by the potters. The pottery falls into two main divisions, vessels for the storage and cooking of food and drink, and bowls for their service. It is also divisible in wares, determined by the color and texture of the slip and the composition of the base clay. There is one ware, Bay, which comprises the ollas and coarse vessels for the storage of food. The remaining five wares for the service of food with their subdivisions consist of:—

I. Red-on-yellow Wares
   a. Red-on-Yellow incised
   b. Lake-on-Yellow
   c. Polished Red-on-Yellow cajetes
   d. Red-on-Yellow stick-polished

II. Polychrome Wares
   a. Polychrome bowls
   b. Polychrome and polished red-on-yellow ollas
   c. Polished red-on-white
III. Red Wares
   a. Polished red
   b. White-on-polished red
   c. Dull red
IV. Black-brown Wares
V. White-dun Wares
   a. White
   b. Dun
   c. Polished white
   d. White, black interior
   e. Granular white

There are also a number of extraneous wares attributable to trade which will be considered seriatim under the heading, trade wares.

BAY WARE (Pl. LXIX)

The storage vessels are wide-mouthed globular pots with rounded bottoms. The clay is coarse and bears a heavy sand tempering. It is not possible to state exactly how the vessels were built up but it is probable that some variation of the coiling method was used, since vessels of such large size could not be moulded very well out of a solid lump of clay. There seem to have been three major elements in the form; the base or curved lower half, the shoulder, which seems also to have been formed as a unit, and the neck. A slip which varied from a gray-brown or dun color to a brown-red like the bay of the Zacatenco Early and Middle Periods was run over the entire outside of the body and the inner portion of the neck. The outer portion of the neck was slipped when it was clearly visible, but when it sloped sharply outward so that only the inner portion was visible from above, as in flare necks, then the outer surface was merely roughly smoothed.

Handles occurred occasionally throughout all periods at Ticoman. They were attached generally to the neck and shoulder of the olla without sinking the ends of the clay strip into the wall or neck of the vessel. These handles were often modeled and incised into a rude representation of a hand (Pl. LXIX, Figs. x–b′, d′). Handles were rarely attached to the body proper of the olla (Pl. LXIX, Fig. c′).

The olla fragments formed a large proportion of the potsherds and constituted the major ceramic output. Since variations in the neck shape alone gave indications as to time, body fragments are not included

in the following graphs. These variations in form are most difficult to define, since the shapes range gradually from a simple concave constriction to a wide outward flare. However, in analyzing the differences that exist between olla rims from different periods, it is possible to select out five shapes around which the variations tend to group themselves. These are:—

1. Simple necks which are simple concave curves (Pl. LXIX, Figs. a–d, a′).
2. Roll lips which have the lip of a simple neck form thickened into a heavy roll (Pl. LXIX, Figs. e–h).
3. Flat lips, where the chord of a simple neck form is nearly vertical and the lip is flattened on top (Pl. LXIX, Figs. i–l, x–z, d′, g′).
4. Straight necks, which are tall and have a very slight concavity (Pl. LXIX, Figs. m–q).
5. Flare lips, which are without concavity and make an angle of 45 degrees with the chord of the body of the vessel (Pl. LXIX, Figs. s–w, b′, h′).

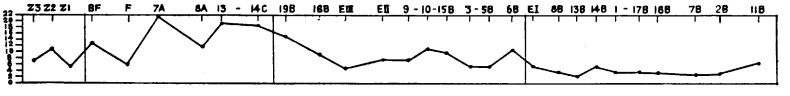

Fig. 7. Percentage of Frequency of Simple Necks of Bay Ollas.

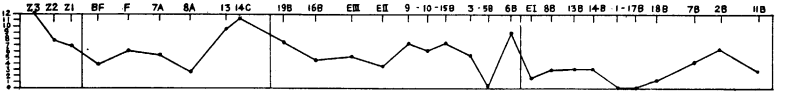

Fig. 8. Percentage of Frequency of Roll Lips of Bay Ollas.

Simple necks are formed by curving the rim outward and making a deep concavity, the chord of which is nearly vertical. Both the inside and the outside are slipped and most nearly of all the Ticoman olla shades the color approaches the bay of Early and Middle Zacatenco. It seems to be a time-bearer for the Early Period at Ticoman (cf. Fig. 7; Pl. LXIX, Figs. a–d, a′).

These simple rims range from 2 to 21 per cent of the total number of sherds in a given sector. The highest quantities are encountered in the early deposits of Trench A (7 A–8 A) and of Trench C (13–14 C). Beginning, however, with the lowest Intermediate Period deposits in Trench B (19–16 B), this style of forming the rim diminishes to about 6 or 8 per cent of the sherd total, until in the Late Period deposits of the Northwest Ramus (1–17–18–7 B) and the top cuts of B (2–11 B) it dwindles to the negligible proportion of 2–4 per cent. This simple neck may be therefore considered as an Early Period time-bearer.

Roll necks or the curved form of necks with a thickened edge offer much less satisfactory time indications, as Fig. 8 shows. The per cents range from 0 to 12.4 for the lowest cut of the Late Zacatenco–Early Ticoman deposit at Zacatenco and 11.2 for the early deposits in Trench C (13–14 C). There is a tendency for the style to fall away in the Late Period to lower quantities than those found in the Early Period. Yet the fluctuations throughout the Intermediate Period make this roll lip type of neck unreliable as a time indicator (Pl. LXIX, Figs. e–h).

The flat or rectangular lip is another variation from the simple neck that has, however, a somewhat stronger chronological significance as Fig. 9 discloses. The high ranges of this style are 26.9 per cent and 21.4 per cent for the Zacatenco cuts and 17.4 per cent and 18.6 per cent for the early deposits in Trench A. Thus the style seems to have been

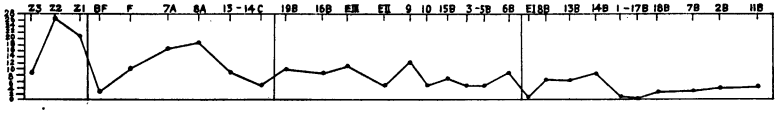

Fig. 9. Percentage of Frequency of Flat Lips of Bay Ollas.

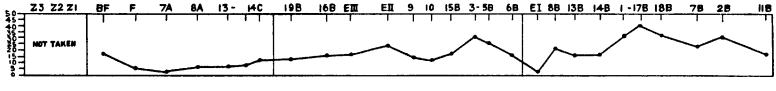

Fig. 10. Percentage of Frequency of Straight Necks of Bay Ollas.

favored strongly in the Early Period at Ticoman. The frequency of this style drops to 8 or 10 per cent in the Intermediate Period and runs very low in the Late. Like all the time indications of olla necks, one sees tendencies rather than diagnostic traits, but the implications are that this flat lip style is an Early Period time-bearer (Pl. LXIX, Figs. i–l, x–z, d′, g′).

The straight neck form of olla has a high collar rising from the body with a slight incurve. It seems to derive from the flat lip form. The exterior is not slipped and the lip is slightly thickened to give strength. Fig. 10 shows the style to be very numerous in the Late Period, rising to 40 per cent of the statistically treated sherds in one cut from the Northwest Ramus of Trench B (17 B). (Pl. LXIX, Figs. m–q.)

This style of neck was too insignificant to be treated statistically at Zacatenco and the per cents are uniformly low for the Early Period at Ticoman. In the Intermediate Period the frequencies rise slowly to a

30 per cent peak in the débris walled up by the east-west revetment in Cut I of the Trench B, Second Excavation (3–5 B), although the norm is around 20 per cent as in Cut II of the second excavation of Trench B (9–10–15 B) and Cut II of the first (6 B). In such Late Period débris as the top cuts of the B system and the Northwest Ramus, the per cents increase to between 25 and 40 per cent. The frequency of the straight neck, which in the Late Period is especially easy to recognize, may confidently be used as a time-bearer.

The flare rim type is formed by welding a heavy lip to the body at an angle of 45 degrees. The inner surface is always slipped and the outer rarely. Occasionally, the inner part is grooved near the lip and once in a great while a band of red paint is applied. Fig. 11 shows somewhat significant chronological variations (Pl. LXIX, Figs. s–w, b′, h′).

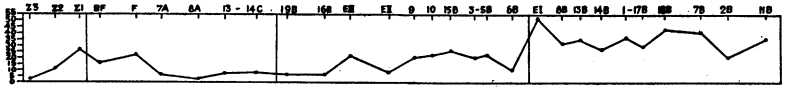

Fig. 11. Percentage of Frequency of Flare Necks of Bay Ollas.

The flare neck shows a rise in frequency through the three cuts of the Late Zacatenco débris (Z 1, Z 2, Z 3) and these percentages are paralleled in the below floor wall digging (B F) and Trench F (F) at at Ticoman. Yet, in the early deposits of Trench A (7–8 A) and Trench C (13–14 C), the percentage of flare necks drops to a negligible quantity, which continues small throughout the beginning of the Intermediate Period (19–16 B). In Cut II of Trench B, Second Excavation (9–10–15 B), the percentages rise to equality with the frequencies of Zacatenco, Cut I (Z 1) and the below floor digging (B F). A really high frequency for the flare rim type characterizes the Late Period with percentages ranging from 30 per cent for the Northwest Ramus (1–17–18–7 B) to 53.8 per cent for Trench E, Cut I (E 1). The top cuts outside the north-south revetment of Trench B (2 B–11 B) show the style as a little less common.

We have studied, then, the frequencies of five styles of olla necks, of which two, simple and flat lip, are more common to the Early Period, and two, straight and flare necks, reach their peak in the Late. The roll lip form of neck is too variable to predict, but it seems a little more common to the Early Period. To arrive by means of olla necks alone at the

dating of a site is well nigh impossible unless very large quantities are involved. Yet Fig. 12 contrasts the frequency of the Early styles, simple necks, flat and roll lips, with the Late styles, straight and flare necks.

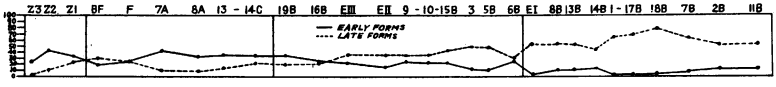

Fig. 12. Percentage of Frequency of Ollas with Simple Necks, Roll and Flat Lips contrasted with Flare and Straight Necks.

Three points come out from this survey. The first is that although all styles of neck were known throughout the occupation of Ticoman, the Late Zacatenco styles of simple flat lip and roll neck predominate in the Early Period, but that except for slight popularity at one point in the Early Period (B F), the flare and straight necks were relatively little made until the close of the Intermediate and the Late Period. This condition leads to the second point, that olla forms are of very general utility only, in diagnosing chronological sequence, since the Late Period alone may be distinguished from the Early Period at Ticoman by this process, and since at Zacatenco only the Late Period could be thus told from the Middle and Early (cf. this volume, Part I, Table II). In short there is none of the subtle change seen in decorative wares or figurines. The third point is that ollas were made in a much greater quantity in the Late Period than in the preceding ones, as the percentage range of the Late Period olla necks runs from 60 to 90 per cent, while the Middle average between 50 and 60 per cent and the Early hover about 50 per cent of the total sherds (Table II). Such a rise might be attributable to the increasing dependence of the Ticomanos on cereal products as game became scarce through prolonged hunting in the preceding epochs.

OTHER FORMS OF COARSE BAY WARE

Bay ware seems to have been a coarser mixture of the clay used in such service wares as red-on-yellow, polychrome, and black-brown. The last ware especially shows on the brown end of the color range variations that connect with the heavy coarse bowls made sporadically through all periods. It was difficult in classification to know whether these bowls should be assigned to the black-brown group or entered as a separate statistical unit. The net effect of these examinations disclosed the transitions that are the bane of classification. Furthermore, the percentages recorded of heavy bowls that could not be included in the black-brown group were too small and too infrequent to have any chronological significance (Pl. LXIX, Figs. e′, f′, Table II).

There is also an occasional manufacture of small brown bottles adorned by crude designs in white paint. These are rare and probably Late (Table II). A bottle found with skeleton No. 57 is shown on Pl. LXXVI, Fig. e.

RED-ON-YELLOW INCISED AND OTHER RED-ON-YELLOW WARES (Pl. LXX)

Red-on-yellow incised ware is an important time-indicator for the Early Period at Ticoman. The base clay is essentially the same as that of bay ware but it is more carefully kneaded. The usual shape is a shallow bowl built in two sections, the body and the rim. The body is relatively shallow and the rim is a thickened strip added on to it, convex on its inner and concave on its outer surface. The lip or termination of the rim is usually flattened and thickened and occasionally grooved. These vessels were sometimes supported on hollow conical legs, but often they seem to have rested directly on their bottom. The outer surface of the

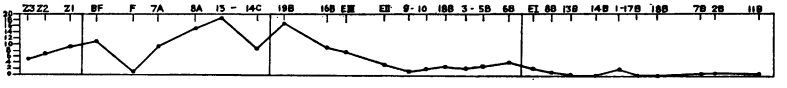

Fig. 13. Percentage of Frequency of Red-on-yellow and Red-on-yellow Incised Wares.

rim and the complete interior of the bowl is slipped in a thin brown wash, which occasionally is burnished (Pl. LXX, Figs. a–i, n).

Decoration was achieved by painting the lip in red with rude running patterns like frets or half-moons. There seems to have been considerable difficulty involved in fixing the paint, which had a tendency to run and obscure the design. Since the paint was burnished, the polishing may have had a part in causing the designs thus to lose their precision. To counteract this sloppy effect the vase painters often outlined the design with single or double lines of incisions, made after firing, when they could see how the painted design had fared in the firing and the burnishing. Occasionally this incision was not deemed necessary (Pl. LXX, Fig. i). All the patterns were conventional (Pl. LXX, Fig. d) geometric designs, with the exception of one zoomorphic figure. The center of this was embellished by gouges, and occasionally half circles in courses were incised upon the painted centers of the other designs. We recovered one over-fired sherd which had the red transformed to mahogany color and the yellow to black, creating a pleasing effect that

may have been intentional (Fig. LXX, Fig. n). A glance at Fig. 13 shows this ware to be a diagnostic of the Early Period.

The style of red-on-yellow shows rising percentages throughout the Late cuts at Zacatenco, with increased frequencies in the Early deposits of Trench C (13–14 C), A (7–8 A), and the below floor digging (B F) at Ticoman. Yet there is an inexplicable drop in Trench F. This ware persists into the Intermediate Period, running strong in the bottom cuts of the B system (19–16 B), and diminishing in the E deposits (E III–II) until in the second cuts of the B system (9–10–15–16 B) which yield material of the late Intermediate Period, the style tends to disappear. In the Late Period (E I, 8–13–14–1–17–18–7–2–11 B) red-on-yellow incised, except for fugitive fragments, no longer exists. Closely allied pottery comes from the Cerro de la Estrella and Ixtapoya in the Valley and from San Cristobal, San José Siclaltepec, and Santa Maria Zapatepec in the State of Puebla.

The practice of painting designs in red on vessels of yellow clay is so common as to be almost universal on the central and northern Highlands of Mexico, so that not only form and texture but also locality and time must be considered before any conclusions are drawn as to the ethnic connections or identities between two red-on-yellow wares.

A red-on-yellow style of decoration was observed in Middle Zacatenco that cannot be said, by reason of its composition and design to be a direct prototype of the Ticoman red-on-yellow incised. (This volume, Part I, Pl. IV, Figs. a–b.) In this case, confusion is avoided by the chronological and cultural demarcations between the Middle Zacatenco and the Early Ticoman-Late Zacatenco types of red-on-yellow. Yet, using at Ticoman the same classification of wares by the texture of the composition and the slip, we find, even in that unit culture site, several other kinds of red-on-yellow ware.

Transitions into other wares are to be expected. Occasional sherds are found of polished red ware which are embellished by incised decoration. The overlapping of decorative styles from one ware to another is not unusual, but there is this peculiarity about the decoration of polished red by incision after firing that it is found in the Intermediate and Late as well as in the Early deposits (Pl. LXX, Figs. j–l).

In some Late Period deposits, sherds were recovered of another ware, lake-on-yellow, which was readily distinguishable by the tint of the red paint in forming simple horizontal bands along a flattened lip and vertical stripes down the body wall. An over-fired example was found resting on a tripod support. This ware seems to be a Late Period time-bearer. (Pl. LXX, Figs. p–q, Table II).

Polished red-on-yellow is a style made infrequently into large bowls or cajetes throughout all periods (Table II). Some forms are characterized by tripod support and horizontal fluting of the exterior of the body wall. Sometimes these ridges are notched and whereas red-on-yellow incised is smoothed and has deep tones, this ware is lustrous and the colors are brighter. Perhaps due to the polishing, the designs are simple red blotches. Very commonly, this ware is used to make small ollas with restricted necks or bottles. Usually the lip is painted white and sometimes the shoulders are adorned by bosses painted red. White paint is added to define the red patterns in many examples, thus throwing the ware into the polychrome group (p. 281). Often sherds from the body of a vessel might be classed as polished red-on-yellow, whereas the fragments from the neck and shoulders are polychrome. Therefore this ware, except for the cajetes, has been included with polychrome ollas in Table II (Pl. LXX, Figs. m, o; Pl. LXXX, middle row No. 1; Plate LXXII, Figs. i, j). There are strong suggestions of connection between polished red-on-yellow ollas and the russet ware of Middle Zacatenco.

Polished red-on-yellow leads into red-on-yellow stick-polished, a ware which receives its name from the tiny facets on the surface of the bowl as if a narrow instrument like a stick or bone had been used in polishing it. A glance at Table II discloses how infrequently this style of pottery appears in the débris, but an examination of the Plates of complete pottery vessels divulges a number of mortuary bowls of this type (Pls. LXX, LXXVII, LXXVIII). The implication of this condition is quite certainly that these vessels were prized trade pieces, interred to honor their owners. We recovered one small olla that apparently was decorated in lost color, another olla with crude triangles painted on the body, a bowl with sunken panels painted red, a bowl on an elaborate tripod support, and an effigy bowl shaped like a human head with the mouth open, having stepped patterns in red on the cheeks and white paint to bring out the pupil of the eye (Pl. LXX, Figs. r, t; Pl. LXXVII, Fig. k; Pl. LXXVIII, Figs. c–e).

A sherd of stick-polished red-on-yellow in dark tones with the design outlined by incision gave a hint of the source of the ware (Pl. LXX, Fig. s). This type has been found on the slopes of the volcanoes, Ixtaccihuatl and Popocatepetl, on both the Puebla and Ozumba sides. These vessels include such forms as shoe-shaped pots, effigy vessels, both modeled and with elements in appliqué, as well as simple bowl and olla forms. They represent apparently a complex of forms foreign to the Early Cultures, Teotihuacan, or Aztec groups.

A possible derivative of this red-on-yellow stick-polished ware from the Volcanoes is found in the adobe pits of San Juanico which contain refuse beds contemporaneous with Middle Zacatenco. The vessels are Teotihuacan forms, comprising vases with everted lips and flat-bottomed bowls resting on teat tripods.[1] Since these vessels are taken out whole and their sherds are not found in the débris beds, it is very probable that they form part of the mortuary furniture of intrusive burials of Teotihuacan date. But as these vessels were purchased from workmen in the adobe pits, exact analysis of the archæological conditions is impossible. From Teotihuacan culture sites in the Azcapotzalco region occur bowls of similar shape which are a more finely made variety of the same ware.

This Azcapotzalco red-on-yellow stick-polished merges into the Coyotlatelco type found by Professor Tozzer at the pyramid of that name, near Santiago Ahuitzotla, in the direction of Azcapotzalco, and by Boas at San Miguel Amantla in the same region.[2] Yet, Mr. Eduardo Noguera of the Departamento de Monumentos Prehistoricos, working at the Aztec pyramid of Tenayuca, found this same ware associated with Aztec pottery instead of with Teotihuacan sherds as did Tozzer and Boas.

It is a far cry from the Coyotlatelco red-on-yellow to the Ticoman red-on-yellow stick-polished, and only additional work can tell whether we are dealing in this case with the evolution of a ware through the heritage of generations or with a convergent evolution due to similar techniques used upon similar clays. Since we have seen in the case of Coyotlatelco pottery how a ware can persist from one period to another, great care must be used in attributing a site to any given culture on the basis of a single pottery style.

An analogous case, perhaps, is furnished by a type of red-on-yellow pottery found at San Juanico in a site across the railroad tracks from the adobe pit yielding Middle Zacatenco material. This ware comprised low simple silhouette bowls decorated by blobs and half circles of red and supported on solid globular feet. This ware seems to tie in with a red-on-yellow pottery made into somewhat similar forms with more variety in the leg shapes which as part of the Matlatzinca complex often is associated with Aztec black-on-orange in the Valley of Toluca. At the San Juanico site, there was no trace of Aztec, however, and this pottery was associated with plumbate, orange lacquer, and fine orange

[1]Gamio, 1922, Fig. 50, b–c; Fig. 51b.
[2]Tozzer, 1921, Type XII, Pls. 18–19; Boas, 1911–1912, Pl. 57.

wares, the last two of which we had noted as trade wares in the Middle Period at Zacatenco (this volume, Part I, Table II, Pl. VI, Figs. a–d).[1] Since plumbate pottery does not appear before the Teotihuacan horizon, this site cannot be contemporaneous with Middle Zacatenco, even though the origin of the red-on-yellow at San Juanico might be in the Middle Zacatenco ware.[2] Consequently, at San Juanico two periods overlap through the survival of pottery types. Orange lacquer and fine orange hold over from Middle Zacatenco times to the period when plumbate ware was imported and red-on-yellow bowls with small globular tripod supports were made. Then, to the west, in the Valley of Toluca we find this style associated with Aztec pottery, but giving every appearance of having formed part of the base complex upon which Aztec was grafted.

The significance of this type of red-on-yellow ware becomes quite great when we consider that, although extending from relatively early times and tying in with pottery like fine orange and orange lacquer which some time in their history had been traded to Middle Zacatenco, before having been subjected to Teotihuacan influences, it yet seemed to have reached the Valley of Toluca, where it served as part of a base ceramic complex to which were added Aztec elements and perhaps even Tarascan styles from Periban and Parangaricutiro in Michoacan.

We have now sketched two evolutions, the red-on-yellow stick-polished which seemingly fell under Teotihuacan influences and merged or developed into Coyotlatelco red-on-yellow and eventually persisted into Aztec times and the San Juanico Toluca type of red-on-yellow, which although ancient, seems not to have been influenced either by Early Culture or Teotihuacan elements before its fusion with Aztec ceramics.

A third type of persistence was discovered by Mr. Eduardo Noguera in the course of his excavations near Tenayuca. This was a type of red-on-yellow bowl with a bevel edge marking the joint between the body and wall elements. It underlay full Aztec pottery, but was not associated with either Teotihuacan or Aztec remains as they are defined today. The origin of this pottery lies probably in the Early Ticoman red-on-yellow incised, although we met no sherds of his proto-Tenayuca type during our excavations at Ticoman.

Red-on-yellow wares in the Valley seem to group themselves in five divisions.

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[1] Work at El Arbolillo in 1931 showed this red-on-yellow style to be on the Teotihuacan horizon.
[2] Vaillant, 1927, 93–106.

I. Red-on-yellow, Middle Zacatenco type, first appearance in the Valley (this volume, Part I, Pl. IV, Figs. a–b).

IIa. Red-on-yellow incised, Late Zacatenco-Early Ticoman, not related to Type I (this volume, Part I, Pl. IX, Figs. a–g; Pl. LXX, Figs. a–i). Connects with

b. Polished red incised at Ticoman (Pl. LXX, Figs. j–l) a transition by technique.

c. Polychrome bowls, Late and Intermediate Ticoman, which evolve from red-on-yellow incised (Pls. LXXI, LXXII).

d. Lake-on-yellow, Late Ticoman (Pl. LXX, Figs. p–q), relation doubtful with red-on-yellow incised.

e. Red-on-yellow wide-mouthed bowls at Ixtapoyan, Cerro de la Estrella in the Valley and sites in Puebla. These have a generic relationship with IIa, but exact chronological position is not clear.

f. Red-on-yellow bowls with bevel edge found beneath Aztec remains near Tenayuca by Noguera, evolving possibly from IIa.

IIIa. Red-on-yellow stick-polished, Intermediate-Late Ticoman (Pl. LXX, Figs. r, t; Pl. LXXVII, Figs. c–e) perhaps a trade ware. Connects with

b. Polished red-on-yellow and polychrome ollas, all periods at Ticoman, perhaps local imitations of IIIa, although they seem to have been anterior to the appearance of Type III (Pl. LXX, Figs. m, o; Pl. LXXX, middle row, No. 1).

c. Red-on-brown stick-polished Ozumba style. Sherd found in Late débris at Ticoman (Pl. LXX, Fig. s).

d. Red-on-yellow, stick-polished, Teotihuacan forms in intrusive graves at the adobe pits of San Juanico. This class may evolve from III–c.

e. Red-on-yellow stick-polished Teotihuacan style. III–e possibly evolving from or tying in with Types III–c or III–d.

IVa. Coyotlatelco style found at Coyotlatelco by Tozzer with Teotihuacan remains (Tozzer, 1921, Pls. 18–19).

b. Coyotlatelco style found at Tenayuca with Aztec remains, by Noguera.

Va. Red-on-yellow bowls on globular legs, San Juanico style associated with fine orange and orange lacquer, which descend from the same wares traded to Middle Zacatenco. Perhaps evolving from Type I.

Vb. Red-on-yellow bowls, Toluca style, globular and spider legs, often associated with Aztec sherds, but are probably a survival of a regional ware, based on Type V–a.

Subsequent work will doubtless enlarge this list, but I have included it as germane to a discussion of the chronological and ethnic significance of red-on-yellow wares. Moreover, the formation of these groups seems to epitomize the archæology of the Valley of Mexico, by showing the strong implications that the history of Valley cultures was not a unilineal development, but a series of evolutions by different groups, which sometimes diverged, and at times paralleled each other. The consideration of these minutiæ is complex and perhaps unessential to a broad view of Mexican archæology as a whole, but we cannot completely understand the whole until we comprehend the parts composing it.

In these five groups are linked together those wares which have an affiliation in composition and decoration. The result shows how styles can persist apparently in spite of ethnic dislocation; but at the same time the intimate relation of red-on-yellow incised to the Late Zacatenco–Early Ticoman period is very apparent.

POLYCHROME WARES (Pls. LXXI–LXXII, LXXV)

Polychrome wares are strictly speaking trichromatic, in that white and red paints are applied to a brown surface in such a way that the surface color participates equally with the red and white in the decorative scheme. The base clay is about the same mixture as that employed in red-on-yellow incised but both the slip and the decorative paint receive a higher burnish. The support of these vessels seems to vary from a simple hollow cone tripod support at the close of the Early and the beginning of the Intermediate Period, to more ornate supports like claw and modeled bulbous feet later on.

The origin of the decoration in polychrome pottery lies in the red-on-yellow incised described above. In the place of an incision defining an ill-marked painted pattern, a band of white paint outlines the red, which by this time has been thickened to avoid the previous tendency to flux (Pl. LXXI). This outline technique represents the ideal evolution but several other variations in treatment exist. A very common variation is the use of the white paint as a decorative element equal to the red paint, resulting in alternating bands of red and white (Pl. LXXV, Fig. f). In a third form the red slip acts as a background, on which patterns are inscribed (Pl. LXXII, Figs. a–b, d). Sometimes in variance to this last scheme the white paint surrounds panels of red which are the background for additional designs in white (Pl. LXXII, Figs. d, g). Another style more common to the Late Period combines polychrome with a polished red ware technique, so that the exteriors of rims and ornate legs are slipped and burnished in the polished red ware manner while the interior is adorned in red outlined by white technique of polychrome (Pl. LXXI, Figs. g–i; Pl. LXXV, Fig. s). Examples of animals in appliqué are very rare (Pl. LXXVI, Fig. s).

Polychrome bottles or small ollas are also found, but many seem to be characteristic of all periods. These really belong to the class of polished red-on-yellow, since the white paint used in that class to adorn the slip is extended to the body (Pl. LXX, Fig. o; Pl. LXXII, Fig. i; Pl. LXXX, second row No. 1). Yet, there are a number of bottles which in composition and surface treatment tie in with the polychrome bowls

and their designs have the same firm zones of red color outlined by white (Pl. LXXVI, Fig. d). Several fragments and a complete specimen of this ware had adornments around the shoulder composed of little animals modeled in repoussé (Pl. LXXII, Fig. j). The occurrence of polychrome ollas has no chronological significance, as a glance at Table II will prove, and furthermore, a division of the types into polished polychrome for the polished red-on-yellow group, and true polychrome, was impracticable. Therefore Fig. 14 shows only the frequencies of polychrome bowls.

In the chart (Fig. 14) we find low frequency for polychrome throughout the Early Period at Ticoman and the contemporaneous Late Period at Zacatenco, except for an inexplicable frequency in the Early deposits in Trench C (13–14 C). This rise is somewhat less abrupt when we realize that assortments 13 and 14 C come from the same place, so that the 7.9 per cent of one and the 3.6 per cent of the other average a little over 5.7 per cent. Yet, in the bottom cut of Trench B, First Excavation

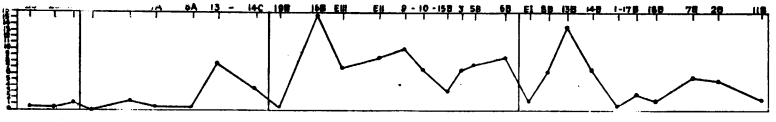

Fig. 14. Percentage of Frequency of Polychrome Wares.

(19 B) there is an equally violent fall in percentage that contrasts sharply with the bottom cut of the second excavation (16 B). But the remaining Intermediate Period deposits (E II–III; 9–10–15, 3–5, 6 B) run relatively consistent high percentages. With the beginning of the Late Period there is a tendency for polychrome to dwindle in popularity, and the cuts in the northwest ramus (1–17, 18, 7 B) run, on the whole, lower than the selections behind the north-south revetment in thesecond excavation (8, 14 B). The cut 13B runs an inexplicably high polychrome percentage. The outer cuts do not harmonize, for the 5 per cent of the top cut of the second excavation (2 B) is much higher than the 1.8 per cent of the first (11 B).

Now an arbitrary classification to show time can be carried too far, and in an autochthonous ceramic development it is difficult to draw the precise line between the periods of a given ware. We have seen that polychrome pottery tends to reach its peak in the Intermediate Period and to diminish in the Late, although retaining a fairly numerous representation for a decorative ware. But to help

distinguish Intermediate and Late polychrome there are morphological differences. The early Intermediate Period polychrome pottery tends to retain the everted rim shapes of the Early Period red-on-yellow ware and support is accomplished by three unslipped legs in the form of hollowed cones (Pl. LXXI, Figs. b, e; Pl. LXXV, Fig. f). In the upper Intermediate and Late Periods, the rim tends to become more erect and distinct from the body while the legs become round or pear-shaped with a large orifice at the side, or pear-shaped and nearly closed, to contain pellets that make a rattling sound, or even formed into two superimposed globes, or a globular leg terminating in a solid cylinder (Pl. LXXI, Figs. a, c, g, h; Pl. LXXV, Figs. p–s). These leg forms are often slipped in red or in white and sometimes carry designs. Moreover, in the painting of the bowl proper, bands on the exterior are treated in the polished red ware manner. Thus, the frequency in the sherd sampling distinguishes polychrome as a primarily Intermediate Period time-indicator and the form of each specific piece indicates its probable manufacture in Intermediate or Late Period times. This rise of polychrome ware corresponds very well with the artistic impetus given to figurine sculpture by the experimentation seen in Types G, I, and L (Fig. 6). The perfecting of the style in the Late Period with ornate forms also parallels fairly closely the uniformly excellent plastic of the Late Period H group.

Polished red-on-white ware is relatively uncommon, and although it occurs in the Early Period, it seems to be more common to the Late (Table II). The base slip is polished white and designs in red are usually painted on the exterior. The style may be a development out of polychrome pottery, but its relative absence in the Intermediate period militates against this attribution. Two sherds were found in the Late Period at Zacatenco (this series, Part I, Pl. IX, Figs. i, l). A curious variety of Late Period date has an interior in dull red and the exterior slipped in a powdery white on which a crude design is painted in lake, the same shade as the decorative paint in lake-on-yellow. The bowls are of large size and are composed of wall and body elements. One vessel has a bored mend-hole which extends Linné's distribution somewhat in time and space[1] (Pl. LXXVI, Fig. r).

[1]Linné, 1925, 155–159.

POLISHED RED WARE AND PLAIN RED WARE (Pls. LXX, LXXIII, LXXV, LXXVI)

Polished red ware makes its appearance as a standard decorative ware although one of no very high frequency, since 7.6 per cent is the peak. The base clay is fairly thin and well-tempered, but it is mixed from the same elements used in bay, red-on-yellow incised, and polychrome wares. The vessels are built usually in two sections, a round bottom element, and in the Early Period, a slightly in-sloping rim, the lip of which is thickened or recurved. A brown wash is run over the interior of the bowl and the inside and outside of this rim are covered thickly with red paint and burnished, thus producing the characteristic which gives the ware its name (Pl. LXXIII, Figs. b–f, i–m; Pl. LXXVII, Fig. e). The support of the vessel is achieved by three legs ranging, according to period, from unslipped solid cones to hollow balls, single or double, slipped and polished (Pl. LXXV, Figs. g, i, k, t). Some of these ornate forms occur in the earlier phases of the occupation and it is most probable that the idea of slipping feet was first carried out in polished red ware. Yet some examples seem to have rested directly on their bottoms (Pl. LXXVII, Fig. f).

Other methods of decoration were used to heighten the effect given by the polished surface. From the earliest times, a white paint was used in the exterior to outline the lip or to describe crude geometric patterns (Pl. LXXIII, Figs. d, f; Pl. LXXVIII, Fig. b). In the first method the paint was used almost as a secondary slip, but in a second the paint was thin and had a tendency to disappear when fired (Pl. LXXIII, Figs. k–l). Incision also was employed (Pl. LXX, Figs. j–l) and knobs and bosses symmetrically disposed (Pl. LXXIII, Fig. i). Very rarely, animal heads were attached (Pl. LXX, Fig. j). Then too the polished red slip was used in the latter part of the occupation of Ticoman in association with polychrome patterns (Pl. LXXI, Figs. g–h; Pl. LXXV, Figs. p-s).

Examples were found again of red ware bowls that were of simple outline, with a thickened strip of the edge to form a lip, not unlike those of red-on-yellow incised vessels. Sometimes too the lip was bent outward. Some of these forms were supported on three unslipped conical feet and others rested on a tall annular support. Single examples of this style were usually readily distinguishable but body sherds showed a gradual fading from polished red into a duller shade (Pl. LXXVI, Figs. l–q). Two such transitional examples rested on legs like the elongated cones of the supports of the old-fashioned iron spider (Pl.

LXXIII, Fig. g; Pl. LXXVIII, Fig. a). These vessels may, however, be trade pieces, since they have certain resemblances to Valley of Toluca pottery, pp. 290, 339).

Dull red ware occasionally shows itself in the upper cuts of the Trench B system where polished red is slightly more numerous, on the whole, than in the preceding periods (Fig. 15). Yet the frequency of the ware is insufficient for chronological diagnosis, so that morphology must be considered. The bowls are usually wide-mouthed with flaring rims. Support is achieved either by a tall annular base or a tripod, the feet of which follow the usual chronological requirements (Pl. LXXVI, Figs. l–q). Several bowls were found which show interesting variations from dull red in the slip color which runs from a faded red to a salmon. The salmon-colored specimen (Pl. LXXVI, Fig. h) came from an early Intermediate stratum, but another vessel, somewhat browner in hue, came from a Late level in Trench C and was supported by an ornate type of anthropomorphic feet (Pl. LXXVI, Fig. g), and a third, completing the connection with dull red is likewise Late (Pl. LXXVI, Fig. m).

Fig. 15 presents the frequencies of polished and dull red wares.

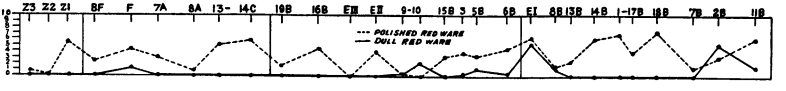

Fig. 15. Percentage of Frequency of Polished Red and Dull Red Wares.

The frequency of polished red ware reveals little association with specific periods, save in the morphological characteristics described above, by which low, sharply incurved or recurved rims characterize the earlier forms and more variable rims, and ornate legs define the later. Yet, when one takes into consideration the low percentage of decorated or service wares in respect to the total sherd content of the Late Period, the relative popularity of polished red ware becomes quite significant, especially in view of the tendency to merge polished red with polychrome (EI, 8–13–14–1–17–18–2–11 B). Dull red ware shows sporadic high frequencies, but its close relation to polished red ware makes considerable confusion in sorting. Since it is a variation of polished red ware, it has no real importance as a time factor, although it is most common in the Intermediate and Late Periods.

The early forms of polished red ware are as widely distributed geographically as red-on-yellow and there are types of polished red ware in almost every horizon from the rude burnishing in Middle Zacatenco,

to the brilliantly lustrous red wares of Aztec times. But the polished red wares of Toltec and Aztec times do not seem to be connected with the Ticoman horizon, not even by such loose resemblances as the chronologically overlapping red-on-yellow wares listed on p. 280.

BLACK-BROWN WARES (Pls. LXXIV–LXXV, LXXVII)

Black-brown wares have been mentioned as closely affiliated to bay ware by means of a series of heavy bowls with incurved rims (Pl. LXIX, Figs. e′–f′). On this basis of slip color and paste texture, two large divisions were formed, yellow and black-brown bowls, which later were subdivided each into two smaller divisions, based on form, of bowls with incurved rims and plate or wide-mouthed bowl forms. When the tabulations were completed and graphs made these subdivisions all had the same significance of high frequencies in the Early Period at Ticoman with marked elimination successively into the Intermediate and Late Periods (Table II). Therefore we considered all these divisions as a single group and in Fig. 16 present them thus.

The base clay of these vessels is porous and coarsely kneaded, but the tempering is sand, either pulverized or inherently fine-grained. The vessels are slipped with a clay wash similar to the basal paste, but more finely treated. The area covered is the whole of the interior and the more visible portions of the exterior. According to the method of firing and the regulation of the draught, the vessels take on brown colors in a more or less open fire and black when soot can accumulate by a reduced circulation of air.

Shapes are very varied. They center principally, however, around bowls with incurved rims, which change their direction from the body curve either by making an inward angle and thereby presenting an edge (Pl. LXXIV, Figs. d, f, h, n, o) or else by being curved in sharply (Pl. LXXIV, Figs. b, g, i); they comprise too the plate or dish form where the body curve is carried outward to a thickened edge with a slight external concavity to define the rim element (Pl. LXXIV, Figs. a, c, e, j, l, m). Like most Middle American pottery, this service ware follows the composite silhouette method of formation, which embraces two elements, body and wall, variously emphasized so that the wall, as in the Ticoman pottery, is reduced to rim or, as in the Early and Middle Zacatenco style, actually encloses much of the area confined by the vessel. There are also a number of hemispherical forms or low bowls with incurved rims adorned by fillets of clay to simulate bird and other zoomorphic forms (Pl. LXXIV, Fig. q; Pl. LXVIII, top row, Nos. 5–7).

The earlier vessels usually rested directly on their curved bottoms, but simple conical tripods were sometimes used. As time went on, leg forms became more common and more complex so that, besides the globular and swollen shapes noted above, legs were occasionally modeled into anthropomorphic forms (Pl. LXXV, Figs. a-d, j, l–o, w–z).

Decoration of black-brown ware consisted principally of the form and polish of each specimen. Yet, incision was occasionally used to relieve the bare surface on the exterior or the interior (Pl. LXXIV, Figs. a, f–h). Horizontal grooves on the rim were structural, but nonetheless fulfilled a decorative purpose (Pl. LXXIV, Figs. b, d). Sometimes bosses and other relief elements like the heads of animals were applied (Pl. LXXIV, Figs. o, q). The ornate legs also formed additional embellishment (Pl. LXXV). Yet, all in all, aesthetic needs were satisfied by structure rather than design. (Pl. LXXVII, Figs. b, d, g, h, l-m, n-r).

One bowl fragment recovered had two holes set side by side near the lip. Careful examination revealed no crack to indicate that these were

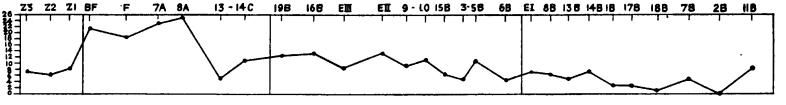

Fig. 16. Percentage of Frequency of Black-Brown Ware.

mend-holes, so that they must have been used to hold a cord for suspending the vessel (Pl. LXXIV, Fig. p).

The percentage graph above (Fig. 16) shows very clearly that the peak of black-brown ware frequency lies in the Early deposits under the floors of the wall digging, in Trench F, and in the early deposits in Trench A (B F, F, 7–8 A) and that there is successive diminution until the very low Late Period frequencies are reached.

The Trench C deposits (13–14 C) are balanced by the Late Zacatenco frequencies, but the early Intermediate Period at Ticoman harmonizes well with these frequencies (19–16 B, E III–II). Not until the late Intermediate Period (9–10–15, 3–5, 6 B) does the reduction set in that so defines the Late Period occurrence of black-brown wares. Morphological conditions, particularly in regard to leg form, distinguish the later from the earlier phases of this ware, even as we have noted in polychrome and polished red ware (Pl. LXXV).

Since it is not always possible clearly to distinguish legs as polished red or polychrome owing to the tendency for the wares to merge in the Late Period, we shall in the following table show the chronological

aspects of leg forms from all the service wares hitherto considered, using three divisions. The first group is of simple unslipped conical legs hollowed for lightness (Pl. LXXV, Figs. a–b, d–f), the second of legs modeled into a roughly globular ball, hollow, and with a wide aperture (Pl. LXXV, Figs. g–j), and the third selection comprises complex forms like the double globular form, hollow claw feet, effigy forms, and other elaborations (Pl. LXXV, Figs. k–z). The percentages naturally run low, since it is obvious in smashing a vessel, how small a proportion to the number of fragments the three legs would occupy. Furthermore, the legs were counted generally when, owing to absence of decoration, they could not be assigned to a group.

We see in this chart a peak for simple conical legs that corresponds closely to the Intermediate Period rise of polychrome. Complex forms,

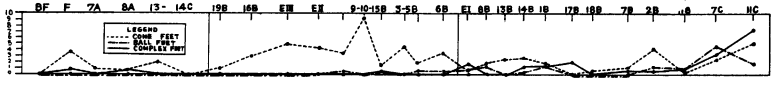

Fig. 17. Percentage of Frequency of Legs of Vessels, contrasted.

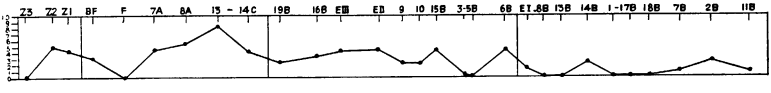

Fig. 18. Percentage of Frequency of White Wares.

like the double ball foot, seem to occur sporadically in the Early Period, but their presence in the Intermediate and Late periods is consistent, if rare. Ball feet follow about the same distribution. Two cuts, 7 and 11 C, are added to this list, since being composed of material from before the late wall at the head of Trench C, which included Hiv figurines, they must be very late indeed. The low per cents of legs from the usual Late Period cuts are less significant when the reduced number of decorated sherds from cuts of that period are taken into consideration.

WHITE WARES (Pl. LXXVI)

A number of vessels were found with slips ranging in color from a dun or gray to a dirty white. The usual form was a wide-mouthed deep bowl resembling the red-on-yellow incised forms of the Early Period. Often these vessels rested directly on the ground, but occasionally they had a tripod support of the hollow cone variety (Pl. LXXVI, Fig. f). The white shades are more common to the Early and the Middle Period,

the grayish-dun to the Late. A few examples of a thick heavy dun ware on an annular support occurred sporadically with Intermediate Period implications (Pl. LXXVI, Fig. k). Fig. 18 gives the frequency of this style.

Except for absence from the bottom cut of the Late Zacatenco deposit (Z3) and Trench F (F), this ware predominates in the Early Period, sinking slightly during the early Intermediate Period, to disappear at its close. In the Late Period sporadic occurrences of the ware, usually in its dun manifestation, were the rule.

Occasional fragments are found of other types of white ware, the presence of which in the sherd collection is too infrequent to admit of graphic presentation (Table II). One such type seems closely related to dun-white ware except for the blackening of the interior through carbonization, and the shape, a flat-bottomed bowl supported on a teat tripod, is likewise uncommon to that style. One such bowl with skeleton No. 39 was associated with a black-brown ware bowl, a large sherd came from Trench F, and other examples appeared in different cuts (Pl. LXXVI, Fig. c; Pl. LXXVII, Figs. a, n).

Another black-on-white style which is very scarce is granular white ware, encountered previously in Middle and Late Zacatenco. The shape is still confined to bottles, the paint to a sepia or brownish-black, and it is quite obviously the result of trade (Pl. LXXVI, Fig. b).

One or two sherds were found of a highly burnished ware, dingy white in color and decorated by deep grooves, symmetrically arranged, which were later covered by the slip. This ware is identical with a piece mentioned in Part I of this volume (p. 58) (Pl. LXXVI, Fig. a; Pl. LXXX, top row No. 5).

Another ware sometimes found is red-on-white. It occurs sporadically in the Early and the Late Periods, being more common in the latter. This ware may well be a development out of polychrome (Pl. LXXVI, Fig. r) and it is discussed under that heading (p. 283).

TRADE WARES

Several sherds were found that are certainly trade pieces. One is an olla or vase with a bulbous bottom slightly constricted at the neck and flaring at the lip. It is slipped in warm orange wash and highly burnished. The paint is disposed in vague patterns of burnt sienna. Traces remain of an inner design in black that has almost disappeared, owing probably to over-firing (Pl. LXXVI, Fig. i). The other piece is peculiar in that it has a rim so incurved that the mouth is small in size,

not unlike that of a "seed-bowl" form in the Southwestern United States. The interior slip of this sherd is red, the exterior yellow, and on the exterior which is richly burnished geometric designs are painted in solid red and black (Pl. LXXVI, Fig. j). The type of decoration and general color scheme remind one strongly of north-central Mexico, more particularly Chupicuaro, Gto.[1]

The bottom of a tripod bowl was found bearing a decoration in black-on-yellow, but the firing was so bad that the designs were obscured. This sherd apparently was done in "lost-color" even as the red-on-yellow stick-polished olla found with Skeleton No. 51 (Pl. LXX, Fig. r). The presence of lost-color decoration in the Valley at an early date may have considerable importance as more intensive researches are carried on in Mexico, so that the writer does not wish to insist on the presence of this decorative treatment until further data have been accumulated. Very often over-firing a vessel with a resultant loss or fading of a decorative pigment will give this effect.

The red-on-yellow stick-polished vessels described and discussed in the section on red-on-yellow pottery may well be a trade ware, since only one or two were found in the débris as opposed to several complete specimens found in graves of the late Intermediate and Late periods, indicating that such vessels were prized and were as much as possible guarded against the dangers of breakage in ordinary use (pp. 277-278, Pl. LXX, Figs. r–t; Pl. LXXVIII, Figs. c–e).

Two dull red ware bowls on spider tripods were also found in graves, one of which was associated with the red-on-yellow stick-polished olla with lost color, found with skeleton No. 51 (Pl. LXX, Fig. r; Pl. LXXIII, Fig. g; Pl. LXXVIII, Fig. a). These vessels suggest a remote connection with types of red-on-yellow Matlatzinca pottery in the Valley of Toluca, although they by no means tie in with the red-on-yellow bowls found across the tracks at San Juanico (pp. 278-279).

A head from an effigy vessel was found in Late débris outside Wall A in Trench C. The head arises directly from the lip of the olla, forming a sort of cowl; it represents a mountain lion or some other great cat (Pl. LXXX, bottom row No. 5). The distribution of this type of vessel is quite interesting, as such forms have been recovered from the Huaxteca region of Northern Vera Cruz, from Estanzuela in Northern Jalisco, and also from the Casas Grandes region in Chihuahua.[2]

One sherd was found which almost certainly formed part of the

[1]Mena, 1927; Marquina, 1928, second and third plates following p. 24; Noguera, 1930c, Figs. 47-48.
[2]Seler-Sachs, 1916, Pl. IV, Fig. 4, Pl. V, Fig. 3, Pl. IX, Figs. 3a–b; Lumholtz, 1902, Vol. I, Pl. III, Fig. c; Vol. II, p. 460; Staub, 1920, Pl. IX; Batres, L., Civilizacion Prehistorica de las Riberas de Papaloapm. Mexico, 1908. Pl. 3.

Teotihuacan ceramic complex. It was a rim sherd from a bowl with straight walls and flattened lip. It was slipped in red and polished, while a pattern incised after firing offered further decoration (Pl. LXXIII, Fig. h). Its presence at Ticoman is most important, as it is the only Teotihuacan sherd found there. It came from a late level in Trench C, but, whether it came by contemporary trade or was dropped on the site in modern times is problematical. That it may have come in by trade is strengthened by the body of a Teotihuacan figurine found in the Wall Digging (Pl. LXXX, middle row No. 2). On the other hand, a few Teotihuacan fragments have been found at El Arbolillo and are shown in the Boas Album.[1]

These ceramic trade relationships can only be judged from a general regional point of view, since we have no time series elsewhere comparable to that of the Valley. Therefore, we shall defer conclusions on the significance of these trade elements until we have more precise data on localities bordering on the Valley. Yet, from the evidence which we have drawn up, it would seem that the Ticomanos traded with no one locality more than another, unless it were to the northwest.

CONCLUSIONS

The pottery of Ticoman shows factors indicative of chronology but some caution is necessary to define by such means the chronological position of a deposit. The development of styles is gradual and autochthonous and evidence of a traded vessel is difficult to distinguish from a potter's whim. The Early Period and the Late are relatively well-defined, and the Intermediate Period exists as an almost purely transitional stage. The more or less sharp distinctions between the Early, Intermediate, and Late figurine groups are not to be found in the pottery.

Certain styles, although seldom completely abandoned, associate themselves with these periods. The Early Period is characterized by the predominance of olla forms with simple necks, and necks terminating in flattened lips. The chief service or decorative wares are red-on-yellow incised, polished red, black-brown, and white wares.

The Intermediate Period is, as we have said, transitional and yields rising or falling percentages according as the styles tended to predominate in the Early or the Late Periods. Yet the polychrome style of decoration was more extensively practised in this time than at any other.

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[1]Boas, 1911–1912, Pl. 56, Nos. 21, 26–28.
Work at El Arbolillo in 1931 showed a Teotihuacan occupation at that site

During the Late Period, decorative or service wares dwindled to a small proportion of the total sherds. Ollas were made in great quantity, especially with flaring or straight necks. Red-on-yellow ware virtually disappeared. Traits of the polished red ware technique were apt to be combined with polychrome and polished brown was made in diminished quantity. Ornate leg forms strongly characterize vessels of this period.

Thus, in the course of ceramic development at Ticoman, olla necks tended to become stylized into such forms as straight or flaring necks. Decorative wares which began with such fumbling methods as red-on-yellow incised reached the system of outlining painted patterns with pigment of another color as in polychrome. Wares like polished red and black-brown, which relied for embellishment on the lustrous texture of their surface, were enhanced decoratively by the development of their feet into complicated forms.

Although the figurines are the basis for forming periods, the following list gives ceramic traits that are time-bearers for each period.

Early Period: simple necks, and flat and roll lips of ollas, red-on-yellow incised, and white wares.

Intermediate Period: Polychrome pottery.

Late Period: Straight and flare necks of ollas, complex forms of legs for polychrome, polished red, and black-brown wares. Polished red in ascendant as the chief service ware.

Objects of Clay

Figurines and pottery vessels were not the only objects made from baked clay. Incense burners, ladles, earplugs, and balls were thus manufactured, and sherds were rounded off into discs for gaming, or for use perhaps in polishing pottery.

Incense burners (Pl. LXXIX)

Four specimens were found of what are probably incense burners or their covers, since three of the objects were convex and hollow. Two of these were made of porous, coarsely kneaded clay, without a slip. The holes were punched outward from the interior, so that protruding edges were left on the outer surface. Five holes were disposed around the base and a sixth crowned the incensario (Pl. LXXIX, Fig. d). A sherd of a harder paste that resembled closely the base clay of red-on-yellow ware was found. A thin wash was run over the exterior and the interior, but it was not polished. On one edge traces of a rectangular aperture were disclosed. The form seems to have been a straight-walled vessel

sloping inward to the base (Pl. LXXIV, Fig. r). These three specimens came from Trench A in front of and below the slabbed revetment, Wall C. The fourth specimen came from Trench C in front of the same slabbed wall (Pl. LXXIX, Figs. e–f). The composition of this fragment is a coarsely kneaded clay like that used in red-on-yellow ware. A thin wash covers the convex surface, but the concave side was hardly smoothed. There are signs of secondary firing perhaps caused by the coals of burning incense. This specimen is made to resemble a human face. The eyes are indicated by broad grooves, the nose by the application of a large fillet, and the mouth by a volute applied below the nose with teeth attached to it. The fragment shows traces of four apertures, two at the mouth and one at the corner of each eye. In the restoration symmetry dictated, perhaps erroneously, a fifth at the forehead. The presence of the volute and the prominent teeth suggest the attributes of the god Tlaloc, but, on the other hand, the rings around the eyes are absent. It is possible that this specimen, together with the rodent-headed figurines of Type Gii, may be the beginning of a pantheon of deities specified by formal characterization (Pl. LVIII), but the incensarios are associated with the Late Period.

