

**THE TEOTIHUACAN VALLEY PROJECT
FINAL REPORT -- VOLUME 4**

**THE TOLTEC PERIOD OCCUPATION OF THE VALLEY
Part 1 -- Excavations and Ceramics**

Edited and Compiled by:

William T. Sanders

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The Pennsylvania State University

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TABLE OF CONTENTS

Part 1. Excavations and Ceramics

Chapter		Page
	Preface.....	3
1	Excavations at Maquixco Bajo (TT25A) Thomas H. Koehler.....	7
2	Excavations at Xometla (TT21) Deborah Nichols and John McCullough.....	53
3	Excavations at Oxtotipac (TT82) Kenneth Good and Gerald Obermeyer	195
4	Excavations at Cuanalan East (TT28) William T. Sanders and Horacio Corona Olea.....	267
5	Analysis of the Surface Sample Ceramics Susan T. Evans	283
6	Ceramic Chronology William T. Sanders	367

Part 2. Surface Survey and Special Studies

7	The Surface Survey Joseph D. Marino	
8	Surface Survey of the Upper Valley Thomas Charlton.....	
9	Faunal Remains from Archaeological Sites in the Teotihuacan Valley Richard S. White, Jr.	
10	Aplastic Analysis of Xometla-Mazapan Phase Toltec Ceramics Ronald Corbyn.....	
11	Non-Ceramic Artifacts from Oxtotipac, Xometla, and Cuanalan East William T. Sanders	
12	Ceramic Artifacts from Oxtotipac Warren Barbour	



PREFACE

This volume consists of Volume 4 of the final report of The Pennsylvania State University Teotihuacan Valley Project, directed by William T. Sanders. Volume 4 deals with the Toltec period occupation of the valley. In archaeological terms, the Toltec period spans the period of time from the end of Classic Teotihuacan (circa 700 - 800 A.D.) to the appearance of the distinctive Aztec ceramic complex, with its characteristic Black/Orange and Black/Red decorated pottery, which appears approximately 1100 - 1200 A.D. The second half of the period also falls within the historical period of the culture history of the Basin of Mexico since it is a time of the emergence, rise, and decline of the people known to the Conquest period Aztecs as the Toltecs, with their capital at Tula or Tollan.

Although there is far from unanimity of opinion as to the validity of the details of Toltec history, most archaeologists today, on the basis of Acosta's excavations and Jimenez Moreno's study of the sixteenth century sources, would agree on the major outline of events, the location of the capital (near the contemporary town of Tula, Hidalgo), and the date of the apogee of the city (1000 - 1100 A.D.).

Prior to Acosta and Jimenez Moreno's research, two American archaeologists, George Vaillant, based on research at Teotihuacan, and A.M. Tozzer, based on excavations at Coyotlatelco, had defined and described two distinctive ceramic complexes which filled the archaeological gap between Teotihuacan and Aztec. They were named Mazapan and Coyotlatelco, respectively. The studies produced considerable controversy over their relative positions in time to each other, but all archaeologists agreed as to their relationship to the Teotihuacan and Aztec ceramic complexes.

On the basis of his excavations at Tula, Acosta was able to demonstrate that Coyotlatelco was earlier than Mazapan, and that the latter coincided with the major public construction at Tula, and hence with the Toltec history. This chronological assessment was also supported by Armillas, based on the situation at Teotihuacan. Coyotlatelco was found at Teotihuacan frequently mixed with late Teotihuacan ceramics overlying the final construction levels of Teotihuacan buildings; Mazapan on the other hand occurred on the surface of ruined Teotihuacan structures or in the form of burials inserted in the fill of such ruins.

In his doctoral dissertation, Tolstoy, based on the mutual association of ceramic types of the two complexes in his surface samples, disagreed with this, and considered all of the diagnostic Red/Buff decorated ceramics from the two complexes as contemporary.

At the inception of the Teotihuacan Valley Project we were faced then with the problem of the exact chronological positions of the various Red/Buff types of the two complexes. In order to obtain a clear picture of the settlement history of the valley, it was imperative that this problem be resolved.

Surveys, conducted during the 1960 field season, revealed a number of village sites of the general Toltec period and the surface collections suggested, in fact, that the two complexes were discrete chronological entities. Several sites were found with abundant Mazapan Red/Buff types and no Coyotlatelco Red/Buff and, in at least one large site, the Xometla site, although the two complexes were present, there were portions of the site where Coyotlatelco seemed to occur unmixed with Mazapan.

In 1961, in order to have tighter chronological control we decided to excavate a Mazapan village site at Maquixco Bajo, and at the Xometla site. The project was to be

directed by Thomas H. Koehler, then a graduate student at Columbia University. The Maquixco Bajo site was excavated, but difficulties with land owners prevented us from excavating at Xometla. Koehler also excavated several small trenches at a second Mazapan complex site near Oxtotipac. Horacio Olea Corona, then director of the site of Teotihuacan, conducted small scale excavations in the village of Cuanalan where surface survey had discovered the partially destroyed remains of a residential structure dating from the Coyotlatelco phase.

In 1962 we finally did obtain permission to excavate at Xometla and the project was directed by John McCullough, then a graduate student at The Pennsylvania State University.

Also in 1960, our surveys had located a number of caves at the village of Oxtotipac, or Oxtotitpac, as it was called in the sixteenth century. At that time we assumed that the caves were natural. In 1961 we excavated one of them, Hueoxtoc, hoping to duplicate MacNeish's botanical studies of early maize at Tehuacan. The excavation was directed by Gerald Obermeyer, a Pennsylvania State University graduate student. The excavations indicated first, that the caves were gravel quarries from the Teotihuacan period, and secondly, were reused as habitation sites in post-Teotihuacan times. The major occupation occurred during early Toltec times and the ceramics closely resembled those defined for the Coyotlatelco complex, but with significant differences. By way of anticipation of later discussions in this volume, they showed closer similarity to the final phase, Metepec, of the Teotihuacan period, than do the typical Coyotlatelco ceramics and appear to represent a transitional phase between Metepec and Coyotlatelco.

On the basis of the excavated ceramics from these sites plus several hundred surface samples from numerous other sites in the valley we have resolved most of the chronological problems. We assess the situation as follows:

1. It is certain that the Coyotlatelco and Mazapan Red/Buff types are not contemporary and the former is clearly older than the latter.
2. We can also define a great number of other ceramic types associated with the Red/Buff decorated pottery for each phase.
3. Coyotlatelco immediately succeeds Teotihuacan and precedes the rise of Tula, Mazapan coincides with the rise of Tula.
4. We suggest calling the overall span of time, the Toltec period, since there are continuities between Coyotlatelco and Mazapan.
5. In the Teotihuacan Valley we are able to divide the two phases into subphases.
6. Because there are some regional differences, we propose the following subphase nomenclature for the period in the Teotihuacan Valley, Oxtotipac (700 - 800 A.D.), Xometla (800 - 900 A.D.), Mazapan (900 - 1000 A.D.), and Atlatongo (1000 - 1100 or 1150 A.D.).

As was made clear in Volume 2, the excavations were only an adjunct activity, and our major operation was the surface survey of the valley. The methodology is described in detail in Volume 2 and will not be repeated here. The known Toltec sites were intensively surveyed, primarily by John McCullough in 1963, based on earlier general surveys, in which such sites were located by field teams directed by Joseph Marino and William T. Sanders. A number of sites were intensively surveyed by William T. Sanders, Jeffrey R. Parsons, and Richard Diehl.

The writing, laboratory analysis, editing and preparation of this final report has been a complex process spread over some twenty years. The history has been complicated by the fact that the Department of Anthropology at The Pennsylvania State University did not have a Ph.D. program until 1968, hence a number of students left the university to attend other schools and were unable to write up their fieldwork. As a result, the final reports were written by others. Some of the contributors to this volume did not participate in the fieldwork of the Teotihuacan Valley Project. Of these, Kenneth Good, Deborah Nichols, and Susan T. Evans are one-time students who attended The Pennsylvania State University after we developed the Ph.D. program and who utilized data from the project for Masters' papers and theses, parts of which have been incorporated in this report. Joseph Marino ultimately wrote up the surface survey for his Ph.D. dissertation, long sections of which were edited and incorporated in this volume.

The chapter on Maquixco Bajo is based on excavations by Koehler who also wrote the report as a Master's thesis at Columbia University.

The chapter on Xometla is based on McCullough's excavation. The ceramics were analyzed by Nichols who wrote all of the report. The ceramic portions appeared previously as her Master's paper.

The chapter on Oxtotipac is based on Obermeyer's excavation; the ceramics were analyzed in detail by Good. The version presented here includes portions of both of their Masters' theses.

The chapter on Cuanalan East was based on Corona's excavation; the ceramics were studied by Sanders who also wrote the report.

The chapter on the surface samples was written by Evans, who also studied the ceramics. It is an edited version of her Master's paper.

The chapter on chronology was written by Sanders but based on thesis material from Koehler, Nichols, and Good, along with a series of unpublished papers by McCullough.

The chapter on the surface survey was written by Marino, based on surveys by the people noted previously. After the Teotihuacan Valley Project terminated, Charlton, who worked with the project in 1963, returned to the upper valley and resurveyed large areas--the results of which are presented in Chapter 8.

Finally we have included chapters by White on faunal remains, technical analysis of Coyotlatelco ceramics by Corbyn, figurines by Barbour, and miscellaneous artifacts (primarily groundstone tools) by Sanders. This last is not really an analysis, but rather a descriptive catalogue. Our goal is to produce specialized reports on lithics from the project in the future--including one on obsidian which is being prepared by Dr. Joseph Michels.

The report presents basic data and, as in the case of Volume 2, is intentionally descriptive. The only analytical chapter is the one on chronology. Basically, it is a straightforward description of excavations, surveyed sites, and collected artifacts. The analytical aspects of the data will appear in a final volume.

