THE TEOTIHUACAN VALLEY PROJECT

FINAL REPORT - VOLUME 2

THE FORMATIVE PERIOD OCCUPATION OF THE VALLEY

Part I -- Texts and Tables

by

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Part 1

INTRODUCTION

In Volume 1 we presented the overall objectives of the Teotihuacan Valley Project and discussed the broad perspective of the methodology used in attainment of those objectives. In this introduction we will confine the discussion to more specific aspects of archaeological methodology.

THE SURFACE SURVEY

Although the excavations provided the project with valuable data, the major activity consisted of the surface survey. Sites were located, mapped and surface sampled; first to provide a picture of community and zonal settlement patterns; and second, on a more inferential level, to achieve an understanding of changing patterns of resource utilization and institutions of the prehispanic populations.

The survey was conducted in two phases. Phase 1 consisted of a general survey to locate as large a sample of sites as possible, and one that would include all ecological niches, time phases and site types. While this could have been accomplished through a sampling procedure, we decided instead to survey the entire valley. By the end of the 1961 season it became evident that this was an impossible task in terms of personnel, time and money. Approximately 65% of the area was covered however, so that the sample does include all of the variables noted above. Our coverage is weakest in three areas: the deep soil alluvial plain, steep slopes, and high terrain. In the piedmont the survey was close to 100% effective. Phase 2 consisted of intensive survey, mapping, description and surface sampling of the located sites. Approximately two-thirds of sites located were intensively surveyed.

Phase 1 was initiated in June 1960 and, with the exception of the Patlachique Range, completed by June 1963. The intensive survey was conducted during the period from June 1963 to September 1964. Phase 1 in the Patlachique Range area was completed during the summer of 1963. In 1965, Jeffrey Parsons, a member of the project staff and then assistant professor at the University of Michigan, returned with his own project and completed surveys in a number of unsurveyed areas. Thomas Charlton, who worked with the project in 1963, has been engaged in a study of the sixteenth century post-Conquest occupation of the valley and located additional sites in the course of his studies. We estimate that approximately 800 physical sites have been located to date.

Mapping Techniques

Before going into the field, in preparation for the general survey, a set of aerial photographs was purchased from the Compañia Mexicana de Aerofotos, S.A., in Mexico City. This set of aerial mosaics, part of a larger survey of the Basin of Mexico, had been prepared in 1952. The prints of the set constituted 14 quadrangular mosaics, measuring 60 by 50 centimeters, together with 3 sections from 2 additional mosaics. The large mosaics were then cut into four equal sections to implement their use on clipboards in the field. Each of these sections encompassed an area measuring 3 kilometers from east to west and 2.5 kilometers from north to south or an area of 750 hectares, at a scale of 1:10,000. Fifty-nine of these quadrangles, each measuring 30 by 25 centimeters, provided preliminary coverage for the first season of 442.5 square kilometers, an area which included all of the alluvial plain, most of the piedmont, the southern slope of Cerro Gordo, the northern slopes of the Patlachique Range as far up the valley as Oxtotipac.

The notations of surface archaeology and natural ecology obtained during the first season were entered in India ink tracings on acetate plastic transparencies placed over each of these sections. The greatest number of the Classic and Postclassic sites located in the Middle and Lower Valley were initially recorded in this manner.

In 1961, an additional set of photographs, which had been prepared by the Compañia Mexicana de Aerofotos in the previous year, and thus presented an updated record of new constructions and road building in the valley, was purchased. Additions to the series of quadrangles pertaining to this series were later obtained, thus extending our laboratory aerial coverage of the Basin of Mexico; but it is the original six prints, covering the complete drainage area of the Valley of Teotihuacan, which will be described here. At a scale of 1:25,000 and with each print measuring 60 by 50 centimeters, an area of 15 kilometers from east to west and 12.5 kilometers from north to south, or of 187.5 square kilometers, was encompassed in each quadrangle. Because of a considerable extension of the coverage of these quadrangles beyond the selected area of study, the total coverage in this series of 1125 square kilometers generously exceeded the approximately 550 square kilometers of the actual survey areas with ample margins to spare, north, east and south.

This set was to see multiple uses in the course of completing the coverage for the valley and adjacent areas, and its value was enhanced by the release, from a restricted classification, of a set of newly prepared topographic maps covering the entire area of study and drawn at the same scale of 1:25,000. These topographic maps, a result of a cooperative aerial mapping project by the Mexican and U.S. Air Forces, were executed by the Office of Military Cartography of the National Mexican Army in Mexico City. They are greatly superior to any large-scale topographic maps hitherto known for the region, and served as useful supplements to the aerial mosaics used in the project mapping.

The 1:25,000 aerial mosaics were utilized primarily in Phase 1, but served also as the base for the tracings of all the large settlement pattern maps which were prepared during the course of the survey, in order to keep a current record of site distributions for large sections of the valley. At this scale, however, the visual reduction of surface features is so extreme that only the more general relations of roads, streams and barrancas, villages and towns can be detailed. For the work of the intensive survey, an additional set of photographs was required, one which would show the surface features of the sites on a scale great enough to permit the ready checking on the ground of features so shown, and to facilitate the preparation of site maps in the field and laboratory.

The required set of photographs was produced in the spring of 1963 at The Pennsylvania State University by William G. Mather, III, the staff photographer of the Teotihuacan Valley Project. The base of Mather's enlargements was a very large coordinated quadrangular aerial mosaic, prepared in the laboratory of Mexicana Aerofoto, S.A., Mexico City for the use of the project. This mosaic, measuring 1.4 by 1.6 meters, was based on the assemblage of the same 1:25,000 scale aerial photographs utilized in the general survey. Using this mosaic as a base, Mather devised an arbitrary system of coordinates in which he divided the section of the mosaic pertaining to the survey area into 1456 quadrangular sections, each section being defined between ordinates placed 2.3 centimeters apart, of which there were 41 from north to south lettered A-Z, AA-OO, and by a series from west to east for each 3.7 centimeters of horizontal measurement on the original mosaic and numbered from 1 through 36. The coordinate system thus produced has been utilized in the separate site files.

Mather produced something over 1200 separate photographs, enlarging each 2.3 by 3.7 centimeter section in the grid which enlarged an area of survey from the original scale of 1:25,000 to a scale of 1:4000.

Each enlargement, measuring 26 by 17 centimeters, was printed on paper measuring 28 by 21.5 centimeters (that is, 11 by 8-1/2 inch sheets convenient for inclusion in the individual site field reports of the intensive survey), and encompassed an area on the ground of 1.04 kilometers from east to west and 0.68 kilometers from north to south, or 70.76 hectares. A manual enlargement of the tracings of these photographic enlargements to the scale of 1:1000 and even 1:500 was easily obtained in following the cartographer's venerable "rule of squares," utilizing common metric graph papers. This was done for those sites where the number and complexity of observable features demanded a scale of recording more ample than that provided by the 1:4000 scale of the intensive survey photographs described above.

This scale, 1:4000, was selected because it was found that the loss of resolution and contrast achieved in the enlargement process beyond this point became too extreme. The aerial coverage obtained for an area, some 750-800 square kilometers, on the scale of 1:4000, was one of the technical achievements of the mapping project. Were it

either desirable or feasible to produce a single mosaic from this very large number of 1:4000 photographs, the resulting mosaic would measure 6.97 by 8.65 meters or 22.86 feet from side to side, and 28.39 feet from top to bottom!

As the intensive site survey developed in the season of 1963, it was found, and again confirmed in the survey of Jeffrey Parsons in 1965, that in the majority of cases quite adequate site maps could be prepared following these procedures:

1. In the laboratory, preparatory to surveying a site in the field, a base map was prepared by placing sheets of semitransparent drafting paper over the 1:4000 enlargement and tracing all pertinent visible detail of trees, roads, field demarcations, and mounds. This formed the preliminary base tracing.

2. In the field, the recorders then added to the preliminary base tracing all appropriate data pertaining to the natural and cultural features of the site. Structural features, such as exposed walls, mound locations, width and height, were checked by meter-tape measurements upon the ground and such measurements were entered where appropriate upon the base map or in the field notes. Chronological phase ceramic associations with structural debris were noted in abbreviation or by colored pencil codes upon this base tracing. The boundaries of the site, insofar as these could be determined, would also be drawn upon this base. In some cases the data were noted in pencil directly upon the 1:4000 photograph. The annotated map/photograph thus produced was used in the laboratory later as the base for the finished map.

3. After the completion of the intensive survey of the site, the base site map, annotated as described above, was redrawn in the laboratory to prepare a clear, legible map for addition to the cumulative file of the basic data of the survey.

Logistics

A paved road from Mexico City to Otumba runs through the middle of the Teotihuacan Valley, from the delta area to the upper alluvial plain. From this central highway lead dirt roads, negotiable by vehicle, to nearly all modern settlements of the survey area. Although those sections of the valley most distant from a road end, such as the Patlachique Range, could be reached only by a good 6-hour round trip walk; the largest part of the 550 square kilometer survey area was easily reached within one-half to three-quarters of an hour on foot because of the remarkable network of dirt burro trails, which reach all areas of the valley and can be negotiated with high-centered vehicles.

It was planned in the course of the general survey to cover as much of the ground was was possible within the three seasons (1960-62). The areas most readily accessible by road were surveyed first, and those most difficult last. Because of its relative inaccessibility, the Patlachique Range was not included in the general survey until 1963.

Recording Archaeological Data

The selection and recording of the data with respect to the intensive survey was formalized through the construction of a survey schedule (see Appendix C). Field notes were taken describing the general condition of the site and remarking on the amount of excavation or pitting. The mounds present on each site were counted, measured with meter tapes, checked by eye or with hand level for height, and classified where possible as to their probable domestic or civic ceremonial function. In the case of the Classic and Postclassic sites, an attempt was made to determine the possible presence of plazas, roads, and planned alignments of structures. Specialized features, immediately visible or readily cleared with trowel and brush, such as wall sections, floors and burials (where exposed by pitting), were recorded and photographed. Attempts were made to locate other specialized site features such as walls, floors, canals, dams, forts, moats, quarries and workshop areas.

The amount of pottery found on a site and the nature of its distribution from even to localized and variable was noted. Sample objective counts of every piece of pottery found on several selected one square-meter sections were taken on residential mounds, between the mound clusters, and at the center and edges of the sites.

Note was taken of the relative abundance or scarcity of obsidian blades, scrapers, points and cores; manos, metates, celts, pestles and mortars. Figurines, spindle whorls and pottery discs were collected, segregated and bagged apart from the general ceramic collections and the surface density and distribution were estimated. Where profiles of the archaeological depost were present--the results of pitting, road building, or erosion--the depth and nature of the archaeological deposit was noted.

Recording Data on the Natural Environment and Contemporary Occupation

The selection and recording of data relating to the natural, nonhuman environment was also accomplished, in part, through the use of the formal archaeological survey schedule.

All sites were classified by location in one of the six somewhat arbitrarily fixed major ecological zones of the Valley of Teotihuacan: the delta, lower valley, middle valley, upper valley, Patlachique Range, or the north tributary valleys. Within their corresponding sub-zones, location on steep slope, hilltop, alluvial plain, the gentle sloping piedmonts, or on high ridgetop was noted. In most parts of the valley the demarcation between such zones is quite marked. The depth, color and texture of the soils found on, and adjacent to, the sites was noted. Any permanent streams, springs, washes and barrancas adjacent to sites, including data on depth and width, were recorded.

The relative abundance and kind of vegetation on the site and its adjacent area was noted, together with special notation of natural resources on the site and in its vicinity, such as clay, lime, obsidian, basalt, granite, tezontle (volcanic tufa) or salt. Photographs were taken of the sites providing overall views of the site area, including its ecological setting as well as close-up photographs of natural and cultural details of the site. Data on contemporary land use was recorded, including agricultural use and techniques, structures, and other evidence of resource utilization.

Definition of Sites

In order to organize our recording in the field and analysis of the data in the laboratory, a series of classificatory orders was employed defining sites, house types, and settlement types.

The archaeological site will, for the purposes of this discussion, be defined as any discrete locality where the physical remains of prehistoric habitation, or of any other human activity, are visible and assignable to a specific era in time.

The definition of "site" refers to areas of occupation, concentration of building remains, isolated ceremonial structures, abandoned hydraulic works, ancient terrace systems, quarries, fortifications, or any other observable archaeological evidence that prehispanic peoples has altered or used the environment. It should be remarked that in contrast to the procedure of the Viru Valley study, contemporary ceremonial structures, fortifications, or large residential structures within a larger group of more minor structures were not assigned separate site numbers, but were included under the single designation assigned to the site.

Sites were assigned consecutive numbers by major periods. Thus, the first Formative, Classic (Teotihuacan), Toltec or Aztec sites to be surveyed were numbered TF-1, TC-1, TT-1 or TA-1. The prefixes "TF," "TC," "TT," or "TA" referring to Teotihuacan Formative, Teotihuacan Classic, Teotihuacan Toltec and Teotihuacan Aztec periods, followed by TF-2, TC-2, etc. to the end of the survey. The site numbers have

no other archaeological or geographic meaning and refer only to the order in which sites were surveyed.

The attempt has been made to visualize multi-occupation sites as series of separate but superimposed living sites, which frequently reveal changing distributions of building types and population within the single geographical location, the mixed remains of very distinct cultural groups. Where these have been sorted out by their ceramic associations, several site numbers were assigned to the same physical site.

In the final data processing stage the ceramics from excavations and surveys were assigned to much shorter time phases, on the average only 100-150 years in duration. At this stage, additional numbers were added to designate the various phase components of the same general period. In the case of the Formative period, our original numbering of sites ran from 1 to 129. When each phase component was defined as a site, the site number series for the Formative was expanded to 236.

Limitations of the Survey

The limitations of the study are seen to be of at least three kinds: site sampling, the methodology of associational dating, and the method of deriving settlement types from surface survey.

Not all portions of higher elevated terrain were surveyed because of the logistics problems. These might have been productive areas, particularly for Formative sites. Since Phase 1 of the survey revealed little population in the alluvial plain, only a few test strips were surveyed in this area. Beyond those areas of terra incognita, we are confident that the survey teams walked over nearly every hectare of ground in the survey area.

A further deficiency in the survey sample, particularly for the detection of the small hamlets, is that the sample is probably missing scores of sites which have been destroyed by natural or human agencies. In the hills and piedmonts, water erosion, extremely severe in some of these areas, could have carried many small sites away, particularly those near the edges of barrancas in the process of being widened and deepened. In the alluvial plain, the enormous quantities of soil brought from the piedmont during the successive erosion cycles of the valley's agricultural history may have buried some of the early sites under 2 to 4 meters of silt. This possibility exists, particularly following the assumption that the most favorable location for settlement today (the alluvial plain) has probably been so for a very long time into the past. Modern settlement, too, has also undoubtedly contributed to the burial of uncounted small sites.

Considering the time involved in the field survey, the survey area selected was, perhaps, somewhat too large to permit the ideal minute examination of all the surface archaeology to be found in this region. Originally the survey plan was to include nothing more than the entire drainage area of the Teotihuacan Valley, somewhat on the order of the plan of the Viru Valley study. About halfway through the project, however, the area of survey was increased to include a section of the valley north of Cerro Gordo, which contributes discharge into both the westward-draining Avenidas de Pachuca and the Rio Tezontepec. This decision was reached when the suspicion arose, as the data for the distribution pattern of rural Classic settlement in the Valley of Teotihuacan proper began to accumulate, that settlement in the valley appeared to have been considerably aborted by the presence of the giant central aggregation of settlement during this period. The geographically adjacent northern areas were, therefore, added to the survey area to test the hypothesis of massive displacement of the rural population in the main valley, and to find what might have been the 'typical' rural pattern in Classic times.

Even so, though the area studied was very large, it should be noted here that the beginning of an adequate understanding of either the Formative or Classic development in the Basin of Mexico will not be attained until a great deal more survey is accomplished, both in other areas of the basin itself and in adjacent areas of the highlands.

With respect to the dating of the surface samples, the chronological scheme used was that agreed upon in a joint seminar held in 1962 at the archaeological zone, including personnel from the Proyecto Teotihuacan, the Teotihuacan Mapping Project, and the Teotihuacán Valley Project. This sytem was based on previously published studies, seriation of surface samples from the city (designed by Bennyhoff, then ceramicist of the Teotihuacan Mapping Project) and the Teotihuacan Valley Project surface sites, and excavated samples from the Teotihuacan Valley Project and the Proyecto de Teotihuacan.

The theory of seriation dating, as developed in the definitive exposition of this methodology in the Mississippi Valley (Phillips et al. 1951, pp. 213-236), assumes that ceramic surface collections from any isolated site are assignable to a particular point in time. At any one point in time, the theory postulates that there will be some types of pottery vessels which will have been used for a very long time, certainly over several generations; but for some reason or other are beginning to be thought of as 'old-fashioned,' or simply are less useful than formerly. A somewhat newer group of types will be found to be more popular and, hence, these types will appear in greater frequencies in the sherd middens left by the hypothetical group in question than those registered for the old-fashioned ones. A third group of types which will appear in this model assemblage, also low in frequency, will include newly invented or newly adopted forms. It therefore follows that the student should, for example, be able to arrange the ceramic assemblages from different, though somewhat chronologically overlapping, sites according to the ascending and descending frequencies of types encountered. A seriation method is

therefore ideally constructed to duplicate the sequences of vertical stratigraphy in which series of artifact types can be readily demonstrated to have points of inception, gradual increases to a climax of use, followed by decreases in appearance, to a final disappearance. As the total assemblage of dozens, perhaps hundreds, of types is for any one point in time a sum of multiple cultural forms all caught at different stages of ascension or descension in their individual histories, the tabulated distribution will be absolutely unique for any one point in time.

In theory, from collections taken from the surface, these unique, chronologically discrete (in relation to each other) distributional patterns may be tabulated in a series from early to late. The method is, of course, greatly dependent upon knowledge of stratigraphically continuous vertical cuts, which have established ceramic points of more or less fixed chronological value, or "markers," in order to establish the direction of the changes.

The main difficulties which have been encountered in applying this methodology in the Teotihuacan Project are several. First, there are many sites in which, as noted above, all or part of an earlier assemblage is buried by silt or sealed in by later constructions, thus providing no data or only incomplete data for study. The writers feel that in this way the material remains of the Tzacualli phase of Teotihuacan have often been submerged by those of later Teotihuacan period populations occupying these same sites. Second, and possibly more important, is the fact that in the vast majority of sites of the Teotihuacan Valley the ceramic collection represents a mixture of two or more phases of the same period or two or more periods, in many cases separated by periods or phases of site abandonment. If we employ the method described above on a mixture of early and late ceramics from the same period, and even conceivably from different periods, we could (unless there were clues pointing to the facts of mixture) miss the distinction between early and late phases or periods and go on to construct an ideal position which pertains to a possibly nonexistent "middle" phase or period. It is for this reason that the site surface collections were constantly compared with 'real' assemblages from excavation.

Third, it should be mentioned that there is a factor of human error involved in taking ceramic collections on the surface, unless every single sherd is to be collected as is done in excavation. Within any reasonable time limit, the collection of all the pottery appearing on the surface would be an impossible procedure in the Teotihuacan Valley; but we did attempt to take samples as large as was feasible, especially of the distinctive sherds, such as all decorated types, rim sherds, basal angle sherds, etc. Nevertheless, it was inevitable to more readily collect the large, attractive rims and body sherds rather than the small, leached-out, dirty-brown rims. Our reliance on the collection of decorated sherds in itself skewed some mixed samples, in that decorated sherds in both the Patlachique and Tzacualli phases, for instance, are very rarely seen on the average exposed site, whereas such decorated sherds dominate the samples in many other phases.

Finally, it should be mentioned that while the collections have tended to be treated, within periods, as single assemblages (in the case of both Formative and Classic period sites, but more particularly in the case of the latter), some of the collections represent a very long time range, others represent ranges of but brief duration. To tabulate and sort nearly equivalent numbers of sherds from the two kinds of collection will inevitably produce distortions influencing the judgment of the relative strength of representation of the different time periods in the collections. To correct this tendency one might adopt a plan of weighting the earlier samples in a mixed collection, either by an arbitrary factor or selective collection. In other words, the uninterpreted tabulation is in itself often misleading. On the other hand, hundreds of small villages and hamlets, covering the entire chronological range, were occupied for short time periods, a single phase or two of our sequence, and such sites provided excellent type samples for seriation. In such cases these phases, defined by surface seriation, could be checked by data from the excavations.

In the course of this study, the inference of house types and other architectural forms, from mounds of varying sizes and appearances associated with the ceramics of a specific era, has been made on the basis of known excavated structures related to these varying periods. Unfortunately, the previously published literature does not include instances of completely excavated structures of all kinds for all phases, and our excavations were not extensive enough to wholly resolve this problem. Our data for the Formative period are particularly sketchy. We have no definite architectural data for the earliest period of sedentary occupation. At Zacatenco, Vaillant (1930, pp. 31-65) found, in his trenches through the refuse deposits, little structural detail beyond a few terrace wall bases and some lenses which may have been hard-packed earth floors. At El Arbolillo, similarly, this same investigator (Vaillant 1935, p. 158) discovered no direct evidence for structures, but has assumed the presence of disintegrated adobe for jacales of wattle-and-daub in his deposits. It is only in Late and Terminal Formative phases that Vaillant finds, at Ticoman, evidence for revetment walls for holding house terraces; indications of an adobe wall (but no floor plan), underground ovens, together with some rare and doubtful traces of house foundations (Vaillant 1931, pp. 221, 223, 225, 310-311). The Teotihuacan Valley Project excavations did yield some additional data on Late Formative (Cuanalan phase) houses and Terminal Formative (Tezoyuca phase) civic structures.

For the Teotihuacan, Toltec and Aztec periods, we require more excavations in dozens of mounds of different sizes and configurations, from all phases, to fill out our inventory of civic buildings and of house types. For example, the nature of Tzacualli and Miccaotli phase (Teotihuacan I and II) small houses remains completely unknown, except by inference, since none of these mounds has ever been excavated. The knowledge we have of Teotihuacan period rural house types depends completely on the work of the Teotihuacan Valley Project excavations enumerated below. We do have considerable data on some of the more elaborate as well as 'proletarian' housing of the Teotihuacan City's sprawling apartment-house constructions.

Fortunately, we have a few more 'knowns' to use in the field. First, we can say that the building materials available, and methods of fabricating these materials, remained a virtual constant (and somewhat limited quantity) in the region, from the earliest period of sedentary residence up through the Conquest. Again, we can assume a high degree of cultural conservatism in the house types in the region. All of the basic techniques of house construction and general layout of rooms, as well as arrangements of structures in relationship to one another, have been retained, in a general sense, once developed. The similarity of the adobe-walled room with its outside cooking area found at Cuanalan in a Late Formative ceramic context and modern day houses occupied in its vicinity may be noted. Again, in the Aztec period, a small multi-room stone house excavated at San Juan Teacalco was discovered to be constructed in much the same manner as modern stone houses, with inward facing arrangements, sealed doors for unused sections, etc. In fact, many of the modern houses in the valley incorporate stones from ancient houses in their structures.

Aside from the remains of substantial structures of adobe or stone the remains of a third, less clearly defined type of structure were found in the valley. It consists of a heavy concentration of sherds (including fragments of cooking pots), manos and metates localized in an area of less than 2 by 2 meters on a low rise of earth, but with absolutely no trace of stone such as appears in many mounds. The debris probably represents the remains of a hut constructued of perishable organic materials. If the soil on the mound is much grayer or darker than that in the surrounding area, this latter suspicion is increased. As the area over which the sherds are found has undoubtedly increased during the millenia, one can also infer that this hut, or jacal, was one room and probably housed little more than the nuclear family.

Site Typology

The distribution and number of architectural remains and refuse distribution in a neighborhood determines the settlement type assigned to the site. In this primarily descriptive study we are using a basic classification that includes the following categories: exploitation camp, family hamlet, lineage hamlet, multilineage village, barrio, town, elite residential center and city. Although such a typology is more than descriptive and suggests structural and functional characteristics, we feel that the assumptions made in its design are reasonable.

The term exploitation camp is used for cases where a few rim sherds of a phase were noted in the surface sample. Hamlets are permanent rural settlements with fewer than 100 inhabitants (sites where we estimate a maximum of 15-20 nuclear family residences). Some are small enough to suggest a single nuclear or extended family; other are large enough to have been occupied by a multi-family corporate

group. The use of the term lineage suggests a kin-like structure [a pattern of virtually worldwide distribution for rural settlements, so nearly universal ethnographically that we feel safe in making this assumption]. Villages are rural settlements larger in size than 15-20 nuclear family residences but lacking evidence of internal social differentiation. Because of their size we assume that they are multi-lineage communities. The term elite residential center is used for the Tezoyuca phase hilltop sites which are characterized by civic centers with very small but heavily concentrated residential areas. The term town or city refers to sites with substantial civic architecture, large settlement areas, and clear evidence of internal heterogeneity. The major distinction between towns and cities is primarily one of size: communities with probable populations in the thousands are classified as towns, in the tens of thousands as cities.

Personnel

Most of the general survey was conducted by Joseph Marino with substantial contributions by Charles Fletcher and William T. Sanders.

The intensive survey was conducted by the following personnel. Michael West surveyed most of the Formative sites, with assistance from Charles Fletcher and William T. Sanders. The Teotihuacan period sites were surveyed by Charles Kolb and Joseph Marino. Toltec sites were surveyed by John McCullough with some assistance from William T. Sanders. The Aztec sites were surveyed by Jeffry Parsons, William T. Sanders and William Mather, III. In cases of multiperiod sites, most of them were surveyed separately by the different teams to verify results. Each surveyor was accompanied by one or two local laborers who aided in survey and surface sampling.

EXCAVATIONS

All the excavations of the project were designed to resolve two major problems of the surface survey: the determination of the functions of the various types of architectural remains encountered, and the establishment of a ceramic chronology with a minimal capacity of definition by 100-200 year phases. Both objectives were successful, particularly when the data is combined with that from Millon's Teotihuacan Mapping Project and from the Proyecto de Teotihuacan of the Instituto Nacional de Antropologia e Historia.

Most of the structural remains encountered in survey consist of heaps of rocks and/or earth. They vary in dimension, shape and height and, particularly, in the proportion of basal area to height. Those

which were high in proportion to basal dimension were identified as temple platforms, those that were low and of considerable size as elite residences, "other" civic buildings or multifamily houses; small, low mounds were identified as nuclear or small, extended family houses. Only occasionally were walls of platform facings or internal walls visible in survey, and these primarily on Teotihuacan or Aztec sites. We were not even sure, during the early years of the project, whether the small mounds were the remains of platforms or represented the debris of collapsed walls and roofs. Excavations were conducted, therefore, in a number of sites ranging in date from Formative to Aztec to ascertain the structural and functional characteristics of the mounds.

Although the Basin of Mexico has been the scene of intensive research for at least 60 years, we still lacked a refined ceramic chronology--an urgent need for the success of the settlement survey. In fact, the published studies demonstrated that the kinds of controls we needed were available only for the Aztec period. The Formative and Teotihuacan sequences, on the basis of previous research (Sejourne, Noguera, Caso, Armillas, Linne, Gamio, Vaillant, Porter, Acosta, Muller, Tolstoy, Mayer-Oakes and Pina Chan), were divided into blocks of time two to three centuries long; the Toltec period was often treated as a single block of time five centuries long.

The reader will note considerable variability in the specific methodology of excavations; for example, in grid designations, definitions of arbitrary stratigraphic levels, techniques of mound excavation, etc. This was intentional. The project also functioned a a field school and a training program for graduate students and the program director felt that student excavation supervisors should have the maximum opportunity to design their own excavation and operating procedures. This, of course, presented problems in the processing of the data, but the feeling was that the experience for the students would be worth the resulting inconvenience. In each of the excavation reports, therefore, we have included a brief statement on the excavation procedures. The chart on page 19 summarizes the characteristics of the excavations. We have included the chronological positions of major occupational components only at each site.

In this volume we will report in detail on the excavations from Venta de Carpio, Cuanalan-West, Tezoyuca and Chimalhuacan. Only the first two included major components from later periods. In these case the discussion of the excavation will include all of the description o the excavation itself, but we will confine our artifact analysis to th Formative component of these two sites. The Aztec and Teotihuacan artifact components at Venta de Carpio and the Aztec at Cuanalan-West will be analyzed in later volumes in the series. The excavations at La Chiva, Tecorral, and Tolman were all small operations involving primarily troweling of shallow soil remnants from sites that were essentially areas of exposed tepetate, and these excavations are not described in this report. The material collected is treated as a surface sample but is used in our chronological phasing. The Oxtotipac Formative excavation involved a small trench in a road cut

with a soil deposit of mixed debris only 50-60 centimeters deep. We have simply sorted out the Formative from the Classic and Postclassic and used the small sample as a type collection for the Tzacualli time phase.

ARTIFACT ANALYSIS

Much of the discussion of artifacts in this volume refers to the sherd samples. The major objective in the artifact analysis was to establish and define a chronological sequence and the sherds obviously are the critical artifact category in terms of this objective. All artifacts found in excavation, however, were collected. Because of the problem of transportation not all artifacts were kept for detailed laboratory analysis. Of the sherds, for example, only rims, basal angles, appendages, and a selected sample of body sherds were kept, perhaps 10-20% of each sample. The body sherds, however, were divided into very general types based on color, wall thickness and surface treatment and counted before being disposed of. Obsidian, which made up the second largest category, was classified in the field into rectangular blades, irregular flakes, cylindrical cores, projectile points, scrapers and drills. Only a selected sample of the first two categories were kept. All of the last four were brought back for detailed study. All other types of artifacts were kept for laboratory analysis. In the case of surface samples, only sherds and ceramic figurines were consistently collected and brief observations in the field made as to the density and types of other artifacts.

With respect to artifacts other than sherds, this report is intentionally brief. Joseph Michels is preparing a full size monograph on the obsidian industry of the Teotihuacan Valley and only summaries are presented here. Detailed analyses have not been completed of the ground stone artifacts and ceramic figurines. Rather than delay the publication of this series of excavations and survey reports any further, we have decided to reserve these more detailed studies for a later monograph, which will also include technological analyses of the ceramics.

There are many ways in which archaeological artifacts may be classified, depending on the purpose of the study. Artifacts can be classified for the purpose of establishing a relative chronology, only with respect to function, and for the study of the technological processes for particular crafts. In each case the techniques of observation and classification will be different. In the series of reports that are included in this and Volumes 3, 4, and 5, we will focus almost entirely on the first two objectives. In our classificatory approach, we have tried to design a taxonomy which lends itself to both objectives. In the ceramic studies, for example, vessel form, the attribute most obviously relating to function, has been included

as a major taxonomic level. In the case of the Teotihuacan Valley samples, it worked exceedingly well since form is one of the most productive attributes with respect to chronological change.

More specifically, the approach used in sorting and typological groupings was to emphasize the tightest taxonomic level, that which many archaeologists refer to as the ceramic variety or subvariety. The focus was almost entirely on rim sherds. These were first classified into groupings each of which was composed of sherds similar in form, surface color and treatment, decorative technique and, to a lesser degree, decorative design. Quite obviously we did not expect to have absolute uniformity within a rim sherd group. Such a condition never pertains to any collection of artifacts, but variation was kept down to the minimum possible in this primary grouping. In a sorting procedure of this type one would obviously run into the difficulty of identifying small rims. These present, however, only minor problems in our collections since they include numerous large rims and the pottery of the valley tends to be highly standardized. Even relatively small rims can be related to vessel forms in most cases. Those which we were not able to classify were put into residual categories and broken down into varieties (based on fewer attributes).

In order to resolve the problem of maintaining standards of classification over months and even years of part-time study, the rim sherds collected from an entire excavation were labeled, then studied together as a single large sample. After sorting, each rim was then tabulated according to a number code with separate columns for different attribute categories (for example, vessel form, lip form, surface color, degree of burnishing, decorative techniques), and the sample was then reassembled by levels and grid units by using index cards. The defined varieties were then tested against the stratigraphic sequence and, ultimately, varieties were grouped into broader types and subtypes to facilitate description. It was on the type level that vessel form was emphasized.

The vessel form category or type was assigned a series of code numbers, such code numbers being recorded in the first two columns of the computation sheet. In most cases the overall forms were divided into form subtypes, a coding number system designed, and the numbers recorded in columns 3 and 4. Following this procedure, the rims were then sorted into varieties by decorative techniques and the code numbers that referred to this were placed in columns 5 and 6. And finally, in some samples the rims were broken down into subvarieties based upon variations in lip form, and the code numbers designed for this category were recorded in columns 7 and 8. As a result, each rim is described either by a 6- or an 8-column code.

As an example, the categories used in the Cuanalan ceramics are presented in Table 6. For example, in a case of a Cuanalan phase sherd carrying the code 01020202 the first two numbers (01) would tell us that it was a basal break bowl with a rounded base; the second two numbers (02) that it had an upper wall height of 4 cm; the third two numbers (02) that it was decorated by negative painting; the fourth

(02) that the lip had a moderate size exterior bolster. By using this detailed code, a total number of 182 subvarieties were defined among the 8 major Cuanalan phase types, and 49 other subvarieties were defined as either minor Cuanalan phase varieties or as subvarieties from other Formative occupations on the site. Each subvariety, using this system, is an extremely specific one and the total number of them account for virtually all of the variability that exists in Cuanalan ceramics, with the exception of paste and decorative motifs.

The reader will note that we did not use the same coding system for each of the four large excavated trenches from Venta de Carpio, Cuanalan-West, Tezoyuca and Chimalhuacan. We discussed the pros and cons of using a single system for the entire sample as against designing a separate use for each. The difficulty of capturing all of the observable variety in the total sample prior to analysis, considering the large size of the sample, seems to outweigh the gain in consistency of a size code. This became particularly evident since the sample was studied over an extended period of time. Furthermore, a particular form might occur in very low frequencies during a particular phase and it seemed pointless in such cases to create a great number of varieties, none of which would include more than two or three examples, just for the sake of consistency. We have included the coding keys for the ceramics of each phase as Tables 1, 6, 23 and 32.

PUBLICATION PLANS

As noted in Volume 1, we plan to publish a descriptive volume for each of the major periods of occupation of the valley, including the results from both the surveys and the excavations. Volume 2, the present volume, will deal with the Formative occupation; Volume 3, with the Teotihuacan period; Volume 4, the Toltec; and Volume 5, the Aztec. Volume 6 will include a general synthesis and an analytical statement on the results of the project. We will probably publish an additional two or three more specialized monographs on various classes of artifacts from the project. All of them will be published in the Occasional Papers series within the next three years.

Volumes 2-5 will be essentially descriptive and contain a bare minimum of interpretation. We are reserving this level of analysis for Volume 6. The credits for the presentation of this volume are as follows: The excavations at Cuanalan were directed by Charles Fletcher; the Venta de Carpio excavations by Anthony Senulis (who also assisted Fletcher in the 1962 excavations at Cuanalan); and the Tezoyuca and Chimalhuacan excavations were directed by Michael West. Joseph Marino did most of the general survey that located the Formative sites. The intensive survey of the Formative was conducted primarily by Michael West with some assistance by William Sanders and Charles Fletcher. Charles Fletcher and Michael West studied some of the artifacts from

the Cuanalan and Tezoyuca excavations, respectively, for their Master's theses. Subsequently, the entire sample from the four excavation sites plus the surface samples were studied by Michael West and William Sanders. Joseph Marino prepared the maps for the surface survey--a major undertaking. With respect to the writing of the report, most of it was written by Michael West and William Sanders but substantial portions have been included verbatim from the Master's theses of Charles Fletcher and Joseph Marino. Other major contributions, in the form of the tabulation of data and in preparations of the drawings, tables, and photographs, were made by John Warner, James Dutt, Joseph Marino, Carl Bebrich, Kenneth Brown, Kathleen and Lili Sanders. Willia Mather, III, was field photographer and was particularly responsbile fc the production of the 1:4000 survey aerial photographs.

Site Name	Formative Component	Classic Component	Toltec Component	Aztec Component	Nature of Excavation
Venta de Carpio	TF-5 (Chic)	TC-10 (Micc-Tlam)		TA-9 (Chim)	2 test trenches
Cuanalan (West)	TF-38 (Cuan)			TA-162 (Zoc)	2 residences
Tezoyuca	TF-101 (Tez)				1 platform of an elite residence or civic building
Chimalhuacan	Outside Teo. Valley (Pat)				3 test trenches
La Chiva-Tecorral	TF-1-70-71 (Chic-Pat-Tzac)			TA-52 (Chim)	2 test trenches
Oxtotipac-street	TF-37	TC-113			1 test trench
Tolman	TF-64 (Tzac)				1 test trench
Maquixco Bajo		TC-8 (Micc to Xol)		TA-219 (Chim)	3 large houses plus temple
Tenango		TC-49 (Micc to Tlam)			2 test trenches including a residence
Tlatenco		TC-40 (Micc to Xol)			1 residence
Xometla			TT-21 (Xom)		1 platform of an elite residence or civic building
Cuanalan (East)			TT-28 (Xom)		1 residence
Maquixco Bajo			TT-25 (Maz)		Several test trenches

Site Name	Formative Component	Classic Component	Toltec Component	Aztec Component	Nature of Excavation
Oxtotipac Cave			TT-83 (Ox)		1 test trench
Metepec Highway			TT-98 (Maz)		Several test trenches
Tepexpan				TA-18 (Chim)	1 platform of an elite residence or civic building
Teacalco				TA-40 (Ch-Tea)	1 residence
Totolcingo				TA-13 (Ch)	1 temple platform

Part 2

EXCAVATIONS AT VENTA DE CARPIO (TF-5)

Early in the 1963 field season one of the surface survey teams located a cluster of prehispanic sites along the margins of and within the desiccated bed of Lake Texcoco. One of these sites, TF-5, is located between Venta de Carpio and Atlautenco, south of and adjacent to the Mexico City-Teotihuacan highway.

The setting of the site is typical of the immediate lakeshore edge, almost perfectly flat terrain, soil impregnated by salt, and covered with a spiky grass vegetation (see Plates 109b, 110a). The area was undoubtedly seasonally flooded and suffered periodic major inundations by salt water from the lake during years of unusually high rainfall. The surface remains consist of localized concentrations of pot sherds and obsidian tools, particularly heavy on a number of low earth mounds. The latter occurred in two clusters, located 150 meters apart, each consisting of four mounds. Most of the surface pottery on the mounds is Aztec and they are undoubtedly the remains of house structures from that period. The site is criss-crossed by drainage ditches. In the debris from these ditches the survey team noted heavy concentrations of Formative, Teotihuacan and Aztec pottery. Much of the Formative seemed to pertain to Vaillant's Lower-Middle Zacatenco, and the Teotihuacan pertain to the earlier phases of the period.

THE EXCAVATIONS

We decided to conduct test excavations at the site to obtain samples pottery from the various periods as controls for our surface survey. further reason for excavation at the site was to gather data bearing the question of lake levels of Lake Texcoco. This information, in turn, would be useful in a study of major climatic phasing in the history of the Teotihuacan Valley. Two excavations were conducted an will be referred to here as Trench 1 and Trench 2.

Trench 1. A base line was laid out east-west and a zero stake placed at the west end of the line. A trench was then measured off extending from 5E to 9E, 0-1S and divided up into 1 meter sections. Each section was excavated as a unit using a combination of artificia natural and arbitrary stratigraphic levels, primarily the last. The natural and cultural stratigraphy throughout the initial trench and subsequent extensions varied so little that the same levels were used throughout. These levels are as follows: 0-12 cm, 12-30 cm, 30-50 c 50-70 cm, 70-80 cm, and 80-90 cm. In a few sections, the excavation was deepened further to a maximum depth of 360 centimeters. Corresponding levels were removed from each section in sequence (Plate 1a, b; Figure 2).

At the 50-57 centimeter level of section 5E-9E, 0-1S, skeletal fragments, indicating a burial, were encountered (Plate 1c, 2a; Figure 4). The trench was then expanded to include section 4-5E, 0-1S to facilitate the removal of the burial. For the same reason two additional sections adjoining the main trench to the north (4-5E, 0-1N and 5-6E, 0-1N) were included. Concurrent with this activity the balance of the original trench was excavated down to a depth of 80 centimeters. A heavy deposit of Formative period jars was excavated 75 centimeters below the surface in square 7-8E, 0-1S. On the basis of this discovery the sections 6-7E, 0-1N; 7-8E, 0-1N; and 8-9E, 0-1N were also opened up for excavation. The trench had now expanded to an area 2 meters north-south by 5 meters east-west. Subsequently the trench was expanded to both the north and east to include a total of 25 1-meter squares or a total surface area of 25 m^2.

A test square measuring 2 by 2 meters, including the sections 9-10E, 0-1N; 9-10E, 0-1S; 10-11E, 0-1N; and 10-11E, 0-1S was excavated to a total depth of 3.6 meters below the surface. This will be referred to in the report as the test pit. The rest of the sections varied in depth from 50-140 centimeters.

Trench 2. Trench 2 was located on the edge and slightly within the body of Mound TA-9E, approximately 5 meters to the north of Trench 1 (Plate 2b, c; Figure 3). The trench was laid out north to south, with the north end being within the body of the mound. It was 1 meter wide and 5 meters long. A separate datum point was used from that used in Trench 1. The trench was excavated in arbitrary 20-centimeter levels by sections, as in the case of Trench 1. The total depth of the sections excavated varied from 80-100 centimeters.

The Soil Profile

The first feature encountered in the excavation was a layer of salitre or lime impregnated soil that extended 12-18 centimeters below the surface in Trench 1 and 20-26 centimeters in Trench 2 (these differences are the product of building up of soil in the mound). Level one was separated on the basis of this natural feature. The soil in Trench 1, between the surface and approximately 30 centimeters below the surface, was hard packed. From approximately 30 centimeters below the surface to 140 centimeters the soil consisted of a number of bands of loam, varying in texture from moderately fine grain to sandy. The Formative occupation was concentrated primarily in the band between 50-90 centimeters below the surface. Most of the pottery above this level is Aztec. The Formative occupation has a maximum depth of 120 centimeters. In Trench 1, at a depth of 80-85 centimeters below the surface in the area between 4-11E, was a hard packed surface that probably represents a Formative occupation floor. The heaviest concentration of Formative pottery occurred immediately above and below this level. The cultural deposit generally consisted of pot sherds (including a number of partially restorable vessels), obsidian

artifacts, grinding stones, figurine fragments (primarily dating from the Teotihuacan period), and a few scattered human and animal bones. At a depth of 145 centimeters below the surface a layer of hard, solid caliche was encountered in the test square. This extended undisturbed to a depth of 180 centimeters. Between 200 and 360 centimeters the soi deposit consisted of a series of bands of sands of varying color and texture. No cultural material was found in this deposit or in the caliche (see Plate 1b, 3; Figure 5).

Caliche is a crust of calcium carbonate that forms within or on top of the soil of arid or semi-arid regions. To the best of our knowl edge, the soil cover of the entire lower portion of the Teotihuacan Valley is underlain by a layer, or layers, of caliche. Three major periods of caliche formation have been distinguished for the Basin of Mexico: the first two during the period corresponding to the Wisconsir glaciation c. 65,000 to 40,000 B.C. (or perhaps as late as 25,000 B.C.) (Mooser et al. 1956). The layer of caliche exposed in our excavation at both Venta de Carpio and Cuanalan (see Part 3) probably belongs to the third period. It is reasonable to assume that it is fairly late i time, since the cultural deposits in both sites are found on or slightly above the caliche surface itself and at Cuanalan extend through gaps in the caliche. Either conditions greatly retarded soil deposition for a considerable time after the formation of the caliche, or wind erosion has removed much of the soil profile (see Kovar 1971, p. 23). The human occupation on the surface of the caliche would therefore be of little chronological significance.

Features

Feature 1. In square 5-6E, 0-1S, in the 50-70 centimeter level, a portion of a human skeleton was encountered and a burial was suspecte (Plate 1c; Figure 4). At this point the trench was expanded into squares 5-6E, 0-1N; 4-5E, 0-1S; and 4-5E, 0-1N to uncover the burial. The burial was very badly disturbed and most of the bones were missin Enough was present, however, to indicate that it was flexed, placed o the right side, with the head facing approximately to the northwest. The soil within and around the skeleton was impregnated with sherds a figurine fragments (the latter pertaining primarily to the early Teotihuacan period) that probably were parts of the funerary offering The burial lay entirely within the 60-70 centimeters level and was situated 10 centimeters above the Formative occupation floor. Nearly all of the burial lay within the square 5-6E, 0-1S. Immediately nort west and west of the burial area in squares 4-5E, 0-1S, 0-1N and 4-5E 1-2N was a heavy concentration of early Teotihuacan pottery including several restorable vessels. The sample was concentrated at a depth from 60-80 centimeters and rested on the old Formative living floor. It is conceivable that most of the debris was once part of the funer offering.

Feature 2. In square 4-5E, 1-2N or immediately north of the edge of the midden in Feature 1, at a depth of between 50-70 centimeters below the surface, an adobe wall was uncovered (Plate 1d) that crossed the north extension of the trench from east to west. Its identification as a wall is uncertain since it appeared to be homogeneous in structure with no indication of brick-like coursing. It was constructed of hard compact, clay textured dirt and was relatively easy to detect in the softer soils that covered it. Conceivably, the midden and the burial were either within a house or immediately outside of one and dated from the Teotihuacan period, but time did not permit further expansion of the excavation.

Feature 3. In section 7-8E, 0-1N, 0-1S, a heavy concentration of Formative pottery was encountered at a depth of approximately 75 centimeters and immediately above the Formative living floor. Most of the material apparently came from a few large jars.

Feature 4. In Trench 2, in section 2-3N, 0-1W and 3-4N, 0-1W in the 60-80 centimeter level, a heavy concentration of large sherds, including several restorable vessels, were found dating to the Early Teotihuacan period (see Plate 2d; Figure 3).

INTERNAL CHRONOLOGY AND SITE HISTORY

The ceramic analyses indicate that at Venta de Carpio there were three major periods of occupation, separated by long periods of time with only sporadic utilization of the site. These periods of occupation were the Middle Formative, Early Teotihuacan and Aztec (primarily very late Aztec). The periods of intervening abandonment of the site must have been between 600-1000 years if our present understanding of the absolute chronology of the Basin of Mexico is correct.

The caliche layer defined in the test squares lies at a depth of from 148-180 centimeters below the surface. As noted previously this deposit probably corresponds to Mooser's Caliche Three Period. Below this are deep deposits of coarse and moderately coarse sands. The stratigraphy duplicates that found at Cuanalan (see next chapter).

Above the caliche is 25 centimeters of sterile loam with no indication of occupation. Presumably this soil was accumulated during the pre-Middle Formative, post-Caliche Three period of time. The Middle Formative occupation of the site is concentrated in the 50-90 centimeter level with productive pits dipping down to 110 centimeters and scattered sherds found as deep as 120 centimeters. There is no indication of internal phasing within the assemblage. Presumably it represents a total period of not more than two centuries. The ceramic

assemblage, however, is internally quite complex and variations occur within the basic functional forms that do suggest possible phasing. Our stratigraphic evidence, however, does not permit the definition of such phases.

The living floor of the Middle Formative phase occupation is apparently the 80-90 centimeter level. The floor described previously may represent the earth floor either of a house or of a courtyard. The distribution of refuse would seem to suggest small adobe structures with intervening unroofed courtyard areas, probably not very widely spaced from each other, perhaps comparable to the Aztec house clusters visible on the surface. The density of debris suggests a permanent village rather than a camp or seasonal function site. On the other hand, the absence of figurines, lack of correspondence of stone tools with levels dominated by Formative sherds (they seem to correlate with the Teotihuacan and Aztec levels), and peculiar ratio of pottery vessel forms suggest a special exploitation site. The density of sherds does suggest frequent and prolonged use, however. At any rate, it was a very small settlement, since the distribution of surface pottery of the Middle Formative phase is found over an area not exceeding 2-3 hectares. The village certainly had a population of fewer than 100 inhabitants during this phase. In our contemporary settlement pattern studies we are referring to permanent, nucleated, rural settlements of less than 100 inhabitants as hamlets.

The sample did not provide any direct clues as to the nature of the subsistence pattern. Its location near the lakeshore would suggest fishing but we found no evidence of such activity. Of course, if nets were used such negative evidence is not too meaningful. Because much of the immediate lakeshore plain around the site must have been salt impregnated then as it is today, agriculture was probably not the major source of subsistence for the village. As we shall demonstrate at a later point, the probability is very high that it was a specialized salt-making station.

The Early Teotihuacan occupation is substantially heavier than the Formative, yet the spatial distribution is similar. This might indicate a larger, more tightly nucleated settlement, but we have no direct data on house site distributions. The heaviest Teotihuacan occupation lies between 12-70 centimeters, thus directly overlapping with the Formative occupation in level 4. A substantial amount of Teotihuacan pottery, however, does occur as deep as 80 centimeters and scattered sherds may occur as far down as 120 centimeters. There has obviously been considerable mixture of the two occupations, and it is questionable that we would have been able to sort out the ceramics chronologically without previous knowledge of the Basin of Mexico sequence. The burial described previously is probably one of the factors that produced this mixing.

Of considerable interest is the fact that the heavy Toetihuacan occupation lies to within 20 centimeters of the Middle Formative living floor. This suggests the following possibilities as to site history. First, the settlement pattern was probably one of roofed structures

widely separated by courtyards or open spaces. Within a century or so after the abandonment of the site by the Middle Formative people, it probably resembled very much the present land surface with scattered mounds or earth debris from ruined houses and flat open spaces in between. In other words, it looked pretty much the way it does today with the Aztec mounds. The Teotihuacan population may have used the mounds as residential platforms, deposited some of their refuse directly over the older middens, and have thrown the balance in the lower spaces in between the mounds. Burials and cooking pits would further disturb the stratigraphic position of material and the result would be an overall tendency for vertical superimposition but much mixture of deposits. The Teotihuacan period artifact assemblage suggests a more typical peasant community since the entire array of ceramic and stone artifacts were present. Its lakeshore position, within an area of salinized soils, perhaps suggests a fishing or salt-making rather than agricultural subsistence base, but direct artifact confirmation of this is lacking.

The Aztec occupation was considerably lighter and the settlement pattern much less dense. The site at this time was composed of two clusters of house mounds. They represent the outer fringe of a huge site scattered up the slope of Cerro Chiconautla (TA-9). The occupants may have been professional fishermen and have served as a specialized component within the larger site. The Aztec occupation was concentrated in the 12-30 centimeter level, with sherds only scantily represented in level 1 and with some heavy deposits occurring down to the 30-50 centimeter level. Scattered sherds are found as deep as 100 centimeters.

Of considerable significance in terms of our interest in the history of settlement patterns of the Valley of Teotihuacan as a whole is the history of the occupation and the accumulation of soil at the site. Why was the site occupied three times and abandoned in the intervening periods? Why did only 20 centimeters of soil accumulate over a period of at least 800 years between the Middle Formative and Miccaotli phases, none between Miccaotli and Aztec, and only 12 centimeters during the 450 years that have elapsed between the Conquest and today?

We feel that both the intermittent occupation and the low rate of soil deposition must relate to the history of the lakeshore. The area around the site today is impregnated with salt from the periodic inundations of Lake Texcoco. The soil texture is exceedingly fine and constantly exposed to wind erosion. The only vegetation that will grow is a sparse, spiky grass that only partially protects the soil. If the three settlements were established near old shorelines and lakeside residence was the motivation establishing the settlement, then the intermittent occupation suggests equivalent lake levels during Middle Formative, Early Teotihuacan and Aztec times with intervening phases in which the lakeshore was either lower or higher than it was during those three phases. The low rate of soil deposition suggests exposure of the site area to wind erosion and, therefore, lower lake levels rather than

higher ones. The Late-Terminal Formative, Late Teotihuacan and Toltec periods, therefore, would seem to correlate with phases of lowered lake levels.

CERAMICS

With regard to intensity, most of the excavated ceramic collection from Venta de Carpio falls into two primary and one secondary phases. The two primary phases include an early phase equivalent to Vaillant's general Lower Middle Culture (or in terms of Mesoamerican history generally, the Middle Formative), and a later phase equivalent to Armillas's Miccaotli or Vaillant's Teotihuacan II phase. The secondary occupation pertains to the Aztec period. There are a few sherds that pertain to Vaillant's Upper Middle Culture or the general Late Formative period in Mesoamerica, to Vaillant's Teotihuacan III-IV (Xolalpan) phase, and to the Late Toltec (Mazapan).

As the product of surface seriation and excavation, in connection with the Teotihuacan Valley Project, we have divided the Late Formative Upper Middle Culture or Late Preclassic, as it is variously called, into a number of phases (see the succeeding chapters in this volume) named in order of time: Cuanalan, Tezoyuca, Patlachique and Tzacualli (Teotihuacan I). The few sherds from Venta de Carpio from the Late Formative are primarily of the Patlachique phase, with very few Cuanala and Tzacualli sherds. In the following analysis we will describe in detail only the Middle Formative pottery. The Late Formative pottery will be only briefly described since we present a much more detailed discussion in the following excavation reports in this volume. The Early Teotihuacan sample will be discussed in a separate volume (3) on the Teotihuacan period excavations and the Aztec pottery will be reported in a volume on the Aztec excavations (Volume 5).

In the statistical analysis presented below only rims will be used but the descriptive data is based upon all sherds. The breakdown of th rim sample from Venta de Carpio is as follows:

Middle Formative phase	826
Late Formative phases	42
Formative period (phase uncertain)	20
Subtotal, Formative period	889
Teotihuacan period	1073
Aztec period	402
Unclassifiable	109

By way of anticipation, the sample from the Middle Formative seems relatively homogeneous with little evidence of internal seriation. A major problem in using the sherds from Venta de Carpio to define this phase is the striking skewing of the sample towards the bay war jars with very few service ware sherds represented. In order to provide a more complete type sample, we have included surface samples from several survey sites (TF-5, 8, 17, 21 and 27) along with a few excavated sherds from the Tezoyuca hill site (TF-101), a primarily Late Formative site. The samples from the excavations and the surface sites as a whole form a complex that contrasts sharply with the later Formative phases. They also suggest internal phasing with TF-21, 101, 17 contrasting with TF-5, 8, 27 and Venta de Carpio. On this basis two phases, both Middle Formative in date, are defined: Altica, the earliest, and Chiconauhtla, the later. The division equates roughly with Vaillant's Early and Middle Zacatenco and the relative time position indicated here is based on comparison with Vaillant's sequence. All of the rim sherd counts included parenthetically after the headings in the ceramic type descriptions refer to the Venta de Carpio sample. The surface samples, hen used in the type descriptions, are noted in the text of that description. We used them primarily in the analysis of the 07 category of vessels.

Rim sherds from the Altica-Chiconauhtla phases have been classified into four basic vessel forms that will be referred to as types. These are jars, basal break bowls with rounded bases, hemispherical bowls and tecomates. The types are then broken down into subtypes based upon specific variations in vessel form; varieties and subvarieties based upon variations of surface color, surface treatment, lip form and decorative techniques (see Table 5 for the Rim Sherd Key). Where counts are provided for rim sherds in the description below, they refer to the Venta de Carpio sample unless otherwise specified. Figures 17-29 are all rim profiles that illustrate the types described below. Surface treatment and deviation are illustrated in Plates 9-14.

Jars
(01, 649-674 Rims, Figures 17-20)

Of the 827 rim sherds from Venta de Carpio, 649 pertain to jars. There is, however, one problem in using this category. Many jar rims are difficult to sort from basal break bowls with rounded bases of the same paste and surface color. For this reason, 25 rims were placed in a doubtful category of either jars or basal break bowls. It is possible that we were overconfident in assigning some of the other rims as jars, since only 17 rims altogether were assigned definitely to the basal break bowls with rounded base type. At any rate, putting the two forms together they make up 691 of the 827 Middle Formative rims from Venta de Carpio.

Nearly all jar fragments correspond very closely to Vaillant's "bay ware" type in which a well-burnished reddish brown color is the characteristic surface feature. Variations in surface color are slight with a number of sherds ranging from tan to dark brown. Surfaces are generally well burnished on the exterior and the interior neck, often presenting a streaky appearance. There is considerable variation in lip form, neck profile and neck height. The most common subtype is a direct rounded or slightly thickened rim, combined with a concave neck profile (010100, Figure 17, Plate 11d). Overall, 358 rims were classified in this subtype. A second common subtype (010200, 205 rims, Figure 18, Plate 11c, f), has a similar neck profile but possesses a pronounced, rounded lip bolster. These two variations together make up approximately 86% of the jar sample.

The balance of the jar rims fall into five form subtypes, exterior flattened lips (010300, 3 egs, Figure 19a-c), multiangular rims (010400 4 egs, Figure 19d, e) (both are rims with several beveled surfaces); decorated rims (010500, 12 egs, Figures 19f-h, 20a-c) (in form these are similar to subtypes 010100 and 010200 but possess in addition applique lugs on the lip or a row of punctates on the superior lip surface; see Plate 11b, e, g); cupped rims (010600, 11 egs, Figure 20d-f); rims with a convex outer profile and a scooped out or concave inner profile representing a cupped effect (two sherds have a thick band of greyish white paint applied to the rim exterior); and jars and/or basal break bowls with rounded bases (011100, 25 egs, Figure 20g, h) The last includes rims that cannot be definitely assigned to either of the two form types. Most of them are similar in lip form to the first two subtypes, most commonly the second (010200). A final category includes weathered jar rims (011300, 56 egs). These are all badly eroded or weathered jar rims. Most of them are probably from the Chiconauhtla phase and are either 010100 or 010200 subtypes. Some of them could be Late Formative in date.

Jar rim diameters vary from 22-32 centimeters so that this may be considered as the modal size. No data is available on modal vessel height, but the large numbers of body sherds found and their angle of curvature do suggest that these jars were of considerable size and were probably used more as storage than cooking vessels. Apparently handles were absent.

Basal Break Bowls with Rounded Bases
(02, 55-80 Rims, Figures 21-23, 24a-c)

The term basal break bowls with rounded bases is used for bowls with a composite silhouette. They are a diagnostic Formative period form in the Basin of Mexico and go through a consistent evolution from the earlier to the later phases of the period with respect to specific form. Typically the profile is characterized by an upper and a lower segment with a definite angle break at the junction. The upper segment may be outwardly flaring, vertical or insloping and varies in profile

from markedly concave to slightly convex. The lower segment is always deep and convex in profile. There may be an additional flattening and, consequently, an angle break at the base and the vessel may or may not be accompanied by supports. There are also striking differences in the ratio of the height of the upper to the lower segment. All these varieties have diagnostic values in the internal phasing of the Formative period.

Bay Ware Subtype (0207, 34-59 Rims, Figures 20g, h, 21a-e, 24a). The upper segments of these rims vary from 5-8 centimeters. These vessels have a surface color and treatment very similar to Vaillant's bay ware jars and he grouped this subtype with the jar sherds into a bay ware type. The surfaces differ from the jars in that the entire interior is burnished. As has been noted, small rims are difficult to sort from jars. The lip forms are also similar to the jars with simple, thickened and bolstered lip variations. Particularly common is the bolstered variety. These vessels may, therefore, have been much more numerous than our tabulations suggest. Of the 34 rims we have assigned to this subtype, 17 are of the standard color and surface treatment (020702, Figure 20g, h); 9 have been fired a darker color, black or dark brown (020712, Figure 21a, b); and 8 have red paint applied in bands to the exterior or interior on a tan surface (020701, Figure 21c-e). One rim, from TF-27 (020705), has a typical bay exterior but has a thick cream slip on the interior along with incised design (Figure 24a, Plate 12b). The three varieties have been tabulated separately but we doubt that the dark surface color has any diagnostic value. The vessel form of all of the vessels is characteristic of Vaillant's Lower-Middle Culture composite silhouette bowls (basal break bowls with very high vertical upper segments in proportion to the depth of the lower segment). During the later phases of the Formative these proportions are reversed, with much lower, often flaring or insloping upper segments and much deeper lower segments. Three rims that were measured varied in diameter from 26-34 centimeters.

Decorated Bowls (0209, 0208, 17 Rims). The 0209 vessels differ from the 0207, 0208 subtypes in that the lower wall is only 4-5 centimeters high. They also differ from similar low-walled vessels from the Late Formative in that the upper segment often flares sharply outward and the lower portion of the vessel has almost the appearance of the hemispherical bowl. This is a composite subtype that includes a number of varieties which are described below. The 0208 vessels are identical in form to the 0207, but have incised design.

Red-on-White (020903, 6 Rims, Figures 21f-i, 22a-g, 23g, Plates 9g, 12a). This variety has a thick, flaky white slip over which are painted solid geometric designs in red paint. Four of the six rims are from vessels similar in the proportion of upper to lower segments to the bay ware bowls but with an outward flare to the upper segments. They have direct rounded rims. The fifth is from a small vessel with a very low and sharply flaring upper segment and a bolstered lip. Characteristically the interior of the upper segment has the red design.

The sixth is similar to the rounded bolstered variety of the bay ware, with a red rim band and an exterior cream slip. One unusual rim has an incised interior line (Figure 23g).

White Slip, Incised (020905, 5 Rims, Figures 22h-j, 23a-d, Plates 10f, h, 12c, d). In some sherds a chalky white slip is applied to both the exterior and interior surfaces of the vessel and in others the exterior or interior only. In the first case the upper segment is vertical, in the last case it is sharply flaring. The incision consist of one or two encircling lines; exterior in the vertical wall variant, interior in the flare sided case.

Red-on-White, Incised (020904, 2 Rims, Figure 23e, Plate 10e, g, i These are vessels similar in form and paste to the bay ware basal break bowls with rounded bases. They do, however, have thinner walls. The upper segment also flares outward much more sharply, the lip is flat an has a superior groove. They also have red-on-white bichrome painting on the interior and parallel incised lines on the interior lip.

Dark Brown Vessels with Incised Design (020809, 4 Rims, Figure 23f, h-j, Plate 10b). These are similar in form to the bay ware bowls in the proportion of upper to lower segments and in the vertical angle of the upper segments. They are thinner walled vessels, however, and have a dark brown surface color. The profile of the upper segment may be strikingly concave or slightly convex. Geometric incised designs occur, frequently presenting a wide, shallow, scraped appearance. One large, almost restorable vessel has a rim diameter of 24 centimeters.

Unique Type (0211, 2 Rims, Figure 24b, c). Two rims from Venta de Carpio are unique and we have grouped them together as 0211, even thoug they are different from each other. One is a high walled basal break bowl with a typical bay ware finish and paste. It differs from the 020 samples profile and has an orange lacquer-like slip (Figure 24c).

Channeled Type (0210, 2 egs, Plate 10d). Two rims from Venta de Carpio have a dark surface and are decorated by horizontal channeling.

Hemispherical Bowls
(07, 73 Rims, Figures 24d-i, 25-29d)

Numerically hemispherical bowls are a secondary type in the Venta de Carpio sample. This, however, is not peculiar to this particular service ware since the entire sample is heavily weighted towards the bay ware jars. Evidence from the two surface samples from TF-8 and TF-21, both inland sites, would suggest that the lakeshore site is aberrant in this respect and that service vessels, including hemispherical bowls, are much more abundant in the normal village or hamlet sites. We have relied very heavily on surface samples from thes

two sites to more fully document this form. The notation of rim numbers in the headings, however, refer only to the excavated sample from Venta de Carpio. The subtypes and varieties break down as follows.

Lacquer Slipped Bowls (07200, 5 egs, Figure 24d; Plate 9e). This is a minor subtype we have sorted out because of its special surface characteristics. Five rims were found at Venta de Carpio, none from the two surface samples. The rims are tapered and the surface has a hard yellow or cream slip. The paste is denser and more compact than most of the wares from Venta de Carpio and is noticeably finer.

Hemispherical Bowls with Incurved or Sharply Curved Rims (0721, 13 egs). Many of the rims in this category curve inward like the typical tecomate rim (although in most cases the mouth opening is proportionally wider or, if vertical, have a stronger convex profile). Five varieties were defined on the basis of surface treatment. These are as follows.

Reddish-Brown with Beveled Lip (072102, 4 Rims, Figure 24e). These have surface colors and textures very similar to that of the bay ware jars and basal break bowls. The rims have flattened superior surfaces or are beveled obliquely to the interior and the rim is typically incurved. They are absent from the two surface samples.

Red-on-White or Reddish-Brown (072103, 3 Rims, Figure 24f, g, Plate 14c). These are bay ware vessels which have a thick cream slip applied to the exterior and a band of red paint on the lip. The lip also has interior beveling. The three noted rims were from Venta de Carpio; one rim from TF-5 has somewhat more elaborate design (Plate 14c). These rims are typically incurved.

White Slip, Incised (072105, Figures 24h, i, 25a, Plate 14a). This variant was not found in the Venta de Carpio sample. Our analysis is based on a sample of six rims from TF-8 and one from Tezoyuca (TF-101); a similar rim from TF-27 lacks the incision. These are all thick-walled vessels, the rim is generally upright but with a more convex wall profile. All have a thick white slip applied to the interior and exterior. Following the application of the slip the exterior surface was incised. Design includes a panel bordered by a double incised line placed just below the lip and a parallel incised single line at the shoulder break. The intervening space is occupied by a series of incised arcs in which the open ends are joined to the lower bordering line and the convex surfaces directed upward.

Burnished Brown Incised Bowls (072109, 3 Rims, Figure 25b, Plate 14b). These were found only at Venta de Carpio. They are of the bay ware type, although generally darker in color than the mode of this ware. The incised design is shallow and has a slipshod, scraped appearance, comparable to that found in basal bowl variety 020809. The lips have interior beveling; the rim is upright but there is a pronounced shoulder at the basal angle.

Burnished Black (072110, 3 Rims, Figure 25c). These are all from Venta de Carpio and are somewhat darker examples than the 072109 type but lack the incised and other designs. Two rims have internal beveling, the third has a bolstered rim. The rim is typically vertical but the wall profile is strongly convex.

Channeled Hemispherical Bowls (072202, 11 Rims, Figure 25d, Plate 10c). This subtype includes a series of 11 rims from Venta de Carpio. They are all hemispherical bowls but generally have either upright rims or slightly insloping rims. They are highly variable in surface color but tend to be darker in color. Their diagnostic feature is the parallel horizontal channeling on the exterior surface. Lips frequently exhibit some internal beveling.

Beveled Lip Bowls (0723, Figures 25e-i, 26a-e). These are very distinctive vessels. With the exception of the lip area the body of the vessel is a typical hemispherical bowl, although most examples are rather shallow in proportion to mouth diameter. The most distinctive feature of this subtype consists of the modification of the lip. The lips are obliquely beveled and the angle between the lower interior edge of the bevel and the vessel wall is often so sharp as to leave a pronounced ridge-like feature. A number of varieties are defined based upon surface treatment and are listed as follows.

Red-on-White Plus Incision (072304, 1 Rim, Figure 25e-g, Plate 13c, d). One of these was from Venta de Carpio, the other from TF-8. In both rims, the red paint is applied to the superior surface of the lip as is the incised design. The interior body and exterior body up to the lip have an overall streaky white surface. In both cases, the lip is extended or prolonged outward.

Red-on-Buff (072301, Figure 25h, i). Only two examples of this variant were found, both from the surface sample from TF-8. Both have a red slip on the superior lip and the inner wall with the exterior surface being the natural reddish-brown of the clay. In both cases, the upper surface of the lip is beveled and there is a pronounced ridging on the interior lower edge.

White Slip Plus Incision (072305, Figure 26a-d, Plate 13a, b). These are all vessels with an overall white slip with incised design on the interior surface of the lip. They have the characteristic interior bevel to the lip. The lower edge of the bevel may be pinched to form a very sharp ridge-like projection. Incised design occurs on the beveled surface. Though none of the rims was found at Venta de Carpio, 28 came from TF-8, of which 12 had definite traces of white slip, the remainder being badly weathered. Seven rims were found at TF-21 and five at TF-101.

Flanged Rim, White Slip Plus Incision (072315, Figure 26e, Plate 13e). These are very distinctive vessels with a characteristic flattening of the superior surface of the lip. They differ, however, in the presence of a prolongation of the outer edge of the lip to form what might perhaps best be called an everted rather than a beveled lip. The outer edge of the rim is also distinctive in that there are a series of projecting lip-like flanges. The superior surface, that is the beveled or everted surface, carries the incised design, as in the other varieties. The variety is present in the surface samples from TF-21, 17, 55 and 101 and is absent at Venta de Carpio.

Everted Lip Bowls (0724, Figures 26f-i, 27a-c). These are all rims from hemispherical bowls with normal bowl shaped bodies but with sharply everted rims. The everted rim projects 2-3 centimeters out from the main vessel wall. They could be described as lower wall variants of the 0209 vessels, since the decorative techniques that accompany them are identical to those found in these vessels. The lips on all of the vessels show a strong tapering tendency with a pronounced thickening at the junction of the rim with the main vessel wall. Several major varieties were defined on the basis of decorative technique.

Red-on-White Plus Incision (072404, 2 egs, Figure 26f, Plate 13g). These have an overall white slip with red paint applied over the white slip on the everted surface. The red paint was applied prior to the incision since the incised lines cut through the layers of red and white paint. Four examples were from TF-8, four from Venta de Carpio.