LADLES (Pl. LXXX, middle row, Nos. 4–7, bottom row, Nos. 1–3)

A number of objects of clay were recovered that subsequent examination disclosed to be ladles. They may have been used as household utensils or even for carrying incense like the Aztec *zahumador*. The composition of the base clay seemed closely allied to black-brown ware and in several cases, moreover, a slip similar to the pottery in color, burnish, and texture was applied. The bowls of the ladles are circular and so shallow that the bottoms are nearly flat. Handles show a wide variety. Some are cylindrical and may be hollow or solid. Others are oblong, with a medial groove, and terminate in a rectangular projection like a foot. One or two examples are actually modeled into such a shape, Others are composed of two strips of clay so disposed as to resemble crossed legs. One very small specimen had the handle hollowed out. Ladles were recovered more frequently from Early deposits than from Late, and in fact in the Late deposits of the B system only two examples were found. Yet the Late deposits of Trench C yielded examples, so that in the face of this contradiction, caution should be used as to the chronological implications of ladle manufacture. (Table I).

WHISTLES AND MUSICAL INSTRUMENTS (Pl. LXXX; Pl. LXXXIII, top row Nos. 3–4)

Whistles were occasionally found, usually in the Early Period deposits. The labor involved in the manufacture of any sort of artifact causes one to ascribe to mature uses in a primitive group objects which in a high culture might serve as playthings. Figurines we associate with some ritualistic practice of the Ticomanos and these whistles might have had importance likewise in the dance or in communication. The usual forms are zoomorphic, birds being especially favored, although once a human figure classed as Type Eiv was portrayed (Pl. LXVI, top row No. 1). The sound is created by two methods. One is by blowing into or over a small aperture giving on a larger space (Pl. LXXXIII, top row Nos. 3–4). The other more evolved method comprises a tube constricted at one end, which conducts directly to an orifice in the bowl of the whistle (Pl. LXXX, top row Nos. 1–3). One example of this type in bird form has also a single stop in the breast of the bird, and the mouthpiece, as in most cases, forms the tail (Pl. LXXX top row No. 1).

Musical instruments of pottery occur rarely. A fragment of a perforated cylinder of unslipped clay from Trench F might be called a flute (Pl. LXXX, top row No. 6). A handle attached to the broken edges of what might have been a hollow globe, likewise in unslipped clay, may well have been a rattle (Pl. LXXX, middle row No. 3). Similar specimens were recovered from the Middle Period deposits at Zacatenco (this volume, Part I, Pl. XXXVIII, middle row No. 1). The rattle legs of pottery vessels might have been used in ritualistic dances, although whim was more probably the reason for them (Pl. LXXI, Fig. a; Pl. LXXV, Fig. c).

ORNAMENT, BEADS (Pl. LXXXIV)

Baked clay was also used in the adornment of the human body. A few examples of beads were recovered. The most elaborate shape was triangular in cross-section with incisions on the dorsal surfaces. This specimen was perforated through the long axis (Pl. LXXXIV, top row No. 3). Another example was spherical, but cylindrical beads were the most common form (Pl. LXXXIV, top row Nos. 1, 4–5). A variation of the cylindrical bead was polished and had one end concave so that the displaced clay had been pushed out into a flange, giving a trumpet-shaped effect (Pl. LXXXIV, top row, No. 2). These pottery beads are very rare and are associated more commonly with Late than Early débris. The quantity of specimens involved is too small to utilize them as chronological indications.

EARPLUGS (Pl. LXXXII)

Earplugs of pottery are the commonest adornment made from baked clay. The interpretation of these objects is based on the frequent depiction of people thus adorned in the figurines, which are almost never shown wearing labrets or lip plugs. Earplugs are divisible into three groups. The first comprises simple discs, the edges of which are usually concave (Pl. LXXXII, top row). A coarsely kneaded clay is modeled into the requisite shape and covered with a wash that turns yellow or yellow-brown in firing. Decoration often consists of polishing the surface, but occasionally one side is incised (Pl. LXXXII, second row Nos. 5, 7). Sometimes the earplugs are slipped and the resulting color and texture is that of black-brown ware. In this case incised patterns on one side are more common (Pl. LXXXII, second row Nos. 6, 8, third row Nos. 7–9). Examples are rare of unslipped earplugs with concave depressions on one side, and but one case was found of an earplug with a polished red slip (Pl. LXXII, top row, No. 8; second row Nos. 4, 8, third row No. 5).

The second group comprises hollow earplugs, shaped like rings, but usually too small or too large and almost certainly too fragile to adorn the fingers. The clay in these specimens is always very carefully prepared. Some examples are slipped in lustrous black or brown, but others, which are usually of very thin clay, are unslipped. These thin examples sometimes have a flange at right angles to one end which may be modeled or painted after firing (Pl. LXXXII, second row Nos. 1–3, third row Nos. 1–3). A single example was found of an earplug shaped like the trumpet-shaped bead described above. The portion for insertion was cylindrical and hollowed and flared out to make the visible surface. This was of polished brown clay (Pl. LXXXII, third row No. 4). These ring-shaped plugs are much less numerous than the preceding group.

The third group is very elaborate in comparison to that just described. The clay is finely kneaded and of good quality. The neck is hollow and cylindrical, but flares at the visible end, which is closed. Then the closed surface is carved through in various patterns, supplemented occasionally by incision. The most elaborate specimens showed an animal in relief on one and floral designs on the others. Two of the latter were found in a grave and even the flaring edge was carved through to frame the interior design (Pl. LXXXII, bottom row No. 1). Some seem to have been painted in red after firing and others were painted before, but owing presumably to the fragility of the objects were not polished (Pl. LXXXII, bottom row).[1]

[1]An earplug of this type was found by Tozzer at Coyotlatelco, (Tozzer, 1921, Fig. 4b).

The chronological implications of these objects are very strong. The simple cylindrical forms are found most commonly in the Early Period deposits under the floors of the Wall Digging and in Trench A. None at all come from the Intermediate Period trenches in the B system, but they do occur in the low cuts of Trench C, which were presumably of that time. The cylindrical type is found in both Early and Late deposits, with the thin-walled forms occurring in the Late and the polished black in the Early layers. The ornate predominates in the débris before the slabbed revetment of Trenches A and C, a zone which, owing to the occurrence of Type Hiv figurines, we considered the latest in Ticoman. Others were found in the top cut of the B system. Associated with these carved types were solid specimens, which one would expect to persist, since their simplicity of manufacture would commend them to the unskilled artisan of all periods. (Table I).

Solid earplugs occurring in Late Zacatenco are widely distributed throughout the Valley and in the State of Puebla and are as diagnostic of this Ticoman culture complex as the figurine types and the pottery (this volume, Part I, Pl. XLI, bottom row No. 3, Pl. XXXVII middle row). Ring plugs were found in the Middle Period at Zacatenco and also the trumpet-shaped type in a completely hollow form (this volume, Part I, Pl. XL, bottom row Nos. 1 and 3; Pl. XLI top row Nos. 3–4).[1] The carved earplugs are unique in the writer's experience for the Valley of Mexico. They are curiously enough known in Peru; some are shown in the Berlin Museum from Trujillo and Pachacamac, and in the American Museum of Natural History from Ancon. Thus the chronological and ethnic possibilities of pottery earplugs make them an important aspect of the Ticoman culture.

SEALS (Pl. LXXXIII, bottom row Nos. 1–2)

A very rare use of baked clay was the manufacture of seals or stamps, for use, most probably, in ornamenting textiles or the skin, since we recovered no potsherds thus adorned. We found two specimens only, a star-shaped seal with concentric rings incised deeply, from above the floor of the east extension of the Wall Digging, and a cruder oval seal geometrically incised from the Early deposit in Trench C. The implication is that these finds are associated with the Early Period, but two specimens are insufficient to judge surely of the chronological position of a culture trait. This is, however, the earliest occurrence yet discovered of the use of seals in the Valley of Mexico. Decoration of pot-

[1]Boas, 1911–1912, Pl. 56, No. 23, from El Arbolillo, Middle Zacatenco Period.

tery by stamping occurs in certain wares of San Juan Teotihuacan and Azcapotzalco, and stamps are found in both localities,[1] but there is neither the skill nor the quantity that characterize the stamps of the Aztec Period.

GORGETS

One fragment of a clay gorget was found in the Early deposits of Trench C. It may be of local manufacture or may have been carried in from El Arbolillo like the Early and Middle Zacatenco figurine types. In texture and lack of slip it compares well with the Middle Period specimens from Zacatenco (Pl. LXXXI, fourth row No. 9; this volume, Part I, Pl. XXXIX, bottom row Nos. 1–3).

BALLS OF CLAY (Pl. LXXXI, top and second rows)

Balls of clay were often found, the use of which is problematical. Perhaps they were used in a game like marbles, for their lightness and fragility would make them unsuitable for use as missiles. They are made of coarsely kneaded clay and if they were tempered at all, the material must have been very finely ground. The size ranges from a diameter of one and one-half centimeters to four centimeters. A slip is generally applied, usually brown and often polished red, but rarely white. Two specimens were found that had been incised, one before slipping and one after firing (Pl. LXXXI, top row Nos. 8–9). A cache of thirteen balls occurred in the space enclosed by walls C and D in the south extension of the wall digging below the floor. They are most common in the Early Period, less so in the Intermediate, and relatively rare in the Late, but they are nothing new to the Early Cultures. Unslipped, perhaps unfired, pellets were found in the Early Period at Zacatenco, and more fully evolved specimens, polished and slipped, came from the Middle occupation there. Late Zacatenco, naturally, being contemporaneous with Early Ticoman showed a comparable frequency of these specimens (Pl. LXXXI, top and second rows; Table I; this volume, Part I, Pl. XXXIX middle row; Table I).

WORKED SHERDS (Pl. LXXXI, third, fourth, and bottom rows)

Cut-down potsherds are commonly found in the Early Period at Ticoman and diminish gradually in the Intermediate until they are relatively rare in the Late Period. All shapes from the circular to a truncated wedge occur, but they seem, almost all of them, to have one side

[1]Gamio, 1922, 212–213, Pl. 118; Tozzer, 1921, 45–46, Fig. 3.

different from the other, either in being slipped or unslipped as in olla sherds, or decorated or undecorated as in bowl sherds. This distinction may be due to the character of the vessels, or it may arise from the necessities of a game like "heads or tails," or perhaps even the Aztec, Patolli.[1] Some of the oblong specimens, since they are usually thick and strong, may have been used to polish pottery. Three specimens are punched as if a drill had rested on them (Pl. LXXXI, bottom row Nos. 1–3). No examples were found of perforated sherds that could be classed as spindle whorls. Worked-down potsherds occurred in the Early and Middle Zacatenco deposits, but not in the Late (this volume, Part I, Table I, Pl. XXXVIII, middle row Nos. 3–7, bottom row). Yet their frequency in Early Ticoman contradicts the inference previously drawn that with the close of Middle Zacatenco this practice ceased (Table I).

MISCELLANEOUS TOOLS

Two objects of baked clay, one complete and one broken, might have been useful in smoothing pottery. The complete specimen, about fourteen and one-half by four centimeters, is curved and rounded at the ends (Pl. LXXX, bottom row No. 4). The broken piece must have been about the same size and shape and shows signs of re-use (Pl. LXXXI, third row No. 7). While too large perhaps for use in smoothing or polishing a bowl they would be very handy in finishing off a storage olla. No comparable specimens are known to the writer from other areas.

Several objects, always broken, were found which seem to have been ring-shaped or curved, for the sides of the long axis are finished off. These are adorned by bosses of clay and are unslipped. A possible interpretation of these finds is that they were arched handles to bowls, but as no bowls were found showing signs that such handles were broken off, this conjecture must be accepted with caution (Pl. LXXXI, third row Nos. 2–3). Another problematical fragment shows a pattern in relief (Pl. LXXXI, third row No. 8). It may have come from an incense burner, but it is too broken to permit secure identification. An object like an antler (Pl. LXXXIII, top row No. 5) may have been part of a figurine or have adorned a vessel.

Several objects of unbaked clay were recovered. One is a convex disc that might have covered an olla or have been merely the product of an artisan's hands in an idle moment (Pl. LXXXI, fourth row No. 7). Others like No. 8 in the same plate and row seem to be figurines

[1] Beyer, 1917, 9–10.

in their rudimentary stage before being worked up into finished products. Yet these, too, may have been imitative efforts of children or idle toying with clay by potters in their leisure.

CONCLUSIONS (Table I; this volume, Part I, Table I)

The variety of objects of clay is far greater in the Late Zacatenco–Early Ticoman culture than in Early and Middle Zacatenco. Earplugs are a standard trait and show an increasing complexity culminating at the close of the Late Period. Ladles are made with greater complexity and elaboration than in the antecedent culture, and stamps and ornate whistles and pottery beads likewise show elaboration. Pottery balls are very common in the Early Period of Ticoman and are better made, more carefully slipped than in the previous Zacatenco periods. Clay discs are likewise most common in the Early Period and the shapes more varied than in the Early and Middle Zacatenco, although identification rests, naturally, on the wares from which they were made. Objects of a problematic, perhaps ceremonial nature, like incense burners, offer evidence, by their obscure purposes, that the simplicity of Early and Middle Zacatenco with their readily identifiable objects, has given way to a more complex culture containing probably an advanced ceremonial life, a theory which the animal-headed figurines substantiate.

OBJECTS OF STONE

The same complexity of shape and of technique that attended the figurines, the pottery, and the objects of baked clay, like ladles, earplugs, seals, et al., is found in the lithic industry. Although, called by name, the objects found at Ticoman are the same as those encountered in Early and Middle Zacatenco, morphological considerations indicate a strong development, even though good pieces from any one of the Early cultures so far studied are comparable qualitatively.

OBSIDIAN TOOLS (Pls. LXXXV–LXXXVIII, XCI–XCIII)

As at Zacatenco, obsidian constituted the major material utilized for tools. Its shaping by fracture and by pressure was relatively easy and the sharp edges left in breaking this volcanic glass would be difficult indeed to equal in any substance save steel. We found, above the floor in the east extension of the Wall Digging, a cache of nine small nodules of obsidian covered with a grayish patina, and fifty-three fragments that must have come from larger pieces broken up. Unfortunately, these fragments did not give the stages of obsidian manufacture. We may

infer that there were three main methods of reducing the crude product into forms suitable for use, which depended, however, on the shape of the original nodule. These methods involved the manufacture of 1, blades, struck off a conical or cylindrical bit of obsidian; 2, knives and scrapers made of fragments of the nucleus retouched occasionally to give the requisite working edge; and 3, dart and projectile points shaped all over to give not only a point, but also a suitable place for hafting.

Blades were made in various sizes and had one side smooth and one convex, representing the inner and the outer surfaces respectively of the detached flakes (Pl. LXXXV). The uses of these blades must have been varied, for the different sizes made various types of cutting possible. The most probable purpose was the working of leather, for in several graves (Nos. 11, 17, 33, 34, 39, 47, 48, 51, 55, 58) we found blades, either alone, or associated with bone needles and bodkins (Pls. XCI–XCIII). Thus, there is a definite utilitarian function for obsidian blades, besides the possibility of ceremonial blood-letting. Then also the Ticomanos might have used these blades as razors like some of the later people in the Valley. When the edges were nicked they were occasionally retouched as drills or awls (cf. Pl. LXXXV, top row Nos. 4, 6, 8, 10–14, 16). No. 4 might almost be a projectile point and Nos. 13–14 look like burins to incise designs on wood, bone, or pottery.

The second group, comprising fragments shaped by retouching into knives and scrapers, shows, on the whole, tools of an informal nature. Just how rude a serviceable knife can be is well shown by the mortuary furniture of Skeleton No. 34, on Pl. XCII. On the other hand, the old leather worker, Skeleton No. 17, had with him three snub-nosed scrapers beautifully executed from broad blades of obsidian (Pl. XCI). The range of tools is well shown on Pl. LXXXVII; top row Nos. 1, 2, and 4 seem like drills; Nos. 3 and 10 are knives perhaps; and the remainder are scrapers for graining hides and shaping bone, except for Nos. 12–13 which are circular knives. These specimens come from every period. On the top row of Pl. LXXXVIII is a collection of large tools, probably comprising cutting implements, except for Nos. 1 and 3 which are scrapers and No. 8 which is a fragment of a nodule in the first stage of being roughed out into a tool. These specimens all come from Late or Late-Intermediate deposits so that their large size seems to some extent associable with the period of their occurrence.

The most finished group of stone tools is that of the projectile points (Pl. LXXXVI). Immediately the question arises as to their being arrowheads or the points of darts propelled by the atlatl or spear-thrower.

Doctor A. V. Kidder, Chairman of the Division of Historical Research, of the Carnegie Institution of Washington, the leading authority on the archæology of the American Southwest, gave me 30 grains Troy or 1.9 grams in metric as the maximum weight of arrowheads from that region, while dart or atlatl heads ranged between 75 to 175 grains Troy or between 4.8 and 11.3 grams metric. At Zacatenco and Ticoman the weights of the projectile points did not fall into two such distinct divisions, as the following table, based on the points shown on Plate LXXXVI and this volume Part I, Plate XLII will show.

	I —to 2.0 gr.		II 2—5.0 gr.		III 5—11.3 gr.		IV 11.3—42.3 gr.		Total
	No.	%	No.	%	No.	%	No.	%	
Early Zacatenco	4	80	..	....	..	....	1	20	5
Middle Zacatenco	2	25	4	50	1	12.5	1	12.5	8
Late Zacatenco	4	40	4	40	1	10	1	10	10
Early Ticoman	8	57	5	35.6	1	7.1	..	....	14
Intermediate Ticoman	6	27	13	59.0	3	13.6	..	....	22
Late Ticoman	3	14.2	11	52.4	4	19.0	3	14.2	21
Grand Total	27	33.7	37	46.2	10	12.5	6	7.5	80

Column I corresponds to Doctor Kidder's division for arrowheads, Column III, to his group of atlatl dart points. The Early cultures, however, show two other weight ranges, given in Columns II and IV. The last column is readily explicable because it is composed of spearheads and drills, too heavy in all probability for useful hurling. Column II, which yields high percentages from Middle Zacatenco on, falls between Doctor Kidder's arrowhead and dart point weight groups.

When one comes to consider the question of the bow and the atlatl in Mexico, these figures become highly significant. In the Southwest, the atlatl preceded the bow, but in Mexico, it was in use among the Aztec and among the Mexican invaders of Chichen Itza, having been retained as a common weapon in spite of a knowledge of the bow.[1] Now when one examines the distribution of the atlatl, for which a full bibliography is given in the pages cited from Saville, and takes into consideration the implications of its archæological occurrence among the non-pottery making peoples, like the Basket Makers of Arizona, the Ozarks, and Coahuila, the atlatl is almost certainly older than the bow in the New World. The Early cultures of Zacatenco and Ticoman and their affiliates throughout the Valley are the oldest remains yet uncovered in the Valley of Mexico, and, on that basis, they should contain the atlatl.

[1]Saville, 1925, 28–54.

But as the wooden objects have all disappeared, the presence or absence of the throwing stick cannot be specifically affirmed.

Four lines of evidence suggest that the atlatl was not in common use. The weights of the projectile points center overwhelmingly around the arrow weight limit set tentatively by Doctor Kidder, if one excepts the spear-heads in Column IV. No examples were found of stone atlatl hooks like those encountered in Ecuador or Peru[1] nor of weights such as are bound to the under side of an atlatl in the Southwest.[2] Furthermore, the Early cultures have progressed far from the primitive stage represented by the Basket Makers, so that they might well have had the bow. Lastly, it would seem that the Zacatenco–Ticoman points are too light to be effective when propelled at the relatively slow speed which the atlatl would give to a dart.

Yet one might argue, on the same basis, that the Zacatenco–Ticoman peoples did have the atlatl. The high per cent of points that fall between Doctor Kidder's weight ranges might be light, atlatl dart points. Neither hooks nor weights of stone are part of the equipment of any of the known atlatls from Mexico, so that there is no reason to expect to find evidence of their existence. If the Aztec and the Chichen Itza Mexicans kept the atlatl as a ceremonial and military weapon, it must have existed before their arrival. That it is a serviceable implement even today is proved by its use among the inhabitants of Lakes Patzcuaro and Texcoco.[3] Finally, no one has made a study of how heavy a point need be to be effective when thrown by an atlatl. A light point might well be attached to a heavy shaft which would give it the necessary momentum.

The crux of the problem lies perhaps in the determination of the relation between dart and arrowpoints in Aztec times, but it will first be necessary to collect a body of material from specifically Aztec sites, and from Teotihuacan ones as well. The consideration might be borne in mind to which Mrs. Nuttall first called attention that the atlatl was not brought into the Valley by the Aztec.[4] Such a condition is quite curious, for the original Aztec culture is supposed to have been little developed. Furthermore, the retention of the weapon by the Aztec in ceremonial and military use might well arise from its being one of the early and fundamental culture traits which they learned from their predecessors.

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[1]Uhle, 1887, 1907, 1909.
[2]Guernsey, 1921, 80–88, 133, Pl. 33, Figs. b, d.
[3]Beyer, 1924–1927, 220–223; Saville, 1925, 99, note 62.
[4]Nuttall, 1891, 13.

On the basis of technique, however, these projectile points fall into two main divisions: 1, points made from fragments and chipped all over (Pl. LXXXVI, top, third, and fourth rows), and 2, points made from flakes which are worked to outline the flat shape already formed when they were struck off from the core (Pl. LXXXVI, second row). But neither of these divisions very strongly indicates chronology which is shown relatively clearly in the morphology of the points. There are two main forms: 1, points with tangs (Pl. LXXXVI, top row, second row Nos. 1–7) and 2, points with shoulder notches and a haft which is broad and often convex at the base (Pl. LXXXVI, second row Nos. 8–17, third and bottom rows).

The form with a tang emanates in the Middle Zacatenco Period and is found usually in the Early and Intermediate Periods at Ticoman. In some examples the stem is hardly more than suggested, a condition especially true of points of this type made from blades of obsidian. There is a possibility that this style was often broken in shaping the tang, but that the points were used just the same.

The form with shoulder notches seems to have originated in this type from efforts to make the tang longer and broader that the point might be attached more strongly to the shaft, and from a desire, possibly æsthetic, to distinguish between the blade and the haft. In such developed styles the point seems to have been fashioned as a solid triangle into the base of which notches were chipped. The evolution may be traced from left to right on each of the lower three rows of Pl. LXXXVI. It would seem that the transition from the hafted to the notched form took place during the Intermediate Period for this form in its developed stage is found almost exclusively in this and the Late Period. The relative difficulty of manufacture and the ensuing differences which would arise from the skill of the various workers, blur the styles, causing confusion in the chronological attribution of a single specimen. Also, being comparatively unbreakable, points must have been used over and over, and rechipped, sometimes, to make more serviceable tools. A complete specimen and several fragments of lance heads were found in Late deposits in Trench C and in front of the north-south revetment of the B system. The form of the complete specimen fits it into the type of point with broad, convex haft and shoulder notches (Pl. LXXXVI, third row, No. 11; bottom row Nos. 14–15).

Yet the course of projectile point development has progressed a long way from the laurel-leaf and crude shapes of Early Zacatenco. The evolution commences in Middle Zacatenco, where tangs first ap-

pear, but it is not until Late Zacatenco–Early Ticoman that the tang is a definite factor in the composition of a point. In the Intermediate Period increased skill in shaping the tang seemed to lead the artisans into creating a stem with a broad butt which later was modified by the chipping out of two lateral notches (Pl. LXXXVI, Table I; this volume Part I, Pl. XLII).

The other obsidian tools, blades, and fragments, show little or no improvement during the lapse of time. The desideratum in these objects seems to have been the reduction of a fragment to a cutting tool with the minimum amount of labor. Under such conditions virtuosity would not enter in nor would improvements in technique make it possible to group the specimens by periods.

OTHER FLAKED STONE TOOLS (Pl. LXXXVII–LXXXVIII)

Quartz, quartzite, chalcedony, and chert furnished substances for the manufacture of many rough tools, chiefly knives and scrapers (Pl. LXXXVII, middle and bottom rows). They do not seem to have been used much for points, since obsidian was doubtless a much more serviceable medium. Skeleton No. 34, in fact, produced the only example of a point from such material. A number of flakes and cores were found that might have been used as informal tools for cutting or for hammering. The hard brittle obsidian which was easily flaked by pressure would be made with great ease into small tools with sharp edges, but for the heavier work, say, of whittling wood or skinning a deer, a more rugged material would be needed. This factor explains very probably the large size of the specimens on Pl. LXXXVII, middle and bottom rows, the knife on Pl. LXXXVIII, top row No. 9, the limestone hide grainer on the same Plate, bottom row No. 1, and the polished limestone rubber on Pl. LXXXVII, middle row No. 6.

PECKED AND POLISHED STONE TOOLS (Pl. LXXXVIII–LXXXIX)

Stone was treated by pecking and polishing as well as by flaking and chief among the stone substances worked in this manner was lava. Especially was it used for manos and metates, or grinders and mortars for preparing corn. The material lies at hand everywhere in the Valley and there was never any need for making long treks to secure it. The manos were usually about 20 to 25 cms. long and 6 to 10 cms. at the greatest thickness. The cross-section was triangular and the proportion of the sides, lacking a fixed relation of measurements, followed the necessity or whim of the person who was to use the implement (Pl.

LXXXIX, bottom row Nos. 4–5). The metates were concave oblongs often with raised edges, but sometimes without. They were supported on three stubby quadrangular legs, which distinguish them immediately from Early–Middle Zacatenco metates which have conical feet (Pl. LXXXIX, bottom row Nos. 2–3; this volume, Part I, Pl. XLVI). Small quadrangular mortars without feet occur sporadically, one accompanying Skeleton No. 51. Large flat slabs of lava must have been *comales* or stones for cooking *tortillas*. Two stones, circular in shape, might have been used as pot covers (Pl. LXXXIX, second row No. 2). Balls of lava, usually roughly finished, were made, but were not as common as stones of harder and more close-grained material (Pl. LXXXIX, top row No. 6, third row No. 5). Two examples were found of sculpture in lava and will be discussed in a following section (p. 307).

The height of the art of polishing stone was to be found in the manufacture of balls, celts, and ornaments. Especially notable were the beautiful marble balls (cf. Pl. LXXXIX, second row No. 4 and third row No. 4) which, together with a quartz ball (Pl. LXXXIX, second row, No. 3) were found associated low down in the middle of Trench A. For these identifications, the writer wishes to express his thanks to Doctor H. P. Whitlock of the Department of Minerals and Gems of this Museum. Other balls were made of granite (Pl. LXXXIX, top row Nos. 2, 3, 5, and 7, third row Nos. 2–3). Sandstone, porphyry and lava (Pl. LXXXIX, top row Nos. 1, 4, and 6 and third row Nos. 1 and 5) were also substances used in making balls. The spheres made from marble and quartz are beautifully polished and resemble a similar group of limestone balls found at Zacatenco (cf. this volume, Part I, 48; Pl. XLV, top row Nos. 12–13, middle row Nos. 6–8) in a cache that was interpreted as Middle Zacatenco. Since the Ticoman cache is associated with the Early or Early Intermediate Period, we should revise our estimate of the Zacatenco finds, for in the trench where the limestone balls were found, there were also pockets of Late rubbish. The purpose of these balls is problematic. The carefully executed marble spheres suggest use in games, while the rougher specimens might have been used as sling-stones. Yet some of them are too small and light to do much damage as missiles.

Besides being used to make balls, granite was further employed as a material for manos, pestles (Pl. LXXXVIII, middle row No. 2), and rubbing stones (Pl. LXXXVIII, bottom row No. 2), for the granular quality of the stone made it unsuitable for chipping. Porphyry seems to have been used in similar fashion, as the specimens shown on Pl.

LXXXVIII, middle row No. 1 and Pl. LXXXIX, second row No. 1 and third row No. 1, attest. Sometimes, however, porphyry was ground and polished into celts (Pl. LXXXVIII, middle row No. 5). Jade was frequently treated thus and likewise chert and diabase (Pl. LXXXVIII, middle row Nos. 4 and 6, bottom row Nos. 3–5). When these axes lost their edge they were often re-used as pounders (cf. bottom row No. 3 of this same Plate).

The presence of the celt is quite significant, for it was very rare at Zacatenco, only one example coming from the Middle and one from the Late Period. It seems to be especially associated with the Intermediate and the Late Periods at Ticoman. The type is grooveless and wedge-shaped and is not unlike forms from Guerrero. The fact that several celts are made from jade suggests further affinities with the culture of that State. We do not know, however, what the Ticomanos could have used for barter to obtain the celts, unless it were obsidian, nor whether the celts were traded direct or passed through the hands of many intermediates.

STONE ORNAMENTS (Pl. LXXXIV)

A disc bead found with skeleton No. 50 was the only jade ornament acquired (Pl. LXXXIV, top row No. 11). The only other stone bead we found was of porphyry from Trench F and resembled the jade bead very closely (Pl. LXXXIV, top row No. 9). A pendant, formed by notching a ring around a bean-shaped pebble of chert, from under the floor of Room I showed another crude attempt at adornment (Pl. LXXXIV, bottom row No. 2), and chalcedony furnished the material for a little pendant carved perhaps to represent a human figure (Pl. LXXXIV, top row No. 10). None of these ornaments has as yet any ethnic significance aside from showing that the variety of objects found at Ticoman is much greater than at Zacatenco. A tiny bowl of quartzite which contained cinnabar was found with skeleton No. 15 and is unique (Pl. LXXXIII, bottom row No. 4). The ceremonial use of cinnabar in these early times is quite significant in view of its use at Copan, Holmul, and other sites of high civilizations.

A number of curiously shaped pebbles was found that might have been picked up and brought into the settlement as curiosities, or may have had a ceremonial function by being part of the equipment of a medicine bag. Such pebbles were of hyalite and moonstone (Pl. LXXXIII, top row No. 7 and Pl. LXXXIV, top row No. 13). A fragment of chalcedony was much worn as if carried for a long time and used

as a polishing stone (Pl. LXXXIII, bottom row No. 6). Another fragment of chalcedony seemed to have been retained because it resembled closely the head of an eagle and a third might have been construed by the finder as a human figure (Pl. LXXXIII, top row Nos. 1 and 2). These two last specimens, which were both found in Intermediate débris, might be said to mark the beginning of an interest in stone sculpture, were it not that the two examples of true sculpture which we did find, were so highly conventionalized.

STONE SCULPTURE (Pl. LXXIX)

Two examples of stone sculpture were recovered, one a diminutive figure of red pumice, the other a large atlantean figure of lava. The first figure was found in Trench B, Second Excavation, Cut I behind the north-south wall. It is slab-shaped and represents a crouching human figure holding some object in his hand, perhaps a human head (Pl. LXXXIII, bottom row No. 3, Pl. LXXIX, Fig. b). The nature of the material, a porous pumice, combined with the low relief of the carving, makes it very difficult to distinguish the subject. The set-up of the figure recalls vaguely stone sculptures of much larger size that are found in Western Guatemala, Comitan, Chiapas, and in central Vera Cruz.[1]

The other object is a lava incensario and represents a human figure bearing a bowl on his shoulders (Pl. LXXXIX, second row No. 5, Pl. LXXIX, Fig. c). The bottom part of the figure is lost, but from the evidence of the photographs cited below, the figure was probably seated. The arms hang slightly bent at the side, and the head is bowed. The features of the face are crudely indicated by depressions for the mouth and eyes and a raised portion for the nose. The bowl rests on and projects over the head and shoulders and is circular. The edge imitates two superimposed rings with a horizontal groove, dividing the resulting two vertical curves of the wall. This portion of the wall which is smoothed inside shows signs of much burning corroborating the evidence of the shape that the purpose of the vessel was to contain burning incense or some other combustible material for ceremonial use.

The affinities of this sculpture lead one into interesting speculation on the evolution of Mexican religion. Doctor Gamio first pointed out the possibility that a seated Type A figurine found at Copilco might be a Fire God.[2] The site is contemporaneous with Middle Zacatenco, so that, if this figurine is an individualized representation of a divinity, it is

[1]Strebel, II, Pl. II Fig. 16, VI Fig. 4; Seler, 1901, Figs. 78, 140–141, Pl. XLVI.
[2]Ueueteotl (Old God) like the Aztec Xiutecutli (Fire God). Gamio, 1920, Fig. 8 right half center; Gamio, 1922, XLI, Pl. IIIb.

the earliest encountered in the Valley thus far. The sculpture of the figure is too rude to do more than suggest the features of an old man, and there is no bowl for incense resting on the stooped shoulders. Yet, there is an attempt to individualize the figure and Professor Kroeber lends his authority to support Doctor Gamio.[1] The impression received by the writer from his work at Zacatenco is that, although the figurines might well represent divinities, they are not specialized by attribute or feature to be characterizations of specific divinities, however clearly defined they may have been in the minds of their makers.[2] Yet, the seated Type A figurine from Copilco must be studied whenever the question of religion in the Early cultures is discussed.

Professor Byron Cummings excavated two incensarios at Cuicuilco that almost certainly represent old men seated.[3] The figurines are shown squatting with bent back and arms resting on the lap. The faces are free modeled and do not fall into the sculptural groups of the figurines of the Valley of Mexico Early cultures. Each supports a basin, one opening directly from the lumbar region, the other resting on the same part of the body. Seated figures in clay with basins resting directly on the head and very much more ornately treated are figured by Seler from Jalapazco, Puebla, in the region of which were found Type Eii figurines of the Early Ticoman period.[4] Now the occurrence of two such definitely ceremonial figures as the Cuicuilco specimens indicates the presence of a divinity characterized as an old man in a seated posture, supporting an incense bowl.

The Ticoman specimen was made of lava. It was found above the floor in the south extension of the Wall Digging. A glance at the drawing, Pl. LXXIX, Fig. c, will reassure the reader as to the crudeness of the specimen; a body of the mould-made Teotihuacan style eight or ten meters away was the only trace of that culture in this particular section of the digging (Pl. LXXX, middle row No. 2). Thus, on the basis of the finds in the neighborhood of the incensario, the chances are overwhelmingly in favor of the contemporaneity of the figure with the Early culture occupation of Ticoman. Furthermore, Cummings' finds prove the existence of a cult figure bearing the same attributes, and moreover there is no good reason why the Teotihuacanos should have deposited a stone figure at Ticoman, when the body mentioned above and a single sherd from the first digging in Trench C are the only evidence of their existence there.

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[1]Kroeber, 1925, 389.
[2]Vaillant, this volume, Part I, 36.
[3]Cummings, 1923, illustrations on p. 210.
[4]Seler, 1915, Pl. LXVII, Figs. 1 and 3.

A glance through the literature gives us two comparable stone pieces from Jalapazco Puebla.[1] These specimens are clearly made of lava and, if the figures are sculptured more sophisticatedly than the Ticoman incensario, the bowls are less ornate. Seler also figures more sophisticated pieces from the same region[2] that compare with some of Strebel's finds in central Vera Cruz and may therefore be Nahua.[3] On the other hand, more ornate and well executed specimens have been recovered from Teotihuacan,[4] and Gamio has compared an "Old God" in the Teotihuacan style with his Copilco specimen.[5] Furthermore, the "Old God" is frequently depicted in Aztec codices, and examples in stone sculpture are likewise known. Occasional seated forms exist with the container on the shoulders, that, although differing little from the Teotihuacan forms, are probably Aztec.

Thus we have a definitely early occurrence for Ueueteotl (the Old God) and Xiuhtecutli (the Fire God), but we cannot call it the origin, for the style is so developed. The presence of a divinity so well established in later times makes it possible to give stronger credence to the identification of the clay incensario cover shown on Pl. LXXIX, Figs. e–f, as an early representation of Tlaloc, who seems, like the Fire God, to have southeastern affiliations in Puebla and Vera Cruz. But a tenuous connection might be drawn between the fangs of this god, Tlaloc, and the gopher teeth found with skeletons Nos. 17 and 51, which we thought in turn were associated ceremonially with the animal-headed figurines of Type Gii. In such a case, the trait would have survived an attribute. But this connection becomes unlikely when we observe that the Type Gii specimens were not represented with prominent incisors.

CONCLUSIONS

Work in stone at Ticoman follows the common trait of using different kinds for different functions. Thus, obsidian is used for delicate implements where a fine edge or a sharp point is needed; stones of the quartz family are utilized for heavier tools like scrapers and hide graineers; hard close-grained stones like jade or porphyry are usually ground down into pestles, pounders, or celts; and lava is utilized for the heavy tools like manos and metates.

Time distinctions within the occupation of Ticoman are hard to detect, but the most reliable of them is the evolution of the projectile

[1] Seler, 1915, Pl. LXVI a, Figs. 1 and 3.
[2] Seler, 1915, Figs. 187–189.
[3] Strebel, 1885–1889, II, Pl. XXV No. 9, Pl. XXVI No. 7.
[4] Seler, 1915, Figs. 28–30; Gamio, 1922, Pl. 22, d.
[5] Gamio, 1922, Pl. 96, Figs. i–j.

points from forms with simple tangs to those with stems and side notches. Stone balls are more common to the Early than to the Late Period, even as in pottery.

Between Early and Middle Zacatenco and Ticoman, however, the differences are striking. Obsidian blades are longer and finer at Ticoman and arrowheads are uniformly more developed in chipping and in methods for attachment. Scrapers and knives not only embrace more different kinds of stone, indicating a superior utilization of natural resources, but the workmanship is more skilful and increased care is shown in chipping out the cutting edges. Celts of jade and other stone were fairly common at Ticoman in contrast to the scarcity at Zacatenco. Manos showed no change, but metates at Ticoman were supported on square legs instead of the conical Zacatenco forms. Ornaments were rare in both localities, but at Ticoman two examples of stone sculpture were found.

Architecture

The architecture of Ticoman, already discussed in the Physical Composition of Ticoman (pp. 220-247), is confined to long lines of low walls that terraced the banks of débris and thereby gave level living surfaces. The usual method seems to have been to pile up boulders along a given slope and then to pile dirt behind them. The relative absence of artifacts immediately behind the walls is the basis for this suggestion. In almost no cases were walls ever founded on rock, so that frequent repair was necessary. Sometimes, the remains of earlier walls were utilized as a foundation as in Wall B, Trench C, under a Late revetment an earlier one appeared, or in the three revetments of the East Extension of the Wall Digging where Wall II was roughly based on Wall I. In a section of the late revetment, Wall C, at the head of Trench C which extended over into Trench A, slabs were utilized as a sort of splatter board to prevent erosion (Maps IV, VI).

The most elaborate terracing found was in the Wall Digging, where rocks and refuse from previous terracing, with dirt rammed into the interstices, were built up behind the terrace walls; and in one case slabs were used to pave a small section between Walls A and B of the South Extension (Maps IV, VI).

Traces of house foundations are rare and doubtful. The system of walls described as Rooms I and II of the Wall Digging indicates such a purpose since they enclose two rectangular spaces on three sides and suggest the closing in of the fourth. The right angle between Walls C and

D is hard to explain, unless one assumes that they are vestiges of house foundations. Yet, although the word "house" has been used glibly throughout these pages, we know nothing of the structure. The evidence of adobe in the earth of Zacatenco, together with the amount of earth in the accumulations at Ticoman makes it likely that the dwellings were of wattle and daub construction, for, had the people lived in wooden houses, sooner or later we should have found evidence of conflagrations. Furthermore without the constant washing away of adobe from houses, both lived in and abandoned, it is hard to explain how rotten vegetable matter like cornhusks could have caused by itself the accumulations we found, nor does the débris have the fine-grained quality of dirt formed in such a way (Map VI).

In spite of architectural poverty, the Ticomanos knew the art of dressing stone. The slabs over the top of the grave of skeleton No. 51 had been split off and roughly dressed by pecking, and the slabs between Walls A and B, and those forming the north walls of Rooms I and II, are treated in the same manner (Map VI; Map II, Fig. 16–17).

We found evidence of an oven and a cist in Trench B, Second Excavation, Cut I. The oven was a hollow dug in the ground and lined with stones, which had collapsed upon a bed of charcoal. Its shape was roughly circular, with a diameter of about a meter, and the height, reduced naturally by destruction, was 35 cms. The stones were blackened and thoroughly burned. Since most primitive pottery is made in open hearths, this oven was probably used for cooking food. It seems to have been partially subterranean.

Skeleton No. 22 was found inserted in a cist dug through the débris. (Map I, Fig. 4). The interior walls had been mudded and wiped smooth. The diameter of the base was about 85 cms. and the height was traceable for 45 cms. The wall showed no trace of burning and the structure was definitely underground, so that it had never been used for cooking, although the proportions are close to those mentioned for the oven. Thus three possibilities are open, that it was constructed purely as a grave, that it was a storage cist, or that it was an oven never completed and pressed into use as a grave. If the cist were a grave, its construction is unique at Ticoman. If it were a storage cist, damp and rats under it must have made it unsuitable for the storage of food. Thus, the most logical interpretation is that it is an uncompleted oven, utilized as a grave, although the ovens made of stone and adobe seen by the writer in the American Southwest and Mexico have been, partially at least, above ground.

No traces existed of a mound or pyramid, like those at Cuicuilco, in the Valley, or Santa Maria Zacatepec and San José Siclaltepec in the Valley of Puebla, sites which have vague ceramic connections with Ticoman. The development of the pyramid cult is one of the most interesting problems of Middle American archæology and the solution must lie in some aspect of the history of the Early cultures. Yet, nothing has developed from our studies in the Valley of Mexico that can, as yet, give other than inferential data on this question.

Work in Shell (Pls. LXXXIV, XCII)

The variety of uses to which shell was put, was much greater at Ticoman than at Zacatenco, but it has no demonstrable chronological significance between periods, at the first named site. Shell objects were found in the débris and accompanying burials. The kinds found were *Dentalium*, *Neritina reclivata*, *Arca ponderosa*, *Arca pexata*, *Oliva reticularis*, the pearl oyster, *Meleagrina margaritifera*, all marine varieties, and *Oleacina coronata*, the land snail, *Limnæa columella*, fresh water snail according to the identifications most courteously made by Doctor Willard G. Van Name of the Department of Marine Life of this Museum. The most elaborate use of shells was a necklace near skeleton No. 15, which was found in a lump of cinnabar as if the whole had been contained in a bag. The shells were graduated so that the larger sizes were at the extremities (Pl. XCIII, center, third row). The center of the necklace was a small pendant of pearl oyster shell and next followed perforated shells of *Neritina reclivata*, very small in size. Then, after elongated cylinder beads of dentalium, longitudinally bored, disc beads of the same material were strung in increasing size until the end was reached. Seven irregular discs of pearl or abalone shell lay at the neck of skeleton No. 41. Each of these had two perforations, suggesting that they were sewed to a backing of leather or cloth (Pl. XCII, center fifth row). Two shells of *Oliva reticularis* accompanied skeleton No. 11 (Pl. XCIII, center top row No. 2; Pl. LXXXIV, bottom row No. 6). The base of the shell was cut off and at the top a transverse groove was cut until it was thin enough to perforate. This apparently is a long continued method of preparing beads, for similar specimens were found by the writer in the quadrangle south of the Temple of the Phalli at Chichen Itza in Yucatan, and others were recovered at Teotihuacan.[1] More elaborate specimens which were worked beyond the making of a simple perforation, comprised a pendant of pearl oyster shell from the northwest

[1]Gamio, 1922, Pl. 101, Figs. m and n.

ramus of Trench B, and one of the same substance in the form of a bird purchased at the site. The first object was a sliver, the edges of which had been squared and a hole perforated (Pl. LXXXIV, top row No. 8). The second was a thick fragment, notched at the neck with the head roughly indicated (ibid., bottom row No. 1). The other various examples were either merely perforated or else fragmentary and the shells of two land snails, *Columella* and *Limnæa*, may have occurred naturally, since they were not worked (Pl. LXXXIV, top row No. 12, bottom row No. 7).

OBJECTS OF HORN AND BONE (Pls. LXXXIII-LXXXIV, XC–XCIII)

Horn and bone, as in all primitive communities, were extensively utilized at Ticoman. The forms fall into several broad divisions, needles, awls, and ornaments of bone, and hide-grainers and chipping tools of horn. Deer horn and bone were the principal substances, but bird bones were also utilized. Horn tools, moreover, had a varying function according to the season of the year when the deer was killed. In the spring when the horn was spongy, scrapers for cleaning hides were worked; in the fall or winter when the horn was hard, flaking tools were made for the shaping of stone objects, like obsidian points.

Data on the purpose and relationship of tools were gleaned from the furniture of several graves. Skeleton No. 17 had a very full outfit of implements (Pl. XCI). Among them were found two spongy horn grainers or chisels, much worn and with both ends shaved down to edges. These might have been used to detach the flesh from the hide. Their function was supplemented by three small obsidian scrapers. For perforating holes in the leather there were three large bone awls made from deer radii, the distal portions of which were smoothed to a point. Two bodkins were used presumably to push the thread or sinew through the holes perforated by the awls. A small shovel-tipped tool of bone has no explicable use unless for fine work in the preparation of the hide or as an implement for weaving mats and baskets. This burial had in his lap sixteen mandibles of the tusa or pocket gopher which, being smaller and more brittle than beaver tooth chisels found among some of the Plains Indians, could not have been utilitarian in purpose (Pl. XCI).

Skeleton No. 34 produced tools of a little different character, since they involved finer work, like perhaps the tailoring of a hide. Thirteen obsidian blades and flakes provided for the cutting of the material. Two small bone awls served to perforate it and a needle equipped with an eye took care of the sewing. Six bird fibulæ were probably blanks from which other needles could be manufactured. A hollow bone cut at one end

might have been a needle case, and a battered bone, much used, served no explicable use (Pl. XCII). Needles with eyes were almost always associated in graves with blades of obsidian, so that there must have been a tailoring industry, although whether it was in hide or textiles cannot be decided on the archæological evidence. Pl. XCIII shows a number of sets of tailoring implements from skeletons Nos. 11, 33, 39, and 48. The skeletons equipped with the sets of tools described in the foregoing paragraphs were all male, a fact recalling some Southwestern communities where the men wove and the women were potters.

The general digging produced specimens like those we have just described (Pl. XC, top and bottom rows). In addition, we found several blunt bone instruments like chisels, made of deer bone with the exception of one made from a human fibula (Pl. XC, top row Nos. 4–6). These may have been spatulas or have been used in the preparation of hides. A number of horn tools terminating in a narrower chisel-like tip of more massive construction were doubtless used to flake stone by the pressure method (Pl. XC, bottom row Nos. 6–11). One example of a pick made from a single antler was also found (Pl. XC, bottom row, No. 2).

Bone was used too for ornament, especially for making beads. Bird bones were preferred, since they had hollow interiors and did not need to be bored. We recovered one example which had segments sawed off for this purpose (Pl. XC, top row No. 1). The actual beads were fairly common, a set of four coming from the neck of skeleton No. 30, and others from the general digging (Pl. XCIII, center, fourth row; Pl. LXXXIV, top row No. 6 and bottom row Nos. 3 and 4). They were generally undecorated, one, only, having a groove cut around the middle. The northwest ramus of Trench B yielded a pendant made from a thin sliver of bone and a square block, nicely polished, possibly from a human skull (Pl. LXXXIII, bottom row No. 5; Pl. LXXXIV, top row No. 7). It is not possible, however, to identify the latter specimen precisely, for in the preparation of the piece the salient details have been obscured.

A necklace of the canine and incisor teeth of at least three dogs or coyotes was found at the wrist of skeleton No. 39 (Pl. XCIII, center second row). The roots had been perforated for suspension. Since the sizes of the teeth vary, it is presumable that they were arranged symmetrically like the elements of the shell necklace previously described.

Mention has been made of the mandibles of gophers found with skeleton No. 17 and another lay in a yellow bowl buried with skeleton No. 54 (Pl. XCI). The most natural inference to draw is that some ritualistic function was fulfilled by these jaws and the animal-headed figures of

Type Gii (cf. Pl. LVIII) may have represented the animal. But since the purpose of this report is to present material and abstain as much as possible from speculation, it does not seem necessary to do more than mention this coincidence.

The skeleton of a young dog or coyote was found in the low débris of Trench C. Bones were found of the weasel and the spotted skunk as well as of the gopher or tusa, according to the identifications made by Mr. Robert T. Hatt of the Department of Mammalogy of this Museum. These burrowing animals caused the obscuring of many details in the archæology of the site.

A comparison of the bone and horn tools and ornaments from Ticoman (Pls. XC–XCIII) with those of Zacatenco (this volume, Part I, Pls. XLVIII and XLIX) reveals little difference in the function of the tools. Moreover, in utensils for household use, once a satisfactory form is attained, there are, in the absence of decoration, few ways in which such implements could vary from period to period and thereby indicate time. Consequently, in neither the evolution at Ticoman nor at Zacatenco was it possible to detect chronological differences within either site. Yet, comparing one site with the other, Ticoman shows greater variety among specific kinds of tools than Zacatenco, as well as the evolution of needles with eyes and ornaments of bone. This elaboration is consistent with the conclusions derived from studying figurines, pottery, stone, and shell. Except, however, for figurines, pottery, and arrowheads, the attribution of a single specimen to a given horizon is difficult, but an examination of a group of implements *en masse* would enable one to state their chronological level with fair accuracy.

Textiles

The textile arts existed at Ticoman, although the evidence is scanty. Several graves (Nos. 22, 11, 12–13, 15, 19, 36–38) were lined with mats of simple twilled weaving, like the *petates* in use in Indian communities of modern Mexico (Text with Maps I and II). A gray powdery substance was stuck to the hips of skeleton No. 22 that looked like the remnants of a feather robe. Moreover, the condition of the bones and the cavities around them suggested that some covering kept the earth away from the body. Probably because of sculptural difficulties, bodies of figurines are not shown clothed, but many of them wear turbans, especially in the E group (Pls. LV–LVI), that must have been made of wrapped textiles or bast. At Zacatenco we found a bit of textile with skeleton No. 4, a

burial of the Early Period,[1] so that the continuation of the manufacture of woven goods into Ticoman times may be assumed with confidence.

Burials (Maps I–II, IV, VI)

It is a truism that to understand the history of a people, immaterial cultural manifestations like language, philosophy, religion, and ceremonial life, must be studied as intensely as the material culture. Yet, almost all these intangible things are lost in dealing with a forgotten group like the Ticomanos. A few ceremonial objects remain that are explicable through inference and comparison with native objects of later and more fully documented people like the Aztec and the Toltec, but this is an inaccurate and unsatisfactory intellectual process. The methods of burial, however, do give some further data on the ceremonial life, beyond the objects.

Sixty-one burials, some of which were disturbed, were found at Ticoman. The bodies, usually flexed or semi-flexed, were placed in the graves and were not oriented, as a glance at Maps I–II will show. Of these sixty-one graves, eleven were disturbed. Thirty-three of the remaining fifty had mortuary furniture, and four of the disturbed skeletons likewise had objects associated with them. Thus the placing of objects in a grave was a standard custom. Obviously, no one would state positively that because no objects were found with a burial, there must have been an offering of perishable material, although such a possibility suggests itself.

The preparation of the grave was simple. Excavation by means of a digging-stick or other rude tools made soft ground essential. Hence, accumulations of débris were sought; and the burial centers in front of the revetments of Trenches A and C, and outside of the terraces of the Wall Digging consequently produced most of the mortuary evidence (Map IV). It is probable that débris beds not utilized as living surfaces were desired, for Trench B shows much fewer burials than Trenches A and C. Also convenience might have dictated that the burial ground be near the center of population. Thus, the rocky irregular zone in the A–C burial belt would have made an especially suitable place. Usually the graves were dug so that their long axes were at right angles to the slope of the débris, making necessary for proper interment a minimum of digging. If the long axis of the grave lay in the same direction as the slope of the hill, the upper end would be much deeper from the surface of the ground than the lower, and more earth would have to be removed.

[1] This volume, Part I, 38.

The graves seem to have been lined with mats or *petates*, evidence of which was found in burials Nos. 11, 12, 15, 19, 22, 36–38, in the shape of impressions. The bodies were then inserted in the grave with the legs bent to fit the contours of the hole, although the arms were often folded at the breast. Pots and implements were placed along the side of the body, according to the space afforded and the type and size of the objects. Thus bone and obsidian tools lay in the lap or at the side of the corpse, beads were at the neck, and pots fitted in, usually mouth outward, below the hips or at the shoulder. There was no "killing" of pottery, but occasionally fragments were used. Skeleton No. 10 was accompanied by a white bowl and the fragment of a polychrome vessel. A thick olla sherd lay at the hips of skeleton No. 26. Skeleton No. 17, besides his equipment of implements, had a large olla sherd over his face as if to protect it from the dirt, and skeleton No. 30 was covered with olla fragments which were placed as protection, since breakage of the pot would not have caused the fragments to be so disposed (Map I, Figs. 18, 5, 23; Map II, Fig. 1).

After the body had been laid away, the graves were filled up. When the ground was deep, the excavated dirt was thrown back into the grave. When the débris beds were shallow, as in Trench F, rocks were piled upon the body to protect it from dogs and wild animals, and to retard erosion of the soil (Cf. skeletons Nos. 2, 15, 41, 43–45). Burial No. 51 was covered by slabs, filched probably from the ruins of Rooms I and II, and as his grave was the richest, he must have been a person of great importance (Map II, Fig. 17).

No markers seem to have indicated the presence of graves, nor could there have been any great horror of the dead once they were buried. We were constantly finding disturbed burials with the intruding sepulture lying in the midst of the dislocated bones of the preceding one. In several cases, skeletons Nos. 12, 13, 14, 20, 21, the pots accompanying the disturbed burials were left intact, so that there must have been some respect for the possessions of the dead (Map I, Figs. 20–21, 25–26).

Three burials were found which were exceptions to the conditions described above. Skeleton No. 22 was stuffed head down into an abandoned oven or storage cist, with mudded walls. She was wrapped in a feather blanket and had two ornate earplugs buried with her (Pl. LXXXII, bottom row No. 1). Rocks were then piled in over her. This is the only example we discovered of the utilization of an existing cavity (Map I, Fig. 4). The slabs over skeleton No. 51, likewise, single it out for special mention as a formal disposal of the dead (Map II, Fig. 17). Skeleton No. 34 was buried in a seated posture (Map I, Fig. 9).