A final point should be made with respect to the ceramic taxonomy. Koehler wrote his Maquixco Bajo paper several years prior to the phase of intensive laboratory analysis. This means that he completed his ceramic study in isolation, before we designed the ceramic codes used on the other samples. We have decided to retain his study as is, and in fact there are

only minor problems in relating his results to the other papers. Evans, in her analysis of the surface sample did code the Mazapan ceramics, which will help to facilitate the comparisons.

I would like to thank Candace B. Levy for her editorial assistance and her efforts in the preparation of this manuscript. I would also like to thank Ira Beckerman for drafting the sherd profiles and Carson Murdy for drafting many of the maps.

William T. Sanders
The Pennsylvania State University

Chapter 1. EXCAVATIONS AT MAQUIXCO BAJO (TT25A)

by

Thomas H. Koehler

TABLE OF CONTENTS

	Page
LIST OF TABLES	9
LIST OF MAPS	10
LIST OF FIGURES	11
THE EXCAVATION.....	12
General Setting and Site Descriptions.....	12
The Excavation	12
Burial Description	13
CERAMIC ANALYSIS	14
Methodology.....	14
Problems of Classification.....	16
Color and Decoration	16
Paste.....	16
Finish.....	17
Form.....	17
Size	18
Appendages.....	18
Type Descriptions	18
Toltec Brown (Type 1)	18
Polished Orange (Type 2).....	19
Polished White (Type 3).....	20
Mazapan Wavy Line (Type 4).....	20
Toltec Red/Buf (Type 5).....	21
Wide Band Red/Buf (Type 6)	22
Orange Slip (Type 7)	23
Dark Brown Slip (Type 8).....	24
Red-Purple Slip (Type 9).....	24
Toltec Coarse Brown (Type 10).....	24
Tula Watercolored (Type 11)	25
Discussion.....	26
Correlation of Type to Vessel Form	28
The Coyotlatelco Problem	29
The Question of Type Names	30
SUMMARY	32
MISCELLANEOUS ARTIFACTS	34
Lithic Material	34
Figurines and Miscellaneous Clay Artifacts	34
BIBLIOGRAPHY	36
APPENDIX 1--Sources of Illustrations	38

LIST OF TABLES

Table	Page
1 Lithic Materials.....	34
2 Figurines and Miscellaneous Clay Objects.....	35
3 Sherd Count and Percentages of Toltec Types and Classic and Aztec Wares for the Maquixco-Mazapan Site as a Whole.....	39
4 Sherd Counts and Percentages of Toltec Types and Classic and Aztec Wares for the Maquixco-Mazapan Site Listed by Trench.....	40
5 Sherd Counts and Percentages for Trench II, Maquixco-Mazapan Site Listed by Stratigraphic Level to Show Absence of Any Trends	41
6 Sherd Counts and Percentages for Trench IV, Maquixco- Mazapan Site Listed by Stratigraphic Level to Show Absence of Any Trends	42

LIST OF MAPS

Map		Page
1	The Maquixco Area, Valley of Teotihuacan.....	43
2	The Maquixco-Mazapan Site--Showing Location of Trenches	44

LIST OF FIGURES

Figure	Page
1 Burial and Associated Grave Offerings	45
2 Figurines.....	46
3 Toltec Vessel Shapes and Associated Rim Forms	47
4 Toltec Vessel Shapes--Tripod Vessels.....	48
5 Decorated Mazapan Complex Sherds	49
6 Secondary Mazapan Complex and Coyotlatelco Sherds.....	50
7 Typical Vessels of the Mazapan Complex Showing Decoration and Vessel Shape	51

THE EXCAVATION

General Setting and Site Description

The Valley of Mexico is a large, internally drained basin, situated at an elevation of approximately 2,500 m above sea level and surrounded by high mountain ranges. Just north of Mexico City, an extension of the valley runs off to the northeast for a distance of some 35 km; this is the Valley of Teotihuacan. It contains a central plain 3 to 8 km in width bordered by parallel piedmont strips. These strips slope up to the hills which constitute the northern and southern boundaries of the valley.

In order to make full use of the rich agricultural soil of the valley floor, prehistoric settlements were generally located on the lower flanks of the hills. Rural settlements of the Toltec period, which appear throughout the entire valley, are most thickly concentrated along the edges of the valley floor and especially along the *barrancas* (water-cut ravines) at the junction of the hill slopes and the piedmont area (Sanders 1962:21).

Fitting this general pattern, the site with which this paper is concerned is located between two barrancas in the piedmont strip close to the foothills on the northern side of the valley. It can be reached by driving west from the plaza in San Juan Teotihuacan along paved Route 132 for a distance of 2.15 km. At this point, near the center of the village of Maquixco, a shallow barranca on the right side of the road leads up to the northern slope of the valley. This barranca must be ascended by foot to reach the site which lies roughly 875 m north of the road (Map 1).

The excavation site itself lies in a field some 150 by 135 m in size, which is owned by Don Benino Gonzales of Maquixco. The field was planted in corn, set between rows of maguey, which ran at 12 m intervals from east to west, at right angles to the grade. It slopes gently from north to south and is bounded on the sides by the two barrancas previously mentioned. The barranca on the west by which the approach was made, is relatively shallow, but the one on the east is quite wide and some 15 to 18 m deep. Adjoining it on the south is another cultivated field and on the north is a disused irrigation ditch.

A large village complex of the Classic period was situated 1.2 km to the west of the site on a spur of Cerro Malinalco. This village, consisting of a series of house mounds and a temple platform, was one of the major excavation sites of the 1961 season. Since the more important site was referred to as the Maquixco site, the Gonzales field was called the Maquixco-Mazapan site. The official designation is TT25A.

Excavation

The cultural debris marking the site was heaviest in the northern two-thirds of the field; therefore it was planned to sink a series of test trenches in this area. However, since the field was under cultivation, the number of locations available for pits was extremely restricted. Permission had been granted to dig only between the plants in the maguey rows, and the only places in these rows large enough for pit and backdirt were the gaps left where a maguey plant had died and had not yet been replaced.

In spite of these limitations, four trenches, each measuring 1.5 by 2.5 m, were sunk as close as possible to the heaviest concentration of surface material. The locations of these trenches are shown on Map 2.

After an initial layer of 30 cm had been removed to get below the zone of recent plow disturbance, the trenches were taken down to *tepetate* (the hard compact subsoil which underlies the soil throughout the valley) in 20 cm levels. The material recovered from each of these levels was numbered and sacked separately in order to insure proper stratigraphic control of the sample. A total of 3,778 specimens were recovered from the site. These include 3,554 potsherds, 196 samples of lithic material, 26 fragmentary figurines and miscellaneous clay artifacts, and 2 complete vessels associated with a burial; each of these categories will be discussed separately.

The soil in all trenches, with the exception noted below, was a uniform sandy loam containing small amounts of clay. Tepetate was reached at depths varying from 120 to 145 cm in all trenches. Soil samples for future palynological examination were taken at depths of 30, 60, 90, and 120 cm.

No structural remains of any kind were discovered. The only possible exception (and it is extremely doubtful) was some loose rock which was encountered at a depth of 40 cm in the eastern section of Trench I; it continued for the next 20 cm at which point it disappeared. It consisted of stones approximately the size of a closed fist, mixed loosely with the same sandy loam encountered in all other levels. The area was carefully cleared and investigated but nothing could be established as to the nature of, or the reason for, this layer. However, since no similar concentration of stones was found in any other excavated area, it is possible that it represents some form of building rubble--possibly a collapsed wall.

Burial Description

In the course of excavating Trench II, a rodent burrow was exposed in the south wall of the trench. One of the workmen reaching into the hole announced that he felt a *tepalcate grande* (large sherd). After investigation proved him to be correct and the possibility of a burial became apparent, permission was secured from the owner to extend the trench--at a generous price per plant destroyed--out into the corn rows.

An extension, identified as Trench II-A and measuring 1.0 by 1.5 m, was added at the southwest corner of Trench II, and human skeletal material was encountered at a depth of 52 cm. The burial, when finally uncovered, was found to be situated in the northeast quarter of the new trench, between 52 and 70 cm below the surface (Figure 1,a). The body had been buried in a semi-flexed position with the feet oriented towards the east. The preservation was only fair and several of the bones were missing or disturbed, due to rodent action. However, on the basis of a preliminary examination, the bones appeared to be those of a young, adult male.

The clavicle and scapula were encountered near the upper limits of the burial while the pelvis and bones of the leg were some 15 cm lower. Connecting the two, the vertebral column curved downward at an angle of approximately 60 degrees, so we can assume the body was buried in a seated position. The cranium, which was in a poor state of preservation, was not in place at the top of the spine, but had either fallen into the abdominal cavity or been placed in the lap at the time of interment. The reason that decapitation before burial can be considered, is the presence of the right ulna and radius above the skull rather than below it, where they would have been found had the head fallen forward as a result of decomposition

and the weight of the earth above. On the other hand, the disturbed condition of the burial makes it equally possible that rodent action was responsible.

Under the bones of the left foot, near the east side of the trench, were two complete vessels which presumably had been placed there as burial offerings; these were the only artifacts found in association with the burial.

The lower of the two vessels (catalogue number 4511) was a small bird effigy pot of reddish orange clay standing 7.5 cm high (Figure 1,b). It was roughly spherical in shape with an extreme diameter, occurring about half way down the side, of 10.75 cm. From this point, the walls curved in to a diameter of 4.0 cm at the base and 6.5 cm at the mouth. On the shoulders of the vessel two lugs, in the shape of wings, were placed opposite one another. At right angles to these, was a lug in the shape of a fanned-out tail and opposite this, the head of a broad billed bird, presumably a duck. Whereas the tail and wings were flat, with the suggestion of feathers incised into the surface; the head had been executed in the round. Inside the head, which was hollow, a clay pellet or pebble served as a rattle.