White Slip Plus Incision (072405, 3 egs, Figure 26g, h, Plate 13f). These are identical in form to the 072404 but lack the red painted band. Some of them may have had red paint which has been lost through erosion. Three examples were found at Venta de Carpio, two from TF-8.

Weathered Rims (072411, Figures 26i, 27a, b). These are probably badly eroded rims of the 072405 and 072404 category. All lack definite evidence of incision and all have traces of white slip. Six were found at TF-8. An additional 11 rims from TF-8 are similar in form but lack any traces of white slip. Probably, however, they are simply weathered examples of the mentioned varieties.

Red-on-White with Lip Notching (072416, Figure 27c, Plate 14e). This is a single rim from the Tezoyuca (TF-101) excavated sample. The rim resembles very closely those from the 072404 category but has a row of notches incised along the superior edge of the rim.

White Slipped Molcajetes (072805, Figure 27d-f, Plate 12e, f). A surprising discovery from the TF-21 surface sample were a series of bases and basal angle sherds with interior design very comparable to that found in Postclassic molcajetes. None were found at any of the other three sites; i.e., Venta de Carpio, TF-8, and TF-101. Molcajetes are absent in the Late Formative and Classic and do not reappear until

Mazapan times. They seem to be true molcajetes since the incised lines often show signs of considerable wear. No examples were found with the attached rims so we cannot relate the base to the rim form. All have white slip on both surfaces and the slip and paste is similar to other cream slipped sherds from the Chiconauhtla-Altica phases.

Shallow Basins with Beveled and Bolstered Lips (072911, Figure 27g, h). These are very distinctive vessels and are characteristically shallow with widely diverging walls with convex profiles and with exteriorally thickened or bolstered lips with a flat inner surface. They have an overall white slip surface. Ten examples were found in all, of which seven were from TF-21, two from TF-8, and one from TF-101. None were collected in the Venta de Carpio excavation.

Thick Walled Reddish-Brown Bowls (072502, 15 Rims, Figure 27i). The paste and surface of this type are identical to that of the bay wares. The rims are similar to the general category of hemispherical bowls but have unusually thick walls (8-13 mm). All have rounded or slightly tapered, direct lips. They sort into two subvarieties based upon the ratio of mouth diameter to vessel height. One is a rather shallow tray-like vessel that lacks exterior burnishing and has been described by some writers as a comal. The very low frequency of this form in the sample would suggest some less domestic function. The others are similar in proportion to the average hemispherical bowls. All rims were from Venta de Carpio.

Red-on-Buff Hemispherical Bowls (072501, 16 Rims, Figure 28a-d, Plates 9f, 14d). This is a puzzling type and we are not certain of its chronological affiliation. The surface is light brown in color with a red painted design. The color combination, down to the specific tint, very closely resembles Mazapan or Late Toltec red-on-buffs. There is, however, very little diagnostic Toltec pottery at Venta de Carpio. The form resembles very closely the illustration in Vaillant's Zacatenco report of what he calls "Early Red-on-Buff," so it probably does pertain to the Chiconauhtla phase. The reason we hesitate is because of the striking resemblance to Toltec wares and also because the basic form, such an unspecialized kind of vessel, is found in many time periods. The brown surface is lightly burnished, another feature of Toltec pottery, and this plus the color offers a sharp contrast to contemporary Chiconauhtla pottery. Lips fall into two variants, one with a slight exterior bolster, the other direct and rounded. The red design occurs chiefly in the form of wide interior lip bands or splotchy solid areas on the interior wall, again offering a striking parallel to the decorative characteristics of some of the Toltec red-on-buff. All rims used in this analysis were from Venta de Carpio.

(072514, 1 Rim, Figure 28e). This is a unique rim with a red painted exterior, red painted band on the superior exterior wall, and an orange-brown base color. The surface is well burnished and the lip direct.

Hemispherical Bowls with Upright Rims (0726, 5 egs). These are all rims from the standard hemispherical bowl but in which the rim is upright in relation to the plane of the base. They differ from upright rim varieties of the 0721 rims in that the wall is generally flatter in profile. The total sample is a very small one and is extremely variable internally. We have broken it down into the following varieties.

Bay Ware Bowls (072602, 1 Rim, Figure 28f, Plate 14f). This is a single rim from a vessel which is identical in paste, surface color and treatment to the bay ware jars and basal break bowls. It also has a small, exterior lip lug. It comes from Venta de Carpio.

White Slipped Direct Rim (072611, 3 egs, Figure 28g, h). This variety has a thick, hard white slip. Along with the three examples from Venta de Carpio, six were found in the TF-8 surface sample and one in the TF-101 sample.

Slate Incised (072617, 1 Rim, Figure 29b, Plate 14g). This is a single rim from the Venta de Carpio. It has a lightly burnished overall slate grey surface with a horizontal incised line on the interior and a more complex exterior incised design.

Miniature Scalloped Rim Bowls (072702, 2 Rims, Figure 29d). These are rims from very small vessels with extremely thin walls, burnished black surfaces, and wavy or scalloped edge rims.

Tecomates
(08, 24 Rims, Figure 29c-h)

The fourth major type found at Venta de Carpio for the Chiconauhtla phase was the tecomate. These are all rims from large vessels, comparable in size and globular form to jars but lacking necks. They are generally similar in form to the hemispherical bowls but are much larger, thicker walled vessels and have sharply reduced mouth openings. On the basis of surface color treatment and lip form, they sort into two subtypes. All rims discussed below are from Venta de Carpio.

Bolstered Rim Tecomates (0828, 14 Rims, Figure 29c-e, Plates 9d, 11a). The surface color and texture approximates very closely that of the bay ware jars with well burnished, reddish-brown exteriors and rough interiors. The lips have a characteristic large, but flat,

exterior bolster. Three of the 14 rims have a band of red paint applied to the exterior bolster surfaces (Plate 9d).

Direct Rim Tecomates (0829, 10 egs, Figure 29f-h). This second variety has a duller surface finish and is much more variable in color, from orange to dark brown. All have a direct rounded or slightly thickened lip. Two of the rims have a thick exterior cream slip. One rim (Plate 9b) has a mouth diameter of approximately 22 centimeters. One rim (082913) was similar to the 0828 subtype in surface treatment and color (even including a red exterior lip band) but lacked the exterior bolster.

DISCUSSION OF MIDDLE FORMATIVE CERAMICS
(See Tables 2-4)

As noted previously, we have defined two phases of the Middle Formative of the valley, Altica the earlier, Chiconauhtla the later. The Altica phase is defined primarily on the basis of surface samples, the Chiconauhtla phase from the Venta de Carpio excavated sample. The relative position of the two phases is based primarily on the cross comparisons with Vaillant's Zacatenco and Arbolillo sequences.

The surface samples from TF-21 include virtually no Chiconauhtla phase sherds and it is, therefore, the best sample to use in the definition of the Altica phase. Unfortunately, however, the sample is badly weathered and is heavily mixed with Aztec. Without detailed paste analysis, it is difficult to sort out many of the sherds into the two components. With this limitation in mind, the TF-21 sample does contrast with the excavated Chiconauhtla sample in the following ways.

The total sample of rims from the TF-21 surface collections is 408, along with 45 cream slipped body sherds. Of these, 364 are either jar or basal break bowl rims. Eighty-two of the 364 fall into two bolstered rim types very similar to those of the Venta de Carpio excavation and a number have preserved surfaces that indicate that they are of Vaillant's bay ware paste. Thirty-seven rims have a large, well rounded bolster; the other 45 have an interior flattening of the lip. The last variant occurs but rarely at Chiconauhtla and may be considered as an Altica time marker.

Two other jar types, both found in the TF-21 sample, are characterized by exterior beveling of the bolstered surface and can probably be used as Altica phase markers as well. These are similar to the jars classified as 0103 and 0104 at Venta de Carpio. Only 7 of the 648 jar rims from the Chiconauhtla sample from Venta de Carpio fall into these 2 categories, whereas 40 rims from the much smaller Altica phase sample from TF-21 fall into these 2 variants. The 0106 cupped type jar from

Venta de Carpio seems to be absent in TF-21 and would seem to be a good marker for Chiconauhtla.

Tecomates are a characteristic vessel form for the Middle Formative period. Unbolstered, thickened or simple rounded rim subtypes are found in both the Altica and Chiconauhtla phases. A distinctive feature that could be used to distinguish the Middle Formative tecomates of this type from the later Formative examples is the use of white slipping in the earlier period. Some of the rims have the typical reddish-brown surface diagnostic of the bay ware jars and basal break bowls. With respect to the bolstered rim type, this is a possible tool for sorting the two phases. They are probably absent in Altica times (but remember our sample from this phase is a surface sample and a small one). The bolster is very flat in profile during the Chiconauhtla phase and, hence, contrasts with Late Formative Cuanalan phase equivalents. The bolstered subtypes also have red-on-buff painting, confined to a band along the exterior bolster.

Basal break bowls with rounded bases are one of the major diagnostic forms of the central Mexican Formative and are one of the features that make the ceramics from this area contrast sharply with all other Mesoamerican areas.

The Chiconauhtla phase rims fall into two major groups based on surface treatment and specific form. One group (0207) includes those with surface finish and color identical to the bay ware jars. A few cases of rims occur in the sample with very similar paste and surface treatment but with darker colors (commonly black or dark brown) and incised or red painted designs. The undecorated red-brown examples all have very high upper segment walls, well beyond the range of the highest examples in later Formative phases. The decorated examples are comparable to Late Formative phases in this proportion. There are no definite examples of the first group of basal break bowls from the TF-21 Altica sample, but some of the rims classified as jars could be basal break bowls.

The second group (0209) includes white slipped, white slipped plus incision, and red-on-white decorated variants. These are typically characterized by a very wide outward flare to the upper segment and the upper segment tends to be only 3-4 centimeters high.

Of the various decorated varieties found in the Chiconauhtla phase, only the 020905 subtype (white slip, incised) is found in Altica, including a vertical wall variant which diverges from the generally outflaring feature characteristically found in all the other varieties. The absence of the red-on-white variant in Altica also agrees with the general absence of this kind of decoration in the earlier phase--an absence that is a good diagnostic feature for Altica.

The overall impression of this vessel form is that of a variant of hemispherical bowls with a highly specialized rim. Out statement above that basal break bowls with rounded bases from the Altica-Chiconauhtla

phases have higher ranges and modes in the ratio of the upper to lower bowl segment when compared to Late Formative refers only to the bay ware subtype.

The hemispherical bowls also provide an excellent basis for separating Altica from Chiconauhtla. Absent in Altica times were the subtypes 0720, 0721, 0722, 0724, 0726, and 0727. The greatest number of 07 vessels from TF-21 pertain to a single variant of the 0723 subtype, 072305, a white-slipped variant with interior beveled and incised lips. This is also found in the Chiconauhtla phase so that its presence alone does not mean that the sample is of the Altica phase (at least they occur in our surface samples; they are absent at Venta de Carpio). At any rate, its predominance combined with the absence of the 072304 (red-on-white incised) and 072301 variant (red-on-buff) would be diagnostic, particularly if the sample also included the 072315 variant (white slipped flanged rims) since this last named seems to be entirely restricted to the Altica phase.

Two other hemispherical bowl subtypes are apparently restricted to the Altica phase and, hence, serve as excellent time markers--the 072805 subtype (white-slipped molcajetes), and 072911 (large basins with white slips and bolstered lips).

LATE FORMATIVE CERAMICS

Within the Formative assemblage from Venta de Carpio, a number of rims (40 in all) pertain to the Patlachique phase and a few possibly date from the Cuanalan phase. Three rims pertained to the Tzacualli or Teotihuacan I phase. Here we have very briefly summarized these sherds since a detailed analysis of the ceramics of the two phases will be presented in the succeeding excavation reports.

Jars (03)

Wedge Shaped Rims (0312, 23 Rims). All these are very similar in form to jar rims from our Chimalhuacan excavations and clearly pertain to the local variation of Chimalhuacan we are calling Patlachique.

Near Wedge Lips (0313, 3 Rims). These are similar to the ones above but with a more rounded angle to the superior lip surface.

Basal Break Bowls with Rounded Bases

Insloping Walls (041607, 5 Rims). These are all good diagnostic rims for either thePatlachique or the Tezoyuca phases.

Convex Upper Wall (041700, 1 Rim). This is a common form during the Cuanalan phase and is almost absent from succeeding Formative phases.

Red-on-Buff (041800, 4 Rims). These are all rims of basal break bowls with round bases and red-on-buff painted design and are closer to the Cuanalan variants than the later Formative phases.

Polished Black Saucer
(041506, 2 Rims)

These are rims from small, shallow saucer-like vessels with lustrous black surfaces. Their phase identification is uncertain but they probably pertain to the Cuanalan phase.

Trays (041400, 3 Rims)

Three rims are from very shallow comal-like vessels with interior burnishing and exteriors either smoothed or left unifinished. All are very thick sherds and apparently derive from large vessels. They are probably Late Formative in date but their phase affiliation is uncertain.

Straight Sided Bowls
(051801, 1 Rim)

This is a rim from a straight sided vessel with a red slipped interior and tan exterior. There are two parallel incised lines on the interior below the lip. It probably pertains to the Patlachique phase.

Tzacualli White-on-Red
(061908, 3 Rims)

Four body sherds and three rims from Venta de Carpio look like a typical white-on-red flat bottomed bowl from the Tzacualli phase.

MISCELLANEOUS RIMS (PROBABLY FORMATIVE IN DATE)

Twenty rims were not classifiable as to the specific phase of the Formative period but they undoubtedly date from the overall period. They may be categorized as follows.

Wide Everted Lip Basin or Flaring Neck Jars (12000, 3 Rims). The rims all come from either large everted lip basins or jars. They are similar in general form to the everted lip basins from Chimalhuacan.

Modified Bases (103500, 3 Sherds). There are sherds that were apparently parts of the bases of large, thick walled vessels in which the broken edges of the base wall angle were subsequently ground down and the sherds used as a tray, lid,stand or griddle. The paste looks like Patlachique-Tezoyuca.

Burnished Reddish-Brown Tray (103600, 2 Rims). These are similar to the Late Formative trays described previously but the form of the lip is different and the paste and surface resemble more the Chiconauhtla phase pottery. The interior is slightly burnished, the exterior left simply smoothed.

Basal Break Bowls with Horizontal Channeling (130000, 1 Rim). These are similar to the Chiconauhtla hemisperical bowls, with horizontal channeling;in surface treatment and paste,but having a straight wall profile. The phase affiliation is uncertain.

Basal Break Bowls with High Vertical Walls (130000, 3 Rims). Three rims fall into this category but each is unique in surface treatment; one has a dull streaky brown surface, another a lacquered orange slip, and the third is burnished dark brown. These vessels are similar to basal break bowls with rounded bases, but have much higher upper segments, in one case 9 centimeters high.

Burnished Tan, Possible Pedestal Bases (160000, 1 Rim, Phase Uncertain).

Rims with Rough Surfaces, Beveled Exterior Lips and Tan Surface (170000, 2 Rims).

Miscellaneous Bowls (140000, 4 Rims). Three rims of this category are probably Chiconauhtla phase in date and one probably Late Formative. The probable Chiconauhtla phase rims, however, do not fit into

any of the categories defined in the section on Chiconauhtla ceramics. One rim is from a hemispherical bowl with a polished black surface and a rounded rim bolster; another has an interior beveled lip with red painting on an interior white slip; the third has a round bolstered lip, with the exterior red slip continuing over the interior lip and with a reddish brown interior. The fourth sherd has a tapered lip, red-on-tan design, and is from a basal break bowl form. It is probably of Late Formative date.

Basal Break Bowl with Orange Lacquered Slip Surface (180000, 1 Rim). The form is more comparable to basal break bowls with flat bases found in the Classic period.

MISCELLANEOUS ARTIFACTS

We noted the peculiar ratio of vessel forms in the pottery sample from Venta de Carpio. Formative ceramic figurines are, with the exception of a single head, completely absent from Venta de Carpio. The exception is not a Basin of Mexico type but has the multiple punctate eye distinctive of Formative figurines from Vera Cruz (see Plate 62a). Figurines from the general Altica-Chiconauhtla phase are relatively abundant in the surface samples and we have selected a sample of those for illustration (see Plate 55).

With respect to other ceramic and stone artifacts, although we have numerous artifacts from the excavation, phase assignment is uncertain since the stylistic history of these classes of artifacts is still not well understood in the Basin of Mexico. It would be very difficult to sort them out by period stratigraphically from our excavated sample because of the heavy mixture of deposits. We did tabulate the nonsherd artifacts by level and grid square, however, and compared their occurrence generally with the sherd ratios of Formative-Teotihuacan and Aztec. On this basis, we then assigned a particular artifact to an improbable, possible or probable position as to a Formative dating. For example, when we used the term possible, it meant that about half of the pottery of the sherd sample from that level was Teotihuacan and about half Formative. Where the ratio was two to one in favor of the Formative, we then changed the classification to a probable Formative dating. Where the Formative sherd ratios were considerably less than the Teotihuacan or Aztec, we assumed that it was not of a Formative date. In the tabulation, obsidian has not been included since this will be studied in detail in Michels's report. Table 1 summarizes the data.

As the tabulation shows, only three of the ground stone artifacts (all basalt) and eight of the ceramic artifacts were classified as possible or probable Formative in date, a conclusion which, along with

the virtual absence of figurines and the striking skewing of the ceramic sample towards the jars, suggests a very special use of the site other than a typical agricultural village.

Preliminary hydration analysis of 74 obsidian artifacts from Venta de Carpio (see Michels m.s.) shows a distribution of 5% Archaic (Late pre-ceramic), 26% Late Formative, 45% Classic, 14% Mazapan and 5% Aztec with no dates falling in the predicted range for the Chiconauhtla phase of 650-500 B.C. Conceivably, the Chiconauhtla phase lasted as late as 400 B.C. so that a few of the Late Formative dates could be of this time phase. In fact, of the 23 dated artifacts called Formative by Michels, the mean dates of 8 fall in the period from 100-250 A.D., which in all probability is Teotihuacan II or Miccaotli, and are, therefore, Formative only in the lowland Maya chronological sense. Three others are Formative only if we accept the old C_{14} dates for Zacatenco and Arbolillo, which stretch the beginning of the central Mexican Formative to nearly 1500 B.C. Eliminating these 11 dates, only 12 absolute dates fall into the Formative range. Of these, the mean date of all but 3 is between 138 B.C.-88 A.D. or within the Patlachique-Tzacualli time range. Only 3 possible artifacts could date from Chiconauhtla phase with mean dates of 337, 450 and 539 B.C. and, in reality, only the last 2 are acceptable in terms of our present understanding of the chronology of the Basin of Mexico. It is much more likely that they are equivalent to the Cuanalan phase.

Part 3

EXCAVATIONS AT CUANALAN (TF-38)

The village of Cuanalan lies in the southwest sector of the Teotihuacan Valley, approximately 2 kilometers east of the plaza of the town of Tepexpan. The altitude above sea level is approximately 2250 meters (see Figure 6).

The excavation site at Cuanalan lies in an alluvial plain, about 200 meters south of the present course of the Rio San Juan, on the southwest edge of the village of Cuanalan (see Plates 115b, 116a, 4a). Within the area of the modern village are occupational remains that indicate continuous occupation from Late Formative times to the present. The part of the site where the excavations were made is not now occupied by houses of modern Cuanalan, but houses are built up to the north edge of the pitted area. (The term "pitted area" refers to the area of sand quarrying operation, as shown in Figure 7.) The area consists partly of fallow land and partly of land planted in maize, beans and squash. The fallow land has a scanty grass cover which is used for grazing.

The site seems to have well defined boundaries to the west and south since sherd deposits suddenly stop, with no more than one or two sherds per field at the edge of the grassy area to the west and the maguey field to the south. In the north and east directions, however, occupation extends to the edge of the village.

According to local informants, sand was quarried extensively from 1947 to 1952, during which time most of the pitting occurred. Some sand quarrying is still being done on a small scale but in an area separated from the major zones. The sand is said to be very well suited for use as an abrasive agent in stone cutting, and mining rights are purchased from the landowners by the local stone cutting plant. The pitted area is gradually being filled in and reclaimed for living sites through the dumping of debris from the stone cutting plant (see Figure 7, Plate 4a).

This pitted area is of great archaeological interest, for profiles are exposed in many places and large numbers of sherds are scattered over the surface. Three stratigraphic levels are clearly visible. First is the layer of earth mixed with sherds and ash, below that a caliche formation, and below the caliche sand strata appear. The bedding angles of the sand strata suggest that an ancient river changed course here many times. The average depth of cultural deposits varies from 2-3 meters. As far as could be ascertained, the entire area is underlain by the stratum of caliche. No cultural material is found below the caliche layer, except for that which is intrusive and fills occasional gaps in the caliche. As we noted in Part 2 the caliche formation probably dates from Mooser's Caliche III period.

The Cuanalan area was visited in the summer of 1960 by Charles Fletcher while conducting an archaeological surface survey. However, it was not until 1961 that a closer survey of the area led to the discovery of the Formative occupation there. It was subsequently discovered that the site had been initially surveyed and a sherd sample

collected prior to 1960 (Millon 1960, p. 8). Preliminary analysis of the surface samples indicated that the Formative ceramics resembled very closely those defined by Vaillant as Upper Middle Culture (Late Formative) from Ticoman and Cuicuilco.

METHODOLOGY

It was decided, on the basis of the archaeological features exposed by the quarrying operations, to dig a stratigraphic trench in order to recover a definite sample of Late Formative period ceramics for chronological purposes and control of surface survey materials. The site was surveyed to determine the limits and time period of the pottery distribution. After all profiles exposed by sand quarrying were examined, the location of the stratipit was selected on the basis of the deepness of the cut, which extended below caliche; the large number of sherds exposed in the profile; the suggestion of a floor level in the profile; and the favorable situation for making a deep stratigraphic cut. A rough topographic map of the area was prepared using plane table and alidade (Figure 7).

In accordance with accepted archaeological procedure, a base line of 20 meters was laid out north and south using a magnetic compass and measuring tape. This base line was roughly parallel to the west side of the pitted area. Since it was proposed to excavate a deep trench extending through the caliche, the base line was placed about 1 meter back from the edge of the cut, due to the undercutting of the caliche for several feet by the sand quarrying operations.

The area was then laid out in 2 by 2 meter squares oriented with the base line. In the field records, each 2 by 2 meter square was designated by coordinates according to its location in relation to the base line and zero point. For convenience, the squares will be referred to by number in this report (See Figure 8).

The ground surface was scraped clean with trowels to remove the trash and scanty grass cover from the surface before beginning excavation. Most of the excavation was done with trowels, small hand picks being used to loosen the hard compacted earth only when necessary. Excavation was carried out in arbitrary 20 centimeter levels in each square. This procedure was modified as artificial and natural strata intervened. For example, a house floor fortuitously occurred at 1 meter below ground, explaining the cotermination of the bottom of the fifth 20 centimeter level and the house floor. All excavation was supervised by Fletcher, with most of the actual digging beging done by 4 to 6 Mexican employees. Students from The Pennsylvania State University 1961 and 1962 Summer Field Schools also participated in the excavation. They received instruction to field techniques and assisted in excavation and making drawings.

All profiles were recorded and plans of special features made. A daily record of work was kept. All stages of the excavation were photographed. The area was completely backfilled when excavation was discontinued.

The materials from each level of each square were placed in baskets tagged with the grid coordinates and level as they were excavated. The sherds and artifacts were then emptied into cloth sacks for transportation to the laboratory. At our laboratory in San Juan Teotihuacan the sherds and artifacts were washed and numbered. The sherds were then sorted into rim sherds and body sherds and counts made for each level. Analysis of the sherds began with the lowest levels, where many body sherds could be recognized with respect to vessel form. In the upper three levels, however, many of the body sherds were so small and weathered that they were barely identifiable.

THE 1961 EXCAVATION

Since no useful purpose would be served by a complete discussion of the sequence in which levels were taken down in each square, such information will be given only where pertinent.

The first square to be excavated was square 1. This was taken to a depth of 20 centimeters below ground in the first level. Level 1 of this square, as well as the first level of all other squares, consisted of compacted earth and small stones containing a large number of small and weathered sherds, preponderantly Aztec but with Formative, Teotihuacan, Toltec and Modern also present. Fragments of worked obsidian, figurines, and animal bone (primarily gopher) were also found. Levels 2 and 3 were found to be of much the same composition, but the percentage of Formative material increased in each lower level, while later period material decreased.

At 63 centimeters below ground in square 1, what appeared to be a line of adobes, oriented north to south, was discovered. There was no apparent difference in color, the adobe simply appearing as harder earth. Careful excavation revealed that the adobe represented part of a wall. The wall was eventually found to be 35-40 centimeters wide and 35-40 centimeters high. The entire level from the top of the wall was not dug out at once, but was gradually troweled down since it was suspected that this was the wall of a house. It was necessary to determine if any cultural materials were in position on the floor, if such existed. A large jar, about 50 centimeters in diameter, appeared at 65 centimeters below ground in square 1. This vessel was centered along the line dividing squares 1 and 4 and 1 meter north of the zero point, about 30 centimeters west of the wall. This pot was filled with what appeared to be a fine ash, earth, some sherds, and yellowish clay. The vessel was in an upright position and the "top" seemed to be sealed

with adobe, while the rim and shoulders were missing. The "sealing" may have occurred adventitously, however, as a result of the collapse of the adobe walls.

The wall was found to continue in the north direction in square 2. At 3.6 meters north of the zero point, a corner was found. This was the outside corner where the wall turned 90° to the west. Remains of a fine sand and mud plaster were found at the base of the wall at this corner; the plaster was smoothly rounded at the base of the wall so as to blend into what appeared to be another floor outside the wall. From the evidence of the clay floor which appeared outside the wall and the 2 postmolds in square 2, it would seem that some structure of pole and thatch was contiguous to the house. Some fragments of clay daub may have come from this structure also. Perhaps it represents a lean-to kitchen, to judge from the ash deposits found outside the wall.

Excavation was continued in squares 1, 2, 4 and 5. At 60-75 centimeters below ground in each square, large Formative sherds appeared. A puddled clay floor was encountered at 1 meter below ground, inside the wall in squares 4 and 5. The wall continued to the west and the north half of square 7 was eventually excavated to follow the course of the wall. What appeared to be the inside corner of the wall was found at 1.6 meters from the base line, although the outside corner of the wall was not found in this square before excavation was discontinued at the end of the season.

The clay floor at a depth of 1 meter below ground not only covered the area within the wall, but extended outside the wall covering squares 1, 2, 3 and 4. A large amount of adobe was found above the floor in square 6, possibly debris from collapsed walls. The ash bed outside the wall in square 2 was excavated to caliche (1.8 meters below ground). Sherd yield was heavy to 1.5 meters below ground, sparse from 1.5 to 1.8 meters below ground. The ash bed extended from 0.90 to 1.2 meters below ground. This ash bed, in the suggested kitchen area, seemed to be somewhat correlated in depth with the ash bed in the stratipit within the house.

On the evidence of the house floor within the walls, the plaster on the outside wall, and the ash pit outside the wall, it appeared that these features represent a house with an adobe foundation (and perhaps adobe walls entirely) and a courtyard or patio containing a roofed-over kitchen area. Large amounts of adobe were found throughout the excavation, further supporting the idea of an all adobe house.

It is of interest to note that modern houses near the excavation follow this same pattern--one or two room adobe houses with mud and sand plastered walls, associated with a courtyard with a hard earth floor and an open lean-to for cooking.

As mentioned earlier, the excavation site was laid out in order to make a deep stratigraphic cut along the base line. The appearance of the house wall and floor, however, necessitated a change in the plan of excavation if these features were to be preserved. It was decided to

perforate the floor inside the house walls for the purpose of gaining greater stratigraphic depth.

A 20 centimeter edge was left around all four sides of the stratipit in order to preserve the floor level. The clay floor was about 10 centimeters thick. Under the floor appeared a layer of ash-impregnated midden ranging from 30 to 40 centimeters thick. Below this ashy layer was a medium-brown soil stratum, rich in cultural material. This soil layer extended down to the caliche formation which began at 1.80 meters below ground.

The caliche formation varied from 30-45 centimeters in thickness. It appeared to be composed of very hard, rock-like, indurated white sand. No cultural materials were found imbedded within the caliche itself, although sherds were found in depressions in the pitted surface of the caliche and in gaps extending through the caliche.

It will be noted in the profile drawing of the west wall of the stratipit that the caliche layer does not extend over the entire width of the pit (Figure 9). This may indicate that there is a large gap in the caliche layer in its southwest extension. The strata of sherd-bearing sand and mud in this area appear to represent redeposition rather than undisturbed primary deposits. It seems probable that the caliche was undercut by water action, and that this gap was later resedimented by a raise in the river level. It is not certain whether this area was used as a midden pit at the time of occupation of later levels, or represented an area of occupation previous to a later leveling of the earth and sand deposits over the entire caliche layer.

In general, then, the deposits under the caliche consisted of varying sand strata, sterile of artifacts, with the exception of the soil pockets which penetrated through gaps in the caliche. The band of hard caked sand extending from 2.90 to 2.95 meters below ground seemed to mark the end of cultural materials, except for the pocket in the west profile which extended to 3.15 meters below ground.

From 2.95 meters below ground to the bottom of the stratipit at 5.70 meters below ground, strata of sand ranging in texture from very fine to very coarse and pebbly occurred. At 4.80 meters below ground, the sand became increasingly hard packed, until excavation had to be stopped at 5.70 meters below ground since vibrations from the use of picks were causing the walls of the trench to slump in. As mentioned before, no artifacts were found at these levels of sand strata, but mineralized animal bone was found at 3.60, 4.40, 4.50, 5.00 and 5.15 meters below ground. The fragment found at 4.50 meters below ground may be a mammoth metatarsal. The remaining fragments have been tentatively identified as the bones of an equid.

The stratigraphy of the excavation may be summarized as follows. The lowest strata, the sand beds, represent a period when the river bed changed course many times. No cultural remains were found, but bones of possible Late Pleistocene fauna were recovered. Above the sand beds was the Caliche III formation, also devoid of human

occupation. Cultural materials of the Formative period were found on top of the caliche. Above the Caliche II formation is a stratum of ash, sandy earth and sherds of this period which contains the house floor and walls. Successive levels above the Formative occupation represent Teotihuacan, Toltec, Aztec and finally Modern levels.

A small excavation was conducted on the east side of the pitted area where a burial was exposed in the profile. This excavation was directed by Barbara Price under the supervision of Charles Fletcher. The excavation revealed the side walls of an adobe structure similar in construction to that from Trench 1. We will refer to the excavation as Trench 2 in this report (see Appendix B).

THE 1962 EXCAVATION

In 1962 we returned to Cuanalan to complete the excavation of the Late Formative house revealed in Trench 1. The excavation was again supervised by Fletcher. First the backfill was completely removed from the 1961 excavation to uncover the remains of the house. We then expanded the excavation over a total area measuring 7 meters east-west by 10 meters north-south. On the north side an adobe ramp or badly eroded stairway provided access to the house (see Figure 10, Plates 4, 5).

In the southwest quadrant of the trench, the partial remains (portions of three walls) of an Aztec II (Zocango phase) house was uncovered in an upper level and in this area the excavation was stopped at the floor level of this later house. The technique of construction contrasts sharply with the earlier Formative house since the walls were built of rectangular, probably mold made, adobe bricks, whereas the Formative adobes are irregular, hand modeled lumps or were perhaps quarried directly from some naturally consolidated material. The plan is also more rectangular. The short end measures only 2.5 meters but the total floor space was probably as great as that of the earlier house. Heavy concentrations of pottery were found at the floor level in the area to the north of the house, dating primarily from the Zocango phase. Just north of the north wall was an interesting feature which may be a small cistern for collecting rainwater from the roof (Plate 5b, c). It is a box-like construction made of puddled adobe lined with lime plaster on the inside and with an interior measurement of 1.6 by 0.6 meters and a depth of 20 centimeters.

The walls as observable from the distribution of adobe brick are much too thin to have supported a roof or have even been self supporting. Presumably, the mold made bricks were used only to face a thick wall constructed of mud. We were unable to define the core of the wall in excavation.

A more detailed account of the 1962 excavation is not possible due to a series of unforeseen difficulties encountered during the field season. A faction of the villagers, hostile towards the official village authority, lodged a formal accusation of illegal excavation of archaeological treasures with federal authorities at Mexico City. The police detained the field party, students and workers for two days until the director of Monumentos Prehispanicos was able to secure their release. During this period all field notes and archaeological collections were confiscated. The notes were subsequently lost, samples tampered with and mixed, so the only data available from the season are the architectural data from the completed excavation.

CERAMICS

The ceramics from Cuanalan represent virtually the entire Valley of Teotihuacan sequence. In his master's thesis, Fletcher (1963) studied a selected sample of rims, supports, bases and decorated body sherds (see Table 11) from the 1961 excavation of Trench 1. Of this sample, a total of 2754 sherds were of the Formative period. Overall, 90% of these fell into a well defined ceramic complex very similar to Vaillant's Late Ticoman phase at Ticoman. The balance are either post-Late Ticoman and resemble closely our Patlachique phase ceramics from Chimalhuacan (see Part 5) or are Early Ticoman. The latter were initially identified as Chiconauhtla phase, but on comparison with the Venta de Carpio sample they clearly are not. We are referring to the local equivalent of Vaillant's Ticoman or Upper Middle Culture ceramics as the Cuanalan phase and have very tentatively defined an early and a late subphase. The Formative total of 2754 sherds represented 47% of the total sample analyzed by Fletcher and the remaining 53% were Post Formative in date (approximately 40% Aztec, 8% Teotihuacan, 4% Contemporary and 13% Toltec).

The basic stratigraphic relationships of these periods at Cuanalan are consistent, although much mixture has occurred and wind erosion has reduced the soil column considerably. Virtually all of the Post Formative pottery occurs in the first 60 centimeters, all but 76 sherds in the selected sample were from the top 3 levels. Formative sherds occur in heavy concentrations, however, beginning in level 2 and are particularly heavy in the levels immediately above or below the floor. In comparing the quantity of Formative sherds by level, levels 6-13, it should be noted, were excavated almost entirely within the strati-trench, which covered a horizontal area of only 10 square meters of the excavation. In this report we will analyze only the Formative artifacts. The balance will be discussed in later monographs dedicated to the respective periods.

We noted previously that the field notes from the 1962 season were lost or misplaced by the Mexican authorities and that the samples were

mixed. In the sherd analysis, therefore, we have used the entire sample for type descriptions and tabulations but only the 1961 sample for stratigraphic analysis. With regard to artifacts other than sherds, we had processed them immediately in a small field laboratory. Such artifacts, therefore, do have vertical and horizontal provenience. Unfortunately, we cannot be sure how many vanished during the period of confiscation. With this in mind we have tabulated the artifacts from both seasons together but have published separately Fletcher's 1961 tables. Our impression is that very few artifacts from 1962 were lost. One possible case is that of the ceramic figurines since the total from 1961, Trench 1, was 158, whereas the total for Trench 1 for both seasons is but 257. Our 1962 excavation was much more extensive and should have yielded more than the 99 additional figurines. (It should be noted, however, that the 1962 area was not excavated below the level of the Aztec house floor in the southwest).

Although we feel that the artifact sample is probably complete, we advise the reader to rely only on Fletcher's 1961 tables for dependable artifact ratios.

Levels 1-3, as can be seen from Fletcher's tables, are mixed Aztec, Teotihuacan and Formative; nearly all the sample from level 4 down is Formative.

In reading the following type descriptions, the reader is referred to Figures 30-46 for vessel profiles and Plates 15-25 for illustration of surface treatment and decoration. The rim code designation is given for the illustrated sherds and the reader is referred to Table 6 for the key.

In order to reduce the cost of shipping samples back to Pennsylvania, only a selected amount of pottery was retained and studied. This includes all rims, all supports and basal angles, plus a selected sample of decorated body sherds. Of this sample, the rims were subject to detailed analysis and our following tabulations refer almost entirely to rim sherds. The Formative rim sample from both the 1961 and 1962 seasons totalled 2167 sherds.

As we have explained, our typology depends on our ability to relate rims to vessel forms. Of the 2167 rim sherds, 593 could not be identified as to specific vessel form. The 1574 identifiable rims, with respect to excavation year and trench, breakdown as follows. The 1962 sample includes 632 rims. These were treated as a unit without reference to vertical or horizontal provenience, for the reasons noted previously. Of the two 1961 excavations, 651 rims came from stratified levels in Trench 1, 167 from stratified levels in Trench 2, and the balance are from the features, backfill or other special situations. Our detailed stratigraphic analysis, therefore, is based upon the sample of 819 rims from Trenches 1 and 2 of the 1961 season.

CERAMIC VESSEL TYPES (LATE CUANALAN PHASE)

Basal Break Bowls with Rounded Bases
(01, 421 Rims, 26.75%, Figures 30-34, Plates 15, 16a, b, d, e, g, h, 17, 18a, 19a, b, d, e, 20a-c, e, 21a-c, 22a, b, d)

In Fletcher's master's thesis on Cuanalan ceramics, he defined two types of service vessels and analyzed them separately; one he referred to as a "basal break bowl" (this form is termed by Vaillant a composite silhouette bowl), the other as an "upright rim bowl." In both cases the form involves a relatively large, open mouth bowl with two structural elements, a large hemispherically shaped lower portion and an upper segment that varies considerably in height and in profile. The difference between Fletcher's two types lies in the morphology of the upper wall. In the basal break bowl (see Figures 30-32), it usually has a concave profile and tends to be considerably higher; in the upright rim variety (see Figure 34), the profile is convex and the wall height generally much lower. In this final analysis we have combined them into the 01 vessel form category, but have retained Fletcher's original distinction by the use of the additional columns (3 and 4). In the discussion below we will refer to Fletcher's basal break bowl as the A variety and his upright rim bowl as the B variety. Of the Formative rims from Cuanalan, 26.75% were from the general vessel form and it was obviously a major functional vessel, presumably for food serving. This identification is based upon the size of the vessel and the lack of evidence that it was placed in the fire. The great range of size, however, would suggest several specific functions, possibly for general table serving as well as eating vessels for individuals. All vessels, as near as we can tell, were equipped with large, hollow tripod supports.

The greatest variety within the major Cuanalan types is found in this type. Because of this variability, we can design a much more elaborate breakdown than with respect to the others. We know that this is justified because our initial observations of the ceramics from other Formative phases indicated very clearly that variations in this basic form would serve as a major criteria for chronological sorting.

The rim diameters of the 01 vessel form vary from 14-40 centimeters with a mode of 24-26 centimeters. The height of the upper wall, in subtype A varies from 1.27-8.75 centimeters with a mode of between 2.5 and 3.75. Generally speaking, the upper wall is low compared to the total vessel height when contrasted to bowls of the general type from the Chiconauhtla phase and are high as compared to equivalent vessels from post-Cuanalan Formative phases. On the whole, the upper wall tends to be vertical with respect to the plane of the base, but in individual cases it may vary from insloping to outward flaring. There is also some variability in the profile of the upper wall from convex to concave to nearly straight. In most cases, however, it has

a concave profile. In cases where rim bolsters are present, they are always exterior bolsters.

The B variant tends to be shallower with respect to total vessel height (the mode of which is only 10-12 centimeters). Even considering this feature, the upper wall is generally much lower in proportion to the total vessel height as compared to variant A. In looking at our sample as a whole, most of the rims with upper wall heights below 3 centimeters are of the B variety, whereas virtually all of those above 3 centimeters are variety A. In the case of those rims where the upper wall height is exactly 3 centimeters, the two types heavily overlap. In the B type the upper wall is either vertical or is insloping. Another contrast with type A is that rim bolsters are invariably interior rather than exterior. The A variants were probably manufactured with two structural elements, the base and the upper wall. In the case of the B variants, particularly vessels with lower walls, the upper wall can be structurally described as simply a prolongation of the basal segment.

The base color varies from light brown and buff to black, but the greater majority of the sherds have a light surface color. A high percentage of them have some red painting, generally applied as a solid area on the exterior upper walls and over the interior lip, but it may occur as separate solid geometric areas. There are a few examples where the red paint is applied on the entire interior surface as well. The exterior base is always left unpainted.

Medium fine paste with obsidian inclusions is characteristic. A light to medium brown color is modal. Almost all sherds are well finished by burnishing. The quality of the burnishing varies, but much of the variation may be due to weathering of individual sherds.

The most common decoration is red-on-buff, as described above. Of the 421 rims in the sample, 52.97% have this type of decoration alone. Minor decorative techniques include red-on-buff combined with negative painting (5.7%), red and fugitive white-on-buff (1.9%), fugitive white-on-brown (1.43%), red-on-buff in which the red areas are bordered by incision (2.85%), red and buff combined with punctation (.95%), and incised buff (4.04%). In all cases, whether the design is painted or incised, the motifs are simple in nature. The negative painting, for example, consists of solid black or dark brown background areas within which are a series of dots in the natural buff color. Incision involves the use of such simple designs as hatched triangles and parallel curved or straight lines. Punctation consists of sets of notches placed on horizontal, parallel, pinched out ridges. With a few exceptions, virtually all of the minor design characteristics are applied to the A variant only. The subtypes break down as follows.

Upper Wall, 5 cm and above (0101, 95 egs, Variant A, Figures 30b, d, f-j, 31a, b). Decoration in this subtype runs a broad range including red-on-buff, negative, red and white-on-buff, fugitive white-on-brown, incision combined with red-on-buff, plain burnished, plain incised, and punctate.

Upper Wall, 4 cm (0102, 94 egs, Variant A, Figures 30a, c, e, 31c-g). Surface treatment in this case consists of red-on-buff, incised red-on-buff, burnished plain, fugitive white-on-brown, negative plain incised, red and white-on-buff, and punctate.

Upper Wall, 3 cm (0103, 79 egs, Variant A, Figures 32b-e). Decoration includes red-on-buff, incised red-on-buff, plain burnished, plain, plain incised, and punctate.

Upper Wall, 3 cm (0104, 9 egs, Variant B, Figure 34e). Decoration of this subtype includes four red-on-buff sherds and one incised sherd, the balance being burnished plain.

Upper Wall, 2 cm (0105, 48 egs, Variant B, Figures 34a-c, g). These are variant B rims in which the upper wall slopes somewhat inward at the shoulder. Where decoration occurs it is normally red-on-buff, with one exception of negative painting.

Upper Wall, 2 cm (0106, 78 egs, Variant B, Figures 33g-h, 34d, f, h, i). This is also a variant B form, but the upper segment is virtually vertical in position in contrast to the 0105 rims. All of the decoration, with the exception of six negative painted rims, consists of red-on-buff.

Upper Wall, 2 cm (0107, 27 egs, Variant A, Figures 32a, f-i). These are all bowls with low upper segments, but are of the typical variant A shape. Nearly all of the design consists of red-on-buff, with one example of negative painting.

Tecomates
(02, 228 egs, 14.49%, Figure 35, Plate 18b-f)

These are rather large utility pots which seem to have been used primarily for storage since they show no evidence of burning on their walls. Tecomates fall into two general subtypes, those with direct, unbolstered rims and those with bolstered rims. Tecomates constituted 14.49% of the total rim sample and are almost evenly divided between the two subtypes.

A medium fine, well kneaded paste is used that produces a ware harder and smoother in surface than the jars and comparable to that of the basal break bowls. Obsidian inclusions are present.

Tecomates are generally well burnished all over the outer surface. Some, however, are stick trailed after smoothing. The inner surface is usually rather roughly finished.

Direct rim tecomates have rim opening diameters ranging between 8-22 centimeters, while bolstered rim tecomates range from 22-32 centimeters. Body sherds from bolstered rim tecomates indicate that body

diameter varies between 22-38 centimeters. The subtypes are as follows.

Bolstered Rim (0208, 121 egs, Figure 35a-c). Tecomates of the bolstered rim variety show a pronounced shoulder and a rounded bolstering of the exterior rim. A very few examples have internal bolsters. Decoration includes primarily red-on-buff in the form of a single wide band extending from the inside lip to the exterior shoulder. This red paint may also appear in streaks or blobs. Other forms of decoration include plain burnishing, fugitive white, and incised red-on-buff.

Direct Rim (0209, 109 egs, Figure 35d-g). The profile of tecomates with direct rims form a smooth arc from the rim to the base and lack evidence of rim bolstering. Surface decoration is essentially the same as in the bolstered variety, with the addition of a dark brown black surfaced variant and the absence of incised red-on-buff decoration.

Shallow Bowls with Supports
(03, 56 egs, 3.56%, Figure 36)

This is a large shallow bowl in which the profile forms a single arc from rim to rim. Two basic variants of the shallow bowl are evident. One is a direct rim subtype, the other can be called a raised rim subtype. Most shallow bowls have tripod supports, sometimes in the shape of a stylized human leg and foot. Paste varies from medium fine to quite coarse and sandy; obsidian inclusions are common. The vessels are usually well burnished in the interiors but may be rather rough on the exterior. Diameters range from 20-40 centimeters. Two subtypes were defined based on form.

Direct Rim. The rim area of the direct rim bowl is undifferentiated from the rest of the body; however, on the interior there is usually a thinning out of the body wall producing the effect of an upper and lower wall. On the exterior there is no such differentiation.

Stepped Rim. The rim area of the stepped rim type is stepped on the interior of the vessel. A further distinction lies in slight concavity of the exterior of the upper walls suggesting a proto-basal break bowl. Some stepped rim examples which lack the outside cavity may show a slight bolster on the exterior.

Decoration of both the direct rim and stepped rim subtype consist of simple red banding in the rim area, but the stepped rim may have yellow, white painting on negative painting with a red background. Supports may also be painted yellow, white-on-red, or solid white.

Deep Basins (04, 20 egs, 1.27%, Figures 37a-f, 38a, b, Plate 19c)

This type had not been previously recognized in Fletcher's earlier classification of Cuanalan ceramics, where it had been included among the shallow bowls. Only 20 examples of this form comprised the sample. Two variants exist, one with a direct lip (0411, Figures 37a-c, f, 38b), the other with an everted lip (0412, Figures 37d, e, 38a). No evidence of supports was noted.

Surface treatment includes red-on-buff designs consisting of red bands or red splotches on a natural buff background (one example). These designs appear on the interior of vessels. Negative painting occurs on three sherds. A high percentage of the rims are off-color dark plain (14 of the 20 rims). Paste is generally medium fine with no large inclusions. These vessels are usually well burnished on the interiors and exteriors. The interior rim diameter varies between 25-38 centimeters. Other dimensions could not be determined from the available evidence.

Basal Break Bowls with Rippled Profiles (0513, 29 egs, 1.84% of the sample, Figures 33a-c, e, f, Plate 22e, f, 23a)

This basic form is the same as the 01 basal break bowl, variant A. The upper walls fall between 3-5 centimeters in height. There is much variation in lip form. Profiles of the wall may vary from slightly convex to straight, generally the latter, and there are a few rare cases of concave, outflaring profiles. Lips vary from tapered to lightly everted and even bolstered. Color ranges from reddish brown to black. It would have been better to have sorted these directly into the existing basal break bowl subtype categories and isolated them in columns 5 and 6 by means of the decorative key. Three rims were actually classified with the basal break bowlsby mistake since they have channeling. These examples, however, also have rows of punctates on the ridges paralleing the channels. The term ripple profile refers to the effect produced by the technique of decoration. This consists of parallel encircling wide grooves or channels separated by ridges. One rim is that of a hemispherical bowl with an incurved rim (Figure 33i).

Jars (08, 578 egs, 36.72%, Figures 38c-h, 39, Plates 23d, 25)

Jars an Cuanalan show a very broad range of form variation. However, most of this variation occurs within a relatively small percentage of the overall type. For example, approximately 75% of the sample falls into a single major type 0823 which has only slight internal variation.

All vessels had a coarse, sandy paste, sometimes with large inclusions; obsidian inclusions are common. The color of the paste generally corresponds to the surface color of the vessel.

Finish varies from rough to well burnished. In all varieties the interior of the necks had a finer burnish than the exteriors.

Rim diameter ranges between 7-36 centimeters and neck height 1.78-8.25 centimeters. Data on body diameter and total vessel height cannot be given except for the incomplete jar found on the house floor. This jar was 50 centimeters in its maximum diameter and probably 65 centimeters in height. The bottom of this vessel was rounded, which is probably characteristic of all the jars since no sherds with basal flattening were found. Subtypes are listed below.

Large Plain Jars, vertical or slightly flaring neck, concave neck profile (0823, 442 egs, Figure 38c-e, g, h). This is the most common form of jar at Cuanalan. The neck is usually concave in profile and either vertical in position or flaring slightly outward. Modifications of the lip form are common, primarily including a slight eversion or bolstering. Interior necks are considerably burnished, whereas the exteriors are primarily smoothed.

Large Jar, flaring neck, straight profile (o824, 24 egs, Figures 38f, 39b). Necks of this form show hardly any curvature and flare sharply outward from the neck shoulder junction. Several sherds have decorated rims in the form of saw-teeth-like projections on the lip. One sherd has an indented lip in addition to the saw-teeth feature. One variant of this form has a step-like feature in the interior profile of the neck just below the lip (08240612).

Large Jars, vertical, concave profile necks and heavy rim bolsters (0825, 6 egs). These are large, thick-walled jars generally similar in appearance to 0823 jars but with thicker walls and heavy rounded exterior rim bolsters. The interior of the neck, the exterior lip, and the exterior below the shoulder neck angle are well burnished.

Crater - Jars (possibly Classic in date) (0826, 2 egs). These are two rims which may be craters rather than jars and are included in the Formative rim count. They have obtuse angle, wide everted lips and vertical walls below the lips. They could be from high, vertical neck jars. The exteriors are rough and the interiors are well burnished. This form, if it is a crater, suggests a prototype of the

late Teotihuacan San Martin Orange cooking pots. They are, therefore, probably early Teotihuacan rather than Formative in date.

Medium Size Jars, well burnished (0827, 30 egs, Figure 39c, d, h, k). These are generally jars of intermediate size with low to medium neck heights. They are generally similar to 0823 in vessel form and form of the neck, but different in that the interior neck and exterior lips are very highly burnished and, in a few cases, the entire exterior area of the neck as well.

Small, Widemouthed, Vague Shouldered Jars (0828, 1 eg, Figure 39l). These are low necked jars with direct rims, with burnishing on both the interior and exterior of the neck. The one example is dark brown in surface color. It is from a medium sized jar in which there is no apparent shoulder break between the neck and the body wall. Its rarity suggests a non-Cuanalan date, but it does look Formative.

Small Jars, plain (0829, 10 egs). These are all rims from undecorated, roughly finished, small jars, similar in general form to an 0823. Most rims also have dark surfaces.

Small to Medium Jars, painted (0830, 32 egs, Figure 39e-g). These are all rims from vessels very similar to the 0827 in form and in size. They have a similar pattern of burnishing and, in some sherds classified as 0830, the difference in burnished and unburnished portion of the vessel may, in fact, be the product of this differential application of burnishing. Such sherds, perhaps, could correctly be classified as 0827, but others have a red paint applied to the interior or exterior.

Large Jars, red-on-buff (0831, 30 egs, Figure 39i, j, m). These are all painted examples primarily of the 0824 type of jar in which a thick red paint has been applied to the interior neck, exterior lip, and the exterior body below the neck shoulder function.

Miscellaneous Bowls (09, 92 egs, 5.84%, Figure 40, Plates 16f, 20d, 21d, 23c)

This is a composite grouping that includes a variety of bowl-like vessels. Most of them probably pertain to the Cuanalan phase but this is not certain, though they are almost certainly Formative in date. Most examples have well burnished surfaces. The breakdown by form variation is as follows.

Widemouthed Bowls (0935, 10 egs, Figure 40d, e). These are all rims from small to medium sized vessels that have a wide mouth and a gobular body. The body curvature somewhat resembles a tecomate, but the rim flares outward rather than curving in and the lip, in all but one case (which has a rounded bolster), is slightly everted. The 09351008 rims are from very small vessels with variable surface color; 09351002 is a single dark surfaced rim with a round bolster and the

balance (7 rims), coded as 09350603, are all medium sized vessels with everted lips varying considerably in surface color from tan to reddish brown to dark brown. Paste and surface finish resemble those of other Cuanalan phase vessels.

Wavy Rim Hemispherical Bowls (0936, 12 egs, Figure 40a). This is a single group of red-on-buff (red rim banding) medium size hemispherical bowls with undulating or wavy rims ("Squinch Pots"). They are undoubtedly Cuanalan phase in date.

Hemispherical Bowls (0937, 43 egs, Figure 40c, f, h, i). These are all hemispherical bowls and with two exceptions are all from vessels which are rather deep in proportion to rim diameters. The breakdown by varieties is as follows: 09371001, one example (Figure 40c), is smudged black on the interior and the upper exterior area; 09370101 (25 egs, Figure 40h) are all medium size hemispherical bowls with red-on-buff decoration, in which the red is applied solidly over the exterior and rim interior--lips are direct, either rounded or tapered; 09370601 (a form very similar to 09370101, Figure 40f) includes 12 examples and has an overall burnished tan surface but lacks painted decoration; 09370604 (4 egs, Figure 40i) is identical to 09370601, but the lip is squared off or beveled; 09370501 (one example) could possibly be simply the upper portion of an 02 vessel. It has an incised design very similar to that found in such vessels.

Small, Shallow, Incurved Rim Bowls (0938, 9 egs, Figure 40b, j, k). These are all rims from very small, shallow hemispherical bowls with vertical or incurving rims and dark surfaces. Two of the sherds have a row of notches on the exterior surface of the lips. This variety is probably of the Cuanalan phase, but this is uncertain.

Misclassified Tecomates (0939, 5 egs). This variety includes 5 rims that were incorrectly classified, but the mistake was not detected until the rim data had all been quantified. Rather than recalculate the percentages we have decided to group these into an 09 variety category.

Basal Break Bowls, non-Cuanalan Phase (0940, 13 rims). These are all rims from vessels very similar in general shape and size to our Cuanalan 01 and 03 categories. They differ in some specific features and probably date from other Formative phases. They do not form a close-knit group and we have sorted them into 5 definite varieties. One of these is 09401004 (Figure 40g) and includes one example which differs rather sharply in profile from the others. It is a rim from a large, shallow dish-like vessel, hemispherical in form with an encircling groove on the exterior below the rim. One example, 09410101, is of a rim which looks like it might be from Tezoyuca phase, possibly a variant of one of the 04 forms from that phase; 09400104 (5 egs) conforms closest to the Cuanalan 03 vessels and could possible be classified with them; 09400601 (4 egs) are rather similar to Patlachique-Tezoyuca basal break bowls and may actually pertain to this phase; 09400103 (2 egs) are from open hemispherical shaped bowls

wide wide, obliquely placed, everted lips. They also have red paint the exteriors and on the interior lips.

Censers
(10, 57 egs, Figure 43, Plate 23e)

Within the Cuanalan sample were 57 sherds, all from rough, unburnishe vessels with coarse, sandy, crumbly paste. A few examples have areas of painting and burnishing, frequently in the lip area. Many sherds show fire blackening. The forms are extremely variable and it seems doubtful that all of them come from censers, although we have grouped them together under this heading. Where pertinent, we will indicate those varieties that probably did function as incense burners.

Hermispherical Shaped Rims (1001, 17 egs, Figure 43a, b, i). These are all rims from vessels shaped like hemispherical bowls. We have sorted them into 3 varieties based upon variation within the general form: 10010001, for example, are all rims from hemispherical bowls with very rough unfinished surfaces, interior blackening and simple direct lips; 10010004 (8 rims) are similar but have a flattene lip. They also show burning on both exterior and interior and might conceivably be rims from pedestal bases rather than from the upper portion of the vessel. One rim, 10010007, has a burnished exterior and interior lip and a very flat beveled lip. It is also much thicker-walled than the other two varieties of the hemispherical bowl form; in all probability this rim does not come from a censer. We feel fairly confident that the other two varieties of hemispherical bowl rims are, in fact, from censers.

Tecomates (1002, 3 egs, Figure 431, n). These are a few sherds which have a general tecomate-like form. We suspect that most of them actually are vessels used as incense burners. They are broken down into 2 varieties which have the following characteristics: 10020001 (2 rims) are sherds that are very similar to the upright rim vessels of the 01 vessel form, particularly those that have sharply insloping rims. They have a rough unfinished exterior, but it is conceivable that these rims, in fact, are simply weathered or eroded samples of the 01 form. The one rim, however, which we classified as 10020004, is definitely a tecomate rim, but again it may be an example of a badl weathered case of the normal 02 tecomate vessels.

Probable Pedestal Base Rims (1003, 4 egs, Figure 43c). These are all rather thick-walled rims, unburnished, with relatively smooth exterior surfaces. Some of them have indications of interior burning and are probably rims from pedestal bases of large censers. The lips are simple, direct in form with some beveling or flattening of the upper surface. We have broken them down into 2 varieties, 10030001 (3 rims) and 10030004 (1 rim). The distinction rests on the fact that in the case of the latter, there is a groove just above the exterior lip.

Deep, Widemouthed Tecomates (1004, 1 egs, Figure 43f;j). This is a single rim from a very thick-walled deep tecomate with only a slight incurve to the rim so that it appears as a vase. The surface is rough and unfinished, with no indication of clouding from burning; it is doubtful that this particular rim comes from a censer. It does not, however, fit into any of the burnished Cuanalan forms, and so is probably a genuine form in its own right.

Chimney-Shaped Vessels (1005, 2 egs, Figure 43e). Two rims from the sample came from high, chimney-like vessels with everted lips. The interior lip is painted with a red band which then extends over to the edge of the exterior lip. One rim has traces of a handle or an applique object on the exterior. These vessels undoubtedly are censers, presumably a different form from that represented by the hemisperical bowl rims.

Spiked Rim Censers (1006, 1 egs, Figure 43k). One rim and a number of body sherds come from a vessel which has a series of conical knob-like projections as ornamentations on the exterior wall. They seem to be similar in form to the 01 basal break bowl vessels, but differ in the fact that they have the typical coarse paste and rough unfinished surface of the censers. In all probability these are censer vessels.

Multiple Mouth Vessels (1007, 12 egs, Figure 43m). These are rims from vessels with the characteristic rough finish and coarse paste of the overall 10 type, but differ from the others in the fact that they have several mouth openings. All examples in our sample are small in size and we have no idea as to the overall shape of these vessels. They frequently show blackening of the surface as though objects had been burned in and near them; they presumably were used as incense burners.

Red-on-Buff Low Hemispherical Bowls (1010, 1 egs, Figure 43d). One rim in the sample comes from a vessel which is roughly hemispherical in shape but extremely shallow, and the vessel itself is of very small size. It has the characteristic rough unfinished surface over most of the vessel wall and the characteristic coarse paste, but differs from the others in the presence of a painted red band on the surface of the rim.

Pedestal Bases (1011, 1 egs, Figure 43g). This variety includes only one rim. We have sorted it out here because it definitely is a pedestal base rim, whereas the other examples we suggested as pedestal base rims (the 1001 variety) are not certain.

Burnished Bowls (1012, 1 egs). This is a single rim which, perhaps, should not be classified with the balance of the 10 category. We have grouped it here because the paste has similar characteristics to that of the general censer ware. On the other hand, the interior and exterior are well burnished. The rim comes from a vessel form which has a high, slightly flaring, but straight upper segment and a rounded base. It differs from the 01 vessels, however, in that the lower portion is extremely shallow and most of the vessel height is

taken up with the upper segment, a feature never characteristic of the 01 vessels.

Body Sherds (1008 and 1009, 14 egs). We have included 14 body sherds in this analysis because they possess rather specialized features. They are all tubular-shaped sherds, representing various appendages of very large vessels. Some of these are solid and, in the few cases where we have definite evidence, they seem to be large elongated supports from large censer vessels with flat bases. One example, however, is hollow and presumably represents a censer handle. Whether this one pertains to the Cuanalan phase is questionable, since ladle censers are supposed to appear in the Postclassic period in this area. One peculiar example of the solid type consists of two rope-like elements that have been twisted together to form a single handle-like object. This presumably could be a support similar in its function to the other solid tubular-shaped sherds that we have noted previously.

CERAMIC VESSEL TYPES (MISCELLANEOUS FORMATIVE PERIOD) (12-28 egs, 1.78%)

Here we have included a great number of minor (in terms of quantity) varieties that pertain to Formative phases other than Late Cuanalan. This identification is based on comparisons with ceramics from our Venta de Carpio, Tezoyuca and Chimalhuacan excavations and some selected surface samples. They occur in such small quantities at Cuanalan that their stratigraphic position is of little significance. One set of sherds, with similarities to Chiconauhtla phase ceramics from Venta de Carpio and to Vaillant's Early Ticoman, we are tentative defining as an early phase of Cuanalan. Another set are similar to ou Tezoyuca or Patlachique phase samples.

The non-Late Cuanalan phase rim sherds have been coded under the numerical designation 12, 13, 14, 15, and 16 in columns 1-2. The varieties and probable phase assignments are as follows.

Miscellaneous Rims

Twenty-eight rims have been placed in a 12 category in the number 1-2 column. This is not a single form or functional category, but is simply a group of sherds that are probably Formative in date, but definitely not of the Late Cuanalan phase. Most of them probably date from the postulated Early Cuanalan phase; some date from either the Patlachique or Tezoyuca phases. Since the sample includes approximate 26 varieties, in most cases a particular variety involves only a singl

rim. We will present a very brief statement on each of these varieties rather than go into any detail.

12000001 (3 egs, Figure 44j). These are rims from basal break bowls with rounded bases that vary in color from burnished tan to burnished reddish-brown. One of these has a small, subconical-shaped solid support. They generally resemble very closely the Chiconauhtla type basal break bowls, with a very high upper wall in porportion to the total vessel height. In one nearly complete profile, the upper wall is 7 centimeters high in comparison to a total vessel height of only 9-10 centimeters. They resemble the incised and decorated variety of the Chiconauhtla examples rather than the typical reddish-brown bay ware variety and lack the highly burnished surface of the bay ware. The lip on these vessels is tapered, again more typical of the incised and smaller varieties of this form from the Chiconauhtla phase samples. We would assign these rims to our postulated Early Cuanalan phase.

12000002 (1 egs, Figure 44a). This consists of the single rim of what is specifically a Chiconauhtla type burnished red-brown rim, from either a basal break bowl or a jar. Early Cuanalan phase date.

12000003. This is a single rim which has an overall burnished tan surface and, in shape, could possibly be simply an upright rim from one of the 01 vessel varieties and, therefore, pertain to the Late Cuanalan phase.

12000004 - 12000006 (3 egs, Figure 44d). These are basal break bowls, similar to the 01 Chiconauhtla phase examples with a well burnished, chocolate brown surface. The form resembles very closely the 12000001 rims that we have described previously, but differs in the presence of a very pronounced basal ridge at the angle where the upper segment joins the lower segment. We have sorted out one of the three rims and given it an 06 designation because it has a rather flat, but definite exterior bolster, whereas the other two are characterized by having direct rims. Early Cuanalan phase.

12000005 (1 egs, Figure 44c). This is a single rim with a well burnished black surface, direct rounded lip, and a shallow incised design on the exterior. The rather straight profile apparently comes from an open mouth vessel with widely flaring walls. Although its precise chronological association is uncertain, it undoubtedly is a Formative period sherd.

12000007 (1 egs, Figure 44e). This is a single rim from a vessel which contrasts very sharply with all other Formative pottery from the sample. Its chronological position, therefore, is very uncertain. It may possibly derive from outside of the survey area. The rim is from a hemispherical bowl, relatively deep in relationship to the mouth area, perhaps a cup-like vessel. The interior is roughened, the exterior has a lightly burnished cream slip. The lip is rounded in portions, but in some sections has a flattened beveled surface. There are the remains of a handle attachment on the exterior rim.

1200008 (1 egs, Figure 44f). In the sample there is a collection of three sherds, including one rim that comes from a highly specialized vessel form, very probably of the Early Cuanalan phase. The sherds are from a globular vessel with a flat bottom and with a highly burnished dark brown exterior and interior surface. The vessel, generally classifiable as a bowl in form, has as its most characteristic feature a series of diagonal grooves placed on the middle of the exterior wall. Above this band there are a series of horizontal grooves on the upper exterior. The raised ridges left by the grooving are highly burnished, whereas the grooves themselves have had the burnishing scraped away. It appears as though the grooving was done after the vessel was completely burnished.

12000009 (1 egs, Figure 44g, Plate 22c). This is a single rim from a very complex silhouette vessel. Basically it can be described as a vase, but it has an outflaring upper segment which gives the composite form. The surface of the vessel exterior and the upper portion of the interior, starting with the outflaring section, is highly burnished and reddish-brown in color. The lower interior surface is left smoother but unburnished. The burnishing and the color both closely resemble Chiconauhtla phase vessels, and so it probably pertains to the Early Cuanalan phase.

12000010 (1 egs). This is a single rim, a very small one which apparently comes from an open mouth vessel with a moderately wide, sharply everted lip placed horizontally to the vessel wall. The interior lip and wall have a burnished tan surface, the exterior is left smoothed but burnished. My impression is that the rim probably comes from a Patlachique or Tezoyuca phase vessel.

12000011 (1 egs). This is a single rim from a tecomate. It is from a very small vessel, but it does have a flat external bolster, very similar to the larger tecomates from the Chiconauhtla phase. It has external burnishing on a generally reddish-brown surface similar in color to the larger vessels from the same phase. The interior is buff in color and unburnished. Early Cuanalan phase.

12000013 (1 egs). This is a sherd that probably comes from a hollow subglobular support. It could, however, be from a miniature vessel.

12000014 (1 egs). This is a single rim with a burnished red exterior surface and an unburnished tan interior. It has a heavy beak-shaped exterior bolster. The rim could be from a tecomate, but it resembles very closely the rims from Xolalpan phase low necked jars. We suspect that it does come from that phase.

12000015 (1 egs). This is a rim from a small, possibly miniature, jar which has a burnished black exterior and interior neck. There are signs of exterior incised design as well. The chronological phase of this sherd is uncertain although it probably is Formative in date.

12000016 (1 egs). This is a rim of the typical Chiconauhtla flat bolstered rim tecomates. We refer the reader to the chapter on the Venta de Carpio excavations for more detailed description of this pottery type. Probable Early Cuanalan phase in date.

12000017 (1 egs, Figure 44h). This is a single rim from an open mouthed, almost vertical wall vasiform vessel. It has a burnished black interior and exterior surface, a direct rounded lip, and a definite step in the vertical wall 2 centimeters below the strip. Its chronological position is undoubtedly Formative but is uncertain as to phase.

12000018 (1 egs, Figure 44i). This is a single sherd which includes the virtually complete profile of a miniature, vague shouldered, low neck jar. It has a burnished tan exterior and a smoothed interior. The chronological position is uncertain; it is possible that it does not even pertain to the Formative period.

12000019 (1 egs, Figure 44k). This is a single rim, probably from a tecomate, although the small size of the rim makes this an uncertain identification. It has an exterior bolster. The dating is undoubtedly Formative, but the phase is uncertain.

12000020 (1 egs, Figure 44l). This is a single rim from a vase-like vessel which has what can be described as a very wide, flat bolster or a thickening of the upper 2 centimeters of the rim. The interior is smooth but not burnished; the exterior is well burnished and is banded reddish-orange and black. This may be the product of firing differences rather than painting. Its chronological position is uncertain.

12000021 (1 egs, Figure 44m). This is a single rim from a sharply flaring, wide mouth vessel, possibly a jar. It has a relatively thin wall compared to most jars, however, and has a highly burnished reddish-brown interior and a smooth but unburnished exterior. The color resembles very closely jars from the Chiconauhtla phase, although the form is certainly not the typical jar form of that phase. Probably Early Cuanalan phase.

12000022 (1 egs, Figure 44o). This is a single rim from a very shallow tray-like vessel. It has an unburnished, but smooth exterior and a well burnished interior and upper surface of the lip. The lip is squared or beakish in profile with a flat, grooved superior surface. In the general appearance of the clay, the surface and the paste, it is rather close to Patlachique-Tezoyuca phase vessels. The tray form, however, is very uncommon in those phases.

12000023 (1 egs, Figure 44n). This is a single rim from what is probably one of the Tezoyuca hemispherical bowls. It has a well burnished red slip on the interior and the upper surface of the lip and a well burnished buff exterior.

12000024 (1 egs). This is a very small single rim with a burnished tan interior and exterior surface. It is probably from an open mouth vessel. The wall is thick and the rim has a beakish profile to it. Its period is undoubtedly Formative, but the chronological phase association is uncertain.

12000025 (2 egs). These are rims from what are probably medium to high neck jars. The neck is vertical in position with respect to the main axis of the vessel; the lip has a heavy, grooved exterior bolster. The outer surface of the neck and the interior upper few centimeters of the rim have a thick, burnished red slip. The interior is lightly burnished or smooth and tan in color. The vessels probably date from the Early Cuanalan phase.

Red/White and White Sherds
(Plate 24a-g, i)

The rim sherds included in the 13 category (26 egs) are either sherds with red paint on a white slip, white on a red slip, or overall white slip sherds. They are undoubtedly Formative in date and all probably pertain to the Early Cuanalan phase. With respect to decorative technique, they resemble the red/white and white-slipped rims from Venta de Carpio, but the forms are different.

13010803 (2 egs, Figure 45b). These are rims from vase-like vessels with nearly vertical walls. The wall flares outward just below the rim. They have painted red interiors, white-slipped exteriors, and one rim has a faintly incised crosshatch design scratched into the exterior slip.