Two triplicate burials were found, Nos. 36–38 in Trench A and Nos. 43–45 in Trench F. The former consisted of a woman buried face down with two young children lying above her (Map II, Figs. 2–5). A mat lined the grave, but there was no other furniture. The second triplicate burial, Nos. 43–45, was similarly disposed (Map II, Figs. 9–12). A middle-aged woman lay on her back and right side with two adolescents piled one on its back and one on its side above her. A polished red ware bowl was tilted mouth outward near the hips of the children and the grave was covered over with stones. It would seem that these were family burials. In neither case was there evidence of sacrifice, although there are many ways of killing an individual that would not be evident from his skeletal remains. The facts that in each case there was a woman with children, and that each received full mortuary rites, as the mat and the pot attest, suggest there was no dishonor attached to their deaths. Far more likely, these burials indicate the presence of contagious disease that in each case wiped out a family. Both burials were in Early débris, but the actual date of interment cannot be stated definitely, so that these burials cannot be adduced as evidence of an epidemic, no matter how tempting would be such an explanation for the abandonment of Ticoman.

The chronological sequence of the burials is difficult to determine, since a body can be interred in a débris bed any time after its formation. Consequently, if a corpse were buried in an Early Period débris bed, it might have been laid away at the close of the Early, the Intermediate, or the Late Periods. The overlapping of frequencies of ceramic styles, likewise, renders it difficult to decide whether a grave vessel represents the high percentage of one period or the low of another. When one burial overlies or disturbs another, it is obviously later and it is on this basis that a chronological consideration of interments and their furniture must be erected.

The trenches of the B system produced eight sepultures (Nos. 8, 9, 16, 22, 26, 31, 32, 33). Skeletons Nos. 9 and 8 of Cut II of the First Excavation and Nos. 33 and 32 of Cut III of the Second Excavation occur along the same level. Skeleton No. 9 yielded a polychrome bowl with rattle legs which, coupled with the Intermediate character of the débris, dates the four burials as of that period. They cannot be Late, for the top of the shaft of No. 9 is below the base of the Late débris (Map I, Figs. 1–2, 7–8; Map VI, Fig. I; Pl. LXXI, Figs. a, d).

Burials Nos. 16 and 22 were found in Cut I of the second excavation behind the north-south revetment, and the strata in which they lie yielded Late débris and were superimposed on those where the preceding

four burials occurred. Burial No. 16 contained a red-on-yellow stick-polished bowl. The position of these two graves makes them naturally Late Period (Map I, Figs. 3–4; Map VI, Fig. VI; Pl. LXXVIII, Fig. e).

Burial No. 26 lay at the head of Cut I in Late débris above the upward thrust of the rock. Since this débris must have accumulated after that in the lower sections, No. 26 must be later than Nos. 16 and 22 (Map I, Fig. 5; Map VI, Fig. VI). No. 31 lay north of the Trench B system, and was partially washed out, although resting on rock (Map I, Fig. 6). Its period therefore cannot be determined. According to this estimate the Trench B burials group themselves as follows:—

Late, Nos. 16, 22, 26
Intermediate, Nos. 8, 9, 32, 33
Indeterminate, No. 31

The burials in Trench C and Trench A group themselves together, owing to the proximity of the two trenches. There were twelve burials in Trench A and sixteen in Trench C. These comprised: Trench A, skeletons Nos. 1, 2, 4, 6, 7, 10, 11, 15, 15a, 17, 36, 37, 38; Trench C, skeletons Nos. 3, 5, 12, 13, 14, 18, 19, 20, 21, 23, 24, 25, 27, 28, 29, 30.

In the description of the physical composition of Trenches A and C, it will be recalled that the débris on this portion of the hill was retained by a series of terraces which represented a succession of efforts throughout the entire occupation of Ticoman to form surfaces level enough to live on. The soil outside the outermost of these terraces, Wall A, was very thin, but where it was thick enough to contain débris the material was Late. Burials Nos. 3 and 5 occurred in Late débris just east of this terrace. Nos. 1 and 2 were found barely covered by earth. Therefore Nos. 3 and 5 are certainly Late Period and the probabilities are that Nos. 1 and 2 are also Late (Map I, Figs. 11–13, 15; Map IV; Map VI, Figs. VIII–X).

Behind this outermost terrace, another revetment, Wall B, straggled irregularly; and underneath are traces of an earlier one, B-sub, that is washed out in spots (Map VI, Fig. IX). Skeletons Nos. 4 and 6 were found near the portions of the wall uncovered by Trench A and No. 18 lay in front of the section bared by Trench C. No. 4 was partially washed out, since it occurred high in the débris, but No. 6, furnished with a pot, rested on rock bottom (Map I, Figs. 14, 16). Since the bowl had an Early shape (Pl. LXXII, Fig. f), it was logical to deduce that since Skeleton No. 6 was buried in débris accumulated against the lower wall, it might be dated as Early. No. 4 probably was Late. No. 18 was fragmentary and may have been thrown out from a disturbed burial further up the slope (Map VI, Fig. IX; text, Map I).

The débris beds behind this second revetment, Wall B, contained accumulations from the original occupation of Ticoman in the Early Period, and also from succeeding epochs, since the third series of revetment walls to the west, Wall C–E, were erected in the Early and the Late periods. The low levels yielded figurine Types I and E, the upper, H. A short distance west of Wall B, burial No. 7 was found in Trench A, resting on rock and near a large boulder. The cast of the grave was visible and seemed not much more than a foot in depth (Map I, Fig. 17; Map VI, Fig. X). This burial therefore might be considered Early, since the burial party had taken advantage of an unoccupied zone having enough earth to hide away a corpse, and it was east of the main burial belt (Map IV).

This belt extended for twelve meters north and south and three east and west, and traces of twelve individuals were found (Map IV). The first signs were burials Nos. 10 and 11 in Trench A (Map I, Figs. 18–19). The former seemed ceramically Intermediate or Late in date by virtue of a white bowl and a polychrome fragment with a polished red exterior and ball legs (Pl. LXXVII, Fig. j; Pl. LXXI, Figs. h–i). A little south and a little above it was skeleton No. 11, which yielded an olla, bone awls, and shell trinkets (Pls. LXXVII, XCIII).[1] Since neither rested on bottom and both lay at less than 60 cms. from the surface, there is little probability of their occurring much before the Intermediate Period (Map VI, Fig. X). In Trench C, south of these burials, and at a higher level, were found three disturbed interments, Nos. 12, 13, and 14 (Map IV). Nos. 12 and 13 were two sets of much disturbed bones that may have come from the same individual (Map I, Fig. 20). A whole polished red bowl with a white lip and swollen tripod legs and a cache of five arrowheads were found associated with the bones listed as No. 12 (Pls. LXXVIII, XCIII). Skeleton No. 14 was likewise out of position, but over its hips lay a bowl with the fracture resulting from the loss of an annular base smoothed away (Map I, Fig. 21; Pl. LXXVI). These burials lay just under a pot hunter's excavation, but it is inconceivable that the thief should have destroyed the order of the burials without taking out the funerary objects. In the bank left by the pot hunter a baby, No. 19, (Map I, Fig. 24), was found, and on the same level as the disturbed burials, Nos. 12, 13, 14, lay another, No. 20, which was accompanied by a red-on-yellow stick-polished pot in the form of a human head (Map I, Fig. 25, Pl. LXXVIII). This zone of disturbance continued up

[1]The interested student will be able to identify the specimens from the Plate captions. To conserve space and to avoid unnecessary eye fatigue, illustrated objects will be referred to only by Plate in this section and not by row and figure.

to skeleton No. 21, the pelvis of which alone remained, and over which were inverted a brown ware and a polychrome vessel with ball feet (Pl. LXXI, LXXIV). In this case, however, skeleton No. 23 was found to be direct cause for disturbance, since the head of No. 21 lay under its hips. At the thigh of No. 23 was found a red bowl with a spider tripod and at the shoulders a polychrome bowl with claw feet (Pls. LXXI, LXXIII). Therefore, skeleton No. 23 was interred subsequent to No. 21. It is possible that the group of disturbed burials Nos. 13, 14, 20, represented a former attempt to dig a grave for No. 23, which led the burial party to sink the shaft disturbing No. 21 and to desist from further search for a place unoccupied by graves (Map I, Fig. 26; Map IV; Map VI, Fig. IX).

Skeleton No. 17 was found in Trench A, a meter north of skeleton No. 23 and was equipped with a pot, obsidian and bone tools for working leather, and sixteen rodent mandibles (Map I, Fig. 23; Pls. LXXVIII, XCI). He was buried about a meter down from the surface at about the same level as No. 23 (Map IV; Map VI, Fig. X). The pot which was supported on eccentric legs was red-on-yellow stick-polished, like the effigy bowl with the disturbed skeleton No. 20 (Pl. LXXVIII). A little north and east of No. 17 lay skeleton No. 15, on the usual level for the Trench A interments (Map IV; Map VI, Fig. X; Map I, Fig. 22). Rocks covered it, indicating that the ground had been shallow and, near it, most probably part of the funeral furniture, the quartzite pot and the shell necklace, each covered with cinnabar, were found (Pls. LXXXIII, XCIII). A few centimeters south of No. 15 we recovered a polished red bowl and in no close association with it were some scattered bones (Pl. LXXIII; Map I, text). We gave no number to these bones at first, for they might have belonged to the disturbed burial No. 20, but for clarity we shall call them No. 15a.

The last skeleton of this belt was No. 30, which lay three meters south of the Trench C burials and was equipped with a red-on-yellow stick-polished olla and a rough black-brown pot (Map II, Fig. 1; Map IV; Map VI, Fig. XI; Pl. LXXVII). The presence of red-on-yellow stick-polished pottery draws together burials No. 30, 20, and 17; and a bowl of the same ware occurred with skeleton No. 16 in Trench B, which we classed as Late (Pls. LXXVII–LXXVIII). Since Nos. 11, 12, 13, 14, 15, and 21 were found at the same level, they are best classed as of the same period. Skeleton No. 23, because it disturbed No. 21, and No. 19 because it lies higher in the débris, must be later than this group (Map IV; Map VI, Figs. IX–X).

Yet, before drawing all these burials in Trenches A and C into a single scheme, let us consider a belt of five burials, Nos. 24, 25, 27, 28, 29, that were found immediately in front of the revetment at the head of Trench C. Three of the burials, Nos. 24, 25, and 27, were buried high in the débris in front of the Late revetment faced with slabs that composed part of this third group of terraces in the A–C trench system. Skeleton No. 24 was a child with a black-brown bowl (Pl. LXXIV) and a shell bead; No. 25, a youth with a flare neck olla under his head; and No. 27 was a baby under six months. All these three burials must be very late and correspond to the period of the débris associated with Hiv figurines and many modeled feet for pottery vessels (Map I, Figs. 27, 28, and text; Map IV; Map VI, Figs. IX, XI).

Far below these skeletons, in the débris piled in front of the Wall C-sub, we found the baby No. 28 lying on bottom. Near it was a polished red earplug that probably was not in direct association. A little north of this baby were found the tarsus bones and the ulna of an adult, No. 29, and the fragments of a polychrome olla adorned with small animals (Pl. LXXII). Rodent burrows pierced the earth in this sector so that the association of the pot with the burial is very doubtful. The implication remains, however, that as the graves are in Early débris and as they underlie the complex of disturbed burials, they are of the Early Period (Map I, text; Map VI, Fig. XI).

The triplicate burial, Nos. 36–38, at the head of Trench A was found near the surface, but in Early débris. It is not possible to state the period. Yet, since the Late burials of the A–C trench system are grouped very closely together in a zone yielding some Late débris, there is a possibility that this interment is Early (Map IV; Map VI, Fig. X; Map IV, Figs. 2–5).

Skeletons 34 and 35 of the top cut of Trench E were found at the top of an accumulation of redeposited material containing Late culture elements. No. 34 was seated erect and was furnished with a rich assortment of tailoring tools (Pl. XCII). No. 35 was disturbed. There can be little question that these are Late Period burials (Map III; Map VI Fig. III; Map I, Figs. 9–10).

This statement of evidence is tedious reading and even when abridged and simplified it is involved. Yet there seem to be four periods, Very Late, that of the burials in the grass roots and outside the first or easternmost terrace, Wall A; Late, or the disturbing burial No. 23; Late or Late Intermediate, the disturbed burials of C and the rich burials of A; Early or Early Intermediate, the burials, often disturbed, that

rest on rock within the terraces (Map IV). Comparing them with the Trench B complex burials, we may draw up the following table:—

Trenches	B	A	C	E
Very Late	26	1, 2, 4	3, 5, 19, 24, 25, 27	
Late	16, 22		23	34, 35
Late-late Intermediate		10, 11, 15a, 15, 17	12d, 13d, 14d, 20d, 21d, 30	
Intermediate	8, 9, 32, 33			
Early-early Intermediate		36–38 (?)		
Early		6, 7	18d, 28, 29	
Indeterminate	31			

d = disturbed burial

The next burial belt stretched through Trench F and the vicinity of the Wall Digging (Map IV). One group of fifteen lay within the revetment of Trench F and comprised burials Nos. 39–47, 49–51, and 54, together with two outlying burials, Nos. 48 and 53, in Trench I. Skeletons Nos. 58 and 60 were found at the head of the South Extension, while Nos. 52, 55–57, and 59 were spread through the head of Trench H and the East Extension. At the outset, it may be said that the dating of these burials is extremely difficult. The débris is shallow and Early so that one is faced with the possibility of interments made long after the abandonment of the terrain (Map VI, Figs. XII–XVII). On the other hand, ornate forms of pottery are seldom found and equation with the Intermediate and Early Periods seems possible.

Before entering in further discussion, let us examine conditions. The first group of burials occurred about two meters south of the Trench F revetment (Map IV; Map VI, Fig. XII). No. 39 was discovered first equipped with a white bowl with black interior, a black-brown bowl with incurved rim, a set of awls and obsidian knives, and a necklace of animal teeth (Pl. LXXVII, XCII). It rested on bottom and was covered by a heap of stones (Map II, Fig. 6). Near it lay a burial without furniture, No. 46, which had been disturbed apparently by the triplicate interment Nos. 43–45 (Map II, Figs. 9–13). This burial was covered by a cairn of stones and with it was found a polished red bowl (Pl. LXXIII). A short distance east was found skeleton No. 41, which had shell beads at its neck and a polished red ware bowl nested over a small black pot at its chest (Pls. LXXVII, XCIII). This burial had disturbed No. 42 near the head of whom was recovered almost intact a red-on-yellow incised bowl (Pl. LXX). Close by was found the skeleton of a child, No. 40, which had no furniture (Map II, Figs. 7–8).

The situation seems to have been this: Skeletons Nos. 46 and 42 represent the first burials in the zone and No. 42 has the definitely Early Period trait of a red-on-yellow incised bowl. Skeletons Nos. 39, 41, and 43–45 group themselves, for the polished red and black-brown bowls tie in with the polished red bowl of Nos. 43–45 and the black-brown of No. 39. Since none of these obviously rich burials contained vessels with ornate legs and, on the other hand, did yield black-brown bowls so characteristic of the Early and early Intermediate Periods, they can probably be assigned to that time, more probably the early Intermediate, because of the displacement by No. 41 of No. 42. Skeleton No. 40 probably fits into this time group (Map IV; Map VI, Fig. XII).

The second group in Trench F was buried around a bend in the revetment to the east and had partially destroyed that wall (Map IV; Map VI, Fig. XIII). Skeleton No. 47 was buried near rock bottom ground and was furnished with a knife and three solid disc earplugs, which we have seen are Early and early Intermediate traits (Map II, Fig. 14; Pl. XCIII). Skeleton No. 49 was in the grass roots and had been almost laid bare by erosion (Map II, Fig. 15). A little north of it Skeleton No. 50 was encountered badly out of position, but with a jade bead at its neck (Map II, Fig. 16; Pl. LXXXIV). The cause of this disturbance seemed to be skeleton No. 51, which rested on rock and was covered over with slabs (Map II, Fig. 17). There were several objects, a metate, a mano, a red bowl with spider legs and a red-on-yellow stick-polished olla with lost color design (Pls. LXX, LXXVIII). The bowl was of the same type as that found with skeleton No. 23 in Trench C (Pl. LXXIII), but the red-on-yellow stick-polished ware of the olla connects with the bowls found with skeleton No. 16 of Trench B, skeletons No. 20 and 30 of Trench C and skeleton No. 17 of Trench A (Pl. LXXVIII). These burials we had judged to be Late or later Intermediate; and the conditions of sepulture of No. 51 which showed the partial destruction of a terrace, the utilization of slabs from a foundation, and the disturbance of a previous burial (No 50), all indicate an interment subsequent to these we have previously considered (Map IV; Map VI, Figs. X, XIII).

Burial No. 54 lay high in the débris, a little north of Nos. 50 and 51 (Map II, Fig. 18). At its chest a small cream-colored bowl was found containing a gopher mandible (Pl. LXXVII). The bowl connected with one found with skeleton No. 10 of Trench A and the jaw seems to tie in with those found with skeleton No. 17, both of which we dated at Late or late Intermediate (Pls. LXXVII, XCI). Coupled with the high posi-

tion in the ground, this burial, like No. 51, might be considered as of that period (Map IV; Map VI, Fig. XIII).

The two outlying burials in Trench I, skeletons Nos. 53 and 48, are probably of the same Early or early Intermediate Period as the first group of burials in Trench F (Map IV; Map VI, Fig. XIV). No. 53 was buried deep in the ground and had at its hips a black-brown bottle and near its knee a Type Cv figurine head (Map II, Fig. 20; Pls. LXVII, LXXXVII). Skeleton No. 48 was found two meters north at about the same depth (Map II, Fig. 48). He was furnished with a bone needle at his neck, an obsidian knife at his waist, and by his lap, a bowl of dull polished red, with a concave rim, notched along the edges (Pls. LXXVII, XCIII). That neither of these bowls shows traits peculiarly Late, strengthens the evidence of the depth of these burials—that they are Early or early-Intermediate.

Less satisfactory evidence attends the attempts to date the South and East Extension burials, Nos. 52, 55–60 (Map IV). Skeleton No. 52 was found, badly disturbed, near bottom in Trench H not far north of the east terraces I–III (Map IV, text; Map VI, Fig. XVII). Nearer to the walls skeleton No. 55 lay midway in the débris, and it had been thrown out of position by skeleton No. 56 (Map II, Fig. 21). A rodent burrow had displaced the two. Near the shoulder of No. 55 were found an obsidian blade and a point (Pl. XCIII). The haft of the former was an Intermediate or Late type, like the five projectile points with skeletons Nos. 12–13. The position in the débris above the Early Period beds substantiated this inference.

Burials Nos. 57 and 59 were found near Wall IV of the eastern terraces of the Wall Digging, above the surface that sealed in the masonry (Map IV; Map VI, Fig. XV). No. 59 consisted merely of a floating skull and scapula (Map II, text), but No. 57, although disturbed, probably by rodents, lay in position and yielded a small white-on-brown olla (Map II, Fig. 22; Pl. LXXVI). Sherds of this ware having been found in Late débris, and the shallowness of the grave, make a Late dating probable for No. 57.

The two South Extension burials, Nos. 58 and 60, were found between Wall D and the rising outcrop (Map IV; Map VI, Figs. XV, XVII). The best obsidian blade that we recovered at Ticoman was among the ribs of skeleton No. 58, but it had probably worked up among the bones as the body collapsed from disintegration, so that we are not dealing with a murder (Map II, Fig. 23; Pl. LXXXV). As No. 58 lay above the level of the walls north of it and above the floor or living surface it is probably

late Intermediate or Late (Map VI, Fig. XVII). Skeleton No. 60 was disturbed by erosion, but it was interesting because of a healed fracture of the left femur (Map II, Fig. 24). It lay beneath an unbroken floor line and is probably Early or early Intermediate (Map VI, Fig. XV).

In this sector called the Wall Digging we found no traces of early burials as in the F zone. Most of the interments had been made after the hard surfaces had covered the ruined terraces. Burials Nos. 52 and 60 alone seemed to equate chronologically with the first group of F sector burials. The second series of burials found at the north of Trench F and in Trench I give rise to a fairly strong supposition that there were two periods of burial, Early–early Intermediate and Late. Nos. 48 and 53 of Trench I were deep in the ground, while Nos. 51, 54, and 49 were either in the turf or had Late pottery. Consequently, the attribution of the Wall Digging burials, although little substantiated by ceramic evidence, is fairly well justified (Map VI, Figs. XII–XVII; Map IV).

A final table will show the writer's ideas on the sequence of burial in all trenches.

Trenches	B	A*	C	E	F	Wall Digging
Very Late	26	1, 2, 4	3, 5, 19, 24, 25, 27			
Late	16, 22		23	34, 35		57, 58, 59?
Late-late Intermediate		10, 11, 15, 15a x, 17	12d, 13d, 14d, 20d, 21d, 30		49, 51, 54,	56?
Intermediate	8, 9, 31, 32				47, 50d	55d x
Early-early Intermediate		36–38(?)			39, 40, 41, 43–45, 48,53	60
Early		6, 7	18x, 28x, 29x	42d, 46d		52x
Indeterminate	33					

d = disturbed by another burial
x = disturbed by natural forces or animals

The reader will be struck by the apparent precision of the dating, in contrast to the three periods of the figurines and the virtual two for the pottery. But this accuracy is merely apparent, not real. The six periods were evolved for two reasons. The first is that a burial must always be later than the débris in which it occurs and the second is that successive burials can take place within the same period. We did not therefore find the earliest interments at Ticoman, for our digging was confined to

zones where débris existed, and time and lack of resources prevented our making a widespread search for these original burials. Consequently, the interments dated as Early must belong to the latter part of this phase of occupation. On the other hand, denudation caused certain burials to appear very high in the débris and give evidence of a lateness that was perhaps not the case. We have tried to allow for this possibility wherever it occurred.

The principal value of this consideration is to show the use and disuse of certain trenches at certain times. Trench B seems to have been used for burial during the Intermediate and the Late Periods. Trenches A and C were used more or less through the entire occupation and seem to have been especially popular at the beginning and the close of the Late Period. Trench F and the Wall Digging sector were used as burying grounds at the beginning of the Intermediate Period and again in the Late.

Two tables might be drawn up to show the deaths and their relation to age for the entire group, and the relation of furnished to unfurnished graves also from period to period. Two great objections exist, firstly the inferential character of the grave dating and, secondly, the sexing and aging of skeletons by an unqualified student. However, to round out this section on the burial habits of the Ticomanos we give these tables frankly for what they are worth.

EQUIPMENT OF GRAVES

	Late	Late Intermediate	Intermediate	Early Intermediate	Early	Indeterminate
No Furniture	9	2	2	5	4	1
Pot or Pots	5	6	1	3	3(1?)	..
Ornaments or Tools	4	2	4	..	1?	..
Pots and Tools	..	5	..	4	..	..
Totals	18	15	7	12	8	1

It would seem from this table that the Intermediate and late-Intermediate periods were the richest in furnished graves.

The second table roughly indicates the death rate.

	Ticoman		Zacatenco	
	No.	Per Cent	No.	Per Cent
Old ♂	6	9.8	1	5.2
Old ♀	6	9.8	....	....
Old Indeterminate	3	4.9	1	5.2
Middle Age ♂	10	16.4	5	26.3
Middle Age ♀	9	14.8	1	5.2
Middle Age Indeterminate	9	14.8	4	21.1
Young ♂	5	8.2	....	....
Young ♀	2	3.3	1	5.2
Young Indeterminate	2	3.3	1	5.2
Children	6	9.8	2	10.5
Babies	3	4.9	3	15.7
	61	100.0	19	99.6

From this table infant mortality seems to be very low, while middle age is the most common period of death at Ticoman. Zacatenco, on the other hand, shows a very much higher rate of infant mortality. The numbers involved are too small to draw any very searching conclusions on the birth and death rates of the two peoples.

IV

GENERAL CONCLUSIONS

The work undertaken at Ticoman from November, 1929, to January, 1930, was a continuation of studies made at Zacatenco the previous winter. We had isolated there three culture groups designated by the terms Early, Middle, and Late Zacatenco on the basis of figurines, pottery, and other artifacts. The Middle Period at Zacatenco seemed to mark the fusion of two culture groups, the original Early culture and another element bringing new figurine and pottery forms. The Late Period did not seem to develop from the previous culture groups, but was rather the intrusion of a new complex of pottery and figurines, brought in presumably by another people. The ceramics of this Late Zacatenco culture were found in the earliest débris at Ticoman. In that this Late Zacatenco culture went through a localized development at Ticoman, we referred to time periods distinguished there as Early, Intermediate, and Late Ticoman. The shallowness of the débris and the coherence of the pottery types make it probable that the time consumed in the occupation of Ticoman was very much less than that at Zacatenco, and that a single people developed their culture at Ticoman without accretions from other culture groups.

The isolation of chronological periods was most difficult. The shallow débris beds left during the fluctuating occupation of the different parts of the peninsula by the Ticomanos and the consequent lack of a débris bed containing consecutive strata for the entire occupation, militated strongly against the preparation of an orderly digest of types. Furthermore, as is so commonly the case in the history of a single people, there were no simultaneous shifts of the various styles of artifacts, so that a chronology for one class of object was not necessarily the same as for another. Thus the selection of significant culture traits as time-bearers was rendered essential to clarify and codify the chronological evolution.

The first occupants of Ticoman found a barren peninsula almost surrounded by water. At first they lived high up on the hill, where the most gradual slopes obtained. Later as their débris fanned out before them, they terraced the accumulations and made new living surfaces. Now the fact that the Ticomanos lived high up on the slopes of this hill may have been due to the presence of enemies or possibly to the existence of a variable lake level, but either because their enemies were driven off or because the lake level became constant, the beginning of the Intermediate Period found them occupying the shores.

Here they terraced the accumulations as before and buried either into abandoned house sites further up the slopes or else into rubbish beds in the process of formation in front of their present dwellings.

In the Late Period there seems to have been a partial return to the hillside area, possibly because of the unstable nature of the house terraces along the shore, since as earth mounded up over the former bare rock it was subjected to deep erosion during the annual rainy season. The last trace of the occupation of Ticoman was found before some terraces at the head of Trench C. There the story breaks off.

The figurines, which were made in abundance, offered the most satisfactory chronological evidence. The earliest deposits yielded unslipped figurines, the features of which were indicated by gouging and filleting on of bits of clay. This E group divides itself into four divisions: Ei, heavy features, plentiful use of filleting; Eii, restricted use of filleting and indication of features by fine incision; Eiii, an evolved development of Ei wherein the eyebrow is depicted; Eiv, an aberrant form with an almost animal prognathism. (Cf. Pl. LV, LVI, and LXVI.) The E group may have developed originally from the Type B–C plastic, but the forms found at Early Ticoman and Late Zacatenco do not hark back specifically to Type B of Middle Zacatenco (this volume, Part I, Pls. XXII–XXIII). Type Eii occurs at Jalapazco in Puebla and connects fairly closely with Doctor Gamio's "tipo de transicion" at Teotihuacan. It is a valuable time-indicator for Early Ticoman.

Associated with Type E, are scattering examples of Type G figurines with faces and bodies crudely modeled, but often lustrously polished. In the low deposits of the B system they occur in quantity and thereby indicate the Intermediate Period at Ticoman. There are two divisions: Gi, characterized by human faces and Gii by animal and grotesque faces (Pls. LVII and LVIII). Transitional forms lead back into the E and on into the H groups. Curious are the animal heads of the Gii group, which might represent a cult additionally suggested by gopher teeth in two of the burials, Nos. 17 and 54 (Pl. XCI). These developed forms of Type G were not found at Zacatenco.

Type I is likewise morphologically and chronologically an indicator for the Intermediate Period (Pl. LIX). There are three sub-types, Iiii with teeth and a white slip occurring in Early deposits; Ii with good anatomy and filleted features, polished brown, of the Intermediate Period; and Iii, a large type that connects with Type L of the Intermediate and Hiii of the Late Period. It is also known in Late Zacatenco for its origin is in Early Ticoman.

A large figurine type, L, occupies likewise an Intermediate position in the evolution of the Ticoman plastic. This style is polished, with crude features delineated by coarse filleting. It occurs rarely in the Early and Late Periods (Pl. LX).

The three types, G, I, and L, might have been grouped as one, had we known their chronological position previous to the Ticoman excavations. However, the variations were thought to represent evolution and not variation, at the time Mr. Hay and the writer published their classification in Part I of this volume.

Three other types, J, M, and N, also belong to the Intermediate Period and, although very distinct technically, are found in such small quantities that they must be trade specimens (Pl. LXVI). Type M has very crude features and body, details of which are executed by rings of tiny punctures. Type N is characterized by two long fillets joined to form trunk and legs surmounted by a grotesque face formed by pinching on large fillets of clay. Type J has more gracefully represented features, among which the nose is pushed out from the face plane. Although found at Ticoman in a seated form, allied examples in an erect posture have been found at Cuicuilco.

The H group draws together the scattered threads of Types G, I, and L, and has five subdivisions, all characteristic of the Late Period. Two subtypes Hi and Hii arise from the G and I groups (Pl. LXI). Both styles are slipped in brown or white and are excellently proportioned anatomically. Type Hi is shown without eyes and with features somewhat cruder than the carefully modeled Type Hii, the eyes of which are shown by circular or triangular incisions. These styles are more common at Ticoman than at any other site known to the writer.

Type Hiii is a medium-sized variation of the H group characterized by a white or brown slip and a large projecting nose (Pl. LXIII, and frontispiece). Its origin seems to lie in Type Iii, but it connects with Type Hiv and Hi. It is quite significant in that it occurs at Cuicuilco.

Type Hiv is unslipped and small in size and is distinguishable by a profuse use of filleting to show such details as features, eyebrows, headdress, and hair. It is related to Type Hiii (Pl. LXIV; this volume, Part I, Pl. XXIX). Although very rare at Ticoman it occurs in the latest débris found there in front of the Late revetments in Trenches A and C, associated with the ornate feet of pottery vessels. The style is important, for it is widely distributed geographically, ranging from Morelos to Queretaro, and seems to be fairly common at Cuicuilco (this volume, Part I, Pl. XXIX). Of all the styles at Ticoman it gives the best con-

nection with Western Mexico through certain resemblances in the filleting technique to figurines from Chupicuaro, Gto.

Type Hv comprises very large white-slipped figurines which in features and other characteristics of composition are very close to Type Hii (Pl. LXV). The relations between these two styles of sculpture are analogous to those of Types L and Ii, since there is, in each case, a large and small figurine type, morphologically similar (Pls. LIX–LX). The origin of Type Hv may be Type L and its development seems to parallel that of Type Hi–ii from Ii. On the other hand, Type Hiii appears morphologically closer to Type L. Type Hv is very rare and its distribution outside of Ticoman is restricted to Azcapotzalco according to the writer's present knowledge.

A number of Early and Middle Zacatenco types are found, comprising Types Ci, Cii, Ciii, early F of the Early Period, and Types A, B, and F of the Middle Period (Pl. LXVII). These specimens were probably picked up at the neighboring site of El Arbolillo and carried in as curiosities. Two Cv specimens were found, one with skeleton No. 53. This type is known at Copilco, but not in Early or Middle Zacatenco. Yet these types, too, might have come from El Arbolillo. Although Type D has been found at Ticoman (this volume, Part I, Pl. XIX), no examples occurred in our digging and Type Dii, thought previously to be late (this volume, Part I, Pl. XX) did not turn up at all.

These paragraphs comprise the plastic history at Ticoman. Early and Middle Zacatenco types are found sporadically without ceramic association as if they had been brought in from the adjacent El Arbolillo. The evolution begins with the Early Types Ei, ii, iii, which give way to an Intermediate stage distinguished by a maximum occurrence of Types G, I, L. These three types are standardized in the Late Period into the H group, which is a very sophisticated style of modeling (Figs. 1–6, Table I).

The curious point is that except in subtype Eii there are no close connections with San Juan Teotihuacan and, except for a tenuous connection with Western Mexico, by means of subtype Hiv, the Ticoman plastic apparently dies out without successive forms or transitions into later cultures.

Sculpture in clay was not confined to figurines. Small animals were sometimes made and zoomorphic heads were also attached to pots. Legs of vessels were occasionally thus treated, especially in the Late Period (Pls. LXVIII and LXXV).

The evolution of figurines with detectable Early, Intermediate, and Late stages sets a standard for chronology not directly approached by the

pottery (Figs. 7–18; Table II). Yet, some styles of ceramics were associated with definite periods by virtue of high frequency of occurrence. Bay ware ollas were chronologically divided by means of major quantities of simple, roll, and flat lips in the Early Period and of straight and flare necks in the Late (Pl. LXIX; Table II). The Intermediate Period showed equal percentages for the sum of each time group. In the decorative wares red-on-yellow and red-on-yellow incised strongly predominated in the Early Period, but fell away through the Intermediate Period to complete disappearance in the Late (Pl. LXX). Polychrome pottery is rare in the Early Period, but rises to its highest frequency in the Intermediate (Pls. LXXI–LXXII). It persists strongly in the Late Period, but the thickened lip like that of red-on-yellow incised tends to become erect, conical legs are replaced by ball or other more sophisticated forms, and polished red slips are added as additional embellishment (Pl. LXXV). There is little question that the white outline paint of polychrome pottery is a sophistication arisen from the incision after firing of red-on-yellow incised.

Red-on-yellow stick-polished is found chiefly in burials which seem to have been made at the close of the Middle and the beginning of the Late Period (Pls. LXX, LXXVIII). Scattering sherds only occur in the débris. Red-on-yellow ollas have less carefully treated surfaces and are common to all periods. A variation in the red tone is lake-on-yellow, a ware made into bowls chiefly in the Late Period.

Polished red ware is found throughout all periods in varying quantities with somewhat higher per cents occurring in the Late Period than in the preceding ones. Chronological indications are shown by increasing elaboration of the leg form in the Intermediate and Late Periods and by combination with polychrome decorative practices. Plain red ware appears sporadically more often in the Intermediate and Late Periods than in the Early. It is sometimes utilized to make bowls with annular bases such as are found at Cuicuilco (Pls. LXXIII, LXXV, LXXVI).

Black-brown ware yields its highest frequencies in the Early Period, where a form without legs and with an incurved rim and a wide-mouthed type of bowl usually obtain. In the latter aspects of the Intermediate and the Late Periods the frequency falls off, but ornate leg forms help to date the ware (Pls. LXXIV–LXXV). There is also a type of bowl with simple silhouette and wide mouth like a form found at Cuicuilco.

White and grayish dun wares show their highest percentages in the Early and Intermediate Periods, but these decline in the Late. The dun shades are more common in later times. Granular white, and

burnished white wares occur so infrequently as to be trade pieces, but sporadic examples of flat-bottomed bowls on teat tripods with blackened interiors (Pl. LXXVI) are found.

Trade wares are few and comprise a deep vase decorated in burnt sienna and black on a warm orange, a yellow tripod bowl decorated in a faint black as if by "lost color," and a polychrome bowl with restricted mouth decorated on the exterior in red and black-on-yellow and with a red interior slip. The colors and the burnish of this last specimen call to mind the polychrome pottery of Chupicuaro, Gto., but we do not know the source of the other two (Pl. LXXVI).

The pottery of Ticoman is very clearly an autochthonous evolution. The forms of olla necks change and the methods of decoration of painted vessels become more sure and less fumbling, as ideas of design supplant fancy in embellishment. Elaboration of the legs of tripod vessels parallels the figurine development from simple forms through intermediate experimentation into elaboration. A curious condition is that in the Late Period the proportion of decorated or service wares to storage ollas is less than in the preceding periods (Fig. 12).

Clay was utilized to make many different kinds of objects. Sherds were ground down to make counters, and tools for polishing pottery, and these diminish in quantity from the Early to the Late Period (Pl. LXXXI). Solid earplugs in disc form occurred commonly in the Early deposits, but they are much less common in the Late Period, when carved and hollow earplugs appear (Pl. LXXXII). Balls, often with burnished red or brown slips, are found frequently in Early Period deposits but their quantity lessens as the occupation progresses (Pl. LXXXI). Ladles and whistles likewise follow this diminution in occurrence from Early to Late times (Pl. LXXX). The character of the Late deposits may have something to do with this situation, since being the uppermost they are most subject to erosion and consequent destruction of objects (Table I).

A number of specimens are found that are either incense burners or look like fragments from them. Two are convex and perforated and must have been covers and a third seems to have come from a cylindrical vase which had been perforated. Other fragments adorned with bosses may have been handles to urns; and the ladles mentioned in the preceding paragraph may also have been employed in such a ritual (Pls. LXXIV, LXXIX, LXXX). Two other incensarios are significant as possibly representing prototypes of later divinities. A circular convex clay cover, which was perforated, had human features; and the

mouth was surmounted by a filleted volute with large teeth. This volute is an attribute of the god Tlaloc, but in our specimen the usual eye rings were lacking (Pl. LXXIX, Figs. e–f). The other specimen was made of lava and portrayed an atlantean figure supporting a bowl on his shoulders. This sculpture was very similar to representations of Huehueteotl, the Old God, or Xiuhtecutli, the Fire God (ibid. Fig. c).

Clay ornaments consisted of beads, a gorget-like object of clay, and the earplugs mentioned above. Two seals were recovered, a first appearance in the Early Cultures of this trait so common in Aztec and Toltec times. Their use was probably to stamp cloth or the skin, for stamped designs on pottery are unknown from Ticoman (Pls. LXXXIII–LXXXIV).

The same tendency toward elaboration manifested in figurines, pottery, and clay objects, existed in stone tools. Obsidian was used wherever a sharp edge or point was desired. Projectile points in the Early Period were hafted by means of simple tangs, but in the Intermediate and Late Periods a stem often slightly convex and separated from the blade proper by two side notches was more common (Pl. LXXXVI). Blades being struck off at a single blow, could not, obviously, show change, but there does seem to be a greater variety of scraping and cutting tools in the latter aspects of the occupation (Pl. LXXXV). Quartz, quartzite, chalcedony, and chert were also utilized to make scraping tools, in contrast to their limited use in Early and Middle Zacatenco, but they did not reflect time at Ticoman (Pls. LXXXVII–LXXXVIII).

Manos and metates, likewise, showed no detectable difference between periods at Ticoman, but differed from Early and Middle Zacatenco in the support of the metates by quadrangular legs instead of conical (Pl. LXXXIX). Balls of stone were found at various levels, made of lava, sandstone, porphyry, quartz, and marble. These tie in with Late Zacatenco, and seem to diminish in number at Ticoman from the Early to the Late Periods (Pl. LXXXIX). Celts of jade, chert, and diabase, however, occurred much more commonly at Ticoman than at Zacatenco, but there is no change in form (Pl. LXXXVIII). Several beads and pendants were found that have, however, no ethnic nor chronological significance. Pebbles and "lucky" stones occur at different levels, but reveal neither chronology nor ethnology (Pls. LXXXIII–LXXXIV).

The incensario mentioned above and a small slab of lava are the first examples of stone sculpture found by us in situ in the Early cultures

(Pl. LXXIX, Figs. b–c). A pecked boulder was found by Cummings at Cuicuilco;[1] and there was bought by the writer at San Juanico, an owl in soft pumice, but we have no assurance of its provenience from an Early culture level. A small fragment of pumice which we found at the Cerro de la Estrella may not have been worked at all; and this completes to the knowledge of the writer the list of stone sculptures from the Early cultures of the Valley. Both the Ticoman specimens are conventionalized and show no signs that they were first attempts. They are perhaps traded specimens from the east or south of Mexico.

Architecture is deficient at Ticoman, being confined mainly to terracing the débris. In the Wall Digging, traces were found of what are possibly house foundations in Rooms I and II and the angle between Walls C and D. In Rooms I–II some pecked slabs were utilized, but generally boulders of andesite were employed. An oven of clay and stone was found in Trench B, skeleton No. 51 was covered by pecked slabs taken doubtless from a revetment or foundation, and skeleton No. 22 was buried in a cist which may have been formed expressly for the purpose. No signs of a pyramid or mound were uncovered (Maps III–IV, VI; Map I, Fig. 4; Map II, Fig. 17).

Bone tools show no detectable differences between periods at Ticoman. However, there is a considerable elaboration of the simple awls, spatulas, flakers, hide-grainers, and bodkins found in Early and Middle Zacatenco which is shown by needles with eyes, beads, and pendants, as well as the refinements in shape and size of the standard implements (Pls. XC–XCIII). Shell, likewise, does not differ from period to period, but pendants and various kinds of beads, disc, cylindrical and simple perforated shells, show a far greater variety in form and species than in Early or Middle Zacatenco (Pls. LXXXIV, XCIII). The perishable nature of shells makes it quite possible that many adornments may have disintegrated at Zacatenco. On the other hand, the greater elaboration and variety of other kinds of artifacts at Ticoman were probably paralleled in the working of shell.

No wooden objects were found and the textile arts were represented only by the casts left by mats wrapped around several burials. With skeleton No. 22 was found some substance that looked like feathers and the majority of those who inspected this material thought it to be fragments of a feather robe. No chemical analysis has yet been made.

The burial habits of the Ticomanos were similar to those of the Zacatencanos of the Early and Middle Periods in that simple inhumation

[1]Cummings, 1923, 212.

was practised, but very different was the Ticoman habit of placing objects with the dead. In only one doubtful case, skeleton No. 17, where an obsidian blade lay in the lap, did this custom occur at Zacatenco, but at Ticoman over 60 per cent of the burials were thus honored (Maps I, II; this volume, Part I, Map I).

The preceding digest of finds shows quite clearly that the Late Zacatenco–Ticoman culture does not derive directly from Middle Zacatenco because of differences in physical type, burial customs, pottery types, figurines, metates, and projectile points, and the occurrence of such traits not found in Middle Zacatenco, as solid pottery earplugs, pottery beads, incensarios, stone sculpture, ornaments and needles of bone, increased use of shell, use of quartz for tools, and the common use of celts. Common to both cultures are such ethnically unreflective traits as stone and pottery balls, counters of worked-down potsherds, obsidian blades, and lava manos, which become insignificant in view of the evidence of difference adduced above.

The Early Zacatenco culture, on the basis of figurines, is widely diffused throughout the Valley of Mexico; and the origin of Middle Zacatenco culture is doubtless a development from it. But, although at Zacatenco the transition from one stage to the other seems to have taken place by a fusion of two ethnic groups, the steps leading to Type A figurines and most of the other Middle Zacatenco characteristics must have taken place elsewhere.

Late Zacatenco appeared without transitional stages indicative of evolution or culture fusion, the inference being that these people either pushed out the Middle Zacatencanos or occupied the site after it had been abandoned by them. The source of these newcomers presents something of a problem.

Since the Late Zacatenco material is identical with that taken from the Early deposits at Ticoman, what must have been the immediate origin of the newcomers? Because the Ticomanos neglected the gentle slopes of the Early–Middle Zacatenco site of El Arbolillo for the more precipitous, yet at the same time more secure, peninsula of Ticoman, it would seem that Ticoman instead of Zacatenco was the first base. The approach of people by land would have to be from the west, for the hills in which these sites are located jut out from the mainland, dividing off Lake Texcoco from the northwestern branch of the Lake of Mexico.

The presence of a very few objects of Intermediate Ticoman style at Zacatenco substantiates this thesis, for it would seem that Zacatenco had been occupied by the Ticomanos only in Early or, at the latest, early

Intermediate Ticoman times. The shifting slopes of Zacatenco during the erosion of the rainy season would have undoubtedly caused dissatisfaction, resulting in the return of the colonists to the original site. Moreover, the Early Ticoman occupation at Zacatenco might even have been in the nature of a military garrison, to stand off survivors from the El Arbolillo and Middle Zacatenco populations.

Yet the origin of the Ticoman culture is not explained. Type Eii figurines were found at Jalapazco Puebla. Polished red ware and red-on-yellow have been found at the pyramids of San José Siclaltepec, Santa Maria Zacatepec, and San Cristobal in the same State. Pottery approaching the Ticoman norm occurs at Ixtapoyan and the Cerro de la Estrella in the Valley. Connections between Ticoman and Cuicuilco, like solid earplugs, flaring rims of ollas, polished red ware, modeled and ornate legs of bowls, absence of polychrome ware, bowls on tall annular bases, pottery allied to red-on-yellow stick-polished, black ware bowls like that found with skeleton No. 29, figurines of Types Eiv, Hiii, Hiv, J, and occasionally G, show contemporaneity between the pyramid site and Late Ticoman, with strong implications of ethnic affinity, though not identity. It is thus probable that although Cuicuilco was inhabited during and perhaps after the occupation of Ticoman, by a group allied to the Ticomanos who were possibly in trade relations with them, neither represented the origin of the other's culture.

It is likely, therefore, that the origin of the Ticoman culture lay outside the Valley, although the connections with Puebla indicate by no means secure contemporaneity or ethnic identity. Yet, the presence of the Ticoman and the Early and Middle Zacatenco cultures without hitherto discovered roots in the Valley suggests a foreign origin for both.

Neither Zacatenco nor Ticoman are influenced by that complex of forms, called Q by Doctor Lothrop and the writer, which seems to be early in the Maya-speaking region of the south. Vessels with spouts, shoe-forms, effigy pots human and animal, elongated swollen tetrapod supports, and massive crude stone sculpture are either rare or lacking. At the present time, evidence increases that a complicated and involved history of the origins of the various Middle American cultures awaits the student.[1]

On the other hand, there is no evidence at Ticoman of a base culture to San Juan Teotihuacan. Type Eii of Early Ticoman might be construed as an archetype of Doctor Gamio's "tipo de transicion," as we have mentioned, but between that crude Toltec style and the sophisti-

[1]Vaillant, 1930b.

cated forms of the H group of the Late deposits there is no connection. Moreover, bowls with erect rims and ball or modeled legs with a complex silhouette involving a rim and bottom element have no counterpart in the flat-bottom teat-legged bowls or jars of Teotihuacan, nor is there a ware which will lead up to the Coyotlaltelco style of red-on-yellow. It is far more probable judging from the polished red incised sherd and the modeled body of a figurine found at Ticoman that the two cultures were contemporaneous, than that Ticoman is the origin of the Toltec complex (Pl. LXXIII, Fig. h; Pl. LXXX, second row, No. 2).

In fact, from the relative rarity of Toltec remains of the San Juan Teotihuacan type around the southern and western shores of the Lake of Mexico, it is doubtful if these people exerted a complete hegemony over the Valley. Strong groups like the Ticomanos might have held out for a long time and witnessed the arrival of the Aztec infiltration.

The filleting technique of Type Hiv is fairly closely paralleled at Chupicuaro, Gto., and heads of that type in the Plancarte Collection range from Morelos to Queretaro (Pl. LXIV; this volume. Part I, Pl. XXIX). In addition, there is a sherd, if not from the actual site, at least from the ceramic family of Chupicuaro polychrome, present at Ticoman (Pl. LXXVI, Fig. j), and the tripod bowls with spider legs from skeletons Nos. 23 and 51 are not such a far cry from prototypes to Matlatzinca styles from the Valley of Toluca, where there is every evidence of a non-Toltec culture to which Aztec was engrafted (Pl. LXXIII, Fig. g; Pl. LXXVIII, Fig. a). Yet the causes of the abandonment of Ticoman are inexplicable. There are no traces of another occupation, and were it not for the two Toltec specimens found at the site, it would seem as if the causes, most probably volcanic, that drove the people from Cuicuilco, might have affected the inhabitants of Ticoman. Since Cuicuilco shows evidence of abandonment and decay some time anterior to the lava flow, that eruption could not have been the direct cause, but there was doubtless much previous activity of the volcano Xitle, preceding the formation of the Pedregal; and this must have struck terror to the hearts of those dwelling in the Valley.

A discussion of the age of these periods would lead to acrimonious controversy which is far from the purpose of this exposition of the elements composing the Early cultures of the Valley of Mexico. On the other hand, some of the impressions gained from the excavations at Ticoman and Zacatenco might be germane to subsequent considerations of absolute chronology. There is no question that the lava flow occurred after the mound of Cuicuilco was built and had been abandoned, for the

débris formed by the slumped off outer coating of the pyramid is burned by the molten flow which hardened over it.

Also, this same flow covers Copilco. Since we have demonstrated that the finds from there are contemporaneous with Middle Zacatenco, and that Cuicuilco is contemporaneous with Late and doubtless Intermediate Ticoman, it is therefore of great importance to know the date of the lava flow which the present archæological evidence indicates to be of no very great antiquity. A knowledge of the chronological relationships between Ticoman and San Juan Teotihuacan and between the latter site and the Aztec occupation would clarify greatly the question of the antiquity of the Pedregal, since the lava flow would then be tied in with a fixed archæological horizon.

The occupation of Ticoman does not seem to have lasted nearly as long as Zacatenco, for the deepest débris beds at Ticoman had depths of three meters while those at Zacatenco measured eight meters, a little less than two of which were taken up by accumulations by deposit and re-deposit from the Late Zacatenco–Early Ticoman period. The inhabited zone at Zacatenco was small, so that a large population could not have accelerated the deposits by dumping great masses of rubbish in a restricted area. Consequently, a long time must have elapsed before the Early–Middle Zacatenco occupation came to end. The occupied area at Ticoman, on the other hand, was much larger and yet, as its deepest deposits in Trench B were formed in the Intermediate and Late Periods, the site must have been inhabited for many years, although less probably, than Zacatenco. Consequently we cannot say, on this evidence, whether the Valley was occupied for a longer time after the lava flow than before, but we can say that the Zacatenco or Ticoman cultures are too developed culturally to equate with the Early and primitive manifestations of Basket Maker II or III in the Southwest. In fact these Valley groups are in many ways superior, notably in figurines and kinds of pottery, to the latest cultures of that region.[1]

The great desideratum in these studies on culture sequence in the Valley of Mexico discloses itself in this discussion. If we knew the relationship of the Ticoman culture to Teotihuacan, and of Teotihuacan to the Aztec cultures, it would be then possible to infer the age of these cultures with some basis and to place the lava flow of the Pedregal with fair accuracy. It would clarify our conceptions of the archæology greatly if we knew this to be a cataclysm of far-reaching importance over the entire Valley, or a local disaster affecting only the inhabitants south of the

[1]Roberts, 1929, 2–8.

Lake of Mexico in the immediate path of the flow. In like fashion, precise data on the possibility of a rise in lake level, like that suggested by the occupation levels at Ticoman and Zacatenco, would also elucidate profoundly the causes for the movements of peoples (Map V).

Lest these speculations obscure the definite findings of the Museum's research during the last three field seasons, let us recapitulate the culture sequence as now known in the Valley. Developmental stages exist for the Aztec and Toltec, but the work of Mr. Noguera of the Departamento de Monumentos Historicos has not yet been published and we must content ourselves with the bare listing of these civilizations.

	I	
	Aztec	
	II	
	Toltec (San Juan Teotihuacan type)	
	III	
1.	Late Ticoman	Cuicuilco
2.	Intermediate Ticoman	
3.	Early Ticoman-Late Zacatenco	?
	IV	
	Middle Zacatenco	Copilco
	V	
	Early Zacatenco	

Future research will expand this sequence and give it greater depth and meaning, thereby elevating this recognition of chronological types to a rich and vital history of the ancient peoples of the Valley of Mexico.

V

DESCRIPTIONS OF SPECIMENS AND BURIALS

Introduction

This report on Ticoman, like the preceding one on Zacatenco, is designed to provide students of Middle American archæology with as full a corpus of illustrative material as possible. In this way the basis for the writer's opinions will be made evident. The foregoing text and the captions of the following Plates are intended to explain the conditions encountered at that site, but not to give final conclusions. Stratigraphical research in Middle America is still in its infancy and many excavations must be made and many classifications erected before definite decisions can be formed.

The nature of the digging was not such that every specimen could be assigned with confidence to a given epoch. Consequently we have described at some length the overlapping of types from one period to another, not to speak of mixed material caused by the sinking of grave shafts and by natural erosion. Yet, that there were certain centers for given periods the statistical tables, I, for implements, and II, for pottery types bring out.

The Early Period is most purely represented in the following cuts which are tabulated below with their respective abbreviation symbols. Map IV will give their locations and Map VI their cross-sections.