Inverted over the top of this effigy pot was a wide mouthed hemispherical bowl (catalogue number 4512) decorated in the typical wavy line Mazapan style (Figure 1,c). This upper bowl curved in very slightly at the rim to a diameter of 14.5 cm and stood 6.0 cm high. Typically, the decoration occurred only on the interior surface of the vessel.

The latter vessel, very typical of its type, served to date the burial as late Toltec. The bird effigy pot, however, was more interesting. It was suggested at the time of excavation that it might be a locally made copy of a Plumbate effigy vessel. However, reference to Shepard's *Plumbate, A Mesoamerican Trade Ware* shows that this could not be the case (Shepard 1948:26, Figure 16). Ekholm (personal communication) states that the making of effigy vessels is a trait of long standing in Mesoamerica and that examples can occur at almost any period and in any area. The latter opinion seems closer to the truth. The color was darker and had a more reddish cast than the usual Toltec Orange Ware, but it was completely unlike the later Aztec Orange.

Some 13 cm below the burial, at a depth of 85 cm, and extending some distance beyond it on all sides, was a lens of well compacted, dark granular soil ranging from 5 to 8 cm in thickness. Apart from the fact that it contained no carbon and thus could not have resulted from fire, nothing significant could be determined as to its nature.

CERAMIC ANALYSIS

Methodology

The preliminary sorting of the sherds was done on the basis of the presence or absence of decoration. Then each of the two resulting divisions was further broken down according to surface finish, color, and decoration, when present. Any division on the basis of paste variation was impractical because of the uniformity of paste in all types.

This initial sorting was done without reference to previously established types in an effort to avoid any forcing of material into preconceived categories.

Using surface finish as a criterion, the undecorated ware was found to fall into two major categories: burnished ware and dull slipped ware. A third category was also set up at this stage to take care of the very coarse, gritty ware which was quite distinct from either of the two major types. The description of this ware as coarse and gritty does not imply any basic difference in paste, a subject which will be treated more fully later in this paper. The final sorting, made on the basis of color, resulted in two types of monochrome burnished ware and three slipped types in addition to the coarse ware.

In sorting the decorated ware, color was discarded as a criterion in favor of the design, except in the case of Polished White. This was done because in the two most distinctive types (Mazapan and Tula Watercolored) the paint was applied over a wide range of background colors. The majority were buff or light brown but orange and gray were common enough so that it can be safely assumed that, in the case of decorated wares at least, color played a secondary role. This resulted in the discarding of a Red/Orange category and the inclusion of these sherds in the Toltec Red/Buff category.

The final sorting led to the establishment of five decorated types, four of which were burnished; the fifth was unburnished and so distinctive as to be put in a separate category.

This sorting procedure led to a division of the material from the site into eleven pottery types which fall into three main categories. These are shown in the list which follows.

Toltec Pottery Types from the Maquixco-Mazapan Site

I. Burnished Ware

A. Monochrome

1. Toltec Brown
2. Polished Orange

B. Decorated

3. Polished White
4. Mazapan
5. Toltec Red/Buff
6. Wide Band Red/Buff

II. Slipped Ware

7. Orange Slip
8. Dark Brown Slip
9. Red-Purple Slip

III. Other

10. Toltec Coarse Brown
11. Tula Watercolored

Following the establishment of these types, the material was restudied to determine vessel form and, if possible, to tie in particular vessel shapes with specific types. This last

attempt was successful with some of the types, and the range of forms in which each type appeared could be limited to a few specific shapes in most other cases. These findings are included in the detailed description on each type and the discussion following it.

The results of this sorting can be seen in the tables which follow. Table 3 contains the sherd counts and percentages for each type from the site as a whole. Table 4 shows the same information for each of the five trenches, and Tables 5 and 6, the figures by stratigraphic level for Trenches II and IV. Due to the scarcity of material in the other trenches only II and IV are presented in detail but the same lack of identifiable trends prevailed throughout the site. It should also be noted here that, at Sanders' suggestion, the sherds from levels with very little material (those at the bottom of the trenches) were combined and treated as a single unit. Throughout the site artifactual material diminished as the excavation deepened. Thus, Level 4, Trench II (84 sherds) is made up of three 20 cm levels containing 47, 26, and 11 sherds, respectively, plus a final sterile layer immediately above tepetate. Trench IV is similarly treated. The figures arrived at in this way are large enough to give a more meaningful picture of the material without loss of accuracy.

Problems of Classification

In describing each of the types in detail, it seemed advisable to set up a standard sequence of characteristics to be followed with each type. By following such an organizational scheme it was found to be easier to compare each feature of the several types and to check differences and/or similarities.

Following a statement as to the amount of material making up each category and the percentage it represents of the total collection, the type is discussed under the following headings: Color and Decoration, Paste, Finish, Form, Size, Thickness, and Appendages, in that order. This last is followed by a section discussing special problems relating to the specific type. Some of these headings are self-explanatory, but others need a word of clarification before proceeding.

Color and Decoration

Color and decoration have been mentioned under sorting procedures where it was pointed out that since distinctive decoration could be found over a variety of slip colors, decoration would take precedence over color as a type criterion. Color is described in familiar and readily understandable analogies (e.g., cafe-au-lait) rather than in terms of the Munsell chart for several reasons. In the first place, the chart is not everywhere available for reference and since this paper is intended, in part, as a field aid it seemed advisable to keep it as simple and practical as possible; such descriptions as "2.5YR-5/10, 6/10, 6/8" have no meaning without continual reference to the chart. Secondly, the chart is time consuming and difficult to use. And lastly, if Tolstoy's type collection is an example of its use, I feel that it is vague, misleading, and tends more to confuse than to clarify.

Paste

The paste in all types was remarkably uniform. It is a light brown clay tempered with minute particles of obsidian and quartz. The only noticeable variation occurs in the fineness of the particles which make up the paste. These vary from fine in Mazapan to very coarse and gritty in Toltec Coarse Brown. No examples of the fiber tempered Tepeyac complex paste (Tolstoy 1958:37) were encountered. This uniformity of paste has been noted by Acosta

(1956-1957:86) and Tolstoy (1958:16, 36-37) as well as by Mayer-Oakes (1959:340) who says:

I, too, have been impressed by the paste similarities among all the types of both the Classic and Post-Classic periods. I have come to think of a 'standard' paste with one other major group being the 'Tepeyac' paste. ... Plainware paste is significantly more coarse than 'standard'.

Finish

Two major types of surface finish were distinguished: burnished ware and plain slipped ware, the surface of which had been smoothed but not polished, leaving a dull matte surface. Where any indication of burnishing, no matter how slight was observed, the sherd was classified as burnished. The two types which did not fit into either of these categories were Toltec Coarse Brown and Tula Watercolored. The surface of the former was extremely gritty and abrasive, while the latter was decorated with a white slip, applied by a special technique (to be discussed later in this paper) but was not burnished.

Form

Certain descriptive terms used in the section on form may require a word of explanation. By *cajete* is meant a bowl or dish without flaring sides which is relatively flat bottomed and usually has solid nubbin supports or legs (Figure 4,g). *Molcajetes* are tripod vessels, the floors of which have been scored for use in grating pepper (Figure 5,i). *Comales* are large flat griddles with roughened bases which were used in the cooking of tortillas, and *ollas* are, of course, jars (Figure 3,c).

In regard to vessel form, nearly all the material fell into four basic shapes. These were: 1) ollas, 2) hemispherical bowls, 3) basal break bowls, and 4) bowls with hollow tripod supports. Other forms encountered were comales, molcajetes, steep sided "flower pot" vessels (which occurred only in Toltec Coarse Brown), and flat bottomed vessels with nubbin feet. Figures 3, 4, 6, and 7 show examples of all these forms except comales. These fundamental shapes agree very well with Acosta's five basic categories of Toltec vessel form (Acosta 1956-1957:84-85), except in one instance: although examples were present, not enough nubbin feet were found at this particular site to make a major category of flat bottomed vessels with solid nubbin feet.

It is possible that more vessel forms were represented in the collection than have been listed, but due to the fragmentary nature of the material they were not identifiable.

Since bowls are generally finished on the inside while ollas are not, olla and bowl body sherds were separated on the basis of interior finishing. When the concave side of the sherd was unfinished it was classified as being part of an olla; when this side showed evidence of polishing, smoothing or decoration it was classified as a bowl sherd even though the outer surface was also finished. These figures were then combined with the figures for olla rims as opposed to bowl rims, and the results used to determine the percentage of vessel form in each type.

Rim forms were considered pertinent only when they could be related to the shape of the entire vessel. The division of rims into minutely differentiated categories necessitating illustrations of over 40 types as practiced by Tolstoy (1958:17) and Mayer-Oakes (1959:346) seemed unprofitable and wasteful of time and energy. This proliferation of rim types and sub-types seems especially fruitless when they are pictured without relationship to vessel form as both investigators have done. As Shepard (1957:253) says of rim analysis:

It is an unfortunate circumstance that there is no way of knowing whether or not illustrated rims were accurately oriented, but large series of variable shapes illustrated with uniform orientation raise doubt.

It is possible that in a sample with a greater time depth, such detailed analysis would be of value, but only if the rim silhouette could be linked conclusively with vessel form and shown to change through time. It must be admitted that both Tolstoy (1958, Graph 4) and Mayer-Oakes (1959:347) make some attempt to link rim mode and vessel form, but since their main concern is to show temporal change in rim shape as an isolated phenomenon with no connection to type or vessel form (Tolstoy 1958:37), it is not very illuminating. For the present study, however, only those types of rims which indicated the shape of the entire vessel were recognized. These types are: 1) rims from hemispherical bowls (Tolstoy's D group), 2) rims from basal break bowls (Tolstoy's F group), and 3) jar rims (Tolstoy's G group). These are illustrated in such a manner as to show their relationship to the shape of the entire vessel in Figures 3 and 4. In addition to these basic rim forms, a few flattened rims from deep basins or "flower pots" were encountered, but not in sufficient quantity to necessitate a separate category.