13010801 (4 egs, Figure 45a). These are rims from basal break bowls, comparable to the 01 form but with higher walls, as in the Chiconauhtla phase. Some rims may possibly be from vessels with a form closer to what we might call a vase. In terms of lip form, this is not a homogeneous variety. For example, one rim is beveled and everted, two are rounded, and the other everted. Three of the rims have interior white slips with red banding or solid areas of red over the white. Of these, two have lightly burnished tan exteriors, another has an exterior red-on-white design. The fourth rim has a red interior and a white exterior. They probably are sherds from vessels similar to the Chiconauhtla phase basal break bowls with rounded bases, but they do not duplicate the plain variants of this form from our Venta de Carpio examples.

13010903 (1 egs, Figure 45c). This is a single rim, probably from either a basal break bowl or a vase, which has an exterior incised white slip with incised design and an interior which is well burnished medium brown in color.

13020804 (1 egs, Figure 45e). This is a single rim from a very low, almost neckless jar. It has a smooth but unburnished interior; the exterior has contrasting zones of solid red and white areas. The rim itself is red painted.

13020802 (3 egs, Figure 45d). These are rims from thick-walled vessels with heavy, rounded bolsters and slightly convex exterior walls. The outer lip has a white slip, the exterior body has a dull red-painted surface, and the interior is unslipped, somewhat rough in surface, but well burnished and dark brown and orange-brown in color. The rims probably come from very wide mouthed tecomates. The vessels' rims are very close in form to the 02 Cuanalan phase tecomates and differ from them only in the presence of the white slip.

13030802 (2 egs, Figure 45f). These are jar rims from low neck jars with very heavy rounded exterior rim bolsters. They have a band of white paint on the exterior rim bolster, the exterior of the neck is unburnished; the interior has a burnished red-brown surface. The chronological association is uncertain, but they probably belong to the Early Cuanalan phase.

13040803 (3 egs, Figure 45g). These are rims, possibly from miniature high neck jars. Two have a white interior and a red exterior plus the interior lip, the other rim has a white exterior and a red painted interior and rim surface.

13050809 (1 egs, Figure 45h). This is a single rim, probably from a hemispherical bowl with an undulating rim. The interior and most of the exterior has a red slip, but there is a solid area of white slip on the exterior 2 centimeters below the rim.

13061303 (1 egs, Figure 45j). This is a rim from a typical Chiconauhtla type basal break bowl with a rounded base. The upper wall segment is 6.5 centimeters high. The rim includes only a small part of the basal angle, so the total vessel height is not known. The sherd has a rather dull, but definitely burnished, overall orange surface. The exterior has solid areas of white paint as design, bordered by lightly incised lines.

13060801 (2 egs, Figure 45i). These are rims from open mouthed, bowl shaped vessels with outflaring walls, possibly the basal break, rounded base form that we have noted previously as characteristic of both the Cuanalan and Chiconauhtla phases. The rim part, however, is too small to make a complete judgment as to the feasible form from which these rims come. The two rims differ in their precise profile and in the lip form. One has a thickened, rounded lip and an outflaring wall with a red rim band. Below the band of red on both the interior and exterior is a band painted white and varying from 3-4 centimeters wide and then below this band the vessel's walls on both the interior and exterior have a red surface. Profiles have a definite step on the exterior just below the junction of the white and red band.

13071202 (1 egs, Figure 45k). This is an example of a typical Altica phase jar rim. It has an overall white slip with an external rim bolster, which gives the overall profile a beak-like appearance. It probably pertains to the Altica phase and represents utilization of the site but not a genuine occupation.

130701204 (1 egs, Figure 45l). This is a single rim which contrasts very sharply with the other rims from the 13 category. It has an overall thick, well burnished, hard white slip that lacks the flakiness characteristic of the white slip of most of the sherds from the local area. The paste also is fine and homogeneous, not typical of the Formative pottery from this area, and suggests the probability that this is not a local sherd. The rim is small so it is difficult to associate it with a vessel form, but it probably comes from an open mouth flare-sided bowl, similar in some respects to the basal break bowl rims from the valley.

13080802 (4 egs, Figure 45m). These are rims from very shallow, lightly burnished tan saucers with red and white decoration. The decoration consists of a narrow interior band of red paint on the rim and an overall thin, flaky fugitive white slip over the interior of the vessel. They probably date from the Early Cuanalan phase, but could conceivably date from the Late Cuanalan phase.

Vase-Like Vessels
(14-32 egs)

14010101 (3 egs, Figure 46a, b). These are rims with direct lips, slightly concave wall profiles, and apparently coming from high narrow-mouthed vertical-walled vases with flat bottoms. One of them has a highly burnished red slip over the entire interior of the vessel and exterior surface of the rim; the others have the red lip on the exterior surface plus the interior lip. These rims may possibly be Teotihuacan in date.

14010102 (3 egs). These three rims are probably Formative in date, have an overall burnished red slip, and are from vessels with a typical vase profile with high vertical walls and narrow mouth openings. There is a slight bolster on the exterior rim and the profile tends to be almost perfectly straight rather than the slightly concave type form described in the previous 14 variety. These may conceivably be Teotihuacan in date as well.

14010104 (11 egs, Figure 46c). All rims are from high vertical wall vases with an overall burnished red slip. They differ from the previous two varieties in that the surface of the lip is flat or beveled. We suspect very strongly that these are Teotihuacan in date, but have kept them here because of the uncertainty of their chronological position.

14010501 (1 egs, Figure 46f, Plate 16c). This rim is similar in form to 14010104, but has a burnished black surface and incised and punctated design on the exterior. Its time position is uncertain.

14011001 (4 3gs, Figure 46g). These are rims from vessels very similar to 14010104, but have an overall burnished black surface and the lip is rounded rather than beveled. They do not, however, have incised designs as in the case of the 14010501 variety.

14011002 (1 egs, Figure 46e). This is a vase rim identical in form to the 14011001 but with an orange-brown surface color.

14020101 (3 egs). These are three rims from a vase-like vessel with a high vertical wall, but are thicker than the rims from the previous 14 varieties described and most probably assignable to the Formative period. They have a burnished exterior red slip which spills over the interior lip. The balance of the interior varies in color from burnished tan to burnished black.

14020103 (6 egs, Figure 46d). These are all very small rims of red-on-buff sherds that have a rounded lip and a relatively vertical profile, although the small size of the sherds make this difficult to say. I suspect strongly that all of these sherds should be classified as Toltec red-on-buff, but because of the uncertainty we have included them here in the Formative study.

Miniature Vessels

This type includes three rims of extremely small, toy-like vessels. Two of the three are from jar-like vessels and have a highly burnished overall black surface. The third has a vase form and has the burnished black surface only on the exterior; the interior is smoothed but unburnished. Phase uncertain.

Incised Basal Break Bowl
(1 egs, 16010504)

This is a single rim from a basal break bowl with an upper segment 8 centimeters high; the wall is concave in profile and flares sharply outward. The exterior is smoothed, the interior is well burnished and dark brown in color. The exterior is decorated with parallel scalloped incised lines and solid red banding. The rim is slightly beveled and oblique in profile. The rim probably dates from the Early Cuanalan phase, although we have no duplicate example from the Venta de Carpio site.

Fresco Painted, Basal Break Bowl
(1 egs, 17011401, Figure 46h, Plate 87a)

This is a single rim with a highly burnished black surface and rounded lip from a typical Cuanalan 01 shaped vessel. The rims should really have been classified in with the 01, but because of its uniqueness we decided to separate it. The rim includes the upper wall segment plus the shoulder angle of the 01 form. The upper segment is 5 centimeters high and has a design consisting of solid bands of fresco painting including cream, red or pink, yellow and green. It is extraordinary that in the huge sample of 01 rim forms that we have from Cuanalan, this is the only example with the fresco painted design.

SUPPORTS
(See Figures 41, 42, Plates 26, 27)

Supports can be classified into two major form categories and are as follows:

Solid Supports
(Figure 41a-e)

Supports of this type are either nubbin or conical. They comprise a very minor overall type, only 9 examples being at hand. They are characteristically small and undecorated and cannot be assigned to any specific vessel types.

Hollow Supports
(Figures 41f-j, 42, Plates 26, 27)

The hollow support is quite characteristic of the Ticoman period, as about 260 complete supports and sherds from supports were recovered. There are 7 basic varieties of hollow supports, of which the mammiform, or teat support, is the most common (0614). Other forms are multibody (0615), subglobular (0621), anthropomorphic and zoomorphic (0617), conical, elongate (0618), globular (0619), and a shape which may be best described as semisaddle elongated (0620). As was mentioned before, one example of the 0618 type has 4 vertical slit openings and has been coded as 0622; these supports are associated with basal break bowls with rounded bottoms and shallow bowls. These supports may be finished in the natural color of the clay or decorated with red, polychrome, or

negative painting. All have vents varying from small holes, to slits, to large openings extending the length of the support and occupying the entire side.

The anthropomorphic or zoomorphic support is relatively rare. It consists of what looks like a leg flexed at the knee, with stylized foot and toes. These supports may also be decorated with red or white paint. The anthropomorphic support seems to be associated with shallow bowls.

DISCUSSION OF CERAMICS
(see Tables 7-12)

The great majority of the 1574 Formative rims in our sample can easily be fitted into a very few major functional types. These form a clear cut, well defined ceramic complex in terms of form, decorative techniques and motifs, and paste. Slightly over 1/4 of the rims are from basal break bowls with rounded bases, a little over 1/3 are jar rims (of which 75% are of a single subtype), 1/6 of the rims are from tecomates, 1/10 are from a variety of minor bowl types, 1/25 are censers, and a little under 1/10 of the rims fit into a variety of miscellaneous rims that are probably non-Cuanalan in date.

With respect to function, the major types fall into two categories, service ware, including the basal break bowls, shallow bowls and deep basins (01, 03, 04, and 05), and utility vessels, including tecomates and jars (02 and 08). By service ware, we mean essentially table ware for serving food. As we pointed out previously, the variability and the size of such vessels suggests the presence of vessels for serving large quantities of food to be used by the entire family and smaller vessels for individual food service. The striking emphasis on deep vessels for food service suggests that stews, gruels and soup-like foods were a major method of cooking. Absent are dish-like vessels (very prominent in Postclassic ceramic complexes) and this, in turn, checks very nicely with the absence of comals in our samples. Presumably, maize was consumed primarily in the form of pozol, atol, and possibly tamal.

The tecomates seem to have been storage vessels rather than cooking vessels since signs of burning are absent. Jars, on the other hand, were apparently used for both cooking and as storage vessels.

The 09 category of vessels exhibits such a great variety and is so little represented that functional assessment is difficult. The number 10 category was, at least in part, censers.

With respect to decoration, Table 10 summarizes the distribution of decorative techniques. Eliminating jars and censers from the sample (in other words, including only the 01, 02, 03, 04, 05, and 09 rims), over 60% of the rims have some kind of decoration. Considering the fact that a large number of the rims are small, the number of decorated vessels is probably considerably higher. Simple red-on-buff is, by far, the most common decoration, accounting for 52.54% of the 845 rims that fall into the above types. The low percentage of such techniques as negative (2.84%), red and white-on-buff (1.42%), fugitive white-on-brown (0.71%), incised red-on-buff (1.42%), punctate (0.47%), white-on-red (0.12%), and incised plain (2.01%) is somewhat misleading, however, since such techniques are frequently applied only to portions of the vessel, whereas red-on-buff frequently consists of rim bands that encircle the vessel.

In contrast to these vessels, jars are rarely decorated. Only 10.88% of the sample of 579 rims have decoration; of these, nearly all (10.71%) consist of simple red-on-buff painting.

In Table 12 we have plotted the stratigraphic positions of our subtypes and types. Six levels have been defined as follows.

Level 1 (0-20 cm), level 2 (20-40 cm), level 3 (40-60 cm), level 4 (60-100 cm), level 5 (100-120 cm), and level 6 (120-180 cm). We have combined several levels to achieve a respectable sample size in the lower portion of our excavation. There is no apparent internal trending with respect to the Cuanalan phase ceramics, and this is true when varieties are plotted as well. This supports an impression that one has from visual examination, of a homogeneous, internally consistent complex that probably does not represent more than two centuries of time. We had hoped to see trends in the basal break bowls in the height of the upper segment, since the overall Formative does show a very consistent reduction of upper segment height from early to late. This was not supported by our stratigraphic analysis of Cuanalan itself, again suggesting a fairly short range of time. In part (but only in part), these variations do relate to vessel size, so perhaps this is not surprising.

MISCELLANEOUS CERAMIC ARTIFACTS

Figurines
(Plates 56-62, Tables 13, 14, 18)

Anthropomorphic Figurines. Most of the figurines recovered represent the human form. The figurines are nearly all classifiable according to the letter and number typology used by Vaillant in his studies of the Arbolillo, Zacatenco, and Ticoman figurines. Table 13 indicates

the numbers of figurines for each of the identifiable categories. As can be seen, H4 was by far the most predominant type. This is in strong contrast to the site of Ticoman, where type H4 was not common (Vaillant 1931, p. 362). H4 figurines are particularly characteristic of western Mexico; two figurines from Chupicaro, Guanajuato (illustrated by Vaillant 1931, p. 363) are identical to figurines from Cuanalan (also see Porter 1956, Figure 16).

One small figurine of black unslipped, unpolished clay is notable for its crudity and lack of artistic control in contrast to other Preclassic figurines. It is pinched out of a single piece of clay, is almost perfectly flat, and has only the most rudimentary eyes and nose attached. Another figurine is almost on a par with that above as far as artistic execution is concerned. The body consists of a solid cylinder; the head has only a large nose, large ears, punch holes for eyes and mouth, and no chin. It might be somewhat unscientifically called an Andy Gump type after the character is so resembles. The base of this figurine seems to indicate that it would be attached to a hollow pedestal.

In general, figurines are similar to those from Ticoman as described by Vaillant, particularly with the late phase. An exception to this rule is the clearly west Mexico variant. This possible affiliation of Cuanalan with west Mexico has been heretofore unnoticed.

In Table 14 we have summarized the stratigraphic position of the types of figurines at Cuanalan. It is evident from the table that there is no definite sorting of any significance throughout our stratigraphic levels. This again confirms our previous point as to the lack of internal stratigraphy in the ceramics, and again suggests that the Cuanalan sample is essentially a single complex dating to a relatively short period at a time.

Zoomorphic Figurines. The zoomorphic figurines from the Cuanalan assemblage are not of great significance. A total of 21 fragments came from zoomorphic figurines. This sample includes one complete figurine, 6 bodies, 1 foot, and 13 heads. The bodies, with the exception of 1, are all mid-sections of quadrupedal animals, average 5 centimeters in length and 1.5-2 centimeters in diameter each. One has small holes pierced through it laterally just behind the forefeet and made before firing. One figurine is complete and is in the form of a bowl with a reptilian head, four legs, and a tail projecting outward from the vessel. Another fragment, burnished black, represents a turtle head projecting out of the shell. The foot is a 5-digited hollow figurine foot, possibly a pedestal base and conceivably from a vessel. We suspect that this particular case may be laterthan the Formative in date, on the basis of the characteristics of the paste.

Of the heads, 9 are from bird-like animals, 4 of these resemble ducks. Two of them were either hollow or else the head and neck were appendages of some type of vessel. The eyes of two of them are punched, the other two filleted with holes punched to indicate the eyes.

Another head, which is partly chipped away, may have been a duck, but as it appears now it resembles more closely an owl, with large eyes on the front of the head made by filleting and then combining this with punched holes on the center of the fillet. This figurine is also hollow, like the four indicated above. The other four bird heads have turkey comb-like appendages on their heads and presumably do represent turkeys. The eyes are all filleted, with those of two of the figurines punched. Two of the mouths project forward into what could be called beaks. On the other hand, the profile seems to be quite perpendicular to the mouth, in a human-like position. This may be Vaillant's G2 type anthropomorphic figurine (p. 251). Five of the heads are unidentified as to the animal being represented.

There are some problems in assigning some or any of these figurines to the Cuanalan phase. First of all, they are relatively uncommon and of the lot of 21 fragments only 13 could be assigned to stratigraphic levels in our excavation. Of these, 11 are scattered through the first 5 levels, and it will be remembered that the first 3 levels in the excavation (which include 9 of these) include a great amount of post-Cuanalan occupation. Some of the bird heads, in particular, resemble very closely the duck heads from early Toltec vessels from Oxtotipac. We would guess that at least some of the bird heads do, in fact, pertain to the Cuanalan phase; the quadruped bodies are probably also from this phase, as is the turtle effigy and less probably the effigy bowl.

Earplugs
(Plates 81-83, Tables 15-18)

Earplugs of two major types were found: the hollow or "napkin ring" type, and the solid or spool type. Both types occur in a gradation of sizes from small to large. The characteristics of the types are as follows.

Solid Earplugs. These are shaped like very short thread spools and the end surface may be either flat or depressed. They are generally painted white and/or red. Some of the earplugs are plain on both top and bottom, others have incised, geometric designs on one side. These geometric designs occur on the face of both flat and depressed plugs. One depressed plug had a human head in relief incised in the center. Another variant of this solid type is the carved plug. In this type, the two faces of the plug were deeply excavated, leaving a thin, concave partition which was then cut in geometric designs.

Hollow Earplugs. This type is the hollow ring with the outside surface concave and the inside convex. Color varies from highly polished red-brown to black, although some of the examples were painted white. A variant of the hollow type is more tubular with the outer face being larger than the inner. These plugs are burnished black on the outside surface, while the inside is unburnished and painted red.

Vaillant's study at Ticoman shows that the solid, painted earplugs occur throughout the Ticoman phase, whereas the hollow, carved and incised solid earplugs occur only in the late phase. This is in accord again with the overall appearance of the Cuanalan materials as belonging to the Late Ticoman phase.

We have taken the two basic types--solid and hollow--and broken the former down into a great number of subtypes based upon variation in size and decoration. Subtype A includes solid plugs with only painted decoration. The surfaces of the earplugs of this type are almost completely flat or slightly concave. The type B earplugs are solid plugs very similar in appearance to type A, but the surface on one side is sharply depressed. They are also painted red. Type C earplugs are very similar to type B in appearance except that they have a nipple-like projection in the center of the depressions. The surface of the depression and of the nipple is painted red. In the type D earplugs, the one side is also depressed as in the types B and C, but instead of the nipple they are decorated with crossed incised lines or pairs of parallel incised lines placed in a diagonal relationship to each other. The surface of this type of earplug is also painted red. The type E earplug has a flat surface on both sides and a combination of incised and punctate designs, usually with a pattern of division of the design into four quadrants.

The general type of napkin ring or hollow earplugs has been broken down into two varieties, G and H. G is a very minor type in which one side of the earplug flares out sharply into a spool-like form. In the H type the earplug lacks this flare, although the rim profile is slightly concave, it lacks the ear-like flares on either surface.

We have also designated another variety which we are referring to as F, which is a kind of halfway type. Apparently the earplug was made as a solid earplug and then the surface on both sides was cut away to leave a very thin partition in the center, which was then perforated to form variant kinds of pierced designs. It is, therefore, neither a solid nor a napkin ring type.

As was indicated before, earplugs vary also in terms of size, from some which are only 1 centimeter in diamter up to others which measure 3.5 centimeters in diameter. Since it seems highly probable that this range relates to the age of wearer, we have established a secondary classification of all of the stylistic types with respect to size. This breaks down into 8 divisions: type 1, for example, includes all earplugs 3.5 cm in diameter; type 2, 3.0 cm; type 3, 2.5 cm; type 4, 2.2 cm; type 5, 1.7 cm; type 6, 1.5 cm; type 7, 1.3 cm; and type 8, 1.0 cm. By combining style variations with the differences in size, we end up with the 40 varieties of solid earplugs. We have not tabulated the hollow earplugs or the carved ones by size categories because the small size of the sample makes this of doubtful utility.

With respect to the total number, our sample includes a grand total of 270 earplugs. Of these 223 are solid, 7 carved, and 40 are hollow. The reader is directed to Table 15 for a detailed presentation

of the percentages of the various types of earplugs in the total sample. In Table 16 we have tried to indicate the possible stratigraphic relationships of the stylistic types that were defined. It is clear from the chart that there is no clear-cut sorting of the varieties with respect to stratigraphic levels. This agrees with the general date we have presented on figurines and ceramics; that is, the Cuanalan phase is one of a relatively short duration and characterized by a great degree of homogeneity of style. This conclusion as to the lack of chronological sorting of the types also agrees with Vaillant's general statement cited previously.

Since the various stylistic characteristics do not sort out chronologically, it can be postulated that the stylistic variations present in Cuanalan earplugs in some way relate to social differentiation. An obvious relationship is that of size with age. Apparently, small children had their ears pierced for the insertion of plugs and, as the lobes became increasingly more extended, larger plugs were inserted. This process would seemingly continue until the individual's death. If these two assumptions are correct (i.e., that the size does relate to age and that an individual would continue to insert increasingly larger ones up to his or her time of death), then the distribution of sizes of earplugs would tie in very nicely to the population pyramid at Cuanalan. In Table 17 we have indicated the distribution of earplugs according to their size. We have also assumed that both males and females used earplugs and that the relative numbers of both for each age group was roughly the same. This latter conclusion is probably correct, since demographic studies of peasant populations show only slight differences in male and female ratios; but we have, of course, no way of sorting this out with respect to earplugs. Fascinating is the fact that the distribution of sizes coincides very nicely with a normal population pyramid in a preindustrial, premedical agricultural society. The only exception is the fact that the very smallest earplugs occurred in a much lower percentage than one would predict. Presumably this relates to the fact that children's ears were not pierced immediately after birth, that the age in which this was done was highly variable with only a very small percentage of very young children having their ears perforated for earplug insertion. If we eliminate this variability from the picture, then the population pyramid coincides very nicely with a predictable age pyramid.

Of even greater interest is the possibility that the stylistic differences in earplugs are linked somehow with socially differentiated groupings. We are reminded here of the fact that in many parts of the world, contemporary highland Guatemala for example, village identification is represented by slight variation in cut, color, and design of clothing. It is conceivable that the ancient population of the Teotihuacan Valley differentiated people from different communities by earplugs as well. If we make this assumption (i.e., that differences in earplug styles relate to village affiliation), then some interesting suggestions can be made with respect to the explanation of stylistic variability of plugs in the Cuanalan sample. For example, of the total sample of earplugs, 55% fit into our type A. If we eliminate the unclassifiable solid plugs, variety A makes up approximately 3/4 of

all solid earplugs found in our sample. Another characteristic of the variety A sample is that all age groups are well represented and that if we tabulate only this variety, it compares even more closely to a normal population profile than does the total sample. The other varieties of solid earplugs, B, C, D, and E, not only occur in much lower percentages of the total sample (varying from 0.74% to 11.85% of the total sample), but also are weighted very heavily towards the larger or adult plugs in the size categories.

In the case of the type A earplugs, 73 examples are from the largest 4 sizes, and 76 examples are from the smallest 4 sizes or a ratio of almost 1 to 1. In the case of the other 4 varieties of solid earplugs, however, the ratio is approximately 3:1 in favor of the larger sizes. This suggests a somewhat different age distribution of the population using the B through D earplug varieties at Cuanalan versus the population using the A variety. We are very tentatively going to suggest here that during the Cuanalan phase a social system existed in which each local community was controlled or owned by a descent group with a regularized pattern of exogamous marriages with neighboring communities. According to this reconstruction, the users of the painted white, plain earplugs would represent the native lineage of the village, whereas the users of the other three types would represent people marrying into the village from the outside. The fact that there are a few children's plugs among these varieties would suggest, also, that there were resident at Cuanalan a few families of other lineages, a pattern not uncommon among unilineal, kin-based societies.

The obvious way to check out this conclusion is to surface sample other Cuanalan phase sites and to see whether there is strong weighting of the other design types such as B, C, D, and E in relationship to particular communities. This reconstruction is extremely hypothetical and highly speculative. It is conceivable that earplug variety is simply a matter of individual preference with no special connection with descent groups, communities or any other kind of social differentiation. The consistency of the relationships, however, seems to suggest something more important than simple personal preference.

In our reconstruction we are assuming, furthermore, that the napkin ring earplugs probably represent local people differentiated from the mass of the population, quite possibly relating to some kind of ranking principle. The point is that the napkin ring types go through the entire range of sizes and the distribution is roughly similar to that of the plain, solid white slipped earplugs at the same site. This would suggest local people rather than individuals marrying into the community, and the low percentage of them would suggest some kind of distinctive social feature such as ranking. Again, this is only a suggestion; we realize that our conclusion is not based upon solid supporting evidence. If we could demonstrate, for example, that burials with more prestigious goods, including trade goods, were also associated with the napkin ring earplugs, as against simpler burials being

associated with the solid type, we would be on much stronger ground. Unfortunately we found few burials in our excavations at Cuanalan, so this cannot be established as yet.

Whistles (Plate 86a-h)

A total of 17 fragments of ceramic whistles and 2 nearly complete specimens were found in the Cuanalan sample. Of these, 12 can be stratigraphically placed, of which 9 were found in the first 4 levels. There is a strong probability, therefore, that many of these whistles are not of the Cuanalan phase but are Postclassic in date. In the few cases where enough of the artifact is there to tell, they apparently are zoomorphic in form. In the case of the two complete examples, the body of the whistle is in the form of a bird. One of the nearly complete whistles has a hole on the side of the bulb that can be covered to change the pitch. All are rather crudely made; two of them were painted white, one apparently had red paint.

Worked Vessel Sherds (Plate 84a-o)

Within the Cuanalan sample are a number of pot sherds that have been ground into either a circular or rectangular shape. Of the circular type, five were pierced in the center and possibly functioned as spindle whorls. All are from sherds that are of Formative type and, therefore, could have been used during the Formative period; although of course, the later Classic and Postclassic population could have used older sherds for this purpose. The same qualification must be made with respect to the other two kinds of worked sherds -- the round unperforated type and a rectangular unperforated type. These together number 42 specimens of which 21 were made from definitely Formative sherds. Of these, 16 are round and 5 are rectangular. The 3 others are from sherds whose chronological association is uncertain and 18 (11 round and 7 rectangular), are made from Classic or Postclassic pottery, therefore obviously dating from a post-Formative period. In terms of the stratigraphic relationships of the various kinds of worked sherds, some of them should pertain to the Formative period. In the case of the pierced round sherds, they vary in diameter from 2.0-4.5 centimeters. With respect to those that are round but unperforated, they vary from 1.2-6.0 centimeters in length. Of the rectangular Formative sherds, two have notches cut along the edges.

Balls (Plate 85a-o)

In the Cuanalan sample there is a total of 15 specimens of ceramic balls, 11 with known proveniences and 4 for which the data is incomplete. The diameters of the balls range from 1.3-3.6 centimters, with a continuum of size between these two figures. They vary in color from red to black. One of the balls has a highly polished surface, with others rather dull but smooth surface. With respect to the balls of known provenience, at least 7 were found in levels that are completly Cuanalan phase in date; 4 were found in the top 3 levels of the excavations so that they could pertain to the Formative, Classic, or Postclassic time period. The smallest examples probably came from rattle supports.

Seals (Plate 60o)

A total of 10 fragments were found in the excavation, of which 5 had a known provenience. Of the 10, 3 are cylindrical and the other 7 are flat rectangular stamps. All of the flat rectangular types appear to be Aztec in date, so that only the 3 cylindrical ones definitely pertain to the Cuanalan phase, or at least the Formative period. Only one of the 3 cylinder seals comes from a known provenience, level 2. When used, the seal leaves a pattern of wedged triangles superficially resembling cuneiform writing. Such objects were apparently used for body decoration, since no pot sherds bearing this kind of design were found in the Cuanalan sample.

Pipes (Plate 86i-j)

Seven sherds (one bowl, six stems) of what are probably smoking pipes were found. One stem has a highly polished red slip, one a burnished reddish-orange surface, and two others have a highly burnished tan surface. One of the unburnished stems has a filleted ring of clay as decoration around it. The bowl has an exterior diameter of 3.5 cm, an interior of 2.2 cm, and a depth of 3.4 cm. It is unburnished. Four of the five sherds with known proveniences came from the upper three levels, the fifth from level 4. They are probably all Aztec in date.

Spindle Whorls (Plate 84q-s)

A number of mold-made spindle whorls were found, all in the upper levels of the excavation and all definitely Aztec in date.

OBSIDIAN ARTIFACTS
(Table 19, Plates 92-94)

As noted previously, a full report on the Cuanalan obsidian will be published in a separate monograph. In Table 19 we have summarized the 1961 Trench 1 collection. Fletcher reported a total of 841 artifacts and noted striking differences in the ratio of prismatic blades to scrapers by level. On the basis of sherd ratios, levels 1 and 2 are predominantly Aztec (Zocango phase), Aztec to Formative ratios in the 2 levels are 66:11.5 and 57:32 respectively); level 3 is mixed level (ratio 32:50); and levels 4-13 are all at least 83% Formative. The ratios of blades to scrapers by levels are as follows: 86:57, 101:76, 71:40, 44:4, 39:0, 20:2, 31:4, 29:4, and 1:1. Excluding the last, which contained only two artifacts, the difference between the Aztec and Formative levels is notable. If the scrapers were primarily used in rasping maguey, as we believe, then the difference suggests a major expansion of maguey cultivation in Aztec times.

Projectile points were generally rare in the sample. For Trench 1 in 1961, Fletcher reported a total of only 8--5 from the upper 3 levels, and only 3 from definitely Formative levels. He also reported 7 cylindrical cores, all but 2 from definitely Formative levels and even the 2 exceptions were from level 3, a mixed level. The suggestion here is that the Aztec community imported processed blades from other communities, whereas the Formative community processed its own raw material. This may indicate a major shift from self sufficiency to specialization. Further analysis of the obsidian will be withheld until Michels completes his study.

MISCELLANEOUS STONE ARTIFACTS
(Tables 19-20, Plates 99-100)

Table 20 lists all artifacts in the collection from both field seasons. Various types of scrapers, blades, points, and blades chipped from basalt and quartz were found in all levels and probably pertain to both the Aztec and Formative period. Typologically, they reproduce the same types found in the obsidian and no types were noted unique to their respective material. A breakdown by function on style will be presented by Michels in his study of the obsidian industry.

One large basalt adze was found in level 6, nicely ground and polished. Only one other adze fragment was found; clearly woodworking was not a major craft activity at Cuanalan. Other ground stone tools of basalt include 7 mano fragments, 14 metate fragments, 1 pestle, 3 pounders, and 1 problematical rectangular object.

A porous, light, volcanic stone called tezontle (volcanic tuff) was used to manufacture 2 possible plastering tools (pestle shaped), a disc (3.5 by 3.7 cm in diameter, 1 cm thick), and 2 small grooved tools.

Scattered throughout the deposit were small, naturally shaped and smoothed pebbles of basalt (14 egs) and quartz (3 egs), possibly used as polishing tools.

The various ground stone tools were found at all levels and probably are either Aztec or Formative in date. One metate fragment from level 2 had a leg. All others were probably from rectangular, legless, basin types. The manos were all approximately trianguloid in section. The pestle is a pyramidal shaped stone, 6 centimeters long, 3.5 centimeters in diameter, and has a flat face. Its chronological assignment is uncertain. The pounders are well shaped spherical objects slightly flattened on one side and averaging 6 centimeters in diameter. The rectangular object measures 12 by 17 by 4 centimeters and looks like a small mano.

One sherd of a miniature quartz vessel was found in level 1. It consists of the base of a beautifully carved little bowl with beaded design in relief along the exterior base and is probably Aztec in date.

BONE AND BONE ARTIFACTS
(Tables 19, 21, Plate 104)

No burials were excavated at Trench 1, but 12 fragments of human bone were found and 9 other are possibly human. Ten occurred scattered through levels 2-5, and 2 were found in level 9. Four of the probable and definite fragments were modified--2 femora were notched as a rasp (1 is from level 4 and is probably Cuanalan phase), part of an ilium was perforated with 2 holes (from the same level), and a possible fragment of human bone was carved into a knife-like tool. There is a suggestion here that the Formative population did utilize human bone as artifact material and the dispersion of bone through the refuse is at least suggestive of cannibalistic practices.

Animal bone was much more abundant (178 total fragments) from Trench 1 in 1961. Of the 1962 sample, only 67 fragments have provenience data. The vertical and horizontal distribution of the sample is presented in Tables 19 and 21. Although a careful analysis by a competent zoologist was not undertaken, much of this collection clearly is rodent bone and probably not related to the occupation. Dog bones were fairly common, deer bone present but rare, and both occur in Formative levels. Some bones were identified as cattle and horse and

are apparently post-Conquest. Thirteen fragments of turkey and rodent bone were found near the jar situated on the Formative floor. One fragment of deer antler was found in level 4.

A number of animal bones were modified into tools. The sample includes seven artifacts, all awls or needles. The total is small and either clothing was of a type that required a minimum of sewing or maguey spines were commonly used. Although most figurines were nude, we doubt that nudity was characteristic of the community, considering the climatic regime.

SHELL (Plate 106)

Three fragments of turtle shell were found in levels 7-8 and 12, along with five fragments of an unidentified mollusc.

MICA

Of interest was the presence of a mica flake in level 9 of Trench 1, indicating the use of this material as early as Cuanalan times.

Part 4

EXCAVATIONS AT TEZOYUCA (TF-101)

In the summer of 1962 the Teotihuacan Valley Project initiated excavations on a small hilltop adjacent to the modern village of Tezoyuca. Cerro Tezoyuca is an isolated hill rising above the alluvial plain in the lower portion of the Teotihuacan Valley, approximately 3.5 kilometers southeast of the village of Cuanalan and at an altitude of approximately 2350 meters (Figure 11).

The area covered by the modern village of Tezoyuca is apparently less than that occupied by the Aztec city-state center of the same name. The remains of several large Aztec temple pyramids lie outside the town area, and the distribution of Aztec sherds extends up the lower slopes of Cerro Tezoyuca to a point 400 meters from the edge of the town. In addition to the Aztec occupation on the lower slopes of the hill, there is a moderate amount of Toltec occupation, the latter having its heaviest concentration in the village of Cuanalan. There is also a sizeable Patlachique phase (see Part 5) site underlying the Toltec on the lower slopes of Tezoyuca hill.

Cerro Tezoyuca is terraced on the east and west sides. Only the west terraces are used for agriculture at present. At several places, on the north and east sides, appear small tunnels and pits, probably the result of mining of "cascajo" or construction gravel. Much of the hill is underlain by a stratum of tepetate, a water deposited volcanic material which is visible in the profiles of the cascajo pits and in various eroded areas of the hill. The soil depth on the hill varies from 0-2 meters (Plate 6b). This was determined by observation of the excavation profiles and various other natural profiles around the hill.

The site was first visited by Rene Millon and James Bennyhoff in 1957. At this time, they suggested that pottery from the surface was linked with both the Chimalhuacan (Patlachique) and Tzacualli (Teotihuacan I) phases, which apparently followed it in time, and with the Late Ticoman (the phase we have defined as Late Cuanalan) complex which preceded it (Millon 1961, pp. 10-11). These suggested links were based on the similarity of ceramic form and design shared by the three periods in question.

The excavations at Tezoyuca were designed to secure an undisturbed sample of ceramics and other artifacts, and to obtain data on possible house types that pertained to this apparent new phase in the culture history of the Teotihuacan Valley. An analysis of this material would hopefully demonstrate that a general continuity did exist between the Late Formative and the Early Classic in the Valley of Teotihuacan in particular, and the Basin of Mexico in general. The research was also designed to determine, if possible, whether traits such as urbanism and ceremonial architecture, characteristic of the Classic urban center at Teotihuacan, originated in the preceding local Late Formative culture.

The archaeological site of Tezoyuca occupied an area approximately 150 meters long from north to south and roughly 100 meters east to west, including an extension of Tezoyuca ceramics down the terraced east slopes (Plate 6a, c, d, Figures 6, 12). It is quite possible that these terraces may have been constructed in Formative times and may have had a residential function, as the moderate density of pottery on them suggests. But more than likely erosion has played a great role in moving sherd material down the slope. The surface of the site is covered by weeds, and stone rubble is scattered throughout the area.

Pottery concentration on the hilltop is very dense. A number of low swells in the land surface near the top of the hill were covered with rock rubble and indicate the presence of subsurface structures. A small pyramid about 12 meters in diameter and 4 meters high is situated at the apex of the hill (Plate 6a). The pyramid is badly pitted and sherds culled from it were identical to the Formative pottery found on the surface.

The Tezoyuca site itself affords a commanding view of the countryside in all directions. The pyramids of Teotihuacan are clearly visible to the north and Mexico City can be seen across the bed of Lake Texcoco to the west.

DESCRIPTION OF THE EXCAVATION
(Figures 13, 14, Plates 6-8)

After a brief survey, the most pronounced ground swell was selected as the spot to initiate the excavation, in the hopes that it represented the remains of a building. Magnetic north-south base lines were established and two meter squares were oriented along this base line. Arbitrary 20 centimeter levels were used and modified only when artificial structures were encountered.

The upper levels of the excavation consisted of loose, loamy soil with small bits of rock and abundant sherds, including a small amount of Aztec. At the 50 centimeters level there appeared an alignment of cut tepetate blocks oriented roughly in a north-south direction. These blocks formed the top part of a sloping retaining wall facing west (Plate 8b). Along the base of this wall, at a depth of 75 centimeters, a hard packed earth-clay floor was encountered. It was found to be underlain by a fill of earth, rock, and broken chunks of tepetate. At 97 centimeters, another hard packed earth-clay floor was found and its profile was visible the entire length of the trench (Plate 6e, f). Beneath the latter, mixed in the fill, were the remains of many bone fragments and large sections of deer antler. The bones were tentatively identified as deer. The pottery density above and below this floor was

moderate to heavy, with much of it showing evidence of having been burned. However, there were no indications of this midden deposit having been the place of incineration.

The southwest corner of the retaining wall was discovered (Pits 1D and 1E) and a new trench started to expose the south wall. It was found to be 12 meters long and was composed entirely of tepetate blocks with no indication of stone. Pottery density was light (Plate 8a). At this point, the emerging structure seemed to be a platform of some sort, its function still wholly undetermined.

The bottom of the northwest corner was discovered (Pit 4B) and the west retaining wall had an apparent length of 12 meters (Plate 8b). In the process of clearing off the northwest corner, it was found that an upper portion of the north wall (as yet not uncovered), consisting of stone facing blocks against tepetate, continued beyond the point of the bottom of the northwest corner, across the trench sequence used to follow the west retaining walls, and into the profile (Pits 4A, 4D, 4E). This stone wall was followed and a new trench initiated. The wall was built directly on the tepetate, which at this point rose sharply, closer to the surface and continued in a westerly direction for at least 4 meters. The end of this feature was never located. It was noted that the bottom of this unusual wall apparently was built on the same layer of fill that underlay the hard packed earth-clay floor at 75 centimeters.

When the remainder of the north wall was exposed, it was found to be 15 meters long, including the above mentioned extension. It was constructed of small irregular stones facing a sloping tepetate retaining wall. At the bottom of the juncture (Pit 4b) of the north and west walls were located two square, cut, flat stone slabs, 20 centimeters high and 10 centimeters wide, set in the bottom of the north side of the corner (Plate 7d). These were the only cut stones found in the entire excavation.

The east retaining wall was uncovered and found to have a length of 13 meters. It was in very bad condition, one-half of the entire length having been completely destroyed (Plate 7c). The visible portions of the wall consisted mainly of small stones arranged in a sequence of three direct superimpositions (Plate 7b). Pottery concentration along this wall was comparatively light.

Work was started on top of the platform to determine whether there were any remains of a house or temple structure. No wall stubs were found (Plate 8c). However, it was discovered that there were two inner structures, as the tops of their outer retaining wall facings on the north, south, and west sides were found. The distance between these two inner structures varied between 10 and 50 centimeters. They were separated by fill composed of earth, tepetate, and rock. Pottery was very scarce between the structures and appeared to be identical to the ceramics excavated in the main trenches along the platform retaining wall.

The remains of a very fragmentary burial were encountered between the two innter retaining walls in Pit 10E. Small portions of the cranium, teeth, carpals and metacarpals, and tibia were the only identifiable fragments. Owing to the poor condition of the skeletal material, it disintegrated upon attempts to remove it and no determination of age or sex could be accomplished. No associated offerings were found.

DISCUSSION OF THE STRUCTURE

The average depth of the excavation along the edge of the outer platform was one meter, except for portions of the west side that exceeded 150 centimeters (Pits 3A and 3B) and Pit 6C on the north side that went as deep as 145 centimeters. The densest depositions of pottery were on the west and north sides.

No stairway was found, so it can only be assumed that the badly destroyed section on the east side may have included this feature. This is also suggested by the heavy concentrations of ceramics and other debris along the opposite west side, which may have been the backyard, so to speak, where household refuse was dumped. In addition to this, as was mentioned previously, the pottery concentration along the east talud was the lightest in the excavation.

The platform appears to have been extended at least twice during its occupation. The most extensive additions occurred on the west, south, and north sides where fill was placed between the taluds. However, on the east side the question of amplification is puzzling and cannot be determined in light of present evidence. All that can be said, however, is that some small amount of enlargement was achieved by the placing of successive layers or facings of small stones directly against previous taluds.

The long north wall is associated, in part, with a narrow tapering bench-like feature near the northwest corner (Plate 7e, f). This bench, however, may be the function of faulty excavation technique since it is to be found in no other part of the north wall or any other wall. On the other hand, remains of the upper portion of the wall would not correspond to the edge of the bench if they were extended down. This upper portion is also well preserved in another part of the north wall where it can be seen that it definitely forms a single sloping wall with no indication of a bench. In general, then, this aspect remains a mystery.

The extension of the north wall may possibly represent an undiscovered addition to the west side of the platform covering up the midden area and earth-clay floors. No additional evidence suggesting this was found.

Apparently, the first step in the construction of the platform retaining wall was the placing of large, irregularly cut blocks of tepetate directly on the exposed surface of the tepetate hardpan. As earth, rock, and crushed tepetate fill was piled higher within, successive layers of long, flattish tepetate blocks were placed in a sloping fashion forming retaining walls which contained the growing mass of interior fill. The evidence of stone facings along several retaining walls strongly suggests that the entire structure may previously have been faced with stone.

Many fragments of baked mud were recovered from the top of the platform. These remains may have been part of some sort of mud plaster coating on the walls of a house or temple structure. Similar fragments, several with evidence of red paint, have recently been excavated from the top of a large mound at the Late Formative site of Temesco by Keith Dixon.

The function is still questionable. The evidence seems to suggest that it served as a platform for a residential structure rather than a temple; the midden deposits and large amounts of utility and service pottery indicate this. Also, it may be postulated that the final amplifications represent a growth in the family that occupied it, perhaps an extended family. Details of social status could not be ascertained from the available data. However, proximity to the pyramid on the hilltop suggests a high status residence.

The possibility of its having served in a religious capacity cannot be overlooked. In its proximity to the hilltop pyramid it may have formed but a part of a large ceremonial complex occupying the top part of Cerro Tezoyuca and serving the surrounding countryside. Figurines were plentiful and fragments of censers were also uncovered.

CERAMIC ANALYSIS

A procedure of coding the Tezoyuca sherds similar to that described for Venta de Carpio and Cuanalan was used. The selected sample that provided the basis for the following analysis consisted of 4407 rim sherds, 48 handles, 61 supports, and 143 rims of pedestal bases, 4759 sherds in all. Of the 4407 rims, 3317 were assignable to vessel types and subtypes. The methods of sorting, grouping and coding were similar to those described for Cuanalan. The specific code designations, due to the striking differences between the two samples in form variability, were not used but a separate code was designed (see Table 23).

The classification of Tezoyuca ceramics includes 8 major vessel form categories or types:

01 Bowls with Convex Sides (Hemispherical)
02 Bowls with Straight Sides
03 Vases
04 Bowls, Basal Break, Round Bottoms
05 Large Shallow Bowls with Supports
06 Ollas
07 Jars
08 Censers
09 Supports and Pedestal Bases
10 Handles
11 Miscellaneous

In the following descriptions, the paste, size, and surface characteristics of the type as a whole will be described and then subtypes or varieties based on form variation and surface decoration will be discussed. For examples of decorative techniques and motifs the reader is referred to Plates 28-41.

TEZOYUCA PHASE CERAMIC TYPES

Bowls with Convex Sides (Hemispherical)
(01, 1282 Rims, 38.65%, Figures 47, 48, 49a-f)

Paste is generally fine and lacks any large inclusions. Black firing cores are common in the wall profiles. Both interior and exterior are usually burnished. Decoration is generally confined to the exterior. Rim diameter ranges from 10-28 centimeters. Wall height varies between 4 to over 11 centimeters. Subtypes and varieties are:

Restricted Mouth (0101, 169 Rims, 13.18%, Figure 47a-d, j). Vessels of this form have constricted mouths formed by the inward slope of the upper portions of the body wall. In all cases the body diameter is greater than the rim diameter. Vessel walls are characteristically thin and the height probably did not exceed 10 centimeters. There is no evidence to suggest whether the bases were flat or round.

Some types of surface decoration are found on the greater majority of specimens. These include white/red, red/buff, negative, white and red/buff, polished black, applique, and plain burnished and unburnished. The latter undecorated surfaces vary greatly in color from light buff to a dark smudge-like brown-black.

Upright (0102, 314 Rims, 24.49%, Figure 47e-i, k). The distinctive feature of this subtype is the flat curvature of the upper body wall which makes it nearly perpendicular to the base. The rims are all direct and rounded. Decoration consists of red/buff, white/red, negative, white and red/buff, polished red, polished black, and plain burnished tan.

Upright-Special (0103, 305 Rims, 23.79%, Figure 48b, d). This form is distinguished by the almost completely perpendicular orientation of the body wall as opposed to the upper wall curvature of the ordinary upright subtype. Rims are also distinctive, being flat on the interior and rounded on the exterior, producing a noticeable angle between the upper segment and the body wall. Surface decoration includes red/buff, white/red, negative, white and red/buff, and plain burnished and unburnished.

Medium Flare (0104, 280 Rims, 21.84%, Figure 48a, c, e). These vessels differ from the ordinary upright form in that the body wall flares out obliquely and the wall has a flatter curvature. Rims vary from well rounded to slightly tapered. Decoration consists of red/buff, white/red, negative, white and red/buff, negative, polished red, polished black, and plain burnished and unburnished.

Shallow (0105, 6 Rims, .47%). This minor subtype borders on a saucer-like quality by nature of its low, flaring body wall. The rims range from direct simple rounded to an upturned hook-like configuration. This subtype may belong to the Patlachique phase. Surface decoration is confined to a single red band covering both the interior and exterior portions of the rim. The rest of the body is a burnished buff.

Pinched Rim (0106, 19 Rims, 1.48%, Figures 48g, 49c). This subtype is actually a variation of the orindary upright form, the difference being that the rim has been pinched at several points around its circumference producing an undulating effect ("Squinch Pot"). Surface decoration includes red/buff, white/red, polished red, and red and white/buff.

Extreme Flare (0107, 117 Rims, 9.13%, Figure 49a, b, d). The body walls on these vessels flare out from a flat base at an angle of about 45 degrees, with very little curvature. This subtype, or at least some of them, may pertain to the Patlachique phase. Surface decoration consists of red/buff, negative, red slip, plain and dark surface.

Beveled Lip (0108, 22 Rims, 1.72%, Figure 49d). These vessels are identical in profile to the 0107 vessels but have a distinctive flattening on the superior lip. They probably belong to the Patlachique phase occupation at the site. Surface decoration consists of red/buff, negative, plain and burnished black.

Upright-Hooked Rim (0109, 25 Rims, 1.95%, Figure 49f). The body walls of this minor subtype are more or less perpendicular to the base. However, the rim area is sharply incurved producing a slight

shoulder break at the top of the wall. Red/buff and negative are the varieties of decoration.

Ripple Wall (0110, 25 Rims, 1.95%, Figure 48h, i). This minor form is characterized by a series of undulations in the body wall parallel to the base. The rims are rounded. Surface treatment includes red/buff, red- and white-on-buff and plain buff. A unique motif in the red and white/buff is the application of dots of white paint forming a band of widely spaced points around the vessel.

Bowls with Straight Sides
(02, 320 Rims, 9.65%, Figures 49g-l, 50a, b)

Vessels of this major type differ from bowls with convex sides in that the body wall lacks the curvature necessary to produce a hemispherical shape. In size and overall proportion they are quite similar to hemispherical bowls. As in the bowls with convex walls, the paste is fine and lacks any large inclusions. Black firing cores are common in the wall profiles. The exterior is generally unburnished or poorly burnished while the interior is well burnished. Red/buff and negative designs usually occur on the bowl interiors whereas polychrome appears mainly on the exterior. Rim diameter is between 16-18 centimeters and wall height between 3.6-8 centimeters, and in all cases body diameter is less than rim diameter. Subtypes and varieties based on form and surface decoration are as follows.

Upright (0202, 15 Rims, 4.19%). The walls of these vessels are nearly perpendicular to the base and no curvature is evident. Surface decoration of this very minor subtype is absent and a light burnished buff surface characterized the few fragments.

Medium Flare (0204, 264 Rims, 82.5%, Figures 49g-j, 50a, b). The virtually straight walls of these vessels flare out from the base at a 45 degree angle. The rims are, for the most part, rounded. Surface decoration includes red/buff, white/buff, negative, white and red/buff, polished buff, polished black, polished black with punctuations, and plain burnished and unburnished.

Beveled Lip (0208, 25 Rims, 7.81%, Figure 49k, l). The characteristic feature of this nearly straight, flaring sided minor subtype is the flat lip and slight interior eversion of the lip forming a ridge around the circumference of the rim. Red/buff, white and red/buff, one sherd of negative, and plain burnishing are the varieties of surface decoration associated with this subtype.

Pedestal Vessels (021102, 16 Rims, 5.0%). The exact form of these vessels is difficult to define owing to the fact that only very small segments of the bases have been noted. This is enough, however, to establish the fact that we are indeed dealing with pedestal supported bowls. The body walls are generally thicker than the above described

forms and are virtually straight sided, flaring out at about 45 degrees with rounded rim lips. The rims that pertain to this form are undoubtedly the 02 type; probably all of the 02 rims are from pedestal based vessels. Here we have tabulated only those of definite pedestal bases. Bowl fragments show a red slip applied to both interior and exterior and burnished. Small applications of white occur on the rim lip.

Vases (03, 71 Rims, 2.14%, Figure 50c-f)

Vases are distinguished from other bowl forms by outflaring, concave walls. This may be considered a minor type. Generally the paste is fine with no noticeable large inclusions and black firing cores are present.

Subtypes and varieties based on form and decoration can be discussed together since the only distinction is size rather than form. The larger vessels are easily more than 10 centimeters deep; however, exactly how much so is impossible to determine from the evidence. The rim lips are rounded in general and the body walls show varying degrees of concavity. This concavity ranges from nearly straight to gracefully curving.

Surface decoration includes red/buff, negative, red- and white-on-buff, black and plain burnished.

Basal Break Bowls with Rounded Bases (04, 461 Rims, 13.9%, Figures 51-53)

This is the same basic vessel form described under the 01 category in our classification of Cuanalan ceramics. A generally coarse paste is used for vessels with upper wall heights of 4-5 centimeters, whereas a finer paste characterizes the lower walled vessels. Inclusions of what appear to be quartzite, obsidian and hornblende are common. The majority of sherds have black firing cores. In contrast to the Cuanalan phase counterparts, surfaces are smoothed rather than burnished, except in the decorated examples. Decoration generally occurs much less frequently than at Cuanalan. Vessels with higher upper wall segments vary in diameter from 26-38 centimeters, those with lower walls from 16-30 centimeters.

With respect to subtype distinctions, our classification is based on three intersecting criteria: angle of upper segment to lower (i.e., insloping, vertical or outflaring); profile of the upper segment (straight, convex or recurved); and height of upper segment (1 cm, 2 cm, 3 cm, 4-5 cm). The combination of these attributes and distribution

within the sample is summarized in Table 26. The defined varieties are as follows.

Insloping Wall (0412 to 0418, 156 Rims, 34.84%, Figures 51a, c, h, j, 52a, 53e,). Vessels of this subtype may be further divided into two categories: straight insloping (60 egs, 13.02%, Figures 51a, c, j, 52a, 53f) and recurved insloping (96 egs, 21.82%, Figures 51h, 53e). In the former the upper body wall has no curvature, whereas in the latter there is a definite tendency for the upper body wall to recurve slightly toward the exterior of the bowl.

Insloping, straight wall bowls vary in height of upper walls from 1-4 centimeters. Plain smoothing characterizes the surface finish on most of the rims but red-on-buff occurs on the 1 centimeter high subtype, white-on-red on the 3 centimeter subtype and negative painting occurs on the 1 centimeter and 4 centimeter subtypes. The total number of decorated rims in the sample of 60 was only 13.

Insloping recurved bowls vary in size from 1 centimeter to 4 centimeters upper body walls. Surface decoration is confined to plain smoothing of a buff base clay color.

Upright Wall (0409-11, 0419-26, Figures 51e, g, 52b, d, f-i, 53 a-d, g-i). Two more varieties of this subtype can be distinguished: upright straight (67 egs, 14.53%, Figures 51g, 52d, i, 53a, d, g, i) and upright recurved (204 egs, 44.25%, Figures 51e, 52b, f-h, 53e, f, h). A third minor subtype, upright bolstered, includes one rim. The upper body walls of the former show no curvature and are vertical in their orientation. Upright recurved vessels have their upper body walls also oriented in a vertical fashion with the added feature of a slight recurve toward the bowl exterior.

Upright, straight bowls vary in upper wall height from 1 centimeter to 4 centimeters. Of the 67 rims pertaining to this subtype group, 23 are decorated. The decoration includes red/buff (on the 1 cm, 2 cm and 4 cm subtypes), polychrome (white, red/buff on the 1 cm subtype), white/red (on the 2 cm subtype), orange/buff (on the 4 cm subtype), and polished black (on the 1 cm subtype). The polished black variant may pertain to the Patlachique phase. One sherd, in the 4 centimeters subtype, has an orange band on the upper portions of the exterior upper segment. A special variant of the subtype group has a rippled wall profile.

Upright, recurved bowls vary in upper wall height from 1-4 centimeters. Of the 204 rims pertaining to this subtype group, 130 have decoration. The decorative techniques are as follows: red/buff (on the 1, 2 and 3 cm subtypes), negative painting (on the 1, 2, 3 and 4 cm subtypes), white/red (on the 4 cm subtype), and polished black (on the 1 cm subtype). This was the most frequently decorated of the Tezoyuca basal break bowl type.

Outflaring Wall (0427-0432, 33 egs, 7.16%, Figures 51b, d, i, 52e). The general tendency of these bowls is to have upper body walls which flare out to some degree. In actuality, there is a rather fine distinction between these and basal break bowls with upright straight walls. There is also a great deal of variation within this subtype which makes it difficult to define subcategories. Twenty-eight rims have a recurved profile, one a straight profile, and four have rippled wall profiles produced by horizontal channeling. The upper wall heights vary between 2-4 centimeters. One example of the 2 centimeter high subtype is polished black and may pertain to the Patlachique phase. In the 3-4 centimeter subtype red/buff, polychrome, channeling, negative painting, and red and white/buff occur as decorative features.

Large Shallow Bowls with Supports
(0532-33, 19 egs, .57%, Figure 50g-j)

This low wall, deep vessel type, is noted by walls between 1.4-2.0 centimeters high and hence are very deep in comparison to the 04 type . Evidence suggests they lacked supports and apparently had a round conical base.

The most common decoration is a polished red exterior, extending over the lip interior for about 1 centimeter, while the rest of the vessel is a natural buff color. Polychrome and negative also occur with the latter confined to the exterior and extending for a considerable distance down the body wall.

These bowls comprise a minor type which is distinguished by two basic subtypes. The first is one in which there is a noticeable break or groove on the interior surface, producing a distinction between the lower and upper body walls (Figure 50h-j). This break may or may not be present on the exterior. The second subtype (Figure 50g) has a smooth unbroken interior surface. However, the exterior may or may not have a shoulder angle. The supports appear to be large globular types since little more than the scars were present for identification. These bowls are similar to Cuanalan 03 type vessels. Rim diameters ranged between 15-30 centimeters.

Surface designs on the interior break variety include red/buff, wherein a red slip extends from the interior break over the rim to break up into a series of zoned red areas on the exterior. Another sherd with a red slipped exterior has negative painting on the interior. Lastly, a few red and white/buff sherds consist of red slip on the exterior extending over to the interior break. This red slip is separated from the natural buff by very narrow white bands. A series of white designs has been applied on the interior portion over the red slip and include chevrons and butterfly-like symbols. The latter may be Patlachique phase in date.

Bowls with smooth interiors have red slips covering the exterior and most of the interior. Red- and white-on-buff designs include the simple use of narrow white bands to separate areas of red slip from natural buff, and on other sherds complex designs in white appear on red slipped exteriors. These may be Patlachique in date.

Both subtypes occur in dark brown-blacks which are light to medium burnished.

Ollas (06, 1113 egs, 33.55%, Figures 54, 55)

A wide variety of forms is to be found among the excavated sample of ollas from Tezoyuca. In fact, the variation is so great that several categories consist of only one or two sherds. However, at least two main trends can be observed: rims having a wedge lip shape, either concave or straight; and flaring rims with rounded lips. Another category of what may be termed "jars" can be viewed as being distinct from ollas and will be discussed under another heading below.*

All vessels are of coarse, sandy paste, usually with large inclusions of what appears to be quartzite, calcite, and obsidian or hornblende. The color of the paste is generally the same as that of the surface of the vessel.

Ollas are, for the most part, smoothed rather than burnished. Burnishing occurs on the decorated miniature type.

The outflaring subtypes range between 14-30 centimeters rim diameter and 3.2-6.7 centimeters for neck height. Miniature forms have rim diameters of 12-14 centimeters and neck heights of 2.5-3.4 centimeters. Wedge rims vary between 10-18 centimeters in diameter. Since no complete ollas were found, data on body diameter and height cannot be given.

Wedge (0634, 0635, 176 egs, 15.81%, Figure 54j). Rims of this type occur in two basic forms, either squared at the lip or slightly rounded. The surface is unburnished but is generally smoothed. On the exterior portion of the rim wall, in many instances, there are series of diagonal lines or shallow grooves which may have resulted from smoothing or shaping the neck of the vessel.

A few examples have light red paint applied about the rim. Another form of decoration is plastic and is evidenced by the use of modelling the lip with wide punctations, undulations or twists and other effects. There are a few examples of a combination of red paint and a plastic treatment of the lip.

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*By jars West means very low necked ollas.

Although the wedge rim forms a rather sizable portion of the olla sample, it may not belong to the Tezoyuca phase. This rim form is mo characteristic of Patlachique and Tzacualli.

Outflaring, Concave (0636, 37, 40, 714 egs, 64.16%, Figures 54c, 55c, e). The greatest degree of variance occurs within this subtype. The most common form is a gently curving, outflaring neck with a taper ing rim and rounded lip (Figure 55c). This form has occasional example of plastic lip treatment similar to the wedge and the combination of red paint and modeled lip. Other variations on this theme have more extreme curves to the neck (0640, Figure 55e) and the lip shapes approach flat ness, pointedness, and some eversion. One variant of the flaring type has a lip area that is channeled or grooved, a characteristic of Late Cuanalan and Tzacualli.

Outflaring, Straight (0638, 0639, 0641, 0642, 0643, 0645, 174 egs, 15.64%, Figure 55d). This minor group or subtype lacks the curvature characteristic of the above types and usually has a rather sharp break in the angle between the neck and rim section. Lip form ranges from tapered through rounded to flat. This grouping includes 0638, 0639, 0641, 0642, 0643, and 0645; the difference being mainly in lip form (see rim code for distribution among them).

Low to Medium Neck Ollas (0646, 42 egs, 3.77%, Figures 54a, b, d, e, g, i, 55a, b). A series of rims of low necked jars are found in the Tezoyuca sample. The neck generally exhibits little curvature; neck to shoulder angle and lip form is highly variable. The following variants and subtypes were defined:

Red-on-Buff (Figures 54a, b, d, 55b). This variety makes up the bulk of the sample and it is a homogeneous variety only in the fact that the rims are all from low necked ollas and have red/buff design. Lips vary from flattened, slightly everted, bolstered, widely everted and direct rounded; neck height from low to high; and neck angle from sharply flaring to nearly vertical. The red design is always found as a band below the exterior lip. In some cases this is the only design, in others the entire exterior has an overall red slip, in still others the exterior has a medial band of red on the shoulder angle.

The balance of the sample, consisting of a few sherds, sorts into three varieties: 064604 (Figure 54i), ollas with a medium high neck, direct lip, sharp flare to the neck angle and negative painting; 065609 (Figure 54g), ollas with an everted lip, nearly vertical neck and polished black surface; and 064607 (Figure 54e), an undecorated olla with a low to medium neck height, sharp flare to the neck angle and highly variable surface color and lip form.

Small and Medium Size Jars
(07, 26 egs, .78%, Figure 55h-k)

Vessels of this form constitute a minor category in the Tezoyuca assemblage. However, it is distinctive enough to warrant its separation from ollas. Two basic subtypes are observable. The first is closely related to the low neck olla except that it is probably smaller and its surface finish is quite different. The second is almost a neckless variety and could be described as a small tecomate. The paste is finer than that of ollas but still shows the same types of inclusions--quartzite, calcite, and obsidian or hornblende. Finish is usually well burnished on the exterior and surprisingly well burnished on the interior. Outside rim diameter varies from 10-16 centimeters. Neck height is between 0.7-1.7 centimeters.

Low Neck (0747, Figure 55h). Although this form of jar has a low neck, it can be considered the "high-neck" variety of the low-neck jars. In actuality, the neck is lower than that of the miniature olla form and the vessel is generally thinner with a finer surface finish. Designs include white/red on the short neck and probably covering at least the upper part of the body wall. A band of negative painting on the polished red surface of the neck of another sample was noted.

Neckless (0748, Figure 55i-k). The term "neckless" used here can be very misleading for this vessel form is not entirely wihtout a neck, so to speak. The neck is, in better terms, an exaggerated bolster projecting about 1 centimeter above the vessel body. These jars are well burnished on the exterior surface and surprisingly well burnished on the interior. The diameter of the mouth opening ranges between 6-9 centimeters. The average body diameter appears to be about 10-11 centimeters.

Designs consist of thin white bands around the neck, parallel white bands, zig zags, and dots. All examples of the neckless variety show one of the latter types of design.

Censers
(Plate 32e, g, h)

Censers are distinguished by two characteristic traits, the first being the extremely rough finish of the exterior, and the second being the application of clay adornments to or notching of the lip. The form of the vessel is generally basin-like and there is no use of paint or slip. The following varieties were defined:

080010 (4 egs). These are highly variable in color with areas of possible fire clouding. The surfaces are unburnished and lip notching and punctation are characteristic. One rim is from a jar, the others from straight sided bowls.

080007 (6 egs). All are hemispherical bowl forms with flattish wall curvature. Two examples have lightly burnished surfaces and all have beveled lips.

080011 (3 egs). These are all from hemispherical bowls with flattish wall curvature and direct rounded lips. One has a lightly burnished dark exterior with well smoothed interior walls, the other two have a rough unfinished surface. Two, including the burnished rim, have an applied fillet or clay with a row of deeply impressed punctates. The third has applique spikes along the lip. Grouped with this type are a number of body sherds with filleted strips carrying punctate designs.

MISCELLANEOUS CERAMIC TYPES
(See Plates 39, 42)

The greater majority of the fragments classified under the heading miscellaneous are very small sherds with various types of decoration, which cannot be accurately placed within any of the types and varieties discussed above. Incision as a technique of decoration is included in this category and is very rare. It appears on what seems to be vertical walled vessels, convex wall (hemispherical) bowls, and flaring wall forms. Some or all of these may not pertain to the Tezoyuca phase.

Also discussed under the miscellaneous heading are sherds from other culture phases. The meagre Postclassic material will be ignored here and concentration focused upon the few Middle Formative and Late Formative finds. Most of the Middle Formative sherds are of the type Vaillant terms "incised white ware bowls" (1930, pp. 82-83).

110116 (7 rims). All are from hemispherical bowls that vary in degree of convexity of profile. They have well burnished red exteriors and smoothed, lightly burnished interiors. Incised design is diagnostic, varies from shallow scratchy to moderately deep and grooved, from fine line to relatively wide. Design motifs fall into two variants illustrated in Plate 39a, b.

110316 (2 rims). These are rims from vases and have a tapered profile. Both are well burnished, one dark brown, the other tan in color. Both have incised design consisting of parallel vertical and horizontal lines, fine and shallow in technique (Plate 39d).

110216 (2 rims). These are rims from vases comparable in overall form to Teotihuacan period vases. They are deep, with vertical walls, and have flat lips; their surfaces are a lightly burnished tan with deep exterior grooving as a decorative technique (Plate 39e, h).

110516 (4 rims). These are from basal break bowls with concave wall profiles. The lips are highly variable, flattened, everted or rounded. Three rims have red paint interiors and tan or medium brown exteriors. They also carry simple parallel curvilinear incised design, shallow and moderately wide (Plate 39g).

120000. These are a few body sherds with vertical or horizontal channeling (Plate 39f).

130000 (8 rims). These are all off color variants, probably of normal Tezoyuca bowls (hemispherical, basal break, and straight-sided bowls). All have banded exterior painting in white, dark brown and tan.

140007 (2 rims). Comal or tray-like rims. The form is like the late Toltec or Mazapan comal with high vertical walls and they may date from that phase.

190000 (13 rims). All but one are probably Altica or Chiconauhtla phase white slipped ware or red/white. This is the total size of the sample from those phases and clearly does not represent a genuine occupation (Plate 42b, e, g).

180000. Chiconauhtla phase bay ware with composite silhouette (basal break bowl with rounded base) (Plate 42a, c, d, f).

170000 (3 rims). Possibly Miccaotli phase jar rims.

SUPPORTS
(See Figure 56, Plate 43)

The ceramic assemblage from Tezoyuca shows very little evidence of vessels with supports. However, the occurrence of individual support fragments of a wide variety suggests the opposite in spite of the apparent lack of direct association. Three types of supports are present: solid, hollow, and pedestals.

Solid Supports. Solid supports are a very minor type, only five examples being found. These are small nubbins and their associated vessels are unknown.

Hollow Supports. These supports were found unassociated definitively with any specific vessel form. The most common are multi-bodied globular supports with white/red designs (Figure 56d, e, Plate 43d, f, h). There is some evidence which suggests that several of these may have been elaborate pedestal bases. Simple single globular ones are uncommon and are generally undecorated.

In the Tezoyuca sample there are no anthropomorphic, zoomorphic, or mammiform supports. These are fairly common, however, in the Cuanalan assemblage.

Several examples of conical or sub-conical supports occur (Figure 56g, Plate 43b). Decoration is minimum, with splotches of red paint on the plain clay buff surface and white outlined areas of red on the natural buff being the only varieties.

Hollow "saddle supports" occur in low frequency and generally are dark to polished black in color (Figure 56c, f, h, i, Plate 43a, c, e). This type has been referred to as a Chimalhuacan or Patlachique diagnostic. This form occurs definitely with the 05 vessel form as do simple globular supports.

Pedestal Bases (Figure 56a, b). This is the most common form of support at Tezoyuca. These sherds can be identified by their well finished exterior and roughened interior. Also, there is usually a smooth area on the interior of the lip where the vessel was supported. There is great variation in the decoration of these pedestals. Most common is a plain polished red which can probably be associated with the white/red pedestal vessels discussed above (page 93). Polychrome (white and red/buff) is next most common followed by white/red. Other variations include red/buff, negative painting, and a combination of red and white/buff plus negative.

HANDLES

Handles are of two types, the most common being the standard loop which generally is plain and unburnished. However, there are examples of a garnet-red application more or less splashed on. The second variety consists of a few sherds only and is of the double twist type wherein two units are intertwined to form a single handle. These are undecorated and unburnished.

DISCUSSION OF THE CERAMICS
(See Tables 23-28)

As at Venta de Carpio and Cuanalan, the majority of the rims from Tezoyuca can readily be assigned to a few major functional types. Hemispherical bowls make up 40% of the sample. Combined with straight-sided bowls, the two account for nearly half of the sample

of identifiable rims. Basal break bowls comprise 1/7 of the sample, and ollas 1/3 of the sample. The balance of the sample is shared by five minor types (vases, jars, tecomates, censers and shallow bowls with supports). The functions of the vessels were presumably comparable to those from Cuanalan but with hemispherical bowls replacing, for the same function, the smaller basal break bowls. We will present a more detailed comparison of the Tezoyuca sample with the samples from the other three excavated sites at a later point.

The deepest and richest midden deposits were found along the postulated rear or south edge of the excavated platform. We plotted the distribution of varieties, types and subtypes by stratigraphic levels (arbitrarily defined) and found no significant variability in distribution. Table 28 summarizes the vertical distribution of major types, subtypes and varieties of the basal break bowl as an example of the lack of sorting. The same results were obtained with other types. The lack of sorting suggests a relatively short isolated phase with little mixing of time phase or periods.

CERAMIC FIGURINES
(Plates 63-76)

Anthropomorphic. Almost all of the figurines represented here were recovered in the excavation and from the site surface. Five examples of the Tezoyuca polished red were purchased from local villagers. Many of the figurines fit into the general classification devised by Vaillant. Those that did not were assigned to provisionally new categories.