BF, Wall Digging, South and East Extensions, below floor (Map VI, Figs. XV–XVII)
F, Trench F, northwestern arm (Map VI, Fig. XII)
7A, Trench A, below Wall E to Wall F (Map VI, Fig. X)
8A, Trench A, Wall F to termination (Map VI, Fig. X)
13–14C, Trench C, before Wall C-sub, (Map VI, Fig. XI)

The Intermediate Period Cuts are as follows:—

19B, Trench B, First Excavation, Cut III (Map VI, Fig. V, I)
16B, Trench B, Second Excavation, Cut III (Map VI, Fig. VI, I)
EIII, Trench E, Cut III (Map VI, Fig. III)
EII, Trench E, Cut II (Map VI, Fig. III)
9–10–15B, Trench B, Second Excavation, Cut II (Map VI, Fig. I, VI, VII)
3–5B, Trench B, Second Excavation, Cut I, North of East-West Wall (Map VI, Fig. II, VII)
6B, Trench B, First Excavation, Cut II (Map VI, Figs. I, V)

The Late Period Cuts are as follows:—

EI, Trench E, Cut I (Map VI, Fig. III)
8–13–14B, Trench B, Second Excavation, Cut I, behind North-South Wall (Map VI, Fig. VI)
1–17–18–7B, Trench B, Northwest Ramus (Map VI, Fig. VII)

TABLE I

SEQUENCE OF TYPES AND SPECIMENS

	Early Period BF, F, 7–8A, 13–14C	Intermediate Period 16B, 19B; EII-III; 3–5B; 9-10-15B; 6B	Late Period EI; 2B; 11B; 8-13-14B; 1-17-18-7B; 7-11C
Figurine Types			
Ei heads	5	4	2
Eii heads	13	4	1
Eiii heads	4	2	2
Eiv heads	2	..	1
E bodies	10	4	..
Gi heads	1	13	7
Gii heads	..	14	7
G bodies	2	2	1
Ii heads	2	4	..
Iii heads	1	1	..
Iiii heads	3	1	..
I bodies	1	9	5
L heads and bodies	2	11	9
Hi heads	..	..	8
Hii heads	..	2	16
Hi-ii bodies	..	3	16
Hiii heads and bodies	..	1	8
Hiv heads and bodies	..	..	4
Hv heads and bodies	..	1	11
J heads and bodies	1	..	..
M heads and bodies	1	2	..
N heads and bodies	..	..	1
Early Zacatenco Types	2	3	1
Middle Zacatenco Types	3	..	..
Animals	1	2	..
Pottery Objects			
Whistles	4	..	1
Ladles	12	4	6
Discs	20	17	13
Balls	33	19	15
Solid earplugs	11	..	21
Hollow earplugs	..	..	3
Carved earplugs	..	..	8
Ornaments (beads, etc.)	1	1	4
Horn and Bone Objects			
Bone awls, etc.	13	6	13
Bone needles	3	4	1
Ornaments (beads, etc.)	3	..	1
Horn tools	8	4	16
Stone objects			
Balls	11	4	2
Celts	3	6	2
Ornament (Beads, etc.)	3	..	..
Tools (Quartzite)	..	4	2
Obsidian objects			
Blades	66	43	93
Tools	10	5	22
Points with tangs	11	5	9
Points with stems	2	9	25
Shell	2	3	2

Table II

Percentages of Frequencies of Pottery Types

	Early Period						Intermediate Period										Late Period										
	BF	F	7A	8A	13C	14C	19B	16B	EII	EIII	3B	5B	9B	10B	15B	6B	EI	8B	13B	14B	1B	17B	18B	7B	2B	11B	7C	11C
Storage Wares																												
Bay ollas																												
Simple neck	12.9	6.5	21.3	11.8	19.3	17.6	15.6	9.0	7.3	5.3	4.6	5.0	7.3	11.1	8.8	10.5	4.5	3.6	2.1	4.8	3.3	3.2	3.4	2.4	2.3	6.1	4.5	7.5
Roll neck	3.7	6.5	5.2	2.9	9.9	10.6	7.8	4.5	3.8	5.3	5.4	2.0	7.3	6.4	7.5	9.1	1.8	3.1	3.1	3.3	....	....	1.4	4.2	6.3	3.8	4.5	2.5
Rectangular lip	3.0	11.2	17.4	18.6	8.9	5.3	10.4	9.0	5.4	11.8	5.7	5.6	12.8	5.7	6.9	9.6	.6	6.9	6.8	8.4	1.6	.8	2.6	3.1	4.0	4.5	5.5	4.0
Flare neck	14.2	25.3	6.5	2.5	8.5	8.4	6.9	6.7	9.4	23.0	21.9	22.8	21.2	24.1	26.7	12.5	53.8	33.7	35.7	28.5	37.2	30.8	43.7	41.9	22.0	36.0	18.6	15.5
Straight neck	18.5	6.5	2.8	7.3	8.5	12.3	14.7	17.9	25.6	18.3	33.2	28.1	15.7	12.9	18.5	17.6	4.2	23.2	16.3	20.8	34.3	49.6	34.9	25.0	33.0	19.6	7.1	8.5
Bowls																												
Heavy yellow	....	1.2	....	1.5	2.8	....	.4	....	.5	....	.27	....	....	....	....	.1	.9	....	....	....	1.2	....	....	....	.3	....	....	....
Service Wares																												
Red-on-yellow Group																												
Red-on-yellow	5.5	....	.9	2.5	.5	8.4	8.2	1.1	.8	3.5	.27	2.0	....	.38	1.5	.8	1.8	1.3	....	....	2.1	....	....	....	1.0	.32	2.5	1.0
Red-on-yellow incised	4.9	1.2	8.4	13.2	7.5	8.8	8.6	6.7	3.0	3.5	1.9	.66	1.1	1.5	.9	3.2	....	....	....	....	....	....	....	.35	....	....	8.5	5.5
Lake-on-yellow	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.4	....	2.1	....	1.4	....	.8	....	....	1.3	....	....	....
Red-on-yellow stick-polished	....	....	....	....	....	....	....	....	.3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Red-on-yellow cajetes	....	1.8	.9	.5	....	.9	....	....	.8	1.1	....	.33	1.1	1.1	.6	....	1.8	.27	.52	.37	....	....	....	1.1	....	.32	1.1	....
Polychrome Group																												
Polychrome bowls	....	2.9	.4	.5	7.9	3.5	.8	15.7	8.9	6.5	6.5	7.6	10.1	6.9	8.5	8.7	1.8	6.4	13.6	7.0	.8	2.8	1.9	5.6	5.2	1.9	4.5	5.0
Polychrome ollas and polished red-on-yellow bottles	8.0	4.7	3.2	4.9	3.3	2.2	5.6	4.5	7.0	2.3	4.6	5.6	4.0	5.3	3.3	7.1	4.5	4.9	7.9	3.3	5.0	2.0	2.2	5.6	5.3	7.07	4.04	8.5
Polished red-on-white	....	.6	.4	....	....	....	.4	....	....	....	....	....	....	....	....	....	....	1.3	....	.73	....	.4	....	.35	1.3	.32	1.5	....
Red Group																												
Polished red	2.4	4.7	3.0	1.0	4.7	4.0	1.7	2.2	3.2	....	3.2	3.3	....	....	3.0	4.7	6.4	1.6	3.68	2.6	6.6	3.6	7.6	1.7	3.3	6.1	11.6	9.0
White-on-polished red	....	....	....	.5	.94	1.8	....	2.2	1.1	....	.82	.33	.4	....	....	.2	....	.27	.5	3.7	.4	.4	....	....	....	.32	2.0	....
Dull red	....	1.8	....	....	....	....	....	....	....	....	.27	1.7	2.5	....	....	.4	5.5	1.3	....	....	....	....	....	....	5.3	1.9	1.5	....
Black-brown Group																												
Black incurved rim	11.1	5.9	7.7	7.3	2.83	4.8	7.3	2.2	2.9	2.9	1.3	.33	2.2	....	1.2	1.3	3.3	1.3	3.68	2.6	2.9	2.4	....	2.4	....	.64	1.5	7.5
Brown incurved rim	2.4	....	7.9	3.9	....	3.1	1.7	1.1	2.4	....	1.1	6.9	2.2	3.4	1.2	1.0	4.5	1.9	....	3.3	....	....	....	.7	.3	....	2.5	3.0
Black plate	7.4	10.0	6.0	9.3	2.83	1.3	5.2	10.1	8.6	5.9	3.0	4.0	3.6	5.3	3.3	3.4	....	3.1	3.1	....	....	....	1.1	1.1	....	4.8	3.5	7.0
Black plate incised	....	....	2.2	1.5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Brown plate	.6	4.1	....	2.9	....	2.2	....	....	....	....	....	....	....	....	.9	....	....	....	....	2.2	....	....	....	....	....	3.2	1.0	2.0
White-dun Group																												
White	3.0	....	4.5	3.9	8.0	4.0	2.6	2.2	4.3	4.1	.27	....	2.5	2.6	3.9	3.8	1.2	....	....	1.8	....	....	....	....	....	.32	3.5	....
Dun	....	....	....	1.4	....	....	....	1.1	....	....	....	....	....	....	.6	.4	....	....	....	.73	....	....	....	.7	2.6	.32	....	....
Polished white	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
White, black interior	....	....	....	....	....	.4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Granular white	.6	....	....	....	....	....	....	....	....	....	....	.33	1.8	2.6	....	....	....	....	....	....	....	....	....	1.7	....	.32	.53	....
Miscellaneous																												
White-on-brown bottles	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.35	....	....	....	....
Lost Color	....	....	.2	....	....	....	....	....	....	....	....	....	....	....	....	.9	....	....	....	....	....	....	....	....	....	....	....	....
Legs																												
Conical	.6	4.1	1.0	1.0	2.3	....	1.3	3.4	4.6	5.3	4.9	2.0	3.6	9.5	1.8	3.8	....	1.9	2.6	2.9	1.6	1.2	.7	1.1	4.0	.64	2.5	5.0
Ball	.6	....	....	....	....	....	....	....	....	....	....	.66	....	.4	....	.4	.9	1.3	....	.37	1.2	....	....	....	1.0	.64	4.4	1.5
Complex	.6	1.2	....	1.0	.47	....	....	....	....	....	....	....	....	....	.3	.1	1.8	....	....	1.1	1.2	2.0	....	.4	.6	.32	3.03	7.0
Teat	....	....	....	....	.47	....	....	....	....	....	....	....	....	.4	....	....	....	.54	....	....	....	....	....	....	....	.32	....	....
Totals	162	170	465	204	212	226	230	89	371	169	364	300	273	262	329	676	327	361	190	273	239	250	263	284	300	311	198	200

2B,	Trench B, First Excavation, Cut I (Map VI, Figs. I, V)
11B,	Trench B, Second Excavation, Cut I, before North-South Wall (Map VI, Figs. I, VI–VII)
7C,	Trench C, Late Débris, in front of Wall C (Map VI, Fig. IX)
11C,	Trench C, Cut I (Map VI, Fig. IX)

Thus, in the captions of the Plates, a discussion will be found of the chronological position of each set of objects figured, but the specific specimens will be listed merely according to provenience, since the graphs in the text and the above list afford sufficient data on the actual period of the specimen.

Size is indicated on the Plates of photographs by a strip of paper ten centimeters long, and on the plates of drawings, by a fraction immediately preceding the Museum catalogue number of the specimen. The vessels shown in the drawings are mended or reconstructed, for the perfect specimens were retained by the Mexican Government and are shown on Pls. LXXVII and LXXVIII. These bowls have their dimensions listed in the caption owing to the lack of uniformity in the proportions of the vessels to the photographic plates.

The bowls and fragments shown on Pls. LXIX to LXXVI are drawn schematically. When a whole bowl is drawn, the section is shown at the right and the elevation at the left of the cut. Exterior decoration, therefore, is extended to the left of the elevation, interior decoration to the left of the section. When a sherd is drawn, in section, interior decoration is to the left and exterior decoration to the right of the section. The legs of vessels on Pl. LXXV adhere as closely as is practicable to the above scheme, but in certain cases minor divergencies which are readily detectable occur, owing to the peculiarities of the form of various specimens.

The writer gratefully acknowledges his indebtedness to Mr. Shoichi Ichikawa for his careful preparation of the graphs and maps, to Mr. William Baake for his excellent drawings of the pottery types and other objects, and to Mr. Irving Dutcher and Mr. H. S. Rice for their most successful photography of the bulk of the specimens illustrated.

Figurines

Plate LV

Figurines Types Ei and Eiii

The figurines of the E group are diagnostic of the Early Period at Ticoman. Types Ei and Eiii are shown on this Plate, while on the following Pl. LVI will be found Type Eii. Type Ei follows the plastic traditions of the C and B groups of Early and Middle Zacatenco (cf. Pl. LXVII and this volume, Part I, Pls. X–XVI and XXIII), but is distinguishable from them by the gracility and fineness of execution and by a later chronological position. Examples are to be seen in the top and middle rows, that illustrate such definitive traits as the eye formed by a double plough, prognathism, and the elaborate headdress.

Type Eiii (shown on the bottom row) is an evolution from Type Ei as the specimens Nos. 6 and 8 of the top row and No. 1 of the middle row indicate. In contrast to Type Ei, the faces are flat, the cheek planes are relatively larger, in proportion to the fillets of clay forming the features, and incised eyebrows are the rule. There is nothing to show on the Ticoman evidence that Type Eiii is later than Ei, but as the E group appears full-fledged here, the steps leading to its formation must have taken place elsewhere. Types Ei and Eii are common at Zacatenco, but Eiii is absent. No. 4, bottom row, is the only case of polishing found by us in the E group.

Top Row (eight specimens)

1. Head and torso, Ei, Trench E, Cut III (30.0–8167)
2. Head and torso, Ei, between Walls II and III, East Extension, Wall Digging (30.0–8298)
3. Seated figure, Ei, above floor over Rooms I and II, Wall Digging (30.0–8245)
4. Tiny head, Ei, Trench B, First Excavation, Cut III (30.0–7711)
5. Head, Ei, Trench B, First Excavation, Cut I, behind north-south wall, on rising rock (30.0–7659)
6. Seated figure, Ei, note eyebrow making transition to Eii, back dirt, late stages of Trench C (30.0–7962)
7. Seated figure, Ei, behind Wall F, Trench A (30.0–8069)
8. Erect figure, Ei, note eyebrow making transition to Eiii, before Wall C-sub, Trench C (30.0–7961)

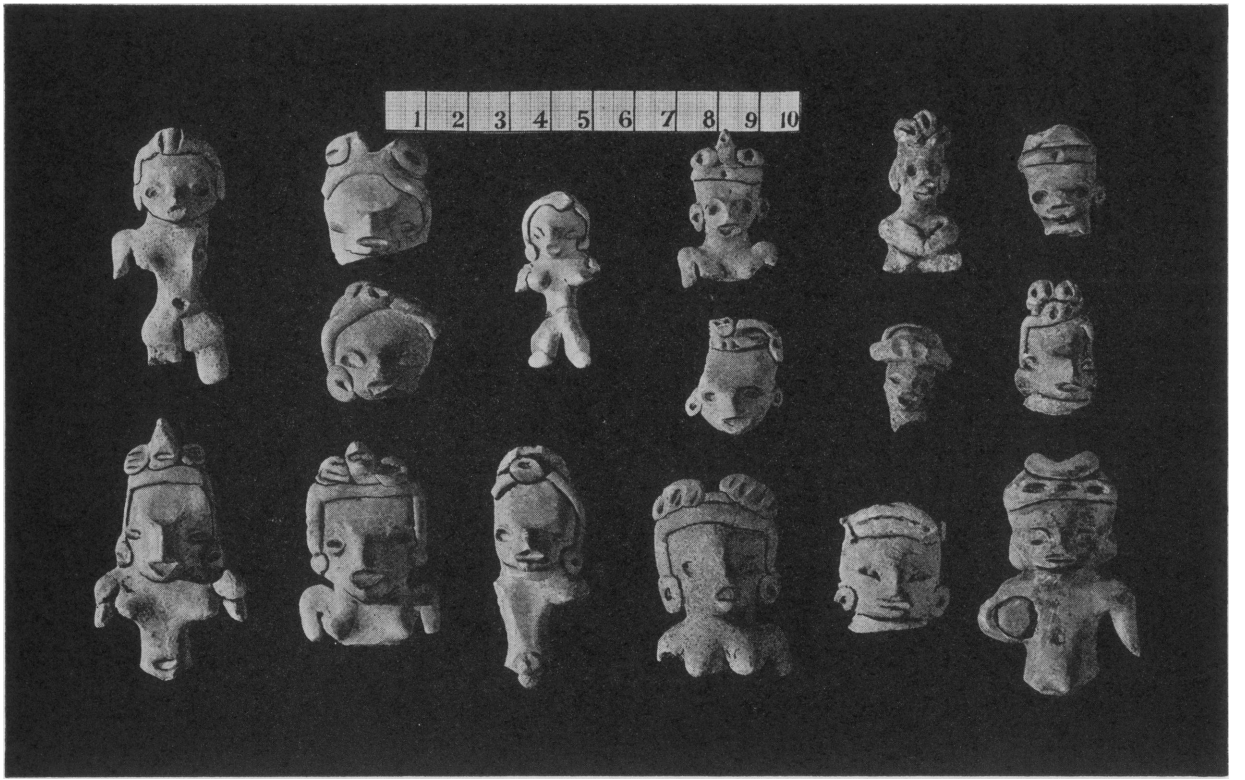
Second Row (five specimens)

1. Head, Ei, note eyebrow transition to Eiii, behind Wall F, Trench A (30.0–8070)
2. Head, Ei, Trench B, Second Excavation, Cut II (30.0–7776)
3. Head and breast, Ei, back dirt, early stages of Trench C (30.0–7963)
4. Erect figure, broken headdress, Ei, below floor, East Extension, Wall Digging between Walls II and III (30.0–8296)
5. Head, Ei, Trench B, Second Excavation, Cut I, behind east-west wall, near rock (30.0–7867)

Bottom Row (six specimens)

1. Head, large, Eiii, below surface, east of Room II, Wall Digging (30.0–8270)
2. Head, large, Eiii, Trench B, Second Excavation, Cut II (30.0–7777)
3. Head, Eiii, Trench B, Northwest Ramus (30.0–7909)
4. Head, Eiii, polished surface, Trench B, Northwest Ramus (30.0–7910)
5. Head, Eiii, aberrant, note perforation through forehead, Trench B, Second Excavation, Cut II (30.0–7775)
6. Head, best classified as Eiii, aberrant, behind Wall F, Trench A (30.0–8072)

FIGURINES TYPES EI AND EIII



FIGURINES TYPE EII

PLATE LVI

FIGURINES TYPE EII

Type Eii is a homogeneous subdivision of the E group. The bodies receive little modeling and attention is concentrated on the head, which is pinched forward to make a base for the features and is flattened in back. A triangular gouge across the lower part of the projecting face makes the mouth, separating it at the same time from the nose. The eyes are usually indicated by single incisions. The headdress is often quite complicated as, for example, the bird heads surmounting No. 5, top row, and No. 1, bottom row. Curious body variations are shown by the trunkless figure, top row No. 8, and the male carrying a bundle, bottom row No. 6. A further presentation of body types in the E group is shown on Pl. LXII.

This sub-type Eii is widely distributed throughout the Valley and is especially significant owing to its connection with the types shown by Professor Seler from Jalapazco, Puebla (Seler, 1915, Pl. XXII) and with Doctor Gamio's "tipo de transicion" from the early cultures to the Teotihuacan plastic (Gamio, 1922, Pls. 89 and 91), as well as serving as a base for the development of Type G, Pls. LVII and LVIII.

Top Row (ten specimens)

1. Erect figure, Eii, below floor, outside Wall A, South Extension of Wall Digging (30.0–8307)
2. (Top) Head, Eii, east of Wall A, Trench A (30.0–8064)
3. (Bottom) Head, Eii, Trench I (30.0–8227)
4. Erect figure, Eii, Trench B, Second Excavation, Cut III (30.0–7846)
5. (Top) Head and breast, Eii, note bird headdress, in floor, South Extension of Wall Digging (30.0–8246)
6. (Bottom) Head, Eii, Trench F (30.0–8180)
7. (Top) Seated figure, Eii, transitional to Ei, Trench F (30.0–8179)
8. (Bottom) Erect figure, Eii, without a trunk, legs joined to head, Trench G (30.0–8220)
9. (Top) Head, Eii, Trench F (30.0–8181)
10. (Bottom) Head, Eii, Trench B, First Excavation, Cut II (30.0–7714)

Bottom Row (six specimens)

1. Head and torso, Eii, note bird headdress, in front of Wall F, Trench A (30.0–8065)
2. Head and breasts, Eii, below floor, west of Room I (30.0–8269)
3. Head and torso, Eii, in front of Wall F, Trench A (30.0–8066)
4. Head and breasts, Eii, Trench C in front of Wall C-sub (30.0–7965)
5. Head, Eii, aberrant, Trench A, behind Wall F (30.0–8067)
6. Head and torso, Eii, male carrying bundle, Trench I (30.0–8228)

Plate LVII

Figurines Type Gi

Types Gi and Gii are indicators for the Intermediate Period in Ticoman, but the range of occurrence extends from the Early to the beginning of the Late Period. These figurines are often small in size and many of them are polished. Type Gi is shown on this Plate and Gii on the following one, Pl. LVIII.

Type Gi demonstrates how a standarized group like the Type E figurines may break down through varying the technique of manufacture. The frequent practice of polishing (cf. top row Nos. 3–7, middle row Nos. 3–4, bottom row Nos. 4–6) blurs the features and necessitates the abandonment of the method of filleting for that of incision in indicating the features. Top rows Nos. 1–2 and middle row No. 1 contain strong elements of the Eii plastic (Pl. LVI), while bottom row Nos. 1–3 present an elaboration of Eii that merges into individual variations of Gi. Bodies like top row Nos. 4–8 were often found at Zacatenco (cf. this volume, Part I, Pl. XXVII) and a figurine identical to the body of bottom row No. 6 was found by Professor Cummings at Cuicuilco. Bottom row No. 5 is a curious grotesque whose face projects far in front of the plane of the forehead (cf. Pl. LXXIX, Fig. a). Top row No. 3 marks a transition to Types Hi and ii (cf. Pl. LXI). Bodies of the G group are shown on Pl. LXII.

Top Row (seven specimens)

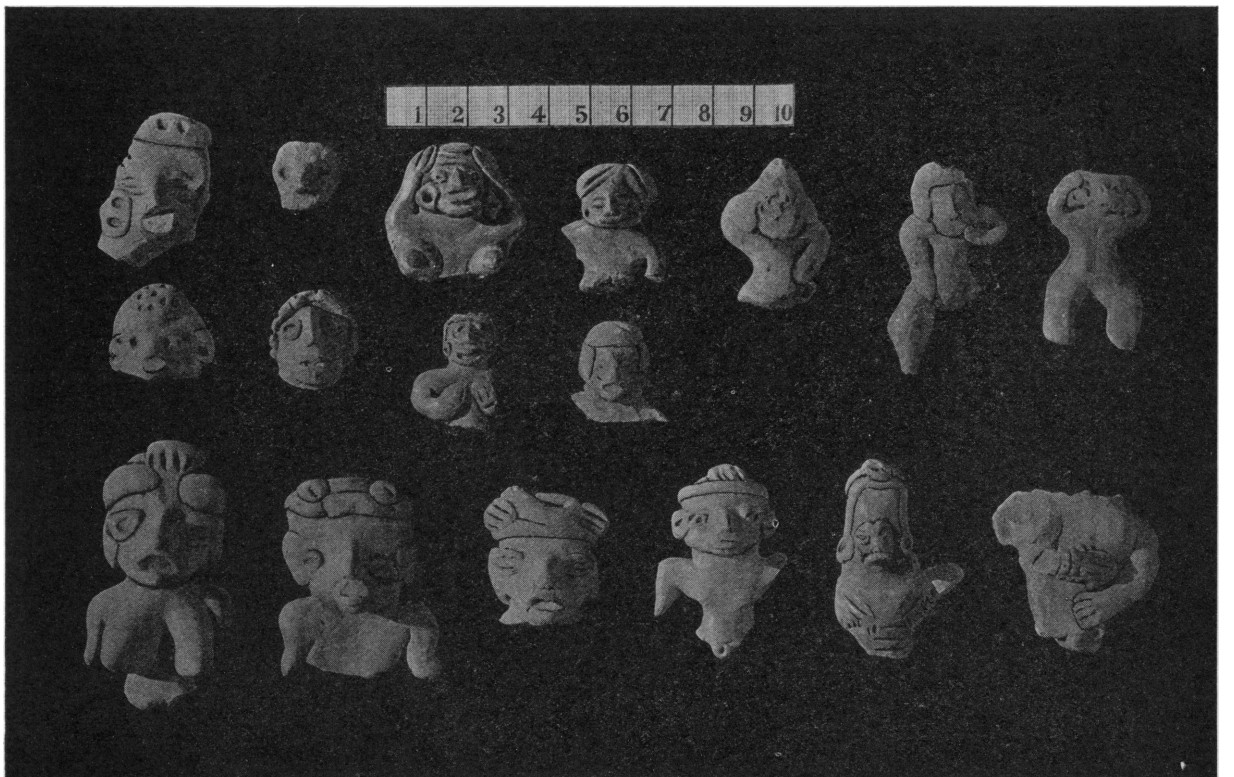
1. Head, transitional Gi-Eii, Trench B, Second Excavation, Cut I, north of east-west wall (30.0–7864)
2. Head, transitional Gi-Eii, Trench E, First Excavation, Cut III (30.0–8165)
3. Head and torso, transitional Gi-Hii, polished, Trench B, First Excavation, Cut II (30.0–7707)
4. Head and torso, Gi, polished, Trench B, Second Excavation, Cut II (30.0–7750)
5. Head and torso, Gi, badly worn, polished, Trench B, First Excavation, Cut I, behind north-south wall (30.0–7601)
6. Erect figure, Gi, polished, Trench B, Second Excavation, Cut I, north of east-west wall (30.0–7862)
7. Erect figure, Gi, polished, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7645)

Middle Row (four specimens)

1. Head, transitional Gi-Eii, Trench B, Second Excavation, Cut I, north of east-west wall 30.0–7863)
2. Head, aberrant, Gi probably, Trench B, Second Excavation, Cut II (30.0–7753)
3. Head and torso, Gi, polished, Trench E, First Excavation, Cut III (30.0–8164)
4. Head, Gi, polished, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7644)

Bottom Row (six specimens)

1. Head and torso, transitional Gi-Eii, Trench B, Second Excavation, Cut II (30.0–7752)
2. Head and shoulders, transitional Gi-Eii, Trench C, before Wall C-sub (30.0–7964)
3. Head, Gi, cf. bottom row Nos. 1 and 2, Cut I, Trench E, Second Excavation (30.0–8160)
4. Head and torso, Gi, polished, cf. bottom row Nos. 1–3, Trench B, Second Excavation, Cut II (30.0–7751)
5. Head and torso, Gi, polished, grotesque, cf. middle row No. 3, Trench B, Second Excavation, Cut III (30.0–7844)
6. Seated torso, Gi, waterworn, Trench E, First Excavation, Cut I (30.0–8159)



FIGURINES TYPE G1

FIGURINES TYPE GII

Plate LVIII

Figurines Type Gii

Type Gii comprises animal-headed figurines belonging to the G group, and it is in this selection that intentional grotesqueness is most apparent. Top row No. 3 links this sub-type with the Gi specimens on Pl. LVII. The figurines in the top and middle rows might be considered crude representations of the human face, had we not the definitely anthropomorphic Gi group and the realistic animal heads of the bottom row. When we compare these animals, bottom row Nos. 3–4, with the grotesques, Nos. 1 and 5, there seems an attempt to reproduce a specific animal like an iguana or a pocket gopher. On the other hand, top row No. 1 and middle row No. 4 are perhaps monkeys. Noteworthy variations are top row No. 5 which had two heads originally, middle row No. 2 with a hollow skirt, perhaps the bowl of a whistle, and bottom row No. 2, which represents childbirth. Bottom row No. 5 is not only artistically significant because it shows an animal-headed Gii holding an Eii human in its arms, but it is chronologically important in showing the original contemporaneity of the Types G and E. In the Early Period, Type E was predominant, but in the Intermediate, Type G showed a high percentage which dwindled with the rise of the H group in the Late Period. Forms like bottom row Nos. 1 and 5 are rare, but specimens like top row Nos. 2 to 5 are common throughout the Valley.

Top Row (five specimens)

1. Head and torso, Gii, monkey?, Trench B, Second Excavation, Cut II (30.0–7754)
2. Head, Gii, Trench B, Second Excavation, Cut I behind north-south wall (30.0–7649)
3. Seated figure, Gi–Gii, Trench B, First Excavation, Cut I (30.0–7708)
4. Seated figure, Gii, rodent head?, Trench B, Second Excavation, Cut II (30.0–7779)
5. Figure with two heads, Gii, Trench B, Second Excavation, Cut II (30.0–7755)

Middle Row (four specimens)

1. Seated figure, probably Gii, Trench B, Second Excavation, Cut II (30.0–7760)
2. Figure with skirt, bowl of whistle?, Gii, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7648)
3. Head, Gii, monkey?, Trench B, Second Excavation, Cut II (30.0–7759)
4. Head, Gii, monkey?, Trench B, Second Excavation, Cut II (30.0–7709)

Bottom Row (five specimens)

1. Erect figure, Gii, gopher? head, Trench B, Second Excavation, Cut II (30.0–7756)
2. Torso in childbirth, Gii, Trench B, First Excavation, Cut III (30.0–7840)
3. Animal, gopher, Gii, Trench B, Second Excavation, Cut II (30.0–7758)
4. Animal, gopher, Gii, Trench B, Second Excavation, behind north-south wall (30.0–7650)
5. Figure, Gii, holding another Eii in arms, above floor, Wall Digging, East Extension (30.0–8268)

Plate LIX

Figurines Types Ii, Iii, Iiii

Type I possesses a complexity which qualifies its utility as a diagnostic for the Early and Intermediate Periods of Ticoman. Top row Nos. 1–3 and bottom row No. 1 represent the white slipped sub-type Iiii which occurs under constantly Early circumstances and suggests affinities with a possible prototype to the stone sculptures from southern Mexico (cf. Saville, 1929; Gamio, 1922). Top rows Nos. 4–5 and middle row Nos. 1–2 are specimens of Type Ii which were found in the bottom strata of Trench C and were also found at Zacatenco and other points in the Valley (cf. this volume, Part I, Pl. XXX). These specimens connect also with Type L (cf. Pl. LX). These figurines seem more naturalistic than the other Type Ii heads, middle row Nos. 3–5 which were found in definitely Intermediate deposits. Top row No. 6 is a variant of Type Ii, found in Early strata. Thus there seems an evolution in the Ii subtype. Bottom row Nos. 2–5 were grouped as Type Iii and, although they connect most closely with the I group, they also have affinities with the L group, Pl. LX, and the sub-type Hiii on Pl. LXIII.

Top Row (six specimens)

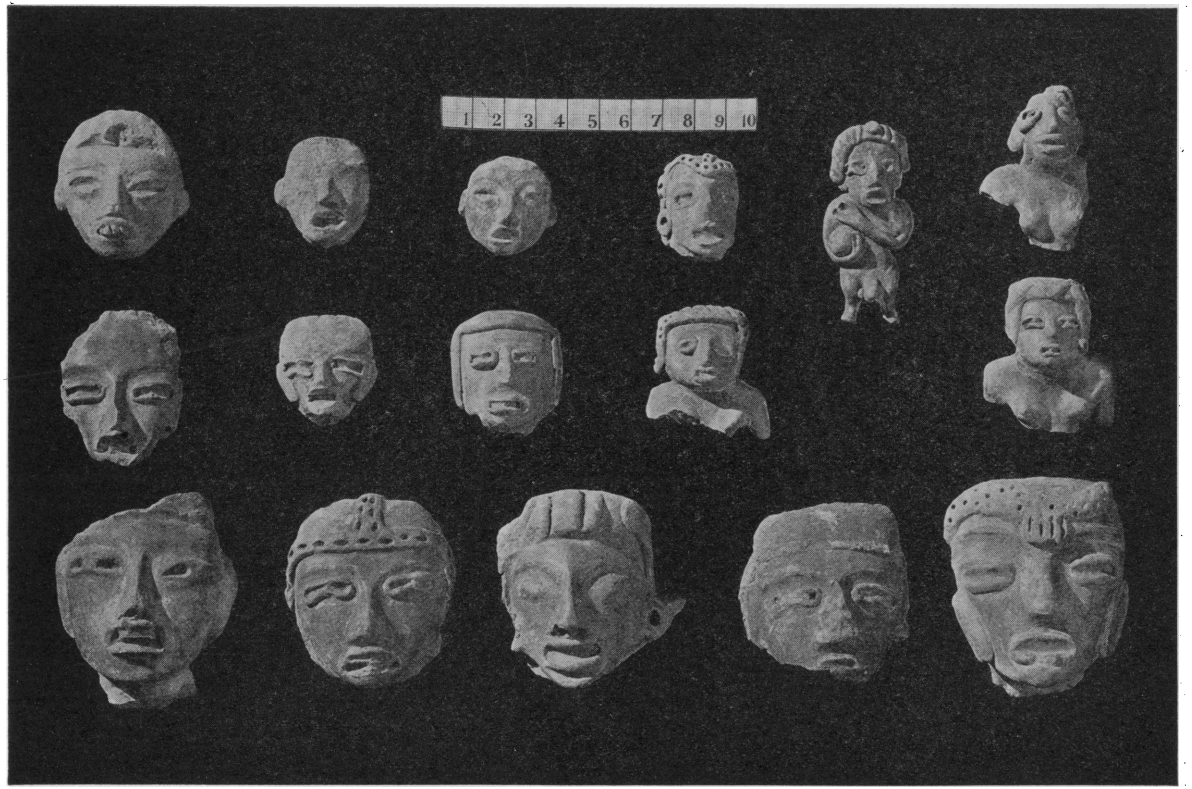
1. Head, Iiii, waterworn, Trench B, First Excavation, Cut III (30.0–7839)
2. Head, Iiii, white slip, between Walls A and B, Trench C (30.0–7966)
3. Head, Iiii, white slip, between Walls II and III under floor, Wall Digging, East Extension (30.0–8299)
4. Head, Ii, polished brown, Trench B, Second Excavation, Cut II (30.0–7770)
5. Complete male figure, Ii, polished brown, under Wall C, last Trench C (30.0–7959)
6. Head and torso, Ii, polished brown, Trench C, Cut II (30.0–7957)

Second Row (five specimens)

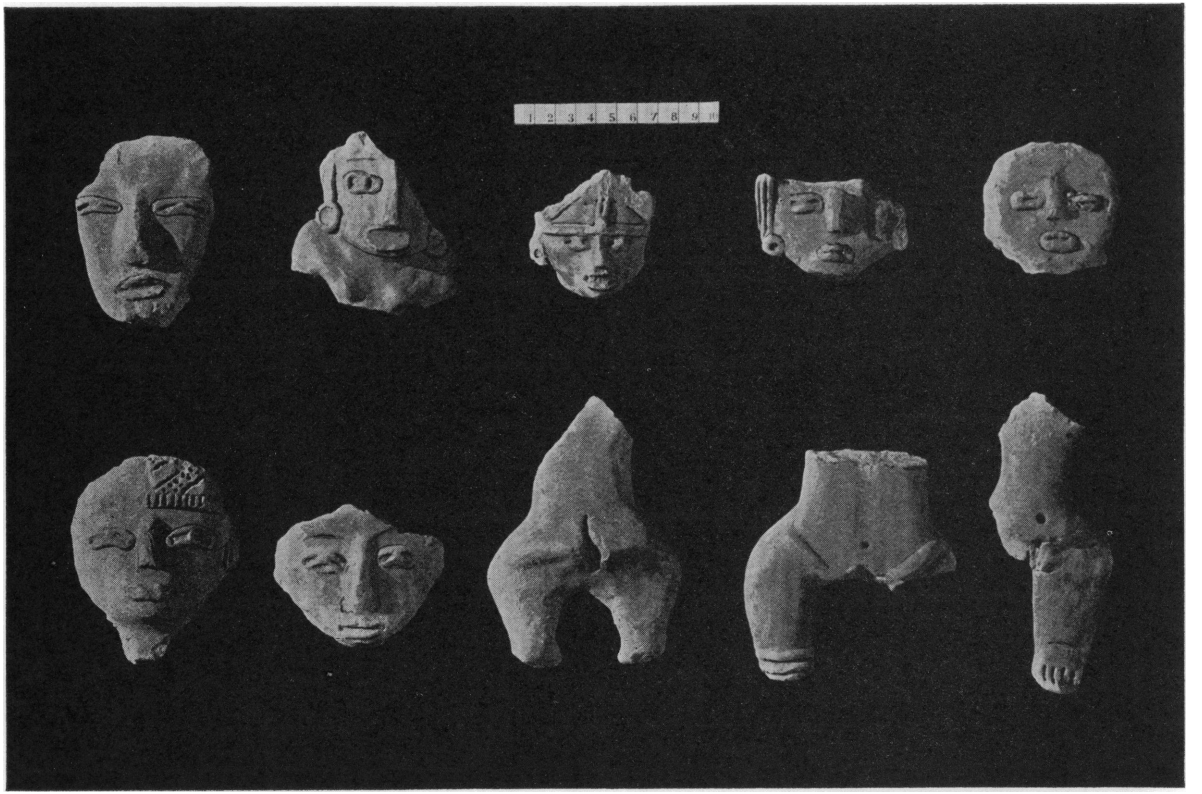
1. Head, Ii, polished brown (cf. top row No. 5, middle row No. 2, Pl. LX, top row No. 1), Trench C, Cut II (30.0–7958)
2. Head Ii, polished brown (cf. middle row No. 1), middle Trench C, Early débris under Wall C (30.0–7960)
3. Head Ii, polished brown (cf. middle row Nos. 4, 5), Trench B, First Excavation, Cut II (30.0–7715)
4. Head, Ii, polished brown (cf. middle row No. 3), Trench B, Second Excavation, Cut II (30.0–7771)
5. Head Ii, polished brown (cf. middle row No. 3), Trench B, Second Excavation, Cut II (30.0–7769)

Bottom Row (five specimens)

1. Head, Iiii, white slip, Trench A, in front of Wall F (30.0–8077)
2. Head, Iii, polished brown slip (cf. Pl. LX and LXIII), Trench F (30.0–8176)
3. Head, Iii, polished brown, Trench B, Second Excavation, Cut II (30.0–7768)
4. Head, Iii, polished brown, Trench C, Cut II (30.0–7956)
5. Head, Iii, polished brown, Trench A, between Walls B and C (30.0–8076)



FIGURINES TYPES II, III, IIII



FIGURINES TYPE L

Plate LX

Figurines Type L

Type L with groups G and I constitute the transition from the E plastic of the Early Period to the Type H plastic of the Late and is consequently an Intermediate Period indicator. Like Types G and I the filleting technique is retained to indicate features, but the practice of polishing the brown clay is common. Massive construction and careless presentation of features are the chief diagnostics. This style is closely affiliated with Type I (cf. top row No. 1 and Pl. LIX middle row Nos. 1 and 2). At the same time it connects with Type Hiii (cf. bottom row No. 1 and Pl. LXIII, bottom row No. 1) and also Type Hv (cf. bottom row No. 3 and Pl. LXV, bottom row No. 2). On the whole, Type L has the same relation to Types I and G that Type Hv has to Hi-ii, in being a large form. Its variability is great, witness top row No. 3, a slipped and polished specimen, with the gross crudeness of top row No. 5 (cf. this volume, Part I, Pl. XXXI).

Top Row (five specimens)

1. Head, transition I–L (cf. Pl. LIX middle row Nos. 1–2), Trench B, Second Excavation, Cut II (30.0–7767)
2. Head, L, polished brown, Trench C, east of Wall A (30.0–7955)
3. Head, L, atypical, polished, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7658)
4. Head, L, waterworn, Trench B, Second Excavation, Cut II (30.0–7766)
5. Head, L, atypically crude, Trench B, Second Excavation, Cut I, north of east-west wall (30.0–7865)

Bottom Row (five specimens)

1. Head, L (cf. Pl. LXIII, bottom row No. 1), Trench E, Cut III (30.0–8163)
2. Head, L, polished (cf. top row No. 3), Trench B, First Excavation, Cut I, found under wall (30.0–7572)
3. Torso, L, brown slip (cf. Pl. LXV, bottom row, Nos. 2–3), Trench B, Northwest Ramus (30.0–7878)
4. Legs, L, brown slip, Trench B, Second Excavation, Cut II (30.0–7765)
5. Leg and torso, L, brown slip, Trench B, First Excavation, Cut II (30.0–7717)

Plate LXI

Figurines Types Hi and Hii

Types Hi and Hii are closely related groups diagnostic of the Late Period at Ticoman. Type Hi is shown by the top row and No. 1 of the middle row. Its principal characteristics are no eyes, polished brown or white surfaces, filleted arms and legs, and anatomically correct proportions of limbs and features. Its origin seems to lie in the Gi group (cf. Pl. LVII middle row Nos. 3–4) and in the I group (Pl. LIX, top row Nos. 3–6, middle row Nos. 3–5). Type Hii is distinguishable from Hi by the presence of eyes and by slightly finer execution. White slips are more common and the hair and headdress are often painted red (cf. bottom row Nos. 5–7). This style also originates in the G and I groups (cf. Pl. LVII and LIX). Note on this Plate top row Nos. 1, 4, and 8, bottom row No. 1, as transitional from G, and top row Nos. 3, 5, 9, bottom row 2–3, as transitional from I. Middle row Nos. 1 and 2 depict people on their beds. Types Hi and Hii are most common at Ticoman, but they are found at Tepetlaostoc, Contreras, and Azcapotzalco (cf. this volume, Part I, Pl. XXVIII).

Top Row (*ten specimens*)

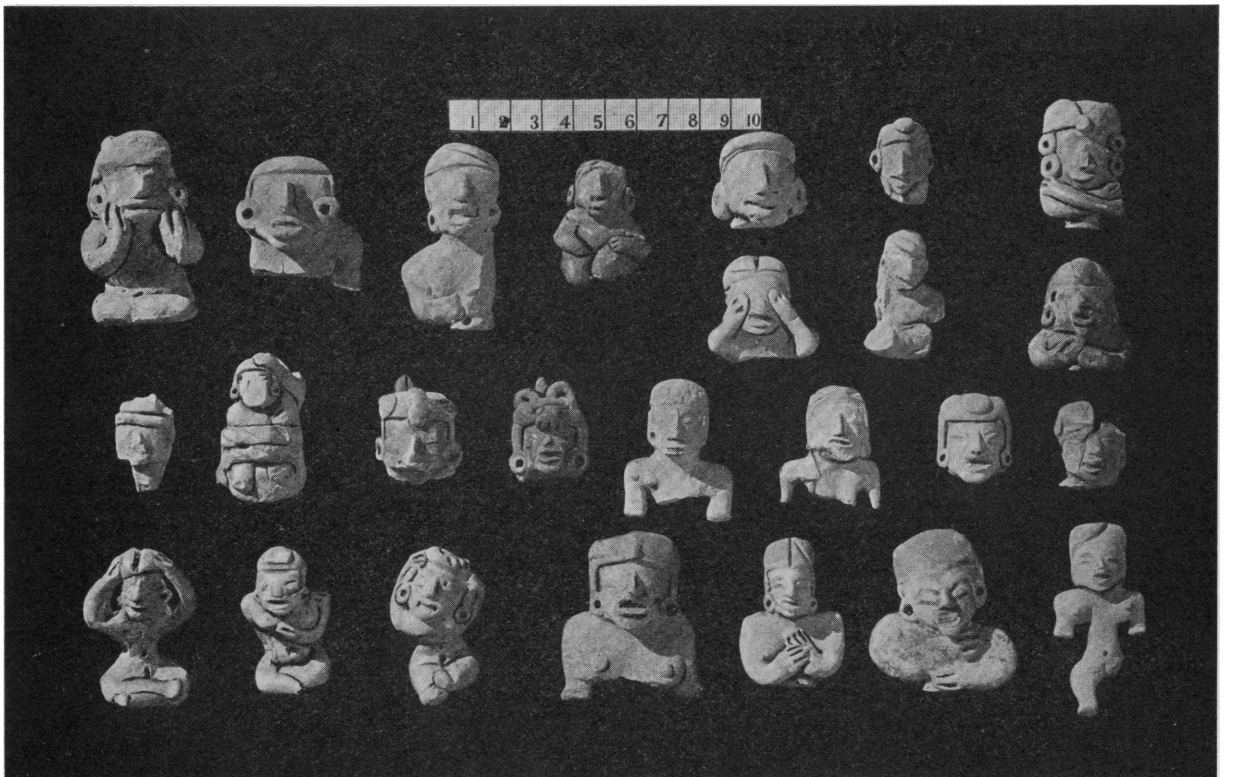
1. Seated figure, Hi, brown slip, Trench A, before Wall C (30.0–8061)
2. Head, Hi, no slip, Trench C, back dirt (30.0–7947)
3. Head and torso, Hi, white slip, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7626)
4. Seated figure, Hi, brown slip, Trench E, Cut I (30.0–8158)
5. (Upper) Head, Hi, white slip, Trench C, before Wall C (30.0–7946)
6. (Lower) Head, Hi, white slip, Trench B, Northwest Ramus (30.0–7886)
7. (Upper) Head, Hi, no slip, Trench C, Cut I (30.0–7945)
8. (Lower) Seated figure, Hi, brown slip, Trench B, Northwest Ramus (30.0–7888)
9. (Upper) Head and torso, transitional H–I, cf. Pl. LIX, middle row 3–4, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7627)
10. (Lower) Head and torso, Hi, brown slip, Trench H, above floor at junction with I (30.0–8236)

Middle Row (*eight specimens*)

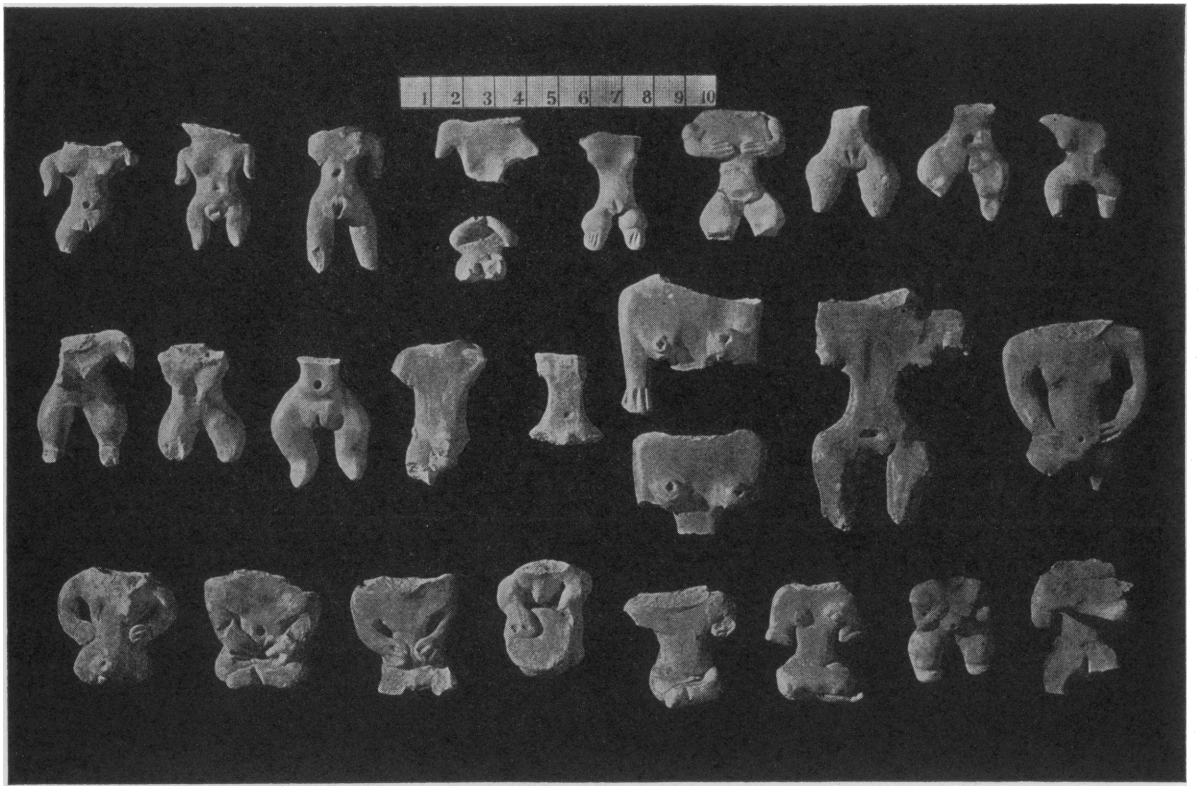
1. Baby in bed, Hi, white slip, Trench B, First Excavation, Cut I (30.0–7575)
2. Baby in bed, Hii, brown slip, bought at Ticoman (30.0–8321)
3. Head, Hii, brown slip, Trench B, Second Excavation, Cut I, back dirt (30.0–7624)
4. Head, Hii, brown slip, bought at Ticoman (30.0–8320)
5. Head, Hii, white slip, Trench B, Northwest Ramus (30.0–7887)
6. Head, Hii, white slip, Trench B, First Excavation, Cut I (30.0–7574)
7. Head, Hii, white slip, red headdress, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7623)
8. Head, Hii, white slip, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7625)

Bottom Row (*seven specimens*)

1. Seated figure, transitional H–G, brown slip, cf. Pl. LVII, Trench B, Second Excavation, Cut I, North of east-west wall (30.0–7871)
2. Seated figure, Hii, white slip, Trench B, Northwest Ramus (30.0–7884)
3. Seated figure, Hii, white slip, Trench B, Northwest Ramus (30.0–7885)
4. Head and breasts, Hii, white slip, Trench C, Cut I (30.0–7944)
5. Head and breasts, Hii, white slip, red headdress, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7622)
6. Head and breast, Hii, white slip, red headdress, Trench B, First Excavation, Cut I (30.0–7573)
7. Head and breast, Hii, white slip, red headdress, Trench B, Second Excavation, Cut II (30.0–7749)



FIGURINES TYPES HI AND HII



FIGURINE BODIES OF TYPES E, G, I, AND H

Plate LXII

Figurine Bodies of Types E, G, I, and H

The bodies from the small figurines of the E, G, I, and H groups are difficult to classify, but we submit this Plate as a general guide. Top row Nos. 1–3 are certainly Type E and in all likelihood Ei; Nos. 4, 6, 7 were probably surmounted by Eii heads (cf. Pls. LV–LVI). Top row Nos. 4, 8–10 and middle row Nos. 1–3, may be assigned with some confidence to Type Gi (cf. Pl. LVII). The remainder of the middle row specimens, Nos. 4–9, are very problematical, and since they are not Types E, G, L, nor characteristically Type H, seem by elimination associable with Type I. Yet Nos. 6–7 seem associable with transitional H types (cf. Pl. LXI, top row No. 9 and bottom row No. 7). They represent an H–I transition. The bottom row of this Plate shows specimens characteristic of the H group and it is interesting in view of I–H specimens to note such H forms in the Intermediate Period as bottom row Nos. 4 and 7. One sees the female sex predominating, save in Nos. 4 and 5 of the middle row. Compare also Pls. LV–LXI.

Top Row (ten specimens)

1. Torso, Ei, Wall Digging, South Extension below floor (30.0–8271)
2. Torso, Ei, Trench I (30.0–8229)
3. Torso, Ei, Wall Digging, East Extension, north of Wall I, below floor (30.0–8297)
4. (Upper) Breast, Eii, Trench B, First Excavation, Cut II (30.0–7713)
5. (Lower) Seated torso, Gi, Wall Digging, East Extension, above floor over walls I–III (30.0–8255)
6. Torso, Eii, Wall Digging, South Extension, below floor (30.0–8272)
7. Torso, Eii, Wall Digging, north of Room II, below floor (30.0–8273)
8. Legs, G, Trench B, Second Excavation, Cut II (30.0–7761)
9. Legs, G, Trench B, Northwest Ramus (30.0–7902)
10. Legs, G, Trench B, Second Excavation, Cut II (30.0–7762)

Middle Row (nine specimens)

1. Torso, Gi, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7646)
2. Torso, Gi, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7647)
3. Legs, Gi, with H elements, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7630)
4. Torso, male, H–I, Trench B, Second Excavation, Cut II (30.0–7772)
5. Torso, male H–I, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7639)
6. (Upper) Breast, H–I, Trench B, Second Excavation, Cut II (30.0–7773)
7. (Lower) Breast, H–I, Trench B, Second Excavation, Cut III (30.0–7845)
8. Torso, H–I, Trench B, Second Excavation, Cut II (30.0–7774)
9. Pregnant torso, H–I, Trench B, Second Excavation, behind north-south wall (30.0–7640)

Bottom Row (eight specimens)

1. Pregnant torso, H–I, Trench B, Northwest Ramus (30.0–7901)
2. Seated torso, H, Trench C, Cut I (30.0–7949)
3. Seated torso, H, Trench B, Second Excavation, Cut I, north of east-west wall (30.0–7869)
4. Torso, drum-player, H, Trench B, Second Excavation, Cut II (30.0–7764)
5. Seated torso, H, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7628)
6. Seated torso, H, Trench B, Second Excavation, Cut I, north of east-west wall (30.0–7866)
7. Erect torso, H, Trench B, Second Excavation, Cut II (30.0–7763)
8. Erect torso with shelf at breast, H, Trench A below Wall D (30.0–8062)

Plate LXIII

Figurines Type Hiii

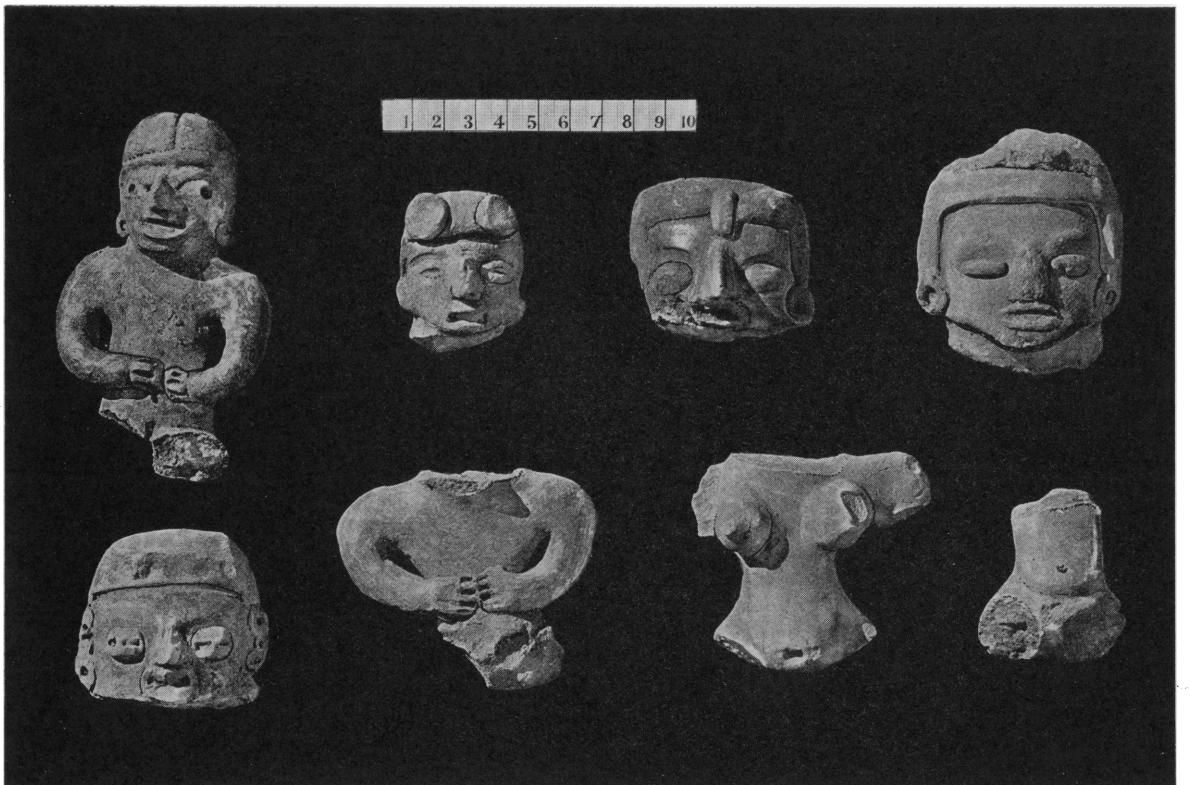
Type Hiii is a minor sub-type of the H group, and diagnostic of the Ticoman Late Period. The heads of these figurines are easily distinguishable by the characteristics of high noses and a tendency to cover the eye fillets with slip and then to polish them. The style is a culmination of group L (Pl. LX) and the sub-type Iii (Pl. LIX) but it ties in also with the Hiv sub-type (cf. bottom row No. 1 of this Plate, Pl. LXIV, and this volume, Part I, Pl. XXIX). Another example of Hiii is shown as a frontispiece to this paper. The bodies of Hiii are very difficult to classify, for some of the specimens are slipped in brown, and one is at a loss to know whether they are Hiii, Iii, or L. Type Hiii is found rarely in the east of the Valley, but it is common at Tetelpan, the Azcapotzalco region, and Cuicuilco. Due to this Cuicuilco connection, it is ethnically very important.