Size

Where possible (i.e., in bowls) the diameter at the rim of the vessel was measured by fitting the rim sherds onto a circular chart marked off in centimeters. The ollas present a more difficult problem and were impossible to measure with any degree of accuracy. However, from the thickness of the sherd and from the curvature of the vessel walls an approximate idea of size could be gained. This has been indicated by describing ollas as small, medium, and large. Medium ollas are considered to be between 20.0 and 35.0 cm in height with an approximate maximum diameter of 10.0 to 15.0 cm; any olla less than these dimensions is categorized as small, and any greater as large.

Appendages

Under the heading "Appendages" are listed vessel supports and handles. Hollow supports are roughly 6.0 cm in height and usually either conical, bulbous, or round, in that order of frequency, but there are several occurrences of a flattened rectangular type which tapers in slightly at the bottom (Figure 4,f). No spider supports were encountered. The nubbin supports are small solid truncated cones or rectangles approximately 1.5 cm high. Handles have been divided into two categories: loop handles, or those which are large enough to accommodate a finger for lifting the vessel; and hanging handles, or those with a hole so small as to admit only a cord for the suspension of the vessel. Both types of handles occur only on ollas. No lug handles were found, except those on the effigy pot with the burial.

Type Descriptions

Toltec Brown (Type 1)

Material. 1867 sherds comprising 52.53% of the total collection.

Color and Decoration. Brown, buff, gray-brown; modal color cafe-au-lait brown. No decoration.

Paste. Standard in bowls to somewhat coarser in thicker ollas.

Finish. High burnish on bowls to poor burnish on larger vessels and ollas.

Form. Type 1 displays the widest range of body form of any pottery type encountered. It occurs on basal break bowls; hemispherical bowls; jars; ollas; tripod vessels; flat bottomed, nubbin legged vessels; molcajetes; and comales. Ollas account for 58% of the sherds; bowls for 42%. Hemispherical bowl rims outnumber basal break bowls 3 to 1, and two of the basal break rims were scalloped by finger pinching. A few flattened rims from deep, steep sided vases were also present (these may be Classic).

Size. Bowl diameters ranged from 14.0 to 32.0 cm, the majority clustering between 22.0 and 26.0 cm. A few miniature bowls had diameters under 8.0 cm. Ollas; medium to large, large predominating.

Thickness. Bowls: maximum 0.9 cm; minimum 0.4 cm; average 0.7 cm. Ollas: maximum 1.5 cm; minimum 0.6 cm; average 0.95 cm.

Appendages. 16 handles: 14 loop and 2 hanging; 8 nubbin legs, one cleft; 24 hollow supports, bulbous and conical.

Discussion. No categories of black or gray monochrome wares have been set up in this report because it was apparent that these colors, when they did occur, had not been produced deliberately. Monochrome sherds of this type formed a continuum from light cafe-au-lait, which I believe to be the ideal or modal color, through darker brown and gray-brown to dull gray without a break. Matson (1951:107; 1955:37) and Robert Sonin, the ceramist at the American Museum of Natural History (personal communication), have shown that a wide color range can result from firing the same clay for varying lengths of time and at different temperatures. Most archaeologists have had the experience of finding a wide range of color on a single vessel due to similar phenomena caused by drafts and unequal firing. Consequently, since no break in the continuum could be observed and the sherds were alike in all other respects, it was assumed that variation in color resulted from differential firing and they were included in the Toltec Brown category. Several black sherds were also included, because their color was due to use and smoke blackening rather than conscious design on the part of the makers, as was the case with the Classic Black ware of the Teotihuacan period.

The comal bases, seven in number, were all roughened and the lips slightly raised as in Tolstoy's Type A-2 (Tolstoy 1958, Figure 3).

The eight molcajete floors were varied in design and agreed perfectly with Tolstoy's description of those typical of the period (1958:36, Figure 5). In four, the design was lozenge shaped, two displayed parallel straight lines, one parallel wavy lines, and the last a distinctive herringbone pattern. Any sherd showing molcajete incisions and lacking evidence of red paint was assigned to this category. But since the floor of such a vessel is never painted, some of the sherds assigned to this category could just as easily be from Wide Band Red/Buf vessels. The form appears in both types but it is difficult to say in what percentages.

Polished Orange (Type 2)

Material. 77 sherds representing 2.17% of the total collection.

Color and Decoration. Orange: somewhat duller than Aztec Orange. Slip often shows brush marks. No decoration.

Paste. Standard.

Finish. High, fairly uniform burnish.

Form. Bowls and ollas: 77% bowls, 23% ollas. Hemispherical rims outnumber basal break 2 to 1. One flattened vase rim, probably Classic.

Size. Bowl diameters: maximum 28.0 cm; minimum 14.0 cm; average 18.0 cm. Ollas: mostly small, a few medium.

Thickness. Maximum 1.0 cm; minimum 0.4 cm; average 0.6 cm.

Appendages. One leg; hollow, flattened and tapered (Figure 4,f).

Discussion. Decoration is the prime criterion for typology, taking precedent over color because Mazapan and Tula Watercolored appear on a variety of slip colors--buff, gray, orange, etc. For this reason, Polished Orange sherds with a red rim band have been included in Toltec Red/Buf. Tolstoy (1958:50) includes them in his Tula Orange.

Polished White (Type 3)

Material. 31 sherds representing 0.87% of the total collection.

Color and Decoration. White slip applied over buff or orange paste. Rims always have a red band. No body decoration.

Paste. Standard.

Finish. Burnished but without a high luster.

Form. Bowls: 50% hemispherical, 50% basal break.

Size. Average diameter 22.0 to 24.0 cm with an isolated sherd from a larger bowl.

Thickness. Maximum 0.9 cm; minimum 0.4 cm; average 0.7 cm.

Appendages. None.

Discussion. One aberrant sherd has a short vertical red stripe on the interior. No supports were found, but this is almost certainly accidental and misleading since two of Acosta's illustrations of this type are cajetes with flat bottoms and nubbin feet (Acosta 1956-1957, Figure 18,9-10). Tolstoy (1958:50) also mentions nubbin feet and flat bottomed, flaring sided bowls in connection with this type.

Mazapan Wavy Line (Type 4)

Material. 169 sherds representing 4.76% of the total collection.

Color and Decoration. Red over buff, gray, and occasionally orange. Orange sherds represent 11% of sample. Decoration (red paint) occurs as "narrow wavy lines or straight lines, always parallel and in groups," (Linne 1934:77) on the interior (occasionally the exterior) of the vessel. Rim always banded with red (Figure 5,a-c).

Paste. Much finer than any other type--fewer obsidian and quartz inclusions.

Finish. Polished but not as highly as other types.

Form. Hemispherical bowls without supports exclusively. All rims hemispherical bowl type, sometimes thickened (Figure 7,a).

Size. Diameter ranges from 14.0 to 30.0 cm. Vast majority cluster between 20.0 and 26.0 cm.

Thickness. Maximum 0.8 cm; minimum 0.6 cm; average 0.7 cm (maximum reaches 0.9 cm on thickened rims).

Appendages. None.

Discussion. As Linne (1934:77) points out, the design is esthetically pleasing. The groups of lines were undoubtedly applied by means of a multiple brush technique and averaged 12 to 15 lines to a group. Several of these groups of lines are combined to create an artistically pleasing overall design. The workmanship is assured and meticulous. Two Mazapan sherds exhibited red smears on the exterior surface in the Toltec Red/Buf tradition which were unlike the usual multiple line exterior decoration described by Linne (1934:76-77).

Microscopic examination showed that Mazapan paste was significantly finer than that of any other type, although the finish was consistently duller. While basically similar to that of the other wares, the Mazapan paste is so fine that one is tempted to make it a second exception to Mayer-Oakes' statement on the homogeneity of paste in the Valley of Mexico quoted earlier in this paper.

Toltec Red/Buf (Type 5)

Material. 301 sherds representing 8.47% of the total collection.

Color and Decoration. Red over buff, gray, and occasionally orange slip. Buff is the most common background color but decoration appears over orange slip in 12% of sample. Red paint appears as crude spirals, blobs, swirls, volutes, and smears on bowl interiors; narrow red lip band almost always present; olla decoration limited to exterior (Figure 5,d-h).

Paste. Standard to slightly coarser in ollas. Often shows black core.

Finish. Burnished with fair luster.

Form. Unsupported bowls 81%, ollas 18%, tripod vessels 1%. Bowl rims: 78% hemispherical, 22% basal break. 1 molcajete floor fragment, 2 scalloped rims (Figure 7,b).

Size. Bowl diameters: maximum 30.0 cm; minimum 10.0 cm; average 26.0 cm. Ollas: small; a few medium.

Thickness. Bowls: maximum 0.9 cm; minimum 0.5 cm; average 0.7 cm. Ollas: maximum 1.7 cm; minimum 0.5 cm; average 0.9 cm.

Appendages. 3 hollow conical legs. 1 short solid leg (not nubbin).

Discussion. The red body decoration in the vast majority of cases has been applied in a very slipshod and careless manner; the lines are generally wide and blotchy, and those which are narrow are ragged and uneven; they are never cleanly or surely executed. The design element as a whole lacks cohesion and symmetry and seems to bear no relationship to the shape of the vessel except for its location in the approximate center of the floor--often even this

positioning is absent. As Linne (1934:77) indicates, the ware is of inferior quality both in decoration and in workmanship.