In general, there are three major figurine types that dominate the sample. The first, and most prominent, is the H4 complex (Plates 63, 65, 66) that is characteristic of the Cuanalan phase, especially as defined by Fletcher (1962, see Part 3 this volume) at Cuanalan, Vaillant (1931) at Ticoman (Late Ticoman), and Porter (1956) at Chupicuaro. The second major type is a new style that is being described for the first time. It has been designated the Tezoyuca polished red figurine complex. The third type is the Chimalhuacan Type I, as defined by Noguera. Like the H4 figurines, it will not be discussed below but will be illustrated (Plate 69).

A series of figurine types which had previously been divided into three minor types (West 1963) will be treated in the same manner here and their various distinguishing points discussed.

Also occurring in the sample are several Early Cuanalan (G1, E2) figurines as well as other H types of the Cuanalan phase (Plates 67,68). These have been classified according to Vaillant's scheme.

The polished red figurines (Plates 70, 71) are most easily defined by their very distinctive red slip and polish. The figurines are generally flat backed, with the exception of one which is modeled in the round. None of the excavated or purchased specimens is complete, and four rather large body fragments may be linked with this type (Plate 71). The facial features are applied in a strip to the head, and usually the slip and polish tend to hide the juncture lines. These features are at best described as being very prognathous, with the main emphasis being on the projection of the nasal area. Another distinctive feature is the relatively high, flat, and unmodified headdress which is found on the majority of the figurines of this type. The eyes are deep gouges and the mouth is a slit. The chronological placement of this type is unsettled but there is strong evidence to suggest its placement in the Tezoyuca phase.

Closely related to the group are two figurine heads (Plates 72a, b) which are, in fact, identical to the above but lack the characteristic red polished surface. These have been referred to as the minor Tezoyuca Type A (West 1963, p. 85). Two others which are possibly distantly related also lack the red polish but have the headdress and applied prognathic features (Plates 72c, d, 77i, j, 79b, d). These had been designated by West as Tezoyuca Type B (1963, p. 85). They tend to be smaller and thinner and the applied prognathous area is not as massive as in the polished red type. Figurines more closely resembling Type B have been recovered from a series of stratigraphic pits at Tepalcate, Chimalhuacan (West 1966). Therefore, it is more than likely that this type should be placed in the Chimalhuacan phase rather than Tezoyuca.

Another series of figurine forms, previously designated Type C (West 1963, p. 85), consists of three heads that are relatively small in comparison to the polished red examples and are without applied color (Plate 73). The features of the face are not applied and are projecting in the nasal area. The eyes and mouth are simple gouges, and the ears project to the sides. Two of the heads have applied headdresses, while the third is indeterminable with respect to this feature.

In Table 29 we have assigned 56 figurine bodies to the above noted type. Of these, only those examples in Plate 65 (Sitting H4), Plate 68 (H1, 2, 3), and Plate 71 (Tezoyuca polished red) are reasonably secure in classification. Those in Plate 66 (H4 Standing), and Plate 74 (Tezoyuca A, B, C--Derived H4) are all highly tentative assignments and could easily be reshuffled.

Zoomorphic. The zoomorphic figurines (Plates 75, 76) represent a rather small percentage of the total figurine sample. The animal subject range is broad, though, with at least six species being portrayed.

Of eight identifiable animals, dogs and frogs represent half the total with two each. The dogs are simple modeled figurines with gouges and slight incisions for facial features.

CERAMIC EARPLUGS AND LABRETS
(Plates 88-89)

As at Cuanalan two basic forms of earplugs were found, the solid and the napkin ring types. The solid form appears in a graded series from large to small and the same stylistic classes we defined for Cuanalan are found here at Tezoyuca. The tabulation by style and in the case of the A style, by size categories is presented in Table 30. More specifically, the Tezoyuca earplugs may be described as follows.

Solid Unmodified Earplugs (Type A). These earplugs are concave sided, lack any painting (unlike Cuanalan examples) and plastic design, and are in general burnished to some degree (Plate 88).

Solid Modified Earplugs (Types B, C, E). These are set apart from the previously mentioned earplugs by the presence of incision or modified surfaces. Among these incised designs, there are punctations and geometric incisions (Plate 89a-m). A major modified form is that which in addition to being concave sided is also concave on the top. This concavity is in the form of cupping which begins a short distance in from the edge of the earplug. Several of these concave, or cupped, earplugs have nipples at the bottom of the cup. These bulges are either plain or, as occurs in one instance, ring shaped. Painting occurs in one specimen only. Red paint was combined with one of the geometrically incised examples.

Napkin Ring Earplugs. The "napkin ring" earplug was concave sided and plain without burnishing (Plate 89q).

Labrets. Two labrets were found in the excavation (Plate 89n-p). Both are small and tapered at one end where there is a slight projection to the side. The wider end is cupped slightly and both are unburnished and grey in color.

With respect to style the A type, as at Cuanalan, is clearly the dominant type--59 of the 69 solid earplugs and 56 of the 73 total earplugs are of this type.

The age pyramid represented by the plugs from Tezoyuca is very different from that at Cuanalan, with much fewer plugs at the bottom of the age pyramid. A comparison of the A type plugs in both sites shows the following patterns.

	Cuanalan	Tezoyuca
A		
1	5	4
2	17	8
3	20	14
4	30	16
5	27	4
6	26	5
7	10	3
8	13	2
Total	148	56
B	32	5
C	2	2
D	7	0
E	16	6
F, G, H	47	1
	252	70
Unclassified	18	3
	270	73
Labrets	0	2
	270	75

Either some unknown factor is skewing our Tezoyuca sample or children were only rarely provided with earplugs. If we accept the interpretation of stylistic variation presented in the Cuanalan chapter, then the low number of plugs other than A would suggest very little outmarriage and a strong endogamous tendency at Tezoyuca. Both of these features might be related to the difference in site typology, Tezoyuca being a civic center occupied by an elite group, Cuanalan a typical rural community. The fact that the dominant type form in both settlements is the same is a remarkable coincidence that would cast doubt on our interpretation. The extremely rare occurrence of the napkin ring type suggests the possibility that examples of this form are Middle Formative in date, since this is a common Zacatenco type. Possibly the somewhat more numerous but still rare examples from Cuanalan are Early Cuanalan in date.

OTHER CERAMIC ARTIFACTS

The remaining ceramic materials may be divided into five classes: unperforated worked sherds, perforated worked sherds, ring sherds, whistles, and baked clay or mud.

Worked sherds comprise the majority of the sample of these miscellaneous artifacts (37 in all). They are of two basic shapes, round and roughly rectangular (Plate 90). Six of these reworked sherds have designs and probably came from a finer vessel than the others, which appear to be from utility wares. These reworked sherds may have been used as gaming pieces or for burnishing or scraping pottery.

Only three perforated sherds occur in the sample and are plain and unburnished (Plate 90i-k).

Ring sherds, which number three, are distinguished from perforated sherds on the basis of the relation of the size of the hole to that of the disk (Plate 90l, m). It may be speculated that they served as spindle whorls.

The final group of objects, which consists of lumps of baked clay or mud, are problematical (Plate 91). They are found scattered throughout the excavation at all levels and in varying quantities. At close examination, they reveal the impressions of what seem to be organic plant fiber. These fragments may represent a condition when the structure atop the platform being constructed of wattle and daub was consequently fired for some reason during its history. It may have been done in order to provide a durable coating for the house or as a consequence of warfare.

Four examples of whistles were found and have been treated in discussions earlier in the volume under the heading of "Zoomorphic Figurines."

OBSIDIAN ARTIFACTS
(See Table 31, Plates 95-97)

The most common non-ceramic artifacts were those of obsidian. Since the sample will be discussed in detail in Michels monograph, only a brief summary is presented here. Five general artifact types were defined: prismatic blades, scrapers, projectile points, semi-lunate knives, and drills.

The common forms were dispersed throughout the excavation without any general preponderance at any given level; the uncommon forms, such as the drill and semi-lunate knives, were so few in number that their appearance at any specific level was not significant in tracing their use throughout the history of the site.

Projectile points clearly dominate the sample and are in a two to one ratio over prismatic blades. Many of these blades had been reworked and their sides serrated (Plate 95). In contrast to the situation at Cuanalan where obsidian points were rare throughout the

excavation, there is a very significant number of such points at Tezoyuca. The majority of the points from the excavation at Tezoyuca are small and were probably arrowheads (Plate 96). This increase in the number of projectile points may reflect a period of general unrest in the region rather than a great dependence on hunting.

A relatively large number of scrapers in the excavation may be indicative of two things: scraping of hides or rasping of the inside of the maguey plant. These scrapers vary in size from slightly larger than thumbnail to 6 centimeters in length (Plate 97a-p).

Semi-lunate knives and drills are represented by two examples of each (Plates 95s, t, 97q, r). The blades are of the same basic form, whereas the drills exhibit two different shapes.

MISCELLANEOUS STONE TOOLS

The non-obsidian lithic artifacts are classified into scrapers, points, blades, manos, stone balls, and smoothers. Thirty-one examples of stone artifacts were collected from the excavation.

Most prominent among the stone material is basalt, which was used to manufacture scrapers and projectile points (Plate 101). Three knives, two chipped and the other of ground stone, were also made of basalt.

The use of quartz, chert, and jasper is very infrequent but, nevertheless, present in the form of scrapers and projectile points (Plate 102).

Fragments of seven manos were recovered (Plate 103) manufactured from two types of volcanic rock. One is a rather coarse granitic material similar to the stone used in the manufacture of the manos used by present day Mexican peasants; the other is a dense greyish stone with inclusions of white rocky granules of varying size. Only one example of the latter was found.

The single stone ball recovered is of tezontle, a lighter and much coarser material than that of the manos (Plate 103b).

An unusal find is one which appears to be a kind of plastering tool made of basalt, very similar to those which occur in great quantity at the urban zone at Teotihuacan.

BONE (Plate 105)

The quantity of bone material in the total assemblages is minute, consisting of five objects. The three most readily identifiable are the chisel, deer antler, and rasp. Unusual is the paddle-shaped object with a hole through the blade end (Plate 105). It may very well have been ornamental. The remaining object was worked but problematical in the nature of its use.

Not included in the above is the modest number of animal bones that were found in the course of the excavation. The majority of these bones were of deer, birds, and small rodents, many of the latter probably modern in date as their burrows were encountered crisscrossing the excavation.

SHELL

Objects of shell are nearly as infrequent as those of bone. Seven pieces comprise the total sample. The small sizes of the tortois shell seem to indicate their use as ornaments rather than as food (Plate 106). Three artifacts of mother-of-pearl served as pendants (Plate 106e-g). Only two examples of mollusc shell were recovered (Plate 106c, d). One has the remains of a hole that had been drilled in it, while the other is unworked.

Part 5

EL TEPALCATE EXCAVATIONS

On the basis of the surface survey we tentatively defined an intermediate phase (Patlachique) between Tezoyuca and Tzacualli. Because of the highly weathered condition of sherds from this phase, it became apparent that a large excavated sample would be necessary in order to secure better control of our surface samples. A serious problem in this objective was the fact that all of our Patlachique phase sites were in severely eroded terrain. The sherds were very similar to those excavated by Noguera near Chimalhuacan, outside of our survey area. Although we realized that the distance between Chimalhuacan and the Teotihuacan Valley might have resulted in stylistic divergence from the ceramics of our sites, it seemed useful to secure our type sample from Chimalhuacan.

It was decided to excavate a series of small stratigraphic trenches at the site previously excavated by Noguera. The site is located within the limits of Aztec Lake Texcoco near Chimalhuacan (see Figure 15) and is referred to locally as El Tepalcate. The site consists of a linear band of occupation, probably oriented to an ancient shoreline of the lake. Occupation occurs as a series of low mounds of rock rubble and sherds, each presumably marking the location of an ancient house site.

A very superficial surface reconnaissance of the site was made and several mound-like areas of seemingly dense pottery and rock accumulation were selected as locations for stratigraphic pits. Two were placed within the lake bed proper about 25 meters apart and the third atop a slightly raised grassy knoll that cut across a portion of the lake bed dividing the site into two parts.

Trench 1 consisted of three, one square meter pits conjoined in an L-shaped pattern (Figure 16a). The maximum depth achieved in any segment of this trench was 95 centimeters below ground. In the other two sections the depth was 30 centimeters and 40 centimeters below ground level. Sherd density was very heavy in the upper 40 centimeters. In the deeper levels the sherd count dropped off but was still within the moderate range.

The upper 20 centimeters was composed of a dark, moist, sandy soil, which graded into a dark, heavy, wet clay which became increasingly more difficult to work in as the depth increased.

Trench 2 consisted of two conjoined one square meter pits. These two segments were excavated to a depth of 156 centimeters. The soil profile was similar to that in Trench 1. Sherd density was heavy to moderate in the first 80 centimeters of both sections, then tapered off sharply until the 140 centimeter level where it picked up again to a moderately heavy density. This unexpected turn of events was soon found to be the product of an artificial occupation floor at 156 centimeters which covered the entire base of the two sections (Figure 16a, b).

This floor was of very hard packed earth or clay. From its surface came many fragments of unburned wood which were collected for possible C14 dating.[1] Many sherds of a dark grey-black surface color were recovered on or near the floor. Also, a long chisel (14 centimeters) shaped from antler was found 11 centimeters above the floor. Excavation revealed a slightly exposed hearth along the mid-section of the south profile on the floor. It was impossible to recover any material from it. It seems that the carbon matter from this hearth had been dissolved and permeated through the surrounding soil or mud to give it a dark grey-black color. The floor was not penetrated as time and unforeseen events prevented us from doing so.

Trench 3 was placed on top of a low knoll covered with spikey grass and produced an entirely different stratigraphic picture. This trench was taken down as a single grid unit, measuring 1 by 2 meters, to a depth of 110 centimeters before we were forced by the local inhabitants to terminate the excavations.

The profile to a depth of 80 centimeters was characterized by almost pure sand mixed with great quantities of badly weathered, water worn sherds. At 80 centimeters below ground, the soil became more clay-like but was still mixed with considerable sand. Examination of the profile prior to completion of the excavation showed that there were at least three distinct levels of sherd accumulation separated by narrow bands of what appeared to be pure sand. The ceramic material recovered below the 80 centimeter level was uneroded and seemingly unaffected by the weathering processes that had so badly eroded the pottery from the upper 80 centimeters.

The presence of stone foundations on the site surface argues for a sedentary occupation. One phase of habitation correlates with the 156 centimeter level, which is stylistically different from the later one. Periodic seasonal flooding of the site with continual reoccupation could account for the great depth of the occupation and suggests a relatively short period of time.

It was later determined that the 80 centimeter level of Trench 3 was roughly correlated with the surface of the rest of the lake bed. The situation evidenced in Trench 3 may represent the building up of a small sand bar sometime after the occupation of the site. After permanent abandonment of the site, slight rises in the lake level occurring seasonally could have resulted in the deposition of worn sherd material by water or wave action on the developing sand bar. Subsequent drastic increases in the lake level would produce a greater calm on the lake bottom, which would reduce the movement of ceramics and encourage the continual deposition of silt or sand. With this sequence of events repeating itself periodically, the type of soil stratification observable in the excavation would result.

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[1] This sample was analyzed at the University of Michigan Laboratory and a date of 430 B.C. obtained (M-1597, El Tepalcate, 2380 ± 140 B.P.).

The sedentary character of the settlement, lack of subsequent occupation, linear form, and nature of the soil deposits all argue for a lakeshore settlement. This would suggest a substantial reduction of the size of Lake Texcoco compared to the extent of the Aztec lake.

CERAMIC VESSELS

The Chimalhuacan ceramic assemblage included a total of 1251 rims and supports which have been broken down into the following categories of major rims.

1	Jars	884 rims
2	Shallow Bowls with Supports	5 rims
3	Censers	2 rims
4	Basins	34 rims
5	Bowls, Basal Break, Round Bottom	131 rims
6	Bowls, Straight Sides, Flat Bottom	43 rims
7	Bowls, Convex Sides, Hemispherical	77 rims
8	Supports	20
9	Miscellaneous	52

As in the case of the other three excavated samples we designed a separate rim code (Table 32). Rim profiles are illustrated in Figures 57-67; surface treatment in Plates 44-50.

Jars
(01, 887 egs, Figures 57, 58a-e, g)

Within this major type there can be distinguished at least three common subtypes and four very minor variations. Basal fragments indicate that some forms had conical or sub-conical bases. The paste tends to be on the coarse side with small quartzite and obsidian or hornblende inclusions. Jars are burnished on the exterior. However, diagonal smoothing marks are very common. The interior of the neck generally has some form of burnishing, altough it is poor and uneven. Except in a few cases these vessels are undecorated. No complete vessels of this form were recovered so only a limited amount of information can be given. Interior rim diameter ranges between 22-36 centimeters for the wedge type and 22-34 centimeters for the direct rim-curved. Rim height exceeds 10 centimeters in many cases. A number of subtypes were defined based on lip form.

Wedge (010100, 678 egs, Figure 57a-d). These vessels are the most common jar subtype at El Tepalcate. The color of the surface is quite variable, from light tan-buff to a dark brown-black even including a reddish brick color. Rims of this type are wedge-like in profile but vary from a flat superior surface to a more rounded one. These vessels are most common in the upper levels of the trenches.

Direct Rim-Curved (0102, 136 egs, Figure 57e, f). These jars have direct flaring rims and a wide range of surface color varying from tan-buff to dark brown-black. In most instances the finish is the same as in the wedge subtype, except that a few examples have exterior burnishing and the whole group lacks the diagonal smoothing marks. This variety has greatest frequency in the lower levels of Trenches 1 and 2 and generally resembles Tezoyuca and Cuanalan phase rims.

Impressed-Notched (010300, 39 egs, Figure 57g, h). These rims have lip decorations in the form of twisted fillets and punctations on the upper lip and extending all the way around the rim. Some sherds show vertical stick trail polishing on the exterior directly below the lip. However, for the most part, they are unburnished on the exterior and smoothing is quite common.

Minor subtypes of jars are:

Channeled Rim (010600, 6 egs, Figure 58a, b). Vessels of this type have a groove or channel on the top of the lip which runs around the rim. Otherwise the form is generally wedge-like. Color of the surface varies from tan to dark brown.

Everted Lip (010400, 6 egs, Figure 57i). Only a few sherds appear to be of this type. One example has a punctated rim, vertical stick trail polishing on the exterior, and splotches of red paint on the rim. The others are plain and tend to be on the darkish side.

Modified Rim (010500, 1 egs, Figure 57j). Only a single sherd belongs in this category. It is distinguished by the wide shallow channel below the rim on the interior. The exterior is unfinished and there is a poor uneven burnish on the interior.

Miniature Ollas and Jars (0107-08, 21 egs, Figure 58c-e). A series of forms which may be termed miniature ollas occur mainly in polished black. The necks are on the average of between 2-2.5 centimeters high and the overall rim diameter does not exceed 10-12 centimeters. The walls of these vessels are very thin. Surface treatment also includes a red/buff variety with red paint applied to the lip on both sides and, in one instance, to the shoulder angle on the exterior.

Handles. These are of the loop variety. There is one example of a double twisted variant. Occasionally a dull red-garnet slip appears on the entire handle or a portion. No burnishing is evident, only smoothing.

Shallow Bowls
(02, 5 egs, Figure 58f, h).

Vessels of this form have direct rims and are shallow bowls with large supports of the hollow variety. The vessel wall varies in angle from nearly vertical to incurving. Two subtypes are distinguishable on the basis of color. One is tan-buff with medium burnishing on the interior and portions of the exterior, the other polished black. The interior rim diameter of this type ranges between 20 and 24 centimeters. One rim of the tan variety has two horizontal red bands on the interior separated by a dark brown panel within which are a series of tan colored dots produced by a negative technique.

Censers
(04, 2 egs, Figure 59a-e)

Only a few fragments of censers occur. These tend to have roughened surfaces and are distinguished by the presence of applied clay bands with punctations or small conical spikes. No data on vessel form could be obtained from the available evidence.

Basins
(05, 34 egs, Figures 59f-i, 60a, b)

Four basin subforms of this type may be distinguished. One, very rare, is a shallow comal-like vessel (0516, Figure 59f), two others are deep basins (0517, 0518), and the fourth is another rare form, the tecomate (0520, Figure 60b). There is no evidence of vessel supports associated with this type. Lug handles are found on the basins. Among the basins, vessel size and depth vary considerably; we have sorted them by size into two subtypes: a much larger, deeper vessel (0517, Figure 59g, i) and a shallower, smaller form (0518, Figures 59h, 60a).

A complete vessel of the latter type was found on the surface and measured 24.8 centimeters across the rim diameter and was 7.2 centimeters high.

Most of the basins are finished by smoothing. However, one sherd does have a poor uneven burnish on the interior and stick trail polishing on the exterior. Surface color is generally tan-buff with some tendency to darkness. Interior rim diameter of basins as a whole type ranges between 18 and 36 centimeters.

Bowls, Basal Break, Rounded Bottom
(06, 131 egs, Figures 60c, d, 61, 62, 63a - d)

Basal break bowls with rounded bottoms comprise the second most abundant vessel category after ollas. Three general subtypes are evident: upright rims, outflaring rims, and insloping rims.

These subtypes are broken down into varieties based on lip form and upper wall height. With respect to the latter categories, virtually all rims can be grouped in two clusters, one with upper wall heights varying between 3-4 centimeters, the other at 2 centimeters. Basal break bowls are differentiated from basins by the existence of an exterior break in the basal angle between the rim wall and body wall. This feature is lacking among basins.

The paste is fairly uniform with occasional large inclusions of what appear to be quartzite and obsidian.

Smoothing is the general technique for finishing vessels of this type although some burnishing does appear on bowls with low walls. Most of the sherds from the lower levels are dark in color as opposed to the tan-buff of those from the upper levels. This may be partially due to some chemical action or proximity to the carbonaceous material derived from the hearth at the bottom of Trench 2 since, this is where the dark sherds were recovered.

Interior rim diameter varies between 12 and 38 centimeters. The modal diameter is about 28 to 30 centimeters. Only one fragment--measuring some 10 centimeters--was substantial enough to give an impression of vessel height. Many of these bowls, however, appear to be relatively deep.

Upright Rims (0621, 0622, 0626, Figures 60c, d, 61). Bowls of this subtype occur with upper walls 3-4 centimeters in height and possess rims with flattened or rounded lips. Some vessels with upper walls 2 centimeters high also possess the same variability. A few rare cases have bolstered lips. These were not segregated and were grouped with the direct or rounded lips in the tabulations. Surface color and decoration include a range from tan to dark brown-black. Negative painting occurs mainly in the form of vertical stripes on either the exterior or interior of the upper body wall.

Outflaring Rim (0623, 24, 25, 29, 30, 31, Figures 62a-e, 63a-d). Upper body walls of this form vary from 3 centimeters or more to 2 centimeters. One variant, 0631, has an upper wall segment exceeding 4 centimeters in height. Rim lips are both flattened and round and the upper wall shows a great range of thickness. The main characteristic of this bowl is the outflaring or slanting nature of the upper wall. One variant, 0629 (Figure 63a, b), and possibly a second, 0630, have thinner walls and a deeper more conical basal segment and hence approximate Tzacualli vessels in form. Surface treatment is absent in the vessels of the 3 centimeter or more category. Here the color of

the clay surface runs from tan-buff to dark brown-black. Negative painting occurs on the 2 centimeter variety as horizontal wavy lines on the upper wall near the break on the interior between the upper and lower walls. One specimen is polished black. One example has a simple red and white design on the interior upper wall.

Insloping (0627, 28, Figures 62f-i). Vessels with insloping walls also have the small wall height variation present in the other subtypes--3 centimeters or 2 centimeters. A few examples have wall heights of 4 centimeters. The walls of these bowls slant or slope in to one degree or another. With few exceptions they all show some tendency to curve back toward the outside, producing a bowed effect. Lips are predominantly rounded. Surface decoration, in addition to the tan-buff to dark brown-black color range, includes negative painting in the form of horizontal wavy lines on the interior upper body wall. This always occurs on bowls with plain unslipped surfaces. A polished black variety is found among the variety with 2 centimeter walls.

Bowls, Straight Sides
(07, 43 egs, Figures 63e-h, 64a-f).

Straight-sided bowls are relatively rare in the El Tepalcate assemblage and fall into two easily recognizable categories: vessels with medium flaring walls, no curvature and rounded lips; and bowls with flattened lips. Several sherds have extremely flaring walls, almost achieving a saucer-like form. Upright walls and concave walls are present in negligible quantities. The paste is generally medium and uniform with no large inclusions apparent. Most sherds seem to be fairly well burnished on at least one side, usually the interior. Interior rim diameter ranges between 14 and 30 centimeters. Vessel height appears to have been between 7 and 10 centimeters.

Medium Flaring Wall (0732, 34 egs, Figures 63e-h, 64a, b). A great amount of surface color decoration is evident with respect to this subtype. No single decorated variety is dominant, however. The types of decoration are as follows: white on cream slip, polished black, dark brown-black, polished red, red/buff, white-on-buff, negative painting, white and red/buff, and fine incised. The latter is a distinctive trait of Chimalhuacan period ceramics as reported from Cuicuilco (Bennyhoff, personal communication). However, it is very rare in the three pits at El Tepalcate.

Flat Lip (0733, 5 egs). Bowls with this rim lip are rare and occur in polished black, dark brown-black, and white/grey-black. They differ from the flat lip convex-side bowl in the thinness of their walls as well as in the slight difference in wall curvature.

The remainder of the straight-sided bowl category consists of a few sherds divided among three types--one with extremely flaring walls approaching a saucer-like form, decorated in white/cream and white and red/dark brown (0734, 1 egs, Figure 64d); an upright-perpendicular wall

bowl with red-on-buff band design on the exterior (0735, 1 egs, Figure 64c); and a polished black or tan concave wall bowl [the concavity is very slight] (0736, 2 egs, Figure 64e, f).

Bowls, Convex Wall (Hemispherical)
(08, 77 egs, Figures 64g, 65, 66a-e)

Vessels of this type are also relatively rare. The majority are of the medium flaring wall subtype. Others include flattened lip forms, restricted mouth, bowls with upright or nearly upright walls, and extreme flaring walls with slight convex curvature. The paste is usually medium and uniform with a general absence of large inclusions. Vessels of this type are generally burnished on both sides, although the quality of such burnishing varies considerably. Most of the bowls bear some form of painted decoration. Interior rim diameter ranges between 10 and 26 centimeters. The height of the bowl apparently does not exceed 10 centimeters.

Medium Flaring Wall (0832, 32 egs, Figure 64g, 65a, b, d). In addition to polished black and plain undecorated there are bowls with red and white-on-dark brown, red and white-on-black, red and buff, white and red-on-buff, white-on-buff, white-on-grey-black, and fine incised. Two sherds of a very fine cream-colored paste and what appeared to be calcite or mica inclusions and resembling Classic Teotihuacan thin orange were recovered.

Flat Lip (0833, 6 egs, Figure 65c). The few examples of this type are polished black and red/buff.

Restricted Mouth (0837, 6 egs, Figure 66d, e). Surface decoration includes white-on-brown-black, red-on-buff, and a plain dark brown-black.

Upright Wall (0838, 17 egs). Surface decoration in addition to polished black, brown-black, and plain buff consists of red/buff and red and white/buff.

Extreme Flaring Wall (0834, 16 egs, Figures 65e-g, 66a-c). A few sherds are polished black and brown-black. Surface decoration consists of negative painting and red/buff.

Supports
(03, 20 egs, Figures 66f, g, 67a-d)

Supports are, in general, quite rare. Pedestal bases, solid supports, and hollow supports comprise the three main groupings.

Pedestal Bases (0310, Figure 66f, g). These occurred in the bottom levels of Trench 2 and have white-on-grey-black designs. They appear to have a good exterior burnish.

Solid Supports (0314-15). One small, undecorated conical support and a single, plain, solid sub-globular support comprise this category.

Hollow Supports (0311-13, Figure 67a-d). Sub-globular forms that are natural buff and also brown-black in color and smoothed or burnished occur (Figure 67b). Hollow conical types brown-black in color are also found (Figure 67a). Saddle form supports are present but very rare (Figure 67c, d).

Miscellaneous Rims

We have sorted two groups of rims, one small rim of standard Chimalhuacan paste and surface treatment but not assignable to definite vessel form, and a group of six large rims that fall outside of our Chimalhuacan types, subtypes and varieties defined above. The latter are as follows.

Well-burnished black surface with a red band on the interior lip and another band painted on the exterior wall about 2 centimeters below the lip. There are also traces of negative painting on the interior. The rim looks like it might come from a goblet-like vessel.

Rims from a thin-walled vasiform vessel with a step in the profile. Paste is finer than the overall Chimalhuacan sample; surface is polished black.

Possible rim from Cuanalan phase basal break bowl, rounded base, variant B (upright rim vessel).

Rim of vessel much like Oxtotipac (Late Classic) phase ladles. Jar rim, interior of the neck burnished tan, exterior a streaky cream slip with red overpaint.

Rim from a deep vessel resembling a basal break bowl shoulder angle very weakly defined. The rim has a lustrous dark-brown interior surface and a reddish brown exterior with streaky burnishing.

STRATIGRAPHIC SEQUENCE AT EL TEPALCATE
(See Tables 33-36)

The overall picture of El Tepalcate with respect to the Formative occupation is comparable to that at Venta de Carpio, Cuanalan and Tezoyuca in that most of the ceramics fall into a fairly tight homogenous complex. In the case of Trench 2, however, a definite trending in some of the major types is clearly indicated. The occupation picture can be assessed in terms of three definite episodes. In the levels from the surface to a depth of 70 centimeters, occupation is moderate to heavy in density, with rim counts varying from 62-90 per 10 centimeter level in levels 2-6 (20-70 cm). Three hundred and five rims came from level 1 (a 20 cm level). The density drops off sharply in levels 7-10 (70-140 cm) with 27 rims in level 7 (a 10 cm level) and 18, 22, and 17 rims in levels 8-10, each 20 centimeter levels. It rises again to 49 rims in the basal level, 140-150 centimeters below the surface. Since nearly all the sherds in this final level were found on the floor or within 5 centimeters of it, this is a respectable occupation.

The sherds from levels 1-6 differ from the basal level in many respects. First, jars make up 2/3 to 9/10 of the sample from the upper levels; in contrast, only 2/5 of the sample were jar rims from level 11, a ratio more suggestive of a typical agricultural settlement.

Differences are also present in ceramic style. In the top six levels over 60% of the jars conform to a single beveled lip subtype (010100), in fact 85% in the top four levels. In levels 7-10 the percentage drops to below 50% and the subtype is absent in level 11. Simple, direct rim subtypes show a reverse trend. Although the total number of rims is low, nevertheless subtype 010300 shows the same trending as the direct rim subtypes with a maximal concentration in level 11. The 0104 subtype (slightly everted lip) is found only in levels 9, 10, 11; the 010600 subtype (channeled lip) only in levels 1 and 2.

With respect to the basins (0517, 0518 subtypes), they are all restricted to the upper four levels and of the few tecomates (0520, 3 rims), two came from levels 9 and 10.

The basal break bowls with rounded bases (06 type) also show trending. All examples with beveled lips are limited to the upper nine, most of them the upper six levels.

Although the sample is very small, there is somewhat apparent trending in the straight-sided (07) and hemispherical (08) bowl types. Generally, the extremely flaring side variants in both cases are found in the upper levels, the vertical and incurved variants in the lower levels. Confirming the distinctiveness of the two complexes is the restriction of white/red painted decoration to level 11 (4 rims). The sherds are actually white/black but the design motifs and vessel forms

duplicate those from Tezoyuca. The entire sample from Chimalhuacan is strongly affected by local soil conditions and in the basal level by burning, so that surface color of sherds is frequently aberrant.

As a whole, the ceramic sample from level 11 compares very closely with our excavated Tezoyuca sample and suggests a comparable time position. In that the upper level samples are very similar to surface samples from a great number of sites in the Teotihuacan Valley, we are assuming their contemporaneity. In the Teotihuacan Valley, this phase is being referred to (a decision reached at the joint seminar of personnel from Millon's Teotihuacan Mapping Project, the National Institute's Proyecto de Teotihuacan and The Teotihuacan Valley Project) as the Patlachique phase. There is probably some Patlachique material mixed with our Tezoyuca sample based on the secondary occurrence of beveled lip jars in our sample.

CERAMIC ARTIFACTS - FIGURINES

The most easily recognizable type is Noguera's Chimalhuacan Type I of which there are two examples (Plate 77a-d). These may be compared to specimens excavated at Tezoyuca (Plate 69) in our description of Tezoyuca artifacts.

Six figurines (Plate 77e-j) bear very close resemblances to Tezoyuca Type B figures. One of these, a fragment of a headdress, has the remains of red and white paint. Two examples (77e, f) are from the upper levels of Trench 3 and are badly water worn. They also differ in a slight manner from the others in their possessing pierced ears and well-defined applique on the headdress. These differences may argue for a separate classification. However, additional finds would be necessary for this to be done.

The remainder of the figurines consist of a series of unique examples that do not easily fit into the two categories (Plates 78-80). Two complete figurines were found. Example a (Plate 78) was from the surface collection and example b (Plate 78) was from the first level of Trench 1. Although they are depicted in very different positions with obvious differences in the quantity of body ornamentation, they can nevertheless be classified in the same category. The simple treatment of the rounded body segments and the execution of the applied face strongly support this grouping.

The body fragment illustrated in Plate 79a is reported to be a characteristic Chimalhuacan type (Bennyhoff, personal communication). The outstanding feature of this type is the high curved arch of the foot. Other aspects, such as the applied shoulder piece and rounded treatment of the body segments, show its affinities to the two complete figures discussed above.

One figurine fragment (Plate 79c, e) appears to be a female wearing an applied belt covering the sexual organs. This belt does not extend around to the rear. The mouth and sides of the head, including the ears, are applied in sections. The nose is modeled from the main body of clay. There is evidence of an applied shoulder piece that came down between the breasts. The open mouth has thick lips and a pointed tongue.

A large hollow figurine head partially burnished to a reddish color has many small holes in it (Plate 79f). The remaining ear seems to indicate that the face was applied in a single strip which has since been destroyed. The basic shape of the head and the applied nature of the facial parts strongly suggest that it be placed in the Chimalhuacan phase (Patlachique).

An unusual figurine fragment (Plate 79b, d) strongly resembles those in Plate 77e-j. However, it differs greatly in its elaborateness and also in that its ears are applied singly rather than as an integral part of the face strip. It undoubtedly belongs to the Chimalhuacan phase and is probably late. The four stumps at the bottom of the figure are difficult to interpret; the lower two may have been legs but they would have greatly shortened the proportions of the figure. The semi-circular attachments between the headdress and body seem to be part of the headdress rather than arms.

The figures illustrated in Plate 80a-h are all rather small. In succession from left to right, one represents a monkey head (Plate 80a, f), another a deer or a highly stylized early human representation already discussed above (Plate 80b, g), another is humanoid but with large sharp teeth (Plate 80c, h). The fourth has applied hair or headdress (Plate 80d), eyes and lips and is allied to the H4 tradition of Late Ticoman in these respects; the last consists solely of applied round button eyes and thick lips, all on a more or less cylindrical body of clay (Plate 80e).

Two rather grotesque, large figurine heads possessing large ears and prominent eyes or eyebrows are illustrated in Figure 80i, j. The headdress in both is a simple clay band around the top of the head, giving it a flat-top appearance.

A single large, flat figurine body was found partially burnished in a brown color (Plate 80k). It is of the type assigned to the Tezoyuca polished red complex.

CERAMIC ARTIFACTS - MISCELLANEOUS

Worked Sherds. Four nondescript circular artifacts of reworked pottery fragments were recovered; one example has the beginning of a hole in its middle.

Earspools. Only two earspools were found. One was a delicate "napkin ring" type which was totally destroyed in shipping. The other is a small solid concave-sided type.

BONE AND SHELL ARTIFACTS
(Plate 107)

Four pieces of bone and antler shaped into various tools were excavated. Two are chisels, one being of antler (Plate 107b). The antler tool was found 11 centimeters above the hard-packed floor, 156 centimeters below ground in Trench 2. One fragment of small size appears to have been a gouge of some sort, for the end of it is V-shaped and its edges have been worked down (Plate 107c). The last piece has been shaped into the form of an awl (Plate 107d).

Two bone beads, one only partially perforated, were found in levels 1 and 3 of Trench 2.

One small fragment of mollusc shell, rectangular and almost paper thin, probably part of a pendant, came from level 8, Trench 3.

GROUND AND PECKED STONE ARTIFACTS
(Plate 107e)

A total of five ground tools were found in the excavations--another indication that it was a special function, possibly seasonal, settlement. These include the following artifacts and their stratigraphic position.

Material	Probable Function	Overall Appearance	Size	Trench and Level
basalt	grinding stone	cubical	6-7 cm	Tr 2, level 1
basalt	special function container	box (Plate 107e)	4.6 by 4.8 2 cm high	Tr 1, level 2
basalt	rubbing stone	pebble	3 by 1.5 cm	Tr 1, level 6
basalt	rubbing stone	pebble	2.5 by .7 cm	Tr 1, level 3 9702
tezontle	?	ball	3.5 cm diam.	Lost Cat. No.
white pumice	?	fat disc	7 cm diam., 4 cm thick	Tr 2, level 1
white pumice	?	fat disc	fragment	Tr 1, level 3 9709

CHIPPED STONE TOOLS

The chipped stone assemblage includes a much greater number of tools of obsidian. We have illustrated a number of the tools in Plate 98. No quantified or descriptive data is available on these tools presently. One quartz projectile point was found in level 3 of Trench 3.

Part 6

CHRONOLOGY

The Formative period chronology used in this study is based on a number of collections, plus comparative data from published sources and the Teotihuacan mapping project. For the Middle Formative, Vaillant's Lower Middle or Zacatenco period, we have relied heavily on the 827 rims and supports from our Venta de Carpio excavation for its definition. As noted in Part 2, the sample from the site is heavily weighed toward jars. We have, therefore, utilized the surface samples from TF-5, 8, 17, 21 and 27 to round out the complex.

For the Cuanalan phase, Vaillant's Upper Middle or Ticoman period, we have used the 1574 selected rims and supports from the Cuanalan West excavation for its definition.

The Tezoyuca phase, with no counterpart in Vaillant's sequence, is defined on the basis of the large excavated sample from Tezoyuca hill--3317 rims, 252 supports and pedestal base rims.

The Patlachique phase, also undefined by Vaillant, is based on a sample of 1199 rims and supports from our Chimalhuacan excavations.

For the Tzacualli phase, Vaillant's Teotihuacan I phase, we have relied primarily on Millon's preliminary reports in his excavations at the Oztoyahualco sector of the Classic City and from the interior of the Sun pyramid (see Millon 1961, 1965). We have also used our surface samples from TF-92, 93 and the excavated samples from Oxtotipac and TF-64. Both excavations were shallow and produced few diagnostic sherds; hence, we have not described them in this report. We are including in this publication, however, rim profiles and photographs of the ceramics from the noted sites (see Figures 68-78, Plates 52-54).

Aside from the excavated samples all of our phasing has been repeatedly checked against the large numbers of surface samples, in some samples involving hundreds of rim sherds.

On the basis of the analysis, we have divided the Formative period into six phases: Altica, Chiconauhtla, Cuanalan, Tezoyuca, Patlachique, and Tzacualli. Utilizing published C-14 dates, the span of time represented is from 800 B.C. - 100 A.D. or an average length of time of 150 years per phase. There is a probability that this phasing could be further refined. (We have tentatively suggested a division of Cuanalan into two phases; Millon and Bennyhoff have divided Tzacualli into at least two, possible three phases.)

The stylistic discreteness of the various phases is well established by the excavated and surface samples from a great number of sites. The relative time position of the phases prior to Tezoyuca is based primarily on cross comparisons with Vaillant's excavated samples from El Arbolillo, Zacatenco and Ticoman, and with Tolstoy's reevaluation of the sequence based on excavations at Tlapacoya, Tlatilco and

El Arbolillo. The relative position of Patlachique and Tzacualli is based on principles of stylistic seriation.

The major problem has been, and continues to be, the relative position of the Tezoyuca ceramic complex in the overall sequence. We feel confident as to the Altica-Chiconauhtla-Cuanalan-Patlachique stylistic continuum. It is possible stylistically to place Tezoyuca between Cuanalan and Patlachique and there is some stratigraphic support for this position from our Chimalhuacan excavations (see Part 5).

The spatial distribution of Tezoyuca ceramics on sites in the Teotihuacan Valley, however, is peculiar and makes it difficult to accept the complex as a transitional phase between Cuanalan and Patlachique. The Tezoyuca sites have a much more restricted distribution and, even more interestingly, there seems to be a consistent antithetical distribution between Cuanalan and Tezoyuca sites. For example, there are no Cuanalan phase hamlets between Tezoyuca and Tepetitlan hills on the east piedmont of the lower valley, and virtually all of the Tezoyuca sites are concentrated in this small compact zone. There is a suggestion here that Cuanalan and Tezoyuca may be contemporary, possible for a few generations of time, and Tezoyuca may be a "foreign" ethnic enclave. The location of Tezoyuca sites on defensible hilltops, their compact nature, and the near absence of outlying hamlets all point towards a forcible intrusion by some group into the area.

The typological scheme used in this report is a special variant of the type-variety system adapted to our own purposes and objectives. We are cognizant of the fact that it does not follow the same patterns of organization as that used by others. Also, it would have been desirable to have applied a uniform coding system to all of the ceramics from all time phases, but this would have been exceedingly difficult to do considering the number of people who worked with the ceramics and the dispersion of laboratory time over the years.

Basically, in our Formative ceramic studies we have used vessel forms to define types; form variations within basic vessel forms to define subtypes; and decorative techniques and lip form to define varieties and subvarieties. One could easily rearrange our code columns to establish types from decorative techniques. The major reason we used vessel forms as our maximal taxonomic level is that we wanted to be sure that our defined phases included whole functional complexes. Much of the phasing established by archaeologists has been based on rather rare, specialized funerary ceramics and we needed a system that would be applicable even to the most isolated rustic rural settlement. Furthermore, we were interested in the uses of pottery and tried to design a classification that would lend itself to both chronological and functional analysis. One obvious defect in our analysis is that decorative motif was not used; theoretically we could have designed a more refined chronology had we done so. We can only offer the defense of time and money--we had to cut the study off somewhere.

The great majority of Formative and Post Formative rims can be grouped into five major vessel form categories: jars, tecomates, basal break bowls with rounded bases, hemispherical bowls and dishes, and basal break bowls with flat bases. In our chronological analysis we will begin with general statements about the phasing of these major vessel categories. These forms obviously have functional significance, so that the classification produces a picture of functional complexes in ceramics as well as chronological assemblages.

Jars are found throughout the time sequence from the Altica to the Tzacualli phases. We are unable definitively to sort the Altica from the Chiconautla phase within the jars, but both of these phases contrast strikingly with all later Formative and Post Formative phases. A distinguishing feature is the reddish-brown surface color and the high degree of burnishing on the exterior and the interior neck, the exterior neck particularly. Furthermore, the shoulder angle between the neck and the main body of the vessel is much less pronounced, leaving a rounding effect on the interior wall. This feature is found in the later jars but it is only in the Chiconautla-Altica phases that it is typical. Vaillant refers to this jar form from his Zacatenco excavation as "vague shouldered jars." The lip generally has a pronounced, well-developed, rounded bolster, a feature found only infrequently in the later phase jars. One feature that may possibly distinguish Altica from Chiconauhtla samples is a distinctive flattening of the inner lip and the presence of angular surfaces on the bolsters during Altica times.

Jars from the Cuanalan-Tezoyuca phases are similar to each other and very difficult to separate. They both contrast sharply with the Altica-Chiconauhtla rims in the following characteristics: a highly variable surface color (generally, however, occurring in various shades of tan and buff), a great reduction in the degree and amount of burnishing (frequently having a streaky appearance when present), a much sharper shoulder angle between the neck and the jar which leaves a definite ridging on the interior wall break, and a reduction in the size of the rim bolster. We have the impression that the Tezoyuca rims generally have less burnishing than the jars, from the Cuanalan phase, but it would be extremely difficult to sort the individual sherds using this criterion. What may be more important is that the lip form seems to be much more variable in Tezoyuca jars with simple rounded or slightly thickened rims occurring as often as the small lip bolsters found so diagnostic of Cuanalan (for example, 75% of the Cuanalan sample falls into the small, bolstered lip category). Approximately 16% of the rims from the Tezoyuca type site are wedge shaped and are very similar, therefore, to the succeeding Patlachique-Tzacualli jar lips. We suspect that these rims are not of the Tezoyuca phase but probably represent a moderate Patlachique occupation at Tezoyuca hill; there is a large Patlachique site on the lower flank of the hill. It is possible, however, that wedge-shaped rims actually did begin in moderate quantities in late Tezoyuca times. This begs the entire question of variability in primitive pottery and just how standardized pottery manufacturing was. Theoretically, one could define a great number of transitional phases for the Formative sequence once the major

directions of change were know, rather than conceptualize the Formative sequence in terms of six major phases.

The Patlachique-Tzacualli jar rims, in terms of modes, sort out very sharply from the Cuanalan-Tezoyuca phase rims in the feature of wedge-shaped lips. For example, 76% of all jar rims from Chimalhuacan, our Patlachique type sample, are wedge shaped. The modal Cuanalan type, which was relatively important in the Tezoyuca sample, drops to .11% (one rim) at Chimalhuacan. Tezoyuca type simple, round lip forms make up approximately 15% of the Chimalhuacan sample, but many of these come from the lower levels of the excavation where we have definite evidence of a Tezoyuca phase occupation. The surface treatment of jars from the two phases is very similar to that from the Tezoyuca phase.

The Tzacualli rims from our small test surface sample are almost identical to the Chimalhuacan jar rims. They differ, as Millon (1965) has pointed out, in that the upper surface tends to be flatter on the average than Patlachique phase rims and is thus more sharply beveled; but this is the only notable difference that we have been able to see from surface examinations alone. They probably do differ in paste but, as we have indicated, we have not used this criterion for the chronological sorting. The Tzacualli jars lack the distinctive temper of the service wares for the same phase.

Tecomates are excellent time markers to separate the earliest three phases from the latest three. They are virtually absent in Tezoyuca, Patlachique and Tzacualli times but are a significant vessel form in the earlier three phases. Unbolstered, thickened, or simple rounded rim subtypes are found in the Altica, Chiconauhtla and the Cuanalan phases. One feature that could be used to distinguish some of the earlier (Altica-Chiconauhtla) from the Cuanalan examples is the use of cream slipping in the earlier period. Some of the earlier rims also have the typical reddish-brown surface diagnostic of the bay ware jars and basal break bowls and therefore are more easily sorted. The bolstered rim type is an excellent tool for sorting the three phases. They are probably absent in Altica times (but remember our sample from this phase is a surface sample and a small one). The bolster is very flat in profile during the Chiconauhtla phase and is characteristically rounded and pronounced in Cuanalan times. Both bolstered subtypes have red-on-buff painting but in the Chiconauhtla rims the design is confined to a band along the exterior bolster, whereas in Cuanalan times the red banding occurs on the shoulder as well. Another characteristic of the Cuanalan bolstered rim tecomate is a pronounced shoulder at the middle of the vessel.

Basal break bowls with rounded bases are one of the major diagnostic forms of the central Mexican Formative and are one of the features that make the ceramics from this area contrast sharply with all other Mesoamerican areas. They run throughout the entire sequence although they become very sharply reduced in frequency in Tzacualli times. In fact, this sharp reduction offers a good time marker for distinguishing Patlachique from Tzacualli. If the sample is large enough and the

surfaces of the sherds in good condition, vessel forms from each of the phases can be easily distinguished.

It was noted previously that one of the chronological characteristics of this basic vessel form is a gradual reduction in the mode and range of the ratio of the height of the upper wall segment (even allowing for differences in vessel size) to the total vessel height. Aside from this a number of other features are useful for chronological sorting.

The Altica-Chiconauhtla sample phase rims fall into two major groups based on surface treatment and specific form. One group includes those with surface finish and color identical to the bay ware jars. A few cases of rims occur in the sample with very similar paste and surface treatment but with darker color (commonly black or dark brown) and incised or red-painted designs. The undecorated red-brown examples all have very high vessel upper segment walls, well beyond the range of the highest examples in the succeeding Cuanalan phase. The decorated examples are comparable to the higher walled Cuanalan cases. There are no definite examples of the group of basal break bowls from the TF-21 Altica sample but some of the rims classified as jars could be basal break bowls.

The second type includes cream slipped plus incision, red-on-cream, decorated variants. These are typically characterized by a very sharp outward flare to the upper segment, which itself tends to be only 3-4 centimeters high. The overall impression of this vessel form is that of a specialized variant of hemispherical bowl (this impression is a product of the marked flare of the upper segment). Our statement above that basal break bowls with rounded bases from the Altica-Chiconauhtla phases have higher ranges and modes in the ratio of the upper to lower bowl segment when compared to Cuanalan refers only to the bay ware subtype. Of the varieties found in the Chiconauhtla phase only the incised cream is definitely present in Altica times and the red/white, red/white plus incision and dark brown incised are apparently absent from the earlier phase.

The basal break bowls from the Cuanalan phase contrast very sharply with the Chiconauhtla examples. A very distincitve subtype at Cuanalan is the upright rim, but the ordinary type of basal break bowl is also distinctive. Typically the upper segment is placed almost vertical to the plane of the base, has a small rounded bolster very comparable to that found in the contemporary jars, and is very well burnished. Nearly 70% of the rims in our sample from Cuanalan have some type of decoration. By far the most common decorative technique was red-on-buff (over 50% of the total sample of rims), but also found were negative painting, fugitive white-on-brown or white-on-red, incised bordered red-on-buff, white-on-buff, punctated and incised.

These features all contrast sharply with the basal break bowls from the Tezoyuca and Patlachique phases. Well-burnished surfaces and decoration during those two phases occur only on the very low walled examples and the vast majority of rims are from plain vessels with

smoothed or only lightly burnished surfaces. In the Tezoyuca sample, for example, undecorated rims made up 64% of the total sample with only 36% decorated. Most of the latter (24% of the total rim sample of this form) consisted of simple red-on-buff painting. The percentages of decorated rims for the Chimalhuacan sample of the Patlachique phase is about the same.

Another feature of the Patlachique and Tezoyuca rims is the frequent occurrence of insloping upper segments, running to 35% of the Tezoyuca sample and 19% of the Patlachique sample from Chimalhuacan. A few rims of this form do occur during the Cuanalan phase but they are extremely rare. It is even possible that the cases from the Cuanalan sample, since they are unburnished and undecorated as well, may actually date from the Patlachique phase. This is a distinct possibility since the type site is situated at the lower end of the large Patlachique phase site (TF-40). Another form feature that helps to sort the Patlachique from the Tezoyuca rims is lip beveling. Nearly 1/3 of the Chimalhuacan sample rims have a beveled lip very similar to the contemporary beveling found in the jars, a feature absent in both the Tezoyuca and Cuanalan samples.

In both the Chimalhuacan and Tezoyuca samples the modal subtype is still the upright wall subtype, which is the dominant Cuanalan rim subtype. It runs to 59% of the Tezoyuca sample and 51% of the Patlachique sample. A variant of the basal break bowl, typical of Patlachique and absent at both Tezoyuca and Cuanalan phases, is one in which the break between the two segments is little more than a slight step so that the upper part of the lower segment forms an almost direct line with the upper segment of the vessel.

By Tzacualli times the standard round base, basal break bowl almost disappears and its place is taken by a deep, almost conical-shaped vessel, probably with a flattened base since it lacks supports. It resembles the basal break bowl with the round base in the presence of an angular break on the upper wall, so that the separation of an upper, nearly upright wall and basal section is retained. In the case of the Tzacualli form, because of the flattened base there is an angle break at the lower portion of the profile. The upper segment is usually only 1 centimeter high, up to 2 centimeters in cases where horizontal channeling occurs. It may have a concave or slightly convex profile. Red slipping is a common feature. The channelled variety is thought to be Late Tzacualli.

Hemispherical bowls and dishes are another form which show a striking variability and significance from phase to phase. During the Altica-Chiconauhtla phase they are a major vessel form, approximately as abundant as the basal break bowls with rounded bases. In Cuanalan times the ratio of the basal break bowls to the hemispherical bowls is about 5:1. Suddenly it shifts to a 1:3 ratio in favor of hemispherical bowls in the Tezoyuca phase and finally drops back to a 1.5-1.0 in the Patlachique sample from Chimalhuacan. The form then was of considerable functional significance during the Altica-Chiconauhtla phases, declined in significance in Cuanalan times, reached a maximum popularity during

Tezoyuca times and declined somewhat during the Patlachique phase. They are still found in some frequencies in Tzacualli surface samples but probably were of less significance than during the Chiconauhtla and Tezoyuca phases. Following the history of this form a little further, it virtually disappeared in the Miccaotli phase in the Teotihuacan period, increased in frequency in the final phases of Teotihuacan, and again became a popular vessel form during the Toltec and Aztec periods.

The hemispherical bowls from Venta de Carpio, the two surface samples from TF-8 and TF-21, and the pre-Tezoyuca excavated rims at Tezoyuca fall into two major classes. One class of rims is indistinguishable in form from those of the Tezoyuca-Patlachique phases; these are rims with direct rounded or tapered lips and simple hemispherical silhouettes. Many, however, are distinctive in that they are characterized by cream slipping, have a bay ware paste and surface, or have a red-on-cream or incised design and therefore contrast sharply with the later phases samples. The other class is highly distinctive both in form and surface treatment. They can be described as having either oblique bevelling on the rim interior or everted lips. They are often combined with such distinctive features as cream slipping, red-on-cream painting or incision. The major differences between Altica and Chiconauhtla bowls lies in the much greater diversification of form and decoration in the second class. We defined 25 varieties and minor types from our samples. Nearly all the rims from the Altica phase pertain to a single variety, with a cream slip and interiorly beveled and incised lip. This variety also apparently persists through Chiconauhtla times. The few Altica rims that remain fall into three varieties: cream slipped molcajetes; slightly everted lip vessels, with flange-like lip extensions, and a cream slip; and large, cream slipped basins with bolstered lips. All are absent in Chiconauhtla phase. Red/cream decoration and moderate to widely everted lip forms are restricted to the Chiconauhtla phase. The few hemispherical bowls from the Cuanalan phase site all fit into the first class and include plain, red-on-buff and dark surfaced variants, all with unmodified lips as in the Tezoyuca-Patlachique phases.

As noted previously, there was an explosion of popularity of this vessel form in Tezoyuca times when it became the dominant service ware. A very high percentage, approximately 80%, of the vessels have decoration. Red-on-buff is the predominant technique, 45% of the total rim sample of hemispherical bowls, but particularly distincitve of the phase is the white-on-red painting. At Chimalhuacan, the Patlachique phase type site, this form is still very popular (correcting for the unusually high percentage of jars found at the site as a typical lakeshore site, the hemispherical bowl percentages would probably be around 15% of the total rim sample). One striking difference from the Tezoyuca bowls is the low percentage of decorated rims, only 1/3 of the total rim sample of hemispherical bowls. Only 12% of the rims in the Chimalhuacan sample have a plain tan surface, which is the characteristic color of the Tezoyuca plain examples. The majority of the plain rims (nearly half of the total hemispherical bowl rims) at Chimalhuacan have a well burnished dark brown or black surface.

With respect to the form variations for hemispherical bowls, the two samples overlap considerably from the two sites but the modes and ratios are strikingly different as the following chart indicates.

Vessel Subtype	Chimalhuacan	Tezoyuca
Restricted orifice	7.80%	13.18%
Upright wall	22.09%	50.23%
Moderately flaring walls	41.57%	21.84%
Extremely flaring walls	20.78%	9.13%
Beveled lip bowls	7.80%	1.72%
Miscellaneous forms	0	3.90%

A further difference between the bowls from the two sites, and reflected in the classification by the ratio between upright and flaring wall vessels, is the fact that the walls of the Chimalhuacan examples generally tend to have a much flatter curvature, so much so that they are sorted out from the straight-sided bowls only with considerable difficulty--a number of sherds could have been classified in either category. The Chimalhuacan examples, therefore, tend to be much shallower in proportion to the mouth diameters, more dish-like than bowl-like in general vessel form. The form characteristics of Patlachique phase bowls carry over to a great extent to the Tzacualli phase, i.e., a low frequency of true convex-sided, upright deep vessels; and a definite tendency towards a flattening of the wall curvature, sharp flaring of the wall and shallower vessels. Another feature characteristic of Tzacualli bowls is the fact that the flattening of the basal area is much more extensive in proportion to the mouth opening. In fact, the proportions are much closer to the normal Classic basal break bowl with flaring concave sides and flat bases than to the typical hemispherical bowl and perhaps should not be referred to as hemispherical bowls.

The bulk of the service ware in our Tzacualli sample consists of these flat bottom vessels with straight or slightly convex walls. The walls usually flare outward from the base, although a few vertical wall vessels are found. One variant has very high vertical walls. Both of these vessel forms were apparently the prototypes for two diagnostic Teotihuacan vessel forms, the flat bottom basal break bowl and the tripod vase. Approximately 1/3 of the rims of this type have a plain burnished tan or orange surface, a few have a black surface. Decorated examples include red/orange in which the red occurs as lip and medial bands, and polychrome red and white/orange, also occurring as simple banding. Much of the banding is horizontal although cases of vertical and curvilinear designs occur. Negative painting, considered a Tzacualli diagnostic, is rare in the surface samples.

A distinctive vessel form, restricted to the Patlachique and Tzacualli phases, is a large deep crater with a wide everted lip, generally equipped with shoulder lugs, and possessing a lightly burnished tan surface.

The various phases are also distinctive in the typology of tripod supports and other specialized forms of vessel bases. As far as we know, tripod supports are absent in Altica times and are restricted in the Chiconauhtla phase to a single type--medium sized, solid, conical or subconical. Cuanalan has a distinctive variety of large, hollow supports (effigy, multibody globular, single body globular, and subglobular). The distinctive Tezoyuca support is a large white/red, hollow globular type. The saddle support may be diagnostic of the Patlachique phase but may begin with the Tezoyuca phase. Tzacualli is distinctive in the complete absence of supports. Pedestal bases are a distinctive basal specialization for Tezoyuca and they continue in very low frequencies in Patlachique times.

With respect to decorative techniques the four samples generally reveal significant chronological changes. In the following analyses jar rims have been excluded from the sample, so that the percentages refer to percentages of the balance of the sample in each case.

An obvious difference is in the fairly high representation of plastic designs in the Chiconauhtla sample from Venta de Carpio as contrasted to the later phases; 10.67% of the rims have incised designs and 26.40% have painted designs. In the Cuanalan sample only 3.4% of the rims have incised designs; even if we include other plastic techniques, such as punctation and channeling, the total is still only 5.7% versus 57.68% painted rims. By Tezoyuca times, only .005% of the rims are incised and 1.95% of the rims have plastic designs of any type versus 68.78% painted rims. The Patlachique sample from Chimalhuacan is rather similar to the Tezoyuca sample with .68% of the sample having incised and 18.38% having painted designs. There is a general reduction of decorative techniques as a whole in the sample from Chimalhuacan. With respect to Altica incision and flanging, both combined with cream slipping, are the only decorative techniques presently known.

In all of the four samples, red-on-buff is the most common type of decoration varying from 13.73% for Chiconauhtla, 52.54% for Cuanalan, 36.57% for Tezoyuca, and 7.88% for the Patlachique phase. Red-on-cream and cream slipped sherds are important diagnostic traits of the Altica-Chiconauhtla phases and are of little or no significance in the subsequent periods. White-on-red is an excellent time marker for the Tezoyuca phase where it makes up 12.7% of the sample. It occurs in extremely low frequencies in the succeeding Patlachique phase. Red-on-buff bordered by incision is a diagnostic of the Cuanalan phase, although it occurs even there in very low frequencies (1.42%). Negative painting begins in Cuanalan times and remains an important secondary decorative technique throughout the subsequent Formative sequence (2.84% Cuanalan phase, 7.67% Tezoyuca phase, 4.79% Patlachique phase). Polychrome red- and white-on-buff has a parallel history (Cuanalan 1.42%, Tezoyuca phase 5.76%, Patlachique phase 1.72%).

For the Tzacualli phase, although we lack the quantitative measures, we can make the qualitative estimates that the distribution of decorative techniques is very comparable to that of the Patlachique phase. Polychrome (red and white-on-orange or buff), red-on-orange or

buff, white-on-red and negative painting are all important decorative techniques, probably comparable in frequency, possibly somewhat higher in frequency to their occurrence in Patlachique times. Plastic design is virtually absent as is cream slipping and red-on-cream painting during the Tzacualli phase.

One of the major peculiarities of the ceramics of the Altica and Chiconauhtla phases is the virtual absence of burnished black surfaces, a significant attribute of the contemporary ceramics from Zacatenco, El Arbolillo, and Tlatilco.

There are striking differences among the four samples in terms of even basic vessel form percentages, differences that probably relate to the differences in activities that were carried out at each site. The following chart summarizes this point.

	Site				
	Venta de Carpio	Cuanalan	Tezoyuca	Chimalhuacan	TF-21*
Jars	78.48-81.50	36.72	34.33	75.23	66.31
Tecomates	2.90	14.49			
Craters				2.88	7.07
Basal Break Bowls (round bases)	6.69-9.67	28.59	13.90	11.11	10.87
Basal Break Bowls (flat bases)	0	0	11.79	3.65	
Hemispherical Bowls and Dishes	8.83	5.84	38.65	6.53	15.77

*Some of the bay ware jar rims from TF-21 could be basal break bowls.

Immediately apparent is the difference between the two lakeshore sites and the two inland sites. In both of the former, jars are heavily represented--from 75-81% of the total rim sample--whereas in the latter two sites they make up only 1/3 of the total sample. It is significant that other lakeshore sites also show the same peculiar patterning regardless of time period. Mayer-Oakes' El Risco site, a lakeshore site that was predominantly of the Toltec and Aztec periods, shows the same kind of asymmetrical distribution. For example, one of his types, an Aztec type, called El Risco Fabric Impressed runs from 61-85% of the total sample. In the earlier Toltec period, this type is not found but between 25-70% of the total sample falls into a single major type category. In the Teotihuacan Valley TC-3, a Teotihuacan period site, Litvak-King's tables show that 4120 of 4775 sherds were assignable to a single one of Tolstoy's ceramic types (San Martin burnished monochrome).

In other words, it looks as though most of the lakeshore sites in the Basin of Mexico present peculiar profiles of pottery types or vessel form percentages as compared to contemporary sites from inland areas. In Aztec times this high percentage is found in a special pottery type, that on the basis of ethnohistoric, contemporary and archaeological data, is linked to the specialized function of these sites as salt-making stations. In the earlier periods special pottery types were not used but one or several of the standard pottery types were apparently used for the same function, leading to the peculiar percentage distribution. The technique reported in the sixteenth century and found amongst the contemporary villages of salt-making consists of filtering the salt or washing it out of the soil rather than boiling off lake water. Large ceramic containers are used to catch the filtered salt. It is an interesting fact that in both the Venta de Carpio and the Chimalhuacan samples the ratio of jars versus wares is virtually identical.

Of interest also are the differences between the Cuanalan and Tezoyuca samples. Virtually all of the hemispherical bowls from Tezoyuca are small vessels that look like individual serving vessels. Most of the concave and straight-sided bowl rims found at the Tezoyuca site are apparently drinking goblets. Together these two make up approximately half the total rim sherds in the Tezoyuca sample. Virtually all of these vessels are highly decorated. Of the Cuanalan sample not more than 15-20% of the rims fall into the category of highly decorated and small bowl-like vessels (this would include the smaller basal break bowls plus the very restricted number of hemispherical bowls). Our interpretation of these differences relates to the differences in the natures of the two sites--Tezoyuca was a civic center of some kind, Cuanalan a typical agricultural village. The high percentage of individual, highly decorated, serving vessels at Tezoyuca may relate to patterns of public ceremonial feasting and food distributions, suggesting the possibility of a relationship to Service's definition of the chiefdom level of social structure.

Part 7

THE SURVEY: PRE-TZACUALLI SITES

In the following description of the Formative sites, we have grouped them by ecological divisions of the valley to faciliate our later analysis. In Volume 1 we defined seven major divisions of the valley: the delta, the lower valley, the middle valley, the upper valley, Cerro Gordo-north slope, the north tributary valleys, and the Patlachique range. We also made a distinction between the alluvial plain and the piedmont in each of the first four divisions. In the present analysis we will divide the Patlachique range into a number of subdivisions because of the special significance of that area for the Formative occupation. These are the upper range, the lower range, the San Lorenzo Basin-south and west slopes, the Altica ridge, the Nonoalco ridge, the San Idelfonso ridge, and the Oxtotipac ridge. The reader is referred to the descriptions of the areas, other than the Patlachique range, in the chapter on the Teotihuacan Valley geography (see Sanders 1971) in Volume 1. Here we will discuss in somewhat more detail the particular characteristics of the Patlachique range that relate to the Formative settlement.

The Patlachique range as a whole is the largest block of high terrain in the survey area and was one of the scenes of intensive occupation in Formative times, particularly during the early phases. The range consists of a high massive core, including Cerro Patlachique itself, that we will refer to as the upper range. Virtually no archaeological or contemporary occupation occurs in that area. Bordering it to the west and north are a series of small foothills we will refer to as the lower Patlachique range. Between the two is a series of high plateaus and valleys of very small size. The lower range and the interior plateaus were scenes of concentrated Formative settlement. A major drainage basin, the upper San Lorenzo (which ultimately joins the Rio de San Juan in the main valley), drains the eastern portion of the Patlachique range. Hills of the lower range directly abut on the barranca system on the south and west, producing a pattern of generally steep topography on that side (Cerros Xiquillo, Tlilhua, Cuahpilco, Xoxoque, Tepetitlan). This was an area of heavy occupation for the Formative period. East of San Lorenzo barranca the terrain is much more gentle and is traversed by a complex network of smaller tributary barrancas. The interfluves between these barrancas have almost level surfaces and form a series of ridges that gradually descend like steps to the middle valley plain. The uppermost of these ridges we are referring to as the Altica ridge, followed in succession by the San Ildefonso, the Nonoalco and Oxtotipac ridges. These high, level ridges were favorite localities for Formative settlements.

The survey produced a total sample of 73 physical localities or sites where pre-Tzacualli debris was heavy enough to suggest a permanent or semi-permanent residential site. At the 73 localities we defined two Altica phase components, 7 Chiconauhtla phase components, 28 for the Cuanalan phase, 8 Tezoyuca and 55 Patlachique phase components or a grand total of 100. Besides these we recorded 39 trace components at a number of sites, giving us a total of 139 pre-Tzacualli components.

Nine occupational sites include ceremonial architecture, all pertaining to the Tezoyuca and Patlachique phases. The balance are small agricultural settlements, none of which had a population above 300 people and the great majority probably having less than 100 inhabitants each.

An additional 56 physical localities, with substantial occupation, had only Tzacualli components, bringing the total number of physically discrete Formative sites to 129. Altogether we recorded 74 substantial Tzacualli occupations and 23 trace occurrences. Of the 74, therefore, 18 had other Formative occupations. The total of all Tzacualli and pre-Tzacualli components, traces, and substantial occupations is 236. The pre-Tzacualli sites are described here, the Tzacualli sites in Part 8 (see Tables 40-42).

THE UPPER SAN LORENZO BASIN

Well up the San Lorenzo Basin are a number of foothills, Cerros Xiquillo, Cuahpilco and Tlilhua, with steep eroded slopes and separated from each other by deep, wide tributary barrancas. The only relatively level land consists of a series of narrow ledges between the bases of the hills and the edges of the barrancas. We believe that much of the cutting of the barrancas postdates the Formative occupation, and reconstruct the area during the Formative period as a series of small valleys with narrow flood plains and shallow permanent or semi-permanent streams. Most of the area today can be considered as marginal land and is owned by the village of Belen. The slopes are covered with stone terraces, many of them abandoned. Those in use are planted primarily in maguey, with much of the area used for grazing. The uncultivated terraces are densely overgrown with wild vegetation (consisting of huixcolote, huixache, cactus--primarily wild nopal, grass and pirul trees). Soil cover is generally thin but present in most of the terraced areas. These lands were probably more intensively utilized prior to the agrarian revolution and have reverted to marginal status since the farmers at Belen received their ejidos in the main valley. Of particular interest is the general sparseness of Aztec settlement (and, in fact, this is true of all post-Patlachique occupation) in the area. The Formative sites in the area are described as follows.

TF-8-9-53-157-185-199 (Figure 81, Plates 112b, 113, 114, 115a)

Setting. This complex of sites is located on the lower, western slope of Cerro Xiquillo-Tlilhua between the hill and the deep barranca. They form a linear strip 1200 meters long varying in width from 120-400 meters. The area is covered by stone terraces, approximately 7 meters wide on the average, some of which may date from the Formative period. The portion of the strip we have designated as TF-8 particularly has a close correlation of sherd concentrations with individual terraces.

Most of the terraces today are covered with the noted wild vegetation. The relationship of sherd concentrations to terraces is strikingly similar to that found in many Aztec sites. Aztec occupation here, however, is scanty, indicating that they do not date from that period.