Top Row (four specimens)

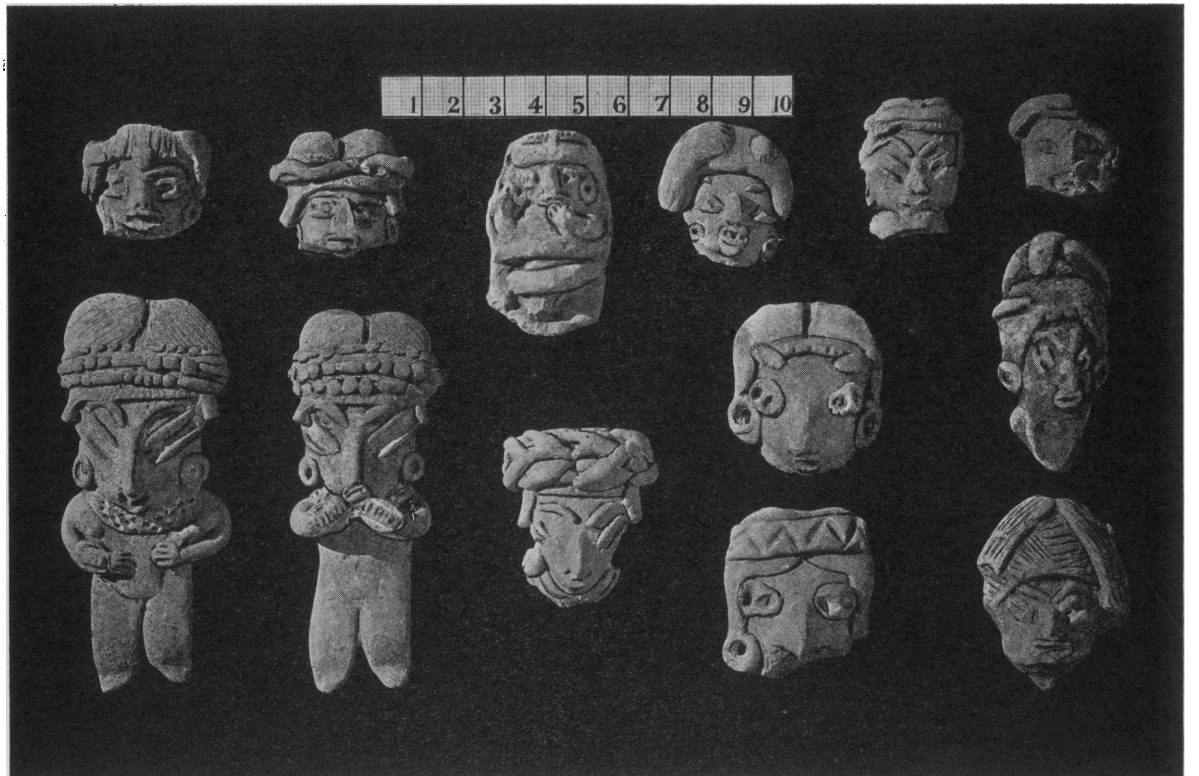
1. Head and torso, seated, Hiii, white slip, Trench B, Northwest Ramus (30.0–7876)
2. Head, battered Hiii, slip lost, Trench B, First Excavation, Cut I (30.0–7579)
3. Head, Hiii, brown slip, Trench C, before Wall B, upper (30.0–7941)
4. Head, Hiii, rudimentary, Trench C, before Wall C (30.0–7943)

Bottom Row (four specimens)

1. Head, Hiii, no slip, elements of Hiv, Trench C, back dirt (30.0–7942)
2. Seated torso, brown slip, probably Hiii, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7629)
3. Pregnant torso, brown slip, Hiii–Iii, Trench A, before Wall B, upper (30.0–8058)
4. Torso, brown slip, possibly Hiii–L, Trench B, Second Excavation, Cut I, north of east-west wall (30.0–7868)



FIGURINES TYPE HIII



FIGURINES TYPE HIV

Plate LXIV

Figurines Type Hiv

Type Hiv is not common at Ticoman, but when it does occur, it is found under very late conditions near the Late Walls, C–E, in Trenches A and C. The stylization of fillets of clay profusely used for features, eyebrows, hair, and adornment characterize this sub-type shown on the top row. No slipped specimens have been recovered. The style is ethnologically very significant, as several specimens were found at Cuicuilco, the pyramid under the lava. Moreover, this style gives the best transitional lead into such later developments as the so-called Tarascan culture in the west of Mexico. Bottom row Nos. 1–2 were part of the furniture in a young girl's grave at Chupicuaro, Gto., the only district known to the writer where figurines are so used. Bottom row No. 3 was found at the same site, underlying the two heads Nos. 4 and 5, which have the beak-like nose so characteristic of West Mexican figurines. Bottom row Nos. 6–7 come from Cuernavaca, Morelos, and Contreras, D. F., and are included to show regional variations. The pure Hiv style is found in the Plancarte collections, from localities as far north as San Juan del Rio, Queretaro, and as far south as sites in Morelos (this volume, Part I, Pl. XXIX).

Top Row (*six specimens*)
1. Head, Hiv, Trench C, near Wall C (30.0–7950)
2. Head, Hiv, Trench C, near Wall C (30.0–7948)
3. Person in bed, Hiv, purchased at Ticoman (30.0–8322)
4. Head, Hiv, Trench A, Middle, before Wall E (30.0–8060)
5. Head, Hiv, purchased at Ticoman (30.0–6672)
6. Head, battered Hiv, head Trench A, before Wall B, upper (30.0–8059)

Bottom Row (*seven specimens*)
1. Erect figure, from grave, Chupicuaro, Gto. (30.0–6458)
2. Erect figure from grave, Chupicuaro, Gto. (30.0–6457)
3. Head from low débris, Chupicuaro, Gto. (30.0–6462)
4. (Upper) Head from high débris, Chupicuaro, Gto. (30.0–6461)
5. (Lower) Head from high débris, Chupicuaro, Gto. (30.0–6461)
6. (Upper) Head, Cuernavaca, Morelos (30.0–1851)
7. (Lower) Head, Contreras, D. F. (30.0–6392)

Plate LXV

Figurines Type Hv

Type Hv is readily to be recognized by its large size, white slip, triangular eye, and other Hi-ii plastic traits (cf. Pl. LXI). It is relatively rare at Ticoman and, save for one example in the Peabody Museum at Cambridge from Azcapotzalco, and another here from the same place, it has not been collected from the Valley (cf. this volume, Part I, Pl. XXXI). Type Hv seems to have evolved from Type L (Pl. LX), and there is a possibility (cf. bottom row No. 2) that occasional examples were slipped in brown. It is, however, one of the most reliable Late Period diagnostics.

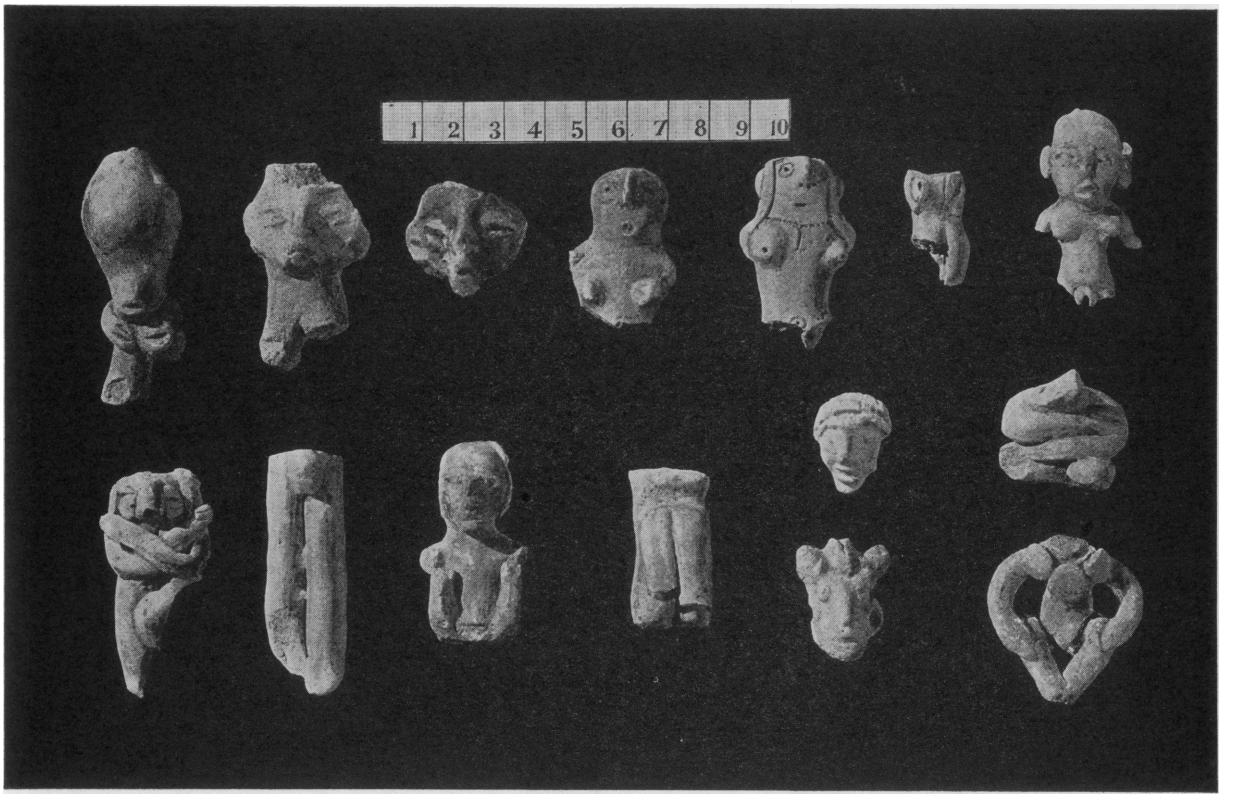
Top Row (*four specimens*)

1. Head, Hv, white slip, red headdress, Trench B, Northwest Ramus (30.0–7877)
2. Head, Hv, white slip, Trench B, Second Excavation, Cut I, in front of north-south wall (30.0–7600)
3. Head, Hv, white slip, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7620)
4. Head, Hv, slip weathered away, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7619)

Bottom Row (*four specimens*)

1. Torso, Hv, white slip, Trench A, before Wall C (30.0–8057)
2. Legs, Hv–L, brown slip, Trench B, First Excavation, Cut I (30.0–7571)
3. Torso, Hv, white slip, rear view, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7621)
4. Torso, Hv, white slip, Trench B, First Excavation, Cut II (30.0–7718)

FIGURINES TYPE Hv



FIGURINES, ODD TYPES Eiv, J, M, AND N

Plate LXVI

Figurines, Odd Types Eiv, J, M, and N

A number of specimens have been grouped on this Plate that are distinct from the figurine groups common to Ticoman, and yet occur too rarely to be considered as standard types. Top row Nos. 1–3 comprise Type Eiv which, however, is only vaguely related to Types Ei-iii (Pls. LV–LVI). No. 1 is a whistle, another example of which was collected by Boas at Ticoman in 1911 (cf. Boas, 1911, Pl. 53, No. 17). Nos. 2–3 seem to be unique. Top rows Nos. 4–6 are designated group M and are not only very rare at Ticoman, but also no more than two or three other specimens are known to the writer from the Valley. Top row No. 7 is completely atypical, being classifiable as degenerate Hiv or aberrant E group. The Eiv and M specimens come from places where Early and Intermediate débris merge.

Bottom row Nos. 1–2 have no relation to any other types encountered at Ticoman or elsewhere in the Valley. They have been designated as Type N, and their chronological position seems to be early in the Late Period. Bottom row Nos. 3–6 seem to fall into the little known J group (cf. this volume Part I, Pl. XVII, top row Nos. 2-9). Somewhat similar specimens in erect postures occur at Cuicuilco and this type may lead, after several transitions, into the west Mexican plastic. Bottom row Nos. 7–8 are unclassifiable, for the basis of grouping has been the head and, to date, none of these seated forms have been found complete.

Top Row (seven specimens)

1. Whistle, human form, Eiv, Trench A, west of wall F, near skeletons Nos. 36–38 (30.0–8074)
2. Erect figure, Eiv, Trench A, last half (30.0–8073)
3. Head, Eiv, black? slip, Trench B, Northwest Ramus (30.0–7911)
4. Head and torso, M, Trench F (30.0–8178)
5. Head and breast, M, Trench E, second pit, Cut III (30.0–8162)
6. Torso, M?, Trench E, second pit, Cut I (30.0–8161)
7. Head and torso, E variant or degenerate Hiv, Trench A, east of Wall A (30.0–8068)

Bottom Row (eight specimens)

1. Male head and torso, N, Trench A, under Walls C–E (30.0–8075)
2. Male legs, N, Trench C, Cut I (30.0–7967)
3. Seated figure, J, purchased at Ticoman (30.0–8323)
4. Seated torso, J, Trench C, Cut II (30.0–7968)
5. (Upper) Head, J, purchased at Ticoman (30.0–8324)
6. (Lower) Head, J, cf. this volume, Part I, Pl. XVII, Zacatenco, near surface (30.0–7154)
7. (Upper) Seated torso, indefinite type, Wall Digging, South Extension, above floor (30.0–8247)
8. (Lower) Seated torso, indefinite type, Trench F (30.0–8177)

Plate LXVII

Figurines, Early and Middle Zacatenco Types

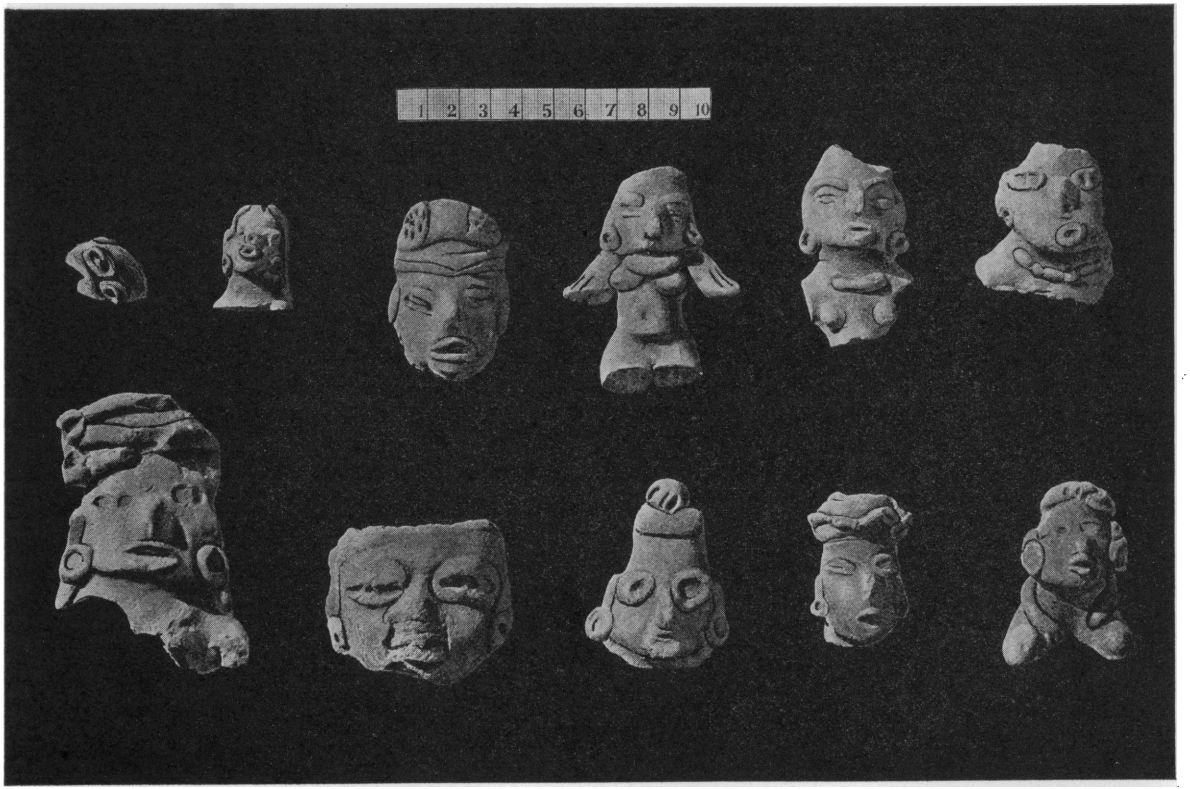
A number of figurines that are assignable to the Early and Middle Zacatenco Periods were recovered from what usually were Early Period deposits at Ticoman. Since no associated sherds were found, these specimens had doubtless been picked up by the Ticomanos from their fields which must have extended over the abandoned Early and Middle Zacatenco site of El Arbolillo, adjacent to Ticoman. Top row No. 1 is early Type F (cf. this volume, Part I, Pl. XXV top row Nos. 1–3); Nos. 2–3 are Type Cii (cf. this volume, Part I, Pl. XII); No. 4 is an example of Type Ci (cf. this volume, Part I, Pls. X–XI); Nos. 5–6 are Type Ciii (this volume, Part I, Pl. XIII). Bottom row No. 1 is Type B (cf. this volume, Part I, Pls. XXII–XXIII); bottom row No. 2 is Type A (cf. this volume, Part I, Pl. XXI); No. 3 is Type Cv, unknown at Zacatenco, but found with skeleton No. 53 (cf. this volume, Part I, Pl. XV) and belongs to the same group as No. 4; bottom row No. 5 is an example of Type F (cf. this volume, Part I, Pl. XXV).

Top Row (six specimens)

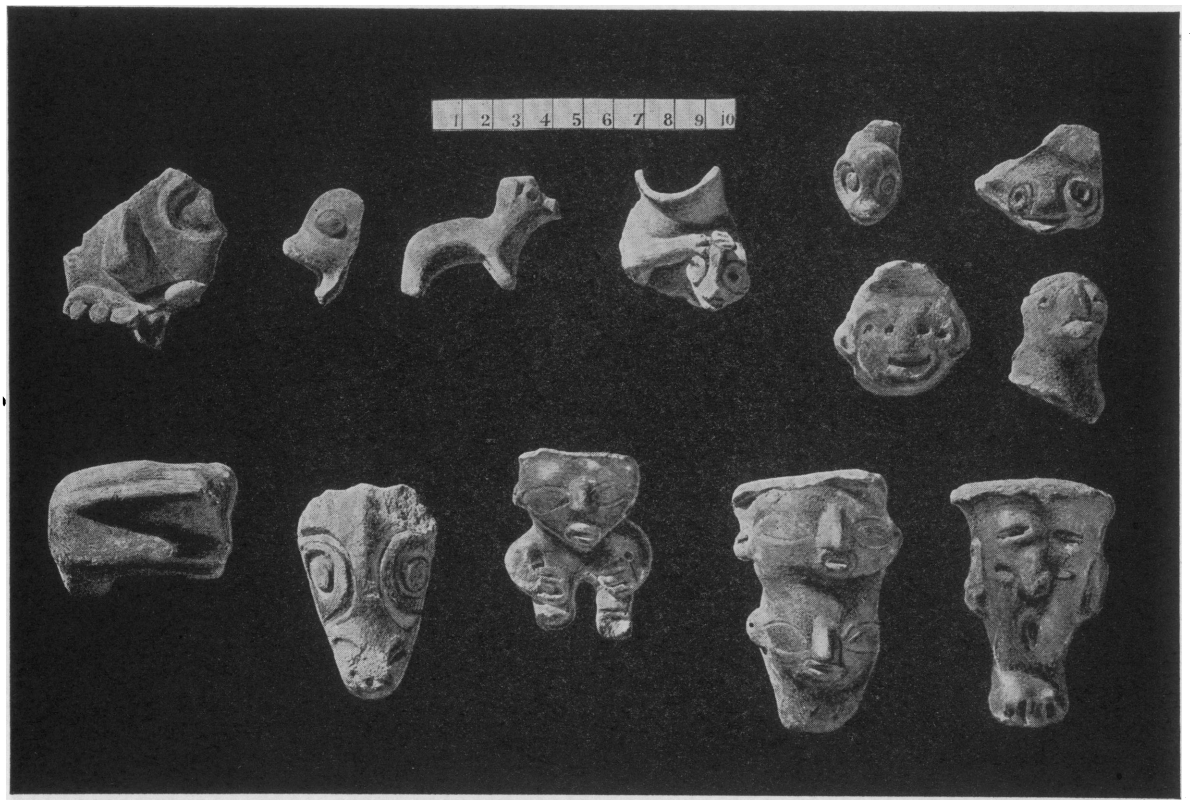
1. Head, early F, Trench C, before Wall C-sub (30.0–7970)
2. Head, Cii, Trench B, Second Excavation, Cut II (30.0–7778)
3. Head, Ci, Trench F (30.0–8182)
4. Head and torso, Ci, Trench A, under Wall B (30.0–8081)
5. Head and breast, Ciii, Trench A, before Wall F (30.0–8082)
6. Head, Ciii, Trench A, east of Wall A (30.0–8080)

Bottom row (five specimens)

1. Head, B, large, Wall Digging, South Extension, south of Wall D (30.0–8276)
2. Head, A, Wall Digging, South Extension, south of Wall D (30.0–8275)
3. Head, Cv, with skeleton No. 53, Trench I (30.0–8432)
4. Head, Cv, Trench C, last half (30.0–7971)
5. Seated figure, F, Trench A, behind Wall F (30.0–8079)



FIGURINES, EARLY AND MIDDLE ZACATENCO TYPES



ZOOMORPHIC CERAMIC ADORNMENTS

Plate LXVIII

Zoomorphic Ceramic Adornments

The depiction of human and animal life forms is not solely confined to free-standing figures like figurines. Often pottery vessels are adorned by such forms. There are, furthermore, certain life forms that do not lend themselves to the rigid figurine classification. A number of these specimens have been collected here to give the range.

Top row No. 3, a dog, and bottom row Nos. 1–2, a problematical beast and a deer, are animals that cannot be included in the regular figurine groups. Top row No. 1 is a fragment from an incensario cover, perhaps a Tlaloc (cf. Pl. LXXIX, Figs. e and f). Top row No. 2 represents a puppy and may come from the bowl of a whistle or else a pot. Top row Nos. 4 and 5 are both adornments to pots and represent monkeys. Their plastic is freer than that of the monkeys shown on Pl. LVIII, top row No. 1 and middle row No. 3. Top row Nos. 6–8 are adornments to bowls although No. 8 may be an exceptionally crude figurine. Nos. 6 and 8 seem to be human heads and No. 7 a turtle.

Bottom row Nos. 3–5 are legs of brown ware bowls of the Late Period (cf. Pl. LXXV, Figs. w–z). The plastic style of Nos. 3–4 seems analogous to that of the Hi–ii sub-type of figurines on Pl. LXI. The combination foot and face of No. 5 seems purely a work of caprice.

Top Row (eight specimens)

1. Face from incensario cover, Trench C, in front of Wall C, Late Period (30.0–7974)
2. Dog, head from whistle? or pot?, Trench B, Second Excavation, Cut II, Intermediate Period (30.0–7757)
3. Dog, Trench C, Cut II, Intermediate Period (30.0–7969)
4. Monkey head adorning small bay ware bottle, Wall Digging, South Extension, Early Intermediate Period?, above floors (30.0–8248)
5. (Upper) Monkey head from small black ware bowl, Trench C, in front of Wall C-sub, Early Period (30.0–7975)
6. (Lower) Human face from black ware bowl or ladle, Trench C, in front of Wall A, Late Period (30.0–7977)
7. (Upper) Turtle head from black ware bowl, Trench B, Northwest Ramus, Late Period (30.0–7914)
8. (Lower) Head, from crude figurine (?), Trench A, below Wall E (30.0–8083)

Bottom Row (five specimens)

1. Body of problematical animal, Wall Digging, South Extension, below floor, Early Period (30.0–8274)
2. Head of deer, Trench E, Cut III, Intermediate Period (30.0–8166)
3. Foot of late black-brown ware bowl, Trench C, in front of Wall B, upper, Late Period (30.0–7976)
4. Foot of late black-brown ware bowl, purchased at Ticoman (30.0–8325)
5. Foot of late red ware bowl, Trench C, in front of Wall C, Late Period (30.0–7978)

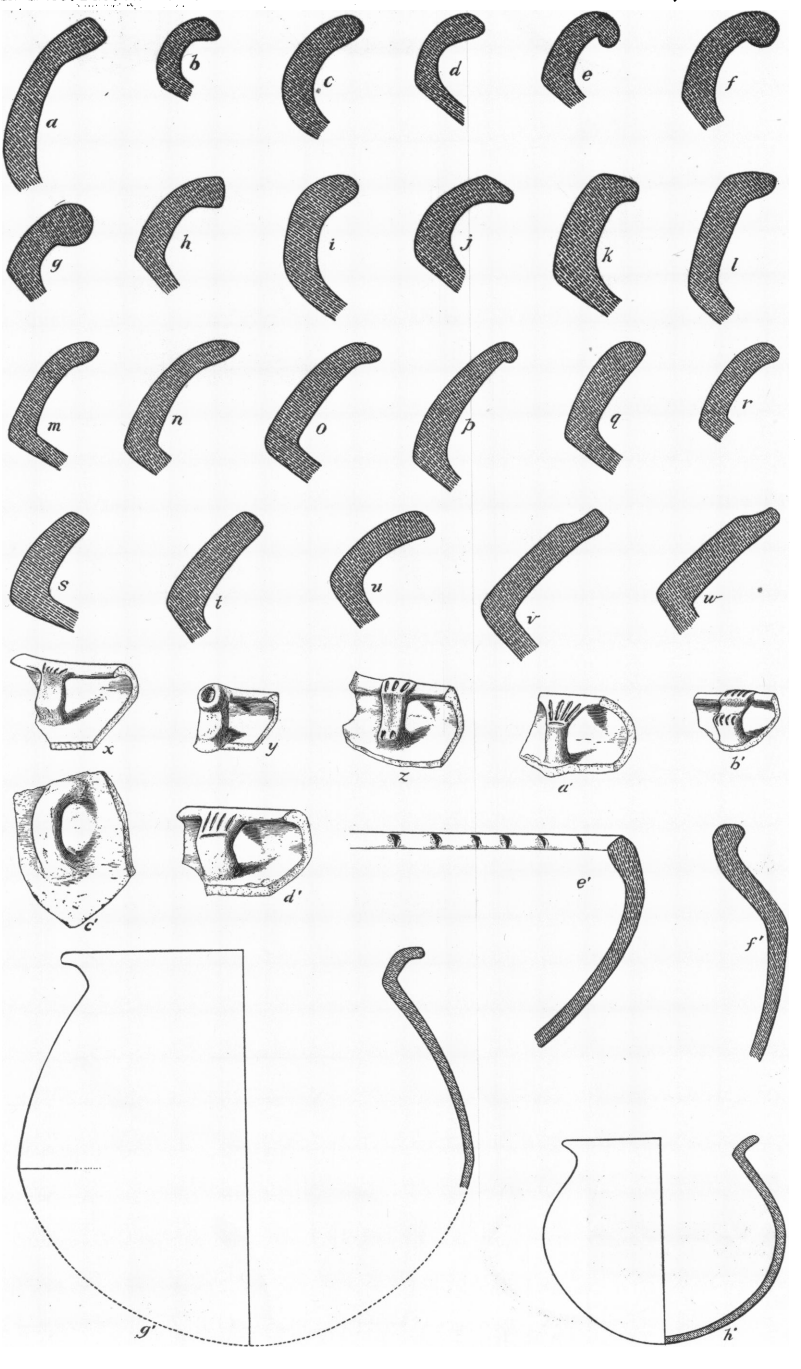
Pottery

Plate LXIX

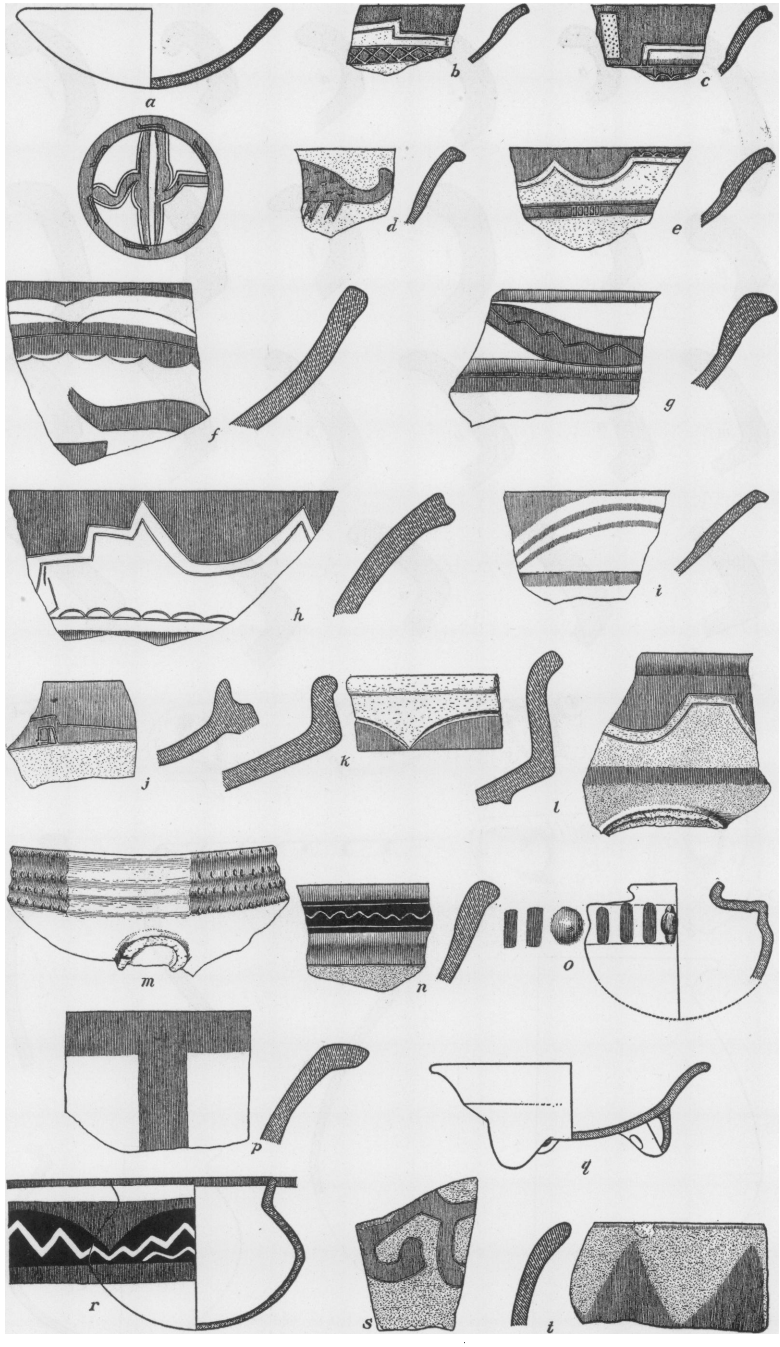
Bay Ware

Bay ware was utilized for the manufacture of storage vessels and comprises over 90 per cent of the sherd content for any cut. In the statistical tables only the rim sherds were counted so that the per cents range from the neighborhood of 50 per cent for the Early Period to 70 per cent for the Late. Rim shapes give a basis for classification which is useful only in conjunction with other ceramic factors from the decorated groups. Five centers of rim form are detectable, and a sixth very rare shape, the "vague" neck of the Early and Middle Zacatenco periods is shown by Fig. a. Simple lips, Figs. b–d, "roll" or thickened lips, Figs. e–h, flattened lips, Figs. i–l, occur in major proportions in the Early and early Intermediate Periods. The late Intermediate and Late Periods produced as major tendencies "straight" rims, which are high and approaching the vertical, like Figs. m–r, or "flare" rims like Figs. s–w. Handles, usually applied to the neck, are found infrequently in all periods (Figs. x–d′), but Fig. c′ is a variant attached to the wall of a vessel polished within. Figs. e′ and f′ present sections of large bowls or cajetes made of a more finely treated mixture of the same clay as the ollas. These merge into the black-brown ware bowls on Pl. LXXIV. Figs. g′ and h′ give, through the reconstructions of a large "straight" rim olla and a "flare" neck jar, the range of size and shape of these storage vessels.

a. Rim section, bay olla, "vague" neck, Trench B, First Excavation, Cut III, 1/3 (30.0–8521)
b. Rim section, bay olla, "simple" neck, Trench B, First Excavation, Cut II, 1/3 (30.0–8522)
c. Rim section, bay olla, "simple" neck, Trench B, First Excavation, Cut II, 1/3 (30.0–8523)
d. Rim section, bay olla, "simple" neck, transition to "flat" lip, Trench B, First Excavation, Cut III, 1/3 (30.0–8524)
e. Rim section, bay olla, "roll" lip, Trench B, First Excavation, Cut III, 1/3 (30.0–8525)
f. Rim section, bay olla, "roll" lip, Trench B, First Excavation, Cut II, 1/3 (30.0–8526)
g. Rim section, bay olla, "roll" lip, Trench B, First Excavation, Cut I, 1/3 (30.0–8527)
h. Rim section, bay olla, "roll" lip, Trench B, First Excavation, Cut III, 1/3 (30.0–8528)
i. Rim section, bay olla, "simple" neck, transition to "flat" lip, Trench B, First Excavation, Cut III, 1/3 (30.0–8529)
j. Rim section, bay olla, "flat" lip, Trench B, First Excavation, Cut II, 1/3 (30.0–8530)
k. Rim section, bay olla, "flat" lip, Trench B, First Excavation, Cut II, 1/3 (30.0–8531)
l. Rim section, bay olla, "flat" lip, Trench B, First Excavation, Cut II, 1/3 (30.0–8532)
m. Rim section, bay olla, "straight" neck, Trench B, First Excavation, Cut III, 1/3 (30.0–8533)
n. Rim section, bay olla, "straight" neck, Trench B, First Excavation, Cut I, 1/3 (30.0–8534)
o. Rim section, bay olla, "straight" transition to "flare" neck, Trench B, First Excavation, Cut I, 1/3 (30.0–8535)
p. Rim section, bay olla, "straight" neck, Trench B, First Excavation, Cut I, 1/3 (30.0–8536)
q. Rim section, bay olla, "straight" transition to "flare" neck, Trench B, First Excavation, Cut II, 1/3 (30.0–8537)
r. Rim section, bay olla, "straight" neck, Trench B, First Excavation, Cut II, 1/3 (30.0–8538)
s. Rim section, bay olla, "flare" neck, Trench B, First Excavation, Cut II, 1/3 (30.0–8539)
t. Rim section, bay olla, "flare" neck, Trench B, First Excavation, Cut I, 1/3 (30.0–8540)
u. Rim section, bay olla, "flare" neck, Trench B, First Excavation, Cut III, 1/3 (30.0–8541)
v. Rim section, bay olla, "flare" neck, Trench B, First Excavation, Cut I, 1/3 (30.0–8542)
w. Rim section, bay olla, "flare" neck, Trench B, First Excavation, Cut II, 1/3 (30.0–8543)
x. Handle, bay olla, "flat" lip, Trench B, First Excavation, Cut I, 1/6 (30.0–8544)
y. Handle, bay olla, "flat" lip, Trench B, Second Excavation, Cut II, 1/6 (30.0–8545)
z. Handle, bay olla, "flat" lip, Trench B, Second Excavation, Cut II, 1/6 (30.0–8546)
a′. Handle, bay olla, "simple" neck, Trench B, Second Excavation, Cut II, 1/6 (30.0–8547)
b′. Handle, bay olla, "flare" neck, Trench B, Second Excavation, Cut II, 1/6 (30.0–8548)
c′. Handle, bowl, polished black interior, Trench B, Second Excavation, Cut I, behind north-south wall, 1/6 (30.0–8549)
d′. Handle, bay olla, "flat" lip, Trench B, First Excavation, Cut III, 1/6 (30.0–8550)
e′. Section, cajete, bay ware, Trench C, before Wall C, 1/3 (30.0–8474)
f′. Section, cajete, bay ware, Trench B, First Excavation, Cut III, 1/3 (30.0–8551)
g′. Olla, bay ware, Wall Digging, South Extension, below floor, 1/6 (30.0–8484)
h′. Olla, bay ware, Trench F, 1/6 (30.0–8480)



BAY WARE



RED-ON-YELLOW WARES

Plate LXX

Red-on-Yellow Wares

Red-on-yellow incised is the ceramic diagnostic for the Early Period at Ticoman. The shape is very characteristic and legs are usually absent. The incision seems to have been made after firing to sharpen the painted designs blurred in firing and polishing (Figs. a–h). When the design remained clear, no incisions were made (Fig. i). Occasionally, incision was used in connection with polished red ware as on the Early specimen, Fig. j, and the Late Figs. k and l. Fig. n seems to be an overfired example of red-on-yellow incised. Fig. d is a unique example of zoomorphism.

Several other types of red-on-yellow ware were obtained at Ticoman. A burnished style rare in occurrence is shown by Figs. m and o. The bottle form is fairly common and merges into polychrome ollas. Fig. p gives an example of lake-on-yellow, an uncommon style found in the Late Period, and Fig. q, a misfired bowl, is perhaps the same ware. Figs. r–t present some of the forms of red-on-yellow stick-polished, an interesting ware in that it is found more often in graves than in the sherd selections (cf. Pl. LXXVIII). It seems also to tie in with pottery found around the slopes of Popocatepetl and in the graves at San Juanico. Fig. r seems to have had the black paint applied by "lost-color" process.

a. Bowl and interior design, red-on-yellow incised, skeleton No. 42, Trench F, 1/6 (30.0–8420)
b. Section, bowl, red-on-yellow incised, Trench B, Second Excavation, Cut II, 1/6 (30.0–8552)
c. Section, bowl, red-on-yellow incised, Trench E, bottom, 1/6 (30.0–8553)
d. Section, bowl, red-on-yellow incised, Trench A, behind Wall B, 1/6 (30.0–8554)
e. Section, bowl, red-on-yellow incised, Trench B, Second Excavation, Cut II, 1/6 (30.0–8555)
f. Section, bowl, red-on-yellow incised, Trench B, First Excavation, Cut III, 1/3 (30.0–8556)
g. Section, bowl, red-on-yellow incised, Trench B, First Excavation, Cut III, 1/3, (30.0–8557)
h. Section, bowl, red-on-yellow incised, Trench B, Second Excavation, Cut II, 1/3 (30.0–8558)
i. Section, bowl, red-on-yellow, Trench B, First Excavation, Cut III, 1/6 (30.0–8559)
j. Section, bowl, polished red incised, Trench A, between terraces, 1/3 (30.0–8560)
k. Section, bowl, polished red incised, Trench B, First Excavation, Cut I, 1/3 (30.0–8561)
l. Section, bowl, polished red incised, Trench E, Cut II, 1/3 (30.0–8562)
m. Fragment of bowl, polished red-on-yellow, South Extension, west of Wall A, 1/6 (30.0–8563)
n. Section, bowl, red-on-yellow incised, misfired, Trench C, Cut II, 1/3 (30.0–8564)
o. Bottle, polished red-on-yellow, Trench B, First Excavation, Cut II, 1/6 (30.0–8450)
p. Section, bowl, lake-on-yellow, Trench B, First Excavation, Cut II, 1/2 (30.0–8565)
q. Bowl, misfired lake-on-yellow, ?, Trench B, Second Excavation, Cut I, 1/6 (30.0–8451)
r. Olla, red-on-yellow stick-polished with lost-color design, skeleton No. 51, Trench F, 1/6 (30.0–8429)
s. Sherd, red-on-yellow stick-polished, Trench C, before Wall C, 1/3 (30.0–8566)
t. Section, bowl, red-on-yellow stick-polished, Trench C, near Wall C-sub, 1/3 (30.0–8567)

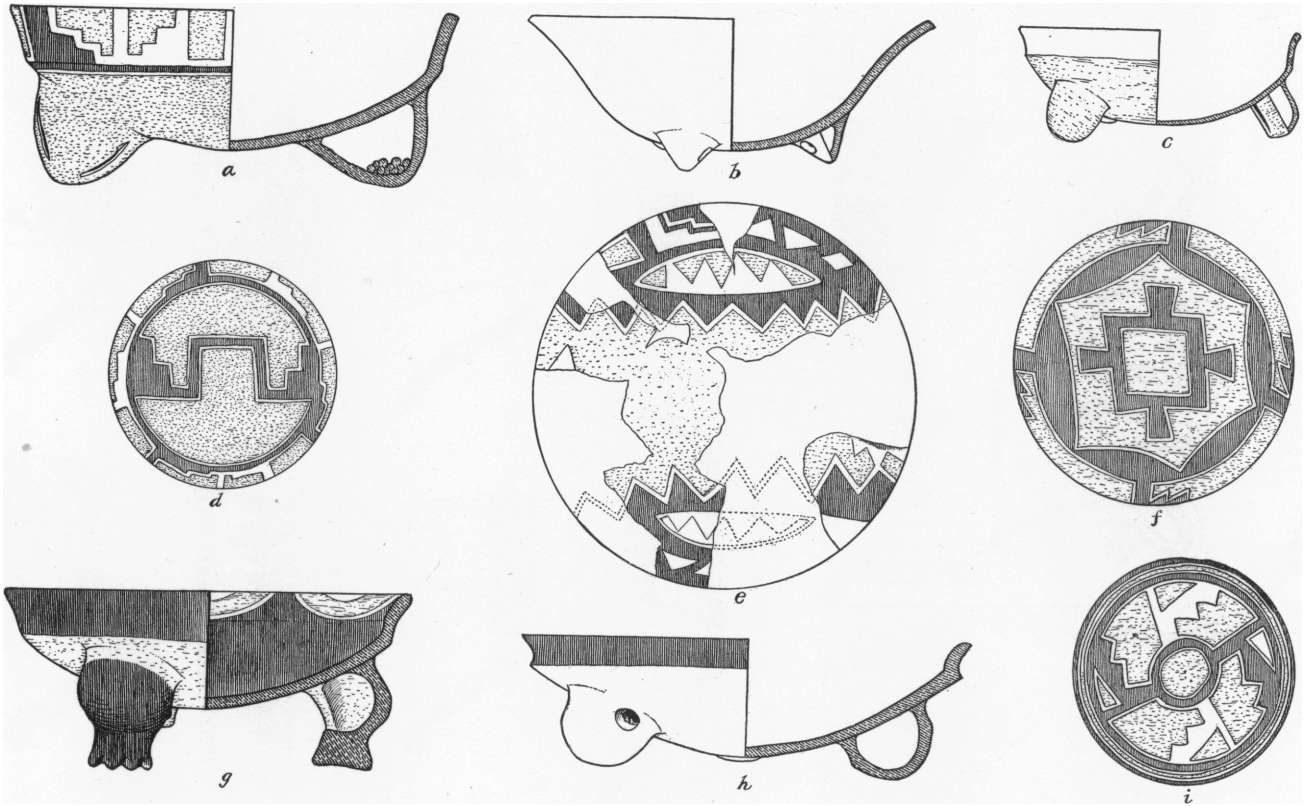
PLATE LXXI

POLYCHROME WARES

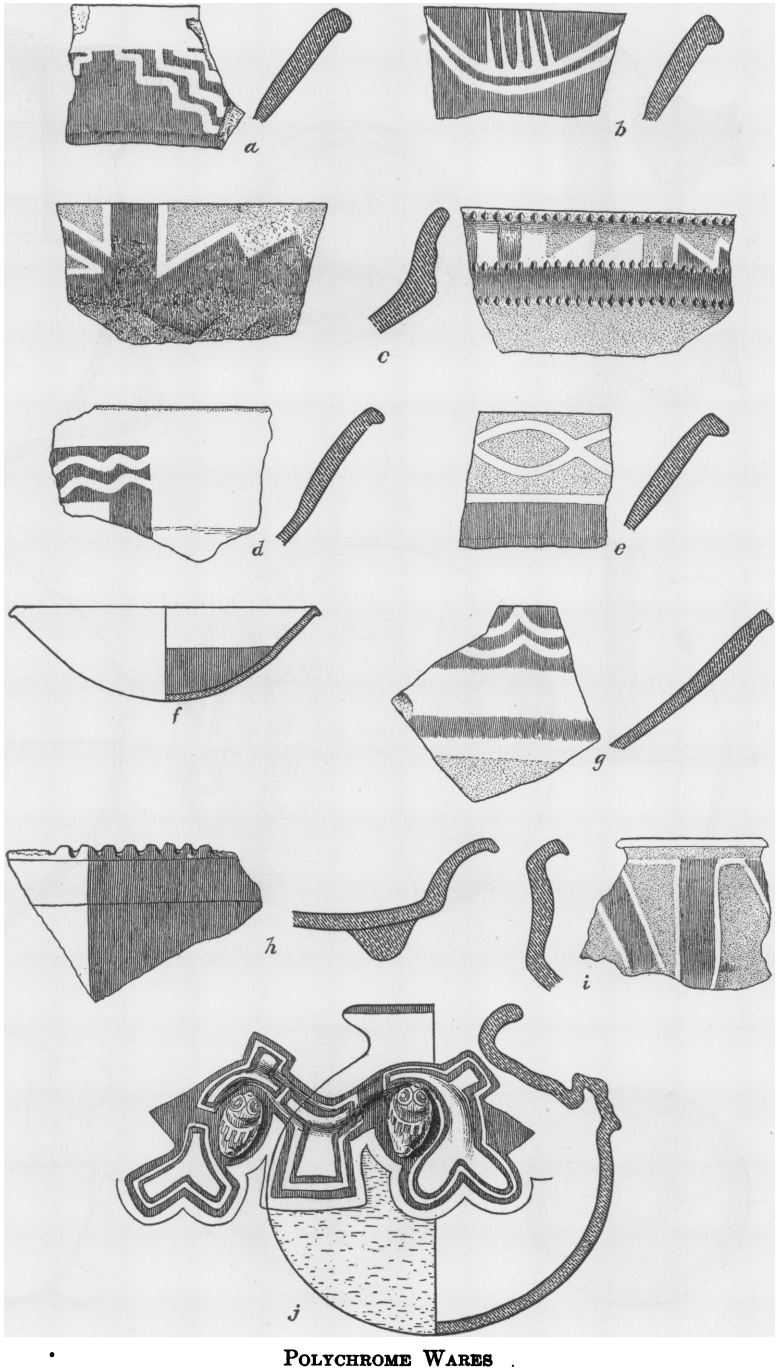
Polychrome pottery is rare in the Early Period but its high frequency in the Intermediate Period renders it a diagnostic of that time. In the Late Period this ware is also common and is often used in connection with polished red ware. Ornate legs of the claw or ball type characterize late Intermediate or Late specimens.

The ware evolves directly from red-on-yellow incised and a band of white paint replaces the incision outlining the design red. In the early Intermediate Period shapes follow red-on-yellow incised (cf. Fig. b with Pl. LXX, Figs. a–i). In the late Intermediate such forms as Figs. a, c, and h occur with vertical walls, while Fig. g may be taken to represent the highest evolution of the Late Period. Naturally, early forms persist in later times, like Fig. b. A characteristic Late trait of Polychrome is to be seen in the use of polished red to adorn the exterior of Figs. g–h.

a. Polychrome bowl with rattle feet, Intermediate, skeleton No. 9, Trench B, First Excavation, 1/4, with conical feet (30.0–8342)
b. Polychrome bowl, Late, Trench B, Second Excavation, Cut I, behind north-south wall, 1/8 (30.0–8456)
c. Polychrome bowl, with ball feet, late Intermediate, skeleton No. 21, Trench C, 1/8 (30.0–8370)
d. Interior of Fig. a
e. Interior of Fig. b
f. Interior of Fig. c
g. Polychrome bowl combined with polished red, with claw feet, Late, skeleton No. 23, Trench C, 1/4 (30.0–8375)
h. Polychrome bowl, polished red exterior, ball legs, Intermediate Period, with skeleton No. 10, Trench A (30.0–8343)
i. Interior of h



POLYCHROME WARES



POLYCHROME WARES

Plate LXXII

Polychrome Wares

This plate depicts forms of polychrome design differing from those on Pl. LXXI in that the white paint is used as a major decorative element and not as an outline (cf. Figs. a, b, d, e, g). These examples also illustrate the retention of the earlier forms of red-on-yellow incised, whereas Fig. c presents the developed style with straight rim and polished red paint. Fig. f is a unique example of a white slipped bowl, the bottom of which is covered in red. A variation of this treatment is shown on Fig. h, a curious form of white-on-red found under Late circumstances. By comparing Fig. i with Pl. LXX, Fig. o, and Pl. LXXVI, Fig. d one may see the close relationship between polished red-on-yellow and polychrome in olla forms. Fig. j is an example of a rare type usually recovered from early Intermediate strata.

a. Section, polychrome bowl, Trench B, First Excavation, Cut II, 1/4 (30.0–8568)
b. Section, polychrome bowl, Trench C, Cut II, 1/4 (30.0–8569)
c. Section, polychrome bowl, Trench C, before Late wall, 1/4 (30.0–8570)
d. Section, polychrome bowl, Trench C, Cut II, 1/4 (30.0–8571)
e. Section, polychrome bowl, Trench A, between Walls B and C, 1/4 (30.0–8572)
f. Bowl, red-on-white, with skeleton No. 6, Trench A, 1/8 (30.0–8341)
g. Section, polychrome bowl, Trench B, Second Excavation, Cut II, 1/4 (30.0–8573)
h. Section, white-on-red bowl, Trench A, before Wall C, 1/4 (30.0–8574)
i. Section, polychrome olla, Trench A, before Wall C, 1/4 (30.0–8575)
j. Polychrome olla, possibly associated with skeleton No. 29, Trench C,1/4 (30.0–8377)

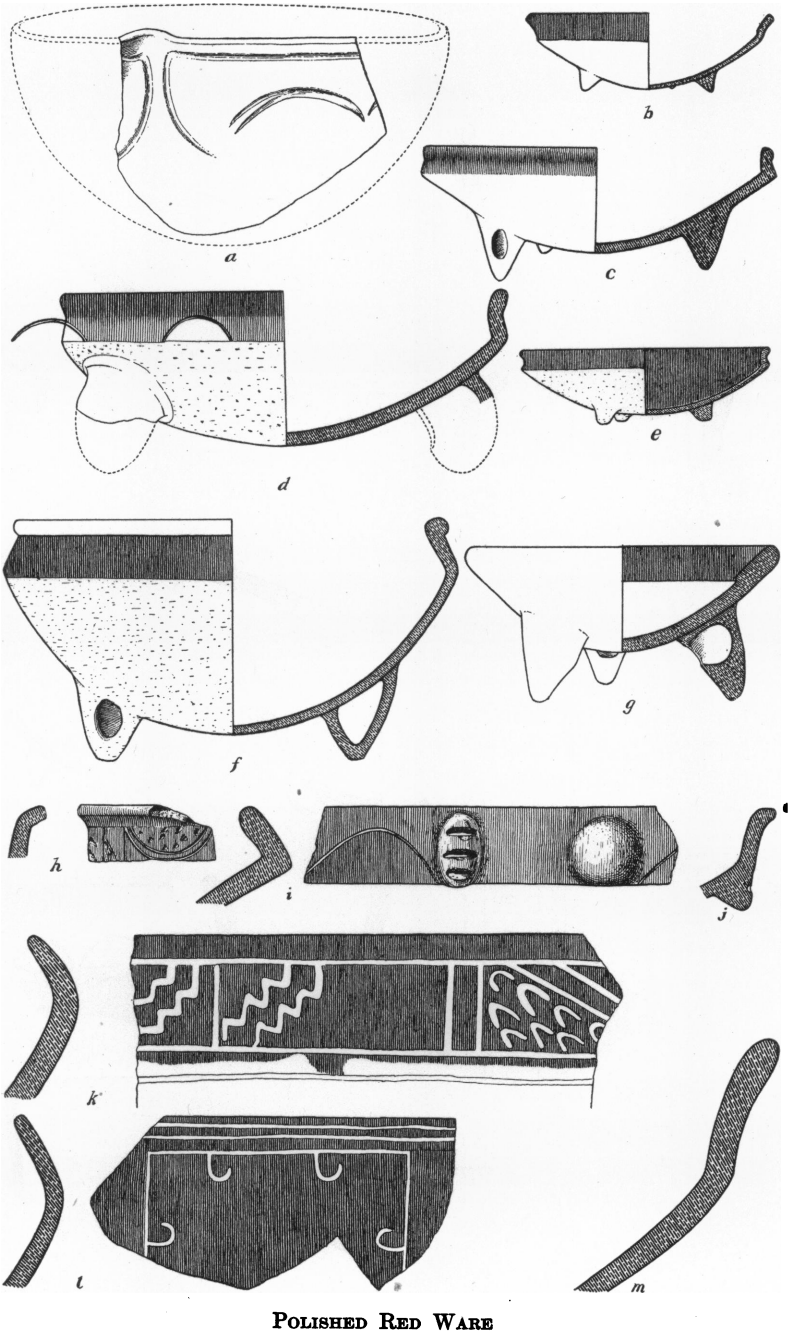
Plate LXXIII

Polished Red Ware

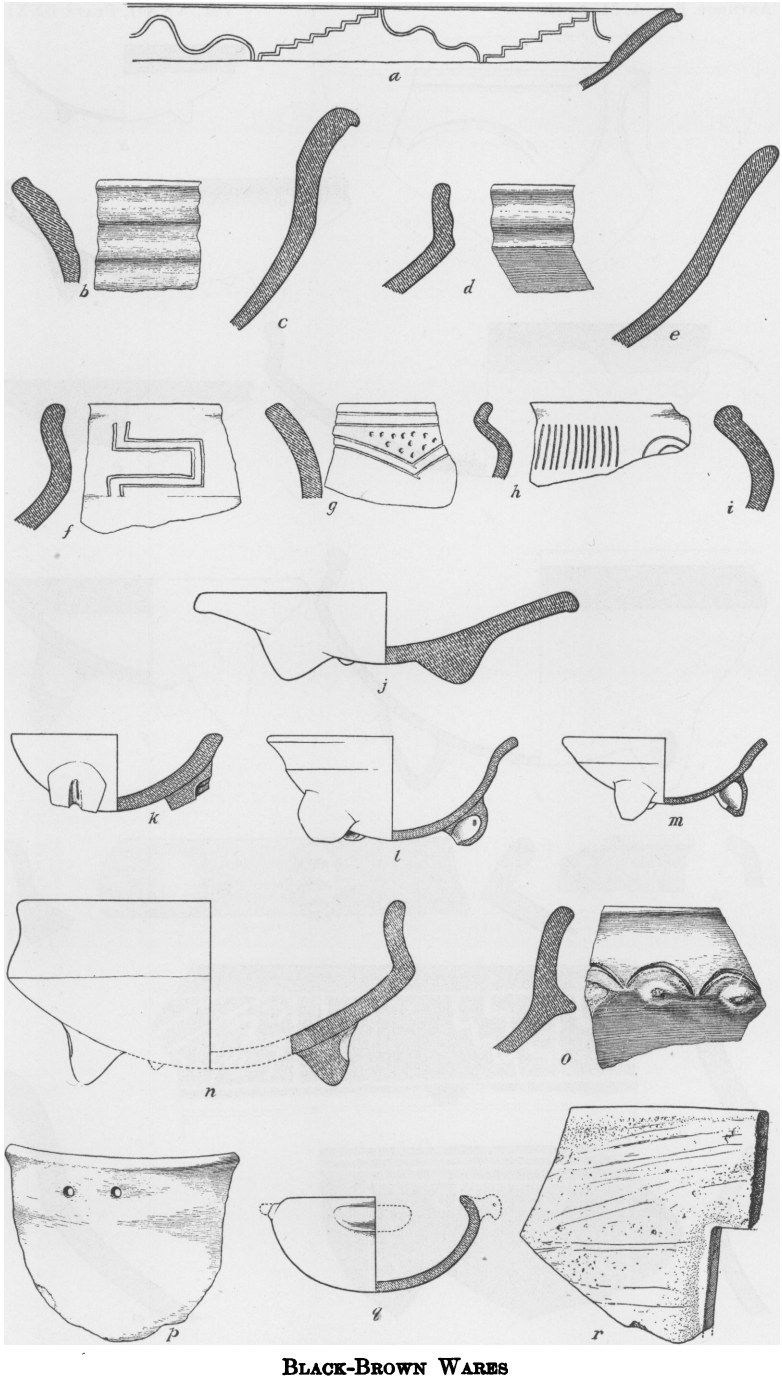
Polished red ware is common to all periods at Ticoman and although slightly more common to the Late than the preceding periods, it cannot be said to be a very significant time-bearer. Fig. a is an aberrant specimen in form and texture, being perhaps a trade piece. Figs. b–f, i, and k–m represent the normal range (cf. Pls. LXXVII–LXXVIII). The teat tripod support or none at all is usual for the Early Period, but ball, elongated cones, and other developed shapes aid in distinguishing vessels as Intermediate and Late (Pl. LXXV). White is the usual method of decoration when the luster of the surface was deemed insufficient (Figs. k–l), but in the later phases of polished red, combinations were made with polychrome (Pls. LXXI, LXXV).