The matter of categorizing vessel supports posed an extremely difficult problem, one which I believe has been solved in the best possible way, but about which there is still some question. Due to the fragmentary nature of the material, it was impossible to tell, except in a few obvious instances, whether legs showing signs of red paint should be assigned to this category or to Type 6 (Wide Band Red/Buf). It was ultimately decided to assign those hollow supports showing red decoration but lacking any other index as to type, to the Wide Band Red/Buf category on the basis of the following data: 1) In Vaillant's collection from San Francisco Mazapan, the Toltec Red/Buf designs appear exclusively on unsupported bowls, while his tripod vessels are all of the Wide Band type; 2) Linne says, referring to Toltec Red/Buf, that "The vessels, too, appear as a rule less well made, and consist without exception of shallow bowls" (1934:77); and opposes them to tripod vessels of which he says, "The latter have big, conical feet, the outer sides of which, as well as the inside of the vessel excepting the bottom, are coated with red paint" (1934:78); 3) Vaillant (1944:78) distinguishes between "bowls with vaguely outlined maroon designs" and "heavy bowls with tripod supports" in his discussion of Mazapan pottery in *The Aztecs of Mexico* and 4) while Acosta does not mention Toltec Red/Buf at all, he makes a separate category of *tripoides rojo sobre cafe* (our Wide Band Red/Buf) which he illustrates with three examples (Acosta 1956-1957:86, Figure 18,1-3). Two of these show the typical red striped conical leg on a Wide Band Red/Buf vessel.

A few of the leg sherds assigned to Type 6 may actually belong in Type 5, but I am confident that the possibility of a minor inaccuracy here has not appreciably affected the results of this study.

It is difficult in a mixed collection to sometimes distinguish between this type and Teotihuacan Red/Buf. In fragmentary form they are practically identical in decoration, color, and paste. The principal difference is to be found in vessel form and thickness; Teotihuacan Red/Buf occurs on heavy vessels with thick walls: deep basins and large steep-sided bowls. In addition the decoration is more common on the exterior than the interior (Sanders 1962, personal communication).

Wide Band Red/Buf (Type 6)

Material. 147 sherds representing 4.14% of the total collection.

Color and Decoration. Deep red, almost maroon, on buff. The red is in the form of a wide painted band extending downward from the lip and often covering the whole interior of the vessel except the floor. Approximate width of band 1.5 cm. Legs usually decorated with a wide stripe or smear of red. In ollas, the deep red covers the interior of the flaring mouth (Figure 5,i-k).

Paste. Standard to fine.

Finish. Very high burnish. Red areas have exceptionally high polish giving almost metallic luster. Exterior polishing does not extend to bottom of vessel.

Form. Tripod bowls, some with molcajete floors, and ollas. Bowl sherds 83%, olla sherds 17%. Only 10% of bowl rims are basal break; over 25% of bowl rims are scalloped. Olla lips flare out more than other types (Figure 7,c).

Size. Bowl diameters: maximum 30.0 cm; minimum 16.0 cm; average 26.0 cm. Ollas: all small.

Thickness. Bowls: maximum 1.0 cm; minimum 0.5 cm; average 0.7 cm. Ollas: somewhat thinner, average 0.5 cm.

Appendages. 29 hollow supports: 23 conical, 4 round, and 2 flattened and tapered.

Discussion. The deep, highly polished red of this type cannot easily be mistaken for the less opaque, lighter red of Toltec Red/Buff, except when very weathered. The color often extends over the lip to make a narrow red band on the exterior of the vessel.

One of the major factors contributing to the difficulty of the supports is the fact that the paint on the legs of the Wide Band Red/Buff material is not like that on the interior of these vessels, but is identical to the red of Type 5 and just as carelessly applied. Of the 29 hollow supports assigned to this type, 12 could be positively placed there because of interior design; the rest were assigned for the reasons discussed on pages 21 and 22. The other aspects of this problem were also thoroughly covered in the discussion section of Toltec Red/Buff. That Wide Band Red/Buff always occurred on tripod vessels is born out by the absence of any basal sherds in the sample. The pinched wavy rim is more common in this type than in any other.

Only 5 molcayete floors can be definitely assigned to this category. However, since Vaillant (1944:78) and Linne (1934:78-79) mention the frequency of scored floors in tripod vessels of this sort, it is probable that more belong here. The patterns of the incisions are similar to those described for Type 1.

Orange Slip (Type 7)

Material. 311 sherds representing 8.75% of the total collection.

Color and Decoration. Orange. No decoration.

Paste. Standard.

Finish. Dull slip; smoothed but not polished or burnished.

Form. Ollas, flat bottomed bowls with nubbin feet, comales, and tripod vessels. Ratio of ollas to bowls is 60:40. Hemispherical and basal break bowl rims occur in equal numbers.

Size. Bowl diameters cluster between 14.0 and 22.0 cm but several miniatures occur. Ollas: majority large but some medium and one small.

Thickness. 85% between 0.6 and 0.9 cm but larger olla sherds reach a maximum of 1.6 cm and miniature bowls are as thin as 0.3 cm.

Appendages. 7 large loop handles and 2 hanging handles. 3 nubbin supports and 1 hollow bulbous support.

Discussion. This type shows a fairly wide range of forms and apparently the flat bottomed bowl with nubbin supports was more common in this category than in others. The presence of this type of vessel together with comales and heavy ollas would suggest that this was a popular all-purpose utility ware.

Dark Brown Slip (Type 8)

Material. 75 sherds representing 2.11% of the total collection.

Color and Decoration. Dark brown chocolate color. Applied over orange paste in 89% of the cases. No decoration.

Paste. Standard.

Finish. Dull slip. In rare cases shows very slight polish.

Form. 88% ollas. Remaining sherds from large bowls probably with steep sides.

Size. Basins: no rims, but estimated to be fairly large. Ollas: large to medium large.

Thickness. 90% between 0.7 and 1.0 cm.

Appendages. None.

Discussion. Surface occasionally quite rough. Color and surface treatment make it impossible to confuse this type with Toltec Brown.

Red-Purple Slip (Type 9)

Material. 247 sherds representing 6.95% of the total collection.

Color and Decoration. A reddish purple slip over natural light brown clay. No decoration.

Paste. Coarse. Heavier and grittier than any except Type 10 (Toltec Coarse Brown).

Finish. Thick slip: smoothed but not polished. Shows tendency to crackle and flake.

Form. Ollas.

Size. Large.

Thickness. The thickest type in the collection. Maximum 1.9 cm; minimum 0.6 cm; average 1.2 cm.

Appendages. 2 hanging handles.

Discussion. Obviously one of the heavy duty utility wares.

Toltec Coarse Brown (Type 10)

Material. 197 sherds representing 5.54% of the total collection.

Color and Decoration. Natural light brown clay color, some grayish and a few orange. Only type with modeled decoration. 11% of the sherds were decorated with regularly spaced truncated cones or nodes having an approximate diameter at the base of 1.3 cm and a height of 0.6 or 0.7 cm. All but one of the rim sherds exhibited a heavy moulded fillet just below the lip (Figure 6,d-g).

Paste. Extremely coarse and gritty.

Finish. Very rough and grainy. Never polished.

Form. Deep, straight-sided "flower pot" vessels with flattened rims. Basal angles present indicate straight sided, flat bottomed vase (Figure 6,h).

Size. Diameter at mouth ranged from 26.0 to 34.0 cm; slightly less at the base. Estimated height between 20.0 and 25.0 cm.

Thickness. Very heavy. Maximum 1.7 cm; minimum 0.8 cm; average 1.2 cm.

Appendages. None.

Discussion. A specifically Toltec type, valuable as an index fossil because of its uniqueness. The nodes and fillets were applied separately after the shaping of the vessel and are inclined to break off leaving a clean area as an indication of their presence. The fillets were decorated in a variety of ways. In a relatively small sample such as this; examples of finger pinching, punctuation, notching, and twining as well as heavy unadorned mouldings were noted. The percentage of this type seems somewhat high, but undecorated sherds make up a large proportion of the sample; some of these may be weathered sherds of Type 1, or perhaps Toltec Coarse Brown is more common on unmodeled vessels than is assumed. Acosta (1956-1957, Figure 17,8) illustrates such a plain vessel. He also has an excellent drawing of the usual vessel of this type showing nodes and fillets as well as form (Acosta 1956-1957, Figure 17,7).

Tula Watercolored (Type 11)

Material. 60 sherds representing 1.69% of the total collection.

Color and Decoration. Buff, brown, orange, or gray background over which white slip has been applied as groups of regularly spaced, parallel, sinuous, or straight lines which cross cut each other to create the design. The design generally covers the entire vessel (Figure 6,a-c).

Paste. Standard to slightly coarse.

Finish. Dull and unburnished but well smoothed before white slip was applied.

Form. Ollas exclusively.

Size. Medium.

Thickness. Relatively thin walled for the size of the vessel. Maximum 0.9 cm; minimum 0.4 cm; average 0.6 cm.

Appendages. None.

Discussion. Like Type 10, Tula Watercolored is a uniquely Toltec ware and completely unlike any other type.

To the best of my knowledge the method by which this decoration was applied has never been satisfactorily described in the literature. Tolstoy (1958:54) suggests a multiple brush technique but an examination of the material in a good light will show that this is not the case.

Acosta (1956-1957:84) calls the ware *blanco levantado*, and with good reason since the white design is raised appreciably above the level of the background color, but he fails to offer any theory on the technique by which this effect was produced.

For a small site, Maquixco-Mazapan yielded a large number of sherds of this type (Tolstoy found only 18, and Mayer-Oakes only 55 in a collection of 39,002 sherds) and opportunity was afforded to study them in detail.