Settlement Pattern. Occupation varies in density, reaching a peak at the TF-8 segment where small localized areas of heavy sherd and obsidian concentration occur at 10-15 meter intervals. Each probably marks a Formative house site. In the balance of the site material remains are much more scattered and lighter in density. One of the unusually heavy obsidian concentrations may be a workshop or the site of a house of a craftsman. It was also the locus of a concentration of chipped basalt artifacts of the Chalco type. A number of manos, metates and ceramic figurines were also noted in the surface survey. TF-8-9 are coterminous; TF-53 is separated from them by a deep tributary barranca 60-80 meters across. It is possible that the two areas of settlement were once separated only by a shallow mountain brook. It is also probable that TF-53, 8 and 9 all extended somewhat further north and that subsequently portions of the sites have been destroyed by the lateral erosion of the main barranca. The barranca today has a depth of up to 30 meters and a width of at least 200 meters. Above TF-53 are a series of high terraces with a scattered light occupation (coded as TF-157-185). It could be considered as an upper extension of TF-53. This site was not included in the intensive survey. No observable architectural features were noted on the sites other than the possible terracing.

Surface Area. The TF-8-9 sector of the visible occupation covers an area of approximately 14 hectares, of which 5 hectares comprise the area of heavy occupation we have coded as TF-8. TF-53 measures 2.2 hectares and TF-157-185 we estimate as having a surface area of between 1-2 hectares.

Chronology. Surface samples were collected from TF-8, 9 and 53. In all three, Cuanalan phase occupation dominates the sample and the code numbers TF-9 and 53 designate this component. The Chiconauhtla phase occupation is well represented at TF-8 and we also see a trace of Altica phase, which we have coded as TF-199. TF-157-185 were not surface sampled but observation from general survey suggests both a Cuanalan (coded as TF-185) and a Patlachique (coded as TF-157) occupation.

TF-52-160-161-162-163-165-217 (Figure 81)

Setting. The first six sites constitute a series of physically discrete sites, each with a small area of occupation. All occur on abandoned stone-maguey terrace systems on interfluves between a network of barrancas that drain the south slopes of Cerros Tlilhua and Xiquillo. Of these only TF-52 was included in the intensive survey and surface sampled. In topography, hydrography and vegetation, the setting is comparable to those sites on the north side of Cerro Xiquillo.

TF-52 covers a total area of 4.4 hectares. Approximately in the center of the site is an area, 1 hectare in size, with heavy occupation and the rest has a scattered, light density. The site occupies a terrace system with terraces only 4 meters wide. These are almost certainly recent and unrelated to the Formative occupation. The site is predominantly of the Cuanalan phase with a trace of Patlachique (the latter coded as TF-217).

Sites TF-160 through 165 are all tiny settlements, each less than a hectare in size each. TF-160 and 165 are of the Cuanalan phase (based on surface observation only) and are situated on the upper terraces at approximately the elevation of TF-52. TF-161, 162, and 163 are all located on the lower terraces and apparently pertain to the Patlachique phase (also based on surface observation). Marino also recorded a trace of Chiconauhtla phase at TF-160 which we have coded as TF-194.

TF-7

Setting. Cerro Cuahpilco is an isolated hill with a more extensive piedmont than Cerro Xiquillo. The piedmont is an area of gentle to moderate slope with bancals and stone terraces. Though some of the land has maize and beans planted, much of it is in maguey. It is more heavily utilized for farming today than the Xiquillo-Tlilhua area. It is also closer to the village of Belen. The site is located on the gently sloping piedmont near a deep barranca.

Settlement Patterns. The site covers a total area of about 5 hectares with an even light to moderate distribution of sherds. Obsidian artifacts were noted in survey but no ground stone tools. No house patterning could be determined. Aztec, although present, is scantily represented.

Chronology. The site was surface sampled and the sample was almost entirely Cuanalan phase in date. At first we recorded a Chiconauhtla occupation but more detailed analysis of the sample indicated that the sherds in question were more probably Early Cuanalan.

TF-158

This is another site recorded in the general survey but not intensively surveyed. It consists of several tiny areas of separate occupation, each apparently dating from the Patlachique phase (based on surface examination only). They are situated on the narrow piedmont between the north edge of Cerro Tlilhua and the Barranca de San Lorenzo. The area is heavily eroded with much exposed tepetate.

Summary

The Cerro Xiquillo-Tlilhua area was a focus of Cuanalan phase settlement centered at one large village or cluster of hamlets (TF-9-53-185) and with several outlying hamlets (TF-7, 52, 160, 165). It is tempting to see these settlements as comprising a single supra-community society. The remains may also represent a process of occupation, abandonment and shift to nearby localities. The cluster apparently grew out of a single pioneer settlement in the area during the Chiconauhtla phase (TF-8). During the succeeding Patlachique phase the area was clearly more marginal for settlement, with only a series of small hamlets (TF-161, 162, 163, 158, 157). Of interest is the fact that all but 157 are located at lower elevations than the corresponding Chiconauhtla-Cuanalan settlements. Also of considerable interest is the virtual absence of post-Patlachique occupation, the only evidence being a scattering of Aztec.

CERRO XOXOQUE-TEPETITLAN AREA

The upper piedmont around the contemporary villages of Santiago Tepetitlan was a major focus of Formative settlement. The terrain consists primarily of light to moderately sloping topography. This relatively level terrain is interrupted by two small foothills, Cerros Tepetitlan and Xoxoque. Unlike the area previously described it is intensively cultivated for basic foodstuffs. The gentle slopes are covered with stone and maguey terraces planted in maize, barley and beans; the steeper slopes are intensively utilized for maguey. Part of the survey area is occupied by the village of Tepetitlan, with houses closely integrated with a functioning terrace system. The area also contrasts with the sites further up the San Lorenzo Barranca in that Aztec occupation is heavy and abundant. One large Aztec site (TF-189) rings and surmounts Cerro Xoxoque. The village of Tepetitlan overlies a large Aztec site (TF-186) and two small sites occur upslope from them. The Formative site on the west slope of Cerro Xoxoque also includes a Toltec occupation. The following Formative sites occur in this area.

TF-23-25-88-89 (Figure 88, Plates 117b, 118, 119, 120a)

Setting. TF-23 is located on the relatively flat summit of Cerro Tepetitlan, a steep-sided hill just above the village. The site is linear in form running nearly 800 meters north and south and varying in width from only 80 to a maximum dimension of 200 meters.

The summit and adjacent steep slope are virtually the only parts of the hill not intensively cultivated today. Most of it is in thorn bush and pirul with scattered maguey and nopal. At some period of time, however, it apparently was cultivated, as the abandoned terraces

indicate. The terraces to the west and east drop off steeply and are lacking in prehistoric occupation. Following the steep slopes the base of the hill levels off to a gentle piedmont with a respectable soil cover. The lower flanks and adjacent piedmont on the east side are occupied by the village of Tepetitlan; the west side by another site, TF-25, which is similar in length and width to TF-23 and parallels it very closely, being separated from it only by the steep slopes of the hill. It is bordered on the west and south by two deep barrancas. The area of TF-25 is occupied by terraces intensively cultivated with maguey, beans and maize. The two sites, TF-23 and TF-25, could be considered a single large site, separated only by a narrow band of steep slopes unsuitable for habitation.

Settlement Pattern. As noted before, each of the two sites has a strikingly linear appearance, very similar to Aztec piedmont settlements. TF-23 has a cluster of two, possibly three, ceremonial platforms approximately in the center of the site and at the highest point of the hill. The two definite cases are mounds about 12 meters in diameter and 3 meters high. No other structures are visible on the aerial photos other than the stone terraces, some of which may conceivably date from the Formative period. The ceremonial platforms probably pertain to the Formative occupation since all sherds in the fill and littering the ground around them are of that period. Pottery on the surface is abundant, with a large area of moderate to very heavy concentration of sherds and obsidian artifacts. The Aztec occupation is sparse, strengthening our argument that the mounds probably pertain to the earlier phase. However, there is a large Aztec village site on the east piedmont below the hill within the contemporary village, so that the mounds could represent a hilltop shrine of this period. One gets the impression of a densely nucleated settlement during the Formative period.

TF-25 lacks surface architecture and the sherd densities are much lower, generally rating as from light to medium, and also tend to occur in localized areas. The impression is one of a more dispersed settlement. Aztec sherds occur but are scanty to light in concentration.

Surface Area. The area covered by TF-23 is approximately 8 hectares of which perhaps half have heavy occupation (primarily concentrated near the mound group). The rest of the density is more comparable to that of TF-25. TF-25 covers 7 hectares, with a total of 15 for the two sites.

Chronology. Surface samples were collected from both sites. The primary occupation at TF-23 is of the Tezoyuca phase with a strong secondary representation of Patlachique (coded as TF-88) and Cuanalan (Coded as TF-89). The sample from TF-25 is predominantly Patlachique. A few jar rims from the latter site could be either Cuanalan or Tezoyuca phase in date.

TF-24-50-96-97 (Figure 91, Plate 128a)

Setting. Cerro Xoxoque is a lower hill than Cerro Tepetitlan, has a much smaller summit, and much of its slope can be described as gentle. Between it and Cerro Tepetitlan is a barranca over 100 meters wide and 30 meters deep. The sites TF-24-50-96-97 are located on the gently sloping terrain that occurs between the base of the hill and the barranca. Today this area has a respectable soil cover and is covered with maguey terraces planted in maize, beans, and barley. TF-51 is partly coterminous with TF-50 on its eastern edge but occurs further upslope. Although the terrain is gentle, the slope angle is abrupt enough to have produced a considerable amount of erosion, exposing tepetate in some portions of the site. The area has maguey and stone terraces and is planted primarily in maize.

Settlement Pattern. Parts of TF-50 and 24 are within the large Aztec site (TA-189) that occupies much of the hill and the adjacent piedmont. TF-50 also has a fair amount of Toltec occupation. No definite mounds occur anywhere on the site but rock debris is abundant, probably representing the remains of stone houses. Whether these derive from the Aztec, Toltec or Formative occupation is problematical. Formative sherds occur evenly over TF-50 in light concentrations, with a considerably heavier Aztec occupation. TF-24 has less Formative occupation and it must be characterized as scanty; but Aztec, on the other hand, is abundant at this site.

Surface Area. TF-50 covers 4 hectares, TF-24 3 hectares, or 7 hectares in all.

Chronology. Both of the sites were surface sampled. In the case of TF-24 all of the Formative pertains to the Patlachique phase. With respect to TF-50 we encountered one of the major disagreements among the staff in the dating of the sample. West evaluated the Patlachique occupation as dominant with Cuanalan phase as secondary and also noted a trace of Tezoyuca.

The Patlachique occupation was coded as TF-50, Cuanalan as TF-97 and Tezoyuca as TF-96. In his reevaluation of the surface sample, Sanders places the Cuanalan occupation as primary with Patlachique as secondary and sees no trace of Tezoyuca. What we may have is a small compact Cuanalan settlement that expanded into a much larger but more dispersed Patlachique phase settlement.

TF-51-98 (Figure 91)

Setting. On the lower northeast slope of Cerro Xoxoque is a site comparable in date and environmental setting to TF-24. It differs in that the area is much more severely eroded, with much exposed tepetate. The small areas of deeper soil are planted in barley. The site is located within the Aztec site TA-189. A temple platform that probably served the Aztec site is located at the northeast edge of the Formative site.

Settlement Pattern. No surface structures were observed except the Aztec platforms. The Formative occupation is rather scanty and evenly distributed.

Surface Area. Approximately 3.3 hectares.

Chronology. All of the Formative surface samples pertain to the Patlachique phase. West reported traces of the Altica phase and assigned it a code number of TF-98. In Sanders' reexamination of the sample, no evidence of this phase was apparent.

TF-159

Immediately below TF-51, general survey located two small (less than 0.5 hectares each) areas of Formative occupation. The sites were not intensively surveyed or surface sampled. On the basis of surface examination a Patlachique phase date was suggested.

TF-76-183-153-184-154

Immediately west of TF-25 is a gently sloping piedmont area. It is bordered on the west and east sides by deep barrancas that join to the north. The resultant isolated land forms a long triangle with its apex downslope and to the north where the barrancas join. It is terraced and under cultivation. The upper part has steeper slopes and more closely spaced terraces, the middle and lower sections have gentler slopes with wide bancal terraces in the center and narrow terraces at the lower portions. General survey located two Formative sites at the upper and lower sections of the strip, respectively. Neither was intensively surveyed. TF-76-183-153 measured 2 hectares in size. Although no surface samples were collected, surface examination suggests a Chiconauhtla phase occupation (coded as TF-76), a Patlachique phase occupation (coded as TF-153), and a Cuanalan phase occupation (coded as TF-183). The uppermost site--TF-154-184--measures about 1 hectare in size and, on the basis of surface observation, pertains to the Patlachique (coded as TF-154) and Cuanalan phases (coded as TF-184).

TF-152-182

On the relatively steep south slope of Cerro Tepetitlan, a Formative site was located in the general survey but not intensively surveyed. It covers approximately 2 hectares of badly eroded terrain and, on the basis of surface observation, has a Patlachique (TF-152) and a Cuanalan (TF-182) phase component.

Summary

The Tepetitlan-Xoxoque area has a long and complex settlement history. This was initiated in Chiconauhtla times (the area may have been exploited as early as the Altica phase for some subsistence activities if West's suggestion of a trace at TF-51 is correct) with a small hamlet at TF-76. During the succeeding Cuanalan phase no fewer than five hamlets were occupied in the area (TF-183, 184, 182, 89 and 97). All are on hilltops or well up on the upper piedmont. During the Tezoyuca phase this scattering of small hamlets was replaced by a large ceremonial center-residential complex on the top of Cerro Tepetitlan (TF-23). This settlement expands into a large village site (TF-28-88) during the Patlachique phase along with a complex of satellite hamlets (TF-153, 152, 154, TF-50, TF-24, TF-51 and TF-59). There is a virtual absence of occupation during the Tzacualli phase of the Formative period and the succeeding Teotihuacan period. Apparently the area was then reoccupied by a small settlement in Toltec times, which expanded into the large Aztec site in the final prehistoric period.

THE SAN IDELFONSO, ALTICA AND NONOALCO RIDGES

In sharp contrast to the western part of the upper San Lorenzo Basin with its rugged foothill topography, the eastern part consists of a relatively level plateau deeply dissected by barrancas, the eastern tributaries of the San Lorenzo river. The plateau grade slopes down from south to north. The base of the plateau consists of a great tongue of basalt. For the purpose of convenience we have divided it up into a series of separate ridges delimited by barrancas; these are recognized by the contemporary population as separate localities. The highest and southernmost part of the plateau we will refer to as the Altica ridge. The ridges decrease in elevation towards the north in succession from San Idelfonso, to Nonoalco, to Oxtotipac, to Cuahutlacingo. In this section we will deal only with the uppermost three ridges.

The delimiting barrancas are all very deep, wide canyons. An important problem is the antiquity of these barrancas in their present form. Most of them may have been shallow, narrow, semi-permanent streams during the Formative period. The plateau surface between the barrancas is also severely eroded by sheet erosion, particularly the Nonoalco ridge, with much exposed tepetate. Where soil does remain it is generally only 10-20 centimeters in depth, with only occasional patches of soil that reach a depth of 50 centimeters. The ridge is heavily utilized for maguey cultivation, with maize and barley found in the small areas of deep soil. The land today can be considered as an area of marginal use by the villagers from Oxtotipac and Belen.

Aztec occupation is extensive, occupying virtually the entire surface of the Nonoalco ridge, large portions of the San Idelfonso ridge, and occurring as a series of small hamlets on the Altica ridge. It is, on the whole, considerably heavier than the Formative occupation even in the areas where the latter occurs. Small pyramids occur on the ridges which probably date from the Aztec period; where house mounds were observed they seemed to be Aztec rather than Formative in date. In no case did we find definite evidence of Formative structures. Topographically the area is comparable in many ways to the piedmont of the upper valley. A major difference, critical in terms of our understanding of Formative occupation, lies in its higher elevation. The Formative occupation of the area is extensive and includes the following sites.

TF-21-193-223-229 (Plates 108-109a)

Setting. TF-21 is located on the highest of the ridges, the Altica ridge, and is the type site for the Altica ceramic phase. The ridge has generally suffered less erosion than those lying at lower elevations; there is a fairly consistent, 10 centimeters thick soil cover, with only limited areas of exposed tepetate (located primarily along the edges of the delimiting barrancas). Most of the area is under intensive maguey cultivation, planted in closely spaced lines. Maize, beans and barley are planted in the deeper soil areas.

Settlement Pattern. The site has a fairly even concentration of sherds of moderate density with localized areas of heavier occupation. Much of this latter, however, is Aztec and ties in with the specific locations of Aztec house sites. The Formative occupation tends to be generally sparse with localized areas of light to moderate concentration. Obsidian tools, manos and metates are all abundantly represented. Figurines are also common, including many from the Formative period. The Aztec occupation extends considerably beyond the limits of the Formative.

Surface Area. Approximately 4 hectares.

Chronology. The major Formative component at TF-21 clearly pertains to the Altica phase. There are traces of the Chiconauhtla phase, but it is uncertain whether this is a true occupation or simply a trace. We have coded this as TF-193. If it is an actual occupational site, it is clearly less densely concentrated than that of the earlier phase. Definite traces, but no more than traces, of a Cuanalan phase occupation show up in the surface samples and are coded as TF-229. In the large surface sample are many beveled-lip jar rims. All are very badly eroded and could date from the Aztec period since there is a very heavy Aztec occupation on the site. Since some of them, however, may date from the Patlachique phase, we have tentatively coded a Patlachique occupation as TF-223. No other definite Patlachique vessel forms, however, were noted in this surface sample, so this identification is uncertain.

TF-164

This is a small hamlet, measuring less than one hectare in size, reported in the general survey but not intensively surveyed or surface sampled. Surface observations suggest a Patlachique phase date. It occurs directly across a barranca north of TF-21 and is assigned to the Altica ridge area.

TF-17-79-80-226 (Figure 82, Plates 110b,111, 112a)

Setting. The San Idelfonso ridge, upon which the site is located, is much more severely eroded than the Altica ridge but otherwise is an area similar in terrain and contemporary use. There is much exposed tepetate, however; it is generally an area of maguey cultivation with very small areas of grain cropping where the soil is somewhat deeper. A large Aztec site is located on the ridge, including a pyramid, and the Aztec site includes and extends far beyond the Formative occupation.

Settlement Pattern. Sherd density as a whole varies considerably and tends to occur in localized distributions, varying from light to heavy. It is particularly heavy near the Aztec pyramid or on and around Aztec house mounds. No Formative structures are evident. The Aztec occupation is heavier than the Formative, which probably ranges from sparse to light over the site area. Obsidian artifacts are abundant but manos and metates were not reported.

Surface Area. The area of definite Chiconauhtla occupation is approximately 6 hectares. The Patlachique occupation only partly overlaps this area of settlement and has a total extent of about 4 hectares.

Chronology. West analyzed the large surface sample from the site as follows: Chiconauhtla phase dominant (TF-17), Altica light (TF-80), Patlachique phase very sparse (TF-79). Sanders, in evaluating the same sample, would reverse the relative position of Altica and Chiconauhtla with Altica as the heavier of the two occupations. He also sees a few Cuanalan phase sherds in the sample and designated this trace as TF-226.

TF-19 (Plates 129b, 130a)

Setting. The setting of this site is identical to that of TF-17 except that the site has suffered much more severe erosion and even Aztec sherds tend to be badly weathered.

Settlement Pattern. Sherds vary in density from sparse to moderate and tend to be localized. No other artifacts were noted on the surface survey. Probably a widely dispersed settlement is involved. Aztec is moderately light over the site.

Surface Area. Approximately 5 hectares.

Chronology. Patlachique phase.

TF-22 (Figure 92, Plates 130b, 131, 132)

Setting. TF-22 is located on the Nonoalco ridge, the most severely eroded of the three ridges described in this section. The aerial photographs show at least half of the ridge surface as exposed tepetate. Cultivation is limited to maguey and very small fields of maize, beans, or barley. The occupational area of the site is, therefore, very severely eroded. The Formative occupation occurs within a huge dispersed Aztec site that covers most of the ridge. Only a few Aztec houses, along with a pyramid, have survived this erosion.

Settlement Pattern. The overall pattern is one of moderate to heavy occupation with a tendency towards localized concentrations. Much of this, however, is Aztec in date, and the Formative occupation probably varies from sparse to medium and is widely dispersed and highly variable in distribution, suggesting a widely scattered settlement. West also reported in his field notes the presence of a Toltec component but in examining the surface sample no trace of this was noted.

Surface Area. 15 hectares.

Chronology. All of the Formative pottery that can be identified pertains to the Patlachique phase.

TF-20-54-82

Setting. The general setting of TF-20 and TF-54 is similar to that of TF-22, with the exception that they are located further upstream but still on the Nonoalco ridge. As in the case of the portion of the ridge at TF-22, the surface is severely eroded and of marginal use by the contemporary population of the area. Both sites have heavy Aztec occupation along with that of the Formative period.

Settlement Pattern. TF-20 has a moderate to heavy concentration of ceramics on the surface, much of which dates from the Aztec period. The Formative occupation can be characterized as varying from scanty to light in density and tending to be highly localized as well. Obsidian artifacts were abundant on the surface but no other artifacts were noted. Several Aztec house mounds were also recorded but no Formative structures.

TF-54 generally has a scarce to light occupational distribution, much of which is Aztec. It tends to be fairly evenly distributed. No other artifacts or structures were noted in the surface survey.

Surface Area. TF-20 covers 4 hectares, TF-54 3 hectares.

Chronology. The surface sample from these two sites were very badly weathered and extremely difficult to identify. West analyzed the TF-20 collection as predominantly Patlachique with a trace of Tzacualli (coded as TF-82). He classified the collection from TF-54 as Patlachique. Marino in his general survey of TF-20 called the main

occupation Aztec with some Tzacualli and Miccaotli. Sanders' evaluation of the two samples, one taken by Marino in his general survey, the other by West in his intensive survey, indicates that the Marino sample was predominantly of the Teotihuacan period (out of 56 sherds only about 1/3 could be identified, but the balance were not definitely Patlachique). West's sample of 30 rims includes definite Patlachique material plus several Cuanalan phase rims along with Aztec. The TF-54 sample includes ten rims, of which only one could be identified as Patlachique and another as possible Cuanalan. Generally the dating of these two sites is uncertain and unsatisfactory but they probably do include some Patlachique occupation.

TF-155, 156

These are two small sites located in general survey but not intensively surveyed. They occur on the San Idelfonso ridge near TF-17. TF-155 was less than one hectare in size, TF-156 probably measures about two hectares. Surface observations suggest a dating for both sites during the Patlachique phase.

Summary

This area was the major focus for the Altica occupation of the valley with two of the three hamlets located here, each on the upper two ridges. West sees more Chiconauhtla phase occupation at both sites than does Sanders. Sanders sees a light occupation at TF-17 with at best only traces at TF-21. Whichever of these interpretations is correct, the area was definitely a focus of occupation during the early portion of the Teotihuacan Valley Formative. In the succeeding Cuanalan phase the indications are that the area was probably cultivated, but was not the scene of actual settlements since all of our cases are traces (TF-17, TF-21, TF-20 and TF-54). The area may have been used for cultivation by the Cuanalan phase population that was residing across the barranca in the Cerro Xiquillo-Tlilhua area.

The maximum occupation of the area was achieved in Patlachique time with a focus at the lower portion of the ridge complex. A large settlement was located at TF-22 on the Nonoalco ridge with smaller settlements at TF-79, 19, 155, 156, 164, 22, 20, and 54. The succeeding Tzacualli phase and the Teotihuacan and Toltec periods witnessed a virtual abandonment of the area, followed by a population explosion in the final Aztec period that far surpassed all of the earlier occupations.

THE LOWER PATLACHIQUE RANGE

An arc of foothills bordering the main block of the Patlachique range on the one side and fronting on the alluvial plain on the other forms another distinctive ecological zone. This is an area of steep-sided small hills with numerous rock outcrops and small level summits, each separated from the next by deep barrancas that ultimately flow into the lower valley piedmont and plain. The chain of foothills is separated from the main Patlachique range by high interior plateaus. Three of the hills--Cerros San Lucas or Pilyauhtzin, Xoconusco and Huistonco--suported a heavy occupation during the Tezoyuca-Patlachique phases. We will refer to the plateau that lies between the three hills and the main range as the San Jose de Moral plateau after a large rancho that lies within it. This last area plus the piedmont of the main valley is the only area heavily utilized today for agriculture. Although fairly level the San Jose de Moral plateau is an area of relatively thin soil, primarily utilized for maguey cultivation with some growing of barley, beans and maize in the deeper soil portions. The hills themselves are generally covered with thorn bush, cactus and wild nopal. Portions of them have remains of stone terraces that may possibly date from the Formative period, although many of them are exceedingly narrow (two meters wide or less). They are more likely contemporay maguey terraces that were abandoned as the villages took over the more productive lands from the haciendas following the ejido reforms. The situation is obviously very complex and can be resolved only by excavation. Aztec occupation is sparse on the hills, scanty to light on the plateau, and heavy along the piedmont of the main valley. The following Formative sites were located in the survey.

TF-26-90 (Figure 89, Plates 120b, 121, 122, 123)

Setting. TF-26 occurs on the summit of the Cerro de San Lucas. The hill has steep slopes on all sides and the site is therefore on a naturally defensive position. A dense cover of huixcolote, huizache, pirul and wild nopal covers the summit and the upper slopes of the hill. Deep barrancas isolate the hill on the south, southwest and east sides. To the northwest and north the steep slopes join the piedmont of the lower valley very abruptly.

Settlement Pattern. Pottery is almost entirely Formative in date and occurs on the summit and upper slopes of the hill. It occurs in densities varying from moderate to heavy in the central area (on the summit), shifting to lighter concentrations along the periphery of the site. It was clearly a densely nucleated settlement focused on a ceremonial precinct. The latter includes two definite substructures or platforms, a rectangular one 10 meters long, 3.5 meters wide and 40 centimeters high and a more circular or squarish platform 20 meters in diameter and 1.5 meters high. Pitting has exposed the fill which includes a mixture of earth and irregular stone fragments. They are located approximately 20 meters apart and their appearance and spacing

resemble closely the ceremonial center at the Tezoyuca hill site (TF-101). The sherd densities are distributed in a manner very similar to that at TF-101; the site also resembles the latter in that some of the terraces probably date from the Formative period. Other artifacts include obsidian and pottery figurines in addition to sherds.

Surface Area. The surface area of the site covers 7 hectares, including several small detached settlement areas on the hill slope. Four of the 7 hectares can be characterized as having dense concentrations of surface debris.

Chronology. The surface sample contains either a mixture of Tezoyuca and Patlachique components or possibly pertains to a very late phase of Tezoyuca. The Patlachique phase definition is based on a large number of beveled lipped jars in the sample. Assuming that there are two phases we have designated the Patlachique as TF-90.

TF-33-91 (Figure 86, Plates 124, 125a)

Setting. TF-33 is a site virtually identical to TF-26 but located on Cerro Xoconosco. The topographic setting is identical, a steep-sided hill with a small level summit area covered with thorn bush and isolated by deep barrancas, in this particular case on the south and northeast sides.

Settlement Pattern. Sherds, as in the case of TF-26, are heavily and continuously distributed towards the center of the site with lighter densities around the peripheries. Obsidian tools, including projectile points, are common, as are ceramic figurines. At the very summit of the hill is a pyramid 3 meters high and 15 meters in diameter. Pitting has exposed stone and earth fill comparable to that found at TF-26. Seventy meters downslope from the mound is another mound which is 2 meters high and measures 4 by 20 meters in basal area. The summit of the hill is smaller and more sloping than that at TF-26 and a number of large terraces at the peripheries of the summit probably date from the Formative phases. They were probably constructed because of the smaller area of level land found on this site. Heavy occupation occurs on the narrower terraces along the upper slopes of the hill; these are either abandoned contemporary maguey terraces or were erosion control terraces dating from the Formative period.

Surface Area. The site includes a total area of 5 hectares, of which approximately 3 pertain to the densely settled core.

Chronology. The surface sample is virtually identical to that from TF-26 and offers the same problems of interpretation. Assuming that it is a dual rather than a transitional occupation we have designated the Tezoyuca component as TF-33 and the Patlachique as TF-91.

TF-34-113-214 (Figure 87, Plates 125b, 126, 127)

Setting. TF-34 is located on the summit and upper slopes of Cerro Huistonco and the general topography and vegetation cover are very similar to those of TF-26 and TF-33. Deep barrancas delimit the hill on the north and northeast; to the south there is an area of fairly level land one kilometer wide which in turn is delimited by a deep barranca. To the west the hill abuts abruptly on the piedmont of the lower valley. The summit, as at TF-33, is sloping and level land is in restricted supply.

Settlement Pattern. Unlike TF-33 or 26 pottery tends to occur in a number of localized areas on the summit and upper slopes, each area varying in density from moderate to heavy. The total area of occupation is approximately 7 hectares. Obsidian and figurines occur on the surface, including projectile points. Two large mounds are found on the site but are built into the upper slope of the hill and give the appearance of large terraces rather than platforms. Mound 1, the uppermost, is 25 meters wide, 6 meters high at its lower edge and extends upslope for 30 meters. It has a flat summit angled into the slope of the hill. The fill, as in the case of the structures of the other two sites, consists of irregular chunks of rock and earth. Mound 2 lies immediately below it, is wider (40 meters), and its upper edge merges into the lower terrace facing of Mound 1 giving the appearance of a stepped pyramid built against the slope. It is also flat-topped and lower in elevation. Occupational debris on and around the terraced structures was light. Other more typical terraces, both of the wide and narrow type, occur as well and possibly date from the Formative period, particularly on the south slope. Marino, in general survey, noted a number of small areas of occupation below the site on the west flank of the hill which he coded as TF-214.

Chronology. The chronological situation is reminiscent of the other two sites, TF-26 and TF-33. We have designated the Tezoyuca occupation as TF-34, the Patlachique as TF-113. Marino ascribes a Patlachique date to the TF-214 loci on the basis of surface observation only.

TF-27-83 (Figure 89)

Setting. The setting of this site contrasts sharply with that of the first three. A deep barranca defines the lower flank of Cerro Patlachique, the largest mountain the Patlachique range. Between the barranca and the steep slope of Cerro Patlachique is a narrow piedmont with a moderate slope; at the site this piedmont is only 160 meters wide. The area forms the upper portion of a contemporary terrace system extending up the barranca from the main piedmont of the middle valley. Erosion has destroyed much of this terracing. The upper portion of the site is severely eroded and covered by wild vegetation. The lower part forms part of the well-preserved terrace system of the piedmont of the main valley where soils are deep enough for the growing of beans and grains. Further north and beyond the site is the main

piedmont terrace system where soils are deeper and cultivation of grains is more general.

Settlement Pattern. Badly weathered sherds occur on tepetate scattered over the site and with a density varying from sparse to heavy. Some obsidian tools and ceramic figurines also occur on the surface. No features are apparent and the pattern of house distribution is not clear. The total amount of refuse, however, suggests a small, fairly densely settled community. Aztec and Toltec sherds occur in fair quantity.

Surface Area. The total area of the Formative occupation is approximately 5 hectares.

Chronology. The best Chiconauhtla phase type sample came from the surface collection from this site and this phase is the primary occupation. Patlachique occupation is found as well and we have coded this as TF-83.

TF-31

Setting. On the San Jose del Moral plateau at the southwest edge of the Cerro Patlachique is a small, gently sloping hill called La Clavel. The hill has a fairly well-preserved cover of black clay-textured soil that has resisted erosion rather well. The south slope is covered with maguey; wild scrub and grass occupy part of the surface.

Settlement Pattern. Pottery occurs even and is scantily distributed over the site along with a few obsidian artifacts. The site sample includes some Aztec as well as Formative sherds.

Surface Area. Approximately 2 hectares.

Chronology. Although the occupation is rather light and the surface sample was small (only 75 rims), enough diagnostic pottery was present to identify it as pertaining to the Patlachique phase.

TF-91-207-208

Three sites were recorded in general survey. TF-207 and 208 are located on relatively level terrain on the San Jose del Moral Plateau. TF-91 consists of several small isolated areas of settlement on the lower flank of the south edge of Cerro Xoconosco immediately above the deep barranca that separates the hill from Cerro Huistonco. Rim sherds from TF-207 and TF-208 are very similar to those from the hill sites of TF-26-33-34, either a transitional Tezoyuca-Patlachique or a superimposed occupation of both phases. TF-91 was not surface sampled but was dated by surface observation to the Patlachique phase.

Summary

Occupation begins in the area in Chiconauhtla times with one very small settlement, TF-27. During the succeeding Cuanalan phase it seems to have been abandoned for settlement, possibly even for resource utilization. Following this there was an explosion of population during the Tezoyuca and/or transitional Tezoyuca-Patlachique phase, with three hilltop ceremonial center villages and two, possibly four, small outlying settlements. The area was either abandoned in Patlachique times or there was a continuing occupation on the old Tezoyuca sites. The problem of interpretation results, of course, from the problem of the chronological relationship between the two complexes. The entire area, with the exception of the adjacent piedmont of the lower valley, has remained marginal in terms of population and utilization from the end of the Patlachique-Tezoyuca phase to the present day.

THE OXTOTIPAC RIDGE

Below the Nonoalco ridge are two, much lower, elevated ridges that project into the middle valley. Both are considerably lower in elevation than the Nonoalco, San Idelfonso, and Altica ridges. These are the Oxtotipac and Cuahutlacingo ridges. The western part of the Oxtotipac ridge is dome-shaped and consists of tezontle gravel deposits. It is occupied today by the village of Oxtotipac. The village is of the scattered type with a density of only 1000 people per square kilometer. This means that the house lots are large, often cultivated and within the village it is possible to do considerable archaeological survey. The village was very systematically and intensively surveyed for prehistoric remains. Soil cover on the hill varies from exposed tepetate to soils up to a meter in depth. The entire hill is covered with maguey terraces and is intensively cultivated for grains. In general slopes can be classified as gentle, with considerable land level on the summit of the hill where the village center is located today. Further east along the ridge is the rancheria of Tlaltica which is even more dispersed in its settlement pattern than is Oxtotipac. This portion of the ridge is also much more severely eroded with much exposed tepetate.

Prehistoric remains on Oxtotipac hill are abundant and include mounds, exposed floors and huge gravel quarries. The problems of sorting out the various phases of occupation are extremely complex since there is an extensive Toltec (all phases) and Aztec occupation as well as a Teotihuacan and Formative. Generally speaking, occupation is heaviest on the high, central portion of the hill where the center of the village of Oxtotipac is located today. All periods are represented in this area; the Teotihuacan and Formative occupations are limited to this area. All of the structural features noted above--floors, mounds, and quarries--are either Teotihuacan or Postclassic in date; none of

them seem to date from the Formative occupation. One of the quarries, the cave of Hueoxtoc, was excavated by the project and will be reported in Volume 4. No Formative occupation was revealed by this excavation.

TF-37-92-93 (Figure 100, Plate 145)

Settlement Pattern. The major Formative occupation on the hill was coded as TF-37 and it dates from the Tzacualli period. It covers approximately 65 hectares. Within this area, on the very summit, is a smaller area of pre-Tzacualli Formative occupation covering 17 hectares. Occupational debris as a whole varies from sparse to heavy on the hilltop, but the pre-Tzacualli Formative can be classified generally as light. The following chart gives a good impression of the distribution of pottery as a whole and the amount of the Formative occupation. The Formative occupation probably represents the remains of a scattered village, very comparable to contemporary Oxtotipac. Also present in the surface samples were obsidian and ground stone artifacts along with ceramic figurines. These, of course, do not all pertain to the Formative period.

Chronology. There are some problems in the analysis of the surface samples from this site. West analyzed the pre-Tzacualli as primarily Patlachique in date with a trace of Cuanalan. Sanders, in reexamination of the sample, notes a close similarity between it and the samples from the Tezoyuca phase hilltop sites at TF-27, 33 and 34. The sample includes a great number of beveled-lipped jars of the Patlachique type, but much of the decorated surface ware looks more like Tezoyuca than Patlachique. As was indicated in the discussion of the excavation of the sample from the Tezoyuca type site, a few Tezoyuca basal break bowls resemble very closely those from Cuanalan. I suspect, therefore, that West's indicated traces of Cuanalan phase occupation are probably Tezoyuca in date. The site then is either Patlachique with a trace of Cuanalan or is late Tezoyuca in date. We have coded the Tzacualli occupation as TF-37, the possible Patlachique as TF-92, and the Tezoyuca occupation as TF-93.

TF-55-103-231-230 (Figure 99)

Setting. This site is located immediately east of TF-37 on a level ridge top along the Oxtotipac-Tlatica road. In fact, the Tzacualli component of this site (coded as TF-55) could be considered as simply an extension of the Tzacualli occupation at TF-37 since the two sites are separated only by one empty field. Soil cover varies from 10-30 centimeters in depth, with very light erosion; the ridge today consists of maguey-bordered barley and wheat fields.

Settlement Pattern and Chronology. Occupation of the site is relatively even and rather scanty, including some Aztec. Only sherds were noticed in the surface survey with no other artifacts recorded.

TF-37-92-93

Field No.	Occupational Density	Non-Formative Sherds	Formative Sherds	Approximate Percentage of Formative sherds
A	light	141	26	15.6
B	sparse	142	6	4.0
C	medium	166	34	12.0
D	sparse	26		0
E	sparse-heavy	42	5	10.0
G	heavy (2 samples)	88-44	17-32	16.1-27
H	light-medium	25	10	28.0
I	sparse-medium	100	9	8.0
J	medium	172	5	2.0
K	heavy	120	20	14.0
L	medium-heavy	53	24	31.0
M	medium-heavy	40	21	34.0
N	medium	70	17	19.0
O	medium-heavy	119	40	34.0
P	sparse-medium	82	13	13.0
Q		38	28	42.0
R	sparse-light	42	16	27.0
S	sparse	30	7	18.0
T	light-medium	74	7	8.0
U	light	70	4	5.0
V	heavy-medium	44	1	2.0
W	medium	113	42	26.0
X	sparse-light	25	12	32.0
Y	light-medium	61	35	36.0
Z	very sparse	27	18	40.0

The surface sample was predominantly Tzacualli (coded as TF-55) and Patlachique in date (coded as TF-103), with traces of Cuanalan (coded as TF-230) and Altica (coded as TF-231)

Surface Area. The surface area is approximately 6.5 hectares.

TF-58

Settlement Pattern. Approximately 80 meters east on the same road from TF-55 is a very similar site in terms of its natural setting, contemporary use, and density and distribution of prehistoric remains. As at TF-55 some Aztec occurs on the site as well.

Surface Area. Approximately 6.0 hectares.

Chronology. The sample from the site seems to be predominantly Patlachique in date.

TF-57

Setting. This site is located south of TF-55, southeast of TF-37, and southwest of TF-58 and is separated from those sites by only a few fields lacking Formative occupation. The setting, in terms of topography, soil depth and use, is comparable as well. A few peripheral houses of the village of Oxtotipac occur within the site.

Settlement Pattern and Surface Area. Sherds but no other artifacts occur in scanty to light concentrations over an area of 3.0 hectares. This includes a few Aztec sherds. No structures or features were noted in the survey.

Chronology. The Formative sherds from the surface samples seem to be all Patlachique in date.

Summary

The Oxtotipac ridge was virtually unutilized until the Tezoyuca phase when a large hilltop settlement was estalbished, TF-93. The site, if it was a Tezoyuca phase site, was not comparable to the other sites of the period since it is located on a gently sloping, easily accessible hill, and as far as we can tell, lacks ceremonial architecture. It also lacks the dense concentration of occupational debris so characteristic of sites of that phase. Of course, the absence of ceremonial architecture may not be very meaningful since the occupation area is within the center of Oxtotipac village where the mounds could have been destroyed in the construction of the houses and the village church. During the Patlachique phase at least three small dispersed settlements occurred in the area, TF-57, 58, 103, and if there is a Patlachique occupation at TF-92, a fourth. It is tempting to see them as outlying hamlets

dependent on the large settlement located at TF-22 on the Nonoalco ridge. The peak of the Formative occupation was achieved in Tzacualli times with the huge site TF-37-55. The ridge continued to be occupied throughout the remaining prehistoric periods.

DELTA AND ADJACENT PIEDMONT

This geographic area offers a sharp contrast to those described previously. Its components include the saline Lake Texcoco; a bordering band of flat deep-soil plain on the lake shore, of which a portion was seasonally inundated by the lake in prehistoric times and is consequently salt impregnated; the large isolated volcanic cone of Cerro Chiconauhtla with its vast, gently sloping terrain; and the small double hill of Tezoyuca standing isolated in the plain. The salt-free portions of the alluvial plain were incorporated into the permanent canal irrigation system in Aztec times and are still partly irrigated today. Saline soils along the lake shore were heavily utilized for salt-making, an activity which continues to a certain extent today. Cerro Chiconauhtla has a very small, steeply sloping summit with extensive lower flanks characterized by a relatively gentle slope. In the recent past (that is, up to the Agrarian Reforms) the lower flank of the hill was under intensive cultivation; a very extensive stone terrace system in various stages of conservation covers the slopes. Streams flowing down the slopes are generally shallow; all were canalized and integrated with the terrace system. Since the Agrarian Reforms much of this land has become marginal pasture. Soil cover varies from exposed tepetate to well-preserved, deep-soil terraces. Much of the morphology of the hydraulic system in the alluvial plain probably goes back to the Aztec period. The twin hills of Tezoyuca, situated immediately above the Aztec-contemporary town of the same name, appear as two small, steep-sided hills joined by a high saddle. Portions of the hill are terraced for maguey cultivation. Soil cover generally varies from exposed bedrock to fairly deep deposits, particularly at the site of TF-101 on the summit.

Although Formative sites are few in number in the delta and its adjacent piedmonts, the area has particular significance for the project since three of the four excavated Formative sites are found here (TF-5, 38, 101). The following sites were located in the area.

TF-2 (Figure 90, Plates 128b, 129a)

Setting. TF-2 is located on the upper terraces of Chiconauhtla hill immediately below the steeply sloping summit area. The locality of the site consists of a very gently sloping natural shelf; because of this virtually level terrain it has only a few very large, wide bancal-type terraces on it. Soil cover varies from 10-30 centimeters

and is heavily impregnated with rock fragments. The immediate site area is not presently under cultivation and is being used as pasture land.

Settlement Pattern. The occupation includes a substantial amount of Aztec, including at least one tlatel, possibly four, dating from that period. Sherds vary in density from scanty to heavy but do not occur in well-defined localized areas. Obsidian artifacts occur in light concentrations along with a few ground stone tools and ceramic figurines. No Formative period structures could be definitely identified. The Formative occupation is comparable in density to the Aztec. Rock debris is heavy on the site but it cannot be determined from surface survey how much of it is from building debris and how much of it is natural and, more specifically, how much of the artificial debris dates from the Formative period.

Surface Area. This is one of the largest of the hillside Formative settlements covering approximately 15 hectares.

Chronology. All of the Formative ceramics from the site pertain to the Patlachique phase.

TF-4-38 (Figure 83, Plates 115b, 116a)

Setting. TF-38 was one of the excavated sites reported in Part 3 of this volume. It is located at the west edge of the village of Cuanalan in the deep-soil alluvial plain. At Cuanalan the lower valley plain constricts to a narrow neck one kilometer wide before it fans out into the lake shore and delta region. The contemporary village extends into the plain over half of this distance. The San Juan river, which is the main drainage stream of the valley, runs through the center of the plain along the west edge of the village. The setting is one of deep-soil canal-irrigated plain, today intensively cultivated and dedicated to the production of basic grains.

Settlement Pattern and Surface Area. We have grouped TF-4 and TF-38 together in the following discussion. The reasons for this relate to one of the major problems of the project, the methodological question of how dependable our survey was in the deep-soil alluvial plains of the lower valley and the delta. TF-4, 5, 38 and 35 are the only Formative sites we encountered in our surveys of the deep-soil plain; our overall conclusion was that the plain was generally avoided as an area of settlement during this period. It is possible, however, that numerous sites are deeply buried by sediments. The relationship between TF-4 and TF-38 is particularly complicated by this problem.

TF-38 is located at the west end of the village of Cuanalan. The village generally has abundant evidence of prehispanic occupation with Aztec occurring over the entire village area, Toltec and Teotihuacan at the east end, and the Formative occupation concentrated at the west end. The Formative site is underlain by extensive beds of sand of good quality for construction and has, therefore, been deeply pitted in this quarrying operation. The entire central section of the site has been

completely removed. The debris of the Formative occupation is heavy in the quarry profiles and on the surface of the adjacent untouched fields. The profiles of the quarry reveal dirt floors, burials and midden deposits. The reader is referred to Part 3, "Excavations at TF-38," for a more detailed description.

The quantity of the Formative refuse in the quarry and on the surface suggests a tightly nucleated village comparable to contemporary Cuanalan (density 2342 per km^2). This is also supported by the fact that both of our test trenches encountered walls and floors of residential structures. Surface occupation ends westward abruptly, surprisingly so, at the railroad track. From the track to the San Juan river there is an area of irrigated plain 80 meters wide. Directly west of this band is TF-4 which extends in an east-west direction from approximately the west bank of the river to the edge of the adjacent piedmont. Formative occupation at TF-4 is moderately heavy over a small central area, but scattered sherds occur over a total area of 400 by 200 meters or 8 hectares. The smaller core measures only 60 by 240 meters. Ignoring the area of light peripheral occupation we have two small settlements, one of 4.0 hectares (TF-38) and the other 1.44 hectares in extent (TF-4), separated by 160 meters of alluvial plain and on opposite sides of the Rio de San Juan. If we assume that the lighter periphery does represent settlement and that the intermediate area was probably settled as well, then we have a large settlement of varying density extending 700 meters east-west by 220 meters north-south or a total area of 15.4 hectares; the components of the village then separated only by the river.

We tend to favor this latter interpretation and would then regard the site TF-4-38 as the largest Cuanalan phase site in our survey area. If we apply the density of the contemporary village of Cuanalan to the site, it yields a population of perhaps 360 people.

Chronology. The dominant occupation, based on the excavation, pertains to the Cuanalan phase. Preliminary examination of the sherds from the TF-38 excavation suggested a possible Chiconauhtla phase occupation, but later analysis demonstrated that this is probably Early Cuanalan rather than Chiconauhtla. Early Cuanalan as well as Late Cuanalan is also found in the surface sample from TF-4. The supposed Chiconauhtla occupation at TF-38 was coded as TF-110.

TF-40-101-211 (Figure 97)

Setting. TF-101 is one of the excavated sites reported in Part 4. The summit of Tezoyuca hill is relatively level, gently undulating and with a substantial soil cover. The soil is heavily impregnated with rock, in part probably natural debris, in part the product of the Formative occupation. The upper slopes are steep and are today covered with maguey and stone terraces. To the west the hill merges gradually with an extensive, gently sloping piedmont that ultimately merges with the alluvial plain within the village of Cuanalan. The piedmont is in various stages of erosion, from exposed tepetate to areas of a meter or

more of soil. Much of it is terraced with maguey and is used for cultivation of maize, beans and barley.

Settlement Patterns. The two hectare area on the summit and the adjacent upper terraces of the hill has a very heavy concentration of sherds, rock debris, obsidian tools, ground stone tools and ceramic figurines. At least two surface structures are notable: a small high platform, probably a temple substructure; and a very low, more extensive platform, possibly representing an elite residential platform (see the description in Part 4). Both date from the Formative occupation; this portion of the site is identical in its appearance and structural characteristics to the string of hilltop sites previously described for the Lower Patlachique range. As in the case of the other sites, some of the terraces probably date from the Formative period.

The piedmont area west of the hill has a Formative occupation varying in density from sparse to moderate. Along with the Formative are Aztec and Toltec occupations, particularly at the lower edge of the hill near the beginning of the alluvial plain. No definite Formative structures were noted but Aztec and Toltec mounds do occur in this area.

Surface Area. The total area of Formative occupation, including the hilltop and the piedmont, is approximately 50 hectares.

Chronology. The site points out very neatly the chronological problems we noted in our description of the hilltop sites in the Lower Patlachique range. The hilltop component is the Tezoyuca phase type site which provided us with our control sample for this phase. With the exception of the beveled-lipped jars and some figurines, the pottery is at least 90% Tezoyuca with very few of the Patlachique phase service wares represented. The same is generally true of the surface sample. In contrast, the sample from the piedmont has a clearly definable Patlachique phase component--one can even say a bias--not only because of the presence of a great number of beveled-lipped rims, but because of the representation of the Patlachique service wares. Tezoyuca occupation also occurs in the surface sample but is much less frequent.

The question is essentially one of interpretation of the relationship between the hilltop and the piedmont areas of the two sites. One interpretation is that there was a small nucleated hilltop ceremonial center-village in Tezoyuca times, with perhaps a few scattered houses on the piedmont, followed by a phase of population expansion downslope in which the hilltop component with its ceremonial buildings and densely settled residential core continued to function as a center of the settlement. A different interpretation would be that the Tezoyuca occupation was restricted to the hill, with abandonment of the hilltop in Patlachique times and the concomitant foundation of a large new settlement on the piedmont. One interesting point about the distribution of ceramics at TF-38 (the Cuanalan phase site) and TF-40-101 is that they do not overlap at all and are separated by 1600 meters of area without Formative occupation of any kind. The Tezoyuca component of the

site is coded as TF-101, the Patlachique as TF-40. In the excavations a few sherds from the Altica phase were noted; we have coded this trace occupation as TF-211.

TF-5-73-74-75 (Plates 109b, 110a)

Setting. TF-5 is located on the salinized lake shore plain. Much of the surface is covered with a spiky, coarse grass typical of the exposed lake bed and apparently well-adapted to the high saline content of the soil. This is one of our excavated sites, located very close to the Aztec period shoreline of Lake Texcoco. Although some parts of this area have lost sufficient amounts of salt since the drainage of Lake Texcoco to permit some cropping, it is generally an unused area.

Settlement Pattern. There are four surface structures on the site, low mounds with heavy rock, rubble and very dense occupation debris. Most of this debris is Aztec in date and the mounds undoubtedly date from that phase. Density of sherds on the site, disregarding time period, varies from sparse to heavy and tends to be highly localized. Much of this noted variability is the product of the Aztec occupation since all areas noted as having heavy occupation relate to the mounds. Other artifacts on the surface are rare. As we noted in Part 3, there are three primary occupations on the site: Aztec, Miccaotli and Chiconauhtla, with traces of Cuanalan, Patlachique, Tzacualli and Mazapan. The Formative occupation is scantily represented in the surface samples and in reality was detected only because of the presence of drainage ditches on the site. All of the surface collections bearing Formative pottery came from the back dirt of these ditches, a fact which again raises the problem of detecting Formative sites in the deep-soil alluvial plain. In that the Miccaotli and Aztec occupations are found on the surface, the lack of Formative sherds in the surface samples is possibly the product of the stratification process. Our excavations revealed the presence of earth floors and burials. One of the floors is probably Chiconauhtla phase; the burial dates from the Miccaotli phase.

Surface Area. The only dimension of the Formative occupation that could be established was along one of the drainage ditches where the sherds extend for a distance of about 150 meters. West, on the basis of scattered traces, suggests a roughly circular area of settlement approximately 150 meters in diameter or 2.25 hectares. The density of the Chiconauhtla remains, based on our two best trenches, suggests a tightly nucleated settlement comparable to TF-38.

Chronology. As noted, the dominant Formative occupation is that of the Chiconauhtla phase; our excavated sample provided the type sample for this phase. As we noted in Part 2, however, the pottery sample is heavily skewed towards the large bolstered-lipped jars, suggesting a specialized site function. This is also indicated by the paucity of all other Formative artifacts, including figurines. We believe it was a seasonal salt-making station comparable to the conquest period Aztec stations in the same ecological zone. The Chiconauhtla occupation is

coded as TF-5. Along with this, traces were found in both the excavated and the surface samples of the Cuanalan phase (coded as TF-74), the Patlachique phase (TF-73), and the Tzacualli phase (TF-75).

TF-186-187-189-210

A few Formative sherds were noted in the surface surveys of the western periphery of the big Aztec town at Santa Catarina Acolman (TA-12). They occur in the lower piedmont near the edge of the alluvial plain and include the following components: TF-186 (Patlachique phase), TF-187 (Chiconauhtla phase), TF-189 (Cuanalan phase), and TF-210 (Altica phase).

Summary

To judge by the traces of occupation at TF-210 and TF-211, the area was visited and used perhaps for the exploitation of wild resources and possibly salt during the Altica phase. In the succeeding Chiconauhtla phase a regular salt-collecting station was established in the area at TF-5. During Cuanalan times we have either two small villages (TF-4 and TF-38) or a substantial single village at the narrow neck of the alluvial plain between the lower valley and the delta. The presence of a few Cuanalan sherds at TF-74 and TF-189 suggests that the lake shore may have been used for salt collecting and the adjacent piedmonts for some kind of collecting activity. The most intensive area of cultivation during this phase, in sharp contrast to previously described Cuanalan phase settlements, was almost certainly the alluvial plain.

In the succeeding Tezoyuca phase the settlement shifted to the top of Tezoyuca hill and the first evidence of public buildings dates from this phase. The location would place the population within easy access of the piedmont, the lake shore, and the alluvial plain and also provide a good defensive position. The settlement extended downslope in Patlachique times to include the adjacent piedmont (TF-40). Again, there is some evidence of activity on the lake shore at TF-73. Also present during the Patlachique phase was an agricultural hamlet on the slope of Cerro Chiconauhtla. In the succeeding Teotihuacan period a sequence of interesting events occurred that will be discussed in Volume 3. Here we will simply point out that most of the Classic sites seem to have been established to extract or exploit a specific resource; the population residing in these areas can be considered as specialized components of the Classic Teotihuacan economic system. These specialized components include a definite salt-making site and possibly a lake shore fishing and/or embarkation site for boats utilizing Lake Texcoco. The Teotihuacan period is followed by a considerable population growth in the Toltec and Aztec periods including a great variety of settlements, towns, villages, hamlets, and salt-collecting stations.

NORTH PIEDMONT AND NORTH TRIBUTARY VALLEYS

The north piedmont of the lower valley and the area we are calling the north tributary valleys is a great, gently sloping piedmont interrupted at intervals by a series of small hills and one large one, Cerro Malinalco. The northeast limit of this area is defined by the southwest slope of Cerro Gordo. In terms of contemporary agriculture this is clearly one of the more marginal areas of the valley; widespread and extensive sheet erosion has left much exposed tepetate and there are no permanent water resources. Today it is used for marginal cultivation, as sheep and goat pasture, and for some grain production in the deeper soil areas. Modern settlements located within the area are primarily of the rancheria type. Even if we assume a fairly respectable soil cover prior to occupation by the farmers, the area must still have been of marginal agricultural value because of the lack of extensive tracks of high elevated land and hence reduced runoff for flood-water irrigation. Much of the area, furthermore, lies within that altitude zone that is highly susceptible to frost. The Formative occupation of the area reflects this ecological marginality with one dramatic exception, the piedmont between San Juan Teotihuacan and Cerro Malinalco. The following sites were recorded.

TF-35

Setting. This site is located in a setting identical to that of TF-38 in the delta area; that is, within the deep-soil alluvial plain. It is also within 500 meters of the San Juan springs. Prior to the artificial drainage of the spring area, the site must have been immediately adjacent to, possibly within, the swampy terrain surrounding the springs. Today the area is within the barrio of San Juan Evangelista and the area not occupied by houses is intensively cultivated. Although the water table has dropped, there is enough subsoil moisture to classify many of these fields as Tierra de Humedad.

Settlement Pattern. Considering the deep soil that covers most of the site, surface observation is of limited value. No definite evidence of structures was noted. Sherds vary in density over the site from scanty to moderately heavy and tend to occur in localized concentrations. A few obsidian artifacts were the only other artifacts noted in the surface survey. Only a portion of the occupation is Formative, since our surface samples include Aztec, Toltec and Teotihuacan as well. The site occurs within the Aztec and Toltec town site and within the western portion of the Classic Teotihuacan city.

Surface Area. Formative sherds were found over an area of approximately 6-7 hectares.

Chronology. All of the Formative sherds date from the Cuanalan phase.

TF-30-86-87

Setting. TF-30 is located on the northeast flank of Cerro Malinalco, well upslope on several of the highest contemporary agricultural terraces. The surface varies from gently sloping to steeply sloping, and the soil depth from exposed tepetate to as much as a meter and a half. Maguey and stone terraces occur but at the time of the survey the area was not in cultivation.

Settlement Pattern. Moderate to heavy sherd concentrations occur rather evently over the site, along with a few obsidian and ground stone tools and ceramic figurines. The occupation includes Aztec as well as Formative, but the latter is the dominant occupation.

Surface Area. 4 hectares.

Chronology. The dominant Formative component in the surface sample is clearly Cuanalan but the great number of beveled-lipped jars and a few sherds of service ware indicate a Patlachique occupation as well, which we have coded as TF-86. West reports a trace of Tzacualli which we coded as TF-87.

TF-36-105-106-107-110 (Figure 93, Plates 133-136)

Setting. This site presents serious problems with respect to both the methodology and interpretation of our survey versus Millon's urban survey. In his Mesa Redonda paper (1972) Millon shows two large Patlachique phase settlements, one which lies largely within the archaeological zone and the other located on the west periphery of the city. He estimates this western site as covering approximately 225 hectares. It includes within it our TF-36 which we have estimated as having a surface area of only 65 hectares. TF-36, as defined here, lies on the upper piedmont, a huge badly-eroded gently-sloping area north of San Juan Evangelista. Old terraces can be detected on the aerial photo and on the ground but the area today is used primarily as marginal pasture. Millon extends the site down the lower piedmont to include much of the contemporary barrio of San Juan Evangelista. This occupation was not detected by our field crew and the laboratory processing of our samples from that area is not completed (since it was surveyed as an Aztec site). Although it is probable that there is a Patlachique occupation in this area, we doubt that it is coterminous with TF-36 since a number of large fields that we surveyed to the south and east of the TF-36 show virtually no occupation of any kind. Assuming an additional, physically discrete site at San Juan Evangelista we will code it tentatively as TF-110. According to Millon's survey it must have covered the same size area as TF-36.

Settlement Pattern. Aztec tlatels and occupation occur scattered throughout the area. On the summit of a small hill at the southeast edge of the site is a ceremonial complex that is probably Aztec in date, since virtually all the pottery from our sample on the hill pertains to that time period. On the summit of a second hill, on the northeast edge

of the site, is a low mound 5-6 meters in diameter with heavy Patlachique phase occupation on and near it which may pertain to that phase. Stone retaining walls were also detected in this area, possibly indicating a buried platform. The structure could be part of a ceremonial precinct that served both TF-36 and TF-10 since the two hills are located in the intermediate area of sparse occupation.

Sherd distribution on the site varies from sparse to heavy and tends to be highly localized. Also present are obsidian artifacts, ceramic figurines, and a few manos and metates. The precise distribution of refuse in this zone is clearly not a dependable guide to prehistoric house locations. Very consistently, centers of fields yielded scanty to light pottery concentration, whereas barrancas and terrace edges show heavy concentrations; this indicates that considerable erosion with movement of the cultural material has occurred. What seems to be clear is that the Formative settlement was generally light, indicating a rather dispersed type of settlement. At the upper edge of the site, in a location comparable to that of TF-30, is a small Cuanalan phase hamlet that covers approximately 1.0 hectares and has a moderate to heavy concentration of pottery on the surface. Surrounding this is a peripheral area of scanty to light settlement of the same phase with an overall total of perhaps 5 hectares. The appearance of the site and its ecological setting is very close to that of TF-30.

Surface Area. The total Formative occupation of the site is 65 hectares, including the Cuanalan phase settlement.

Chronology. The dominant occupation pertains to the Patlachique phase which we have coded as TF-36. This is the largest Formative site surveyed by the project. The Cuanalan phase settlement described above is coded as TF-105. In the samples from the latter site is a trace of either Chiconauhtla or Early Cuanalan which we have coded as TF-106. West also reports traces of Tzacualli throughout the site which we have coded as TF-107.

TF-60-104

Setting. TF-60-104 is located on both sides of a wash between Cerros Aquila and Calavera on the upper piedmont above the Hacienda Cadena. Both hills are small low elevations. The area is severely eroded and used primarily as pasture; scattered maguey, nopal and spring shrub occur on the site.

Settlement Pattern. Sherd densities vary from sparse to heavy and tend to be localized. Much of the material has been moved by erosion. No surface structures were noted. Along with the Formative there is an Aztec occupation and scattered evidence of Teotihuacan, the latter probably wash from TC-7 located on the summit of Cerro Aquila.

Surface Area. Approximately 1.5 hectares.

Chronology. The primary occupation is Tzacualli with secondary appearance of Patlachique. We have coded the former as TF-60, the latter as TF-104.

TF-42-43-94-95

This is a series of small scattered loci of Formative occupation of varying size, some possibly single house sites, that occur on the gently sloping, north side of Cerro Malinalco below TF-30. While no surface collections were made, observations suggest that the sites seem to be predominantly Tzacualli in date (TF-42-43). A light, scanty, or trace amount of Patlachique is reported by West which we have coded as TF-94 and TF-95. Since the dominant occupation is Tzacualli, the reader is referred to Part 7 for a description of the site.

TF-29-85-212

Setting. The area northwest of Cerro Gordo, referred to in our ecological survey as the north tributary valley, is an area of wide shallow valleys separated by low hills. Generally it is a maguey-growing area with large areas of exposed tepetate. At localized areas, near the bases of the small hills, there are a few well-preserved terrace systems where basic grain crops are grown. One of the hills, Cerro Tonalan, is ringed by a series of Aztec line villages. One of these, on the northeast edge of the hill, is coded as TA-136. Within TA-136 is a small concentrated Teotihuacan period settlement coded as TC-19. Mixed with the Classic samples are scattered indications of a Formative occupation that is extremely difficult to sort out and interpret. The particular area where the Formative occupation is found is one of gentle slope, extensively eroded with soil varying from 0-1 meter in depth; the Formative occurs in wash areas and has obviously been redeposited. Well-preserved stone terraces occur in some portions of the site along with Aztec house mounds. Aztec house mounds are scattered throughout the area of Formative occupation.

Settlement Pattern. The Formative occupation occurs as a series of seven light concentrations, none of which covers more than a fraction of a hectare in surface area. It is probable that they represent the eroded remnants of a series of small hamlet settlements, but their concentration in a wash area raises the problem of possible redeposition. More probably the sherds do mark house sites in which the soil and house debris has been washed out.

Surface Area. The total area of the 7 loci is about 1.3 hectares.

Chronology. No surface samples were collected. West reports the primary occupation as Tzacualli with a secondary occurrence of Patlachique. We have coded the Tzacualli as TF-29, the Patlachique as TF-85. He also reports traces of Cuanalan which we have coded as TF-212.

TF-32 (Figure 84)

Setting and Settlement Pattern. The setting of TF-32 is virtually identical to that of TF-30 and TF-104. It is located on the upper piedmont where the steep slopes of the hill (in this case Cerro Gordo) meet the gentle piedmont slopes and on the upper terraces of the contemporary terrace system. Soil depth varies from 0-200 centimeters depending on the degree of preservation of the terraces. Nearby terraces are well preserved, but much of the site lies in a badly eroded wash that has destroyed the terraces in the immediate vicinity. The site extends as a narrow band along and within the wash with its long axis upslope. It measures 60-80 meters wide by 300 meters long. Formative occupation tends to be localized, varying from sparse to moderate. Along with sherds are a few figurines, ground stone and obsidian tools. Aztec occupation also occurs on the site.

Surface Area. Approximately 1.5 hectares.

Chronology. All of the Formative in the surface sample pertains to the Cuanalan phase.

Miscellaneous

Trace occupations, all pertaining to the Patlachique phase, were reported in the general survey at a number of locations and have been coded as TF-188, 191, 190, 192 and 216. The first four are located on the piedmont north of Atlatongo, the last on the summit of Malinalco. Another trace occupation, of the Cuanalan phase, was reported near TF-32 in approximately the same ecological setting (TF-213).

General survey revealed several loci of pre-Patlachique occupation within the ancient city of Teotihuacan. TF-109 is located on a low knoll one kilometer west of the Sun Pyramid. The Classic occupation surrounds but does not surmount the knoll and the Formative seems limited to it. TF-111 was detected in the debris from a small test pit that someone had excavated 500 meters northwest of the Moon Pyramid. The pit had penetrated several Classic floors and the Formative pottery had apparently come from below them. TF-109 occurs on the north periphery of the city near the Barranca de San Martin. Since it was not intensively surveyed, the extent of the site is not known but it probably did not exceed a hectare or two. Surface samples from the three sites were almost entirely composed of jar rims that are very similar to those from the Chiconauhtla phase. The difficulty is that this type of jar begins in Early Cuanalan times. The jars were shown to James Bennyhoff and he felt that they probably pertain to that phase rather than to Chiconauhtla. We have tentatively accepted this dating for the three sites.

We are assigning the code number TF-12 to the large Patlachique site that Millon has defined within the archaeological zone. It occupies an area extending from the north edge of the Ciudadela to a

point well up the piedmont, north of the site. The total area of the site is estimated by Millon as 175 hectares.

Summary

Definite occupation of the north piedmont of the lower valley and the adjacent north tributary of the valley occurred in Cuanalan times. It may have started as a series of small settlements within the area of the later Classic city. Mooser, in his geological study of the valley (1968), points out that the heart of the old Classic city lies on a basalt flow originating from Cerro Coronado, a small foothill of Cerro Gordo. He also suggests that a series of springs was present in Formative and Classic times along the lower edge of this basalt flow. This could have been a stimulant to settlement in the area. During the Late Cuanalan phase there appears to have been a shift of the main settlement to the piedmont north of the present chinampas and springs at San Juan, with settlement occurring along the lower edge of the piedmont (TF-35). At this time also a series of small hamlets was established at the upper edge of the piedmont, two on the slope of Malinalco (TF-105, 30), one at Cerro Gordo (TF-32). These locations are comparable to Cuanalan phase settlements in the Patlachique range.

The intermediate, gently sloping piedmont areas were apparently avoided for settlement, as were the great areas of low, gently sloping piedmont and valley floor in the north tributary valley area. The pre-Patlachique settlement locations clearly suggest ecological factors at work; we will discuss these in Volume 6.

What happened between Cuanalan and the Tezoyuca-Patlachique phases is not clear. Possibly there is a Tezoyuca occupation at TF-12, but we will have to await Millon's report for this. Another possibility is that the Tezoyuca ceramic complex is limited to the southern edge of the valley; the implications of this will be reserved for Volume 6. At any rate, there was a genuine population explosion in this portion of the valley in Patlachique times. It became the demographic heart of the valley during that phase. There were three very large communities--TF-12, 41, and 36--with a total area of between 350-400 hectares. Even granting a rather light settlement density for these settlements, this is a major population concentration for the pre-Tzacualli occupation of the valley. Millon in his urban survey suggests a population of 4000, an estimate we consider reasonable.

Along with these three settlements we define at least five smaller ones (TF-85, TF-86, TF-94, TF-95 and TF-104). All but one were located in the zone we noted as being avoided for settlement during the Cuanalan phase. Traces of occupation are reported for an additional five localities. It should be noted that the three large settlements--12, 41 and 36--occupy virtually the entire piedmont adjacent to the San Juan springs and to the now extinct spring localities reported by Mooser. This particular part of the alluvial plain we have postulated as having swampy conditions during most of the Formative period (see Volume 1).

There is evidence from the pollen profiles, as we noted in Volume 1, that a major drainage effort was carried out in this swampy area during the Patlachique phase.

THE UPPER VALLEY

Setting. With respect to agricultural potential the upper valley is one of the least favorable areas in the Teotihuacan Valley today. The deep soil alluvial plain is extremely small, covering not more than 100 hectares, and is surrounded by a wide, gently sloping piedmont, today characterized by extensive sheet erosion. To the north the valley is defined by a series of small low volcanic cones which provide minimal quantities of flood water during the rainy season. To the south and southeast it is flanked by the Patlachique and Sierra Nevada ranges. Locations well upstream near the bases of these ranges offer the best possibility of utilization of flood water drainage. Today the area is primarily one of maguey cultivation. Although the area was undoubtedly more productive in the past prior to the extensive sheet erosion of the piedmont and the deepening of the barranca beds, it must always have played a marginal role in the history of the valley. This is clearly reflected by the history of Formative occupation. Occupation in Aztec times tended to be distributed along the interfluves in almost continuous distributions of varying density from the foothills down to the edge of the alluvial plain. One of these interfluves is rather high and terminates in the low hill of Cuahutlacingo, situated well above the alluvial plain. The other interfluves tend to be much lower in elevation.

Archaeological Survey. None of the sites located in the upper valley were intensively surveyed by either West or Fletcher. They were recorded by Jeffrey Parsons and briefly plotted during his survey of Aztec times. Surface samples were generally not collected so that the full range of the Formative occupation on the site may not have been noted, only the dominant occupation. Virtually all of the alluvial plain and piedmont was surveyed, however, and it is doubtful that we have missed many Formative sites. The following table presents the pertinent data.