Polished red ware often lacks the characteristic luster and a dull red ware results, specimens of which are shown on Pl. LXXVI. Transitional to this type of finish is the vessel represented by Fig. g. Fig. j is an aberrant type, perhaps a trade piece, but Fig. h is almost certainly a Teotihuacan culture sherd.

a. Bowl, red ware, trade piece?, Wall Digging, South Extension, below floor, 4/15 (30.0–8576)
b. Bowl, polished red ware, with skeleton No. 15a, Trench A, 1/10 (30.0–8357)
c. Bowl, polished red ware, Trench A, between Walls B and C, 1/5 (30.0–8577)
d. Bowl, polished red ware, Trench C, before Wall A, 1/5 (30.0–8463)
e. Bowl, polished red ware, with skeletons No. 43–45, Trench F, 1/10 (30.0–8421)
f. Bowl, polished red ware, Trench C, before Wall C, 1/5 (30.0–8473)
g. Bowl, transitional dull-polished red, with skeleton No. 23, Trench C, 1/5 (30.0–8374)
h. Section, polished red bowl, Teotihuacan style, Trench C, 2/5 (30.0–8464)
i. Section, polished red bowl, Trench B, Northwest Ramus, 2/5 (30.0–8578)
j. Section, polished red bowl, aberrant shape and finish, Trench B, Second Excavation, Cut II, 2/5 (30.0–8579)
k. Section, polished red bowl, Trench C, Cut II, 2/5 (30.0–8469)
l. Section, polished red bowl, Trench C, digging before Early wall, 2/5 (30.0–8478)
m. Section, polished red bowl, Wall Digging, South Extension west of Wall A, 2/5 (30.0–8482)



POLISHED RED WARE



BLACK-BROWN WARES

Plate LXXIV

Black-Brown Wares

Black-brown ware, so named from its color range, was one of the most popular service wares at Ticoman. Its greatest frequency was in the Early Period, but it was in very common use during the Late Period also. It derives apparently from the finer mixture of bay ware used in making cajetes (Pl. LXIX, Figs. e′–f′). Early shapes are apt to have constricted mouths and incurved rims or the everted thickened lip so common to red-on-yellow ware (Figs. a–g, i–j). Legs are absent or occasionally almost solid cones. Later forms are often defined by straight walls and a more ornate support, although there is a persistence of Early forms (Figs. h, k–p, Pl. LXXV, Figs. w–z). Effigy forms like Fig. q occur in all periods. The suspension holes in Fig. p are of interest, and that form, together with that of Fig. l, are known at Cuicuilco.

Fig. r is probably an unslipped fragment of an incensario, for just below the rim one can see a quadrangular perforation (cf. also Pl. LXXIX, Figs. d–f).

a. Section of black-brown bowl, Trench C, before Wall C-sub, 1/6 (30.0–8476)
b. Section of black-brown bowl, Trench B, First Excavation, Cut III, 1/3 (30.0–8580)
c. Section of large black-brown bowl, Trench C, before Wall C-sub, 1/3 (30.0–8477)
d. Section of black-brown bowl, Trench B, Second Excavation, Cut I, behind north-south wall, 1/3 (30.0–8581)
e. Section of black-brown bowl, Trench B, First Excavation, Cut II, 1/3 (30.0–8582)
f. Section of black-brown bowl, Trench B, First Excavation, Cut III, 1/3 (30.0–8583)
g. Section of black-brown bowl, Trench B, First Excavation, Cut III, 1/3 (30.0–8584)
h. Section of black-brown bowl, Trench B, Second Excavation, Cut I, behind north-south wall 1/3 (30.0–8585)
i. Section of black-brown bowl, Trench B, First Excavation, Cut III, 1/3 (30.0–8586)
j. Plate, black-brown ware, Trench A, Early débris, before Wall E, 1/3 (30.0–8587)
k. Small bowl, black-brown ware, Trench A, between Walls B and C, 1/3 (30.0–8457)
l. Bowl, black-brown ware, skeleton No. 24, Trench C, 1/6 (30.0–8376)
m. Bowl, black-brown ware, skeleton No. 21, Trench C, 1/12 (30.0–8371)
n. Restored bowl, black-brown ware, Trench C, Cut I, 1/3 (30.0–8588)
o. Section of bowl, black-brown ware, Trench B, Second Excavation, Cut I, behind north-south wall, 1/3 (30.0–8589)
p. Section of bowl, black-brown ware, Trench A, under Wall D, 1/3 (30.0–8590)
q. Restored effigy bowl, black-brown ware, Trench A, below Wall C, 1/3 (30.0–8459)
r. Sherd from incensario, unslipped brown ware, Trench A, before Wall C, 1/3 (30.0–8591)

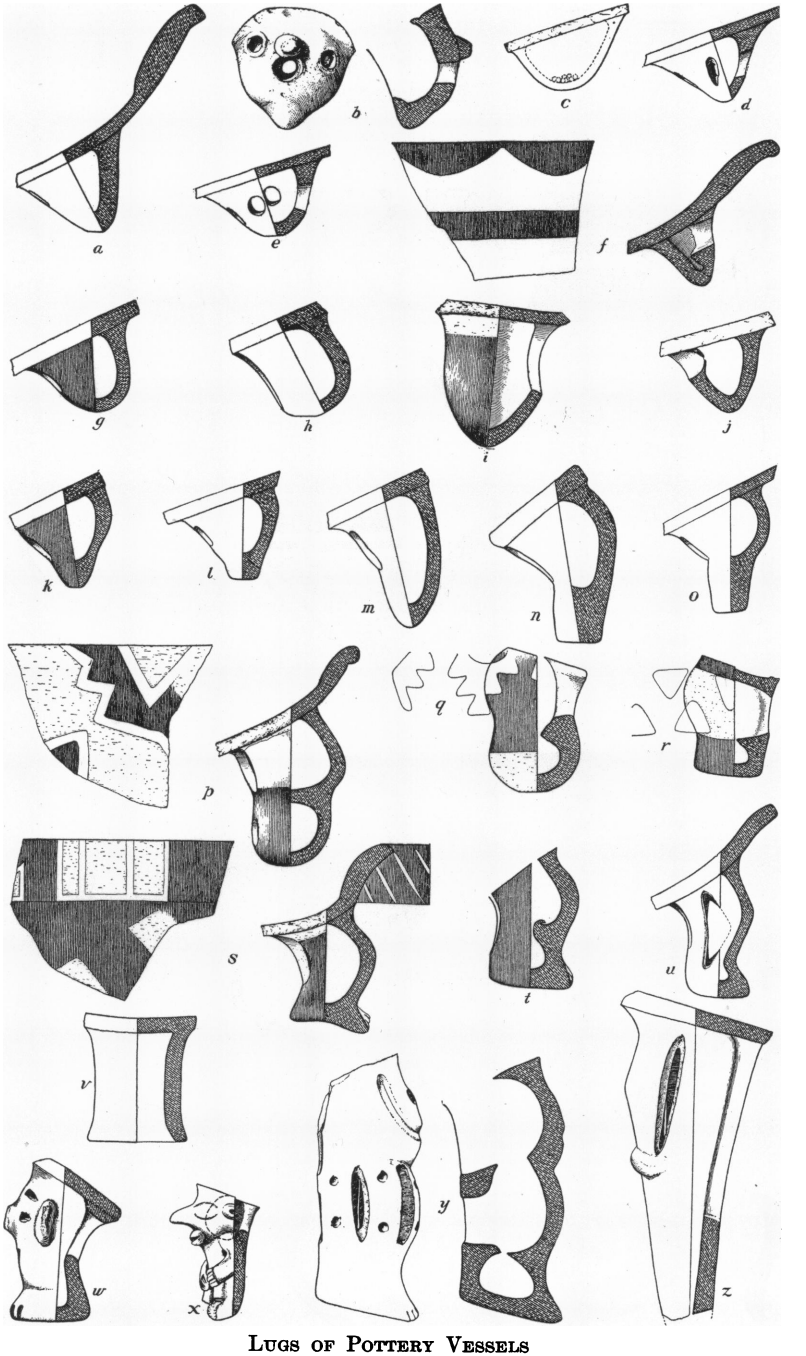
Plate LXXV

Legs of Pottery Vessels

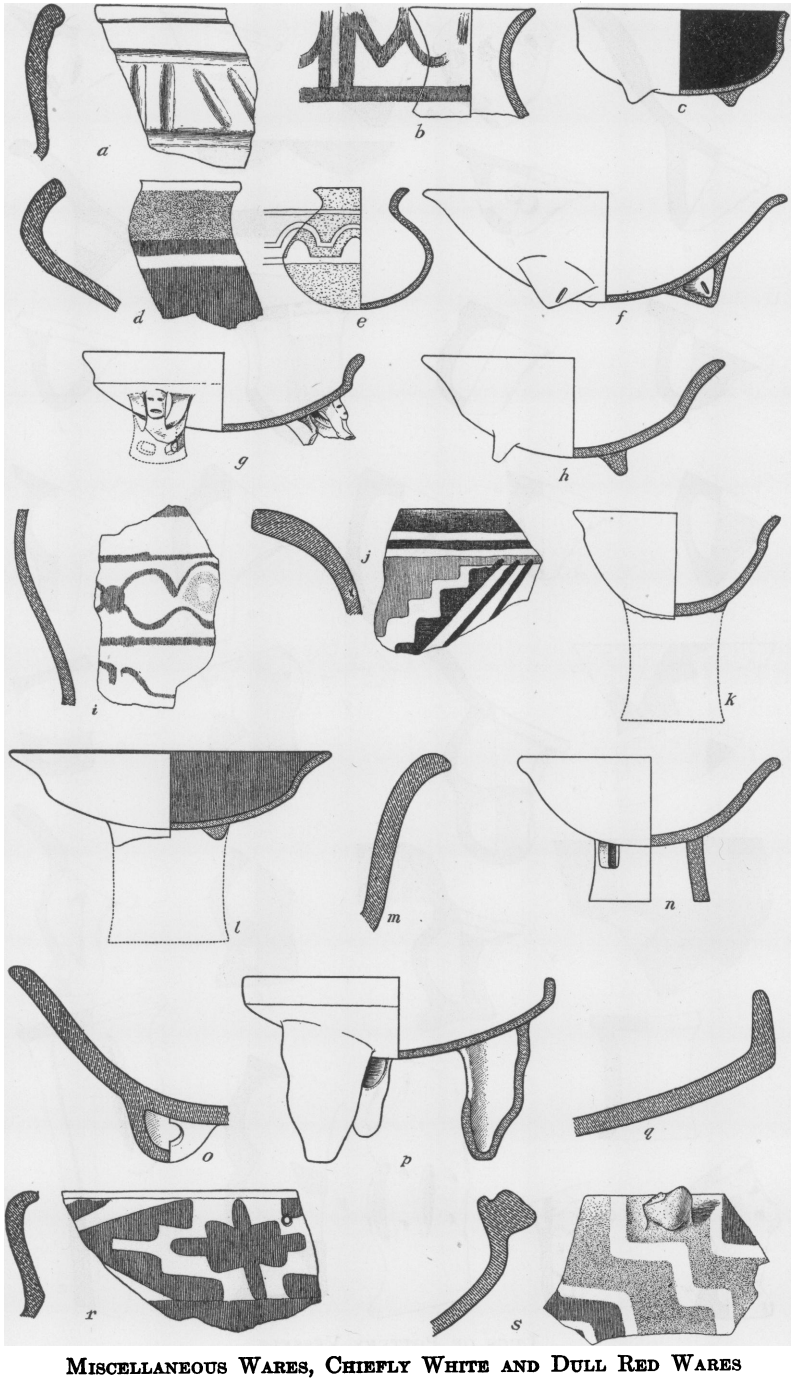
A criterion of great value in defining the period of a vessel is its leg, for we have seen in the foregoing plate selection how wares persist through all periods and how early forms are often retained into Late times. In the Early Period legs are infrequent and are usually rough cones (Figs. a–b, d–f, j). The Late Period shows frequent examples of conical legs with the point pinched out into a cusp (Figs. k–o), also forms composed of superimposed spheres (Figs. p–r), as well as claw feet (Figs. s–u) and the very infrequent effigy forms (Figs. w–y; Pl. LXXVI, Fig. g). Fig. c is a rattle foot of black-brown ware without a vent of any description. It is unique at Ticoman.

Fig. z is very rare and is uncommon to the Valley of Mexico at any epoch. Fig. v is an annular base, a form of support having little chronological significance since it is found not only in all periods at Ticoman and at Cuicuilco but also at Middle Zacatenco and Copilco (Pl. LXXVI, Figs. k–l, and n; this volume, Part I, Pl. IV, Fig. m).

a. Section, brown ware bowl, Trench B, Second Excavation, Cut II, 1/4 (30.0–8592)
b. Section, effigy foot, black-brown ware, white paint around eyes, Trench C, in front of Wall C, 1/4 (30.0–8593)
c. Section, polished brown ware foot without vent, Trench C, Cut II, 1/4 (30.0–8468)
d. Section, conical foot, three vents, polychrome?, Trench B, First Excavation, Cut II, 1/4 (30.0–8594)
e. Section, conical foot, four vents, brown ware, Trench B, First Excavation, Cut III, 1/4 (30.0–8595)
f. Section, polychrome bowl, Trench B, Second Excavation, Cut I, behind north-south wall, 1/4 (30.0–8596)
g. Section, ball foot, polished red ware, Trench B, First Excavation, Cut II, 1/4 (30.0–8597)
h. Section, ball foot, polished red ware, Trench B, Second Excavation, Cut I, behind north-south wall, 1/4 (30.0–8598)
i. Section, ball foot, polychrome and polished red bowl, Trench B, Northwest Ramus, 1/4 (30.0–8599)
j. Section, conical foot, black-brown ware, Trench B, First Excavation, Cut II, 1/4 (30.0–8600)
k. Section, cusped foot, polished red bowl, Trench B, First Excavation, Cut I, 1/4 (30.0–8601)
l. Section, cusped foot, black-brown ware, Trench B, First Excavation, Cut I, 1/4 (30.0–8602)
m. Section, cusped foot, black-brown ware, Trench B, First Excavation, Cut I, 1/4 (30.0–8603)
n. Section, cusped foot, black-brown ware, Trench B, First Excavation, Cut II, 1/4 (30.0–8604)
o. Section, cusped foot, black-brown ware, Trench C, Cut II, 1/4 (30.0–8605)
p. Section, bi-globular bowl, polychrome and white-on-red, Trench C, front of Wall C, 1/4 (30.0–8606)
q. Section, bi-globular foot, white on polished red, Trench B, First Excavation, Cut I, 1/4 (30.0–8607)
r. Section, variant bi-globular foot, polychrome, Trench C, front of Wall C, 1/4 (30.0–8608)
s. Section, claw foot, polychrome and polished red bowl, Trench C, Cut I, 1/4 (30.0–8609)
t. Section, claw foot, polished red ware, Trench A, before Wall E, 1/4 (30.0–8610)
u. Section, claw foot variant, polished black interior, brown exterior, Trench H, 1/4 (30.0–8611)
v. Section, annular base, brown ware, unslipped, Trench C, behind Wall C-sub, 1/4 (30.0–8479)
w. Section, effigy foot, brown exterior, black interior, Trench C, front of Wall C, 5/16 (30.0–7978)
x. Section, effigy foot, polished brown ware, Trench C, front of Wall A, 5/16 (30.0–7976)
y. Section, effigy foot, brown ware, Trench C, before Late walls, 1/4 (30.0–8612)
z. Section, elongated foot, brown ware, Trench A, before Late walls, 1/6 (30.0–8613)



LUGS OF POTTERY VESSELS



MISCELLANEOUS WARES, CHIEFLY WHITE AND DULL RED WARES

PLATE LXXVI

MISCELLANEOUS WARES

CHIEFLY WHITE AND DULL RED WARES

The chief white ware found at Ticoman occurred in the earlier phases of the occupation in the shape of bowls like Fig. f. However, bowls with black interior like Fig. c were found in a purchased batch of grave material and with skeleton No. 39 (Pl. LXXVII). Polished white like Fig. a and black-on-granular white like Fig. b are so infrequent as to be trade specimens probably.

A polychrome olla (cf. Pl. LXXII, Fig. i) is represented by Fig. d and a white-on-brown bottle, a very rare type, is portrayed by Fig. e. Fig. g is a smooth brown bowl, perhaps classifiable under black-brown ware, but there are pink tones that perhaps tie it in with the salmon pink bowls shown by Figs. h and m, which are variants of dull red ware.

Fig. i is a vase fragment with the main design in maroon enclosing a faint design possibly made by lost color, probably a trade piece. Fig. j is the sherd mentioned several times in the text as having affinities with Chupicuaro. Fig. k is a heavy dun-brown ware bowl with annular base, possibly an incensario, because it is blackened on the interior perhaps by containing burning substances. Fig. n is the same form in dull red ware and Fig. l has either the same shape or else an unusually high ring base, which would be a unique occurrence in the Ticoman ceramics. An Intermediate form of dull red ware is shown by Fig. o, while Figs. p and q show an early Intermediate treatment. A Late Period type of red-on-white, Fig. q, shows also a perforated mend-hole. Fig. s is a polychrome effigy bowl (cf. Pl. LXXI and LXXII).

a. Section, bowl, polished white ware, Trench C, Cut II, 1/3 (30.0–8467)
b. Section, bottle, granular white ware, Trench B, Second Excavation, Cut I, north of east-west wall, 1/3 (30.0–8614)
c. Bowl, white ware, black interior, Trench F, 1/6 (30.0–8481)
d. Section, neck of polychrome olla, Trench B, Second Excavation, Cut I, behind north-south wall, 1/3 (30.0–8615)
e. Small olla, white-on-brown, with skeleton No. 57, Wall Digging, South Extension, 1/6 (30.0–8435)
f. Bowl, white ware, Trench A, below Wall C, 1/6 (30.0–8462)
g. Bowl, brown ware with pink streaks, Trench C, in front of Wall C, 1/6 (30.0–8475)
h. Bowl, salmon-pink ware, Trench B, Second Excavation, Cut III, 1/6 (30.0–8454)
i. Section, vase, maroon-on-orange, trade piece, Trench F, 1/6 (30.0–8616)
j. Section, bowl, red and chocolate on yellow, trade piece, Trench C, in front of Wall C, 1/3 (30.0–8617)
k. Bowl, restored, annular base, dun-brown ware, blackened interior, Trench C, in front of Wall C, 1/6 (30.0–8471)
l. Bowl, restored, dull red ware, annular or high ring base, Trench B, Second Excavation, Cut I, before north-south wall, 1/6 (30.0–8446)
m. Section, bowl, salmon-pink ware, Trench B, First Excavation, Cut I, 1/3 (30.0–8618)
n. Bowl, restored, dull red ware, annular base, skeleton No. 14, Trench C, 1/6 (30.0–8354)
o. Section, bowl, dull red ware, Trench B, First Excavation, Cut II, 1/3 (30.0–8619)
p. Bowl, dull red ware, Trench C, Cut II, 1/6 (30.0–8470)
q. Section of bowl, similar to p. Trench C, Cut II, 1/3 (30.0–8620)
r. Section, bowl, red-on-white, on red slip, Trench B, First Excavation, Cut I, 1/6 (30.0–8621)
s. Section of polychrome effigy bowl, Trench B, Second Excavation, Cut II, 1/3 (30.0–8622)

PLATE LXXVII

BURIAL BOWLS

A number of complete vessels were found with burials and are reproduced photographically here and on Pl. LXXVIII since the originals are on exhibition in the Museo Nacional in Mexico and are consequently not available for drawing. For details of form, reference will be made to homologous vessels on the preceding Plates, the captions of which also contain observations on the significance of the various wares. To facilitate analysis, dimensions will be given for total height and greatest diameter, since the scales of the photographs are too varied to express in simple fractions. The numbers are those given to specimens in the field catalogue.

a. Bowl, white exterior, black interior, H. 4.2 cm., G.D. 14.9 cm., with skeleton No. 39, Trench F, No. 1270, cf. Pl. LXXVI, Fig. c, Pl. LXXVII, Fig. n.

b. Bowl, black-brown ware, incised, H. 7 cm., G.D., 14.5 cm., with skeleton No. 39, Trench F, No. 1271, cf. Pl. LXXIV, Figs. f–i.

c. Bowl, pinkish-yellow, H. 5.5 cm., G.D. 11.4 cm., with skeleton No. 54, Trench F, No. 1487, cf. Pl. LXXVII, Fig. j.

d. Bowl, polished black-brown ware, H. 6.6 cm., G.D. 9.4 cm., with skeleton No. 41, Trench F, No. 1281, cf. Pl. LXXIV, Fig. p.

e. Bowl, polished red ware, H. 7.4 cm., G.D. 23 cm., with skeleton No. 41, Trench F, No. 1280, cf. Pl. LXXIII, Figs. b, c, e

f. Bowl, dull red wall, notched, H. 6.9 cm., G.D. 14.0 cm., with skeleton No. 48, Trench I, No. 1381, cf. Boas, 1911–1912, Pl. 55, Fig. 3

g. Olla, black-brown ware, formerly tripod support, H. 11.5 cm., G.D. 17.4 cm., purchased with Figs. m–r, No. 1692

h. Bottle, polished brown ware, H. 10.8 cm., G.D. 11.6 cm., with skeleton No. 53, Trench I, No. 1490

i. Olla, red ware, fillets on rim, H. 13.7 cm., G.D. 21.0 cm., with skeleton No. 11, Trench A, No. 221.

j. Bowl, yellow-white ware, H. 6.8 cm., G.D. 13.6 cm., with skeleton No. 10, Trench A, No. 164, cf. Pl. LXVII, Fig. c

k. Olla, red-on-yellow stick-polished, decorated with three triangles, H. 12.3 cm., G.D. 17.5 cm., with skeleton No. 30, Trench C, No. 950, cf. Pl. LXX, Figs. r–t, Pl. LXXVIII, Figs. c–e

l. Bowl, rough brown-black ware, H. 9.6 cm., G.D. 12.6 cm., with skeleton No. 30, Trench C, No. 951.

m. Vase, black-brown ware, H. 11.1 cm., G.D., 10.2 cm., purchased at Ticoman with Figs. g, n–r, all numbered 1692

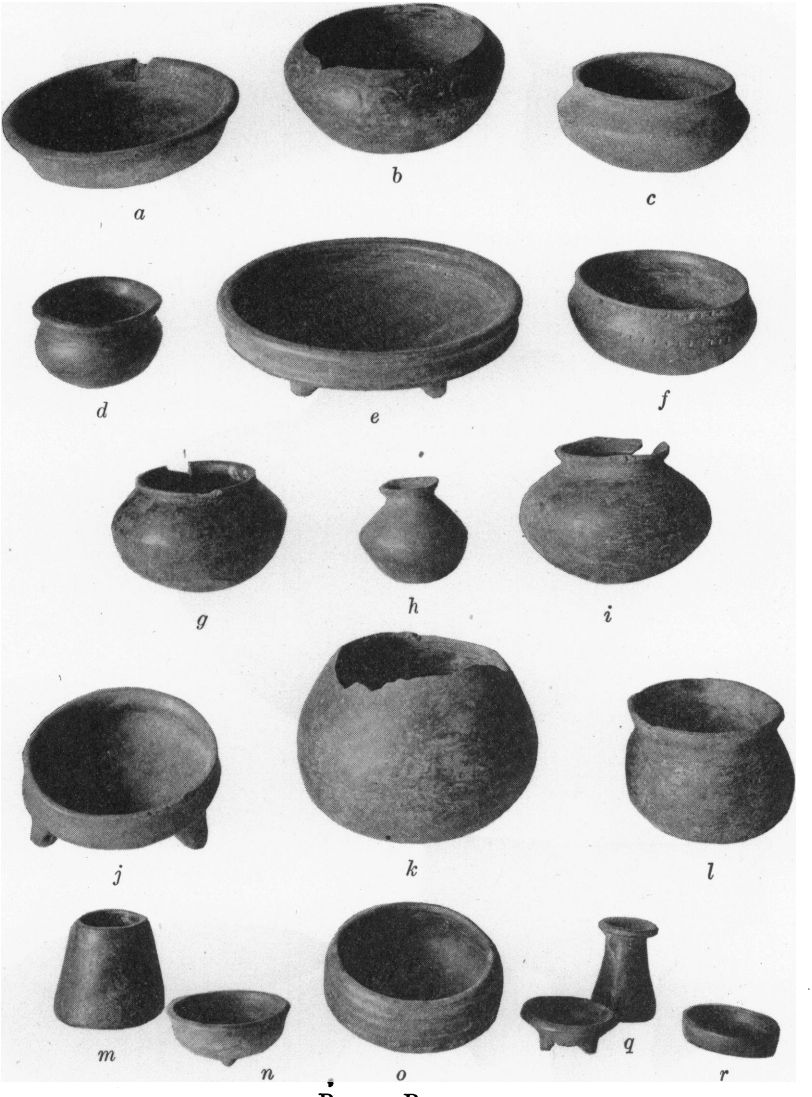
n. Bowl, black interior, white exterior, H. 5.0 cm., G.D. 11.8, purchased at Ticoman with Figs. g, m, o–r, cf. Pl. LXXVI, Fig. c, Pl. LXXVII, Fig. a

o. Bowl, black-brown ware, H. 10.2 cm., G.D. 18.2 cm., purchased with Figs. m–n, p–r

p. Bowl, black-brown ware, H. 3.9 cm., G.D. 9.6 cm., purchased with Figs. g, m–o, q–r

q. Vase, black-brown ware, H. 10.0 cm., G.D. 7.1 cm., purchased with Figs. g, m–p, and r

r. Dish, black-brown ware, H. 3.0 cm., G.D. 9.4 cm., purchased with Figs. g, m–q



BURIAL BOWLS

BURIAL BOWLS

Plate LXXVIII

Burial Bowls

a. Bowl, spider tripod, polished red interior, polished red slip on legs, brown base clay, H. 9.3 cm., G.D. 16.2 cm., with skeleton No. 51, Trench F, No. 1448, cf. Pl. LXXIII, Fig. g

b. Bowl, polished red ware, H. 12.0 cm., G.D. 20.6 cm., with skeletons No. 12–13, Trench C, No. 486, cf. Pl. LXXIII, Fig. f

c. Bowl in form of human head, red-on-yellow stick-polished, design on cheeks in red stepped pattern, H. 11.1 cm., G.D. 13.4 cm., with skeleton No. 20, Trench C, No. 487, cf. Figs. d–e and Pl. LXX, Figs. r–t, Pl. LXXVII, Fig. k

d. Bowl, red-on-yellow stick-polished, design of six triangles in solid red, H. 17.3 cm., G.D. 24 cm., with skeleton No. 17, Trench A, No. 470, cf. Pl. LXX, Figs. r–t

e. Bowl, red-on-yellow stick-polished, grooved panels with concavities in red, H. 9.8 cm., G.D. 25 cm., with skeleton No. 16, Trench B, No. 488, cf. Pl. LXX, Figs. r–t

PLATE LXXIX

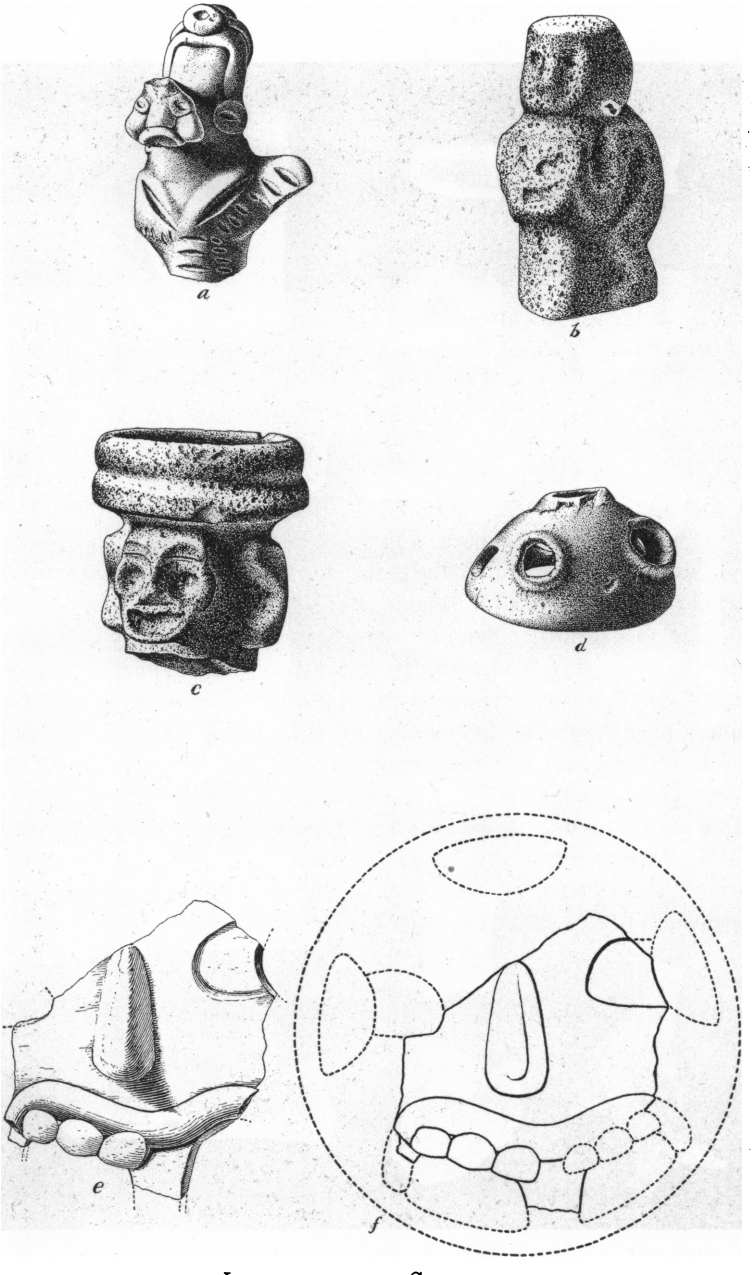
INCENSARIOS AND SCULPTURE

Several objects are gathered together on this Plate to show details too difficult to portray by means of photography. Fig. a is a Type Gi figurine whose face projects from the forehead plane. It is a unique example of Intermediate Period eccentricity (Pl. LVII). Fig. b represents the small sculpture of red pumice which, along with the lava incensario shown by Fig. c, is the only example of stone sculpture recovered at Ticoman (cf. p. 307 and Pl. LXXXIII, bottom row No. 3).

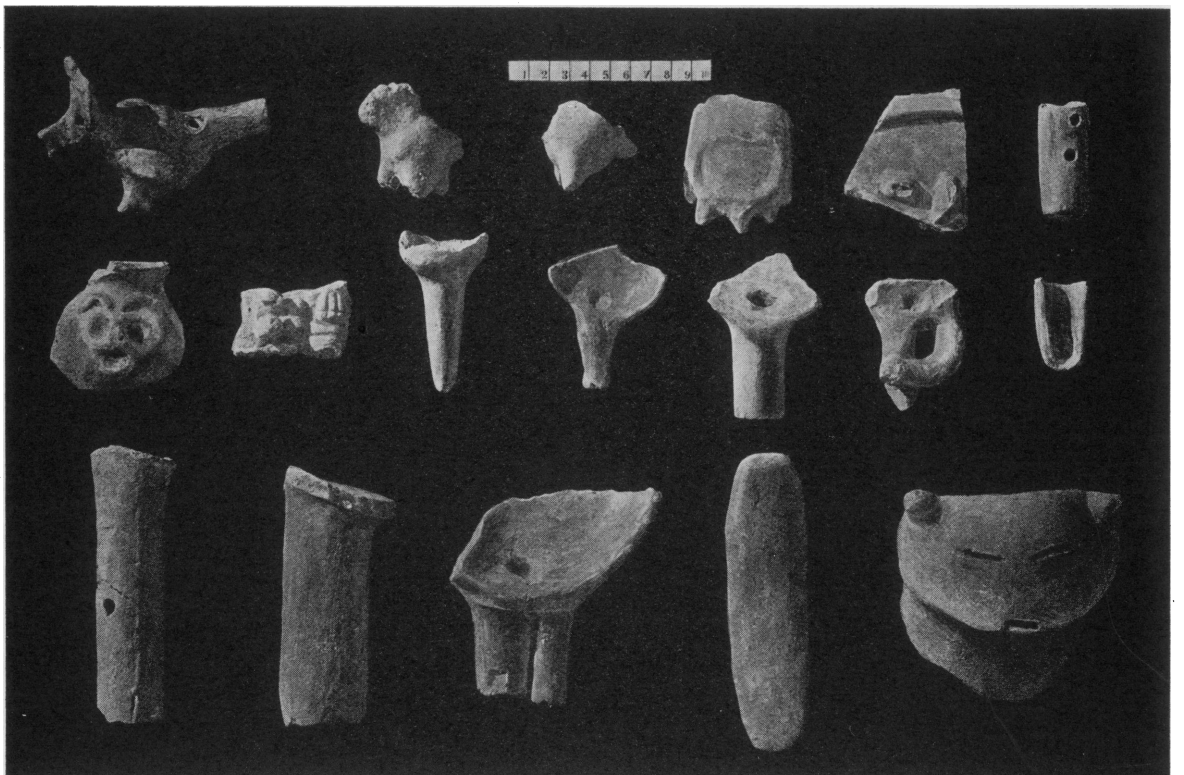
The incensario of lava, Fig. c is very crude and the bowl on the shoulders has been much burned. It may represent the "Old God" (pp. 307-9, Pl. LXXXIX, second row No. 5).

Fig. d is another type of incense burner in pottery. It is made of crude porous clay and, strictly speaking, is a cover to an incensario. Figs. e and f present, respectively, the original and the reconstruction of a more ornate type of incense burner (Pl. LXVIII, top row No. 1). The notches at the edges of the fragment gave the basis for the reconstruction. It may possibly be a prototype of the god Tlaloc, for there is a volute over the mouth, but, on the other hand, the eye rings are lacking. The bowl with annular base shown on Pl. LXXVI, Fig. k, and the perforated vase sherd on Pl. LXXIV, Fig. r, represent other types of incensario (pp. 292-293).

a. Head, Gi, Trench B, Second Excavation, Cut III, 3/4 (30.0–7844)
b. Small sculpture, red pumice, Trench B, Second Excavation, Cut I, behind north-south wall, 5/8 (30.0–7666)
c. Incense burner, lava, Wall Digging, South Extension, above floor, 1/4 (30.0–8315)
d. Cover of incense burner, porous gray clay, Trench A, in front of Late wall, 1/4 (30.0–8458)
e. Cover of incense burner, brown clay, Trench C, in front of Late wall, 5/8 (30.0–7974)
f. Reconstruction of Fig. e



INCENSARIOS AND SCULPTURE



WHISTLES AND LADLES AND OTHER OBJECTS OF CLAY

Objects of Clay

Plate LXXX

Whistles and Ladles and Other Objects of Clay

Baked clay was utilized by the Ticomanos for many other kinds of objects than figurines and pottery vessels. Whistles are shown in top row Nos. 1–3. A fragment of flute (top row No. 6) is the only other type of wind instrument found at Ticoman. No. 3 of the middle row is doubtless a rattle and this exhausts the range of musical instruments.

A number of ladles were found, made usually in black-brown ware, and Middle Row Nos. 4–7 and Bottom Row Nos. 1–3 show the usual bowl and handle forms. A curved tool of pottery, bottom row No. 4, is not unlike a smaller specimen shown on Pl. LXXXI, third row No. 7, and they both may have been used for shaping pottery, like the claw on top row No. 4, a reworked vessel foot perhaps. Most of the forms come from Early deposits.

Top row No. 5, middle row No. 1, and bottom row No. 5 are fragments of effigy bowls, other examples of which may be found on Pls. LXVIII, LXXII, LXXIV, and LXXVIII. The body of a Teotihuacan figurine, moulded and representative of a mother and child, middle row No. 2, with a polished red ware sherd, Pl. LXXIII, Fig. h, holds the distinction of being the only representation of the Teotihuacan culture at Ticoman.

Top Row (*six specimens*)
1. Whistle, pottery, black slip, bird form, Trench A, below walls C–E (30.0–8084)
2. Whistle, pottery, no slip, bird form, Trench F (30.0–8189)
3. Whistle, broken, no slip, bird form, Wall Digging, South Extension, below floor (30.0–8277)
4. Claw, pottery, reworked sherd, Trench F (30.0–8191)
5. Sherd from effigy bowl, polished white ware, Trench F (30.0–8190)
6. Fragment, flute, pottery, Trench F (30.0–8199)

Middle Row (*seven specimens*)
1. Sherd, effigy pot, polished red-on-yellow, Trench B, First Excavation, Cut II (30.0–7719)
2. Body, moulded figurine, Toltec style, Wall Digging, East Extension, above floor (30.0–8238)
3. Rattle handle, pottery, no slip, Trench E, Cut II (30.0–8107)
4. Ladle handle, pottery, brown slip, Trench F (30.0–8193)
5. Ladle handle, pottery, pink slip, Trench F (30.0–8194)
6. Ladle handle, pottery, no slip, Wall Digging, East Extension, above floor (30.0–8256)
7. Ladle handle, pottery, brown slip, Trench B, Northwest Ramus (30.0–7915)

Bottom Row (*five specimens*)
1. Ladle handle, hollow, pottery, no slip, Trench C, Cut II (30.0–7979)
2. Ladle handle, hollow, pottery, no slip, Trench F (30.0–8195)
3. Ladle handle, solid, pottery brown slip, Trench H (30.0–8224)
4. Tool, pottery, no slip, Trench F (30.0–8192)
5. Projecting animal head from lip of vessel, Trench C, in front of Wall A (30.0–7999)

Plate LXXXI

Balls and Discs of Pottery

Balls of pottery, often with polished slips were found in all periods at Ticoman, but especially in the Early Period. Noteworthy was a cache of nine found in the angle between Walls C and D of the South Extension of the Wall Digging. Most of the balls had polished slips of brown, red, and white. A few were incised. They were doubtless used in some game.

Discs and oblongs made from worked down potsherds were also common and might have been used in some cases for tools and in others for games since one side, either because of design, or slip was different from the other. Nos. 1–3 of the bottom row show punctations. The two sherds, Nos. 2–3 of the third row, may have come from arched handles to vessels and No. 7 of the same row seems to be part of a tool like that shown on Pl. LXXX, bottom row No. 4. No. 9 of the third row must have come from an incense burner. No. 7 of the fourth row is a disc, and No. 8, the preliminary stages of figurine apparently, but both are unfired. No. 9 of the same row is a fragment of a gorget, unique at Ticoman, and much more common to Middle Zacatenco. (Cf. this volume, Part I, Pl. XXXIX).

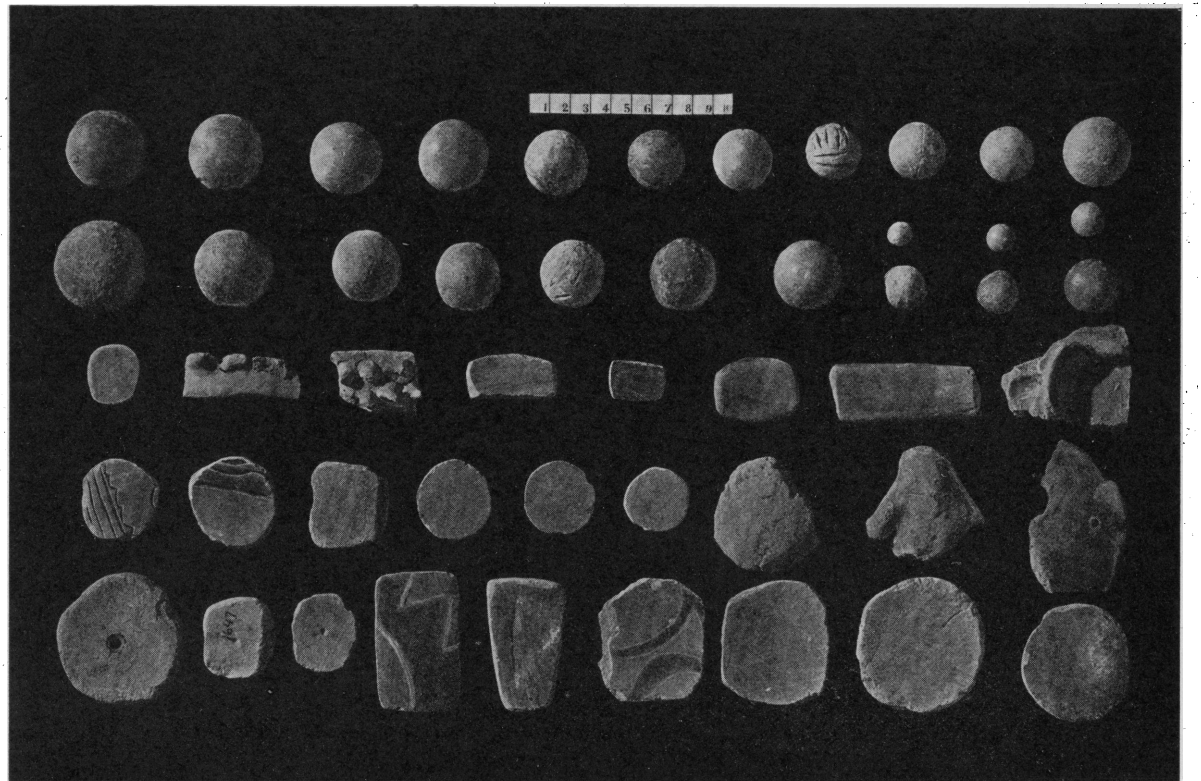
Top Row (*eleven specimens*)
1. Ball, pottery, red slip, Trench B, First Excavation, Cut II (30.0–7720)
2. Ball, pottery, brown slip, Wall Digging, South Extension, above floor (30.0–8249)
3. Ball, pottery, brown slip, Trench A, West of Wall A (30.0–8094)
4. Ball, pottery, white slip, Wall Digging, below floor, angle Walls C and D (30.0–8282)
5. Ball, pottery, red slip, Trench F (30.0–8203)
6. Ball, pottery, red slip, Trench A, east of Wall F (30.0–8095)
7. Ball, pottery, brown slip, Trench A, west of Wall F (30.0–8096)
8. Ball, pottery, brown slip, incised, Trench A, East of Wall F (30.0–8097)
9. Ball, pottery, brown slip, incised, Wall Digging below floor, angle of Walls C and D (30.0–8278)
10. Ball, pottery, orange-red slip, Trench B, First Excavation, Cut II (30.0–7721)
11. Ball, pottery, brown slip, Wall Digging below floor, angle of Walls C and D (30.0–8279)

Second Row (*thirteen specimens*)
1. Ball, pottery, no slip, Trench C, Cut II (30.0–8055)
2. Ball, pottery, reddish slip, Wall Digging below floor, angle of Walls C and D (30.0–8283)
3. Ball, pottery, gray, no slip, Trench A, under Walls C, D, E (30.0–8147)
4. Ball, pottery, brown slip, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7675)
5. Ball, pottery, unfired, Wall Digging, East Extension above floor (30.0–8239)
6. Ball, pottery, black, unfired, Trench B, First Excavation, Cut II (30.0–7722)
7. Ball, pottery, light brown slip, Wall Digging below floor, angle of Walls C and D (30.0–8280)
8. (Upper) Ball, pottery, unfired, Trench C, Cut I (30.0–8002)
9. (Lower) Ball, pottery, brown slip, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7676)
10. (Upper) Ball, pottery, brown slip, Trench B, First Excavation, Cut II (30.0–7723)
11. (Lower) Ball, pottery, red slip, Trench B, Second Excavation, Cut III (30.0–7849)
12. (Upper) Ball, pottery, brown slip, Trench B, First Excavation, Cut I (30.0–7580)
13. (Lower) Ball, pottery, dark brown slip, Wall Digging below floor, angle of Walls C and D (30.0–8281)

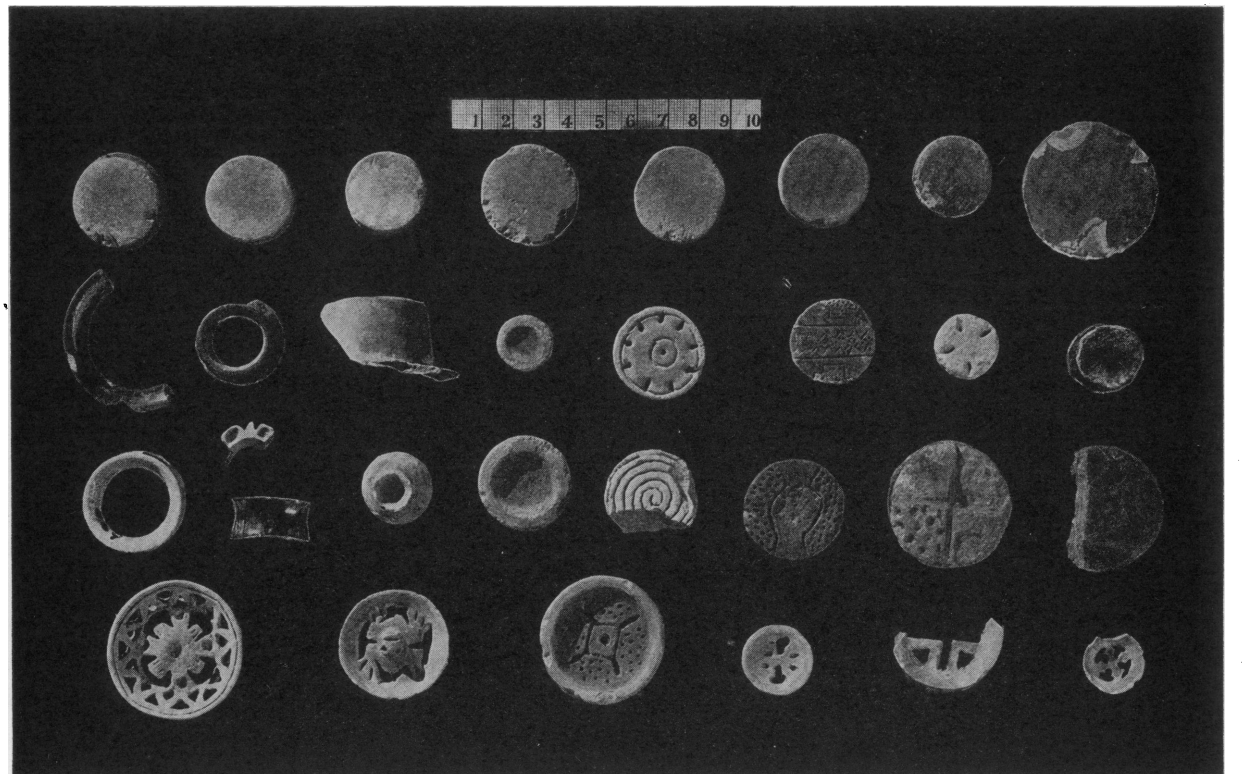
Third Row (*eight specimens*)
1. Reworked sherd, buff olla, Trench B, Second Excavation, Cut II (30.0–7796)
2. Handle (?), fragment, applied bosses, no slip, Trench C, before Wall C (30.0–8006)
3. Incensario, fragment, applied bosses, no slip, Trench C before Wall C (30.0–8005)
4. Reworked sherd, red-on-yellow bowl, Trench E, Cut I (30.0–8171)
5. Reworked sherd, black-brown bowl, Trench F (30.0–8201)
6. Reworked sherd, foot, black bowl, Trench A, west of Wall E (30.0–8098)
7. Tool, unslipped, ladle or tool, Trench C, Cut I (30.0–8001)
8. Fragment, incense burner, applied design, Trench B, Second Excavation, Cut III (30.0–7851)

Fourth Row (*nine specimens*)
1. Reworked sherd, brown bowl, Trench C, Cut I (30.0–8003)
2. Reworked sherd, red-on-yellow incised, Trench B, Second Excavation, Cut II (30.0–7795)
3. Reworked sherd, bay olla, Trench B, First Excavation, Cut II (30.0–7724)
4. Reworked sherd, bay olla, Trench F, above skeleton No. 51 (30.0–8430)
5. Reworked sherd, bay olla, Wall Digging, East Extension, above floor (30.0–8242)
6. Reworked sherd, bay olla, Trench B, Second Excavation, Cut II (30.0–7794)
7. Disc, unfired clay, Trench F (30.0–8200)
8. Blank for figurine, unfired, Trench F (30.0–8183)
9. Fragment of gorget, brown ware, Trench C, before Wall C-sub (30.0–8004)

Bottom Row (*nine specimens*)
1. Reworked sherd, with punched center, brown bowl, Trench B, First Excavation, Cut I (30.0–7936)
2. Reworked sherd with punched center, bay olla, Wall Digging, South Extension, below floor (30.0–8289)
3. Reworked sherd with punched center, bay olla, Trench I (30.0–8231)
4. Reworked sherd, bowl polychrome exterior, Wall Digging, South Extension, below floor, (30.0–8288)
5. Reworked sherd, white-on-polished red, Trench E, Cut I (30.0–8172)
6. Reworked sherd, red-on-yellow incised, Trench B, Second Excavation, Cut II (30.0–7798)
7. Reworked sherd, red-on-yellow bowl, Trench B, Second Excavation, Cut II (30.0–7799)
8. Reworked sherd, brown bowl, Trench B, Second Excavation, Cut II (30.0–7800)
9. Reworked sherd, polished red olla, Trench B, Second Excavation, Cut II (30.0–7797)



BALLS AND DISCS OF POTTERY



EARPLUGS

Ornament and Miscellaneous

Plate LXXXII

Earplugs

Earplugs are a characteristic form of personal adornment throughout the entire occupation of Ticoman. Not only do they afford as reliable an indication as pottery or figurines for distinguishing Ticoman material from Early or Middle Zacatenco, but they also show chronology within the Ticoman group. Simple solid plugs like those on the top row abound in the Early Period, but toward its close and during the Intermediate Period, incised and hollow ring forms come in, such as those in the second and third rows. In the Late Period, besides a retention of the earlier forms, the ornate examples of the bottom row appear with their cylindrical shanks and carved faces. Polished slips of yellow or black-brown, are usually applied, but top row No. 8 has a polished red slip. Bottom row Nos. 2–3 are painted in red after firing. Incision is confined to a single face.