Under a low power microscope certain peculiarities became apparent: 1) the edges of the white lines are slightly higher than the body of the line; 2) wherever a dark (background color) line cuts across a series of white lines a bit of the white has been pulled across the end of the intervening dark spaces; and 3) the ends of the lines in each group are always terminated by the same transverse dark line which is part of another group. On the basis of these observations it is suggested that the technique producing Tula Watercolored involved the use of a hard or semi-flexible comb-like tool. After the vessel had been dried, and before firing, a thick white slip was applied to the entire surface of the vessel. This slip was then scraped off with the toothed instrument to create the desired design. The dark lines are those areas from which the slip had been removed, while the built up white lines were made by the accumulation of white slip in the spaces between the teeth. The use of a thick slip would be essential because a thin slip would tend to run. A tool such as has been described, used on heavy slip, would account for all the unusual characteristics of the ware. Once again Acosta (1956-1957, Figure 17,6) has the best illustration of the type. In this case, his drawing is more impressionistic and less detailed, but it creates the "feel" of the ware very well.

Discussion

It was suspected from the first that the Maquixco-Mazapan site represented a single occupation and the lack of stratigraphy as well as the ceramic analysis substantiated this inference. Every effort was made to detect any change in the material from one level to the next, but none could be observed. No trend could be established in the relative percentages of the various types, nor was there any change in the popularity of one color or vessel shape over any other. This uniformity can be clearly seen in Tables 3 through 6 by comparing the percentages of the types in any trench or level with those for the site as a whole.

The overwhelming preponderance of Toltec material over that of any other period makes it certain that the site can be dated as of that period. The trace of Classic and Aztec material (0.42% and 0.67%, respectively) is no more than would be expected from the continual agricultural use of the land during these periods. The continued working of the soil up to the present day, together with rodent action, would also explain the appearance of this material in all levels, although there is a tendency for the Aztec material to be more common in the upper levels. Because of the preponderance of Toltec decorated ware, it can be assumed that the monochrome wares found in association are also of the Toltec period.

The complete absence of any Coyotlatelco material enables us to refine the time element still further and place the site as late in the Toltec period. The reasons for this will be discussed in detail later in the paper in the section on the Coyotlatelco Problem.

The pottery listed in the tables as "Trade Ware" was identified as probably originating along the Gulf Coast on the basis of paste, which seemed almost identical in its apparent lack of tempering material to that of the Panuco Fine Paste described by Ekholm for the Huastec area at a slightly earlier period (Ekholm 1944:349).

A comparison of the material from this site with Vaillant's material from San Francisco Mazapan and Linne's report on his work at Teotihuacan leads to the conclusion that the "Mazapan culture" is characterized by the presence of three major types of Red/Buff pottery which are almost always found together. These three types, which are numerically the most important decorated types in the Maquixco-Mazapan collection are: 1) the true Mazapan, 2) Toltec Red/Buff, and 3) Wide Band Red/Buff. It is suggested that together they be called the Mazapan Complex.

Linne, influenced it is assumed by Vaillant who helped him in the selection of a site for his work, was the first to describe these types in print and to assign them to the Mazapan period (Linne 1934:76-79). His description of the first two types can hardly be improved on, but exception must be taken to his statement that Toltec Red/Buff appears without exception on shallow bowls (Linne 1934:77). Several large sherds in the present collection show the crude red design on the vessel interior together with the remains of hollow legs on the exterior.

In association with the three Mazapan Complex types were found certain other distinctive wares which can be said to form a subordinate group in the complex. This assumption is born out by their identification as Toltec types in the works of one or more other authorities. The incidence of their occurrence, if the material from the Maquixco-Mazapan site may be considered to be typical, is so rare, however, as to make their inclusion as major types of the complex unwarranted. They are: 1) Toltec Coarse Brown, called by Acosta (1956-1957, Figure 17,7-8) *cafe grueso* and referred to by Tolstoy (1958:49 and Figure 10,q and s) *Tula heavy incensarios* and 2) Tula Watercolored, the *blanco levantado* of Acosta (1956-1957, Figure 17,6) also reported by Tolstoy (1958:54-55, and Figure 9,l-n) under the names which I have used here. Tolstoy (1958:55) also notes that Vaillant refers to it as "textured" in one of his unpublished manuscripts.

Other types perhaps should be included as adjuncts to the complex but they have been excluded to avoid confusion and vagueness: Toltec Brown was common in other periods in spite of the fact that it peaks during the Toltec; Polished Orange could be mistaken, but not easily, for the other orange wares; and the Polished White is too scarce. The two auxiliary types mentioned above have been chosen because they are unmistakable and very typical of the period even though relatively scarce.

It should also be noted that the list of pottery types found at Maquixco-Mazapan is not a complete inventory of Toltec ceramics. Many of the more exotic types listed by Acosta (1956-1957:84, 86) are absent, but this is to be expected considering the nature of the site.

As Tolstoy (1958:62) notes, ollas seem to have a higher frequency in the Toltec period than at other times and a large number were found at the site. It is interesting to note that several of these ollas seem to have been made in two sections, the bottom half mould-made and the upper half added later by hand. This was established on the basis of the interior finishing of the vessel. It was first observed on an almost complete, small, Toltec Red/Buff olla (Figure 5,h). The interior of the lower half was quite smooth then, approximately half way up, a ridge occurred as if to seal a joint. Above this point, the interior walls were extremely rough, a condition which would obtain if the interior of the upper half had been smoothed through the increasingly smaller opening at the top as the vessel was built up by hand. Following this discovery, several other sherds exhibiting similar rough and smooth areas were found and it was noted that in many cases the olla sherds of a particular type would fall into two categories: those with rough interiors and those with relatively smooth interiors. Basal olla sherds, where they could be identified, almost always had smooth interiors.

Correlation of Type with Vessel Form

It has been observed in the preceding section that a relatively high percentage of olla sherds were present in the collection. These were separated from bowl sherds and an attempt was made to correlate vessel form and type. As a result of this study, it can be stated that, in general, ollas predominate over bowls in the dull slipped wares, and bowls over ollas in the polished and decorated wares. It is assumed that this is due to the use for which the different vessels were intended. That is to say, cooking and storage vessels (ollas, heavy bowls, and comales) were merely slipped, while vessels intended for service or ceremonial use (bowls and tripod vessels) were polished or decorated.

Of eleven Toltec types recognized at the site, five are confined to a single vessel form. True Mazapan (Type 4) appeared only on unsupported hemispherical bowls. Polished White (Type 3) also appeared on bowls alone, but on bowls with both excurvate and incurvate sides. In the latter case, the small size of the sample leaves room for doubt but the overall fineness of the ware would seem to support the hypothesis. In the case of the Mazapan type, however, there is no question. Not only was the sample large but the same one-to-one correlation was observed in Vaillant's material from San Francisco Mazapan. This feature was also noted by Linne (1934:76), and although Tolstoy is not so definite, he says that "low bowls of the cazuela type, without supports, are probably by far the predominant Mazapan Red/Buf shape" (Tolstoy 1958:42).

Tula Watercolored (Type 11) and the Red-Purple Slip (Type 9) were apparently used only on ollas, while the Toltec Coarse Brown ware (Type 10) occurred exclusively as deep straight-sided "flower pot" vessels (Figure 6,h).

Were it not for the presence of a small percentage of olla sherds, Wide Band Red/Buf would constitute another exclusive form-type category. It can, however, be said that whenever this type of decoration occurs on an unrestricted vessel, that vessel will be a tripod bowl with large, hollow, generally conical supports. The accuracy of this assumption can be substantiated by the fact that both Linne (1934:78-79) and Acosta (1956-1957:86, Figure 18,1-3) have made a separate type of these vessels combining in their descriptions both features (i.e., form and decoration).

Instances of the occurrence of a wide band of deep red on ollas in the collection is limited to the same relative position on the vessel as in the bowls--the interior of the flaring mouth. However, Acosta (1956-1957, Figure 17,5) illustrates the same decoration on the outer neck and shoulder of an olla.

The remaining types do not appear to be confined to any one vessel shape, but in four of them a definite preference for a particular form was indicated. This preference follows the general observation noted earlier (i.e., that dull slipped surfaces were more common on ollas and burnished or decorated finishes on bowls). Thus, we find ollas making up 85% of the sherds of Dark Brown Slip (Type 8) and outnumbering bowl sherds by a ratio of 60:40 in the Orange Slip category (Type 7). It should be noted, however, that the Orange Slip occasionally appears also on comales and tripod vessels.

Conversely in the Polished Orange category (Type 2), bowl sherds represent 77% of the collection and olla sherds only 23%. The Toltec Red/Buf (Type 5) sample is much larger but the distribution is roughly the same: 80% bowls and 20% ollas.

In the discussion section on Toltec Red/Buf it was exhaustively noted that the accepted opinion, until now, has been that when this type of decoration appears on an unrestricted

vessel, that vessel will be an unsupported bowl. This has been proved untrue by the presence of several sherds exhibiting the sloppy red design on the floor of a vessel which had hollow conical legs attached to the exterior. Covarrubias (1957, Figure 121) also illustrates such a vessel but it is possible that he has combined elements from two separate pieces to create this drawing. However, it can be said with certainty that although Toltec Red/Buff occasionally occurs on tripod vessels, this occurrence is rare and in the vast majority of cases the vessel form is that of an unsupported bowl.

The remaining type, Toltec Brown (Type 1) is not only numerically the most common type but appears on the greatest number of vessel forms. It can safely be thought of as one of the utility wares of the period when poorly polished, but it is also used for finer vessels such as small bowls and flat bottomed cajetes in its more highly polished state. Among the utility vessels (i.e., those with interior polishing) are ollas, which outnumber bowls in the collection 3 to 2, molcajetes, comales, and a few examples of a heavy open vessel with steep sides (this last could be a Classic type). The predominance of ollas over bowls is also indicated by the large number of handles present. Among the bowls, three-quarters of the rims are from hemispherical bowls and the remainder from basal break bowls. Nubbin legs from flat bottomed dishes are also most common in this type.