Summary

In looking over the data several definite patterns emerge. First is that of clear maginality of the occupation as a whole, with only six, possibly seven, pre-Tzacualli hamlets recorded. The three Cuanalan phase settlements--TF-65-69-204--cover 4, 4 and 1 hectare respectively. The three Patlachique settlements--TF-179, 180, 181--are all sites measuring only 2 hectares each. TF-59 may be another Patlachique settlement but even so it measures only .25 hectare. There is some

Dominant Formative Component	Secondary Formative Component	Tertiary Formative Component	Associated Aztec Site
	Upper Valley East Piedmont		
TF-65, Cuanalan	TF-209 (trace) Chiconauhtla	TF-232 (trace) Altica	TA-73
TF-69, Cuanalan			TA-75-76
TF-204, Cuanalan			
	Cuahutlacingo Hill and Ridge-Occupations		
TF-179, Patlachique			TA-91
TF-180, Patlachique			TA-91
TF-181, Patlachique			TA-91
TF-59, Patlachique or Tzacualli			None associated
	Cuahutlacingo Hill or Ridge-Traces		
TF-218, Patlachique			TA-
TF-81, Patlachique			56
TF-222, Patlachique			AND
TF-56, Patlachique			TA-
TF-44, Patlachique			57
TF-18, Patlachique			None associated

evidence of Altica-Chiconauhtla use of the area (at TF-65) but no genuine occupation. Another feature of the settlement is the fact that all three Cuanalan phase settlements are well up on the upper piedmont at the lower edge of the foothills, locations comparable to those found in the Patlachique range; whereas the Patlachique settlements are primarily on the summit of Cuahutlacingo ridge, situated in a location comparable to that of the Patlachique phase settlements in the Patlachique range.

MIDDLE VALLEY-NORTH PIEDMONT

The north piedmont of the middle valley is a narrow (1.5 kilometer) band of gently sloping terrain between the deep-soil alluvial plain and the abrupt, steep slopes of Cerro Gordo. Cerro Gordo is the largest and highest single peak in the valley and traps considerable flood water runoff. The piedmont receives a considerable flow of water; we have good evidence that it was completely covered with terrace systems and that all of the drainage was canalized during the Aztec period. A virtually continuous string of Aztec settlements occurs along the piedmont. Today the village of Santiago Tolman is all that remains of this dense band of Aztec settlement. Much of the upper portion of the piedmont has today reverted to marginal use, primarily maguey cultivation and pasture. The ancient terrace systems have largely disintegrated, with only some portions either preserved or rebuilt by the villagers for contemporary use. The area has suffered severe sheet erosion and barranca downcutting since the Conquest. The lower piedmont, in contrast, is an area of well-preserved terraces, deep soil, and very productive grain cultivation. The slope in this area is gentle and merges almost imperceptibly with the deep-soil alluvial plain. None of the sites in this area are intensively surveyed by West or Fletcher but were recorded and surface sampled by Sanders in his survey of Aztec sites. Three pre-Tzacualli sites were recorded, all of them located on the upper piedmont immediately above or within the upper edge of the major Aztec and Tzacualli occupation and clustered near the village of Santiago Tolman.

TF-114

TF-114 is located at the northwest corner of the contemporary village of Tolman. Formative sherds were first recorded along an extensive wash and in the adjacent thin-soil fields. Surface occupation in this part of the site could be described as moderately heavy to heavy. Further surveys show that the site extends into a series of adjacent deep-soil terraces; because of the deeper soil, however, occupation on the surface must be described as scanty to light. The total area of occupation is 3.0 hectares. No Formative surface structures were visible. The surface sample includes a few Aztec and Mazapan sherds but Postclassic occupation in this area can generally be described as scanty. Immediately below begins a band of Aztec strip settlement. The bulk of the surface sample pertains to the Late Cuanalan phase.

TF-115-116-117-118-121

TF-115, TF-116, and TF-118 occur at the upper edge of the band of Aztec settlement. They are separated by a deep wide barranca. If this barranca was in Formative times a small shallow stream, these three sites could have once existed as a single larger site. TF-115 is located in a badly eroded wash area just south of the present Tolman

cemetery; TF-116-118 is located in an area of badly eroded terrain with much exposed tepetate. Density of occupation at both sites can be generally classified as heavy, but this includes Aztec as well. Even allowing for the Aztec the Formative occupation is substantial, comparable to that of the nucleated sites of the Cuanalan phase described elsewhere.

An interesting possibility of internal or transitional phasing exists with respect to the surface samples from the two sites. On the ground Sanders recorded a Cuanalan and a Chiconauhtla phase occupation (coded as TF-116-117) on the first site, and a Cuanalan and Patlachique occupation (coded as TF-115-121) on the second site. In going over the surface samples a different possibility emerges. The Chiconauhtla identification apparently was based on a few rims of Chiconauhtla jars plus a few cream and red-on-cream sherds. The surface sample, however, looks much more like Early Cuanalan or transitional Chiconauhtla-Cuanalan.

The surface identification of Patlachique from the TF-115-121 site was based on the presence of beveled-lipped jars and basal break bowls with insloping upper segments. Significantly, no good Tezoyuca serviceware rims were collected. In assessment of the sample there is the distinct possibility of a transitional Cuanalan-Patlachique component that is not specifically Tezoyuca in characteristic. The situation suggests two alternate interpretations, neither of which can be established without a more intensive sampling of the two sites. These alternate interpretations are as follows:

1. That there was a Chiconauhtla phase hamlet at TF-116-117 with an area of perhaps 2.0 hectares. This expanded into a large Cuanalan phase settlement, possibly covering 6-7 hectares (including the intervening barranca, plus the two sites TF-115-121 covering 2.5 hectares, and TF-116-117 covering 2.0 hectares) which then declined into a small Patlachique settlement measuring 2.0 hectares.

2. That there was a single small settlement that began on the west side of the barranca in very early Cuanalan times and gradually expanded into a large village during a transitional Cuanalan-Patlachique phase. During part of this time a second settlement was founded at TF-114 dating from the Late Cuanalan phase.

Regardless of which explanation is followed, it is clear that the north piedmont was little used during pre-Cuanalan times, became a focus of occupation during the Cuanalan phase, and reverted to marginal use in Patlachique times. There were a number of small Tzacualli settlements (see below), then virtual abandonment for settlement during Teotihuacan and Early Toltec times, a recolonization during the Late Toltec phase, followed by a population explosion in Aztec times.

CERRO GORDO-NORTH SLOPE

This is a piedmont with a complex network of streams that drain the north slope of Cerro Gordo. All are deep barrancas today but probably were shallow semipermanent or permanent streams prior to agricultural exploitation of the area. Most of these streams were probably still functioning in the Classic period. The area is predominantly one of long, narrow, gradually sloping interfluves separated by these barrancas. The steep slopes of Cerro Gordo abut abruptly on the area of gently sloping terrain and contemporary agricultural exploitation. Today two villages, Maquixco Alto and Colhuacan, are located here. In Volume 1 we described in detail the agricultural system of this portion of the valley. This features, in summary, a self-flooding flood water terrace system with stone, earth and maguey structures all used to retain the soil. The present population is well below the potential of the area, of which the well-preserved terrace system constitutes only a fraction. The balance of the area is in various stages of erosion, in some cases extremely severe, with much exposed tepetate. In Aztec times the evidence suggests that all of the interfluves were extensively terraced and cultivated. In the well-preserved terraced areas, crops grown today include maize, beans and barley. The proximity of the area to the vast slopes of Cerro Gordo with abundant runoff is the key factor to the high productivity of this terrace system. The area was included in our survey, even though it lies outside of the drainage of the Valley of Teotihuacan, because of the heavy Classic occupation there. With respect to the pre-Tzacualli occupation the survey recorded only one site, TF-1-70-71-224-225. Charlton, during his later surveys, located six additional sites, all near Colhuacan. Even adding these and considering their small size, the area was not a major focus of occupation. The sites are as follows:

TF-1 (Figure 85)

Setting. This site is located well up the barranca system just below the beginning of the steep slopes of Cerro Gordo. The site occupies a portion of a narrow interfluve (300 meters wide) between two deep barrancas. The terrain is gently to sloping and much of the surface is severely eroded. There are small areas of preserved soil that appear as house mounds. In some areas this preserved soil is 1.5 meters in depth, indicating a very respectable original soil cover for the overall area. Where such soils occur they are occupied by natural scrub including huizache, huixcolote, pirul and grass. Remains of recent and ancient terracing are abundant throughout the interfluve area.

Settlement Pattern. The site extends for a distance of 600 meters along the interfluve and varies in width from 80 to 240 meters. At opposite ends of this strip are two small areas 120 meters in diameter with very heavy sherd concentrations. Within each is a series of small mound-like soil remnants of the type noted previously. When we first

surveyed the sites we interpreted them as the remains of prehistoric houses. Excavation of one of them revealed only a homogeneous black clay soil but with very heavy concentrations of sherds. The intervening areas between these mounds and between the two areas of dense settlement have only light occupational debris. Along with pot sherds, obsidian scrapers, points and blades and ceramic figurine fragments were found. Aztec occupation is abundant on the site, thus complicating the settlement pattern assessment.

Surface Area. The total area of the site is approximately 4 hectares, but the areas of dense concentration occupy a total area of only 1.5 hectares.

Chronology. Surface samples were collected from both areas of dense settlement and small test pits excavated in each by Anthony Senulis to determine the nature of these mounds. As we noted they turned out not to be structures. In the site reports the upper densely settled area is referred to as Tecorral and the lower as La Chiva. Chronologically the samples from the two portions of the site were distinctive. Aztec is heavily represented in both. Aside from Aztec the major component at Tecorral seems to be Patlachique, which makes up half of the identified Formative rims in the sample and 3/4 of the total sample. The balance of the sherds were about equally divided between Altica-Chiconauhtla and Cuanalan. At least one definite Altica rim was found in the sample, a flanged-lipped, incised cream bowl. Teotihuacan sherds also occur scattered through the excavated sample but were undetected in the surface sample.

The La Chiva sample was predominantly Aztec with a strong secondary occurrence of Late Tzacualli (Apetlac) and Teotihuacan and a scattering of Altica-Chiconauhtla and Patlachique. We have coded the Formative occupations as follows: TF-1, Chiconauhtla; TF-70, Patlachique; TF-71, Tzacualli; TF-224, Cuanalan; and TF-225, Altica. The last must be considered as a trace, the others as probable occupations. The Chiconauhtla component is well-enough represented to be considered a true occupation, a surprising occurrence considering the total isolation of this site from all other Chiconauhtla settlements at this time.

Charlton Survey

As noted previously, Charlton located six Formative sites after the close of the field operation of the Teotihuacan Valley Project. Although he prepared survey reports on each of them, he did not collect large surface samples (in some cases none at all) so that the dating is based essentially on his visual impressions during survey. We will first summarize characteristics of the sites with respect to settlement pattern and then discuss their chronological position.

The sites occur in two spatial clusters, one includes TF-66-67-68 and the other TF-131-132-133. Both clusters are located near the village of Colhuacan. The TF-66-67-68 cluster occurs at the headwaters of one of the streams, being distributed along a single interfluve very

close to the junction of the steep slopes of Cerro Gordo with the piedmont. TF-68 is the highest site and is located on the low elevation. Soil cover is scanty and erosion extensive. Sherds vary in density from scanty to moderate and occur in localized concentrations. Along with pottery, obsidian tools were noted in survey but no other stone or ceramic artifacts. The total site area is approximately .5 hectares. TF-67 and 66 are located on flat interfluve surfaces below TF-68 in an area severely eroded today. Where soil remains barley cultivation is practiced today. TF-67 is located in a large barley field, TF-66 in a severely eroded area. In both sites surface features were absent; occupation consists of localized moderate to heavy concentrations of sherds plus some obsidian artifacts. The two sites are separated by a small barranca and very possibly might have been a single site at one time. The occupation areas vary from .5 to 1.0 hectare each.

TF-131 is very similar to TF-68 in its appearance and location. It is located on the summit of a small hill called Cerro Jaltepec. The surface is badly eroded and is used as marginal pasture today. Sherds occur in localized concentrations along with obsidian artifacts and figurines. No surface structures were visible. The site covers a total area of less than 1 hectare.

TF-132 and 133 are located in a setting similar to TF-67-66, on gently sloping interfluve surfaces and areas of contrasting erosion and well-preserved soils. Charlton reports the occupation as occurring in definite tlatel-like concentrations of rock and sherds, two to three on TF-132 and five on TF-133. Along with very heavy concentration of sherds, manos and metates and obsidian tools were noted.

The chronology poses some problems. The surface samples collected by Charlton were examined by him and by West and Sanders; the disagreements on the evaluation of these samples are tabulated below:

Site No.	No. of Rims	Dating (Charlton)	Dating (Sanders)
TF-66	5	Patlachique & trace of Cuanalan	All Cuanalan
TF-67	100	Patlachique & trace of Tezoyuca	Transitional Tezoyuca-Patlachique, Cuanalan
TF-68	40 (very bad condition)	Patlachique	Patlachique
TF-131	120	Patlachique, Tzacualli & Tezoyuca, trace of Chiconauhtla	Patlachique, Tzacualli Cuanalan
TF-132	21	Cuanalan, Tezoyuca, Tzacualli and Patlachique	Patlachique and Tzacualli
TF-133	No surface sample	Tzacualli and traces of Cuanalan, Patlachique and Tezoyuca	No data

The surface samples examined by Sanders were so small that Charlton's evaluation is probably the correct one for TF-66. For TF-67 the fundamental disagreement is whether the sample is predominantly a Patlachique or a Tezoyuca one. Sanders' judgment that the TF-67 sample is predominantly from a transitional Patlachique-Tezoyuca phase is based on the scarcity of beveled-lipped jars and the predominance of Cuanalan-type jars. Considering the condition of the sample, it could be a case of a Cuanalan plus a Patlachique sample since no really definite Tezoyuca service rims were present in the sample. A number of good Cuanalan service rims were present in the sample, lending strength to this interpretation.

With respect to TF-131 the trace of Chiconauhtla noted by Charlton was based upon the presence of two E-type figure bodies. Sanders is not convinced that this identification is correct. With respect to Charlton's suggested Tezoyuca component there are no really good examples of Tezoyuca service ware sherds in the sample; his evidence is based upon hemispherical bowls which could be either Patlachique or Tezoyuca, the Cuanalan type jar rims could be from a Cuanalan component. The Tzacualli identification is based on the presence of some flat, surface wedge-shaped jar rims.

With respect to TF-132, the small sample examined by Sanders included only definite Patlachique and Tzacualli sherds.

In terms of these chronological problems it is difficult to assess the situation at these sites. There are two probable interpretations of the samples. One interpretation, favored by Sanders, is that there were three settlements during Cuanalan times (TF-66, 67, and 131), possibly a fourth at TF-132; this was followed by continuous occupation on those sites in Patlachique times with the addition of new settlements at TF-68 and 132. Subsequent events included abandonment of TF-66, 67, 68 and continuing occupation at 131, 132, and 133 in Tzacualli times. This would fit the ecological patterning of site locations for the various phases elsewhere in the valley. An alternate explanation is that at least some of the Cuanalan occupation noted by Sanders is actually Tezoyuca, particularly at TF-67, 131, and 132. A strong argument against this interpretation is the fact that other Tezoyuca phase settlements are located entirely on the south side of the valley, and the settlement type is with one exception that of small compact, densely nucleated settlements on hilltops with ceremonial architecture. Obviously much more research needs to be done to resolve these differences.

Summary

Occupation in the Cerro Gordo-north slope area begins with the estalbishment of a hamlet at TF-1 in Chiconauhtla times. This probably was preceded by some resource utilization activity during the preceding Altica phase. In Cuanalan times a substantial occupation of the area occurred, with possibly as many as five hamlets, TF-224, TF-66, 67, 131, and 132. All of these localities continued to be occupied in

Patlachique times along with a new settlement, TF-68. In Tzacualli times there was a population explosion in this area, as we shall describe in Part 8, including a great number of sites besides the ones noted above. The major chronological problem is the possibility of the presence of a Tezoyuca occupation in the area.

Part 8

THE SURVEY: TZACUALLI SITES

The Tzacualli occupation contrasts sharply with the previous record of Formative occupation of the valley and approximates very closely the later Teotihuacan period settlement. With respect to settlement characteristics, Tzacualli is really the initial phase of the Teotihuacan period rather than a terminal phase of the Formative. On the other hand, with respect to the ceramics it is clearly a terminal Formative phase and a further extension of the local Formative tradition. We do not mean to suggest here that continuities do not occur between Tzacualli and the succeeding Miccaotli phase of Teotihuacan; this continuity of tradition will in fact be discussed in Volume 3. What we mean is that the Miccaotli phase witnessed the ultimate disappearance of most of the old Formative vessel forms and decorative techniques; whereas Tzacualli still retains many of them. Although we decided to present our analysis of Tzacualli settlement in this volume, we have separated it from the pre-Tzacualli Formative because of these distinctive Classic characteristics.

A major deficiency in our presentation of the occupational history of the valley is the absence of a description of the site designated as TF-200, the Tzacualli phase town at Teotihuacan. While this was of course included in Millon's mapping project, the results have not yet been fully published. We will, however, present a brief summary of some of Millon's most recent statements. This leads us directly into a discussion of the methodological problems involved in defining the Tzacualli rural settlement in the valley. Millon's latest published maps show an extent for the Tzacualli city of 17 km^2, plus an isolated zone covering 1.5 km^2 located south of the Barranca de San Lorenzo (Millon 1966). This area includes a large zone covering three square kilometers which extends to the northwest, between Cerro Malinalco and Cerro Gordo and well up the Barranca de San Martin drainage. Although Tzacualli occupation is present in this area, it seems to occur as a series of isolated separate settlements, none of which exceed 10 hectares in size. We prefer to consider this an area of rural, or at best suburban, settlement rather than an integral part of the city. We are distinguishing this zone from the one further south and within the later Classic city; the latter seems more densely settled, and we feel it valuable to emphasize the differences in settlement pattern between a denser settled core and a much more dispersed periphery. If one does consider it as an integral part of the city, then we could argue that the piedmont west of the main block of the city, as far as Cerro Atlantongo, should also be included.

A second methodological problem is that of the nature of outlying Tzacualli settlements. Most of them occur as tiny areas of light to heavy concentrations of sherds, almost evenly spaced from similar units in some cases and in others forming closely spaced, definite clusters. Most of these settlements are so small as to possibly represent single nuclear or extended family homesteads. The rural pattern in this respect somewhat resembles the Aztec. The major difference is the much greater number and density of Aztec house sites, giving the impression

of almost continuous settlement in large areas of the valley. Furthermore, segments of the Aztec bands of settlement include ceremonial structures (completely lacking in the rural Tzacualli sites) that imply a series of separate social communities. We frequently defined the limits of Aztec sites on the basis of an average distance between the ceremonial centers rather than variations in the spacing of house sites, although in some cases there are small areas of no man's land or lower house site densities between clusters of house sites. In the case of Tzacualli sites we had to use a more arbitrary principle in defining them for description. If the loci of occupation were only 5-10 meters apart forming a definite cluster, we designated the entire cluster as a site; if the spacing was between 50 and 100 meters, then we decided to designate each locus as a site. There were problems, however, since some sites have loci that are intermediate in distance; there are also inconsistencies even in the application of the principles of site numbering noted above. Rather than renumber sites, we have decided to retain our original field classification and rely on the final discussion to assess the social significance of the settlement pattern.

A third methodological problem is that of buried Tzacualli sites within later Teotihuacan sites. The Teotihuacan Valley sites, dating from the Miccaotli to the Metepec phases, are all densely nucleated communities with large, substantial masonry houses; the consequent possibility of obliteration of small Tzacualli house sites is considerable. The striking physical coincidence of Tzacualli and later Teotihuacan occupations, evident in many of our surface samples, strongly suggests that most (and possibly all) of the later sites do have Tzacualli components. In this presentation, however, only those cases where the field surveyor recorded sherds in his surface survey have been noted here. When Charles Kolb completes his analysis of the surface samples from all of the Teotihuacan period sites, we are confident that more Tzacualli occupations will appear. Of the 74 definite Tzacualli sites (that is, not counting traces) 36--or nearly half--occur on Teotihuacan period village sites.

In contrast, the low number of Tzacualli occupations occurring on sites of the pre-Tzacualli phases points out the distinctiveness of the Tzacualli settlement pattern from that of the earlier phases of the Formative. This includes only 1 Chiconauhtla phase, 5 Cuanalan (of which 4 lie within the Tzacualli city), and 13 Patlachique components, or 19 sites in all out of the total sample of 74 pre-Tzacualli physical sites. Furthermore, of the 23 sites recorded where we have earlier Formative occupations only 19 have substantial occupations, the remaining 4 are simply traces. All of the Teotihuacan period sites, with Tzacualli occupation, are cases of heavy later occupations, much heavier in fact than the Tzacualli. Of interest is the fact that 11 of the 19 pre-Tzacualli occupations, including sites and traces, are found with Patlachique occupation, reflecting the transitional nature of Patlachique settlement.

There was obviously a very different set of principles operating in the selection of locations for communities during the Tzacualli phase compared to the earlier Formative phases: one reason for our

selection of the Tzacualli sites for separate treatment. The sites are described as follows. (We have not repeated our descriptions of the ecological setting of most of these areas and the reader is referred to them in Part 7 and Volume 1).

DELTA-LOWER VALLEY

Tzacualli occupation is virtually absent in the delta plain, the alluvial plain of the lower valley, and the adjacent piedmont of the latter below Atlatongo. Only two definite occupations and five trace locations were recorded.

TF-11

Cerro Tlahuilco is a small hill located on the south piedmont below Cerro Chiconauhtla northwest of Tepexpan. Between the hill and the delta plain is a narrow band of gently sloping piedmont. An Aztec site, TA-13, occupies the piedmont here. This is an area of severely eroded terrain with much exposed tepetate and is used today as marginal pasture by the people from Tepexpan. One small area, 40 by 40 meters, contains a scanty scattering of Tzacualli phase sherds. The small surface sample, consisting only of 8 rims, appears to be Tzacualli (based on the paste and the fact that they are from beveled-lip jars).

TF-6

This site is located immediately below San Marcos Nepantla on the west piedmont of the lower valley. The area is of virtually flat terrain but with rather severe sheet erosion and shallow soil, varying from exposed tepetate to a maximum depth of only 30 to 40 centimeters. Flood water canals occur in the area and some grain crops are produced. West estimates the surface area of the site as extending over an area 200 meters by 75-100 meters or a total area of 1.5 to 2 hectares. Much of the occupation here is Mazapan with some Aztec (an extension of TA-158). The Tzacualli occupation is only respectably represented in two small areas in the center of the wash. Scattered sherds do occur in the adjacent fields. The small surface sample is predominantly Mazapan with some Tzacualli and Aztec.

The balance of the recorded Tzacualli occupation consists of trace indications at a number of sites. TF-75 is a Tzacualli trace at TF-5, located on the lake shore; TF-142 is a Tzacualli trace at TC-6, on the west piedmont at the edge of the alluvial plain; TF-99 is a Tzacualli trace at TA-34, on the east piedmont near Tezoyuca hill; TF-135 is a trace at TC-4 and TA-12, on the west piedmont near the edge of the alluvial plain at Santa Catarina Acolman.

PATLACHIQUE RANGE

Perhaps the sharpest contrast between the Tzacualli occupation and that of the pre-Tzacualli phases in the entire survey area is found in the Patlachique range. The sum total of Tzacualli occupation recorded consists of the light scattering of sherds at the Patlachique phase site of TF-20, located on Nonoalco ridge (coded as TF-82).

SOUTH AND SOUTHWEST SUBURBS

In sharp contrast to both the preceding areas, the gently sloping north piedmont extending from Atlatongo on the west to San Juan Evangelista to the east has a heavy concentration of Tzacualli rural settlement. It is bordered on the east by Millon's defined western border of the city. We noted previously that this band of settlements could be considered as simply a western extension or a suburb of the city.

All together we recorded 19 localities in this area with Tzacualli occupation, of which 14 can be called settlements and five are cases of trace occurrences. Generally this is an area of gently sloping piedmont delimited to the north and west by the three small hills, Maravillas or Mixcuyo, Atlatongo or Aquila, and Calaveras, along with the much larger hill of Malinalco, and by the alluvial plain to the south. It is traversed by several major streams, often very deeply incised at their upper reaches but with shallow beds at the lower edge where they debouch into the plain. The soil cover varies from exposed tepetate to a maximum depth of 50 to 60 centimeters; sheet erosion is extensive and terraces that do exist are primarily of the very wide bancal type. The use of the area varies from the production of basic grains on the deeper soil terraces at the lower edge to pasture and maguey cultivation at the upper edge. Because of the heavy erosion in all of the sites found in the area, there has been much redeposition of sherds. All occupation consists of tiny isolated areas, possibly representing individual house sites, but we have no structural remains to confirm this suspicion. Many loci of settlement are found within several large Aztec line villages (TA-23, 24, and 54). Several of the sites also occur within compact, nucleated Teotihuacan villages, including four of the five trace occurrences of sherds.

In the preliminary report on the project (1965), Sanders described the Teotihuacan period occupation of the lower valley as a case of gradual attrition as one moves away from the city down valley. The same could be said of the Tzacualli occupation, with the heaviest concentrations of hamlets occurring immediately above the village of Maquixco and thinning out very sharply as one moves west and south to

Cerro Atlatongo and almost disappearing shortly beyond that point. The following sites were reported.

TF-46-48-61-62-63 (Figure 98)

The separation of these sites was so arbitrarily drawn and the setting and characteristics so similar that we see little point in separate treatment and have decided to describe them as a cluster. All are located between two deep barrancas (each up to 20 meters in depth and 40 meters in width) on the middle piedmont above the village of Maquixco. The area is very gently sloping and has very wide, bancal-type terraces. Its utilization today varies from maguey cultivation and pasture land to grain production, depending on local variations in soil depth. The latter varies from exposed tepetate to 40 to 50 centimeters. West, in his surface survey, plotted 20 separate localities with concentrations varying from scanty to heavy of Tzacualli phase sherds, all very badly weathered and many of them obviously redeposited. The loci vary from 10 meters in diameter up to 160 meters and occur in the form of several separate clusters. The largest cluster is TF-62 which includes 13 loci with a grand total of perhaps 2.0 hectares of occupation. TF-61 consists of one large locality measuring .24 hectares and a smaller one. TF-46 consists of one large locus .6 hectares in size plus four very small ones, with a total area of possibly .9 hectare. TF-48 is a small isolated locus measuring 40 by 20 meters. Across to the east from the barranca is another cluster, TF-63, which consists of two loci with a total area of perhaps .4 hectare. The total area of Tzacualli settlement does not exceed 4.0 hectares. The general impression is one of very dispersed settlement, including a number of settlement units varying in size from nuclear families to small lineages.

TF-60

This is a small site located along the edge of a wash between Cerros Aquila and Calaveras. The general area is one of thin soil, extensive erosion, and is today primarily planted in maguey. Sherds occur in localized areas varying in density from moderate to heavy. The site lies within the Aztec site, TA-24, with some of this sherd concentration attributable to this later occupation; there is a Patlachique component on the site which we have coded as TF-104. In his survey Fletcher noted small areas of heavy concentration of Tzacualli sherds that may have been house sites. The total site area is approximately 1.7 hectares.

TF-13, TF-10-77, TF-137, TF-136
(Figure 94, Plates 141, 142, 143)

We have grouped these sites together because of the possibility that they formed a meaningful community cluster in prehistoric times. TF-13 occurs on the northeast flank of Cerro Maravilla or Mixcuyo, TF-10-77 on the northwest flank of Cerro Aquila or Atlatongo, and

TF-137 on the summit of Cerro Aquila. Between the two hills is a wide tributary valley which we will refer to as the Maravillas Valley. Soil cover in the valley is relatively deep and the area is intensively cultivated; the hill slopes are essentially areas of maguey, nopal, and thorn bush. A large earth check dam crosses the valley from one hill to the other. Immediately below this was the site of the prehistoric dam-floodwater canal excavated by Rene Millon (1957). His excavation revealed that the dam and canal definitely functioned in Aztec times, probably started in Mazapan times, and may possibly have even begun during the Teotihuacan period. Of particular interest is the fact that two Aztec sites occur on the two hills, TA-14 on the flank of Cerro Maravillas and TA-24 on the flank of Cerro Aquila. Furthermore, two Toltec sites, TT-16 and TT-15 respectively, occur at the same localities. The double village site pattern may have special significance in terms of the use of the floodwater irrigation system during both of these periods.

There are also two Tzacualli hamlets located within the two Postclassic sites with, accordingly, the suggestion here of continuity in patterns of agricultural exploitation as well as settlement locations. Support for this argument is the fact that there is a Teotihuacan village-ceremonial center on the summit of Cerro Aquila east of the system; two Teotihuacan village sites, TC-5 and TC-6, below and within the area that would have been served by the floodwater system; and another site on the flank of Cerro Mixcuyo at the opposite side of the pass from the ceremonial center village. In other words, we have very striking uniformity in community locations starting with the Tzacualli phase and extending throughout the remainder of the prehistoric periods, suggesting that patterns of piedmont land utilization were continuous as well. The pass between the two hills (which is approximately 500 meters wide) acts as a natural funnel for much of the drainage of a portion of the north tributary valley and is an ideal location for a check dam to irrigate the lower portion of the piedmont.

The two Tzacualli sites, TF-10-77 and TF-13, are both located within an area of heavy Aztec and Toltec occupation, which much rock rubble, representing the remains of house foundations; abundant sherds, obsidian and other artifacts. The Tzacualli occupation is light and restricted in distribution, in the case of TF-13 to two loci, 1.3 and 1.0 hectares each. A peculiar characteristic of the surface samples that perhaps contradicts the preceding argument, which relates the Tzacualli sites to the floodwater canal system, is the fact that virtually all of the sherds from this phase are jar rims. There is the possibility, therefore, that these were simply pulque-producing stations or specialized settlements. The striking difference in size compared to the later Classic and Postclassic settlements would also suggest a somewhat different character to these Formative settlements.

The double code number TF-10 and 77 is based on the fact that we initially separated Apetlac or late Tzacualli from the earlier Tzacualli, and the Apetlac was coded as TF-77.

The coded site TF-137 is defined on the basis of the presence of rim sherds in our TC-7 surface samples. TF-136 was defined on the basis of the presence of a few Tzacualli sherds in the surface samples from TC-6, one of the Teotihuacan villages at the edge of the alluvial plain.

TF-138

The Teotihuacan site, TC-8, is a small, compact, planned community of large multi-family houses, each represented by a large mound of rock debris, sherds and stone tools. It lies within a much more extensive dispersed Aztec line village which we have coded as TA-21. Most of the Teotihuacan mounds have an Aztec occupation. The Aztec occupation extends outside of the Teotihuacan village as a series of small mounds of rock debris and artifacts. The sites are found on the east flank of Cerro Calaveras. All of the Teotihuacan and Aztec mounds were surface sampled and Tzacualli sherds were noted in several samples from the Teotihuacan mounds. We have coded this as TF-138. The Tzacualli occupation is also represented in the samples from three excavations of Teotihuacan mounds on the site, although no structural features were definitely associated with Tzacualli sherds. We suspect that the pattern of Tzacualli settlement here was very similar to the Aztec but on a much smaller scale.

TF-139-140-141

These are all cases of Tzacualli sherds noted in the survey of Teotihuacan sites that were not surveyed separately. TF-139 represents a few sherds reported at San Juan Evangelista (TC-12), TF-140 is the San Lorenzo site (TC-13), and TF-141 is the south piedmont site (TC-14). All occur in areas of low elevated terrain either on the piedmont, as in the cases of TF-139 or TF-141, or on a low elevation extending into the plain, as in the case of TF-140. Millon includes all of these sites within his defined city of Teotihuacan. We see them as separate settlements and will discuss this point in more detail in Volume 3.

TF-100-107

Traces of Tzacualli were noted by West in his examination of the surface samples from TF-36, the large Patlachique village site on the upper piedmont north of San Juan Evangelista. General survey also located a small site, TF-100, at the upper piedmont above the complex of sites TF-62-61-63-48-46. It was not intensively surveyed or surface sampled. It consists of three to five mound-like areas of concentrations of sherds that are either the remains of house mounds or simply soil remnants left by sheet erosion.

NORTHWEST SUBURBS

TF-42-43-94

Millon's Mapping Project revealed a large area northwest of Classic Teotihuacan with heavy concentrations of Tzacualli debris. He considers it an integral part of the Tzacualli town, our site TF-200. We surveyed a part of it to compare with our settlement pattern data for the rest of the valley. Most of the terrain is flat to slightly sloping piedmont, severely eroded, with a number of shallow barrancas, washes and extensive areas of exposed tepetate. Generally this is a marginal area dedicated to the production of maguey. The southern part of the survey area, located on the lower flank of Cerro Malinalco, is an area of steeper terraces. Terraces and the remains of floodwater canals, some of them still in use, can be noted in this section of the area. Our survey checks well with Millon's in that we noted three large areas of moderate to heavy Tzacualli settlement. We have coded these together as TF-43 and designated the separate areas as A, B, and C. Loci A and B are situated in the relatively flat terrain of the valley floor, locus C on the flower flank of the hill in the area of the terraces and floodwater canals. We have coded them as a single site because the intervening areas are severely eroded, leaving open a distinct possibility that this was originally one very large site. Our measurements of the three surviving loci indicate that they measure 7.5 and 5 hectares each, or 17 hectares in all. Within a short distance of locus A we also noted seven very small areas of settlement that may mark the locations of single house sites. Adding these to the total the area of settlement probably is between 18 and 19 hectares. The intervening eroded areas are of comparable size so that we could have had an original village site measuring somewhere in the neighborhood of 40 hectares. No structures aside from the possible remnants of houses were noted. Scattered traces of Patlachique were recorded on the three components. We have designated these as TF-95.

The steep slopes of the north side of Cerro Malinalco were surveyed and revealed a band of small loci of Tzacualli settlement. There are ten of these loci on the slopes of the hill and an additional six occur down in the flatter terrain in the tributary valley. All of these are less than 50 meters in diameter and the total occupation probably does not exceed 2-3 hectares. The density of occupation on the loci is noticeably less than at the three large components at TF-43. The ten loci on the slopes of Malinalco occur in two definite clusters; we have designated the westernmost of these clusters as TF-42 (including six loci) and the easternmost as TF-87 (including four of them). One of the loci of TF-87 is found within the Cuanalan phase site, TF-30, which also has a Patlachique occupation as well (coded as TF-86). The six small loci which we noted as occurring in the plain have been designated as TF-94. Tzacualli sites TF-43-87-94 resemble rather closely Aztec line villages in their appearance. TF-87, in fact, lies within an Aztec line village, TA-145. We tend to agree with Millon that at least part of our survey area, TF-43, should be included within his Tzacualli

town; but the settlement clusters we have designated as TF-42-94-87 resemble very closely rural settlements elsewhere in the valley, and we do not feel that these should be put within the borders of the Tzacualli town. Because none of the sites described above was surface sampled, our chronological identifications remain tentative.

TF-102

TF-102, a site located in general survey, consists of several tiny, well-spaced loci of Tzacualli occupation northwest of Millon's defined edge of the city. We have neither intensive survey data nor surface samples for this site.

NORTH TRIBUTARY VALLEY

North of Cerro Malinalco is a wide, severely eroded tributary valley. The northwest extension of the Tzacualli city, as defined by Millon, extends into a part of the lower end of it. Elsewhere the occupation is scanty. The northern edge of this valley is bounded by a complex cluster of small volcanic cones (geologically related to the large hill of Cerro Gordo to the east) with intervening small valleys. Around the bases and between these hills are small areas of flat or gently sloping terrain which ultimately drain into the large tributary valley to the south. Today a cluster of small rancheria type settlements occurs in these areas, San Agustin, Ixtlahuaca and Tezompa.

The earliest occupation of this area is a trace of Cuanalan at TF-29 (coded as TF-212), followed by a residential site in Patlachique times at TF-85. Thereafter there was a substantial expansion of population in Tzacualli times, continuing during the Teotihuacan and Toltec periods. As in so many portions of the valley, a population explosion occurred in the final period in which a number of Aztec line villages ring virtually all of the hills of the area.

With respect to contemporary use, the area presents a complex picture of well-preserved terraces dedicated to grain production on the lower flanks of the hills, old abandoned and eroded terrace systems, flat areas of exposed tepetate, and narrow maguey terracing on the steeper slopes of the hill. The location of the Tzacualli site, TF-29, exemplifies these characteristics. The upper part of the site lies within the Aztec line village TA-136 and the Teotihuacan village TC-19. The Aztec site is concentrated at the upper edge of an area of relatively level terrain between the hills and extends up the lower flanks of the hills in a linear pattern. The Tzacualli site, in contrast, has its center further down in the valley floor. This occupation occurs as seven small, widely spaced localities on the valley floor, in an area of wide terraces and deep soils where today maize and

barley are grown. Scattered traces of occupation occur upslope and within the Aztec site to the north and west, in an area of badly eroded terrain. Surface observations by West indicated some Patlachique occupation as well which we have coded as TF-85. The site is nestled between four hills, Cerro Tzemolo to the northwest, Cerro Tezompa to the northeast, Cerro Tonalá to the southwest, and Cerro de la Cueva to the southeast.

TF-112-122

Northeast of TF-29 and in a very similar location, i.e., a small valley floor between hills, the general survey located two other Tzacualli settlement clusters. Each consists of well-spaced, separate but small loci of occupation, a duplicate of the TF-29 pattern. TF-112 lies immediately northeast of TF-29, and TF-122 lies northeast of TF-112. TF-112 also lies within a portion of the Aztec site, TA-139. The three sites, TF-29-113-122, form an almost continuous band of settlement along the low ground between the hill complexes, a pattern again similar to the Aztec line village except that the density of settlement of the Tzacualli occupation is of course far below that of the Aztec.

TF-28-84 (Plate 137a)

North of the cluster of hills noted above is an area of undulating to flat, gently sloping plain interrupted at intervals by widely spaced, small volcanic hills. San Luis Tescaltitla and Santa Anita are found on the south edge of this and at the north edge is the town of Temascalapa. Much of the area is similar to the tributary valley between Malinalco and the described cluster of small hills. With respect to its present condition and use, there are wide, well-preserved bancal terrace systems in the gently sloping areas and narrower terraces on the hillsides near the settlements; but much of the area consists of thin soil and is today marginal, used primarily for maguey cultivation and pasture. TF-28 is located on relatively flat, gently sloping terrain near the Teotihuacan site, TC-20. The site lies within a maguey field with closely spaced lines of maguey and consists of sparse to light concentrations of Tzacualli pottery, most of which seem to be located in areas where earth has been heaped up for maguey plants. A few obsidian tools were noted in the surface survey as well. The total site area covers about 3.3 hectares. Because the site was not surface sampled, dating is based on surface observations. We have coded a Tzacualli occupation as TF-28 and an Apetlac occupation as TF-84.

TF-198-197

Traces of Tzacualli occupation appeared in the surface samples from the Teotihuacan period sites, TC-22 and TC-20. These sites are located in the broad valley, north of the cluster of hills described above. TF-197 is located immediately south of Teopancalco, TF-19-TC-22 near Santa Anita.

MIDDLE VALLEY-NORTH PIEDMONT

The piedmont between Cerro Gordo and the middle valley alluvial plain is a narrow band of gently sloping, partly eroded terrain (cf. Part 6). A virtually continuous band of Aztec settlement extends along the piedmont, with its center about halfway between the steep slopes of the mountain and the deep soils of the alluvial plain. There is abundant evidence of Aztec period terracing along this strip. The pre-Tzacualli sites, as we noted previously, all lie either immediately above or within the upper edge of this band of Aztec settlement, close to the junction between the steep slopes of the hill and the gentle slope of the piedmont. Tzacualli sites, on the other hand, lie immediately below or within the lower edge of the band of Aztec settlement. Our survey revealed five definite Tzacualli settlements and two trace locations. None of the sites was intensively surveyed by West or Fletcher. All were recovered almost incidentally by survey teams working on the Aztec or Teotihuacan sites in the area (Sanders on the Aztec survey, and Kolb on the Teotihuacan survey).

TF-119-64

This site lies within the lower portion of the Aztec site TA-61. Much of the site is severely eroded terrain with small remnants of soil that appear as hummocks or low mounds 30-50 centimeters high. One of these was trenched and a large sample of sherds, though in very fragmentary condition, was collected. Surface samples were also collected at the site. The Tzacualli occupation varies from scanty in the eroded areas to very heavy in the low mounds. Excavation indicated that the latter are not structural but simply soil remnants. Immediately east of TF-64 is a large area of fairly even and light Tzacualli occupation we have designated as TF-119. It lies within TA-62 and a Mazapan site coded as TT-39.

The TF-64 sample includes Apetlac as well as early Tzacualli occupation and includes figurines and obsidian scrapers, points, blades and cores; along with 32 basalt flakes, cores and massive scrapers of the type that are usually attributed to the Chalco complex. The TF-119 surface sample has predominantly early Tzacualli. The total area of the two sites is approximately 9 hectares, one of the largest Tzacualli occupations encountered in the survey.

TF-118

This site lies well below the Aztec band of settlement in an area of wash and thin soil. Tzacualli and Mazapan (TT-48) sherds are scattered in light concentrations over an area of 4.5 hectares. No structural features of Tzacualli origin were noted. The very small surface sample collected (13 rims) was entirely Tzacualli and included

a basalt scraper of the Chalco type. The site lies along the edge of the major barranca that traverses the piedmont in this area.

TF-120

On the opposite side of the same barranca, 200 meters upstream from TF-118, is a Tzacualli site that possibly represents the remains of a single house. The site, in an area of thin soil and exposed tepetate, consists of a single low, mound-like area of soil with heavy Tzacualli occupation. It lies within the Aztec site TA-69 and about midway between two Mazapan sites, TT-51 and TT-54. The surface sample includes 77 rims, an excellent sample for so small a site. All but four were identified as Tzacualli sherds, one of these latter is a thin orange sherd which may also date to that time period.

TF-123

All of the above north piedmont sites were defined by Sanders in his survey of Aztec sites. General surveys by Marino located what appeared to be another single house site. It is located below the Cuanalan phase site at TF-32 and Teotihuacan period site at TC-35. No surface sample was collected so that the chronological identification is tentative.

TF-124

The Teotihuacan sites surveyed as TC-30, 31 and 32, located on the piedmont above the Teotihuacan city, all showed traces of Tzacualli occupation which we have coded as TF-124.

TF-178

Marino, in general survey, noted a series of well-spaced small Tzacualli loci comparable to our postulated single house sites in other Tzacualli sites in the valley. These occur on the lower piedmont between TC-36 and TC-30, immediately above the northern edge of the Classic city. The sites were not intensively surveyed or surface sampled so again the identification is uncertain.

THE UPPER VALLEY

All of the Tzacualli sites in this area were located during the Aztec survey conducted by Jeffrey Parsons, with one exception. The exception is TF-143 which was defined on the basis of surface samples collected by Charles Kolb on the Teotihuacan hamlets TC-91-92-93. We have, therefore, very little data except for site locations, with three definite occupation sites and two trace localities reported. The upper valley generally may be described as a great, circular, sloping plain bordered on the south by the Patlachique range, to the southeast by the northern terminus of the great range that borders the Basin of Mexico on the east (the Sierra Nevada), and to the north and northeast by small isolated volcanic hills. Much of the area is gently sloping piedmont with a thin soil cover, utilized today primarily for maguey cultivation. The center is a small deeper-soil plain occupied in part by the contemporary town of Otumba. All of the definite occupation sites, TF-203, TF-201, TF-143, are located in the piedmont. TF-203 consists of a single locus within the Aztec line village TA-123 which circles the small hill of Cerro San Lucas. TF-201, which lies within the Mazapan site TT-61, is a typical Tzacualli-type rural settlement consisting of six small, well-spaced loci, each possibly the remains of a house site. TF-143 was detected from the surface samples from the Teotihuacan hamlets TC-91, 92, 93, and seems again to be a series of well-spaced individual house sites. Since some of our samples from these sites were taken from a deep well, they were in excellent condition and constituted our type samples for the definition of the Tzacualli phase.

TF-196 was a trace locality on the northern edge of the big Aztec town site of Otumba (TA-80), and TF-205 was a trace location occurring within the Cuanalan phase site of TF-204 located well up on the headwater portion of the piedmont.

THE OXTOTIPAC RIDGE

A description of the natural setting and present day pattern of utilization of this area has been presented in Part 6. Briefly, the area consists of a nearly level, extensive ridge with a very thin soil cover and is generally an area of marginal cultivation. The scattered village of Oxtotipac occurs at the western terminus and the rancheria of Tlaltica occupies much of the eastern portion. The heaviest prehistoric occupation occurs at Oxtotipac and the reader is referred to the overall description of the prehistoric occupation there in Part 6.

TF-37 (Figure 100, Plate 145)

As was noted in Part 7, the Tzacualli occupation is scattered over an area of approximately 65 hectares, the largest site outside the city itself. The site occurs on the summit and upper terraces of the hill within the contemporary village. The highest part of the site also is the area of most concentrated settlement; this portion covers 17 hectares but includes pre-Tzacualli occupation as well. It is possible that the Tzacualli density here is not much different from that around the peripheries of the site. Analytical problems are complicated, as we have observed, by the presence of Toltec, Teotihuacan, and Aztec occupations. The overall Tzacualli pattern at Oxtotipac is one of generally light occupational debris over an extensive area, with no definite evidence of the type of well-spaced loci that we have noted for other Tzacualli sites. Either this is because the settlement was denser and more continuous or, alternatively, the observed pattern may be the result of movement and spreading out of debris by the later occupations of the area. Again, the analytical problems of sorting out the Tzacualli component from the very large range of occupation may be responsible for the differences. A small test pit was excavated to obtain a type sample of Tzacualli ceramics; this provided us with our best type sample aside from the surface collection from TC-93-91-92.

TF-55 (Figure 99)

See Part 7 for a detailed description of this site.

Besides these two rather large sites, on the ridge east of the village are a number of typical small Tzacualli hamlet-type settlements. These were located by Parsons in his survey of Aztec times. These include sites TF-177, 176, 134, 174, and 175 along with two trace locations at TF-220 and TF-221. TF-134 and 175 are located within the large Aztec site TA-58, TF-174 within TA-58. All occur in areas of level, badly eroded marginal land. TF-174, 175, 176 and 177 are all single small loci; TF-134 consists of one large locus and three very small ones nearby. TF-134 has a total area of perhaps 5.5 hectares, while the others all have less than .3 hectare of occupation. The total Tzacualli occupation east of TF-55, therefore, does not exceed 7 hectares.

THE CUAHUTLACINGO RIDGE

Ecologically this area resembles the Oxtotipac ridge: it is a long low elevation with an extensive, relatively flat summit and generally thin soil cover. As at Oxtotipac the northwest terminus of the ridge is occupied by a contemporary scattered village, in this case Cuahutlacingo. All of the sites located in this area were found by

Parsons in his survey of Aztec sites; none was intensively surveyed or surface sampled. The following data, therefore, is highly tentative. Ten occupation components were defined along with one trace. The data are summarized in the following table. These are all typical Tzacualli sites with single or at most extended family settlement loci.

Site No.	Nature of Occupation	No. of Loci	Other Formative Occupation	Other Occupation
TF-59	Settlement	1	TF-59 (Patlachique)	None
TF-166	Settlement	4	None	TA-90, associated with TC-126
TF-167	Settlement	2	TF-181 (Patlachique)	TA-91, associated with TC-128
TF-168	Settlement	3-5	TF-180 (Patlachique)	TA-91
TF-169	Settlement	2-5	TF-81 (Patlachique-trace)	TA-56, TC-90
TF-170	Settlement	2	TF-56 (Patlachique-trace)	TA-57
TF-171	Settlement	1	TF-44 (Patlachique-trace)	TA-56
TF-172	Settlement	1-3	TF-218 (Patlachique-trace)	TA-57
TF-173	Settlement	1	TF-179 (Patlachique)	None
TF-206	Settlement	3-4	None	TA-85, associated with TC-88
TF-219	Trace	3	TF-222 (Patlachique-trace)	TA-58

Since all of the loci are less than .3 hectare in size, the total occupation, even including TF-219, does not exceed 9 hectares.

CERRO GORDO-NORTH SLOPE

Compared to the heavy population concentration at Teotihuacan, the rural sites of the Teotihuacan period located in the rest of the valley are demographically insignificant. If Millon's estimate of 125,000 people for the Xolalpan city is approximately correct, then the total population that resided outside of it certainly did not amount to more than 10% of this figure. The same generalization could be made about the relationship of Tzacualli urban to rural population, even if we somewhat reduce the northwest extension of the Tzacualli town. Maximally only 20% of the total population of the valley resided in rural settlements during this phase.

The Cerro Gordo-north slope area, which lies outside of the drainage of the Teotihuacan valley proper, is the only portion of our survey area where a heavy rural Teotihuacan period population occurs. In fact, it probably equals the Aztec--the only case in our entire survey where this is true. It was also the area of most intense rural Tzacualli occupation, a striking confirmation of the Classic character of Tzacualli occupation of the valley. At least 21 sites were recorded in our survey.

The ecological setting will be discussed in some detail here because of the special interest of the area with respect to Tzacualli settlement. Cerro Gordo is the largest and highest single elevation in the valley, reaching 3050 meters at its peak. On the south side the slope drops down abruptly to join the narrow, gently sloping north piedmont of the middle valley at about the 2300 meter contour. On the north side the steep slope abuts on a moderately sloping piedmont at about 2600 meters above sea level. Located along the upper edge of the piedmont is a chain of small volcanoes; moving from west to east they are Cerros Tlacuache Chico, Tlacuache Grande, Tezqueme, Ahuatepec and Xaltepec. All are steeply sloping with a thin soil cover and are used today primarily as pasture. Because of the size and height of Cerro Gordo, it acts as a rain trap and the runoff drainage down its slope is considerable. On the north slope the drainage collects in a network of deeply cut barrancas that all join near Temascalapa and ultimately drain into Lake Xaltocan-Zumpango in the northern part of the Basin of Mexico. The area, therefore, is not part of the drainage of the Valley of Teotihuacan. Below the chain of small hills the piedmont consists of gently to moderately sloping terrain. The survey strip that we completed on the north slope is in this area, lying between 2400 and 2600 meters above sea level (well above the floor of the Teotihuacan Valley). It can be described as a series of long, gently sloping ridges separated by deep, wide barrancas. The area included in the intensive survey pertains to three villages: Maquixco Alto, Colhuacan and Teacalco. The first two villages are located at the midpoint of the piedmont, the third one at the lower edge. In Volume 1, Charlton presented a detailed analysis of contemporary agriculture and settlement pattern for this area. Within the piedmont, about midpoint downslope, are two isolated volcanic cones, Tiquimil and Teclalo.

About 35% of the survey area consists of well-preserved, deep-soil terraces which utilize the floodwater from the slopes to obtain extra humidity, and are highly productive lands dedicated primarily to the production of basic grains like maize, wheat, and barley. An additional 35% consists of terrace systems either under construction or in various phases of disintegration; these lands are used primarily for barley and bean cultivation since the soil depth, and hence the moisture content, is not adequate for maize. Approximately 20% of the total land surface consists of exposed tepetate and 10% of steep slopes of the nearby hills. These areas are in marginal use as pasture and for maguey. Survey reveals that the entire surface of the area was completely terraced in Aztec times and virtually covered by village sites, with a close integration of house locations and terrace systems. For example, in the 8 square kilometers that makes up our survey strip, we recorded 17 Aztec sites covering a total settlement area of 141 hectares, with possibly as many as 450 individual house sites. The pattern of house distribution suggests a settlement density of the individual villages very similar to that of scattered or low density compact villages in the Teotihuacan Valley today.

The Teotihuacan period settlement pattern was strikingly different. Our survey revealed a small town (based on the presence of elaborate civic architecture), four large villages, and 16 outlying hamlets with a total surface area of 70 hectares. Three villages and 12 hamlets occur within a small core area in the center of the survey strip. The density of remains within these Teotihuacan sites is considerably higher than that of the Aztec and suggests a population density comparable to that of the compact, high density villages in the lower valley today or to urban Teotihuacan. Although the total surface area of occupation is only about half that of the Aztec, we feel, on the basis of the higher density of population per hectare of settlement, that the total population was at least double that of the Aztec period with 3000-6000 people during the late Tlamimilolpa phase--the peak of the prehispanic population. There is evidence that the larger Teotihuacan settlements were built on a grid plan. The implication here is that the pattern of land use must have been at least as intensive, if perhaps somewhat differently patterned, as it was in Aztec times. Because of the nature of Teotihuacan settlements, in which houses tend to be clustered in dense nucleated settlements rather than integrated with terrace systems however, we cannot definitely associate the occupation with the kinds of agricultural practices that were found during the Aztec period. Although this indirect kind of reasoning is not the most satisfactory, it is hard to understand how the denser, larger Teotihuacan population could have been supported without a system of farming comparable in intensiveness to that of the Aztec.

The Tzacualli occupation is quite different from both the Aztec and the Teotihuacan. The 21 sites are all comparable in size to the Tzacualli sites described in the Teotihuacan valley proper, mostly less than 2 hectares in size and very often only 1 hectare. It is very probable that when the study of the surface samples of the Teotihuacan village sites have been completed we will find other comparable Tzacualli

locations within their surface areas. Here we have tabulated only those occurrences that the field observer recorded in his survey of Teotihuacan sites.

Although the total area is but a fraction of the Teotihuacan period occupation and the density per site is less, we clearly have a major focus of Tzacualli occupation for our survey area and an enormous expansion of population from the pre-Tzacualli Formative in the same area. This is particularly true when we consider the probability of other Tzacualli sites being buried under the large Classic settlements.

In that some of the sites consist of a number of loci that could have been designated as separate settlements, we have been rather arbitrary in our use of site definition here. Thomas Charlton (1965), in using our data and applying a more consistent approach to site definition, gives a total of 75 sites; his treatment of each definitely isolated locality as a separate site is probably the best approach to describing the Tzacualli occupation. Rather than complicate our already complex coding system we have retained our original classification. Of particular interest is the fact that all of the pre-Tzacualli sites occur above the 2500 meter contour; this is fairly typical for pre-Tzacualli sites in the Teotihuacan valley as well. Of Charlton's defined 75 Tzacualli loci, and 42 occur in the 2400 to 2500 band, the lowest part of our survey area, 33 above it. The same approximate ratio applies to the later Toltec and Aztec periods. It does not apply, however, to the Teotihuacan period where virtually all of the population lives in the lower zone. The following sites were defined in the area.

Cerro Tezqueme Cluster (TF-3-72-144)
(Figure 95, Plate 140a)

Below Cerro Tezqueme (that is, to the north) is a triangular-shaped sloping ridge between two deeply incised barrancas. The southern portion of this triangle (and the wide base of the triangle) is an area of severe sheet and gully erosion; much of the surface is exposed tepetate. There are abundant remains of ancient terraces, in some cases definitely associated with Aztec house sites in this area (the Aztec sites TA-49 and TA-50). The lower northern portion of the area is occupied by well-preserved functional terraces used today primarily for the growing of maize and barley. The big Teotihuacan village site of TC-46 occupies much of the area. Along with the Teotihuacan and Aztec sites, the area was also a focus of Tzacualli occupation as well. Two Tzacualli sites, TF-3 and TF-72, were surveyed by West; Marino noted Tzacualli occupation at four localities during his survey of TC-46. We have coded this last as TF-144. We have no detailed data on this site and we suspect that more pre-Tzacualli localities will turn up as we examine the surface samples from the village site. TF-3 is located entirely within Aztec site TA-49; the heavy Aztec occupation makes the Tzacualli pattern difficult to sort. At least two loci were defined, a larger one with heavy Tzacualli occupation and another smaller one with lighter occupation. At least four Aztec house mounds were found within the larger locus. TF-72 is separated from TF-3 by a wide shallow

wash and consists of three loci, all with light to scanty Tzacualli occupation. One of them has half a dozen Aztec house sites located within it (the northeast corner of TA-50). Sites as a whole extend down the ridge in a linear pattern, suggesting the possibility of their integration with a terrace system even though surface survey could not establish this point. A fourth locus also dates from the Tzacualli phase (TF-144). It is located approximately 160 meters to the west and on the east edge of the west barranca. The area appears as a large low mound, 80 meters in diameter, consisting of rock rubble and heavy concentrations of sherds. The surface sample includes Aztec, Teotihuacan and Tzacualli. Including the TF-144 loci then, there are at least nine Tzacualli loci of occupation within this very small area. Rock debris is abundant over the sites, but its chronological association cannot be accurately determined given the total time range represented in the occupation.

Also found in this area is an ancient canal that will be described at a later point. The surface samples from TF-3 and 72 show occupation through the various Tzacualli phases including the final Apetlac subphase.

Cerro Tiquimil Sector (TF-45, 47, 15, 129, 130, 202) (Plate 138a)

The south or upper end of this area is delimited by one of the isolated volcanic cones, Cerro Tiquimil. Northwest of Tiquimil (with the wide base at the upper end) is an elongated triangular-shaped ridge delimited by very deeply cut barrancas. A number of small Tzacualli hamlets with generally very light concentrations of occupational debris were recorded by the survey. The area is one of very gentle slopes, once terraced with maguey bancals. Only in a few cases are the terraces in use today; in general the area is one of thin soils and is used for pasture. Exposed tepetate occurs in the upper part of the area and for wide bands along the edges of both barrancas. No pre-Tzacualli site was reported in this area. The Teotihuacan occupation occurs in the form of a large, compact, densely-settled village (TC-49) and a series of small villages on the summit and along the peripheries of the hill (TC-43, 44, 45, 50, 60, 61, 62, 63). All of the Teotihuacan sites occur at the upper wide base of the triangle near Cerro Tiquimil. Two Mazapan sites, one very small, occur in the strip along with a single Aztec village site. The Tzacualli sites are as follows.

TF-15-78. This site is located at the lower apex end of the triangle, directly across the barranca from TF-14, and is distributed linearly along the barranca in an area of tepetate wash. Immediately northwest of the strip, in the center of the ridge, is an area of well-preserved terraces planted in maize at the time of the survey. The occupation is primarily Tzacualli but includes some Aztec and Teotihuacan, and is particularly heavy at the northern end shifting to scanty occupation at the opposite end, possibly the product of erosion and redeposition. In the area of heavy settlement we noted several mounded areas, 25 to 50 centimeters high and 3 to 4 meters in diameter,

with very heavy concentrations of sherds, rock debris and obsidian tools, including cores. These probably mark original Tzacualli phase house sites. Since the site is separated from TF-14 only by the barranca, it is possible that the two are parts of a single large site separated only by a shallow stream at the time of occupation. In the surface sample are typical Tzacualli sherds, along with some Apetlac or late Tzacualli (we have coded the Tzacualli as TF-15, the Apetlac as TF-78). The total area of the site is approximately 1 hectare.

TF-47. On the same strip but a few hundred meters up are two other Tzacualli sites, TF-45 and TF-47. TF-47 occurs on the edge of the western barranca in the area of thin-soil terracnes. The overall occupation is very heavy but this includes considerable Aztec as well. The recent construction of terraces in this area has obviously altered and redistributed much of the prehispanic occupation. Neither mounds nor any other type of prehistoric structure was noted. Obsidian artifacts occur on the surface along with figurines. The surface sample is predominantly Tzacualli with a strong secondary component of Aztec. The total area of the site is approximately .7 hectare.

TF-45 (Plate 138a). TF-45 is located within Aztec site TA-54. This is a linear site approximately 100 meters wide extending for a total length of nearly 700 meters down the ridge. It runs through an area of poorly preserved terraces with areas of exposed tepetate. Today it is used primarily for pasture and some barley cropping. Paralleling it, and occurring between it and the east barranca, is an extremely eroded area with extensive gully and sheet erosion. Occupation within the strip generally varies from scanty to light and is predominantly Aztec. In four well-spaced loci there are areas from 50-100 meters in diameter where the occupation reaches a moderate to heavy density, including much rock rubble and numerous obsidian artifacts along with the sherds. A scattering of sherds also occurs in the gullied area between the strip and the barranca. The south or upper component is nearly all Aztec, but in the northern three areas there is a light concentration of Tzacualli-Apetlac. The surface sample is about half Aztec and half Tzacualli.

TF-129. Above or south of TF-47 on the edge of the same barranca (the west barranca) is an area of terrain that slopes down the barranca edge. Much of this area is exposed tepetate with scrub bush. Part of it consists of a few wide, thin-soil bancal terraces and is used as pasture today. Over an area of perhaps 6 hectares is a light to moderate concentration of sherds, predominantly Aztec and Mazapan. We have coded the Aztec occupation as TA-53 and the Toltec as TT-37. In two small localities, general survey recorded light Tzacualli concentrations over a total area not exceeding a hectare. The site was not intensively surveyed or surface sampled.

TF-130. This is a site that consists of scattered Tzacualli sherds found within a fairly large Aztec site (TA-55). It was not intensively surveyed or surface sampled. The Aztec site was centered down the center of the ridge above TF-47 and 15, and is found in an area of well-preserved terraces with fairly thin soil used today primarily for

barley cultivation. The only information we have on the distribution of Tzacualli is that there seems to be a concentration in the southwest corner of the Aztec site, only 50-60 meters from the Tzacualli site, TF-47.

TF-202. At the upper part of the ridge near the east barranca is an area of moderate slope that is badly scarred by erosion. Much of it is exposed tepetate, but with remnants of old terraces along with new terraces and terraces under construction. An Aztec site, TA-48, covers approximately 3 hectares of the badly eroded terrain with occupation varying from medium to heavy. Within it are three small loci of very heavy occupation debris which include Teotihuacan sherds (coded as TC-60, 61, and 62). Two of these sites, TC-60 and 62, also include some Tzacualli. Outside of the main block of the Aztec occupation are two small areas of Aztec and Tzacualli occupation between it and the barranca, located in an area of new terraces. Altogether the total area of the small Tzacualli settlements does not add up to more than one hectare. The site was not intensively surveyed or surface sampled. We have coded it as TF-202.

We also suspect that the large Teotihuacan site at Tenango (TC-49) has a Tzacualli occupation as well, and in all probability the center of the Tzacualli occupation for the survey strip is located there, but we will have to await the final analysis of the surface samples. No Tzacualli was reported in general survey. Sanders, in general survey, defined Tzacualli traces at one locality along the west barranca near the site.

Cerro Teclalo Cluster (TF-39) (Plate 137b)

Cerro Teclalo is one of the small isolated cones located downslope from the chain of foothills. Survey revealed a chain of Classic settlements on the east and south periphery of the hill (TC-51, 52, 53, 54, 55, 56). Tzacualli sherds were recorded by Sanders at TC-51, 52, 53, 54 (all located east of the hill) and at TC-56 on the south side. West intensively surveyed the east settlements and coded the Tzacualli component as TF-39. The occupation is in an area of thin-soil terraces between the hill and the barranca. All of the terraces are in poor condition and the area is in marginal use today. The slope within the site area is gentle. Well above the site, on the flank of the hill, are well-preserved terraces planted in maize and barley. West reported the Tzacualli occupation as distributed evenly and sparsely over the area defined in Classic survey as TC-52 and categorized the other localities recorded by Sanders as traces. The surface sample from TC-52 includes Aztec, Teotihuacan, Mazapan, and early and late Tzacualli.

Maquixco Alto Ridge Cluster (TF-127) (Plate 138b)

Between Cerros Ahuatepec and Tezqueme and the village of Maquixco Alto is a gently sloping triangular-shaped area that was very rich in prehistoric remains. The base of the triangle is at the lower north

end at the point where the village begins and this portion is covered by a well-preserved, deep-soil terrace system, planted at the time of the survey in maize and barley. The upper part, or the apex of the triangle, is a severely eroded area with abundant remains of almost completely destroyed terraces. Many of these undoubtedly date from the Aztec period. The soil generally is thin in this area, with much exposed tepetate. The large Teotihuacan village site, TC-58, covers much of the lower portion of the wedge where the deep soil terraces occur, projects southwest into an area of tepetate wash, thin soil. The Aztec site, TA-46, virtually occupies the entire area and includes a number of house sites and several pyramids. Many of the former are integrated with the disintegrating terraces. Also present in the area is a Toltec site, TT-36, located primarily in the area of severe erosion. The Tzacualli site, TF-127, consists of an area 240 by 80 meters, two hectares in all, that occurs at the border between the deep and the thin-soil portions of the survey strip. The lower or northwest edge extends into the area of well-preserved terraces and the upper or southeast edge projects into the eroded area. Occupation over the site is generally heavy, particularly in the eroded areas, but this includes Aztec along with Mazapan and Teotihuacan (the noted southwestern prolongation of TC-58). The site was recorded by Sanders in general survey and was not intensively surveyed. Tzacualli occupation, however, appears to be notable throughout the mentioned area and to be well represented.

Teacalco Ridge Cluster (TF-14, 16, 49, 41, 71, 123, 126, 128) (Figure 85, Plate 144)

This long narrow interfluve begins at Cerro Tlacuache Chico and runs south to the village of Teacalco. It was a densely settled area in prehispanic times. At the upper end is located TF-1-70-224-225, the only site of the Chiconauhtla phase in the entire Cerro Gordo test strip; it continued to be occupied during the Cuanalan and Patlachique phases.

In Tzacualli times we recorded six settlements (eight, if the three TF-14 components are counted as separate sites) plus traces at TF-126 and 128.

A Teotihuacan period town, apparently the capital for the entire survey area, was located at the lower end of the strip (TC-40). There are also five additional village sites of the same period in the survey area (TC-74, TC-42, TC-47, TC-48, and TC-41). In Mazapan times the area was reoccupied with four hamlets, TT-31, 32, and 34. Finally, in Aztec times there were several large village sites that covered much of the surface of the strip.

In the upper portion are the ruins of the old Hacienda Cayetano. Much of the land in this upper portion is now ejido, controlled by farmers from Maquixco Alto. The condition of the strip varies from good deep soil near the hacienda building to severely eroded terrain above it and along the barranca edges. The area around the hacienda is

flat or very gently sloping terrain; erosion has, therefore, not caused much destruction. Much of it consists of extremely large fields without internal terracing and planted primarily in barley. The lower portion varies considerably in its condition. The lands along the edges of the two barrancas are in varying conditions of erosion with much exposed tepetate. Those close to the center of the ridge vary from exposed tepetate to respectably deep soils, much of it dedicated to barley cultivation. The lower portion of the ridge is part of the holdings of the village of Teacalco. The following Tzacualli sites were recorded in the survey:

TF-14 (Plate 144). During his Aztec and ecological surveys of the area, Sanders recorded a very extensive site along the east barranca that had Aztec, Mazapan, and scattered Tzacualli occupation. West intensively surveyed the Tzacualli occupation and defined three widely separated loci of settlement within the larger area of Postclassic occupation. He designated these as components A, B, and C and coded them as TF-14. While it would have been preferable to have coded them as separate sites, we have retained his system to avoid complications in our field records. A band of exposed tepetate varying from 120-160 meters in width occurs along the barranca edge, the entire length of the site. West of this is a series of terraces with thin soil and considerable exposed tepetate areas which were planted in barley and maize.

Component A is located at the lower or northern edge of the site within the barranca-side strip of exposed tepetate, B within the zone of thin-soil terraces at the upper end, and C nearby and within the barranca-side strip of exposed tepetate. The sites are all in a very poor state of preservation with the sherds resting on the tepetate surface in most cases. The total occupation of the three components varies from moderate to heavy but much of this is Postclassic. We would estimate the Tzacualli as varying from scanty to medium, with the heaviest concentration in component C. A few obsidian tools also occur on the surface but no structural remains were noted. Old terrace remains which probably date from the Aztec occupation are found within the eroded areas. Since a number of bevelled-lip jars from the surface samples more closely resemble Patlachique than Tzacualli types, we may have a Patlachique component as well. The site areas were as follows: component A, 1.7 hectares; component B, 2.9 hectares; and component C, .8 hectare; or 5.4 hectares in all.

A fourth, very small area with sparse Tzacualli sherds on exposed tepetate was defined just immediately north of the Hacienda Cayetano near the barranca edge. We would classify it as a trace.

TF-16. We have coded as TF-16 a few Tzacualli rims found in our large sherd collections from TC-40. The massive Teotihuacan period occupation and the succeeding Aztec village that occupied the same area make it very difficult to estimate the nature of the Tzacualli occupation.

TF-49. TA-40 is a large Aztec village site that includes at least 18 house mounds, one of which was excavated by the project. Within TA-40 is a small, compact Teotihuacan village site, TC-47, which appears as a single large area of rock, rubble and sherds. Within it are three of the Aztec house mounds. Occupation here is heavy. Scanty occurrences of Tzacualli sherds were noted over much of the area of the Aztec site. The Aztec site measures approximately 12 hectares. On the basis of our knowledge of other Tzacualli sites we probably have several small localities which represent individual house sites, but this is only a guess. No intensive survey of the Tzacualli occupation was made.

TF-71 (Figure 85). This is the Tzacualli component of TF-1-70-224-225. The reader is referred to the description of this site on page 178. The Tzacualli occurs only in our samples from the lower or the La Chiva component, and is very light in quantity since most of the sample from this component is Aztec.