Top Row (*eight specimens*)

1. Solid earplug, yellow slip, Trench A, east of Wall C (30.0–8089)
2. Solid earplug, yellow slip, Trench A, before Wall C (30.0–8090)
3. Solid earplug, yellow slip, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7671)
4. Solid earplug, yellow slip, Wall Digging, East Extension above floor (30.0–8240)
5. Solid earplug, yellow slip, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7670)
6. Solid earplug, yellow slip, Trench I (30.0–8230)
7. Solid earplug, dun slip, Trench F (30.0–8202)
8. Solid earplug, polished red slip, Trench C, before Wall C (30.0–7992)

Second Row (*eight specimens*)

1. Hollow earplug, black slip, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7672)
2. Hollow earplug, reddish brown slip, Trench C, before Wall C (30.0–7984)
3. Hollow earplug, white slip, very thin, red paint after firing, Trench A, between Walls B and C (30.0–8087)
4. Solid earplug, gray slip, with dimple, Trench C, Cut I (30.0–7993)
5. Solid earplug, yellow slip, incised, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7669)
6. Solid earplug, black slip, incised, Trench C, before Wall C (30.0–7988)
7. Solid earplug, yellow slip, incised, Wall Digging, East Extension, above floor (30.0–8258)
8. Solid earplug, shiny black slip, with dimple, Trench C, Cut II (30.0–7991)

Third Row (*nine specimens*)

1. Hollow earplug, brown slip, Trench C, before Wall C-sub (30.0–7985)
2. (Upper) Hollow earplug, brown slip, very thin, red paint after firing, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7668)
3. (Lower) Hollow earplug, black slip, Wall Digging, South Extension above floor (30.0–8250)
4. Conical earplug, hollow cylindrical shank, brown slip, skeleton No. 11, Trench A (30.0–8344)
5. Solid earplug, gray slip with dimple, Trench C, before Wall C (30.0–7989)
6. Solid earplug, white slip, incised, Wall Digging, South Extension, west of Wall A (30.0–8308)
7. Solid earplug, black slip, incised, Trench C, Cut II (30.0–7986)
8. Solid earplug, black slip, incised, Trench C, below Wall C (30.0–7987)
9. Solid earplug, black slip, Trench C, below Wall C (30.0–7990)

Bottom Row (*six specimens*)

1. Carved earplug, brown clay, very thin, skeleton No. 22, Trench B, Second Excavation, (30.0–8372)
2. Carved earplug, brown slip, red paint after firing, Trench C, before Wall C (30.0–7980)
3. Carved earplug, brown slip, red paint after firing, Trench C before Wall C (30.0–7981)
4. Carved earplug, brown clay, Trench A before Wall C (30.0–8086)
5. Carved earplug, brown slip, Trench C before Wall A (30.0–7982)
6. Carved earplug, brown slip, Trench C, Cut I (30.0–7983)

Plate LXXXIII

Whistles, Seals, and Miscellaneous Bone and Stone

The two seals of pottery found at Ticoman are shown by Nos. 1 and 2 of the bottom row. They are relatively crude and must have been used for decorating skins or textiles as no stamped pottery was found. Two whistles, in addition to those on Pl. LXXX are represented on this Plate by Nos. 3 and 4 of the top row. In these specimens the sound is made by blowing directly into the resonator. No. 5 of the same row seems to be an antler in baked clay broken, perhaps from a figurine.

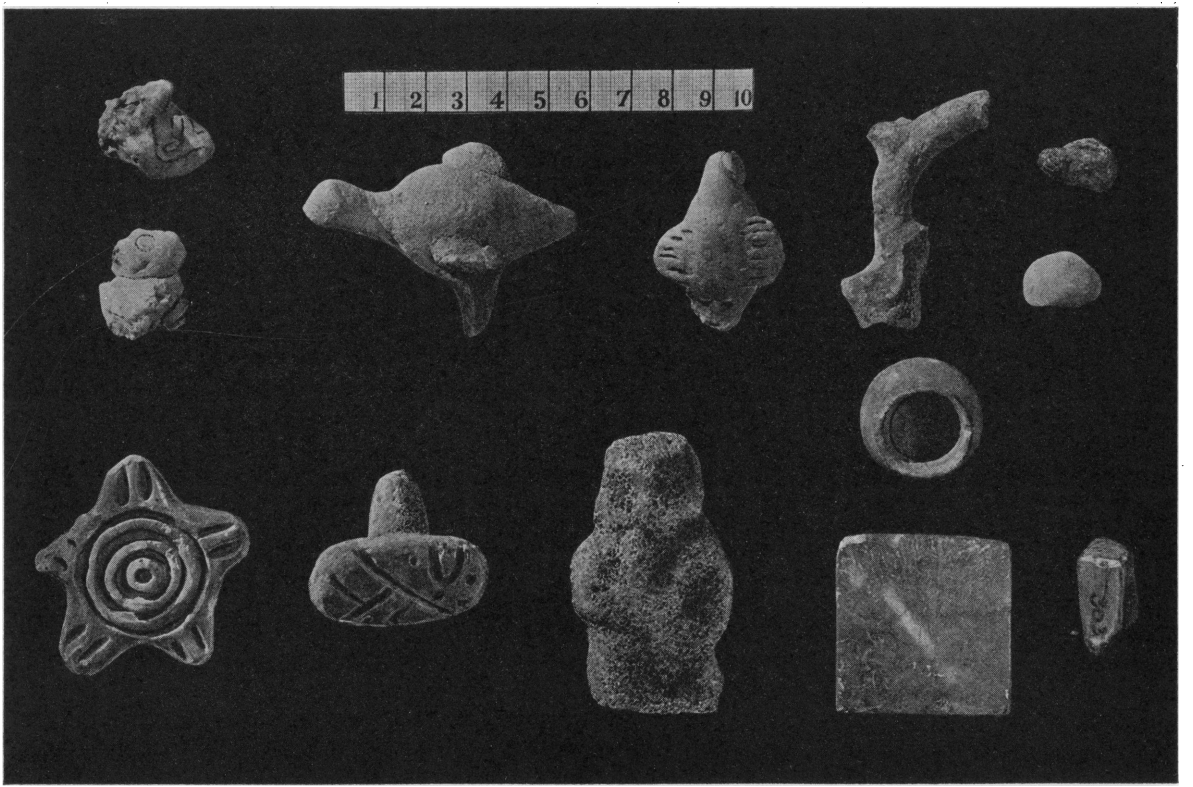
The stone fragments that form Nos. 1 and 2 of the top row are pebbles retained, perhaps, because of their resemblance to human forms, both having a vaguely bird-like appearance. True sculpture is represented by bottom row No. 3, a figure in red pumice, a more detailed reproduction of which will be found on Pl. LXXIX, Fig. b. The quartzite pot, No. 4 of the bottom row, unique at Ticoman, was covered with cinnabar, the substance from which quicksilver is derived. Other stones of odd shape, like Nos. 1 and 2 of the top row, are No. 7 of the same row, and No. 6 of the bottom of the last being perhaps a polishing tool. No. 5 of the bottom row is a square piece of polished bone, perhaps human; used probably in ornamental inlay. No. 6 of the top row is on this Plate by an error in identification. It is European in origin.

Top Row (seven specimens)

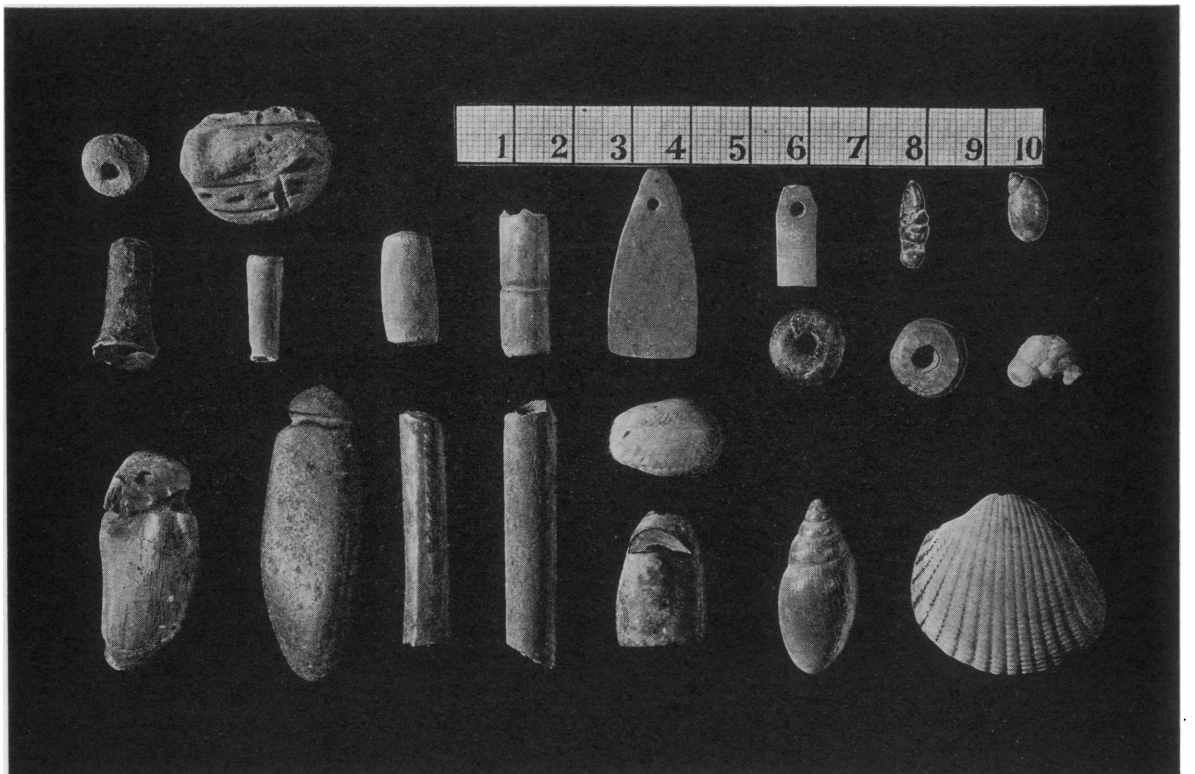
1. (Upper) Pebble, zoomorphic shape, chalcedony, Trench A, west of Wall B (30.0–8137)
2. (Lower) Pebble in zoomorphic shape, chalcedony, Trench B, Second Excavation, Cut II, (30.0–7835)
3. Whistle, bird form, pottery, Trench A, west of Wall F (30.0–8085)
4. Whistle, bird form, pottery, Trench B, Northwest Ramus (30.0–7912)
5. Antler, pottery, from deer figurine (?), Trench I (30.0–8232)
6. (Upper) Pebble, vitrified, Trench E, Cut I (30.0–8168)
7. (Lower) Pebble, moonstone, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7681)

Bottom Row (six specimens)

1. Seal, pottery, Wall Digging, East Extension, above floor (30.0–8257)
2. Seal, pottery, Trench C, before Wall C-sub (30.0–8000)
3. Figure, red pumice, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7666)
4. (Upper) Pot, quartzite, covered with cinnabar, skeleton No. 15, Trench A (30.0–8355)
5. (Lower) Inlay, polished bone, possibly from human skull, Trench B, Northwest Ramus, (30.0–7922)
6. Polishing tool, chalcedony, Trench C, Cut II (30.0–8046)



WHISTLES, SEALS, AND MISCELLANEOUS BONE AND STONE



ORNAMENT, POTTERY, STONE, SHELL, AND BONE

Plate LXXXIV

Ornament, Pottery, Stone, Shell, and Bone

Ornament, although not advanced at Ticoman, was yet very much superior to Early or Middle Zacatenco (Part I, Pls. XL–XLI). Pottery, stone, bone, and shell were utilized as beads or pendants. Top row Nos. 1–5 are pottery beads, while top row No. 6 and bottom row Nos. 3–4 are of bone. Top row Nos. 9 and 11 are stone beads, No. 11 being the only example of jade ornament recovered by us. A shell bead of very wide distribution through the East Coast of Mexico and the Antilles is shown in Bottom Row No. 6 and other examples are to be found in Pl. XCIII, as well as a necklace of dog teeth and another of bone beads.

Top row No. 7, is a bone pendant and top row No. 8, bottom row Nos. 1, 5, and 8 are similar ornaments in shell. Stone pendants are more rare, being confined to top row No. 10 and bottom row No. 2. The land snails, top row No. 12, and bottom row No. 7 doubtless occurred in the débris owing to natural causes, but the pebble, top row No. 13, may have been kept as a lucky stone.

Top Row (thirteen specimens)

1. (Upper) Bead, spherical, pottery, Trench B, Northwest Ramus (30.0–7917)
2. (Lower) Bead, trumpet-shaped, black pottery, Wall Digging, East Extension, above floor (30.0–8259)
3. (Upper) Bead, incised, triangular, pottery, Trench E, Cut I (30.0–8169)
4. (Lower) Bead, cylindrical, pottery, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7667)
5. Bead, cylindrical pottery, Trench B, Northwest Ramus (30.0–7916)
6. Bead, cylindrical, transverse groove, bone, Trench B, Second Excavation, Cut II (30.0–7804)
7. Pendant, bone, Trench B, Second Excavation, Cut I, North of east-west wall (30.0–7872)
8. (Upper) Pendant, shell *Meleagrina margaritifera*, Trench B, Northwest Ramus (30.0–7929)
9. (Lower) Bead, chalcedony, Trench F (30.0–8211)
10. (Upper) Pendant, human form (?), chalcedony, purchased at Ticoman (30.0–8318)
11. (Lower) Bead, jade, skeleton No. 50, Trench F (30.0–8428)
12. (Upper) Shell, freshwater snail, Columnella, Trench A, east of Wall F (30.0–8111)
13. (Lower) Pebble, "lucky" stone (?), hyalite opal, Trench B, Second Excavation, Cut I, behind northwest wall (30.0–7680)

Bottom Row (eight specimens)

1. Pendant, bird form, shell, *Meleagrina margaritifera*, purchased at Ticoman (30.0–8317)
2. Pendant, chert, Wall Digging, below floor, Room I (30.0–8292)
3. Bead, bone, Trench C, before Wall C-sub (30.0–8008)
4. Bead, bone, Trench F (30.0–8208)
5. (Upper) Pendant, shell, *Arca pexata*, Trench A, before Wall B (30.0–8110)
6. (Lower) Bead, shell, *Oliva reticularis*, skeleton No. 11, Trench A (30.0–8345)
7. Shell, land snail, *Oleacina coronata*, Trench B, Second Excavation, Cut II (30.0–7807)
8. Pendant, shell, *Arca ponderosa*, Trench B, First Excavation, Cut II (30.0–7726)

Stone

Plate LXXXV

Obsidian Blades

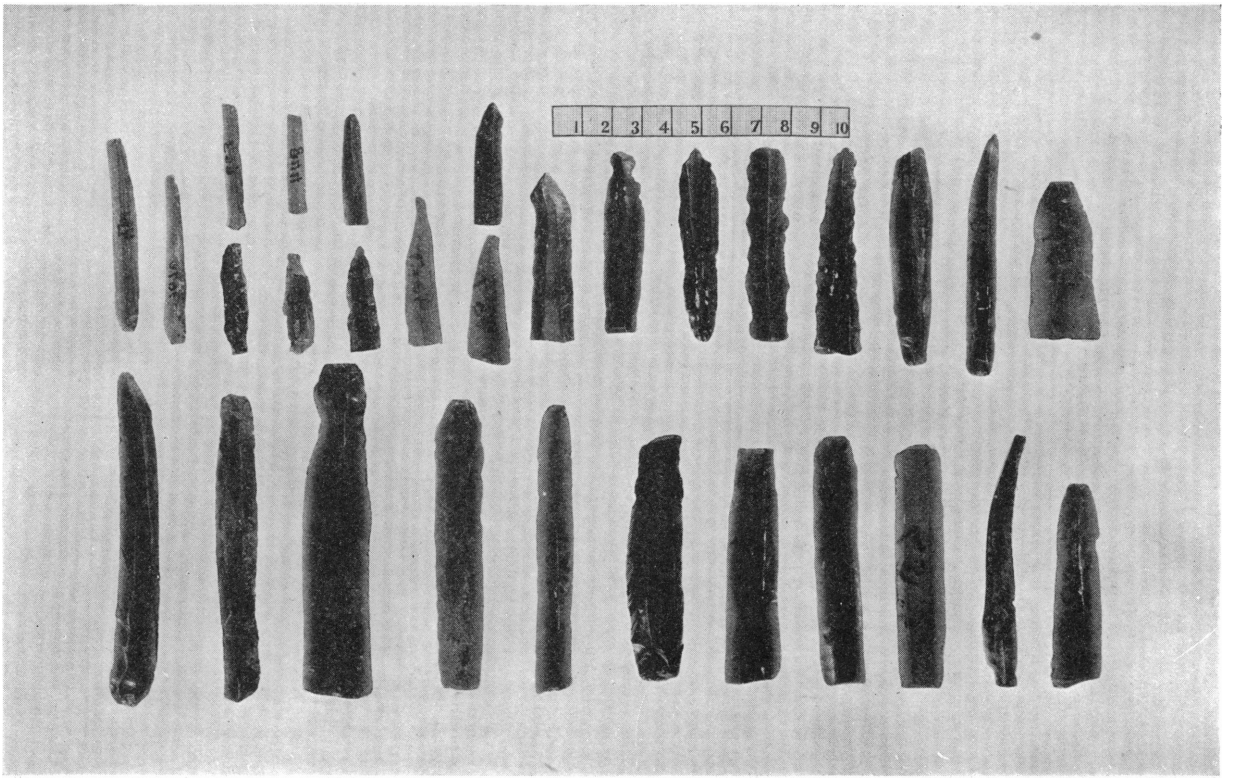
Blades of obsidian, made by striking off elongated flakes from a core, occur in all horizons of culture in the Valley of Mexico from Early Zacatenco to Aztec times. They have therefore no chronological significance, unless by their color, a study of which is now being made by Mr. Robert Weitlaner of Mexico City. The most common use of blades is for knives, and in the burials we often found bone tools and obsidian blades associated, a condition indicating perhaps the working of leather (Pls. XCI–XCIII). When the original edges were nicked and dulled, the blades were retouched into tools like burins (top row Nos. 12–14, 16) or scalpels (top row Nos. 9–11) or were completely reworked into points or drills (top row Nos. 4, 6, 8). Note the perfection of top row No. 18 and bottom row No. 1 and the delicacy of top row Nos. 1–3, 5, and 7.

Top Row (nineteen specimens)

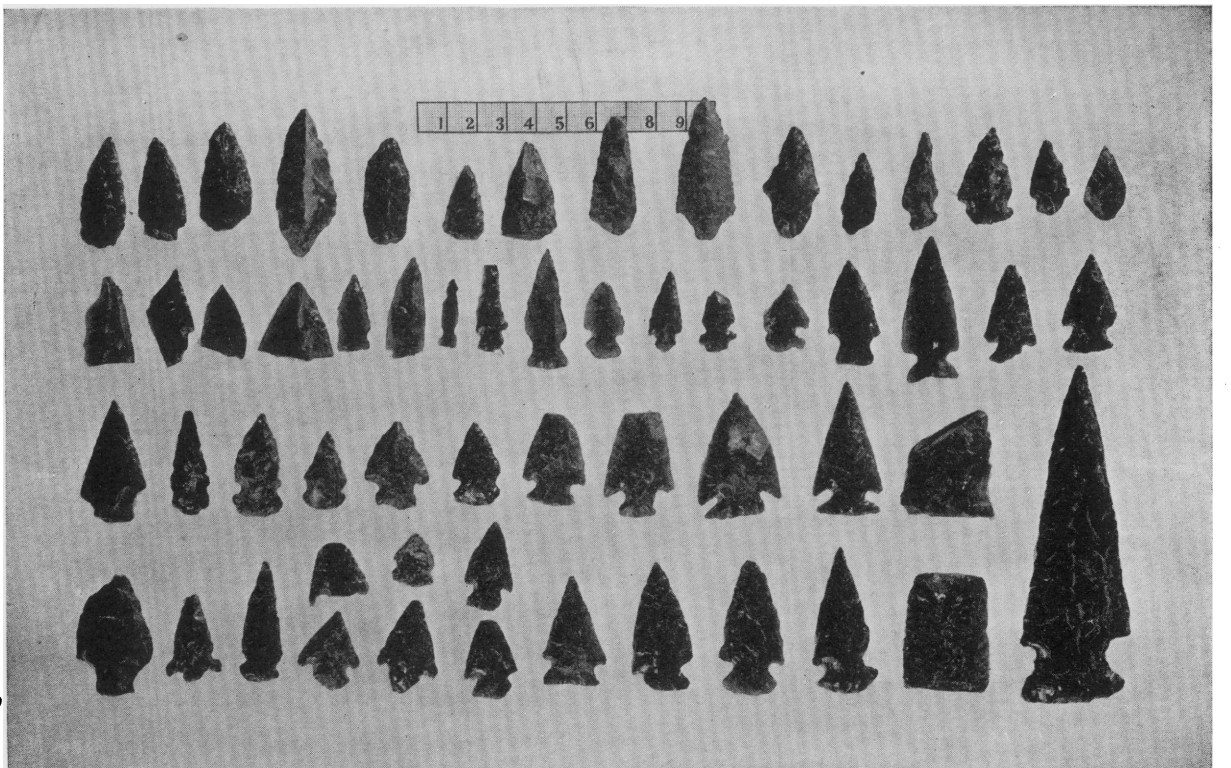
1. Blade, skeleton No. 34, Trench E (30.0–8405)
2. Blade, Trench B, Northwest Ramus (30.0–7928)
3. (Upper) Blade, Trench C, before Wall C (30.0–8056)
4. (Lower) Blade, reworked as drill (?), Trench C, before Wall C-sub (30.0–8022)
5. (Upper) Blade, Trench B, Second Excavation, Cut II (30.0–7819)
6. (Lower) Blade, reworked as drill (?), Trench B, Northwest Ramus (30.0–8155)
7. (Upper) Blade, Trench B, First Excavation, Cut II (30.0–7737)
8. (Lower) Blade, reworked as drill (?), Trench C, before Wall C-sub (30.0–8024)
9. Blade, Trench B, Second Excavation, Cut II (30.0–7821)
10. (Upper) Blade, Trench C, before Wall B (30.0–8044)
11. (Lower) Blade, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7696b)
12. Retouched as burin, Trench C before Wall C-sub (30.0–8043)
13. Blade, retouched as burin, Trench B, Second Excavation, Cut I, north of east-west wall (30.0–7870)
14. Blade, retouched as burin, Trench B, Second Excavation, Cut II (30.0–7820)
15. Blade, Trench B, Northwest Ramus (30.0–7927)
16. Blade, retouched as burin, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7695)
17. Blade, skeleton No. 33, Trench B, Cut III (30.0–8384)
18. Blade, skeleton No. 39, Trench F (30.0–8417)
19. Blade, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7696a)

Bottom Row (eleven specimens)

1. Blade, skeleton No. 58, Wall Digging, South Extension (30.0–8437)
2. Blade, Trench C, before Wall C-sub (30.0–8042)
3. Blade, Trench B, First Excavation, Cut I (30.0–7593)
4. Blade, skeleton No. 34, Trench E (30.0–8404)
5. Blade, Trench B, First Excavation, Cut II (30.0–7738)
6. Blade, skeleton No. 48, Trench I (30.0–8426)
7. Blade, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7694)
8. Blade, skeleton No. 55, Trench H (30.0–8433)
9. Blade, Trench B, First Excavation, Cut I (30.0–7587)
10. Blade, skeleton No. 39, Trench F (30.0–8418)
11. Blade, Trench B, First Excavation, Cut II (30.0–7739)



OBSIDIAN BLADES



OBSIDIAN POINTS

Plate LXXXVI

Obsidian Points

Points of obsidian go through a developmental progression from simple forms like the top row in the Early Period to complex shapes like those of the two bottom rows. Naturally, crude forms are retained in the later periods. The second row comprises blades made from flakes or reworked blades, in contrast to the thick fragments utilized for other specimens. Top row No. 1 is the laurel leaf type of Early Zacatenco and the remainder of the row are points with tangs (this volume, Part I, Pl. XLII). The third and fourth rows, reading from left to right, disclose the evolution of the tang through a convex stem to the Late style of stem with notches. The second row shows a parallel evolution where blades are worked to form points. Third row No. 11 and bottom row Nos. 14–15 comprise two fragments and a complete spear head. Other points are shown on Pls. XCII and XCIII.

Top Row (fifteen specimens)

1. Point, laurel-leaf, Trench I (30.0–8223)
2. Point, with tang, broken, Wall Digging, South Extension, above floor (30.0–8252)
3. Point, with tang, broken, Wall Digging, East Extension, above floor (30.0–8266)
4. Point, crude tang, Trench B, First Excavation, Cut I (30.0–7585)
5. Point, no tang, Wall Digging, East Extension, above floor (30.0–8310)
6. Point, tang broken, Trench G (30.0–8222)
7. Point, tang broken, Trench C, before Wall C-sub (30.0–8026)
8. Point, rough tang, Trench B, Second Excavation, Cut II (30.0–7812)
9. Point, with tang, Wall Digging, between Walls II and III (30.0–8303)
10. Point, with thick tang, Trench B, First Excavation, Cut I (30.0–7586)
11. Point, broken, Trench B, First Excavation, Cut I (30.0–7599)
12. Point, with rough stem, Trench B, First Excavation, Cut II (30.0–7734)
13. Point, with stem and notches, Trench B, Second Excavation, Cut I, before north-south wall (30.0–7608)
14. Point, with tang, Trench A, west of Wall F (30.0–8128)
15. Point with tang, Trench A, west of Wall F (30.0–8129)

Second Row (seventeen specimens)

1. Point, from flake, broken, Trench B, Second Excavation, Cut II (30.0–7811)
2. Point, from flake, with tang, Trench F (30.0–8212)
3. Point, from flake, broken, Trench F (30.0–8214)
4. Point, from flake, broken, Trench F (30.0–8213)
5. Point, from flake with stem, Trench B, First Excavation, Cut III (30.0–7841)
6. Point, from flake, broken, Trench A, before Wall B (30.0–8123)
7. Point, from flake, tiny with stem, Trench C, before Wall A (30.0–8014)
8. Point, from flake, with stem and notches, Trench C, before Wall C (30.0–8021)
9. Point, from flake, with stem and notches, Trench C, before Wall B (30.0–8016)
10. Point, from flake, with stem and notches, Trench A (30.0–8125)
11. Point, from flake, with stem and notches, Trench C, before Wall A (30.0–8013)
12. Point, from flake, with stem and notches, Trench C, Cut III (30.0–8019)
13. Point, from flake, with stem and notches, Wall Digging, East Extension, above floor (30.0–7)
14. Point, from flake with stem, Trench C, Cut I (30.0–8017)
15. Point, from flake with stem and notches, Trench B, First Excavation, Cut II (30.0–7732)
16. Point, from flake, with stem and notches, Trench B, Second Excavation, Cut II (30.0–7813)
17. Point, from flake, with stem and notches, Trench B, First Excavation, Cut I, behind north-south wall (30.0–7683)

Third Row (eleven specimens)

1. Point, with tang, Trench H (30.0–8225)
2. Point, with convex stem, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7686)
3. Point, with convex stem, Trench B, First Excavation, Cut II (30.0–7733)
4. Point, with convex stem, Trench B, First Excavation, Cut II (30.0–7736)
5. Point, with stem and notches, Trench C, before Wall C-sub (30.0–8023)
6. Point, with stem and rudimentary notches, Trench C, behind Wall A (30.0–8015)
7. Point with stem and notches, Wall Digging, East Extension, above floor (30.0–8265)
8. Point with stem and notches, Trench C, before Wall C-sub (30.0–8025)
9. Point with stem and notches, Trench B, Northwest Ramus (30.0–7925)
10. Point with stem and notches, Trench A, East of Wall F (30.0–8127)
11. Fragment of lance blade, Trench B, Second Excavation, Cut I, before north-south wall (30.0–7602)

Bottom Row (fifteen specimens)

1. Point with stem, Trench B, Second Excavation, behind north-south wall (30.0–7688)
2. Point with stem and flanges, Trench B, First Excavation, Cut II (30.0–7735)
3. Point with convex stem, Trench A, under Walls C–E (30.0–8126)
4. (Upper) Point with stem and notches, Trench A, west of Wall F (30.0–8130)
5. (Lower) Point with stem and notches, Trench B, Second Excavation, Cut III (30.0–7852)
6. (Upper) Point with stem, retouched, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7685)
7. (Lower) Point with stem and flanges, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7687)
8. (Upper) Point with stem and notches, Wall Digging, East Extension, below floor (30.0–8304)
9. (Lower) Point with stem and notches, Trench B, Second Excavation, Cut II (30.0–7810)
10. Point with stem and notches, Trench B, Second Excavation, Cut I, before north-south wall (30.0–7609)
11. Point with stem and notches, Trench B, Second Excavation, Cut I, behind north-south wall 30.0–7684)
12. Point with convex stem and notches, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7682)
13. Point with convex stem and notches, Trench B, Second Excavation, Cut II (30.0–7809)
14. Blade of spear head, Trench A, East of Wall C (30.0–8124)
15. Spear head, Trench C, Cut I (30.0–8018)

PLATE LXXXVII

SMALL SCRAPERS—OBSIDIAN AND QUARTZ

Obsidian, besides being used for knives and projectile points, like those shown on Pls. LXXXV and LXXXVI, was used also for scraping and heavy cutting tools like those represented on the top rows of this and the following Pl. LXXXVIII. Other fragments and tools found with burials may be found on Pls. XCI–XCIII. Perforating tools are shown by top row Nos. 1, 2, and 4 and scraping or graining tools comprise Nos. 6–9, and No. 3 and 5 are points retouched to use as tools for fine work, Nos. 10–13 are probably knives.

Stones of the quartz family were seldom employed for the manufacture of points or other delicate implements, when obsidian was so plentiful and so serviceable. The rough scrapers and heavy knives shown on the lower two rows of this Plate cover the functional range of this substance. Middle row Nos. 5–6 are smoothed to serve perhaps in polishing pottery or softening hides.

Top Row (*thirteen specimens*)

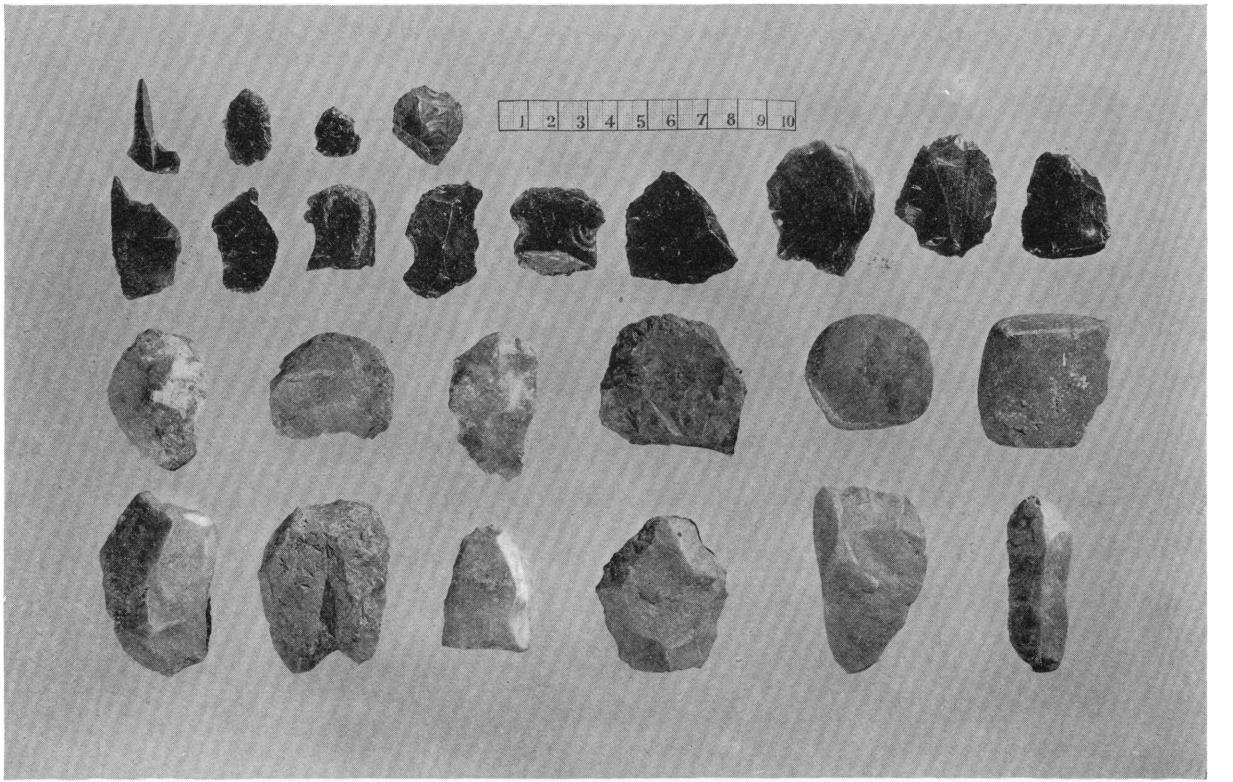
1. (Upper) Perforating tool, accidental (?) shape, obsidian, Trench B, Second Excavation, Cut III (30.0–7853)
2. (Lower) Perforating tool, obsidian, Trench A, below Walls C–E, (30.0–8133)
3. (Upper) Point or scraper, laurel leaf, obsidian, Trench B, Second Excavation, Cut II (30.0–7817)
4. (Lower) Perforating tool, obsidian, Trench B, Second Excavation, Cut II (30.0–7818)
5. (Upper) Point, reworked as scraper, obsidian, Trench C, Cut III (30.0–8020)
6. (Lower) Scraper, obsidian, Trench F (30.0–8216)
7. (Upper) Scraper, orange obsidian, purchased at Ticoman (30.0–8319)
8. (Lower) Scraper, obsidian, Trench B, First Excavation, Cut I (30.0–7592)
9. Scraper, obsidian, Trench B, Northwest Ramus (30.0–7926)
10. Knife, obsidian, Trench B, Second Excavation, Cut I, before north-south wall (30.0–7603)
11. Circular knife, obsidian, Trench I (30.0–8234)
12. Circular knife, obsidian, Trench A, behind Wall F (30.0–8134)
13. Cutting tool, obsidian, Trench F (30.0–8215)

Second Row (*six specimens*)

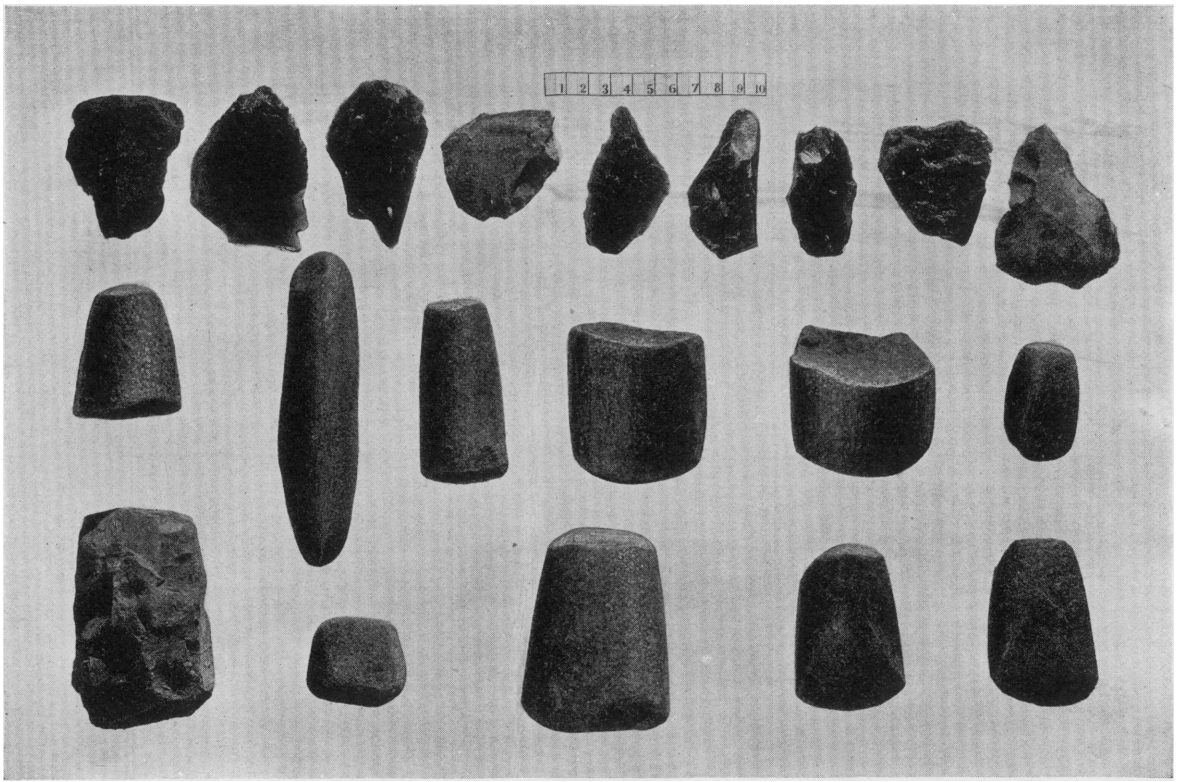
1. Knife, quartz, Trench B, Second Excavation, Cut I, before north-south wall (30.0–7616)
2. Scraper, chert, Trench B, Second Excavation, Cut II (30.0–7832)
3. Knife, chalcedony, Trench B, First Excavation, Cut I (30.0–7598)
4. Scraper, chert, Trench C, Cut I (30.0–8048)
5. Polishing tool, quartzite, Trench C, before Wall C-sub (30.0–8053)
6. Polishing tool, limestone, Trench A, before Wall C (30.0–8139)

Bottom Row (*six specimens*)

1. Scraper with cutting edge, quartz, Trench A, before Wall C (30.0–8138)
2. Scraper, chalcedony, Trench C, before Wall B (30.0–8047)
3. Scraper, quartz, Wall Digging, East Extension, above floor (30.0–8264)
4. Scraper, quartzite, Trench B, Second Excavation, Cut I, before north-south wall (30.0–7615)
5. Knife, quartzite, Trench C, before Wall C-sub (30.0–8049)
6. Knife, chalcedony, Trench A, behind Wall E (30.0–8142)



SMALL SCRAPERS—OBSIDIAN AND QUARTZ



LARGE SCRAPERS, CELTS, AND PESTLES

PLATE LXXXVIII

LARGE SCRAPERS, CELTS, AND PESTLES

The top row of this Plate is devoted to the larger cutting and scraping tools made of obsidian. Top row No. 9 is made of chert, however, and No. 1 of the bottom row is a limestone scraper. Most of these specimens come from Late Period deposits.

A number of celts made from jade, porphyry, and similarly textured stones are shown by the middle row Nos. 4–6, and bottom row Nos. 3–5. It will be noted that these are simple ungrooved forms like those found in the State of Guerrero. Bottom row No. 3 seems to have been re-used as a pestle. Other tools of ground stone are the pestles, Nos. 1–3 of the middle row and the small polishing stone, bottom row No. 2.

Top Row (*nine specimens*)
1. Scraper, obsidian, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7693)
2. Knife, obsidian, Wall Digging, East Extension, above floors (30.0–8244)
3. Knife, obsidian, Trench C, before Wall C-sub (30.0–8041)
4. Scraper, obsidian, Trench C, before Wall C (30.0–8040)
5. Knife or awl, obsidian, Trench C, Cut I (30.0–8038)
6. Knife, obsidian, Trench B, First Excavation, Cut I (30.0–7591)
7. Knife, obsidian, Trench C, Cut I (30.0–8039)
8. Core, used as scraper (?), obsidian, Trench B, First Excavation, Cut I (30.0–7590)
9. Knife, chert, Trench B, First Excavation, Cut I (30.0–7596)

Second Row (*six specimens*)
1. Pestle, porphyry, Trench A, before Wall B (30.0–8152)
2. Pestle, fine-grained granite, Trench B, First Excavation, Cut II (30.0–7729)
3. Pestle, jade, Trench C, before Wall C (30.0–8050)
4. Celt, nephrite, Trench B, First Excavation, Cut II (30.0–7730)
5. Celt, porphyry, Trench B, First Excavation, Cut II (30.0–7731)
6. Celt, diabase, Trench B, Northwest Ramus (30.0–7923)

Third Row (*five specimens*)
1. Scraper, limestone, Trench B, Second Excavation, before north-south wall (30.0–7614)
2. Polishing stone, granite, Trench C, before Wall A (30.0–8052)
3. Celt, re-used as pounder, jade, Trench C, before Wall C-sub (30.0–8051)
4. Celt, nephrite, Trench A, before Wall F (30.0–8151)
5. Celt, chert, Trench B, Second Excavation, Cut II (30.0–7808)

Plate LXXXIX

Stone Balls, Manos, and Metates

Balls of stone, perhaps for use with slings, are common to Middle Zacatenco and all Periods at Ticoman. Occasionally, highly polished balls are found, like Nos. 3–4 of the second row and No. 4 of the third, and also in this volume, Part I, Pl. XLV. The finer specimens may have been used in games, like the pottery balls on Pl. LXXXI.

Second row No. 5 is the incensario representing the Fire God, a detailed drawing of which is shown on Pl. LXXIX, Fig. c. Second row No. 1 is a flat pebble showing marks of use, many of which were found at Ticoman and were doubtless widely employed as informal tools and No. 2 is a flat disc, used perhaps as a jar cover.

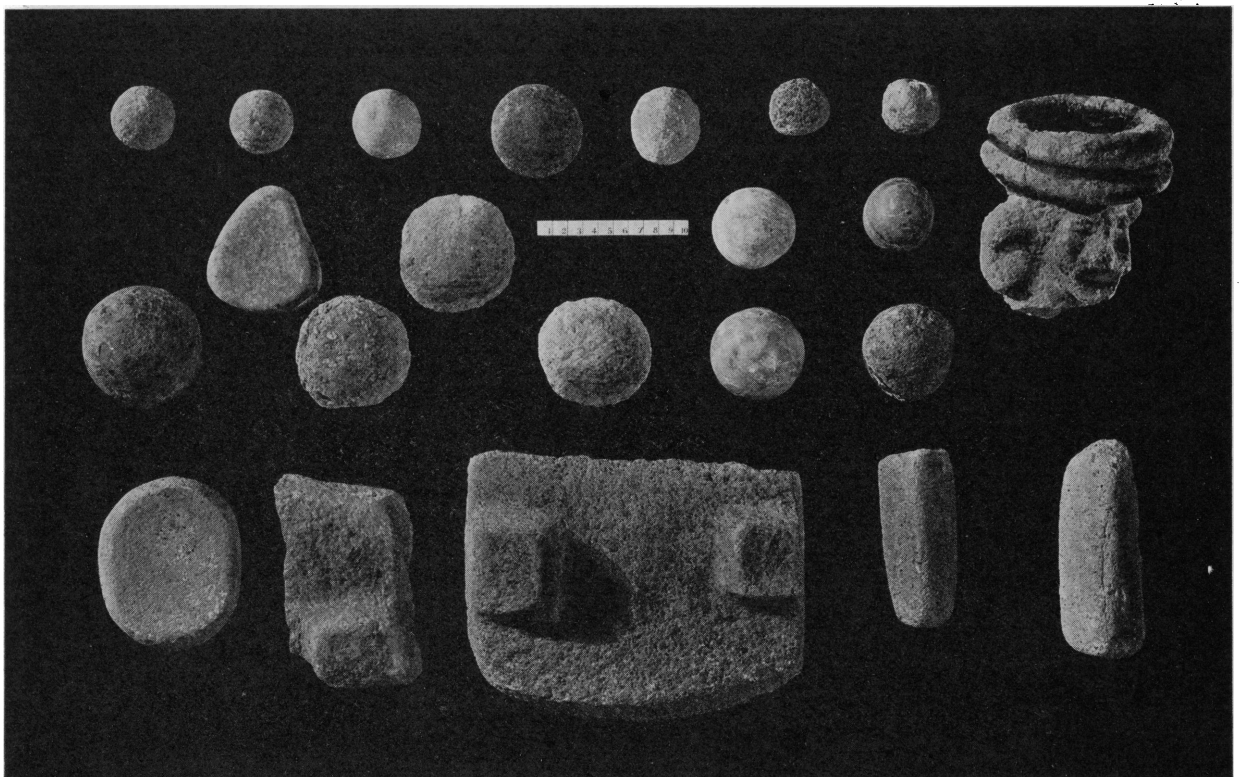
The bottom row is devoted to manos and metates. No. 1 is a circular pounder of which few were encountered. Nos. 2–3 show the characteristic square legs of the metates, which distinguish them from the conical types of Early and Middle Zacatenco (this volume, Part I, Pl. XLVI). The triangular mano form remains the same through all periods at Zacatenco, as one may see in comparing bottom row Nos. 4–5 with Pl. XLVII in Part I of this volume.

Top Row (seven specimens)
1. Ball, sandstone, Trench B, Second Excavation, Cut I, behind north-south wall (30.0–7679)
2. Ball, granite, Trench C, behind Wall A (30.0–8054)
3. Ball, granite, Wall Digging, South Extension, below floor, angle Walls C and D (30.0–8291)
4. Oval stone, porphyry, Trench B, First Excavation, Cut II (30.0–7836)
5. Ball, granite, Trench E, Cut II (30.0–8175)
6. Ball, red lava, Trench A, East of Wall C (30.0–8146)
7. Ball, granite with mica particles, Wall Digging, East Extension, above floor (30.0–8311)

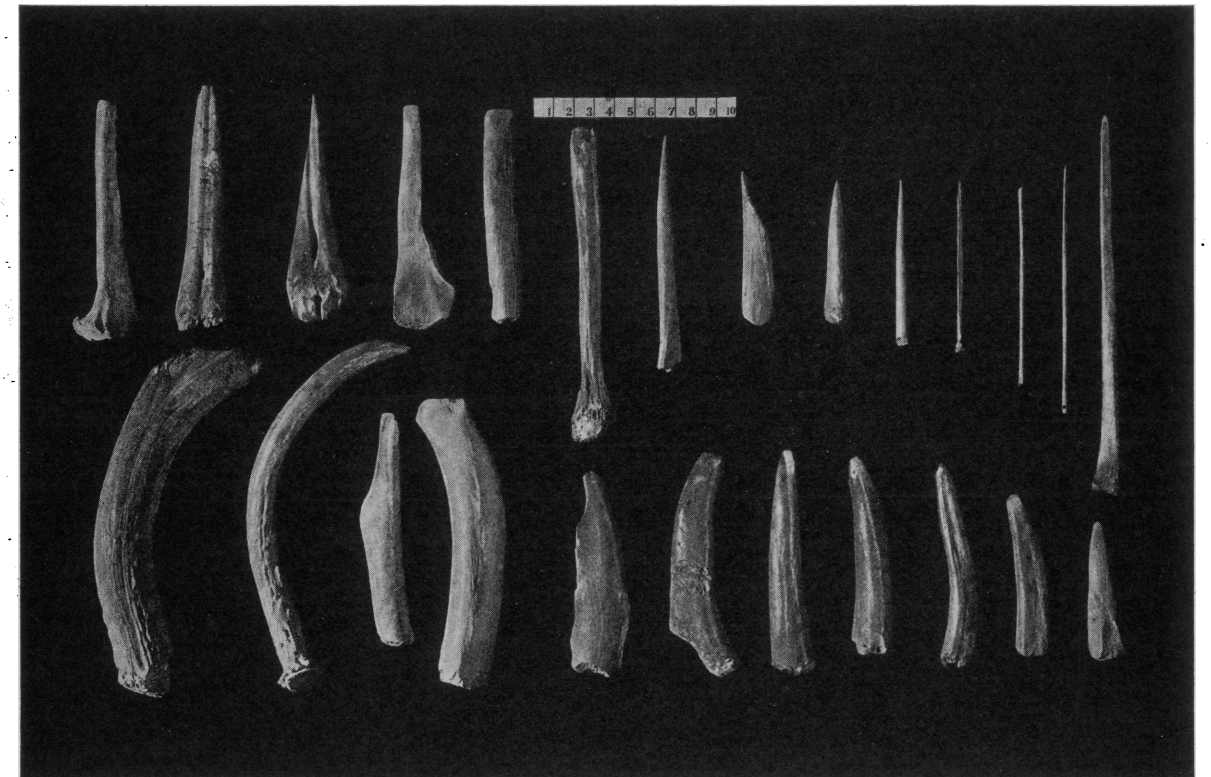
Second Row (five specimens)
1. Pebble, porphyry, Trench B, First Excavation, Cut II (30.0–7728)
2. Disc, lava, Trench A, between Walls B and C (30.0–8150)
3. Ball, massive quartz, Trench A, behind Wall B (30.0–8143)
4. Ball, marble, Trench A, behind Wall B (30.0–8144)
5. Incensario, lava, Wall Digging, East Extension, above floor (30.0–8315)

Third Row (five specimens)
1. Ball, porphyry, Trench B, Second Excavation, Cut I, before north-south Wall (30.0–8154)
2. Ball, weathered granite, Trench A, below Wall E (30.0–8148)
3. Ball, weathered granite, Trench A, behind Wall F (30.0–8149)
4. Ball, marble, Trench A, behind Wall B (30.0–8145)
5. Ball, lava, Wall Digging, South Extension, angle of Walls C and D (30.0–8290)

Bottom Row (five specimens)
1. Circular mano, lava, Wall Digging, East Extension, above floor (30.0–8243)
2. Leg of metate, lava, Trench H (30.0–8226)
3. Metate fragment, lava, Trench A, between Walls A and B (30.0–8153)
4. Mano, lava, Trench F (30.0–8218)
5. Mano, lava, Wall Digging, South Extension, above floor (30.0–8251)



STONE BALLS, MANOS, AND METATES



IMPLEMENTS OF HORN AND BONE

Bone

Plate XC

Implements of Horn and Bone

A comparison between the implements of horn and bone from Ticoman (Pls. XC–XCIII) with those from Early and Middle Zacatenco (this volume, Part I, Pls. XLVIII–XLIX) will show that there is very little difference between the two cultures except in the development of needles at Ticoman. This condition corresponds with the elaboration of stone and pottery ornament which we observed as distinguishing Ticoman from the earlier phases of Zacatenco.

No. 1 of the top row is a hollow bone from which beads like those on Pl. LXXXIV have been cut. Nos. 2–3, are awls, while the chisel-like objects, Nos. 3–5, may have been spatulas used in cleaning hides. Nos. 7–9 and 14 are finer types of awls, and Nos. 10–13 are needles and bodkins. All these objects are of bone, while the bottom row is composed of such horn tools as arrow flakers, Nos. 6–11, and hide grainers (Nos. 1 and 4). No. 2 is an awl or pick, while Nos. 3 and 5 are awls re-used as flakers. Bone ornaments are shown on Pl. LXXXIV.