The Coyotlatelco Problem

Tolstoy combines Coyotlatelco with his Tula Red/Buff category and states that he considers the distinction between Coyotlatelco and other red on buff wares "an unheuristic one" (Tolstoy 1958:43). This position must be strongly opposed. The fact that not one Coyotlatelco sherd was present in the sample from the Maquixco-Mazapan site is in itself enough to indicate the importance of the ware as a time marker within the Toltec period.

It has been established by a number of investigators that Coyotlatelco is temporally earlier than the Mazapan Complex of which Toltec Red/Buff is a part. Vaillant (1932:487-489) places it earlier as a result of his excavations at San Sebastian, San Francisco Mazapan, and Group 5 near the Moon Pyramid at Teotihuacan. Muller (1951:44) says that Armillas encountered Coyotlatelco below Mazapan at Tetitla, thus indicating the greater age of Coyotlatelco. Ekholm (personal communication) states that at Atetelco also, Armillas and Margin found Coyotlatelco below Mazapan, not in clearly separated levels but with heavy concentrations of Coyotlatelco in the lower levels giving way to Mazapan in the upper. Sejourne (1956-1957:23), though not concerned with Coyotlatelco-Mazapan temporal relationships, found four and a half times more Coyotlatelco sherds than Mazapan in a primarily Classic section of the same site. Marquina (1951:163) says that Coyotlatelco represents the transition between the Teotihuacan and Toltec cultures. Acosta (1956-1957:86) referring to Tula, says "the so called Coyotlatelco type which we have called *decoracion roja sobre cafe* is very common in the lower levels and diminishes in the upper levels." And his list of types, which are arranged stratigraphically, shows Mazapan to appear in the upper levels where Coyotlatelco is diminishing (Acosta 1956-1957:86).

Additional confirmation of the importance of the distinction between Coyotlatelco and the Mazapan Complex as a time indicator was found at the Oxtotipac cave site in the Teotihuacan Valley during the summer of 1961 and the Xometla site, excavated in 1962.

Considerable space has been devoted to the relative chronological position of Coyotlatelco and Mazapan because the former has been combined by Tolstoy with the Mazapan Complex type, Toltec Red/Buff. Before this misconception becomes too firmly fixed in the literature, such statements (made in reference to Coyotlatelco as opposed to other red on buff wares) as:

"the distribution in time of both variants appears to be parallel. . ." (Tolstoy 1958:43) must be refuted.

Nor is it difficult to distinguish Coyotlatelco from Toltec Red/Buff even in sherd form. As a type, Coyotlatelco is very individual and almost impossible to confuse with the carelessly decorated, less well made Toltec Red/Buff. Vaillant's collection from Tozzer's type site at Santiago Ahuizotla was used as a reference during the present pottery analysis and several points of difference between it and the Toltec Red/Buff became immediately apparent. The background color of Coyotlatelco ware is more yellow than buff and the finish is consistently better with a higher, more lustrous burnish. The interior design is always in the form of concentric bands, usually outlined with a narrow red line, and frequently geometric. When geometric motifs are absent, the curvilinear designs are always artistic and well executed (Figure 6,1-k; Tozzer 1921, Plate 18). All of these features have been noted by Tozzer (1921:51-58), who says of the type:

The design is usually composed of several elements arranged in horizontal bands . . . separated by solid red lines sometimes 1 cm wide. . . . The elements of the design are mainly geometrical with a number of curvilinear figures.

Aside from the red lip band, which is almost always present in Toltec Red/Buff, the design elements are never banded and are much cruder in conception and execution. These differences, together with the failure of Tolstoy, and Mayer-Oakes in his footsteps, to recognize the disparity between the two types and the importance of this distinction in dating of sites.

The Question of Type Names

In the course of preparing the material for this paper, the names of various pottery types became the source of considerable concern. Certain type designations appeared in the literature some time ago and have become fixed. Such types as Mazapan and Coyotlatelco, Tolstoy notwithstanding, are well established, accepted, and certainly should not be tampered with. Other type designations have been more recently introduced into the literature. In some cases they are excellent descriptive names (such as Tula Watercolored) and have been used in this paper. But in other cases the names are misleading if not completely erroneous, and in these cases I have suggested other designations believing them to be more accurate and more descriptive of the type. I hope to be able, as Acosta (1956-1957:84) says of his own excellent list of Toltec pottery types "to set up a classification in which the names are descriptive as well, so that they may be more easily remembered."

Two of Tolstoy's type names fall into this unacceptable category, his Texcoco Brown and his Tula Red/Buff, each for a different reason. The former is a type which reaches its peak of popularity in Toltec times but has been given a name which implies it to be an Aztec ware. Mayer-Oakes (1959:339) points out that Tolstoy uses the following terms to describe each of his three major periods: "Texcoco (Aztec), Tula (Toltec) and San Martin (Teotihuacan)." Thus, the term Texcoco Brown would lead us to believe that this type was primarily an Aztec ware but, at the same time, Tolstoy states that Texcoco Brown reaches its peak of popularity in the Toltec period (Tolstoy 1958:62) and declines noticeably in the Aztec (Tolstoy 1958:63). The same phenomenon was shown by Mayer-Oakes in Table 3 of his El Risco Report.

For this reason I have used the term Toltec Brown to describe the ware to which I presume Tolstoy had reference, although his type collection also includes sherds which I would

have classified as Dark Brown Slip and Red-Purple Slip. The use of the word "Toltec" rather than "Tula" was dictated by a desire to indicate in the name the temporal position of the ware rather than its association with any particular site.

The conviction that ceramic type names should indicate chronological position is of course in direct contradiction to the ideas expressed by Smith, Willey, and Gifford in their exegesis of the type-variety concept in *American Antiquity* (Smith et al. 1960:336). However, one of the problems at the Maquixco-Mazapan site was to attach meaningful names to types which had been described but not named by previous investigators (e.g., Toltec Red/Buff and Wide Band Red/Buff). Smith, Willey, and Gifford suggest that a place name be used to identify pottery, but in this case any attempt to do so proved unsatisfactory. The site was in the Teotihuacan Valley, but "Teotihuacan" immediately implies the Classic period; Tolstoy had used "Tula", but Tula was miles away; there was of course "Maquixco", but since there were two Maquixco sites (one Classic and the other Toltec) this, too, was ruled out. It was finally decided that, since the Valley of Mexico is an area in which the various stages of prehistory are well defined, a temporally significant type name would be preferable to a site name. Hence the name "Toltec" was selected to indicate those types which had a wide distribution over the northern valley during that particular stage of its history and to this was added a descriptive term.

Tolstoy's Tula Red/Buff classification is the second with which I wish to take issue. He has included in this category what I discern to be three distinct ceramic types. The separation of Toltec Red/Buff from Wide Band Red/Buff is admittedly of no temporal significance (both are part of the same ceramic complex) but the two types are distinct enough to have been treated as discrete categories by Vaillant (1938:544), Linne (1934:76-79), and in the exhibits at the Peabody Museum at Harvard University, as well.

The inclusion of Coyotlatelco with the other red on buff types is, I think, Tolstoy's most serious error. As it has been pointed out earlier in this paper, Coyotlatelco is markedly different from either the carelessly executed Toltec Red/Buff or the smoothly polished Wide Band Red/Buff. In addition, it is of great value as a time marker, serving to set apart the early Toltec and the transitional period which preceded it from the late Toltec period represented by the Mazapan Complex wares.

No Coyotlatelco sherds were discovered in the material from the Maquixco-Mazapan site, but its importance as a separate and significant type is proved by this very fact. It must be stressed, however, that this ware is not included in any of the named types from this site.

Toltec Red/Buff was the term chosen to indicate the carelessly decorated red on buff ware which made up the second largest category in the collection. During the course of the laboratory analysis, this ware was referred to as "Sloppy Mazapan", a term which indicated both its character and its close affiliation with the true Mazapan, but in deference to the solemnity of scholarship the less colorful term was finally chosen.

The designation "Mazapan" was retained because of its firmly rooted position in the literature. However, if a name such as "Sloppy Mazapan" were employed to designate the closely-linked Toltec Red/Buff, it might be advisable to expand "Mazapan" to "Multiple Line Mazapan" or "Wavy Line Mazapan" as Acosta has in calling it *lineas rojas ondulantes* (1956-1957:84).

The type names suggested in this paper will at least serve as useful tools during the course of the survey. At that time, no doubt, the conference members will investigate the problems of ceramic typology as they apply to the cultural history of the Valley of Mexico during all its periods and decide on a comprehensive system of type nomenclature.

SUMMARY

In addition to a knowledge of what is expectable in the ceramic assemblage of a rural late Toltec site in the Valley of Teotihuacan, certain points of interest regarding Toltec pottery in general have emerged during the course of this study.

The first is the reality of the Mazapan Complex. This complex consists of three primary red on buff types and at least two less common but, it is assumed, equally diagnostic types. The three primary types are Mazapan, Toltec Red/Buff, and Wide Band Red/Buff. The secondary types are Toltec Coarse Brown and Tula Watercolored. It is proposed that at a site where any one of the primary types is found, the other two will be present also; if the sample is large enough, the secondary wares, too, will be present.

The list of secondary wares is by no means finite. Several other types which one would expect to find in a late Toltec site were absent at Maquixco-Mazapan. No examples of stamped or incised wares were present, to say nothing of the more exotic forms of decoration mentioned by Acosta (1956-1957:86). Nor did the Polished Orange (at least in fragmentary form) seem as distinctive as other investigators have said it to be. The lack of these wares could be due to the small size and rural character of the site, to a regional preference, or to the modest size of the present sample. But for the time being at least, they must be omitted from the list.

Secondly, the presence of the Mazapan Complex is a valuable and reliable time marker: when its components are present in sufficient numbers at a site, it can be assumed that the site is late Toltec.

Hand-in-hand with this goes the recognition of Coyotlatelco as a distinctive type representative of the early Toltec period. Tolstoy has caused a great deal of confusion by combining Coyotlatelco with his Tula Red/Buff which is a late Toltec ware. This is especially so since his monograph has become an accepted guide to pottery in the Valley of Mexico.