TF-128. TF-128 duplicates the site situation at TF-49. This site is within a large Aztec village site TA-41. The latter has 21 house mounds and a small pyramid. At the southeast or upper edge is a small area of heavy rock rubble which includes a combination of Classic (TC-48) and Aztec occupations. The total area of the Aztec site is 7 hectares. Occupational debris is abundant throughout the site. Scattered occurrences of Tzacualli, particularly at the lower or northwest end of the site, were recorded. The site is at the lower or southern portion of our survey strip near the village of Teacalco. The site had a good soil cover and was planted waist high in barley at the time of the survey, which complicated our observations. No separate survey or surface sample was taken.

TF-41. TC-41 is a very small Teotihuacan period village site about midway up the Teacalco ridge near the edge of the west barranca. It is an outlying house complex of a much larger site, TC-42. Tzacualli sherds were noted on the surface in the surface survey of the Classic site. No separate survey or surface sampling was conducted.

TF-125-126. TA-42 is an Aztec site which consists of a long narrow band of generally light occupation that extends for 1200 meters along the west barranca. It varies in width from 120 to 200 meters. Within this band of light occupation are smaller areas of heavier settlement that include concentrations of Aztec and Mazapan sherds (TT-31, 32, 33). Occupational traces, consisting of typical bevelled-lip jar rims of the Tzacualli phase, were found at the northern and the central Mazapan portions of the site (TT-31, 32). We have recorded these Tzacualli indications as TF-125-126.

Colhuacan Sector

Charlton reported Tzacualli occupation at his sites TF-131, 132, 133. The surface samples from TF-131 and 132 do include Tzacualli rims; no surface sample was collected from TF-133. The reader is referred to the description of these sites presented in the previous section (pages 179-181).

Cerro Buena Vista Sector

Northeast of the Cerro Gordo-North Slope test area, on the other side of the Temascalapa-Otumba highway, is a large isolated hill called Buena Vista. Between it and a large barranca is an area of relatively level terrain, partly terraced but generally severely eroded. We included a portion of this area in our intensive survey because of the discovery of the large Teotihuacan town, TC-73. Along with the town there are eight hamlets northeast and south of the main site, TC-75, 76, 77, 78, 79, 80, 81, 82. Marino, in general survey, noted Tzacualli sherds in the last five hamlets (coded as TF-147, 148, 149, 150, 151) and in two localities within or on the periphery of TC-73, which we have coded as TF-145-146. All of these occupations are less than .5 hectare each in surface area. The sites were not intensively surveyed and the surface samples from the Classic sites have not yet been completely analyzed. We are defining Tzacualli occupations at the sites on the basis of Marino's survey.

POSSIBLE TZACUALLI HYDRAULIC WORKS
(See Figure 102, Plates 147-152)

One of the major objectives of the project was to obtain archaeological data bearing on the question of the history of agricultural systems. We were particularly interested in the history of permanent and flood-water irrigation, swamp reclamation and terracing--those techniques that are usually considered essential to a truly intensive agriculture in an environment like the Teotihuacan Valley. In Volume 1 we noted evidence of the initiation of swamp cultivation or chinampas in the San Juan spring area during the Patlachique phase and expansion of this system during the succeeding periods.

The methodological problems of trying to work out the history of the large permanent irrigation system based on the springs are considerable, since the older canal systems are undoubtedly buried under meters of alluvium. Sophisticated aerial photography, combined with selected excavation, could conceivably resolve the problem. Our funds did not permit this kind of program. Instead we decided to locate peripheral hydraulic systems in the thinner-soil piedmont areas, particular in the areas where the Classic occupation was unusually heavy. The survey did

in fact discover numerous abandoned hydraulic systems--canals, terraces, and dams--all over the valley, some of which are in the vicinity of Teotihuacan period village sites. Unfortunately, they were also found near Aztec village sites and, in many cases, these works are still in use today. This means that simple associational techniques of dating are virtually impossible. This is particularly true since many of the canals have become natural drainage tracts and have deeply incised their beds and expanded their edges laterally. This means that sediment analysis cannot yield the type of chronological control that we would like to have. Some of these canals have so deeply penetrated the tepetate that they appear as miniature barrancas.

North of Cerro Gordo there is an ancient canal system that can with some assurance be dated as pre-Aztec, probably pre-Toltec. Between Cerros Ahuatepec and Tezqueme flows a major tributary barranca. Below the hills it flows north for a distance of approximately 1 kilometer and then swings to the west. After an additional 1 kilometer it joins another major barranca that initiates between Cerro Tezqueme and Cerro Tlacuache Grande. All drainage in this area ultimately ends up in a main stream called the Barranca de Tecorral, which flows below the village of Maquixco Alto. At a point where the barranca flows between Cerros Ahuatepec and Tezqueme, it has a depth of nearly 20 meters and is 40-60 meters across. A canal intake departs from the barranca at this point and runs parallel to it. This can be traced for a distance of 500 meters before it vanishes in an extensive area of tepetate wash. On the aerial photographs, but not on the ground, it can be traced across the wash until it joins another barranca east of Cerro Teclalo. The depth of the canal, for a distance of 100 meters from the intake, is 2-4 meters; it could only have functioned as a canal when the barranca was a shallow stream. There must have been a dam across the stream at the time of the functioning canal, but the lateral erosion that occurred when the stream widened has destroyed any traces of it. Following the downcutting of the barranca the canal apparently continued to function as a natural drainage tract; today it is 10-20 meters wide and has an undulating plan. It appears, therefore, more like a barranca than a canal and in fact is considered and treated as such by the contemporary peasants who have constructed a series of check dams within it. The lower portions of the canal, i.e., that portion where it shifts direction, run along the southern or upper edge of the big Classic village site TC-46. Below the last check dam and before it enters the tepetate area, it widens and decreases in depth.

A second canal departs from the same barranca on the opposite side at a point 100 meters upstream and flows northeast. It is easily traced for a distance of 800 meters to the upper edge of the village of Maquixco Alto. For the first 500 meters it appears as a narrow, shallow trench that could still function today if the barranca had not incised its bed so deeply. It then enters a wide, deeply scarred wash between two functional modern-Aztec terrace systems. At the point where it enters the village it has deeply incised its bed.

Two large contemporary check dams have been constructed within the canal bed and, as in the case of the other canal, it appears more like a small barranca than a canal. Below the check dam it enters a great tepetate wash area near the village jaguey. Some of the drainage is diverted from it to the jaguey. Below the jaguey the drainage diverges to follow two tracts: each serves as a contemporary village street road. We are convinced that they are old canal beds that became floodwater drainage tracts after they ceased to function as permanent canals. They are utilized today as floodwater canals for the terraces in the west and northwest edge of the village, as well as streets. The lower one is of particular interest. It flows 150 meters northeast, then makes a sharp turn to the northwest where it flows for 300 meters. It then angles across several modern fields. In passing across one field it has incised its bed deeply; two contemporary check dams have been constructed over the ancient canal. The canal, cut down into the tepetate, can be distinctly seen running under the check dam wall. This portion of the course (i.e., through the fields) is 280 meters long. The canal then appears as a shallow barranca running between a set of contemporary terraces on one side (the west) and a large unterraced field on the east; it finally enters the Barranca de Tecorral. This last stretch is 250 meters or a grand total for the canal of a little over 2 kilometers.

The upper canal parallels the lower at varying distances of 100-150 meters after departing from the jaguey area. After a total distance of perhaps 800 meters, it too enters the same barranca but downstream. Sections of it, as in the case of the upper canal, serve as contemporary village roads and floodwater drainage tracts; the lower portion is still used to supply the set of terraces noted above in our description of the upper canal. The terraces are bordered on both sides by the two ancient canals.

The entire drainage pattern is easily traced on the aerial photos, particularly on the large scale photos. With respect to its morphology, the canals over most of their length are clearly nonfunctional in terms of the present-day terrace floodwater systems; in fact, as we pointed out these are treated as barrancas. It is equally obvious that they are not natural since they flow diagonally across and connect parts of the natural stream systems.

The present system of cultivation in the Maquixco Alto area is described in detail by Charlton in Volume 1. Basically it involves the construction of sets of terraces that occur in vertical series separated by shallow floodwater canals. Water is diverted from the latter into each terrace by small earth embankments that enter into the canal. The system is a self-flooding one.

The older portions of the contemporary system are, in part, a remnant of the Aztec system which functioned in much the same way. Much of the old Aztec system has been obliterated by erosion but remnants are visible everywhere. In some cases the contemporary villages are recolonizing these eroded areas and building new systems that are morphologically idential to the old ones.

The ancient canal system we have described is quite different in character since the canals lead water directly from major streams and were presumably provided with water from them by means of a dam built across the barranca. In this respect the system is more like the floodwater irrigation system of the alluvial plain in the middle valley or the permanent system in the lower valley. It could only have worked at a time when the barrancas were shallow, narrow, semi-permanent or permanent streams. The system is not only morphologically different from the Aztec and contemporary systems but many of the deep barrancas were already formed in Aztec times, to judge from Colonial documents pertaining to the area. The canals, therefore, must be pre-Aztec. Assuming that to be the case, the precise dating remains the major problem.

Mazapan occupation is respectable in the area. In fact, the upper part of the east canal flows through the center of TT-36 and the lower part through the largest Mazapan site in the area, TT-35. There are no Mazapan sites associated with the west canal.

The Teotihuacan occupation of the area served by the two canals is by far the most massive. The east canal runs along the southwest edge of TC-58 (a densely settled village measuring 8 hectares), the lower part flows along the northeast edge of TC-46 (a huge village 25 hectares), and each of its lower branches flow by two Teotihuacan hamlets--TC-64 and 45. Immediately before they exit into the Barranca de Tecorral, the upper branch flows by the cluster of Teotihuacan period hamlets--TC-63, 60, 62, or 61. The lower portion of the west canal flows along the entire south edge of the large village site TC-46.

In view of the very heavy Teotihuacan occupation of the area and the close association of the canal system to it, the most probable date for the canals would seem to be that period. There is, however, a good possibility that they date as early as Tzacualli times since at least five Tzacualli hamlets are found within a short distance of the canal system (TF-3, 72, 144, 127, 202).

BIBLIOGRAPHY

Acosta, Jorge R. 1956-57. Interpretacion de Algunos de los Datos en Tula Relativos a la Epoca Tolteca. In Revista Mexicana de Estudios Antropologicos, Tomo 14, Parte 2, Mexico.

Armillas, Pedro. 1950. Teotihuacan, Tula y los Toltecas, Runa-Volumen III, Buenos Aires.

Charlton, Thomas H. 1966. Archaeological Settlement Patterns: An Interpretation. Ph.D. Dissertation, Tulane University.

Fletcher, Charles S. 1963. Cuanalan: An Archaeological Excavation and Study of a Ticoman Period Site in the Valley of Teotihuacan, Estado de Mexico, Mexico. Master's Thesis, Department of Anthropology, The Pennsylvania State University.

Gamio, Manuel. 1912. Arqueologia de Atzcapotzalco, D. F. Mexico. Cuadernos Americanos, London.

Kovar, Anton. 1970. The Physical and Biological Environment of the Basin of Mexico. In Occasional Papers in Anthropology, No. 3, Department of Anthropology, The Pennsylvania State University.

Linne, Sigvald. 1942. Mexican Highland Cultures. Ethnological Museum of Sweden, New Series Publication No. 7, Stockholm.

Linne, Sigvald. 1934. Archaeological Researches at Teotihuacan, Mexico. Ethnological Museum of Sweden, New Series Publication No. 1, Stockholm.

Litvak King, Jaime. 1964. Estratigrafia Cultura y Natural en un Tlatel en el Lago de Texcoco, Mexico. Depto. de Prehistoria, Publicacion 13, INAH.

Marino, Joseph D. 1965. Settlement-Types of the Formative and Classic Periods in the Teotihuacan Valley, Mexico. Master's Thesis, Department of Anthropology, The Pennsylvania State University.

Mayer-Oakes, William J. 1959. A Stratigraphic Excavation at El Risco, Mexico. American Philosophical Society, Vol. 103, No. 3, June.

Michels, Joseph. m.s. Obsidian Hydration Dates for Venta de Carpio.

Millon, Rene. 1966. Extension y Poblacion de la ciudad de Teotihuacan en sus Diferentes Periodos; un Calculo Provisional. In Teotihuacan: Onceava Mesa Redonda. Sociedad Mexicana de Antropologia, Mexico.

Millon, Rene F. 1960. The Beginnings of Teotihuacan. American Antiquity XXVI (July).

Millon, Rene F. and James A. Bennyhoff. 1961. A Long Architectural Sequence at Teotihuacan. American Antiquity XXVI (April).

Millon, Rene F., Bruce Drewitt and James A. Bennyhoff. 1965. The Pyramid of the Sun at Teotihuacan: 1959 Investigations. Transactions of the American Philosophical Society, Vol. 55, Part 6.

Mooser, Federico, Sidney E. White and Jose L. Lorenzo. 1956. La Cuenca de Mexico: Consideraciones Geologicos y Arqueologicos. Instituto Nacional de Antropologia E Historia, Mexico.

Muller, Florencia. 1960. The Preclassic Ceramic Sequence of Huapalcalco,Tulancingo, Mexico. Congres International des Sciences Anthropologiques et Ethnologiques, Compte-Rendu V.

Noguera, Eduardo. 1943. Excavaciones en El Tepalcate, Chimalhuacan, Mexico. American Antiquity 9 (1): 29-32.

Piña Chan, Roman. 1958. Tlatilco. Instituto Nacional de Antropologia E. Historia, Investigaciones 1, Mexico.

Piña Chan, Roman. 1955. Las Culturas Preclasicas de la Cuenca de Mexico. Fondo de Cultura Economica, Mexico.

Porter, Muriel Noe. 1953. Tlatilco and the Preclassic Culture of the New World. Viking Fund Publications in Anthropology, No. XIX.

Phillips, Philip, J. A. Ford and J. B. Griffin. 1951. Archaeological Survey in the Lower Mississippi Alluvial Valley, 1940-47. Peabody Museum Papers, Vol. 25, Harvard University.

Sanders, William T., Anton Kovar, Thomas Charlton and Richard A. Diehl. 1970. The Teotihuacan Valley Project, Final Report, Volume 1. The Natural Environment, Contemporary Occupation, and 16th Century Population of the Valley. Occasional Papers in Anthropology, No. 3, Department of Anthropology, The Pennsylvania State University.

Sanders, William T. 1965. The Cultural Ecology of the Teotihuacan Valley: A Preliminary Report of the Results of the Teotihuacan Valley Project. Dept. of Sociology and Anthropology, The Pennsylvania State University.

Sejourne, Laurette. 1959. Un Palacio en la Ciudad de los Dioses. Instituto Nacional de Antropologia E Historia, Mexico.

Tolstoy, Paul. 1958. Surface Survey of the Northern Valley of Mexico: The Classic and Post Classic Periods. Transactions of the American Philosophical Society New Series, Vol. 48, Part 5.

Tolstoy, Paul and Louise Paradis. 1970. Early and Middle Preclassic Culture in the Basin of Mexico. Science 167.

Vaillant, George C. 1944. The Aztecs of Mexico. Doubleday, Doran and Co., Inc.

Vaillant, George C. 1935. Excavations at El Arbolillo. American Museum of Natural History, Anthropological Papers XXXV-2.

Vaillant, George C. 1931. Excavations at Ticoman. American Museum of Natural History, Anthropological Papers XXXII-2.

Vaillant, George C. 1930. Excavations at Zacatenco. American Museum of Natural History, Anthropological Papers XXXIII-1.

Willey, Gordon R. 1953. Prehistoric Settlement Patterns in the Viru Valley, Peru. Bureau of American Ethnology, Bulletin No. 155.

West, Michael. 1965. Transition from Preclassic to Classic at Teotihuacan. American Antiquity 31 (2).

West, Michael. 1964. Tezoyuca: An Archaeological Excavation and Settlement Pattern Study of a Terminal Pre-Classic Site and its Implications in the Culture History of the Valley of Teotihuacan, Mexico. Master's Thesis, Department of Anthropology, The Pennsylvania State University.

APPENDIX A

REVISIT TO CUANALAN WEST SITE, 1973

In 1973 Sanders revisited the Cuanalan West site with Pedro Armillas, Kent Flannery, and a group of students from the Instituto Nacional de Antropologia e Historia. During the visit one of the students collected, from the surface, the obsidian illustrated in Plate 153. The sample included scrapers, rectangular blades, and two cylindrical cores. All were found in one small locality along with workshop detritus. The sample is significant in that it is evident of obsidian processing at Cuanalan. The obsidian appears to be from the Otumba rather than the Pachuca source and the concentration of Cuanalan phase ceramics on the surface suggests a Formative dating.

Also found in the same locality was the hollow effigy vessel support illustrated in Plate 154. It is the only case known from the site of a vessel support decorated by a full figure, typical Cuanalan phase figurine (H1).

APPENDIX B

EXCAVATIONS AT CUANALAN, TRENCH 2, AUGUST-SEPTEMBER 1961

The following summary, by Barbara J. Price, is a reconstruction from memory and form an informal personal diary maintained in the field. The original field notes disappeared; apparently, Fletcher took them back into the field and they were lost along with the 1962 field season notes. The sketches, therefore, are after those taken as a preliminary recording or for the purpose of fixing approximate relative locations as the work was in progress. The detailed scale drawings have been lost.

Trench 2 was laid out approximately parallel with the edge of a deep profile exposed as the result of prior sand-quarrying operations and inset about 25-30 centimeters from that edge. It was situated some 100 meters east of Trench 1. The orientation of the trench approximately paralleled the curved edge of the bluff. The trench itself comprised two two-meter squares laid end-to-end, for a total area of 2 x 4 meters. As the excavation proceeded, it became obvious that a north-south orientation should have been imposed. The area was initially selected for excavation, however, because of the very heavy concentrations of Formative pottery in the exposed profile. More to the point, some 115 centimeters below ground surface a concentration of human bone, suggesting a burial, was eroding out of the profile. No architectural remains were visible.

Prior work in Trench 1, which continued both during the Trench 2 excavations and in the course of the 1962 field season, had revealed considerable domestic architecture but no burials. The absence of architecture in the Trench 2 profile and the presence of the apparent burial in that profile suggested the possibility of a separate cemetery area in the village. The Trench 2 excavation yielded, in fact, three burials in addition to the one in the profile (the last, "salvaged" by pothunters who obligingly placed the little that was left of it tidily in the excavation). But the hypothesis of a cemetery was scuttled even prior to the recovery of even the first of the burials: architectural remains comparable to the house described for Trench 1 began to show up in the form of adobe wall stubs by the base of level 2 (40 centimeters deep). Furthermore, there was a complex super-position of construction with two superimposed floor levels and associated walls. Both structures seemed to have been of Formative date, and they resembled each other quite closely in orientation and in techniques of construction. In retrospect, it is unfortunate that the excavation was not expanded laterally in that the stratigraphic complexities might

have been resolved on the basis of exposed surface area greater than 2 x 4 meters. This, however, was not the purpose of this excavation. Nor was this excavation designed specifically for the recovery of data on house construction and house plan. Time and resources were severely limited and, by the time that the accumulated data indicated a revision of objectives and accompanying strategies, they had become still more so.

The 2 x 4 meter area presented a complex series of features: house walls and floors with super-position, pits, and the three burials mentioned above (one an infant). Excavation was terminated at the caliche level, occurring here at 220 centimeters B.G., except for one small area to be described below. Since no visible natural stratigraphy was observed in the exposed profile, excavation proceeded in 20 centimeter arbitrary levels except where these were terminated by features such as floor levels or evidence of pitting. Soils above the caliche were a dark brown loam, presumably alluvial, and for the most part quite compact in texture. Sherds from the first 20 centimeter levels were fragmentary and heavily mixed--that is within the plow zone of an area closely adjacent to lands which were agriculturally utilized at the time of excavation. Some mixture of both Aztec and modern occurred into the second level, but not subsequently.

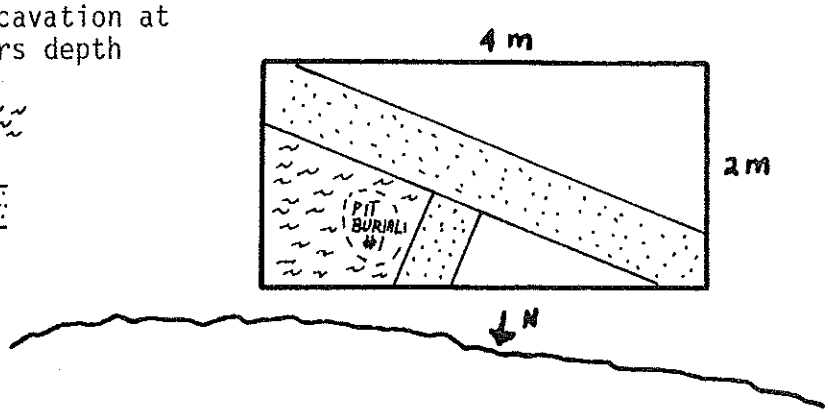
Architecture

In view of the initial design of this excavation, architectural features turned out to be highly complex and provided some of the most interesting data from Trench 2. The tops of the stubs of adobe walls began to appear at about 40 centimeters depth in the form of an approximately east-west alignment of irregular lumps of adobe. These continued, with better preservation, into level 3 which was terminated by an associated adobe floor level at 51 centimeters. In addition, the east-west wall cornered with one found running approximately north-south in the course of the level 3 excavation. The walls seem to have been constructed of irregular lumps of adobe and the floor of packed earth as in the case of Trench 1. Both were plastered with a finer mud layer and with curved wall-to-floor junctures that suggested a single plastering operation which avoided right angle corners.

Sketch of excavation at 51 centimeters depth

Floor

Wall



The pit noted in the preceding drawing contained Burial 1, described in the following section. The outline of the pit was detected by its somewhat softer soil in contrast to the compact adobe of the floor. It could have been contemporary with the floor or nearly so. If this were the case it may be considered probable that the structure was abandoned only shortly after the pit was dug, the interment made, and the pit refilled. Continued occupation of significant duration would probably have compacted the floor to its original consistency once more. Alternatively, the pit may have been dug from a higher level into an already abandoned structure, the floor of which it simply chanced to pierce. However, no traces of pitting were noticed above the floor level in the course of the excavation.

At 91 centimeters a second floor was encountered, with associated walls forming an inner corner similar to that noted above. These features were both situated almost immediately under corresponding elements of the structure having its floor at 51 centimeters. That the walls were somewhat inward of those of the later structure was evident from the overall total thickening of the east-west wall to a width of some 80 centimeters total when the older one was exposed. The base of one overlaps the stub of the other by some 15-20 centimeters. The association of the inner, older wall with the 91 centimeters floor was demonstrated by the continuity of the plastered surfaces of the excavated corner.

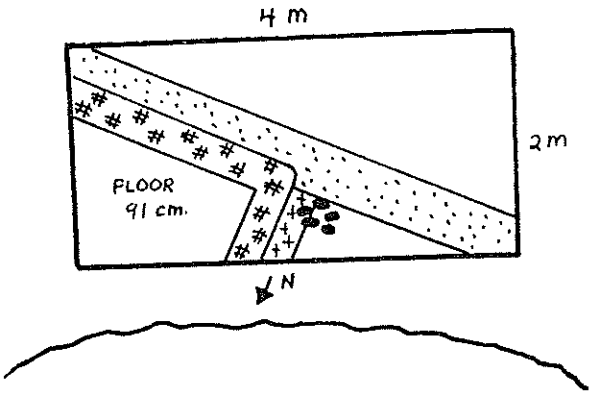
Sketch of excavation at
91-100 centimeters depth

Wall, apparently associated with 51 centimeters floor

Wall, apparently associated with 91 centimeters floor

Scanty traces of possible flooring at 100 centimeters

Fill, collapsed wall? Noted at 80 centimeters depth. Association with floors unclear.



The preceding sketch, taken from a personal diary and notes, indicates the complexity at this level. What is noted as "fill" was a heavy scatter of irregular lumps of adobe that suggested a collapsed wall. At the time it was discovered, there was as yet no indication of any flooring under the 51 centimeters floor. It was located, furthermore, outside the bounded area of the 51 centimeters floor. Subsequent discovery of the 91 centimeters floor suggested the association of this

wall debris--if it is wall debris--with this latter structure, perhaps representing destruction of an earlier wall in the course of building the later one immediately above. The appearance of possible traces of flooring at 100 centimeters--again outside the area of the 91 centimeters floor and its boundary corner--is puzzling. If in fact it did represent real flooring or a surface compacted through use, the 9 centimeters difference in elevation of the excavation might have helped to clarify this through exposure of more surface area. In the absence of this, however, the following possibilities might be considered:

1. The 100 centimeters floor represents the very poorly preserved remains of a genuinely earlier structure. Rendering this interpretation unlikely is the fact that so very little of this floor was encountered or recognized that even its positive identification is tentative. Correlatively, no separate or distinct wall incontrovertibly associated with this 100 centimeters feature was discovered.

2. The 100 centimeters floor represents a second room of the house represented by the 91 centimeters floor. This would indicate a sort of split-level construction which seems unusual with such an otherwise simple construction technique. No doorways or steps were encountered. Again, the absence of directly associated walls militates against this interpretation.

3. The 100 centimeters floor represents an open courtyard associated with the indoor room represented by the 91 centimeters floor. Of the three possibilities this one seems most probable--assuming, of course, that these traces at (1) are in fact flooring. This interpretation would explain the 9 centimeters difference in elevation by suggesting that the house floor was slightly raised above the level of the adjacent patio; the advantages in terms of drainage are obvious. It could also help to clarify the strikingly different states of preservation of these two floors, and would be a comparable situation to that described in Trench 1.

Both structures resemble each other and are markedly similar to the house exposed in Trench 1 insofar as this can be determined from the limited horizontal extension of Trench 2. One interesting observation was that a compass set up on the shorter, north-south wall indicated an alignment slightly east of magnetic north for that wall stub. For both the earlier and the later structures only one inside corner was recovered. The location of that corner indicated in both cases that the bulk of the inside of the room or rooms lay beyond the limits of the excavation. While eastward expansion might have revealed more of the structures, the entire northside of the house would have been destroyed by the quarrying activities that produced the profile which initially suggested that an excavation be carried out at this point. It is odd that no floor levels or wall stubs were visible in this profile. From the ceramics recovered and from the general type of construction and other associated features, the domestic/residential function of these buildings is unquestioned. This again bears out the inference of the surface ceramic distributions that the Cuanalan phase site was a nucleated settlement. That two trenches excavated some 100

meters apart, without surface indications of architecture and begun for quite different purposes, should have both encountered similar domestic structures would be progressively more fortuitous the more dispersed the original settlement pattern.

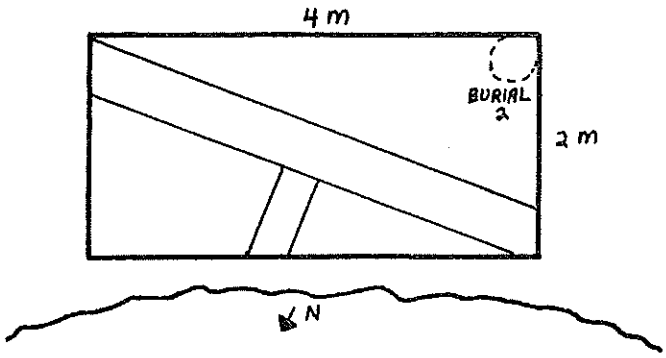
Burials

In view of the initial hypothesis that a cemetery area might be located here, the burials were somewhat disappointing. They were, however, the only Formative period interments recovered; they do shed some light on burial practices and are thus not without interest. It is unfortunate that all the skeletal material recovered has been lost and is unavailable for analysis. What follows is a description based on field impressions, not those of a trained physical anthropologist. The excavations did indicate that interments were not restricted to specialized cemetery areas in the community, but instead took place in the immediate vicinity of the residence. Precise stratigraphic association of floors and burials cannot now be reconstructed in the absence of the original field notes and drawings. The overall impression, however, is that subfloor and courtyard interment seems to have been practiced. The burials all showed considerable evidence of disturbance at some time in the past. None was complete and preservation ranged from rather poor to extremely poor. In spite of this, there is no evidence to suggest that any of the interments significantly postdate the architectural context from which they were recovered.

Burial 1. The outline of the pit containing the burial appeared in the process of cleaning off the adobe floor at 51 centimeters depth; the reader is referred to this earlier description and sketch. The pit directly abutted the north-south wall, very close to its corner with the east-west wall. Leg bones of a flexed burial appeared at a depth of 52 centimeters. The skeleton was fragmentary with hands and feet and most of the rib cage missing. In addition the left side of the skull was lacking, suggesting past disturbance rather than natural decay. The skeleton was that of an adult, age and sex undetermined, facing approximately east with the skull resting against the north-south wall of the house. As mentioned above, the first evidence of the pit came at the floor level itself where the soil of the pit was somewhat less compact than that of the floor. No indication of pitting that would suggest intrusion of the burial into and through the floor was encountered above this level. This could be the result either of contemporaneity of floor and burial or of faulty observation in levels 2 and 3 before the floor was located and cleared. No artifact associations were recovered with this burial. The most striking characteristic of this burial was the skull itself, which showed a marked artificial cranial deformation of the sugar-loaf variety giving the skull an almost pointed appearance. This could not have resulted from cradle-boarding; nor does it resemble the fronto-occipital flattening of some Maya skulls, the result of a sort of sandwich-boarding of the infant's

cranium. Rather, it suggests binding of the skull with a presumably continuous cloth wrapping.

Burial 2. The skeleton was in fragmentary condition, an adult but of undetermined age and sex. Unfortunately little is recalled about the remains themselves, their preservation or orientation. The base of thepit was at a level of 130 centimeters and thus definitely underlay all identified floor levels. Association is complicated by the fact that the burial was situated outside the house area, as indicated by the sketch below:



It could have been placed by the occupants of either the house with the floor at 51 centimeters, or that with the 91 centimeters floor, or by neither. This interment was, however, accompanied by the tripod basal break bowl (Plate 15) and on this basis can be assigned with some confidence to the Cuanalan phase. The comparison with Burial 1 might indicate the possibility that interments could be made either under floors of houses or immediately outside the house.

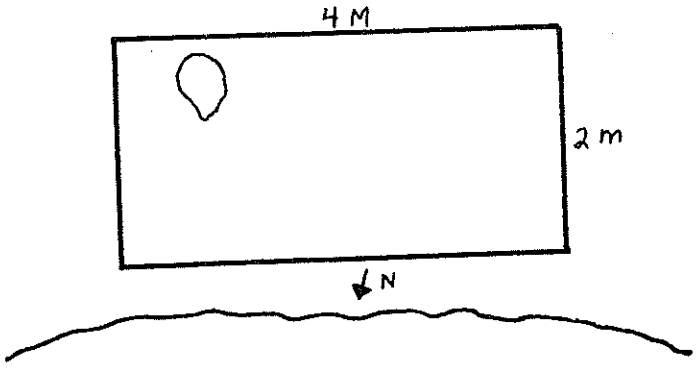
Burial 3. Depth 140 centimeters, horizontal location cited in field notes but not in diary, and is unfortunately not recalled. Burial was that of an infant, with very fragile and fragmentary long bones that crumbled to dust in the process of exposure and removal. The skull was smashed, perhaps during the process of burial from the weither of the earth that filled the grave. This burial held on possibly associated figurine head, a "blind" type with some traces of fugitive red painting (cinnabar ?). Whether this ought to be called an association is in itself debatable. Although it was encountered with the burial, it could as easily have been an accidental inclusion in the grave fill rather than an actual accompaniment.

Other Features

Caliche was reached at the base of level 11 at 220 centimeters in depth. Levels 9 and 10 contained few sherds and level 11, with one exception, was entirely sterile. This latter observation is, however, tentative in

that the total surface area excavated had, by the time this depth was reached, become quite small. The walls of the upper levels had been pedestaled and were left in place.

The exception in level 11 was a pit into or a discontinuity in the caliche, located approximately as indicated in the sketch below. This feature was followed to a depth of 265 centimeters, and appeared to continue below this point.



The contents of this area comprised dark alluvial soil of a color similar to that of the overlying levels but of looser texture. It contained considerable ash and charcoal and a heavy concentration of sherds. These last on field inspection appeared rather different from those previously encountered (and we have utilized this sample to define an Early Cuanalan phase). Charcoal for C14 analysis was collected but the present whereabouts of the sample is unknown. Whether this area represented an excavated pit or a natural discontinuity in the caliche was never determined. The caliche level, except in this one small area, terminated the excavation it was not pierced to the greyish sandy layer of presumably Pleistocene age that is known from Trench 1 and elsewhere. No trace of these typical subcaliche soils was recovered from the pit/discontinuity feature.

TABLES

Table 1. Artifact tabulation--Venta de Carpio

Artifact type	Improbable Formative	Probable Formative	Possible Formative
	BASALT		
Manos, expanded end	3	0	0
Manos, simple end	2	1	0
Metate, shaped	1	0	0
Metate, unshaped	1	0	0
Pestle, concave-sided	2	0	2
Pestle, straight-sided	1	0	0
Mano, one flat side	1	0	0
Round pounder	1	0	0
Irregular pebble	15	2	2
Ground stone knife	5	0	0
Plastering tool	1	0	0
	MISCELLANEOUS STONE TOOLS		
Stone disc	1	0	0
Slate flakes	17	0	0
Quartz flakes	7	0	0
Tezontle marble	1	0	0
	CLAY AND CERAMIC ARTIFACTS		
Mold-made adobe brick	1	0	1
Sherd disc	12	0	2
Notched sherd disc	2	0	0
Rectangular sherd	2	1	0
Perforated sherd disc	4	2	0
Pottery wheel	1	0	0
Sherd ring	1	1	0
Napkin ring ear spool	1	1	0
Whistles, flutes	2	0	0
Censer handles	3	0	0
Balls	2	0	0

Table 2. Formative ceramic types, subtypes and varieties, Venta de Carpio

Code	No. of Rims	Code	No. of Rims	Code	No. of Rims
		CHICONAUHTLA PHASE			
010100	358	072000	5	082801	3
010200	205	072102	4	082806	11
010300	3	072103	3	082906	7
010400	4	072109	3	082911	2
010500	12	072110	3	082913	1
010600	11	072202	11		24
011100	25 (poss. 02)	072404	2		
011300	56	072405	3		
	649-674	072501	16		
020701	8	072502	15		
020702	17	072514	1		
020712	9	072611	3		
020809	4	072617	1		
020903	6	072602	1		
020904	2	072702	2		
020905	5		73		
021000	2				
021100	2				
011100	25				
	55-80				
		LATE FORMATIVE PHASES			
031200	23	041400	3	051801	1
031300	3	041506	2		1
	26	041607	5	061908	3
		041700	1		3
		041800	2 (020914)		
			13		

Table 2. Continued

Code	No. of Rims
	MISCELLANEOUS FORMATIVE
103500	3
103600	2
120000	3
130000	3
140000	4
150000	1
160000	1
170000	2
180000	1
	20

Chiconauhtla Phase:

Type	No. of Rims	Percent
01	649-674	78.48-81.50
02	55-80	6.65- 9.67
07	73	8.83
08	24	2.90
	826	100.00

Late-Terminal Formative:

03	26	60.47
04	13	30.23
05	1	2.33
06	3	6.98
	43	100.01

TOTAL ALL PERIODS--2473 Rims

Miscellaneous Classic-Postclassic	109	4.41
Aztec	402	16.25
Miccaotli	1073	43.37
Formative, unclassified by phase	20	.81
Formative, Late, Terminal	43	1.47
Formative, Chiconauhtla	826	33.43
	2473	100.01

Table 3. Decorative techniques in Chiconauhtla phase ceramics (excluding jars), Venta de Carpio

	No. of Rims	Percent (excluding bay ware)	Percent (including bay ware)
Red/buff	28	30.11	11.73
Red/white	9	9.68	5.06
Red/white and incision	4	4.30	2.25
White and incision	8	8.60	4.49
Bay ware and incision	7	7.53	3.93
White slip	5	5.38	2.81
Off color brown-black	31	33.33	17.42
Red/bay	1	1.08	.56
	93	100.01	52.25
Bay ware, undecorated	85		47.75
	178		100.01

Table 4. Trench 1, ceramic rim ratios by major periods, Venta de Carpio

	Approximate Ratios	Formative		Teotihuacan		Aztec		Total Sherds
		No. of Rims	%	No. of Rims	%	No. of Rims	%	
Level 1	3:3:4	61	43.26	57	40.43	23	16.31	141
2		90	20.50	147	33.49	202	46.01	439
3	2:5:2	78	20.05	212	54.40	99	25.45	389
4	4:5:1	146	37.06	215	54.57	33	8.38	394
5	6:4:0	157	58.36	101	37.55	11	4.09	269
6	7:2:0	89	72.36	29	23.58	5	4.07	123
7	8:2:0	71	80.68	14	15.91	3	3.41	88
8	8:2:0	26	78.79	6	18.18	1	3.03	33
9	9:1:0	11	91.67	1	8.33	0	0.00	12
		729		782		377		1888

Table 5. Venta de Carpio rim code

Columns 1-4 (vessel form)

- 01 Jars
  - 01 rounded lip
  - 02 bolstered lip
  - 03 beveled (ext) lip
  - 04 multiangular lip
  - 05 applique or punctated lip
  - 06 cupped rim
  - 11 problematical, jars or basal break bowls
  - 13 weathered 0102 rims
- 02 Basal Break Bowls
  - 07 bay ware, deep, round base, high vertical walls
  - 08 form as in 07 but incised, generally darker color
  - 09 decorated, flaring upper wall
  - 11 miscellaneous type
- 07 Hemispherical Bowls
  - 20 lacquer slip
  - 21 incurved rim
  - 22 channelled profile
  - 23 beveled lip
  - 24 everted lip
  - 25 miscellaneous, thick wall subtype, red/buff subtypes
  - 26 upright rim
  - 27 scalloped rim
  - 28 molcajete
  - 29 bolstered lip basin
- 08 Tecomates
  - 28 flat, bolstered lip
  - 29 direct lip

Columns 5-6 (decorative technique)

- 01 Red/buff
- 02 Bay ware
- 03 Red/white
- 04 Red/white and incision
- 05 White slip and incision
- 06 Black surface
- 07 Plain, smooth surface
- 08 White/red, Tzacualli type
- 09 Bay ware and incision or scraping
- 10 Near black
- 11 White slip
- 12 Highly burnished dark brown-black
- 13 Dark brown
- 14 Red/bay ware
- 15 Incised flanged lip and white slip
- 16 Red/white and lip notching
- 17 Incised slate

Table 6. Cuanalan phase rim code

Columns 1-4 (vessel form)

- 01 Basal Break Bowls, Round Base
  - 01 upper wall over 5 cm (Variant A)
  - 02 upper wall 4 cm (Variant A)
  - 03 upper wall 3 cm (Variant A)
  - 04 upper wall 3 cm (Variant B)
  - 05 upper wall 2 cm (Variant B, insloping)
  - 06 upper wall 2 cm (Variant B, vertical)
  - 07 upper wall 2 cm (modified lip, A and B)
- 02 Tecomates (neckless jars)
  - 08 bolstered rim
  - 09 unbolstered rim
- 03 Shallow Bowls with Stepped Profile
  - 10 with support
- 04 Deep Basins
  - 11 unmodified lip
  - 12 everted lip
- 05 Basal Break Bowls with Rippled Profile
  - 13 rippled profile
- 08 Jars
  - 23 large, vertical or slightly flaring neck
  - 24 large, sharply flaring neck
  - 25 large, vertical neck, thick wall, heavy lip bolster
  - 26 probable Classic, unburnished
  - 27 intermediate size, highly burnished
  - 28 vague shouldered
  - 29 small size, plain
  - 30 small size, painted or well burnished
  - 31 0824, red painted
- 09 Miscellaneous Bowls
  - 35 small tecomate
  - 36 large outflaring walls, round base, squinch pots
  - 37 hemispherical bowl, medium size
  - 38 hemispherical bowl, small size
  - 40 dish

Columns 5-6 (surface treatment)

- 01 Red/buff
- 02 Negative painting
- 03 Red, white/buff
- 04 Fugitive white/brown
- 05 Incised red/buff
- 06 Plain
- 07 Punctate
- 08 White/red
- 09 Incised
- 10 Off color plain (dark brown or black)
- 11 Black and red flecks
- 12 Overall white slip

Table 6. Continued

Columns 5-6 (continued)

13 White/red plus incision
14 Fresco painted

Columns 7-8 (lip form)

01 Direct lip
02 Exterior bolster
03 Everted
04 Beveled
05 01 vessels with convex upper wall
06 Interior bolster
07 Pronounced bolster
08 Miniature version of large forms
09 Scalloped rim
10 Pronounced
11 Neckless vessels
12 Miscellaneous

Minor Types and Varieties

10 Censers
12 Miscellaneous, probably Formative but not Late Cuanalan
13 Red/white, white/red, Early Cuanalan
14 Vasiform vessels of uncertain date
15 Miniature vessels, probably Formative
16 Probable Chiconauhtla or Early Cuanalan phase basal break bowl, high wall
17 Fresco painted, probably Late Cuanalan

Types 10-17 are all complex categories with a great number of varieties with few sherds per variety and we have abandoned the system with respect to other column codes in their designations. We have simply added numbers in Columns 7-8 to include each variety and the numbers have no reference to the lip form designation of Columns 7-8 that we applied to Types 01, 02, 03, 04, 05, 08 and 09.

Small Rim Code, Vessel Association Uncertain

0016 Red/buff Bowls (all but 06 probably basal break bowls with round base)
01 direct lip
02 bolstered lip
03 everted lip
04 beveled lip
05 convex rim
06 hemispherical bowl

0017 Plain Bowls (all but 06 probably basal break bowls with round base). Lip code identical to 0016

Table 6. Continued

0018	Large Plain Rims (probably tecomates)
01	bolstered
02	direct
0019	Negative Painting
01	direct
02	everted
0020	Large Red Slipped Bolstered Rims, probably jars

In the case of the small rims we used a different code with six digits, 00 in first two columns means vessel form uncertain, second two digits refer to size and surface treatment, third two digits to lip form.

Vessel Support Code

06	Hollow
14	mammiform
15	multibody
16	subglobular
17	zoomorphic, anthropomorphic
18	conical elongated
19	globular
20	elongated, complex profile
21	
22	conical elongated, vertical slit openings
07	Solid
21	nubbin
22	conical

Table 7. Cuanalan rim tabulation by variety (total sample)

Code	Rims	Code	Rims	Code	Rims	Code	Rims
BASAL BREAK BOWLS, VARIANT A							
01010501	2	01020203	4	01030601	12	01050102	2
01010301	2	01020302	3	01030602	3	01071001	4
01010302	2	01020901	2	01030603	5	01070602	1
01010502	4	01020905	4	01030105	10	01070601	2
01010402	4	01020301	1	01030101	13	01070201	1
01010102	23	01020702	2	01030104	5	01070102	5
01010103	11	01020103	9	01030103	1	01070101	12
01010101	13	01020105	4	01030102	11		27
01010602	5	01020102	10	01030902	2		
01010603	2	01020104	2	01030502	2		
01010601	11	01020101	19	01030805	1		
01010701	1	01020501	2	01030701	1		
01010901	4	01020502	1	01030901	4		
01010202	4	01020203	1		70		
01010204	2	01020605	6				
01010201	3	01020402	2				
01010203	2	01020602	3				
	95	01020603	3				
		01020601	16				
			94				

Table 7. Continued

Code	Rims	Code	Rims	Code	Rims	Code	Rims
BASAL BREAK BOWLS, VARIANT B							
01030605	1	01040104	1	01051105	3	01060106	23
01030905	1	01040105	1	01051004	4	01060102	1
	2	01040605	1	01050105	26	01060101	3
		01040604	1	01050205	1	01060105	7
		01040101	2	01050505	1	01061006	3
		01041004	1	01050605	4	01060605	8
			7	01050106	9	01060606	17
					48	01061005	10
						01060205	6
							78

TECOMATES				SHALLOW BOWLS WITH SUPPORTS		DEEP BASINS	
02080103	23	02090604	10	03100102	1	04110204	2
02080102	64	02091007	7	03100106	3	04110101	1
02080603	9	02090607	1	03100101	4	04111001	3
02080602	24	02090606	1	03100604	3	04111004	1
	121	02091001	6	03100601	20	04110601	3
		02090101	41	03101001	5		10
		02090107	3	03101004	19		
		02090108	6	03100301	1	04121003	9
		02090104	18		56	04120203	1
		02090601	14				10
			107				

Table 7. Continued

Code	Rims	Code	Rims	Code	Rims	Code	Rims
BASAL BREAK BOWLS, CHANNELED							
05130101	7						
05130102	1						
05130601	10						
05131001	11						
	29						
JARS							
08230604	7	08240612	7	08270103	2	08300602	3
08230602	94	08240601	17	08270104	1	08301111	2
08230601	110		24	08270604	8	08300102	8
08230603	231			08270612	2	08300601	7
	442	08250602	7	08270602	8	08300603	1
			7	08270102	9	08300111	2
					30	08300101	3
		08260603	2			08301101	1
			2	08280602	1	08300103	5
					1		32
				08290601	6	08310101	24
				08290602	4	08310201	1
					10	08310103	5
							30

Table 7. Continued

Code	Rims	Code	Rims	Code	Rims	Code	Rims
			MISCELLANEOUS SMALL BOWLS				
09350603	7	09371001	1	09381009	2	09400104	5
09351002	1	09370604	4	09381001	7	09401004	1
09351008	2	09370601	12		9	09400601	4
	10	09370101	25			09400103	2
		09370501	1	09390601	2	09400101	1
09360109	12		43	09390102	3		13
	12				5		
			CENSERS				
10010001	8						
10010004	8						
10010007	1						
10020001	2						
10020004	1						
10030001	3						
10030004	1						
10040001	1						
10050003	2						
10060001	1						
10070000	12						
10100001	1						
10110001	1						
10120601	1						
10090000	9						
Special body sherds	5						
	57						

Table 7. Continued

Code	Rims	Code	Rims	Code	Rims	Code	Rims
GENERAL FORMATIVE, PROB. EARLY CUANALAN		RED/CREAM, PROB. EARLY CUANALAN		VASES		MINIATURE VESSELS	
12000001	3	13030802	2	14020103	6	15021001	2
12000002	1	13050809	1	14010501	1	15011003	3
12000003	1	13020804	1	14010101	3	16010504	1
12000004	1	13020802	3	14010102	3	17011401	1
12000005	1	13040803	3	14010104	11		7
12000006	2	13010801	4	14020101	3		
12000007	1	13010903	1	14011002	1		
12000009	1	13010803	2	14011001	4		
12000010	1	13080802	4		32		
12000011	1	13071202	1				
12000012	1	13071204	1				
12000013	1	13060801	2				
12000014	1	13061303	1				
12000015	1		26				
12000016	1						
12000017	1						
12000018	1						
12000019	1						
12000020	1						
12000021	1						
12000022	1						
12000023	1						
12000024	1						
12000025	1						
12000026	1						
	28						

Table 7. Continued

Code	Rims	Code	Rims	Code	Rims	Code	Rims
			SMALL RIMS				
001603	7	001702	19	001802	2	002002	13
001604	5	001706	11	001801	3		13
001605	12	001701	25		5		
001606	7	001703	1				
001602	39	001705	3	001901	8		
001601	28	001704	4	001902	3		
	98		63		11		
			VESSEL SUPPORTS				
061400	5	060000 (subtype uncertain)	75	072100	5		
061500	2			072200	4		
061700	10				9		
061800	19						
061900	9						
062000	23						
062100	5						
062200	1						
	74						

Table 7. Continued

SUMMARY BY TYPES AND SUBTYPES

Subtypes	Rims	Total
0101	95	
0102	94	
0103	72	
0104	7	
0105	50	
0106	78	
0107	25	
01		421
0208	121	
0209	107	
02		228
0310	56	
03		56
0411	10	
0412	10	
04		20
0513	29	
05		29
0823	442	
0824	24	
0825	7	
0826	2	
0827	30	
0828	1	
0829	10	
0830	32	
0831	30	
08		578
0935	11	
0936	26	
0937	45	
0938	9	
0941	1	
09		92
10		57
12		28
13		26
14		36
15		3
Classified Rims		1574
Small Rims		593
		2167
Supports		158
TOTAL SHERDS		2325

Table 8. Cuanalan rim tabulation by type and subtype (total sample)

Type	Rim Sherds	Subtype % of Type	Type % of Sample
01(A)			
01	95	33.22	
02	94	32.87	
03	70	24.48	
05	2	.70	
07	25	8.74	
	286	100.00	18.17
01(B)			
03	2	1.48	
04	7	5.19	
05	48	35.56	
06	78	57.78	
	135	100.00	8.58
02			
08	121	53.07	
09	107	46.93	
	228	100.0	14.49
03	56		3.56
04	20		1.27
05	29		1.84
08			
23	442	76.47	
24	24	4.15	
25	7	1.21	
26	2	.35	
27	30	5.19	
28	1	.17	
29	10	1.73	
30	32	5.54	
31	30	5.19	
	578	100.00	36.72
09	92		5.84
10	57		3.62
12	28		1.78
13	26		1.65
14	32		2.03
15	5		.32
16	1		.06
17	1		.06
			100.00

Table 9. Cuanalan basal break bowl rim tabulation by variety (total sample)

Type	Rims	Variety % of Subtype	Type	Rims	Variety % of Subtype
	VARIANT A			VARIANT B	
0101			0103-0104		
01	47	49.47	06	3	33.33
02	11	11.58	01	4	44.44
03	4	4.21	09	1	11.11
04	4	4.21	10	1	11.11
05	6	6.32		9	99.99
06	18	18.95			
07	1	1.05	0105		
09	4	4.21	01	35	72.92
	95	100.00	02	1	2.08
			05	1	2.08
0102			06	4	8.32
01	44	46.81	10	4	8.32
02	5	5.32	11	3	6.25
03	4	4.26		48	99.97
04	2	2.13			
05	3	3.19	0106		
06	28	29.79	01	34	43.58
07	2	2.13	02	6	7.69
09	6	6.38	06	25	32.05
	94	100.01	10	13	16.67
				78	99.99
0103					
01	40	57.14			
05	2	2.86			
06	20	28.57			
07	1	1.43			
08	1	8.57			
09	6	1.43			
	7	100.00			
0105					
01	2				
0107					
01	17	70.37			
06	3	11.11			
02	1	3.70			
10	4	14.81			
	27	99.99			

Table 10. Cuanalan rim tabulation by decorative techniques (total sample)

Decoration	Ceramic Types												Total Nonjars	
	01	%	02	%	03	%	04	%	05	%	09	%		%
01	223	52.97	155	67.98	8	14.29	1	5.00	8	27.59	49	53.85	444	52.54
02	24	5.70	0		0		0		0		0		24	2.84
03	8	1.90	0		1	1.78	3	15.00	0		0		12	1.42
04	6	1.43	0		0		0		0		0		6	.71
05	12	2.85	0		0		0		0		0		12	1.42
06	101	23.99	60	26.32	23	41.07	3	15.00	10	34.48	29	31.87	226	26.75
07	4	.95	0		0		0		0		0		4	.47
08	1	.24	0		0		0		0		0		1	.12
09	17	4.04	0		0		0		0		0		17	2.01
10	22	5.23	13	6.25	24	42.86	13	65.00	11	37.93	13	14.29	96	11.36
11	3	.71	0		0		0		0		0		3	.36
	421	100.01	228	100.55	56	100.00	20	100.00	29	100.00	91	100.01	845	

	Nonjars	%	Jars	%
01	444	52.54	62	10.71
02	24	2.84	1	.17
03	12	1.42	0	
04	6	.71	0	
05	12	1.42	0	
06	226	26.75	513	88.00
07	4	.47	0	
08	1	.12	0	
09	17	2.01	0	
10	96	11.36	0	
11	3	.36	11	1.90
	845	100.00	579	100.00

Table 11. Cuanalan ceramic frequencies (Fletcher, 1961, Trench 1 excavation)

	Jars	Tecomates	Basal Break Bowls (A)	Upright Rim Bowls (B)	Shallow Bowls	Hemispherical Bowls	Straight Sided Bowls	Supports	Early Cuanalan	Formative Total	Teotihuacan	Toltec	Aztec	Modern	Non-Formative Total	Total
Level								SHERDS FROM ALL SQUARES								
1 No.	3	15	8	15	5		3	22		71	39	23	406	76	544	615
%	4.2	21.1	11.3	21.1	7.1		4.2	31.0		(11.5)	7.2	4.2	74.6	14.0	(88.5)	89.4
2 No.	68	26	45	21	16	1	15	58	1	251	45	7	442	31	525	776
%	27.1	10.3	17.9	8.4	6.4	0.4	6.0	23.1	0.4	(32.3)	8.6	1.3	84.2	5.9	(67.7)	86.5
3 No.	91	25	78	32	14	4	20	60	1	325	104	5	205	8	322	647
%	28.0	7.7	24.0	9.8	4.3	1.2	6.2	18.5	0.3	(50.2)	32.3	1.5	63.7	2.5	(49.8)	89.6
4,5 No.	74	23	73	23	16	6	15	48		278	6	1	47	4	58	336
%	26.6	8.3	26.3	8.3	5.7	2.1	5.4	17.3		(82.7)	10.4	1.7	81.0	6.9	(17.3)	83.4
Sub-total	236	89	204	91	51	11	53	188	2	925	194	36	1100	119	1449	2374
								SHERDS FROM STRATIPIT ONLY								
6 No.	17	6	6	3	6	4	4	16		62	11		1		12	74
%	27.4	9.7	9.7	4.9	9.7	6.4	6.4	25.8		(83.8)	91.7		8.3		(16.2)	91.4
7 No.	16	5	23	5	4	1	4	17		75	1				1	76
%	21.3	6.7	30.7	6.7	5.3	1.3	5.3	22.7		(98.7)	100				(1.3)	91.6
8 No.	4		11				2	7		24	1				1	25
%	16.7		45.8				8.3	29.2		(96.0)	100				(4.0)	100
9 No.	3	1	3		1	1	8	3		20						20
%	15.0	5.0	15.0		5.0	5.0	40.0	15.0		(100)						88.0
10-13 No.	12	3	4	5	1	1	1	2		29	1				1	30
%	41.3	10.3	13.8	17.2	3.5	3.5	3.5	6.9		(96.7)	100				(3.3)	93.8
Sub-total	52	15	47	13	12	7	19	45		210	14		1		15	225
								SHERDS FROM ALL SQUARES								
6 No.	31	9	16	9	8	5	5	19		102	11		1		12	114
%	30.4	8.8	15.7	8.8	7.9	4.9	4.9	18.6		(89.5)	91.7		8.3		(90.5)	94.2
7 No.	24	9	28	8	5	2	5	23		104	1				1	105
	23.1	8.7	26.9	7.7	4.8	1.9	4.8	22.1		(99.0)	100				(1.0)	93.8
8 No.	14	3	27	4	2	1	2	25		78	4				4	82
%	18.0	3.8	34.6	5.1	2.6	1.3	2.6	32.0		(95.1)	100				(4.9)	98.8
9 No.	9	3	10		1	2	10	12		47						47
%	19.1	6.4	21.3		2.1	4.3	21.3	25.5		(100)						88.7
10-13 No.	12	3	6	5	1	1	1	2		31	1				1	32
%	38.7	9.7	19.4	16.1	3.2	3.2	3.2	6.5		(96.9)	100				(3.1)	94.1
								SHERDS FROM ALL SQUARES AND LEVELS								
Total No.	326	116	291	117	68	22	76	269	2	1287	211	36	1100	119	1467	2754
%	25.3	9.0	22.6	9.1	5.3	1.7	5.9	20.9	0.2	(46.7)	14.4	2.5	75.0	8.1	(53.3)	88.5

Table 11 includes only the identifiable rims, supports, bases and handles recovered during excavation. Some sherds, due to their small size or extremely weathered condition, could not be identified. The total number of identifiable sherds and their percentage of the total sample is given in the Total column.

Table 12. Vertical provenience, Cuanalan ceramic subtypes, numbers and percentages, Trench 1 (1961)

	Level 1		Level 2		Level 3		Level 4		Level 5		Levels 6-9		
Subtype	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Total
0101	0		4	3.64	13	8.44	10	6.37	0		9	10.47	36
0102	0		6	5.45	8	5.19	12	7.64	0		5	5.81	31
0103	1	3.23	3	2.73	6	3.90	7	4.46	2	5.41	7	8.14	26
0104	0		2	1.82	0		1	.64	0		0		3
0105	0		2	1.82	3	1.95	5	3.18	3	8.11	3	3.49	16
0106	4	12.90	5	4.55	16	10.39	13	8.28	4	10.82	3	3.49	45
0107	0		1	.91	1	.65	1	.64	1	2.70	0		4
0208	6	19.35	7	6.36	11	7.14	18	11.46	2	5.41	10	11.63	54
0209	6	19.35	7	6.36	9	5.84	3	1.91	1	2.70	8	9.30	34
0310	1	3.23	7	6.36	4	2.60	7	4.46	5	13.51	2	2.33	26
0411	0		0		0		3	1.91	0		0		3
0412	0		0		0		0		0		1	1.16	1
0513	0		3	2.73	5	3.23	9	5.73	0		0		17
0823	11	35.48	40	36.36	56	36.36	44	28.03	10	27.03	15	17.44	175
0824	0		1	1.91	0		3	1.91	0		1	1.16	5
0825	0		2	1.82	0		0		0		0		2
0826	0		0		0		1	.64	0		0		1
0827	0		5	4.53	2	1.30	1	.64	2	5.41	4	4.65	14
0828	0		0		0		0		0		0		0
0829	0		2	1.82	1	.65	4	2.55	1	2.70	0		8
0830	0		4	3.64	6	3.90	4	2.55	0		8	9.30	22
0831	0		0		1	.65	5	3.18	0		1	1.16	7
0936	0		1	.91	4	2.60	4	2.55	1	2.70	4	4.65	14
0937	1	3.23	4	3.64	8	5.19	2	1.27	3	8.11	3	3.49	21
0938	0		3	2.73	0		0		1	2.70	1	1.16	5
0935	1	3.23	0		0		0		0		1	1.16	2
0941	0		1	.91	0		0		1	2.70	0		2
	31		110		154		157		37		86		575

Table 13. Cuanalan anthropomorphic figurines (total sample)

Type	Heads or Complete	Bodies	Arms	Arms/Legs	Legs	Total
G	0	1	0		0	1
G1	1	0	0		0	1
H (Early Transitive)	0	1	0		0	1
H1	6	0	0		0	6
H2	2	0	0		0	2
H3	2	10	1		4	17
H4	16	9	0		0	25
H (general)	0	20	9		4	33
Formative (general)	2	23	10	31	6	72
	29	64	20	31	14	158
Classic or Formative				99		99
	29	64	20	140	14	257

Table 14. Cuanalan figurine vertical provenience (Trench 1, 1961-62)

Level	G	G1	E.T.H.	H1	H2	H3	H4	H	Gen. Form.	Total	Classic or Form.
1	1						4	4	13	22	15
2					1	1	4	7	12	25	25
3			1			2	1	4	10	18	15
4						1	3	0	3	7	6
5						1	1	1	2	5	2
6						2	0	3	0	5	
7				1		0	1	1	3	6	
8						0	1	0	5	6	
9						1	1	1	2	5	
10						0			0	0	
11						1			0	1	
Surf. Coll.		1		3		3	5	2		14	
Total	1	1	1	4	1	12	21	23	50	114	63

Table 15. Cuanalan ceramic earspool tabulation (total sample)

Size		STYLE A	B	C	D	E	Undiff.	Total Solid	F	G	H	Total Others	Grand Total
1	No.	5	1			2		8					8
	%	1.85	.37			.74							2.96
2	No.	17	4	2	6	2		31					31
	%	6.30	1.48	.74	2.22	.74							11.48
3	No.	20	5			6		31					31
	%	7.41	1.85			2.22							11.48
4	No.	30	12		1	2		45					45
		11.11	4.44		.37	.74							16.66
5	No.	27	1			1		29					29
	%	10.00	.37			.37							10.74
6	No.	26	6			1		33					33
	%	9.63	2.22			.37							12.22
7	No.	10	3			2		15					15
	%	3.70	1.11			.74							5.55

Table 15. Continued

Size	STYLE A	B	C	D	E	Undiff.	Total Solid	F	G	H	Total Others	Grand Total
8							13					13
No.	13											
%	4.81											4.81
Undiff.						18	18					18
No.												
%						6.67						6.67
Black (H)										9	9	9
No.												
%												3.33
Tan (H)										30	30	30
No.												
%												11.11
F								7			7	7
No.												
%												2.59
G									1		1	1
No.												
%												.37
No.	148	32	2	7	16	18	223	7	1	39	47	270
%	54.81	11.85	.74	2.59	5.93	6.67	82.59	2.59	.37	14.44	17.41	

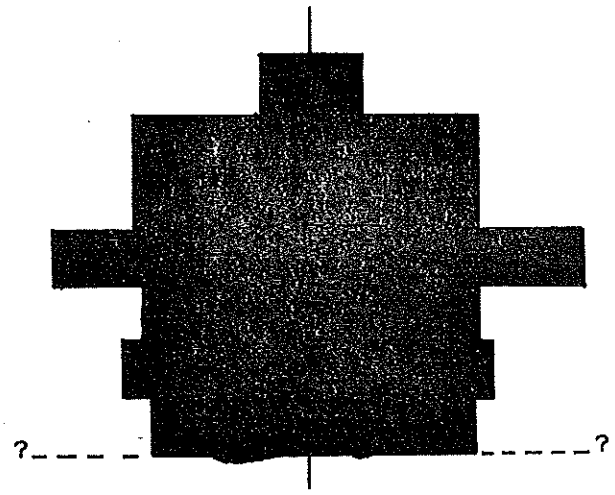
Table 16. Cuanalan ceramic earspool vertical provenience (Trench 1, 1961-62)

Level	TYPES						Total
	A-B	C	D	E	F	G-H	
1	/8/	/3/	/2/	0	0	/2/	15
2	/18/	/3/	1	/3/	1	/3/	29
3	/23/	/4/	1	0	1	2	31
4	/12/	1	1	1	0	/4/	19
5	/5/		1	0	1	0	7
6	/5/			1	1	/2/	9
7	/8/	/4/	1	1		1	15
8	/8/	/3/	1	1	1	1	15
9	/3/	/1/				/1/	5
10-13	0	/2/				/1/	3
	90	21	8	7	5	17	148

/ / = level with over 20% of type

Table 17. Age Pyramid of Earspools

A. Total of All Solid Earspools



B. Total of A Type Only

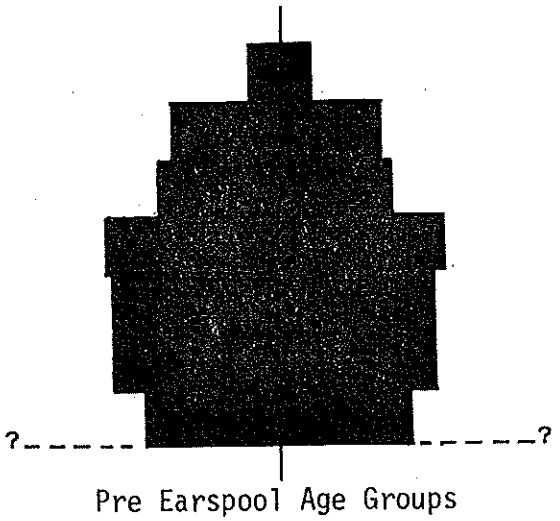


Table 18. Cuanalan ceramic artifacts--vertical provenience (Trench 1, 1961)

Level	Figurines				Earplugs			All Others				Total Artifacts
	Zoomorphic	Anthropomorphic Heads	Anthropomorphic Other	Subtotal	Solid	Hollow	Subtotal	Whistles	Solid Balls	Reworked Potsherds	Other	
1		4	26	(30)	5	1	(6)	1	1	4	3	44
2	1	6	45	(52)	11	1	(12)	1	1	10	7	83
3	1	4	29	(34)	8	1	(9)	3	1	8	4	59
4,5	4	1	4	(9)	13	2	(15)	3	1	2	2	32
6	2		5	(7)	6	7	(13)		4		1	25
7			7	(7)	10	1	(11)	1	1	1	1	22
8	1		6	(7)	14	4	(18)		1	4		30
9		3	7	(10)	7		(7)			1	1	19
10-13			2	(2)	1	1	(2)					4
Totals	9	18	131	(158)	75	18	(91)	9	9	30	19	318

Table 19. Cuanalan stone and bone artifacts, vertical provenience (Trench 1, 1961)

	Obsidian							Quartz and Flint					Volcanic Stone			Bone				
Level	Blades	Points	Scrapers	Chips	Cores	Other	Subtotal	Blades	Points	Scrapers	Chips	Subtotal	Tools	Other	Subtotal	Needles	Awls	Other	Subtotal	Total Artifacts
1	86	2	57	26		7	(178)		2		1	(3)	3	5	(8)					189
2	101	2	76	20			(199)		1	3		(4)		4	(4)			1	(1)	208
3	71	1	40	15	2		(129)						5	2	(7)		2		(2)	138
4,5	44	1	4	41	1	3	(94)	1			2	(3)	2	6	(8)		1		(1)	106
6	39			50			(89)				3	(3)	3	3	(6)		1		(1)	99
7	20		2	25	3	4	(54)	2		1	1	(4)	1	6	(7)	1	1		(2)	67
8	31	1	4	20	1		(57)	2				(2)								59
9	29	1	2	4		3	(39)						2	1	(3)					42
10-13	1		1				(2)							3	(3)					5
Totals	422	8	186	201	7	17	(841)	5	3	4	7	(19)	16	30	(46)	1	5	1	(7)	913

Table 20. Cuanalan stone tool tabulation (excluding obsidian) (total sample)

Chipped Flint		
Blades	5	
Points	3	
Scrapers	4	
Flakes	14	
Total		26
Chipped Basalt		
Points	4	
Small end scraper	1	
Large end scraper	1	
Side scraper	1	
Total		7
Chipped Quartz		
Flat scrapers	18	
End scrapers	11	
Side scrapers	6	
Points	1	
Blades	3	
Flakes	17	
Total		46
Ground Quartz		
Pebbles	3	
Vessel sherd	1	
Total		4
Ground Basalt		
Adze	2	
Pebbles	14	
Manos	7	
Metates	14	
Pestles	1	
Pounders	3	
Rectangular object	1	
Total		42
Tezontle		
Plastering tool	2	
Disc	1	
Grooved stone	2	
Total		5
Miscellaneous		
Flat object	3	
Pebbles	19	
Limestone chunk	6	
Jasper core	1	
Polished fragment	1	
Crude anthropomorphic figure	1	
Possible stamp	1	
Total		32

Table 21. Cuanalan vertical provenience of bone (total sample)

Level	Animal (1961)	Animal (1962)	Human (1961-1962)	Bone Tools
1	9	20	0	0
2	19	27	1	1
3	20	6	3	3
4	59	14	2	1
5	24		4	2
6	17			
7	11			
8	3			1
9	5		2	
10				
11				
12				
13	3			
4.5-5.0 ms.	8			
	178	67	12	8

Table 22. Horizontal distribution of selected artifacts in levels 4-5-6, Cuanalan 1961-1962, Trench 1

	Inside Cuanalan Phase House	Outside House
Ceramic balls	3	0
Human bone	4	2
Cylindrical stamps	1	0
Bone tools	0	3
Sherd discs	2	3
Rectangular cut sherds	0	1
Basalt points	1	1
Animal bone (1961)	57	43
Ear plugs	29	22

Table 23. Tezoyuca rim code

Columns 1-4 (vessel form)

- 01 Hemispherical Bowls (convex sided bowls)
  - 01 restricted mouth
  - 02 upright
  - 03 upright, special (see type description)
  - 04 medium flare
  - 05 shallow, saucer lip
  - 06 undulation or pinched rim
  - 07 extreme flare
  - 08 beveled lip
  - 09 upright, hook-like lip
  - 10 rippled wall
- 02 Straight Sided Bowls
  - 02 upright
  - 04 medium flare, extreme flare
  - 08 beveled lip
  - 11 pedestaled vessels (goblets)
- 03 Vases (concave sides)
  - 12 large
  - 13 small
- 04 Basal Break Bowls, Round Base
  - 09 upright, straight, 1 cm high, upper segment
  - 10 upright, straight, 2 cm high, upper segment
  - 11 upright, straight, 1 cm high, upper segment
  - 12 insloping, recurved, 1 cm high, upper segment
  - 13 insloping, straight, 1 cm high, upper segment
  - 14 insloping, straight, 2 cm high, upper segment
  - 15 insloping, straight, 3 cm high, upper segment
  - 16 insloping, straight, 4 cm high, upper segment
  - 17 insloping, recurved, 2 cm high, upper segment
  - 18 insloping, recurved, 3-4 cm high, upper segment
  - 19 upright, straight, 3 cm high, upper segment
  - 20 upright, straight, 4 cm high, upper segment
  - 21 upright, recurved, 1 cm high, upper segment
  - 22 upright, recurved, 2 cm high, upper segment (acute basal angle)
  - 23 upright, recurved, 2 cm high, upper segment (regular angle)
  - 24 upright, recurved, 3 cm high, upper segment
  - 25 upright, recurved, 4 cm high, upper segment
  - 26 upright, bolstered lip, 4 cm high, upper segment
  - 27 outflaring, recurved, 2 cm high, upper segment
  - 28 outflaring, recurved, 3 cm high, upper segment
  - 29 outflaring, recurved, 4 cm high, upper segment
  - 30 outflaring, rippled wall, 3 cm high, upper segment
  - 31 outflaring, straight, 3 cm high, upper segment
  - 32 outflaring, rippled wall, 4 cm high, upper segment
- 05 Large Shallow Bowls with Supports
  - 32 interior break
  - 33 interior curvature smooth