Top Row (fourteen specimens)

1. Hollow bone, for manufacture into beads, Trench B, Second Excavation, Cut II (30.0–7806)
2. Awl, bone, Wall Digging, East Extension, above floor (30.0–8262)
3. Awl, bone, Trench B, Northwest Ramus (30.0–7920)
4. Chisel, bone, Trench F (30.0–8209)
5. Chisel, bone, Trench E, Cut II (30.0–8174)
6. Chisel, human fibula, Trench A, below Wall C (30.0–8116)
7. Awl, bone, Trench B, First Excavation, Cut II (30.0–7727)
8. Awl, bone, Trench B, First Excavation, Cut I (30.0–7584)
9. Awl, bone, Trench C, before Wall C (30.0–8011)
10. Bodkin, bone, Trench F (30.0–8207)
11. Bodkin, bone, Trench C, before Wall C (30.0–8010)
12. Needle, bone, Trench F (30.0–8206)
13. Needle, bone, Trench C, Cut III (30.0–8009)
14. Awl or spatula, bone, Trench B, First Excavation, Cut I (30.0–7583)

Second Row (eleven specimens)

1. Grainer, antler, Trench A, between Walls B and C (30.0–8113)
2. Awl or pick, antler, Wall Digging, East Extension, above floor (30.0–8261)
3. Flaker, antler, Trench B, Second Excavation, Cut II (30.0–7803)
4. Grainer, antler, Trench B, Northwest Ramus (30.0–7921)
5. Flaker, antler, Trench A, east of Wall C (30.0–8114)
6. Flaker, antler, Trench B, First Excavation, Cut I (30.0–7852)
7. Flaker, antler, Wall Digging, East Extension, North of Wall I (30.0–8306)
8. Flaker, antler, Trench A, behind Wall E (30.0–8115)
9. Flaker, antler, Trench H (30.0–8223)
10. Flaker, antler, Trench G (30.0–8221)
11. Flaker, antler, Trench B, Second Excavation, Cut II (3.00.–7805)

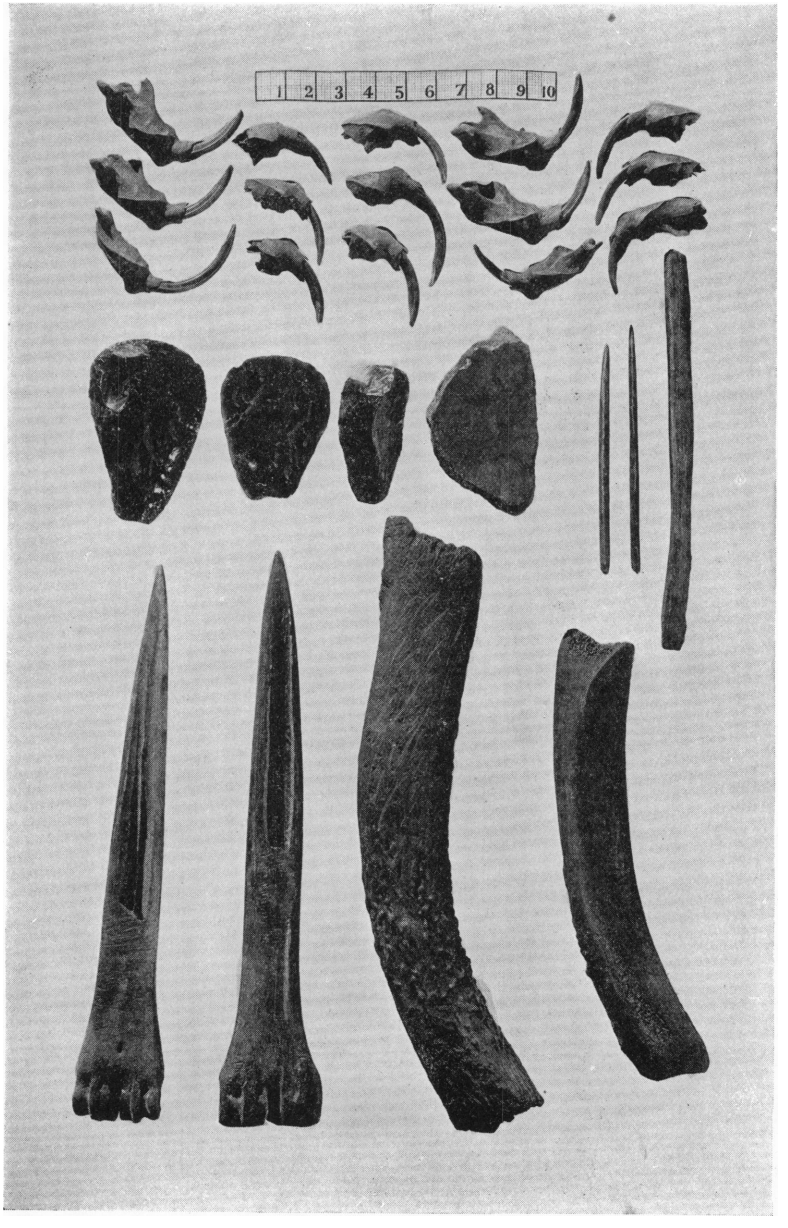
Plate XCI

Bone and Stone Tools with Skeleton No. 17

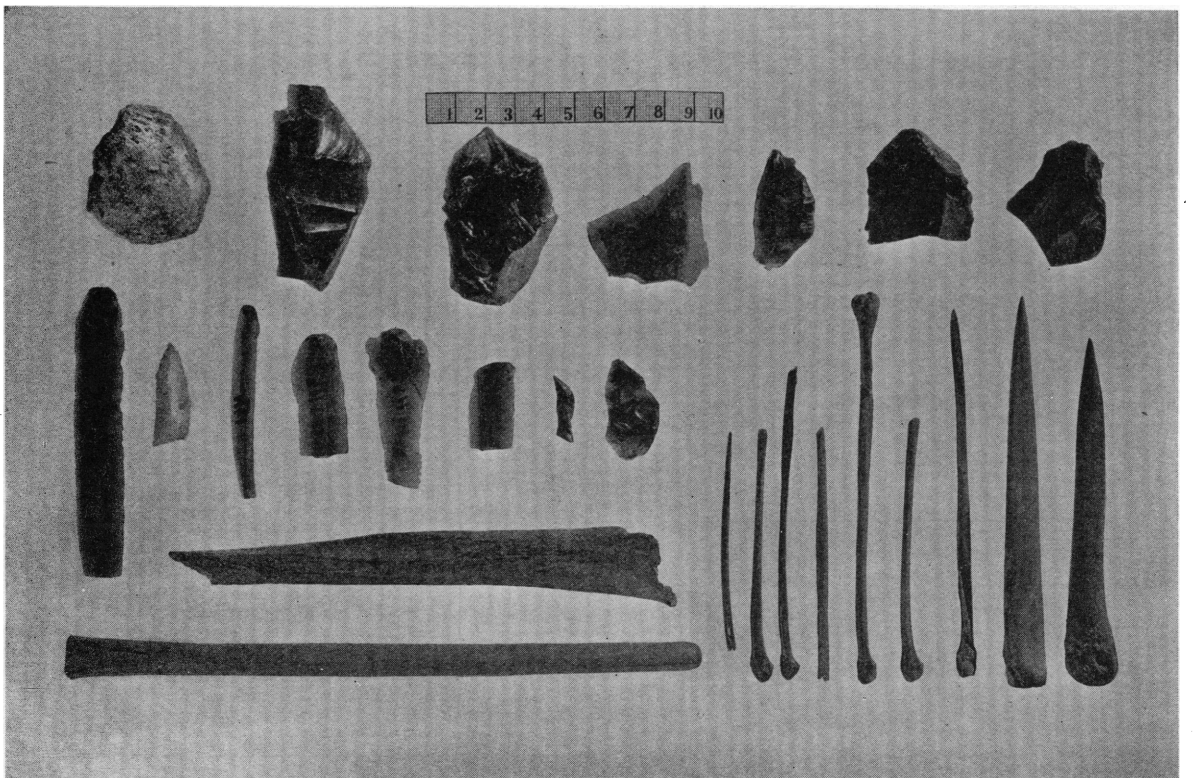
The implements buried with skeleton No. 17 shed much light on the utilization of implements for specific purposes. The top three rows depict fifteen of the sixteen gopher mandibles accompanying the burial. Fourth row Nos. 1–3 are snub-nosed scrapers of obsidian (cf. also Pls. LXXXVII-LXXXVIII). No. 4 is a broken earplug in doubtful association with burial. Nos. 5–6 are bone bodkins and No. 7 is a chisel-like object, perhaps for smoothing and softening the hide before sewing. Bottom row Nos. 1–2 were doubtless used for perforating the hide, after which the bodkins were employed in passing the thread through the holes. Bottom row Nos. 3–4 are of horn and are probably graining tools (Cf. Pls. XC, XCII, XCIII). A red-on-yellow stick-polished bowl also accompanied skeleton No. 17 (Pl. LXXVIII, Fig. d) and the relation of the objects to the burial is shown on Map I, Fig. 23.

Top Three Rows (fifteen specimens)
Gopher teeth, skeleton No. 17, Trench A (30.0–8358)
Fourth Row (seven specimens)
1. Scraper, obsidian, et sequitur skeleton No. 17, Trench A (30.0–8367)
2. Scraper, obsidian (30.0–8366)
3. Scraper, obsidian (30.0–8368)
4. Fragment of earplug, pottery, in doubtful association with skeleton No. 17 (30.0–8369)
5. Bodkin, bone (30.0–8362)
6. Bodkin, bone (30.0–8363)
7. Chisel, bone (30.0–8361)

Bottom Row (four specimens)
1. Awl, bone (30.0–8359)
2. Awl, bone (30.0–8360)
3. Grainer, deer horn or antler (30.0–8365)
4. Grainer, antler (30.0–8364)



BONE AND STONE TOOLS WITH SKELETON NO. 17



BONE AND STONE TOOLS WITH SKELETON NO. 34

Plate XCII

Bone and Stone Tools with Skeleton No. 34

Another set of tools like those shown on Pl. XCI was found with skeleton No. 34. These crude implements in direct antithesis to the carefully worked specimens on the preceding Plate show how stone can be used with very little shaping. Hence, many fragments and spalls discarded in the digging may have been utilized as knives or awls. No. 1 of the top row is a lump of volcanic ash, perhaps of accidental association with the burial, while the remainder of the row are obsidian flakes either for cutting the hide or cloth or for shaping the blanks of bird bone occupying Nos. 4–9 of the bottom row. Note how only Nos. 2–3 of the top row have been shaped. The second row comprises blades of obsidian also used as knives and No. 2 is an awl of quartz. No. 1 of the bottom row is a used bone of indeterminate purpose, while No. 2 is a hollow bone that may have been a needle case. No. 3 is a needle made from the same bone as Nos. 4–9 which are probably blanks ready for shaping. Nos. 10 and 11 are awls. The relation of the objects to the burial is shown on Map I, Fig. 9. Compare also Pls. LXXXV, LXXXVII–LXXXVIII, XC–XCI, and XCIII.

Top Row (*seven specimens*)
1. Lump of volcanic ash, et sequitur, skeleton No. 34, Trench E (30.0–8410)
2. Cutting tool, obsidian (30.0–8397)
3. Cutting tool, obsidian (30.0–8398)
4. Fragment, obsidian (30.0–8400)
5. Fragment, obsidian (30.0–8402)
6. Fragment, obsidian (30.0–8399)
7. Fragment, obsidian (30.0–8401)

Second Row (*eight specimens*)
1. Blade, obsidian (30.0–8404)
2. Awl or point, quartz (30.0–8396)
3. Blade, obsidian (30.0–8405)
4. Blade, obsidian (30.0–8407)
5. Blade, obsidian (30.0–8406)
6. Blade, obsidian (30.0–8408)
7. Fragment, scalpel (?), obsidian (30.0–8409)
8. Fragment, obsidian (30.0–8403)

Third Row (*eleven specimens*)
1. (Upper) Worn fragment, bone (30.0–8388)
2. (Lower) Hollow bone, needle case (?), (30.0–8385)
3. Needle, bird bone (30.0–8389)
4. Blank for needle, bird bone (30.0–8395)
5. Blank for needle, bird bone (30.0–8394)
6. Blank for needle, bird bone (30.0–8393)
7. Blank for needle, bird bone (30.0–8391)
8. Blank for needle, bird bone (30.0–8392)
9. Blank for needle, bird bone (30.0–8390)
10. Awl, bone (30.0–8386)
11. Awl, bone (30.0–8387)

Plate XCIII

Implements and Ornaments from Various Graves

On this Plate, the implements and ornaments found in several graves are brought together. For convenience, objects are referred to as being in one of three panels, the middle one being composed of ornaments and the first and third of tools. Nos. 1–3 of the first panel are awls and a knife with skeleton No. 11, whose ornaments are shown as Nos. 1–2 of the middle panels, whose pot is Fig. i of Pl. LXXVII, and whose grave Fig. 19 of Map I. Nos. 4–10 of the first panel comprise awls, bodkins, and obsidian knives, and an awl from skeleton No. 39, whose dog-tooth necklace is No. 3 of the middle panel, whose pots are Figs. a–b of Pl. LXXVII and whose mortuary position may be found on Map II, Fig. 6. The shell necklace, No. 4 of the middle panel was found with skeleton No. 15 (Map I, Fig. 22) who had also a quartzite pot (Pl. LXXXIII, bottom row No. 4). Skeleton No. 30 (Map II, Fig. 1) yielded the bone necklace, middle panel No. 4 and the pots, Figs. k–l of Pl. LXXVII. The shell necklace, middle panel No. 6, accompanied skeleton No. 41 (Map II, Fig. 8) whose pots are Figs. d–e of Pl. LXXVII. The five arrowheads at the bottom of the middle panel and the bowl, Fig. b, Pl. LXXVIII were found with the disturbed burials Nos. 12–13 (Map I, Fig. 20). The two groups of knives and needles on the top row come from skeleton No. 48 (Map II, Fig. 19) whose pot is Fig. f of Pl. LXXVII, and from skeleton No. 33 (Map I, Fig. 8). The blade and point of the middle row were found with skeleton No. 55 (Map II, Fig. 21) and the blade and earplugs of the bottom row accompanied skeleton No. 47 (Map II, Fig. 14).

First Panel (*ten specimens*)

1. Awl bone, skeleton No. 11, Trench A (30.0–8347)
2. Blade, obsidian, skeleton No. 11, Trench A (30.0–8348)
3. Awl, bone, skeleton No. 11, Trench A (30.0–8346)
4. Awl, bone, skeleton No. 39, Trench F (30.0–8414)
5. Point, obsidian, skeleton No. 39, Trench F (30.0–8416)
6. Awl, bone, skeleton No. 39, Trench F (30.0–8415)
7. Blade, obsidian, skeleton No. 39, Trench F (30.0–8417)
8. Bodkin, bone, skeleton No. 39, Trench F (30.0–8412)
9. Blade, obsidian, skeleton No. 39, Trench F (30.0–8418)
10. Bodkin, bone, skeleton No. 39, Trench F (30.0–8413)

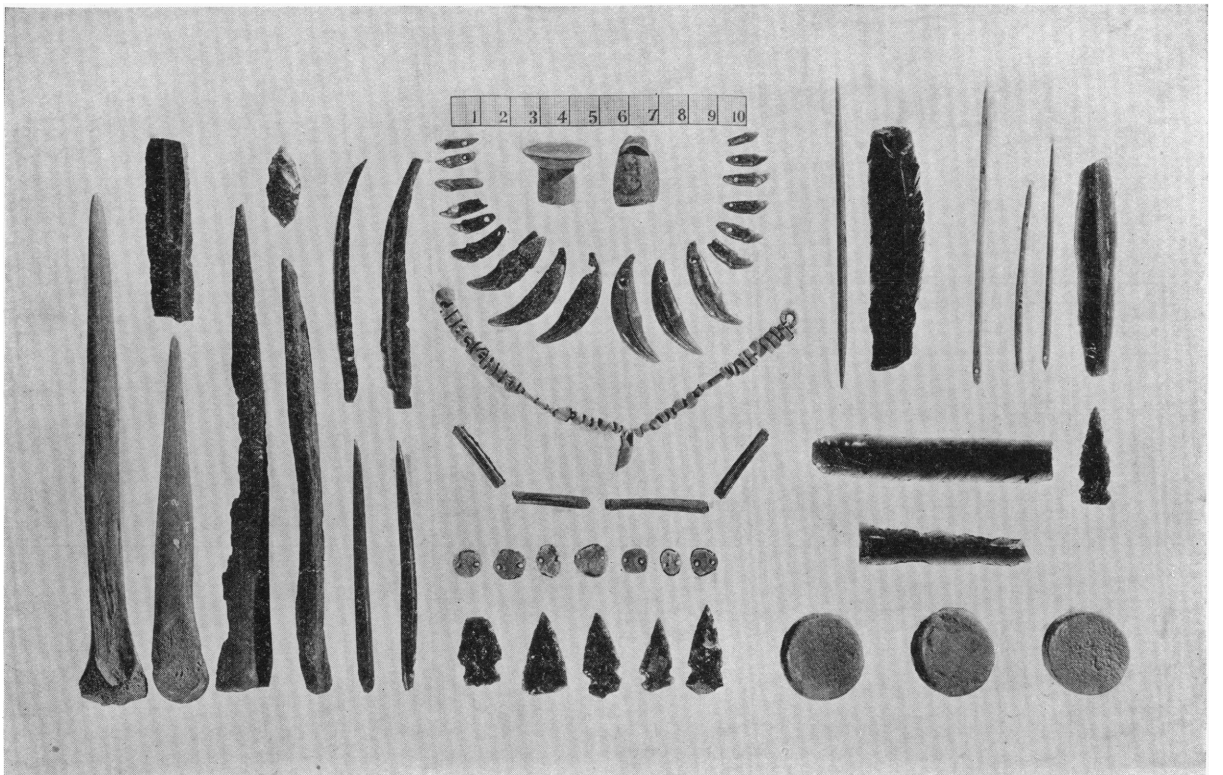
Middle Panel (*eleven specimens*)

1. Earplug, pottery, skeleton No. 11, Trench A (30.0–8344)
2. Bead, *Oliva reticularis*, skeleton No. 11, Trench A (30.0–8345)
3. Necklace, teeth of dog or coyote, skeleton No. 39, Trench F (30.0–8411)
4. Necklace, shell, pendant of pearl oyster, discs of dentalium, other beads, *Neritina reclivata*, skeleton No. 15, Trench A (30.0–8356)
5. Necklace, bone, skeleton No. 30, Trench C (30.0–8378)
6. Necklace, pearl oyster or abalone shell, skeleton No. 41, Trench F (30.0–8419)

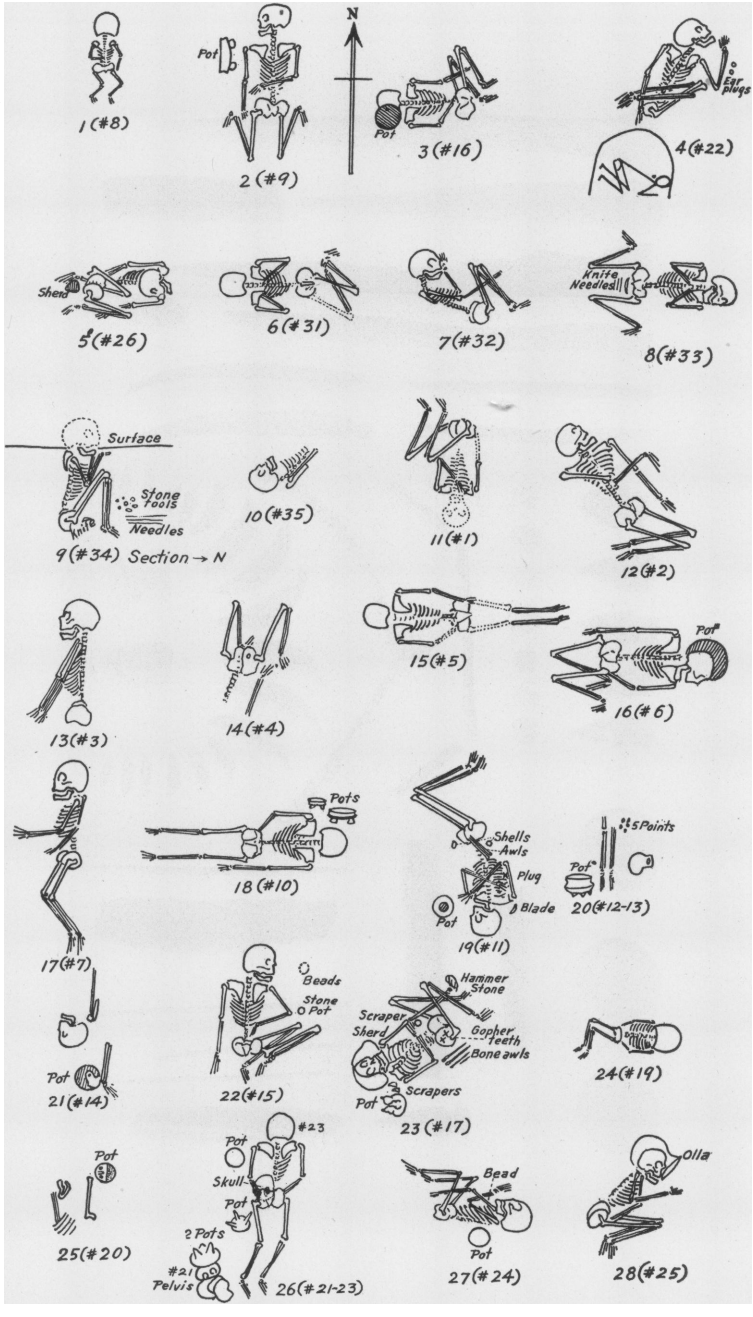
7–11. Five points with stem and notches, obsidian, skeletons Nos. 12–13, Trench C (30.0–8349 to 8353)

Third Panel (*twelve specimens*)

1. Bodkin, bone, skeleton No. 48, Trench I (30.0–8427)
2. Blade, obsidian, skeleton No. 48, Trench I (30.0–8426)
3. Needle, bone, skeleton No. 33, Trench B (30.0–8382)
4. Needle, bone, skeleton No. 33, Trench B (30.0–8381)
5. Needle, bone, skeleton No. 33, Trench B (30.0–8383)
6. Blade, obsidian, skeleton No. 33, Trench B (30.0–8384)
7. Blade, obsidian, skeleton No. 55, Trench H (30.0–8433)
8. Point, with stem, obsidian, skeleton No. 55, Trench H (30.0–8434)
9. Blade, obsidian, probably with skeleton No. 47, Trench F (30.0–8424)
10. Earplug, pottery, skeleton No. 47, Trench F (30.0–8422)
11. Earplug, pottery, probably with skeleton No. 47, Trench F (30.0–8425)
12. Earplug, pottery, skeleton No. 47, Trench F (30.0–8423)



IMPLEMENTS AND ORNAMENTS FROM VARIOUS GRAVES



POSITIONS OF BURIALS

MAP I

POSITIONS OF BURIALS

Discussion of the burials will be found on pp. 316–328. Figs. 1–8 are the burials in Trench B; Figs. 9–10, Trench E; Figs. 11–28, Trenches A and C. Skeletons Nos. 15a of Trench A, and 18, 27–29, of Trench C, are listed, but they were too fragmentary to draw. The top of the page is north.

1. Skeleton No. 8, baby, under six months; bad condition; prone, partially flexed, head north, face down. Trench B, First Excavation, Cut II, Late Intermediate Period.

2. Skeleton No. 9, child, seven to eight years; fair condition; prone, partially flexed, head west, face south. Pot mouth out, at left shoulder (Pl. LXXI, Figs. a, d), Trench B, First Excavation, Cut II, under north-south Wall. Late Intermediate Period.

3. Skeleton No. 16, female, very old; bad condition; prone, partially flexed, head west, face down. Pot inverted over head (Pl. LXXVIII, Fig. e), Trench B, Second Excavation, Cut I, behind north-south Wall, Late Period.

4. Skeleton No. 22, female, adult, good condition; on left side, flexed, hips up, head northeast, face north; two carved earplugs at right forearm (Pl. LXXXII, bottom row No. 1); traces of mat and feather robe around body; in cist, Trench B, Second Excavation, Cut I, behind north-south wall. Late Period.

5. Skeleton No. 26, female, very old; good condition; flexed on left side, head east, face south, and twisted back over shoulder. Olla sherd at hips, Trench B, Second Excavation, Cut I, behind north-south walls. Very Late period.

6. Skeleton No. 31, probably male, middle age, fair condition, legs washed out; flexed prone, head west, face down. North of Trench B, Second Excavation, on surface. Indeterminate Period.

7. Skeleton No. 32, adolescent, male (?); flexed on left side, head northwest, face east. Trench B, Second Excavation, Cut III. Early Intermediate Period.

8. Skeleton No. 33, male, elderly; bad condition; flexed, head east, face south; three needles and obsidian knife at pelvis. (Pl. XCIII, third panel Nos. 3–6.) Rocks cover grave. Early Intermediate Period.

9. Skeleton No. 34, elderly male; bad condition; seated erect, face east; at feet, fifteen stone and eleven bone tools (Pl. XCII). Trench E, Cut I. Late Period.

10. Skeleton No. 35, elderly adult, sex indeterminate; disturbed, bad condition, head southwest, face northwest, on left side, earplug in doubtful association. Trench E, Cut I. Late Period.

11. Skeleton No. 1, adult female, bad condition through erosion; flexed, supine, head south. Trench A. Very Late (?) Period.

12. Skeleton No. 2, young male, bad condition, through erosion; flexed supine, head northwest, face northeast; rocks cover grave. Trench A. Very Late Period.

13. Skeleton No. 3, adult female; bad condition through erosion; on right side, head north, face west. Trench C. Very Late Period.

14. Skeleton No. 4, adult male, bad condition, through erosion, upper body missing; flexed supine, head south. Trench A. Very Late Period.

15. Skeleton No. 5, elderly adult, perhaps male; good condition, but partially eroded; extended prone, head west, face down. Trench C. Very Late Period.

16. Skeleton No. 6, elderly female; bad condition; flexed prone, head east, face down; red-on-white bowl under head (Pl. LXXII, Fig. f). Trench A. Early Period.

17. Skeleton No. 7, elderly female; fair condition; extended on right side, head north, face west. Trench A. Perhaps Early Period.

18. Skeleton No. 10, middle-aged male; body good, head bad condition; extended prone, head east, face down; large sherd and bowl at left shoulder, mouths out (Pl. LXXI, Figs. h–i; Pl. LXXVII, Fig. j). Trench A. Late-late Intermediate Period.

19. Skeleton No. 11, adult male, fair condition; flexed supine, head southwest; wrapped in mat; pot, mouth up at left shoulder (Pl. LXXVII, Fig. i), blade and earplug at right humerus, two bone awls and two shell tinklers in lap (Pl. XCIII, first panel Nos. 1–3, middle panel Nos. 1–2). Trench A. Late-late Intermediate Period.

20. Skeletons Nos. 12–13; pelvis and lower legs of adults; badly disturbed; legs of body pointed north, traces of mat; pot (Pl. LXXVIII, Fig. b) near feet, five obsidian arrowheads at knee (Pl. XCIII, middle panel Nos. 7–11). Trench C. Late-late Intermediate Period.

21. Skeleton No. 14, adult female; disturbed, head and scattering bones out of position, (Cf. skeletons Nos. 12–13); head south, face west; pot over pelvis (Pl. LXXVI, Fig. n). Trench C. Late-late Intermediate Period.

22. Skeleton No. 15, middle-aged female; fair condition; flexed on face, head north, face east; shell necklace near face (Pl. XCIII, middle panel No. 4), quartzite pot at right elbow (Pl. LXXXIII, bottom row No. 4). Wrapped in mat, rocks over grave. Trench A. Late-late Intermediate Period.

Skeleton No. 15a, (too disturbed to draw) scattered bones of adult near complete pot (Pl. LXXIII, Fig. b). Trench A. Late-late Intermediate Period.

23. Skeleton No. 17, elderly adult male (?); bad condition; flexed supine, head south, face west; sherd over face, pot at right shoulder (Pl. LXXVIII, Fig. d), two scrapers at shoulder, one in lap with sixteen gopher teeth, bone tools at right side (Pl. XCI). Hammerstone in left hand. Trench C. Late-late Intermediate Period.

Skeleton No. 18 (too disturbed to draw), legs of adult. Trench C. Early Period.

24. Skeleton No. 19, child, three or four years; bad condition; flexed on right side, head east, face down; wrapped in mat. Trench C. Very Late Period.

25. Skeleton No. 20, adult, much disturbed; bad condition; effigy pot near knee (Pl. LXXVIII, Fig. c) Trench C. Late-late Intermediate.

26. Skeletons Nos. 21 and 23. Skeleton No. 21, adult male, much disturbed by Skeleton No. 23; bad condition; two pots nested mouth down over pelvis (Pl. LXXI, Figs. c, f; Pl. LXXIV, Fig. m). Trench C. Late-late Intermediate Period.

Skeleton No. 23, adult male; fair condition; extended prone; head north, face down; skull of No. 21 under pelvis, bowl mouth down near left femur (Pl. LXXIII, Fig. g), bowl mouth up, at left shoulder (Pl. LXXI, Fig. g). Trench C. Very Late Period.

27. Skeleton No. 24, child, six to eight years; bad condition; flexed on right side, head east, face north; pot, mouth up, behind shoulders (Pl. LXXIV, Fig. 1) shell bead at neck. Trench C. Very late Period.

28. Skeleton No. 25, young adult male, fair condition; flexed on left side, head northeast, face southeast; flare neck olla on side under head; Trench C. Very Late Period.

Skeleton No. 27, (too disturbed to draw), baby; position indeterminate. Trench C. Very Late Period.

Skeleton No. 28 (too disturbed to draw), baby; position indeterminate, disturbed by gophers. Earplug nearby, not associated probably (Pl. LXXXII, top row No. 8). Trench C. Early Period.

Skeleton No. 29 (too disturbed to draw), adult, position indeterminate, disturbed by gophers. Pot scattered near bones, but probably not associated (Pl. LXXII, Fig. j). Trench C. Early Period.

Map II

Positions of Burials

(Discussion of the dating of burials will be found on pp. 306–328.)

Fig. 1 is Skeleton No. 30, Trench C. Figs. 2–18 comprise Trench F burials. The remainder consist of burials from Trench I, Figs. 19–20, from Trench H, Fig. 21; from the Wall Digging, Figs. 22–24. Skeletons Nos. 52 and 59 are listed, but were too disturbed to draw.

1. Skeleton No. 30, young adult male; good condition; flexed on right side, head west, face south; body covered with olla sherds; four bone beads at neck (Pl. XCIII, middle panel No. 5), two pots, mouth up, at hips (Pl. LXXVII, Figs. k–l). Trench C. Late-late Intermediate Period.

2. Skeleton No. 36, child, fair condition; flexed supine, head southeast, face up; buried over Nos. 37–38 as part of a triplicate burial (Figs. 3–5). Mat wrapped. Trench A.

3. Skeleton No. 37, child, fair condition; flexed on right side, head southwest, face southeast, buried under No. 36 and over No. 38 (Fig. 5). Mat wrapped.

4. Skeleton No. 38, middle-aged female, fair condition; flexed prone, head west, face down. Buried under Nos. 36 and 37 (Fig. 5). Mat wrapped.

5. Skeletons Nos. 36–38 (cf. Figs. 2–4) triplicate burial of a woman and two children. No. 38, the woman lies below, then the child No. 37 and on top, the other child No. 36. All were wrapped in mats. Trench A. Perhaps Early-early Intermediate Period.

6. Skeleton No. 39, elderly adult, sex indeterminate; bad condition; flexed on left side, head north and twisted to face west. Two pots at head, brown pot inverted over white bowl below (Pl. LXXVII, Figs. a–b); bodkins and obsidian blades near shoulder, awls and necklace behind waist (Pl. XCIII, first panel Nos. 4–10, middle panel No. 3); rocks over grave. Trench F. Early-early Intermediate Period.

7. Skeleton No. 40, child, sex indeterminate, bad condition; flexed prone, head west, face south; Trench F. Early-early Intermediate Period.

8. Skeletons Nos. 41 and 42. Skeleton No. 41, elderly male; fair condition; flexed prone, head north, face west; red bowl nested, mouth down, over black pot mouth up, beneath chest (Pl. LXXVII, Figs. d–e), shell necklace at neck (Pl. XCIII, middle panel No. 6). Trench F. Early-early Intermediate Period.

Skeleton No. 42, adolescent, sex indeterminate; bad condition disturbed by No. 41; extended supine, head west, face up; bowl near head (Pl. LXX, Fig. a). Trench F. Early Period.

9. Skeleton No. 43, adolescent male; fair condition; flexed on left side, head west, face north, buried over Nos. 44–45 as part of triplicate burial (Figs. 10–12).

10. Skeleton No. 44, adolescent, sex indeterminate; fair condition; flexed prone, head southwest, face southeast; buried under No. 43 and over No. 45 (Fig. 12).

11. Skeleton No. 45, middle-aged female; fair condition; flexed supine, head east, face up; buried under Nos. 44–45 (Fig. 12).

12. Skeletons Nos. 43–45 (Figs. 9–11), triplicate burial of woman and two adolescents; No. 45 the woman lies below, then No. 44 and on top, No. 43. Pot near hips of No. 44 (Pl. LXXIII, Fig. e); rocks over grave. Trench F. Early-early Intermediate Period.

13. Skeleton No. 46, adult female; bad condition, head missing, disturbed probably by Nos. 43–45; flexed supine, head northwest; rocks over grave. Trench F. Early Period.

14. Skeleton No. 47, adolescent, perhaps female; fair condition; flexed on right side, head east, face north; blade before face, two earplugs at neck, one at waist perhaps dissociated. Pl. XCIII, third panel, Nos. 9–12; Trench F. Intermediate Period.

15. Skeleton No. 49, elderly male; bad condition; flexed supine, head west, face up; Trench F. Late-late Intermediate Period.

16. Skeleton No. 50, young female; fair condition; disturbed probably by shaft of No. 51; no position detectable, bones lie over slabs covering No. 51, bead in segment of vertebræ with mandible (Pl. LXXXIV, top row No. 11). Trench F. Intermediate Period.

17. Skeleton No. 51, elderly perhaps male; very bad condition; flexed on right side, head southeast, face northeast; in succession before body, mortar, mano, olla (Pl. LXX, Fig. r), bowl (Pl. LXXVIII, Fig. a); slabs of stone over grave; Trench F. Late-late Intermediate Period.

18. Skeleton No. 54, middle-aged adult, perhaps male; good condition; flexed supine, head northwest, face up; at left breast pot (Pl. LXXVII, Fig. c) containing a gopher mandible (cf. Pl. XCI, top rows). Trench F. Late-late Intermediate Period.

19. Skeleton No. 48, middle-aged female; fair condition; flexed prone, head west, face down; bone needle at head, obsidian blade at waist (Pl. XCIII, third panel Nos. 1–2), pot in lap (Pl. LXXVII, Fig. f). Trench I. Early-early Intermediate Period.

20. Skeleton No. 53, middle-aged female; fair condition; flexed prone, head east, face down; bead at neck; pot at hips (Pl. LXXVII, Fig. h), Cv head near knee (Pl. LXVII, bottom row No. 3). Trench I. Early-early Intermediate Period.

21. Skeletons Nos. 55–56. Skeleton No. 55, adult male; bad condition, disturbed by No. 56 and by rodents; flexed prone, head south; point and blade at right shoulder (Pl. XCIII, third panel, Nos. 7–8). Trench H. Probably Intermediate Period.

Skeleton No. 56, adult, sex indeterminate; much disturbed by rodents; position not detectable, but No. 56 evidently disturbed No. 55. Trench H. Probably Late-late Intermediate Period.

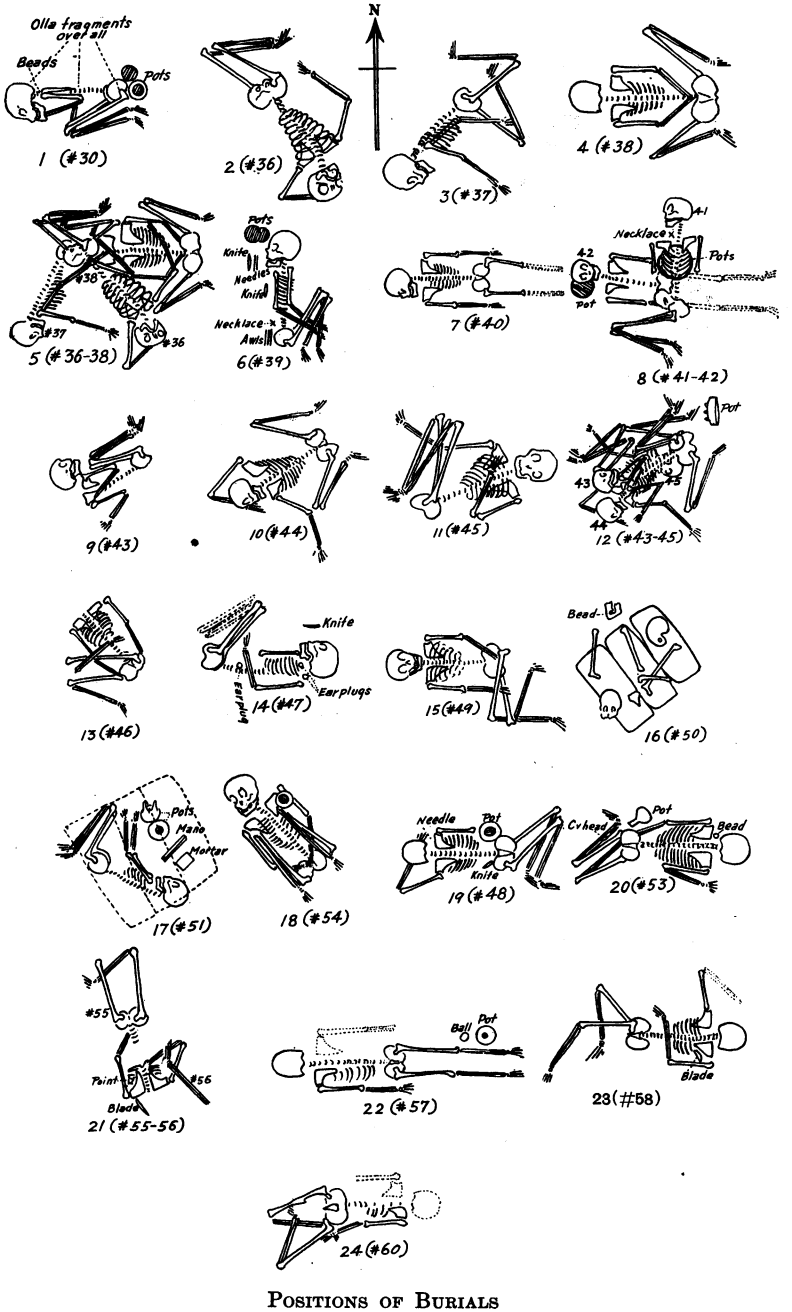
Skeleton No. 52, (too disturbed to draw), young male; bad condition, much disturbed by erosion and rodents; position not detectable. Trench H. Possibly Early Period.

22. Skeleton No. 57, middle-aged female; bad condition; extended prone, head west, face down; olla near legs (Pl. LXXVI, Fig. e), pottery ball near legs, doubtful association. Wall Digging, East Extension, above floor. Probably Late Period.

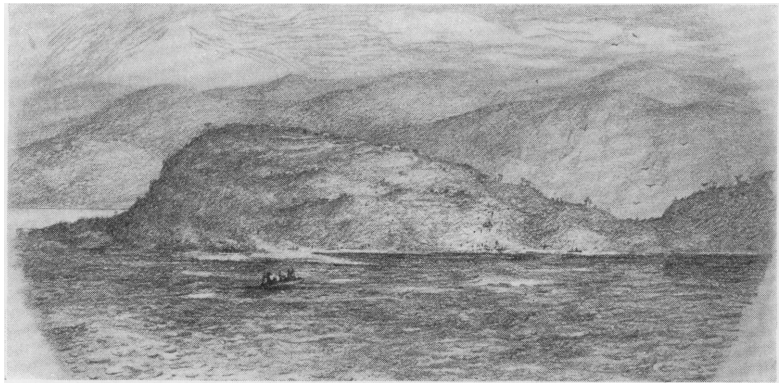
23. Skeleton No. 58, elderly female, fair condition; semi-flexed prone, head east, face down; obsidian knife at left shoulder (Pl. LXXXV, bottom row No. 1). Wall Digging, South Extension, above floor. Probably Late Period.

Skeleton No. 59 (too disturbed to draw), adult; floating skull and scapula; no position detectable. Wall Digging, East Extension, above floor. Possibly Late Period.

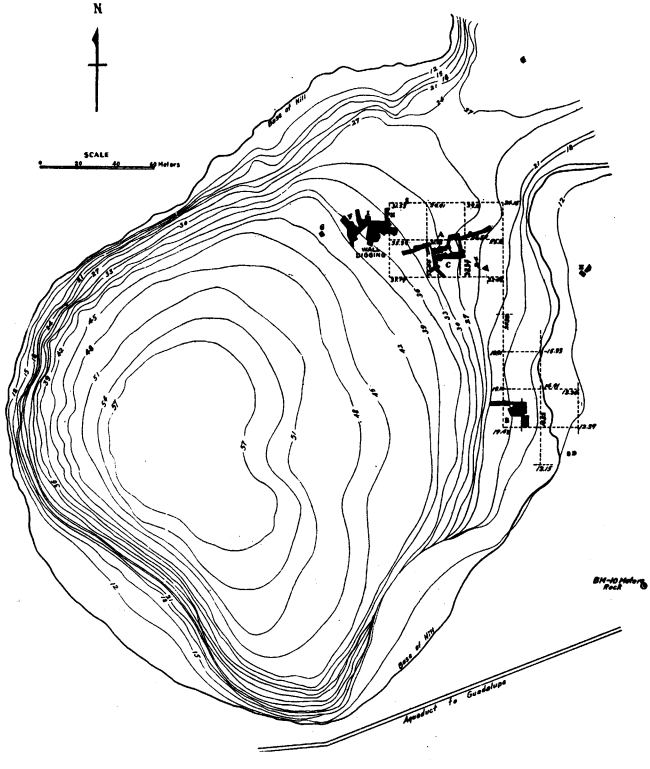
24. Skeleton No. 60, adult male; disturbed by erosion; flexed prone, head east, left femur fractured and healed. Wall Digging. South Extension, below floor. Possibly Early-early Intermediate.



POSITIONS OF BURIALS



SITE OF TICOMAN AS IT PROBABLY APPEARED DURING OCCUPATION



PLAN OF THE ARCHÆOLOGICAL SITE OF TICOMAN

Plans and Sections

Map III

Plan of the Archæological Site of Ticoman

Scale 1:3000

The vignette at the top of the page is a reconstruction by Arthur S. Janssen of this Museum, showing the peninsula of Ticoman as it looked during the early occupation. The point of view is looking southwest.

The area of chief occupation was divided up by means of stakes into twenty meter squares and the height of each stake was computed from an arbitrary ten meter level taken at the base of the hill where the ground levels out to form the floor of the lake. This work was carried out most ably by Mr. Thos. F. Rowe, of Mexico City, who also furnished the levels for the comparison between the levels of Zacatenco and Ticoman on Map V.

The trenches are marked by their designating letters and the main complexes, the Trench B System and the A, C, and Wall Digging Systems are shown in detail on the following Map, IV, and sections from every trench are gathered together on Map VI.

The main occupation zone fans northeast from just below the crest of the hill to the staked area. As the upper reaches of the hill, however, had been extensively cultivated, work was confined to the lower slopes, as may readily be seen. The details of topographical conditions are described fully in the section, Physical Composition of Ticoman (pp 220-250).

Map IV

Detail Map of the Chief Trenches at Ticoman

Scale 1:500

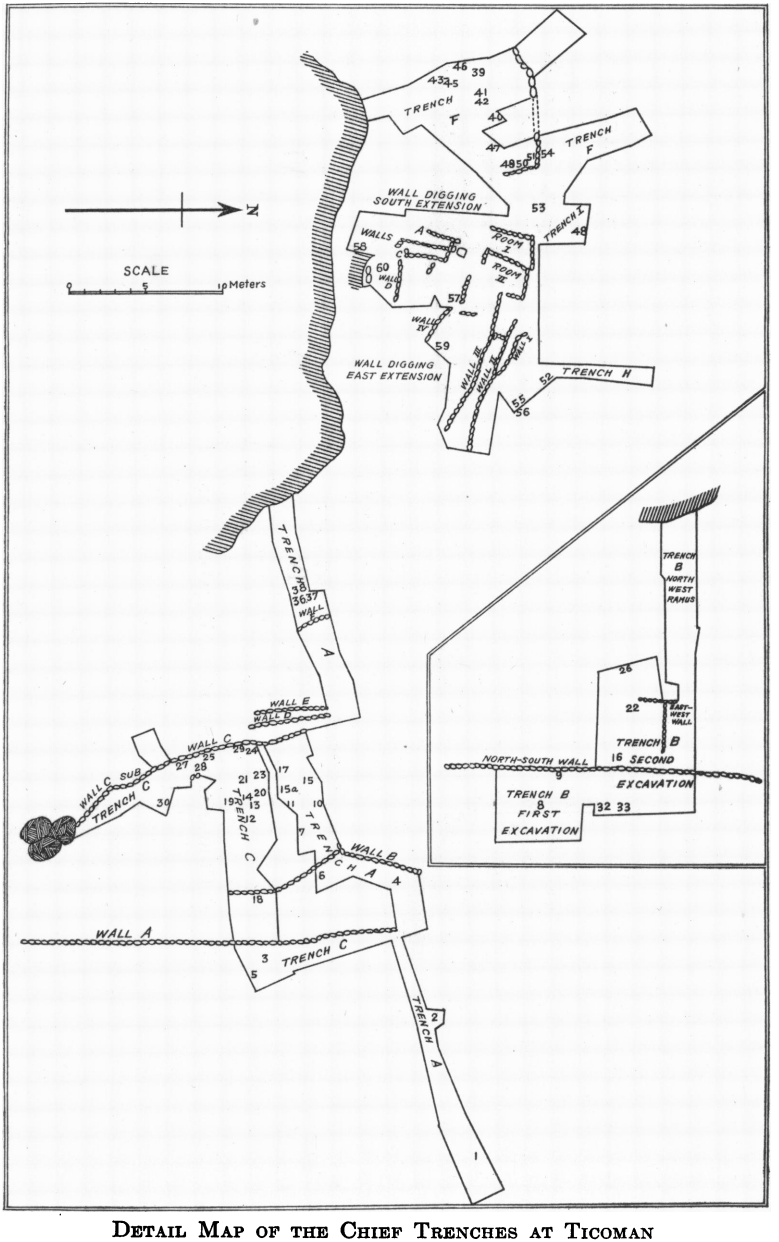
The larger map shows the course of the trenches made during the exploration of the slopes of the hill, through the media of the A–C trench system and the Wall Digging. The inset shows the Trench B system of excavations. Individual walls and trenches are labeled and the numbers show the location of the various burials uncovered. (Cf. Maps I, II, and VI.)

Trench A ran westward uphill until Wall A was reached. Trench C was begun to follow the wall south, while Trench A pushed on through it. When the ground became shallow, Trench C turned west from its southward course to parallel roughly Trench A. Wall B was in bad condition in both trenches and was confusing to follow. But, after the burial belt just west of Wall B had been explored, Wall C was discovered, set high upon débris beds and faced with slabs. Thereupon Trench C turned south to follow this wall, which soon ended because of erosion, and disclosed Wall C-sub of the Early Period, which terminated in a rocky outcrop. Trench A moved north, until Wall C ended in a pot-hunter's excavation, when it swung west again, cutting the Late Walls D and E. Behind them lay Wall F, and, after piercing that Early revetment. Trench A ended against a rocky outcrop (cf. Map VI, Figs. VIII–XI).

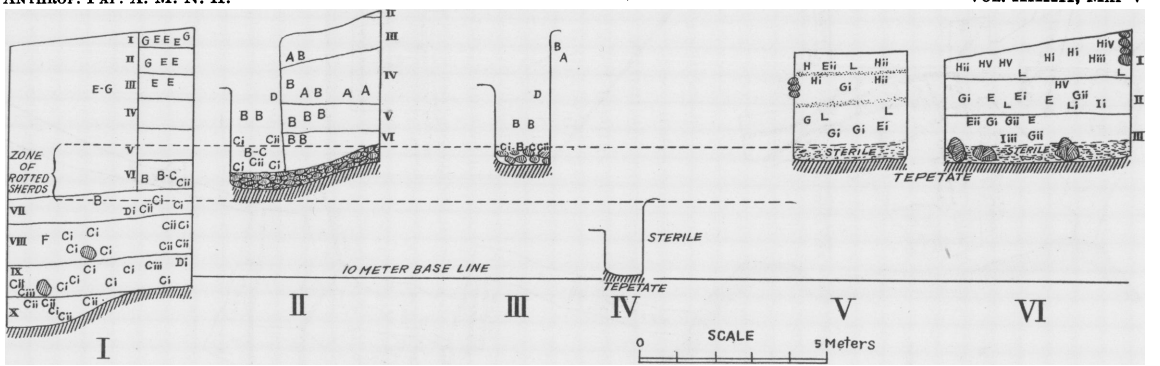
The Wall Digging began with the western arm of Trench F which uncovered burials. As outcrop appeared at the south, the trench swung north and moved in that direction until sterile ground was reached. Trenches I and H were planned to duplicate the work of F, moving southward up the hill. With the uncovering of Room I, Trench I was transformed into Wall Digging, South Extension, since it followed a tortuous course among Rooms I and II, and Walls A–D. Trench H struck the revetments, Walls I–III, and in tracing them out and also Wall IV, its name was changed to Wall Digging, East Extension. When it seemed that we were dealing with a maze of revetments and not the house foundations of a dwelling, digging was closed off for the season. (Cf. Map VI, Figs. XII–XVII).

The B system trenches were dug principally for depth. Trench B, First Excavation was dropped to bottom in three cuts. To check these results Trench B, Second Excavation was begun. In making the first cut, the North-South wall was pierced and shortly we struck the end of the East-West wall. Thereupon the digging fell into two sections. The original top cut was extended west as Trench B, Second Excavation, Cut I, behind North-South wall, until the rising rock made further continuation unprofitable. Then Trench B, Second Excavation, Cuts II and III were peeled successively, laying bare rock bottom. The other section was dug as Trench B, Second Excavation, Cut I behind East-West wall, until rising rock caused the disappearance of that revetment. The Trench was thereupon continued as Trench B, Northwest Ramus and was abandoned when a gigantic boulder, marking the beginning of bare rock closed the way. (Cf. Map VI, Figs. I, II, V-VII).

The other trenches, D, E, and G, were simple pits and had none of the complicated series of revetments shown on Map IV so that they were omitted from this presentation of the details of digging (cf. Map VI, Figs. III–IV).



DETAIL MAP OF THE CHIEF TRENCHES AT TICOMAN



COMPARATIVE SECTIONS, ZACATENCO AND TICOMAN

Map V

Comparative Sections, Zacatenco and Ticoman

Scale 1:200

I. Section, Trench D, Zacatenco (Part I, Map IV, Section I).
II. Section, Trench E, Zacatenco (Part I, Map IV, Section I).
III. Section, Trench E, South, Zacatenco (from MS Sections).
IV. Section, Trench D, Ticoman (Map VI, Fig. IV).
V. Section, Trench E, Ticoman (Map VI, Fig. III).
VI. Section, Trench B, First Excavation, Ticoman (Map VI, Fig. V).

A discussion of the possibility of there having been a rise in lake level after Early Zacatenco times is contained on pp. 29 and 53 of this volume, Part I and on pp. 247-249 of this paper. To bring together some data on this subject the base lines of Zacatenco and Ticoman were brought into relationship, and the sections on the opposite page were aligned in respect to the ten meter base line of Ticoman.

This comparison is significant, if not definitive. The belt of rotten sherds, that we believed to have been caused by the alternate waxing and waning of the lake level in the dry and rainy seasons is found in Cuts V–VII of Trench D and VI of Trench E at Zacatenco (Figs. I–III). Below and above those levels no such phenomenon is found, but in this zone are found the transitional stages between Early and Middle Zacatenco, as if a fusion had taken place between the Early Zacatencanos and another intrusive group displaced from their homes by this rise in lake level. When the broken lines marking the zone are extended to compare with the Ticoman sections, they pass above the sterile Trench D (Fig. IV) and below the deposits in Trenches E and B (Fig. V–VI). The probabilities are, then, that owing to the presence of the lake, the Ticomanos could not live much below the levels of the bottoms of Trenches E and B, and the sterility of Trench D tends to substantiate this belief (Figs. IV–VI). Several other sites like Copilco, San Juanico, and Cuicuilco must be thus tested, before a positive commitment can be made on whether we are dealing with a mere coincidence or with an actual enlargement of the lakes in the Valley of Mexico, at the beginning of Middle Zacatenco times.

The Roman numerals indicate the various cuts in each section and the letters, of course, stand for the various types of figurines.

Map VI

Sections of Trenches

Scale: 1–100

To clarify the Statistical Tables I–II, and the graphs in the text, the abbreviations for the sources of material will be allocated in the captions for the various trench sections. The horizontal lines give the levels and Roman numerals the cuts in each trench (cf. Map IV). Burials are indicated by a symbol and a number (cf. Maps I–II).

I. Trench B, First and Second Excavations in front of North-South Wall, section looking west. First Excavation; Cut I, 2B; Cut II, 6B; Cut III, 19B. Second Excavation; Cut I, 11B; Cut II, 9–10–15B; Cut III 16B.

II. Trench B, Second Excavation, north and south of East-West Wall, section looking west; Cut I, behind North-South wall and south of East-West Wall, 8–13–14B in succession; Cut I, north of (behind) East-West Wall 3–5B; Cut II, 9–10–15B.

III. Trench E, First and Second Excavations, section looking west: Cut I, EI; Cut II, EII; Cut III, EIII. Second Excavation yielded too little pottery for statistical treatment.

IV. Trench D, section looking west. No pottery.

V. Trench B, First Excavation, section looking south: Cut I, 2B; Cut II, 6B; Cut III, 19B.

VI. Trench B, Second Excavation, section looking south, in front (south) of East-West Wall: Cut I, before North-South Wall, 11B; Cut I behind North-South Wall, 8–13–14B in succession; Cut II, 9–10–15B; Cut III, 16B.

VII. Trench B, Second Excavation and Northwest Ramus, section looking south, behind (north of) East-West Wall; Cut I, before North-South Wall, 11B; Cut I, behind East-West Wall (also behind North-South Wall) 3–5B; Northwest Ramus (from west end of East-West Wall on) in succession, 7–18–17-1B; Cut II, 9–10–15B; Cut III, 16B.

VIII. Trench C, before Wall A, looking west.

IX. Trench C, section looking south through Walls A, B, and C. Cut I, 7–11C.

X. Trench A, section looking south through Walls A, B, C, D, E, and F. Below Wall E to Wall F, 7A; behind Wall F, 8A.

XI. Trench A and C, section looking west before Walls C and C-sub. Before Wall C-sub, 13–14C.

XII. Trench F, section looking west through northwest arm; F.

XIII. Trench F, Section looking west through southeast and northeast arms.

XIV. Trench I and Room I, section looking west.

XV. Wall Digging, South and East Extensions, section looking west, through Room II, Wall IV, and Wall D. Below floor, BF.

XVI. Wall Digging, South Extension, section looking west through Room I, and Wall A. Below floor, BF.

XVII. Wall Digging, East Extension, section looking west through Trench H, Walls, I, II, III IV, and D. Below floor, BF.

SCALE 0 5 Meters

CLEAN EARTH

I

II

III

IV

V

VI

VII

VIII

IX

X

XI

XII

XIII

XIV

XV

XVI

XVII

SECTIONS OF TRENCHES

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