Table 23. Continued

Columns 1-4 (continued)

- 06 Ollas
  - 34 wedge rim, flattened surface
  - 35 wedge rim, rounded surface
  - 36 direct rim, outflaring, slightly concave profile
  - 37 direct rim, outflaring, slightly concave profile, thin wall
  - 38 direct rim, outflaring, straight profile
  - 39 everted lip, outflaring
  - 40 direct rim, outflaring, very concave profile
  - 41 bolstered lip, outflaring
  - 42 cup-like rim, outflaring
  - 43 beveled lip, outflaring
  - 44 tapered lip, outflaring
  - 45 grooved lip, outflaring
  - 46 small jars
- 07 Jars (low necked ollas)
  - 47 low neck
  - 48 neckless
- 08 Censers
- 11 Minor Type, Incised
  - 01 hemispherical bowls
  - 03 vases
  - 02 Teotihuacan type vases
  - 05 basal break bowls
- 12 Minor Type, Vertical Channeling
- 13 Off Color Variant of Tezoyuca Bowls
- 14 Comal or Trays
- 15 Small Tezoyuca Phase Rims, Vessel Form Uncertain
- 17 Miccaotli Jars (?)
- 18 Chiconauhtla-Altica Phase Bay Ware
- 19 Chiconauhtla-Altica Phase White and White/Red Types

Columns 5-6 (surface treatment)

- 01 Red/buff
- 02 White/red
- 03 Negative painting
- 04 White and red/buff
- 05 White and red/buff plus negative painting
- 06 Red slip
- 07 Plain
- 08 Orange/buff
- 09 Black
- 10 Plastic lip decoration
- 11 Body applique
- 12 Plastic lip deviation plus red slip
- 13 Black surface plus punctation
- 15 Miscellaneous
- 16 Incision
- 17 Excision

Table 23. Continued

Columns 5-6 (continued)

18 Red/black or dark brown
19 White/buff
20 Channeling

Tezoyuca Specialized Base Code

09 Specialized Base
- 50 pedestal
- 51 large multibodied globular feet, hollow
- 52 solid feet
- 53 hollow conical and subconical feet
- 54 hollow globular feet
- 55 saddle feet

Tezoyuca Handle Code

10 Handles
- 56 simple loop
- 57 double twisted loop

Table 24. Tezoyuca rim tabulation by varieties

Type	No.	Variety % of Subtype	Subtype % of Type	Type	No.	Variety of % Subtype	Subtype of % Type
01				01			
010101	23	13.60		010601	7	36.84	
010102	98	54.99		010602	2	10.53	
010103	2	1.18		010604	7	36.84	
010104	3	1.78		010606	3	15.79	
010106	8	4.73			19	100.00	1.48
010107	30	17.75					
010109	4	2.37		010701	75	64.10	
010114	1	.59		010703	13	11.11	
	169	99.99	13.18	010706	5	4.27	
				010707	17	14.53	
010201	110	35.03		010709	7	5.98	
010202	90	28.66			117	99.99	9.13
010203	2	.64					
010204	10	3.18		010801	14	63.64	
010206	17	5.41		010803	1	4.55	
010207	78	24.84		010807	6	27.27	
010209	7	2.23		010809	1	4.55	
	314	99.99	24.49		22	100.01	1.72
010301	213	69.84		010901	23	92.00	
010302	2	.66		010903	2	8.00	
010303	76	24.92			25	100.00	1.95
010304	2	.66					
010307	12	3.93		011001	8	32.00	
	305	100.01	23.79	011004	12	48.00	
				011007	5	20.00	
010401	110	39.28			25	100.00	1.95
010402	23	8.21					100.00
010403	4	1.43					
010404	40	14.29					
010405	12	4.29					
010406	4	1.43					
010407	63	22.50					
010409	3	1.07					
010410	2	.71					
010412	19	6.79					
	280	100.00	21.84				
010501	6	.47					
	6		.47				

Table 24. Continued

Type	No.	Variety % of Subtype	Subtype % of Type
02			
020207	15	100.00	
	15		4.69
020401	75		
020402	8		
020403	15		
020404	4		
020406	100		
020407	37		
020409	21		
020413	4		
	264		82.50
020801	17		
020803	1		
020804	1		
020807	6		
	25		7.81
021102	16		
	16		5.00
			100.00
03			
031201	12		
031204	1		
031207	3		
	16		22.54
031303	1		
031304	35		
031307	9		
031309	10		
	55		77.46
			100.00
04			
040904	1		
040913	1		
	2		.43
041001	6		
041002	1		
	7		1.52
041101	4		
041109	1		
	5		1.08
041207	3		
	3		.65
041301	4		
041303	3		
041307	1		
	8		1.74
041407	3		
	3		.65
041502	1		
041507	11		
	12		2.60
041603	2		
041607	35		
	37		8.03
041707	2		
	2		1.43
041807	91		
	91		19.74
041907	16		
	16		3.47

Table 24. Continued

Type	No.	Variety % of Subtype	Subtype % of Type
04			
042001	6		
042007	29		
042008	2		
	37		8.03
042103	5		
042107	6		
042109	11		
042101	20		
	42		9.11
042201	2		
	2		.43
042301	49		
042303	2		
042307	8		
042309	5		
	64		13.88
042401	14		
042403	11		
042407	24		
	49		10.63
042502	1		
042503	10		
042507	36		
	47		10.20
042601	1		
	1		.22
042717	1		
042709	1		
	2		.43
042801	2		
042804	4		
042807	2		
042820	5		
	13		2.82
04			
042901	2		
042903	1		
042905	1		
042907	9		
	13		2.82
043007	2		
043009	1		
	3		.65
043101	1		
	1		.22
043209	1		
	1		.22
			100.00
05			
053201	1		
053203	1		
053204	5		
053209	2		
	9		47.37
053301	1		
053304	2		
053309	7		
	10		52.63
			100.00

Table 24. Continued

Type	No.	Variety % of Subtype	Subtype % of Type
06			
063400	65		
	65		5.84
063500	73		
063501	1		
063512	3		
063510	34		
	111		9.97
063600	537		
063610	57		
063612	10		
	604		54.27
063700	92		
	92		8.27
063800	82		
	82		7.37
063900	65		
	65		5.84
064000	18		
	18		1.62
064100	8		
	8		.72
064200	3		
064210	2		
	5		.45
064300	9		
	9		.81
064400	7		
	7		.63
064500	5		
	5		.45
06			
064601	34		
064604	1		
064607	6		
064609	1		
	42		3.77
			100.00
07			
074702	9		
074703	1		
074707	1		
	11		42.31
074802	15		
	15		57.69
			100.00
08			
080007	6		
080010	4		
080011	15		
	25		100.00

Table 24. Continued

Type	No.	Variety % of Subtype	Subtype % of Type
09 - Supports			
095001	8		
095002	11		
095003	38		
095006	77		
095007	6		
	143		
095102	27		
	27		
095207	8		
	8		
095301	5		
095304	2		
095307	7		
	14		
095407	4		
	4		
095507	7		
095509	1		
	8		
10			
105606	10		
105607	36		
	46		
105707	2		
	2		
Misc. Small Rims			
110116	7		
110217	2		
110316	2		
110516	4		
	15		
130000	8		
	8		
140007	2		
	2		
150101	125		
150102	36		
150103	4		
150104	27		
150107	32		
150109	10		
	234		
150401	95		
150402	13		
150403	4		
150404	11		
150407	177		
150409	8		
	308		
150607	442		
	442		
160100	44		
	44		
170000	3		
	3		
180000	21		
	21		
190000	13		
	13		

Table 25. Tezoyuca tabulation by type and subtypes

Type	Rim Sherds	Subtype % of Type	Type % of Sample
01			
01	169	13.18	
02	314	24.49	
03	305	23.79	
04	280	21.84	
05	6	.47	
06	19	1.48	
07	117	9.13	
08	22	1.72	
09	25	1.95	
10	25	1.95	
	1282	100.00	38.65
02			
02	15	4.69	
04	264	82.50	
08	25	7.81	
11	16	5.00	
	320	100.00	9.65
03			
12	16	22.54	
13	55	77.46	
	71	100.00	2.14
04			
09	2	.43	
10	7	1.52	
11	5	1.08	
12	3	.65	
13	8	1.74	
14	3	.65	
15	12	2.60	
16	37	8.03	
17	2	1.43	
18	91	19.74	
19	16	3.47	
20	37	8.03	
21	42	9.11	
22	2	.43	
23	64	13.88	
24	49	10.63	
04			
25	47	10.20	
26	1	.22	
27	2	.43	
28	13	2.82	
29	13	2.82	
30	3	.65	
31	1	.22	
32	1	.22	
	461	100.00	13.90
05			
32	9	47.37	
33	10	52.63	
	19	100.00	.57
06			
34	65	5.84	
35	111	9.97	
36	604	54.27	
37	92	8.27	
38	82	7.37	
39	65	5.84	
40	18	1.62	
41	8	.72	
42	5	.45	
43	9	.81	
44	7	.63	
45	5	.45	
46	42	3.77	
	1113	100.01	33.55
07			
47	11	42.31	
48	15	54.69	
	26	100.00	.78
08	25		.75

Table 25. Continued

Type	Rim Sherds	Type % of Sample
Summary of Rim Types		
01	1282	38.65
02	320	9.65
03	71	2.14
04	461	13.90
05	19	.57
06	1113	33.55
07	26	.78
08	25	.75
	3317	99.99

Total Sample	
Classifiable rims	3317
Handles	48
Supports	204
Unclassifiable rims	1090
	4659

Table 26. Special analysis of variability in Tezoyuca 04 type (basal break bowls with round bases)

	No.	%
Upright Straight		
09-11 (1 cm	7	1.52
10 (2 cm)	7	1.51
19 (3 cm)	16	3.47
20 (4 cm)	37	8.03
	67	14.53
Insloping Straight		
13 (1 cm)	8	1.74
14 (2 cm)	3	.65
15 (3 cm)	12	2.60
16 (4 cm)	37	8.03
	60	13.02
Upright Recurved		
21 (1 cm)	42	9.11
22 (2 cm)	2	.43
23 (2 cm)	64	13.88
24 (3 cm)	49	10.63
25 (4 cm)	47	10.20
	204	44.25
Insloping Recurved		
12 (1 cm)	3	.65
17 (2 cm)	2	1.43
18 (3 cm)	91	19.74
	96	21.82
Upright Bolstered Slip		
26	1	.22
Outflaring Concave		
27 (2 cm)	2	.43
28 (3 cm)	13	2.82
29 (4 cm)	13	2.82
	28	6.07
Outflaring Straight		
31 (3 cm)	1	.22
Outflaring Rippled Wall		
30 (3 cm)	3	.65
32 (4 cm)	1	.22
	4	.87

Summary

Upright Straight	14.53
Insloping Straight	13.02
Upright Recurved	44.25
Insloping Recurved	21.82
Upright Bolstered Lip	.22
Outflaring Concave	6.07
Outflaring Straight	.22
Outflaring Rippled Wall	.87
	101.00

Crosscutting Summary of Traits

Upright	59.00	(9-11, 19-25, 26)
Insloping	34.84	(12-18)
Outflaring	7.16	(27-32)
	101.00	
Straight	27.77	(9-11, 19-20, 13-16, 31)
Recurved	72.14	(21-25, 12, 17-18, 27-29)
Miscellaneous	1.09	(30, 32, 26)
	101.00	
1 cm	13.01	(09, 11, 13, 12, 21)
2 cm	18.34	(10, 14, 22, 23, 17, 27)
3 cm	40.13	(19, 15, 24, 18, 28, 30, 31)
4 cm	29.30	(20, 16, 25, 29, 32)
	100.78	

Table 27. Tezoyuca rim decorative techniques (excluding jars)

Variety of Decoration	Types														Total	
	01	%	02	%	03	%	04	%	05	%	07	%	08	%		%
01	589	45.94	92	28.75	12	16.90	111	24.08	2	10.53	0		0		806	36.57
02	215	16.77	24	7.50	0		3	.65	0		24	92.31	0		266	12.07
03	100	7.80	16	5.00	1	1.41	37	8.03	1	5.26	1	3.85	0		156	7.08
04	74	5.77	5	1.56	36	50.70	5	1.08	7	36.84	0		0		127	5.76
05	12	.94	0		0		1	.22	0		0		0		13	.59
06	37	2.89	100	31.25	0		0		0		0		0		137	6.22
07	211	16.46	58	18.13	12	16.90	275	59.65	0		1	3.85	6	24.00	563	25.55
08	0		0		0		2	.43	0		0		0		2	.09
09	22	1.72	21	6.56	10	14.08	20	4.34	9	47.37	0		0		82	3.72
10	2	.16	0		0		0		0		0		4	16.00	6	.03
11	0		0		0		0		0		0		15	60.00	15	.07
12	19	1.48	0		0		0		0		0		0		19	.09
13	0		4	1.25	0		1	.22	0		0		0		5	.02
15	1	.08	0		0		0		0		0		0		1	.005
17	0		0		0		1	.22	0		0		0		1	.005
20	0		0		0		5	1.08	0		0		0		5	.05
	1282		320		71		461		19		26		25		2204	

Table 28. Tezoyuca stratigraphic position of subtypes and categories of the 04 type (south Trench)

Type	Level 1	Level 2	Level 3	Level 4	Total
01	51	29	15	23	118
02	12	6	3	3	24
03	2	1	0	1	4
05	0	1	1	1	2
06	42	31	9	11	93
04	20	6	4	5	35
Total	127	74	32	43	266
04 Categories					
Upright	16	3	2	2	23
Insloping	4	3	2	2	11
Outflaring	0	0	0	1	1
Total	20	6	4	5	35
Straight	4	2	1	1	8
Recurved	16	4	3	4	27
Total	20	6	4	5	35
1 cm	4	3	2	1	10
2 cm	5	0	0	0	5
3 cm	7	1	1	2	11
4 cm	4	1	1	2	8
Total	20	5	4	5	34

Table 29. Tezoyuca ceramic figurine types

Anthropomorphic	Heads	Bodies	
G1	3	0	
E2	2	0	
H1	4	3	
H2	2		
H3	1	0	
H4	12	11	(H4 sitting)
H4 Derived	2	5	
H4 Crude	2	6	(H4 standing)
Transit. H3-4	1	5	
Chimalhuacan 1	7	4	
Tezoyuca A	2	4	
Tezoyuca B	2	5	
Tezoyuca C	3	5	
Tezoyuca Polished Red	13	7	
Total	65	56	
Zoomorphic	11	4	
Miscellaneous	9	25	
Total	85	85	
Whistles (probably effigy)	0	2	
	85	87	

Table 30. Tezoyuca ceramic ear and lip plugs

Style Category	Size Categories 1	2	3	4	5	6	7	8	Total	
A	4	8	14	16	4	5	3	2	56	
B									5	
C									2	
E									6	
Solid Total										69
H									1	
Lip Plugs (labrets)									2	
Misc.									3	
										6
Grand Total										75

Table 31. Tezoyuca nonceramic artifacts

	Obsidian				Chipped Stone, Chert, Quartz, Jasper		Chipped Basalt			Ground Stone		Bone			Shell		
	Blades	Points	Scrapers	Drills	Scrapers	Points	Points	Scrapers	Knives	Manos	Other	Rasp	Chisel	Other	Pendant	Tortoise	Other
Surface	7	38	19	1			4		1								1
1	7	15	7	1		1		1	2	3	1						
2	10	11	1		2	2	1	3		2	1			2		1	1
3	7	4	1			2	1			2	1	1		1	1		
4	1	8	1		1								1		1	1	
5	1	3		1											1		
6																	
Totals	33	79	29	3	3	5	6	4	3	7	3	1	1	3	3	2	2

Table 32. Chimalhuacan phase (Patlachique) rim code key, major types and subtypes

Columns 1-4 (vessel form)

- 01 Jars
  - 01 wedge rims
  - 02 direct rim
  - 03 impressed rims
  - 04 everted lip
  - 05 channeled rim
  - 06 channeled rim
  - 07 low neck, small jars
  - 08 small jars, vague neck
- 02 Shallow Bowls with Supports
  - 09 with supports
- 04 Censers
- 05 Large Utility Vessels, nonjars
  - 16 comal or tray
  - 17 basins, wide everted lip, deep, lug handles, large
  - 18 basins, wide everted lip, shallow, lug handles, small
  - 19 basins, wide, everted lip, shallow
  - 20 tecomate
- 06 Round Bottom, Basal Break Bowls
  - 21 upright wall, beveled lip, 3 cm, upper segment
  - 22 upright wall, direct lip, 3 cm, upper segment
  - 23 outflaring, beveled lip, 3 cm, upper segment
  - 24 outflaring, direct lip, 3 cm, upper segment
  - 25 outflaring, direct lip, 2 cm, upper segment
  - 26 upright, direct lip, 2 cm, upper segment
  - 27 insloping, direct lip, 3 cm, upper segment
  - 28 insloping, direct lip, 2 cm, upper segment
  - 29 outflaring, concave profile, tapered lip, 2 cm, very deep basins
  - 30 outflaring, concave profile, 3 cm, direct lip, very deep basins
  - 31 outflaring, concave profile, direct lip, 5 cm, very deep basins
- 07 Straight Sided Bowls, Flat Bases
  - 32 medium flare
  - 33 beveled lip
  - 34 extreme flare
  - 35 upright
  - 36 concave wall profile
- 08 Hemispherical Bowls
  - 34 extreme flare, slightly convex profile
  - 33 beveled lip
  - 32 medium flare
  - 37 restricted mouth (incurved rim)
  - 38 upright

Table 32. Continued

Columns 1-4 (continued)

03 Pedestal Bases and Supports
- 10 pedestal bases
- 11 hollow conical support
- 12 hollow saddle support
- 13 hollow subglobular support
- 14 solid, subglobular
- 15 solid conical

Columns 5-6 (surface decoration)

01 Red/buff
02 Dark brown
03 Plain (light-medium brown)
04 White/red
05 White/black
06 Negative painting
07 Black
08 White/buff
09 Overall red slip
10 Fine line incised
11 Red and white/buff
12 White/cream
13 Special paste, like thin orange
14 Red and white/black
15 White/dark brown
16 Horizontal channeling

Table 33. Chimalhuacan tabulation of rim types, subtypes and varieties (total sample)

Variety	No.	Variety % of Type
010100	678	76.44
010200	136	15.33
010300	39	4.40
010400	5	.56
010401	1	.11
010500	1	.11
010600	6	.68
010701	2	.23
010702	15	1.69
010703	2	.23
010704	1	.11
010800	1	.11
	887	100.00
020902	2	40.00
020903	3	60.00
	5	100.00
040000	2	100.00
051600	3	8.82
051700	17	50.00
051800	7	20.59
051900	4	11.76
052000	3	8.82
	34	99.99
062102	9	6.87
062103	26	19.85
062106	3	2.29
062202	7	5.34
062203	13	9.92
062206	2	1.53
062303	4	3.05
062402	2	1.53
062403	3	2.29
062502	1	.76
062503	8	6.11
062506	1	.76
062602	5	3.82
062603	2	1.53
062702	5	3.82
062703	12	9.16
062706	2	1.53
062803	4	3.05
062806	1	.76
062807	1	.76
062902	4	3.05
062903	5	3.82
062907	6	4.58
063001	1	.76
063002	2	1.53
063102	2	1.53
	131	100.00
073201	9	20.93
073202	9	20.93
073203	6	13.95
073206	1	2.33
073208	2	4.65
073209	1	2.33
073207	3	6.98
073210	1	2.33
073211	1	2.33
073212	1	2.33
073302	2	4.65
073305	2	4.65
073307	1	2.33
073412	1	2.33
073501	1	2.33
073607	2	4.65
	43	100.03

Table 33. Continued

Variety	No.	Variety % of Type
083201	2	2.60
083202	8	10.39
083203	9	11.69
083205	1	1.30
083207	4	5.19
083210	1	1.30
083211	1	1.30
083212	1	1.30
083213	4	5.20
083214	1	1.30
083301	3	3.90
083307	3	3.90
083401	3	3.90
083402	6	7.79
083406	4	5.19
083407	3	3.90
083701	2	2.60
083702	3	3.90
083715	1	1.30
083801	2	2.60
083802	10	12.99
083805	2	2.60
083811	3	3.90
	77	100.04
Supports		
031005	4	
031100	9	
031200	2	
031300	2	
031400	2	
031500	1	
	20	

Summary		
Type	No.	%
01	887	75.23
02	5	.42
04	2	.17
05	34	2.88
06	131	11.11
07	43	3.65
08	77	6.53
	1179	99.99
Misc. Rims	42	
Supports	20	
Total Selected Sample	1251	

Table 33. Continued

Subtypes of 06	%	Subtypes of 07	%	Subtypes of 08	%
0621	29.01	0732	79.09	0832	41.57
0622	16.79	0733	11.63	0833	7.80
0623	3.05	0734	2.33	0834	20.78
0624	3.82	0735	2.33	0837	7.80
0625	7.63	0736	4.65	0838	22.09
0626	5.35		100.03		100.04
0627	14.51				
0628	4.57				
0629	11.45				
0630	2.29				
0631	1.53				
	100.00				

Attributes of 06 Type	
Wall Height	%
3 cm	70.99
2 cm	29.01
	100.00
Wall Angle	
Upright	51.15
Insloping	29.77
Outflaring	19.08
	100.00
Lip Form (3 cm walls only)	
Beveled (0621, 23)	45.18
Direct (0622, 24, 27)	49.46
Special (0630, 31)	5.38
	100.02

Table 34. Chimalhuacan ceramic decoration by levels in Trench 2

Decoration	Levels											Total
	0-20	20-30	30-40	40-50	50-60	60-70	70-80	80-100	100-120	120-140	140-156	
01	5	0	0	2	1	3	1	0	0	0	0	12
02	10	0	1	6	9	7	1	3	4	1	15	57
05	0	0	0	0	0	0	0	1	0	0	4	5
06	4	1	2	1	1	0	0	0	1	0	2	12
07	0	1	0	1	6	1	1	0	0	0	1	11
08	2	0	0	1	0	0	0	0	0	1	0	4
09	1	0	0	0	0	0	0	0	0	0	0	1
10	1	0	0	0	0	0	0	0	0	0	0	1
11	0	0	0	3	0	0	1	0	0	0	0	4
12	0	0	0	2	0	0	0	0	0	0	0	2
13	0	0	0	0	1	0	0	0	0	1	2	4
14	0	0	0	0	0	0	0	0	0	0	1	1
15	0	0	0	0	0	0	0	0	0	0	1	1
	23	2	3	16	18	11	4	4	5	3	26	115
All rims	314	81	64	94	90	69	28	18	23	18	59	858
Nonjars	51	12	8	25	39	22	9	6	11	5	38	226
Jars	263	69	56	69	51	47	19	12	12	13	21	632
Dec. jars	5	0	0	2	2	3	0	0	0	0	0	12
Dec. nonjars	18	2	3	14	16	8	4	4	5	3	26	103
% dec. nonjars	33.33	16.67	37.50	56.00	41.03	36.36	44.44	66.67	35.45	60.00	68.42	45.58

Decorated rims excluding 02, 07 (dark surfaced rims)--47 rims; 5.48% of total sample

Decorated rims including 02, 07--115 rims; 13.40% of total sample

Table 35. Chimalhuacan vessel type by levels, Trench 2

Vessel Type		Levels 1	2	3	4	5	6	7	8	9	10	11	Total
01	No.	263	69	56	69	51	47	19	12	12	13	21	
	%	86.23	89.61	90.32	76.67	58.62	70.15	70.37	66.67	54.55	76.57	42.00	
02	No.	3	0	0	0	0	0	0	0	0	0	0	
	%	.98											
05	No.	5	3	2	1	2	0	0	0	1	1	0	
	%	1.64	3.90	3.23	1.11	2.30				4.55	5.88		
06	No.	15	4	3	7	25	14	5	3	9	1	16	
	%	4.92	5.19	4.84	7.78	28.74	20.90	18.52	16.67	40.91	5.88	32.00	
07	No.	6	0	0	5	6	2	2	1	0	1	2	
	%	1.97			5.56	6.90	2.99	7.41	5.56		5.88	4.00	
08	No.	13	1	1	8	3	4	1	2	0	1	10	
	%	4.26	1.30	1.61	8.89	3.45	5.97	3.70	11.11		5.88	20.00	
04	No.	0	0	0	0	0	0	0	0	0	0	1	
	%											2.00	
Total		305	77	62	90	87	67	27	18	22	17	50	822
Misc.		9	4	2	4	3	2	1	0	1	1	9	
Total		314	81	64	94	90	69	28	18	23	18	59	858

(Supports -- 14 + 858 = 872 total sample)

Table 36. Chimalhuacan distribution of ceramic varieties, Trench 2

	0-20	20-30	30-40	40-50	50-60	60-70	70-80	80-100	100-120	120-140	140-156
010100	238	65	48	61	31	28	8	2	6	4	0
010200	4	0	4	5	10	12	10	8	4	7	17
010300	3	1	2	1	7	3	0	2	1	1	2
010400	0	0	0	0	0	0	0	0	1	1	2
010401	0	0	0	1	0	0	0	0	0	0	0
010600	12	3	1	0	1	1	1	0	0	0	0
010701	2	0	0	0	0	0	0	0	0	0	0
010702	3	0	0	1	2	2	0	0	0	0	0
010703	0	0	0	0	0	1	0	0	0	0	0
010500	0	0	1	0	0	0	0	0	0	0	0
010800	1	0	0	0	0	0	0	0	0	0	0
	263	69	56	69	51	47	19	12	12	13	21
020903	3	0	0	0	0	0	0	0	0	0	0
052000	0	0	0	0	1	0	0	0	1	1	0
051900	1	1	0	1	0	0	0	0	0	0	0
051800	2	1	2	0	0	0	0	0	0	0	0
051600	2	0	0	0	1	0	0	0	0	0	0
051700	0	1	0	0	0	0	0	0	0	0	0
	5	3	2	1	2	0	0	0	1	1	0
062102	0	0	0	1	2	2	0	1	0	0	0
062103	4	1	0	3	7	2	0	0	2	0	0
062106	1	0	1	0	1	0	0	0	0	0	0
	5	1	1	4	10	4	0	1	2	0	0

Table 36. Continued

	0-20	20-30	30-40	40-50	50-60	60-70	70-80	80-100	100-120	120-140	140-156
062202	1	0	0	0	1	0	0	0	1	0	5
062203	1	1	0	1	3	3	0	1	1	0	1
062206	1	0	0	0	0	0	0	0	0	0	1
	3	1	0	1	4	3	0	1	2	0	7
062303	1	1	1	0	1	0	0	0	0	0	0
062402	0	0	0	0	0	0	0	0	1	0	1
062403	2	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	1	0	1
062502	0	0	0	0	0	0	0	0	0	0	1
062503	0	0	0	1	2	0	0	0	0	0	0
	0	0	0	1	2	0	0	0	0	0	1
062602	0	0	1	0	1	0	0	0	1	0	2
062603	0	0	0	0	0	0	1	0	0	0	0
	0	0	1	0	1	0	1	0	1	0	2
062703	2	0	0	0	3	4	2	0	0	0	0
062702	0	0	0	0	0	0	0	0	0	1	3
062706	0	1	0	0	0	0	0	0	0	0	0
	2	1	0	0	3	4	2	0	0	1	3
062807	0	0	0	0	1	0	0	0	0	0	0
062803	0	0	0	0	0	1	1	1	1	0	0
062806	0	0	0	0	0	0	0	0	1	0	0
	0	0	0	0	1	1	1	1	2	0	0

Table 36. Continued

	0-20	20-30	30-40	40-50	50-60	60-70	70-80	80-100	100-120	120-140	140-156
062903	1	0	0	0	1	0	0	0	0	0	0
062902	0	0	0	1	0	2	0	0	0	0	0
062907	0	0	0	0	2	0	1	0	0	0	1
062906	0	0	0	0	0	0	0	0	0	0	1
	1	0	0	1	3	2	1	0	0	0	2
063001	1	0	0	0	0	0	0	0	0	0	0
063102	0	0	0	0	0	0	0	0	1	0	0
0621	5	1	1	4	10	4	0	1	2	0	0
0622	3	1	0	1	4	3	0	1	2	0	7
0623	1	1	1	0	1	0	0	0	0	0	0
0624	2	0	0	0	0	0	0	0	1	0	1
0625	0	0	0	1	2	0	0	0	0	0	1
0626	0	0	1	0	1	0	1	0	1	0	2
0627	2	1	0	0	3	4	2	0	0	1	3
0628	0	0	0	0	1	1	1	1	2	0	0
0629	1	0	0	1	3	2	1	0	0	0	2
0630	1	0	0	0	0	0	0	0	0	0	0
0631	0	0	0	0	0	0	0	0	1	0	0
	15	4	3	7	25	14	5	3	9	1	16
073208	0	0	0	1	0	0	0	0	0	1	0
073207	0	0	0	1	1	0	0	0	0	0	0
073201	0	0	0	1	1	1	1	0	0	0	0
073202	2	0	0	1	2	0	0	1	0	0	0
073203	1	0	0	0	0	1	0	0	0	0	0
073209	1	0	0	0	0	0	0	0	0	0	0
073210	1	0	0	0	0	0	0	0	0	0	0
073211	0	0	0	0	0	0	1	0	0	0	0
	5	0	0	4	4	2	2	1	0	1	0

Table 36. Continued

	0-20	20-30	30-40	40-50	50-60	60-70	70-80	80-100	100-120	120-140	140-156
073302	1	0	0	0	0	0	0	0	0	0	0
073305	0	0	0	0	0	0	0	0	0	0	2
073307	0	0	0	0	1	0	0	0	0	0	0
	1	0	0	0	1	0	0	0	0	0	2
073412	0	0	0	1	0	0	0	0	0	0	0
073501	0	0	0	0	1	0	0	0	0	0	0
0732	5	0	0	4	4	2	2	1	0	1	0
0733	1	0	0	0	1	0	0	0	0	0	2
0734	0	0	0	1	0	0	0	0	0	0	0
0735	0	0	0	0	1	0	0	0	0	0	0
	6	0	0	5	6	2	2	1	0	1	2
083203	4	0	0	1	0	0	0	0	0	0	1
083202	2	0	0	1	0	1	0	0	0	0	0
083201	0	0	0	0	0	1	0	0	0	0	0
083213	0	0	0	0	1	0	0	0	0	1	2
083207	0	1	0	0	1	1	0	0	0	0	0
083205	0	0	0	0	0	0	0	1	0	0	0
083212	0	0	0	1	0	0	0	0	0	0	0
083214	0	0	0	0	0	0	0	0	0	0	1
	6	1	0	3	2	3	0	1	0	1	4
083406	2	0	1	1	0	0	0	0	0	0	0
083408	2	0	0	0	0	0	0	0	0	0	0
083402	0	0	0	0	0	0	1	1	0	0	0
	4	0	1	1	0	0	1	1	0	0	0

Table 36. Continued

	0-20	20-30	30-40	40-50	50-60	60-70	70-80	80-100	100-120	120-140	140-156
083701	1	0	0	0	0	0	0	0	0	0	0
083702	0	0	0	0	1	0	0	0	0	0	1
083715	0	0	0	0	0	0	0	0	0	0	1
	1	0	0	0	1	0	0	0	0	0	2
083801	1	0	0	0	0	1	0	0	0	0	0
083802	1	0	0	1	0	0	0	0	0	0	2
083811	0	0	0	3	0	0	0	0	0	0	0
083805	0	0	0	0	0	0	0	0	0	0	2
	2	0	0	4	0	1	0	0	0	0	4
0832	6	1	0	3	2	3	0	1	0	1	4
0834	4	0	1	1	0	0	1	1	0	0	0
0837	1	0	0	0	1	0	0	0	0	0	2
0838	2	0	0	4	0	1	0	0	0	0	4
	13	1	1	8	3	4	1	2	0	1	10
Grand Total	305	77	62	90	87	67	27	18	22	17	49

Table 37. Percentages of decorative techniques in four excavated samples (excluding jars)

Decorative Technique	Venta de Carpio	Cuanalan	Tezoyuca	Chimalhuacan
Red/buff	15.73	52.54	36.57	7.88
White/red or plain	0	.12	12.07	.68
Red/white	5.06	0	0	0
Red/white plus incision	2.25	0	0	0
White/black or brown	0	0	0	2.02
Fugitive w/brown	0	.71	0	0
Red and white/black				.34
Polychrome (white & red/buff)	0	1.42	5.76	1.72
Negative	0	2.84	7.67	4.79
White/cream	0	0	0	1.04
Orange/buff	0	0	.09	0
Incised red/buff	0	1.42	0	0
Red slip	0	0	6.22	.34
Cream slip	2.81	0	0	0
Cream plus incision	4.49	0	0	0
Lip and body applique	0	0	1.90	0
Punctation	0	.47	.02	0
Incision	3.93	2.01	.005	.68
Channeling	0	1.84	.02	0
Special painting or slipping	.56	0	0	1.37
Dark burnish	17.42	11.72	3.72	(black) 7.88 (brown) 26.37
Plain	52.25	26.75	25.55	44.86
Special Calculations				
Cream slip, all varieties	14.61	0	0	0
Incision, all varieties	10.67	3.43	.005	.68
Plastic design, all varieties	10.67	5.74	1.95	.68
Painted or slipped, all varieties	26.40	57.68	68.78	18.83

Table 38. Chronological sequence of the Valley of Teotihuacan and the Basin of Mexico[1]

	Teotihuacan Valley Sequence		Published Basin of Mexico Sequence	
	Period	Phases	Period	Phases
AD 1500	Aztec	Teacalco	Aztec	IV-Tlatelolco (1502-155)
1400		Chimalpa		III-Tenochtitlan (1400-1502)
1300		Zocango	I-II-Culhuacan	Tenayuca (1200-1400)
		Atlatongo		
1200	Toltec		Toltec	Mazapan
1100		Mazapan		Mazapan
1000				
900		Xometla		Coyotlatelco
800 POST-CLASSIC		Oxtotipac		
700	Teotihuacan	Metepec	Teotihuacan	IV
600		Maquixco (L. Xolalpan)		III-B
500		Early Xolalpan		III-A
400		Late Tlamimilolpa		II-III
300 CLASSIC		Early Tlamimilolpa		II-III
200		Miccaotli		II
100	Terminal Formative	Apetlac (E. Miccaotli)		II
0		Teopan		
100		Oxtotla	Tzacualli	I
200	Late Formative	Patlachique		
300			Ticoman	Atoto-Cuautepec (A-C)
400		Tezoyuca ?		
500		Cuanalan (Late - Early)	.....	
600 PRECLASSIC		.....	Zacatenco	Totolica-La Pastora (T-P)
700	Middle Formative	Chiconautla		
800		.....		Iglesia-El Arbolillo (I-A)
900		Altica		
1000				
1100	Early Formative		Ixtapaluca	
1200				
1300				
BC				

[1] Sanders, William T.
1965 THE CULTURAL ECOLOGY OF THE TEOTIHUACAN VALLEY: A PRELIMINARY REPORT OF THE RESULTS OF THE TEOTIHUACAN PROJECT. University Park: Department of Sociology and Anthropology, The Pennsylvania State University. (September.) p. 16.

Based upon a seminar on the Basin of Mexico chronology whose members included staff from: Instituto Nacional de Antropologia e Historia, Teotihuacan Mapping Project (The University of Rochester), and Teotihuacan Valley Project (The Pennsylvania State University).

Tolstoy, Paul and Louise I. Paradis
1970 Early and Middle Preclassic Culture in the Basin of Mexico. SCIENCE 167: 344-351. (23 January.) Fibure 1, p. 348.

Revised and amended to June, 1971.

Table 39. Generalized characteristics of Formative vessel forms, chronological distribution

	Altica	Chiconauhtla	Cuanalan	Tezoyuca	Patlachique	Tzacualli
JARS						
Vague shouldered						
Shouldered		.....				
Beveled lip						
BASAL BREAK BOWLS						
Low, flaring						
Regular						
Conical base						
HEMISPHERICAL BOWL						
Beveled lip		.....				
Regular			.....			
DISHES						
Low hemispherical bowl				.....		.....
Tzacualli variety						
TECOMATES				.....		
CRATERS						
SUPPORTS						
Small, solid, hollow						
Large, hollow						

Table 40. Site distribution by phase and environmental zone

	Altica	Chiconauhtla	Cuanalan	Tezoyuca	Patlachique	Tzacualli
Cerro Gordo, north slope	0 (1)	1	3 (1)	0	7	26 (2)
North tributary valleys	0	0	2 (2)	0	4	11 (2)
Patlachique range	2 (2)	4 (3)	11 (2)	6 (1)	30 (3)	0 (1)
Delta, alluvial plain	0	1	0 (1)	0	0 (1)	0 (1)
Delta, north piedmont	0	0	0	0	0	1
Delta, south piedmont	0 (1)	0	0	1	0	0 (1)
Lower valley, alluvial plain	0	0	3	0	0	0
Lower valley, north piedmont	0 (1)	0 (2)	0 (3)	0	3 (6)	9 (7)
Lower valley, south piedmont	0	0	0	0	0	0 (2)
Middle valley, north piedmont	0	1	6	0	2	7 (1)
Middle valley, south piedmont	0 (1)	0	0 (1)	1	4	7 (1)
Upper valley, east piedmont	0 (1)	0 (1)	3	0	0 (1)	4 (1)
Upper valley, south piedmont	0	0	0	0	4 (4)	9 (4)
	2 (7)	7 (6)	28 (10)	8 (1)	55 (15)	74 (23)

Note - numbers in parentheses are trace indications.

Table 41. Site types by chronological phase

	Altica	Chiconauhtla	Cuanalan	Tezoyuca	Patlachique	Tzacualli	Total
Exploitation site	7	7 (+ salt site)	10	1	15	23	63
Family hamlet	0	0	2	0	11	29	42
Lineage hamlet	2	4	17	2	34	39	98
Village	0	1	5	0	3	1	10
Tezoyuca type center	0	0	0	6	0	0	6
Town	0	0	0	0	1	0	1
Town barrio	0	0	0	0	2	0	2
City	0	0	0	0	0	1	1
City barrio	0	0	0	0	0	1	1
Problematical	0	1	4	0	4	3	12
Total	9	13	38	9	70	97	236

Table 42. Mutual correspondence of site locations by phase (trace occupations omitted)

	Altica	Chiconauhtla	Cuanalan	Tezoyuca	Patlachique	Tzacualli
Altica	2	1	0	0	1	0
Chiconauhtla	1	7	3	0	4	1
Cuanalan	0	3	28	1	13	5
Tezoyuca	0	0	1	8	8	1
Patlachique	1	4	13	8	55	13
Tzacualli	0	1	5	1	13	74

Table 43. Tabulated data on Formative sites in the Teotihuacan Valley

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
1	70,71,224, 225	TA-52	Chiconauhtla	Cerro Gordo, north slope
2	None	TA-3	Patlachique	Delta, n. piedmont
3	72	TA-49,TC-71	Tzacualli	Cerro Gordo, north slope
4	None	TA-11	Cuanalan	Lower valley, alluvial plain
5	73,74,75	TA-9,TC-10 TT-4	Chiconauhtla	Delta, alluvial plain
6	None	TA-158,TC-2	Tzacualli	Lower valley, north piedmont
7	None	None	Cuanalan	Patlachique range
8	9,199	None	Chiconauhtla	Patlachique range
9	8,199	None	Cuanalan	Patlachique range
10	77	TA-24,TT-15	Tzacualli	Lower valley, north piedmont
11	None	TA-13,TT-18	Tzacualli	Delta, n. piedmont
12	109,111, 200	TC-1,TA-154, TT-78	Patlachique	Middle valley, north piedmont
13	None	TA-14,TT-16	Tzacualli	Lower valley, north piedmont
14	None	TA-42	Tzacualli	Cerro Gordo, north slope
15	78	None	Tzacualli	Cerro Gordo, north slope
16	None	TC-40	Tzacualli	Cerro Gordo, north slope
17	79,80,226	TA-120	Chiconauhtla	Patlachique range
18	227,228	None	Tezoyuca	Papalotla Basin
19	None	None	Patlachique	Patlachique range
20	82	None	Patlachique	Patlachique range
21	193,223, 229	TA-199	Altica	Patlachique range

Specific Location	Nature of Occupation	Site Area (has)	Community Type
San Cayetano	M, even	1.44	Hamlet
Cerro Chiconauhtla	SC-M, non localized	15.0	Village
Maquixco Alto	SC-periphery, H-core	Core 1, Per. 1.0	Hamlet
Tepexpan	L-M, deep soil	Core 2.0, Per. 6.0	Village
Venta de Carpio	M, even	2.25	Salt collecting station
Nepantla	L, even	2 houses	Hamlet
Cerro Cuauhpilco	L-M, even	5.0	Hamlet
Cerro Xiquillo	L-H, localized	5.6	Village
Cerro Xiquillo	L-periphery, H-core	Core 5.0, Per. 9.0	Village
Cerro Atlatongo	SC-L, even	1.3	Hamlet
Cerro Tlahuilco	SC, even	.16	Hamlet
Archaeological zone	Millon survey	175.0	Town, valley-wide center
Cerro Maravillas	SC-M, localized	2.3	Hamlet
San Cayetano	SC-M, 3 localized areas	1.7,2.9, .8	Hamlet
Teacalco	M-H, localized	1.0	Hamlet
Teacalco	Problematical	No data	Problematical
Cerro Tescaltitla	SC	6.0	Hamlet
Cerro Tepetlapa	M, even	.5-.8	Hamlet
San Idelfonso	SC-L, even	5.0	Hamlet
San Idelfonso	SC-L, localized	4.0	Hamlet
Altica	SC-M, localized	4.0	Hamlet

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
22	None	TA-71	Patlachique	Patlachique range
23	88,89	TA-186	Tezoyuca	Patlachique range
24	None	TA-189	Patlachique	Patlachique range
25	None	None	Patlachique	Patlachique range
26	90	None	Tezoyuca	Patlachique range
27	83	TA-178	Chiconauhtla	Patlachique range
28	84	None	Tzacualli	North trib. valleys
29	85,212	TA-136,TC-19	Tzacualli	North trib. valleys
30	86,87	TA-145	Cuanalan	North trib. valleys
31	None	None	Patlachique	Patlachique range
32	None	TA-142,TC-35	Cuanalan	North trib. valleys
33	91,113	None	Tezoyuca	Patlachique range
34	214	None	Tezoyuca	Patlachique range
35	None	TC-12,TA-156, TT-25	Cuanalan	Lower valley, alluvial plain
36	105,106, 107,200	TA-146,147	Patlachique	Lower valley, north piedmont
37	92,93	TC-112,TA-203, TT-82-83	Tzacualli	Middle valley, south piedmont
38	None	TC-16,TT-28, TA-162	Cuanalan	Lower valley, alluvial plain
39	None	TC-52	Tzacualli	Cerro Gordo, north slope
40	101,211	None	Patlachique	Delta, s. piedmont
41	None	TC-41	Tzacualli	North trib. valleys
42	None	TA-145	Tzacualli	North trib. valleys
43	None	TA-145	Tzacualli	North trib. valleys

Specific Location	Nature of Occupation	Site Area (has)	Community Type
Nonoalco	SC-M, localized	15.0	Village
Santiago Tepetitlan	L-periphery, H-core	Core 4.0, Per. 4.0	Tezoyuca type center
Cerro Xoxoque	SC-L, even	3.0	Hamlet
Santiago Tepetitlan	L, even	7.0	Hamlet
Cerro San Lucas	SC-periphery, H-core	Core 4.0, Per. 3.0	Tezoyuca type center
San Lucas	SC-H, localized	5.0	Hamlet
Teopancalco	SC-L, even	3.3	Hamlet
San Agustin	SC-M, seven localities	1.3	Hamlet
Cerro Malinalco	M-H, even	4.0	Village
Jose del Moral	SC, even	2.0	Hamlet
Palapa	SC-M, localized	1.5	Hamlet
Cerro Xoconusco	LT-periphery, H-core	Core 3.0, Per. 2.0	Tezoyuca type center
Cerro Huistonco	SC-H, localized	7.0	Tezoyuca type center
S. J. Evangelista	SC-M, localized	6-7.0	Village
Cerro Malinalco	SC-H, localized	65.0	Barrio
Oxtotipac	L, even	65.0	Village
Cuanalan	M-H, localized	4.0 or 7.0	Village
Maquixco Alto	SC	No data	Hamlet
Tezoyuca	SC-M, localized	50-60.0	Village
Teacalco	No data	No data	Problematical
Cerro Malinalco	L, 6 localized areas	1-1.5	Hamlet
Cerro Malinalco	L-periphery, H-core	Core 13.5, Per. 5.3	Barrio

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
44	None	TA-56	Patlachique	Upper valley, south piedmont
45	None	TA-54	Tzacualli	Cerro Gordo, north slope
46	None	None	Tzacualli	Lower valley, north piedmont
47	None	None	Tzacualli	Cerro Gordo, north slope
48	None	None	Tzacualli	Lower valley, north piedmont
49	None	TA-40,TC-47	Tzacualli	Cerro Gordo, north slope
50	96,97	TA-189,TT-103	Patlachique	Patlachique range
51	98	TA-189	Patlachique	Patlachique range
52	217	None	Cuanalan	Patlachique range
53	None	None	Cuanalan	Patlachique range
54	None	TA-71	Patlachique	Patlachique range
55	103,230, 231	TA-203	Tzacualli	Middle valley, south piedmont
56	None	TA-56,57	Patlachique	Upper valley, south piedmont
57	None	None	Patlachique	Middle valley, south piedmont
58	None	None	Patlachique	Middle valley, south piedmont
59	None	None	Tzacualli or Patlachique	Upper valley, south piedmont
60	104	TA-24	Tzacualli	Lower valley, north piedmont
61	See TF-46	None	Tzacualli	Lower valley, north piedmont
62	See TF-46	None	Tzacualli	Lower valley, north piedmont

Specific Location	Nature of Occupation	Site Area (has)	Community Type
Xolco	Trace	---	Exploitation site
Maquixco Alto	SC-L, 3 loci	2.0	Hamlet
Maquixco Bajo	SC-Very H, localized	4.0 incl. 48,61,62,63	Hamlet
Maquixco ALto	L-M, even	.7	Hamlet
Maquixco Bajo	See 46	See 46	Hamlet
Teacalco	SC	7.0-12.0	Hamlet
Cerro Xoxoque	SC-L, even	4.0	Hamlet
Cerro Xoxoque	SC	3.3	Hamlet
Cerro Tlilhua	L-periphery, H-core	Core 1.0, Per. 3.4	Hamlet
Cerro Tlilhua	L, even	2.2	Hamlet
San Idelfonso	SC	3.0	Hamlet
Oxtotipac	SC	6.5	Hamlet
Xolco	Trace	---	Exploitation site
Oxtotipac	SC-L, even	3.0	Hamlet
Oxtotipac	SC	6.0	Hamlet
Xolco	M-H, localized	.25	Hamlet
Cerro Aquila	SC-H, localized	1.7	Hamlet
Maquixco Bajo	See TF-46	See TF-46	Hamlet
Maquixco Bajo	See TF-46	See TF-46	Hamlet

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
63	See TF-46	None	Tzacualli	Lower valley, north piedmont
64	None	TA-61	Tzacualli	Middle valley, north piedmont
65	209,232	TA-73	Cuanalan	Upper valley, east piedmont
66	None	None	Patlachique, Cuanalan	Cerro Gordo, north slope
67	None	None	Patlachique, Cuanalan	Cerro Gordo, north slope
68	None	None	Patlachique	Cerro Gordo, north slope
69	None	TA-75,76	Cuanalan	Upper valley, east piedmont
70	1,71,224, 225	TA-52	Patlachique	Cerro Gordo, north slope
71	1,70,224, 225	TA-52	Tzacualli	Cerro Gordo, north slope
72	3	TA-49,TC-71	Tzacualli	Cerro Gordo, north slope
73	5,74,75	TA-9	Patlachique	Delta, alluvial plain
74	5,73,75	TA-9	Cuanalan	Delta, alluvial plain
75	5,73,74	TA-9	Tzacualli	Delta, alluvial plain
76	153,183	None	Chiconauhtla	Patlachique range
77	10	TA-24,TT-15	Tzacualli	Lower valley, north piedmont
78	15	None	Tzacualli	Cerro Gordo, north slope
79	17,80,226	TA-120	Patlachique	Patlachique range
80	17,79,226	TA-120	Altica	Patlachique range
81	None	TA-56,TC-90	Patlachique	Upper valley, east piedmont

Specific Location	Nature of Occupation	Site Area (has)	Community Type
Maquixco Bajo	See TF-46	See TF-46	Hamlet
San Martin	L-H, localized	1.2	Hamlet
Cerro San Pedro	No data	4.5	Hamlet
Colhuacan	L-H, localized	1.0	Hamlet
Colhuacan	M-H, localized	1.0	Hamlet
Colhuacan	SC-M, localized	.5	Hamlet
Cuauhtenco	No data	4.0	Hamlet
San Cayetano	M, even	1.44	Hamlet
San Cayetano	M, even	1.44	Hamlet
Maquixco Alto	3 loci, no data	No data	Hamlet
Venta de Carpio	Trace	---	Exploitation site
Venta de Carpio	Trace	---	Exploitation site
Venta de Carpio	Trace	---	Exploitation site
Santiago Tepetitlan	No data	2.0	Hamlet
Cerro Atlatongo	Trace	---	Exploitation site
San Cayetano	M-H, localized	1.0	Hamlet
Cerro Tescaltitla	SC	4.0	Hamlet
Cerro Tescaltitla	SC-L, localized	6.0	Hamlet
Cuahutlacingo	Trace	---	Exploitation site

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
82	20	None	Tzacualli	Patlachique range
83	27	TA-178	Patlachique	Patlachique range
84	28	None	Tzacualli	North trib. valleys
85	29,212	TA-136,TC-19	Patlachique	North trib. valleys
86	30,87	TA-145	Patlachique	North trib. valleys
87	30,86	TA-145	Tzacualli	North trib. valleys
88	23,89	TA-186	Patlachique	Patlachique range
89	23,88	TA-186	Cuanalan	Patlachique range
90	26	None	Patlachique	Patlachique range
91	33,113	None	Patlachique	Patlachique range
92	37,93	TC-112,TA-203, TT-88,TT-82	Patlachique	Middle valley, south piedmont
93	37,92	None	Tezoyuca	Middle valley, south piedmont
94	None	None	Patlachique	North trib. valleys
95	43	TA-145	Patlachique	North trib. valleys
96	50,97	TA-189,TT-103	Tezoyuca	Patlachique range
97	50,96	TA-189,TT-103	Cuanalan	Patlachique range
98	51	TA-189	Altica-Chiconauhtla	Patlachique range
99	None	TA-34	Tzacualli	Delta, e. piedmont
100	None	None	Tzacualli	Middle valley, north piedmont
101	40,235	None	Tezoyuca	Delta, e. piedmont
102	None	None	Tzacualli	North trib. valleys

Specific Location	Nature of Occupation	Site Area (has)	Community Type
San Idelfonso	Trace	---	Exploitation site
San Lucas	SC-M, localized	5.0	Hamlet
Teopancalco	SC-L, even	3.3	Hamlet
San Agustin	SC	1.3	Exploitation site
Cerro Malinalco	L, even	4.0	Hamlet
Cerro Malinalco	L, 4 loci	Less than 1.0	Hamlet
Santiago Tepetitlan	SC-M, localized	8.0	Hamlet
Santiago Tepetitlan	SC-M, localized	8.0	Hamlet
San Lucas	SC-periphery, M-core	Core 4.0, Per. 3.0	Village
Cerro Xoconusco	SC-periphery, M-core	Core 3.0 Per. 2.0	Hamlet
Oxtotipac	No data	17.0	Problematical
Oxtotipac	L, even	17.0	Tezoyuca type center ?
Cerro Malinalco	SC-L, 6 loci	1.0-1.5	Hamlet
Cerro Malinalco	SC-L, even	19.0	Village
Cerro Xoxoque	Trace	---	Exploitation site
Cerro Xoxoque	SC-L, even	4.0	Hamlet
Cerro Xoxoque	Trace	---	Exploitation site
Tezoyuca	Trace	---	Exploitation site
Cerro Malinalco	No data	1.2-1.5	Hamlet
Tezoyuca	SC-periphery, H-core	Core 2, Per. 5	Tezoyuca type center
Ixtlahuaca	No data	No data	No data

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
103	55,230, 231	TA-203	Patlachique	Middle valley, south piedmont
104	60	TA-24	Patlachique	Lower valley, north piedmont
105	30,106, 107	TA-146,147	Cuanalan	Lower valley, north piedmont
106	36,105, 107	TA-146,147	Early Cuanalan	Lower valley, north piedmont
107	36,105, 106	TA-146,147	Tzacualli	Lower valley, north piedmont
108	200	TC-1 (SW suburb)	Early Cuanalan	Middle valley, north piedmont
109	12,200	TC-1 (N suburb)	Early Cuanalan	Middle valley, north piedmont
110	200	TA-22,TT-25	Patlachique	Lower valley, north piedmont
111	12,200	TC-1	Early Cuanalan	Middle valley, north piedmont
112	None	TA-137	Tzacualli	North trib. valleys
113	33,91	None ?	Patlachique	Patlachique range
114	None	None	Cuanalan	Middle valley, north piedmont
115	121	TA-64	Cuanalan	Middle valley, north piedmont
116	117	TA-63	Cuanalan	Middle valley, north piedmont
117	116	TA-63	Early Cuanalan	Middle valley, north piedmont
118	None	TT-48	Tzacualli	Middle valley, north piedmont
119	None	TA-62,TT-39	Tzacualli	Middle valley, north piedmont
120	None	TA-70	Tzacualli	Middle valley, north piedmont
121	115	TA-64	Patlachique	Middle valley, north piedmont

Specific Location	Nature of Occupation	Site Area (has)	Community Type
Oxtotipac	SC-L, even	6.5	Hamlet
Atlatongo	SC-L, localized	1.5	Hamlet
Cerro Malinalco	SC-periphery, M-core	Core 1.0 Per. 6.0	Hamlet
Cerro Malinalco	Trace	---	Exploitation site
Cerro Malinalco	Trace	---	Exploitation site
Archaeological zone	L, even	No data	Hamlet or village
Archaeological zone	L, even	No data	Hamlet or village
S. J. Evangelista	No data, Millon survey	6.5	Barrio
Archaeological zone	No data, Millon survey	No data	Hamlet or village
Cerro Tzemolo	No data	No data	Village
Cerro Xoconusco	SC-M, localized	7.0	Hamlet
Tolman	L-M, localized	3.0	Hamlet
Tolman	M-H, even	2.0	Hamlet
Tolman	L-H, localized	2.5	Hamlet
Tolman	L, even	2.5	Hamlet
Tolman	SC-L, even	4.5	Hamlet
Tolman	SC-L, even	7.0	Hamlet
Tolman	M, even	1 house	Hamlet
Tolman	SC-L, even	2.0	Hamlet

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Locati
122	None	None	Tzacualli	North trib. valle
123	None	TA-142	Tzacualli	North trib. valle
124	None	TC-30,31,32	Tzacualli	Middle valley, north piedmont
125	None	TA-42	Tzacualli	Cerro Gordo, nort slope
126	None	TA-42	Tzacualli	Cerro Gordo, nort slope
127	None	TA-46,TC-58, TT-36	Tzacualli	Cerro Gordo, nort slope
128	None	TA-41,TC-48	Tzacualli	Cerro Gordo, nort slope
129	None	TA-53,TT-37	Tzacualli	Cerro Gordo, nort slope
130	None	TA-55	Tzacualli	Cerro Gordo, nort slope
131	None	None ?	Cuan., Pat., Tzacualli	Cerro Gordo, nort slope
132	None	None ?	Patlachique, Tzacualli	Cerro Gordo, nort slope
133	None	None ?	Patlachique, Tzacualli	Cerro Gordo, nort slope
134	None	TA-58	Tzacualli	Middle valley, south piedmont
135	None	TC-4,TA-12	Tzacualli	Lower valley, north piedmont
136	None	TC-6	Tzacualli	Lower valley, north piedmont
137	None	TC-7	Tzacualli	Lower valley, north piedmont
138	None	TC-8,TA-28	Tzacualli	Lower valley, north piedmont
139	None	TC-12,TA-156	Tzacualli	Lower valley, north piedmont
140	None	TC-13,TA-179	Tzacualli	Lower valley, south piedmont

Specific Location	Nature of Occupation	Site Area (has)	Community Type
Cerro Tezompa	No data	No data	Hamlet
Palapa	SC	1 house	Hamlet
S. Martin	Trace	---	Exploitation site
Teacalco	Trace	---	Exploitation site
Teacalco	Trace	---	Exploitation site
Maquixco Alto	L, even	2.0	Hamlet
Maquixco Alto	SC	3.0-7.0	Hamlet
Maquixco Alto	L, even	1.0	Hamlet
Maquixco Alto	1 locus	No data	Hamlet
Colhuacan	M-H, localized	Less than 1.0	Problematical
Colhuacan	SC-H, localized	.6	Hamlet
Colhuacan	SC-M, localized	2.5	Hamlet
Xolco	No data	5.5	Hamlet
S. Cat. Acolman	Trace	---	Exploitation site
Cerro Aquila	Trace	---	Exploitation site
Atlatongo	Trace	---	Exploitation site
Cerro Calaveras	L, localized	10-15 house sites	Hamlet
S. J. Evangelista	Trace	---	Exploitation site
San Lorenzo	Trace	---	Exploitation site

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
141	None	TC-14,TA-176	Tzacualli	Middle valley, south piedmont
142	None	TC-18,TA-11	Tzacualli	Lower valley, south piedmont
143	None	TC-91,92,93, TA-211	Tzacualli	Upper valley, east piedmont
144	None	TC-49,TA-50	Tzacualli	Cerro Gordo, north slope
145	None	TC-73,TA-124	Tzacualli	Cerro Gordo, north slope
146	None	TC-73,TA-124	Tzacualli	Cerro Gordo, north slope
147	None	TC-78	Tzacualli	Cerro Gordo, north slope
148	None	TC-79	Tzacualli	Cerro Gordo, north slope
149	None	TC-80	Tzacualli	Cerro Gordo, north slope
150	None	TC-81	Tzacualli	Cerro Gordo, north slope
151	None	TC-82,TA-123	Tzacualli	Cerro Gordo, north slope
152	182	None	Patlachique	Patlachique range
153	76,183	None	Patlachique	Patlachique range
154	184	None	Patlachique	Patlachique range
155	None	None	Patlachique	Patlachique range
156	None	None	Patlachique	Patlachique range
157	185	None	Patlachique	Patlachique range
158	None	None	Patlachique	Patlachique range
159	None	TA-189	Patlachique	Patlachique range

Specific Location	Nature of Occupation	Site Area (has)	Community Type
San Lucas	Trace	---	Exploitation site
Granjas Acolman	Trace	---	Exploitation site
	Several loci	No data	Hamlet
Maquixco Alto	No data	.64	Hamlet
Cerro Buenavista	No data	Less than .5	Hamlet
Cerro Buenavista	No data	Less than .5	Hamlet
Cerro Buenavista	No data	Less than .5	Hamlet
Cerro Buenavista	No data	Less than .5	Hamlet
Cerro Buenavista	No data	Less than .5	Hamlet
Cerro Buenavista	No data	Less than .5	Hamlet
Cerro Buenavista	No data	Less than .5	Hamlet
Cerro Tepetitlan	No data	2.0	Hamlet
Santiago Tepetitlan	No data	2.0	Hamlet
Santiago Tepetitlan	No data	1.0	Hamlet
San Idelfonso	No data	Less than 1.0	Hamlet
San Idelfonso	No data	2.0	Hamlet
Cerro Xiquillo	L, even	1-2	Hamlet
Cerro Tlilhua	Several localized areas	Less than 1.0	Hamlet
Cerro Xoxoque	2 loci	Less than 1.0	Hamlet

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
160	194	None	Cuanalan	Patlachique range
161	None	None	Patlachique	Patlachique range
162	None	None	Patlachique	Patlachique range
163	None	None	Patlachique	Patlachique range
164	None	None	Patlachique	Patlachique range
165	None	None	Cuanalan	Patlachique range
166	None	TA-90	Tzacualli	Upper valley, south piedmont
167	181	TA-91	Tzacualli	Upper valley, south piedmont
168	180	TA-91	Tzacualli	Upper valley, south piedmont
169	81	TA-56,TC-90	Tzacualli	Upper valley, south piedmont
170	50	TA-57	Tzacualli	Upper valley, south piedmont
171	44	TA-56	Tzacualli	Upper valley, south piedmont
172	218	TA-57	Tzacualli	Upper valley, south piedmont
173	179	None	Tzacualli	Upper valley, south piedmont
174	None	TA-58	Tzacualli	Middle valley, south piedmont
175	None	TA-58	Tzacualli	Middle valley, south piedmont
176	None	None	Tzacualli	Middle valley, south piedmont
177	None	None	Tzacualli	Middle valley, south piedmont

Specific Location	Nature of Occupation	Site Area (has)	Community Type
Cerro Tlilhua	No data	Less than 1.0	Hamlet
Cerro Tlilhua	No data	Less than 1.0	Hamlet
Cerro Tlilhua	No data	Less than 1.0	Hamlet
Cerro Tlilhua	No data	Less than 1.0	Hamlet
Altica	No data	Less than 1.0	Hamlet
Cerro Tlilhua	No data	Less than 1.0	Hamlet
Cuahutlacingo	4 loci	No data	Hamlet
Cuahutlacingo	2 loci	No data	Hamlet
Cuahutlacingo	3-5 loci	No data	Hamlet
Cuahutlacingo	2-5 loci	No data	Hamlet
Cuahutlacingo	2 loci	No data	Hamlet
Cuahutlacingo	1 locus	No data	Hamlet
Cuahutlacingo	1-3 locus	No data	Hamlet
Cuahutlacingo	1 locus	No data	Hamlet
Oxtotipac	1 locus	No data	Hamlet
Oxtotipac	1 locus	No data	Hamlet
Oxtotipac	1 locus	No data	Hamlet
Oxtotipac	1 locus	No data	Hamlet

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
178	None	None	Tzacualli	Middle valley, north piedmont
179	None	TA-91	Patlachique	Upper valley, south piedmont
180	None	TA-91	Patlachique	Upper valley, south piedmont
181	None	TA-91	Patlachique	Upper valley, south piedmont
182	152	None	Cuanalan	Patlachique range
183	153,76	None	Cuanalan	Patlachique range
184	154	None	Cuanalan	Patlachique range
185	157	None	Patlachique	Patlachique range
186	187,189, 210	TA-12,TC-2	Patlachique	Lower valley, north piedmont
187	186,189, 210	TA-12	Chiconauhtla	Lower valley, north piedmont
188	None	TC-6,TA-157	Patlachique	Lower valley, north piedmont
189	186,187, 210	TA-12	Cuanalan	Lower valley, north piedmont
190	None	TA-24	Patlachique	Lower valley, north piedmont
191	None	TA-23	Patlachique	Lower valley, north piedmont
192	None	TA-23	Patlachique	Lower valley, north piedmont
193	21,223, 229	TA-199	Chiconauhtla	Patlachique range
194	160	None	Chiconauhtla	Patlachique range
195	Dropped			
196	None	TA-80	Tzacualli	Upper valley, south piedmont

Specific Location	Nature of Occupation	Site Area (has)	Community Type
San Martin	Several loci	No data	Hamlet
Cuahutlacingo	No data	2.0	Hamlet
Cuahutlacingo	No data	2.0	Hamlet
Cuahutlacingo	No data	2.0	Hamlet
Cerro Tepetitlan	No data	2.0	Hamlet
Santiago Tepetitlan	No data	2.0	Hamlet
Santiago Tepetitlan	No data	1.0	Hamlet
Cerro Xiquillo	L, even	1-2.0	Hamlet
S. Cat. Acolman	Trace	---	Exploitation site
S. Cat. Acolman	Trace	---	Exploitation site
Atlatongo	Trace	---	Exploitation site
S. Cat. Acolman	Trace	---	Exploitation site
Atlatongo	Trace	---	Exploitation site
Atlatongo	Trace	---	Exploitation site
Atlatongo	Trace	---	Exploitation site
Altica	Trace	---	Exploitation site
Cerro Tlilhua	Trace	---	Exploitation site
Otumba	Trace	---	Exploitation site

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
197	None	TC-20	Tzacualli	North trib. valleys
198	None	TC-22,TA-130	Tzacualli	North trib. valleys
199	8,9	None	Altica	Patlachique range
200	12,30,108, 110,111	TC-1,TA-154, TT-78	Tzacualli	Middle valley, north piedmont
201	None	TT-61	Tzacualli	Upper valley, east piedmont
202	None	TA-48,TC-60, 62	Tzacualli	Cerro Gordo, north slope
203	None	TA-123	Tzacualli	Upper valley, east piedmont
204	205	TA-82	Cuanalan	Upper valley, east piedmont
205	204	TA-82	Tzacualli	Upper valley, east piedmont
206	None	TA-85	Tzacualli	Upper valley, east piedmont
207	None	None	Tezoyuca, Patlachique	Patlachique range
208	None	None	Tezoyuca, Patlachique	Patlachique range
209	65,232	TA-73	Chiconauhtla	Upper valley, east piedmont
210	186,187, 189	TA-12	Altica	Lower valley, north piedmont
211	40,101	None	Altica	Delta, e. piedmont
212	29,85	TA-130,TC-19	Cuanalan	North trib. valleys
213	None	TA-141	Cuanalan	North trib. valleys
214	34	None	Patlachique	Patlachique range

Specific Location	Nature of Occupation	Site Area (has)	Community Type
Teopancalco	Trace	---	Exploitation site
Santa Anita	Trace	---	Exploitation site
Cerro Xiquillo	Trace	---	Exploitation site
Archaeological zone	Millon survey	1700	City
	6 loci	No data	Hamlet
Teacalco	2 loci	No data	Hamlet
Cerro San Lucas	1 locus	No data	Hamlet
	No data	1.0	Hamlet
	Trace	---	Exploitation site
Cuahutlacingo	3-4 loci	No data	Hamlet
S. Jose del Moral	No data	2.0	Hamlet
S. Jose del Moral	No data	2.0	Hamlet
Cerro San Pedro	Trace	---	Exploitation site
S. Cat. Acolman	Trace	---	Exploitation site
Cerro Tezoyuca	Trace	---	Exploitation site
San Agustin	Trace	---	Exploitation site
Palapa	Trace	---	Exploitation site
Cerro Huistonco	Trace	---	Exploitation site

Table 43. Continued

Site No.	Associated Formative Component	Associated Non-Formative Component	Date	Ecological Location
215	216	None	Cuanalan	Lower valley, north piedmont
216	215	None	Patlachique	Lower valley, north piedmont
217	52	None	Patlachique	Patlachique range
218	None	TA-56,57	Patlachique	Upper valley, south piedmont
219	222	TA-58	Tzacualli	Upper valley, south piedmont
220	None	None	Tzacualli	Upper valley, south piedmont
221	None	None	Tzacualli	Upper valley, south piedmont
222	None	TA-56,57	Patlachique	Upper valley, south piedmont
223	21,193,229	TA-199	Patlachique	Patlachique range
224	1,70,71, 225	TA-52	Cuanalan	Cerro Gordo, north slope
225	1,70,71 224	TA-52	Altica	Cerro Gordo, north slope
226	17,79,80	TA-120	Cuanalan	Patlachique range
227	18,228	None	Cuanalan	Papalotla basin
228	18,227	None	Chiconauhtla	Papolotla basin
229	21,193,223	TA-199	Cuanalan	Patlachique range
230	55,103,231	TA-203	Cuanalan	Middle valley, south piedmont
231	55,103,230	TA-203	Altica	Middle valley, south piedmont
232	65,209	TA-73	Altica	Upper valley, east piedmont

Specific Location	Nature of Occupation	Site Area (has)	Community Type
Cerro Malinalco	Trace	---	Exploitation site
Cerro Malinalco	Trace	---	Exploitation site
Cerro Xiquillo	Trace	---	Exploitation site
Cuahutlacingo	Trace	---	Exploitation site
Cuahutlacingo	Trace	---	Exploitation site
Oxtotipac	Trace	---	Exploitation site
Oxtotipac	Trace	---	Exploitation site
Cuahutlacingo	Trace	---	Exploitation site
Altica	No data	No data	Problematical
San Cayetano	Trace	---	Exploitation site
San Cayetano	Trace	---	Exploitation site
Cerro Tescaltitla	Trace	---	Exploitation site
Cerro Tepetlapa	SC-L	.5-.8	Hamlet
Cerro Tepetlapa	Trace	---	Exploitation site
Altica	Trace	---	Exploitation site
Oxtotipac	Trace	---	Exploitation site
Oxtotipac	Trace	---	Exploitation site
Cerro San Pedro	Trace	---	Exploitation site