Another factor, one which might be used as an aid to the definition of sites within the late Toltec period, is suggested by the fact that, according to Linne (1934:77), Mazapan material is far more common than Toltec Red/Buff. In addition to which, Vaillant's collection of sherds and whole pots from San Francisco Mazapan yielded the following percentages of the two types when analyzed:

	Mazapan	Toltec Red/Buff
Whole Vessels	79.5%	20.5%
Sherds	82.9%	17.1%

Unfortunately it is not known whether or not this was a random sample, but the figures do agree with Linne's observation. At the Maquixco-Mazapan site, however, the reverse holds true. This discrepancy seems to be due to the type of site excavated. Both Vaillant and Linne were working in large, more or less urban areas, in addition to which, much of their material came from relatively rich burials; the Maquixco-Mazapan site was a small rural settlement. It would seem natural, therefore, to find more of the better made Mazapan ware in larger and more important settlements, while the cruder Toltec Red/Buff would predominate in small villages or rural areas. Thus, types recovered from a late Toltec site would be an extremely useful indication as to the size and importance of such a site.

A fourth conclusion reached as a result of this study is that a definite correlation exists between individual ceramic types and certain vessel forms. It has been pointed out that Mazapan is found to occur exclusively on unsupported bowls, Tula Watercolored exclusively on ollas, Toltec Coarse Brown exclusively on steep sided "flower pots", and Wide Band Red/Buff in its restricted form (since it occasionally appears on ollas) exclusively on tipod bowls. It can also be assumed that Toltec Red/Buff, again as an unrestricted vessel, will almost always appear on an unsupported bowl. To this can be added the general observation that ollas outnumber bowls in the dull slipped wares and the reverse holds true with the burnished or decorated wares.

Finally, we are able to state with a fair degree of certainty that the ceramic assemblage of a late Toltec site in the Valley of Teotihuacan can be identified by the following features.

1. The presence of an overwhelming preponderance of Toltec Brown amounting to approximately 50% of the collection.
2. The presence of the three major components of the Mazapan Complex. Using only the primary types of the complex as a unit, these types might be expected in approximately the following percentages in a rural area:

Mazapan	30%
Toltec Red/Buff	50%
Wide Band Red/Buff	20%

(It is assumed that in a more important site the percentages of Mazapan and Toltec Red/Buff would be reversed.)

3. The presence of Toltec Coarse Brown, Tula Watercolored, and Polished Orange in small amounts (under 5%).
4. The presence of a high proportion of monochrome olla sherds, roughly 50% of which would be Orange, Red-Purple, or Dark Brown Slip and 50% Toltec Brown.
5. The presence of hollow conical or bulbous vessel legs, many marked with red paint, and lesser amounts of nubbin supports, especially in orange wares. The absence of "spider" legs.
6. The absence of Coyotlatelco.

Future work will of course define this picture more clearly, especially in the area of secondary wares associated with the Mazapan Complex. New wares may come to be recognized as exclusively late Toltec, while others will be found to be common to both early and late periods and hence valueless as indices.

Before closing, it would seem appropriate to comment on the accuracy of observation and soundness of interpretation of the past generation of archaeologists. The work of Tozzer, Linne, and Vaillant was most helpful in the preparation of this paper which has, in the final analysis, only proved their assumptions to be valid.

MISCELLANEOUS ARTIFACTS

Lithic Material

Very little can be said of the lithic material recovered from the site except that it consisted almost entirely of unretouched blades of obsidian. These long narrow blades, which were struck from a prepared core, are common to all periods in the valley but, according to Vaillant (1944:78), reached their peak of technical perfection during the Teotihuacan period. A total of 74 blades, many showing signs of considerable use along the sides, were found distributed evenly throughout the site.

In addition to the blades, 9 chipped obsidian artifacts were found. These were all secondarily flaked and all were so fragmentary as to make exact description impossible. These include 2 projectile points and what appears to be a graver which were found in the top level of Trench III, a medium sized side scraper from the top level of Trench I, and several worked fragments.

In the category of ground or pecked stone objects, one *mano* fragment was recovered from the top level of Trench I.

The totals for each category of lithic material are listed below.

Table 1. Lithic Materials			
OBSIDIAN		QUARTZ AND FLINT	
Blades (unretouched)	74	Unworked fragments	4
Chipped Artifacts		GROUND STONE	
Projectile Points	2	Mano (partial)	1
Scraper	1		
Graver	1		
Worked Fragments	108		
TOTAL OBSIDIAN	191		

Figurines and Miscellaneous Clay Objects

Comparatively little ceramic material, other than potsherds was found at the site. This may be fortuitous or it may be regarded as attesting to the small size and rural nature of the site.

A total of 13 figurine fragments make up the count in this category. Of these, eight are the crude, slab-like, mould-made type always associated with the Toltec period. They are called "Coyotlatelco" by some students and "Mazapan" by others, having been found in sites of

both periods (Vaillant 1944, Plate 25). Of the eight, five are body fragments, one shows the crude suggestion of feet, one is a headdress fragment decorated with punctations, and the last is a complete head (Figure 2,b, d, and g).

Two other almost complete heads were found. One (Figure 2,c), exhibiting traces of red paint, is typical of the kind associated by Vaillant (1944, Plate 25) with the Mazapan style. The other (Figure 2,a), while not as typical, was also identified as Mazapan by a comparison with Vaillant's figurine collection from Chiconauhtla now at the American Museum of Natural History. The two remaining pieces were the stylized head of an animal (Figure 2,f) much like those illustrated by Tozzer (1921, Plate 13), and a crude and much eroded human head which may possibly have been attached to a vessel of some kind.

Several incensario fragments, some showing the pierced work illustrated by Acosta (1956-1957, Figure 19,1) were identified as well as a hollow cylindrical ladle handle decorated with applied fillets. These, together with a section of a clay flute and a partial whistle ornamented with a crudely modeled human head (Figure 2,e), are all typical of the Toltec period. Although comparatively common in sites of the period, no spindle whorls were found.

The complete count of the material included in this category is listed in Table 2 below. All the material is fragmentary except the clay pellet and the discs.

Table 2. Figurines and Miscellaneous Clay Objects			
FIGURINES		MISCELLANEOUS CLAY OBJECTS	
Toltec Slab	8	Incensario Fragments	7
Mazapan	2	Pottery Discs	2
Teotihuacan "Doll" Arm	1	Clay Flute	1
Stylized Animal Head	1	Whistle	1
Other	1	Decorated Ladle	1
		Baked Clay Pellet	1
TOTALS	13		13

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APPENDIX I--Sources of Illustrations

The illustrations used in this paper are based on material collected at the Maquixco-Mazapan site during the 1962 field season with the following exceptions:

- | | |
|---------------|---|
| Figure 6,h: | Modified from Acosta (1956-1957, Figure 17,7) to conform with material in the collection. |
| Figure 6,i-k: | American Museum of Natural History, Catalogue Number 30.1/9479 |
| Figure 7,a: | American Museum of Natural History, Catalogue Number 30.1/3193 |
| Figure 7,b: | American Museum of Natural History, Catalogue Number 30.1/3200 |
| Figure 7,c: | American Museum of Natural History, Catalogue Number 30.1/3271 |

TYPE NUMBER	TYPE NAME	NUMBER	PERCENTAGE
1	Toltec Brown	1867	52.53
2	Polished Orange	77	2.17
3	Polished White	31	0.87
4	Mazapan	169	4.76
5	Toltec Red/Buf	301	8.47
6	Wide Band Red/Buf	147	4.14
7	Orange Slip	311	8.75
8	Dark Brown Slip	75	2.11
9	Red-Purple Slip	247	6.95
10	Toltec Coarse Brown	197	5.54
11	Tula Watercolored	60	1.69
	Aztec Wares	24	0.67
	Classic Wares	15	0.42
	Trade Ware	5	0.14
	Unclassified	28	0.79
	TOTAL	3554	100.00

Table 3. Sherd Count and Percentages of Toltec Types, Classic Wares, and Aztec Wares for the Maquixco-Mazapan Site as a Whole.

TYPE NO.	TYPE NAMES	TRENCH NUMBER									
		I		II		II-A		III		IV	
		#	%	#	%	#	%	#	%	#	%
1	Toltec Brown	197	48.4	552	51.3	172	53.4	234	52.6	712	54.6
2	Polished Orange	9	2.2	18	1.7	8	2.5	12	2.7	30	2.3
3	Polished White	2	0.5	5	0.5	1	0.3	7	1.6	16	1.2
4	Mazapan	24	5.9	48	4.5	11	3.4	21	4.7	65	4.9
5	Toltec Red/Buf	38	9.4	99	9.2	31	9.6	20	4.5	113	8.7
6	Wide Band Red/Buf	19	4.7	46	4.3	13	4.1	22	4.9	47	3.6
7	Orange Slip	30	7.4	106	9.9	27	8.4	35	7.9	113	8.7
8	Dark Brown Slip	8	2.0	19	1.8	6	1.9	11	2.5	31	2.4
9	Red-Purple Slip	39	9.6	79	7.3	24	7.5	37	8.3	68	5.2
10	Toltec Coarse Brown	24	5.9	57	5.3	20	6.2	27	6.1	69	5.3
11	Tula Watercolored	8	2.0	23	2.1	4	1.2	9	2.0	16	1.2
	Aztec Wares	4	1.0	10	0.9	1	0.3	4	0.9	5	0.4
	Classic Wares	2	0.5	3	0.3	0	0.0	4	0.9	6	0.5
	Trade Ware	0	0.0	0	0.0	0	0.0	0	0.0	5	0.4
	Unclassified	4	0.5	10	0.9	4	1.2	2	0.4	8	0.6
	TOTAL	408	100.0	1075	100.0	322	100.0	445	100.0	1304	100.0

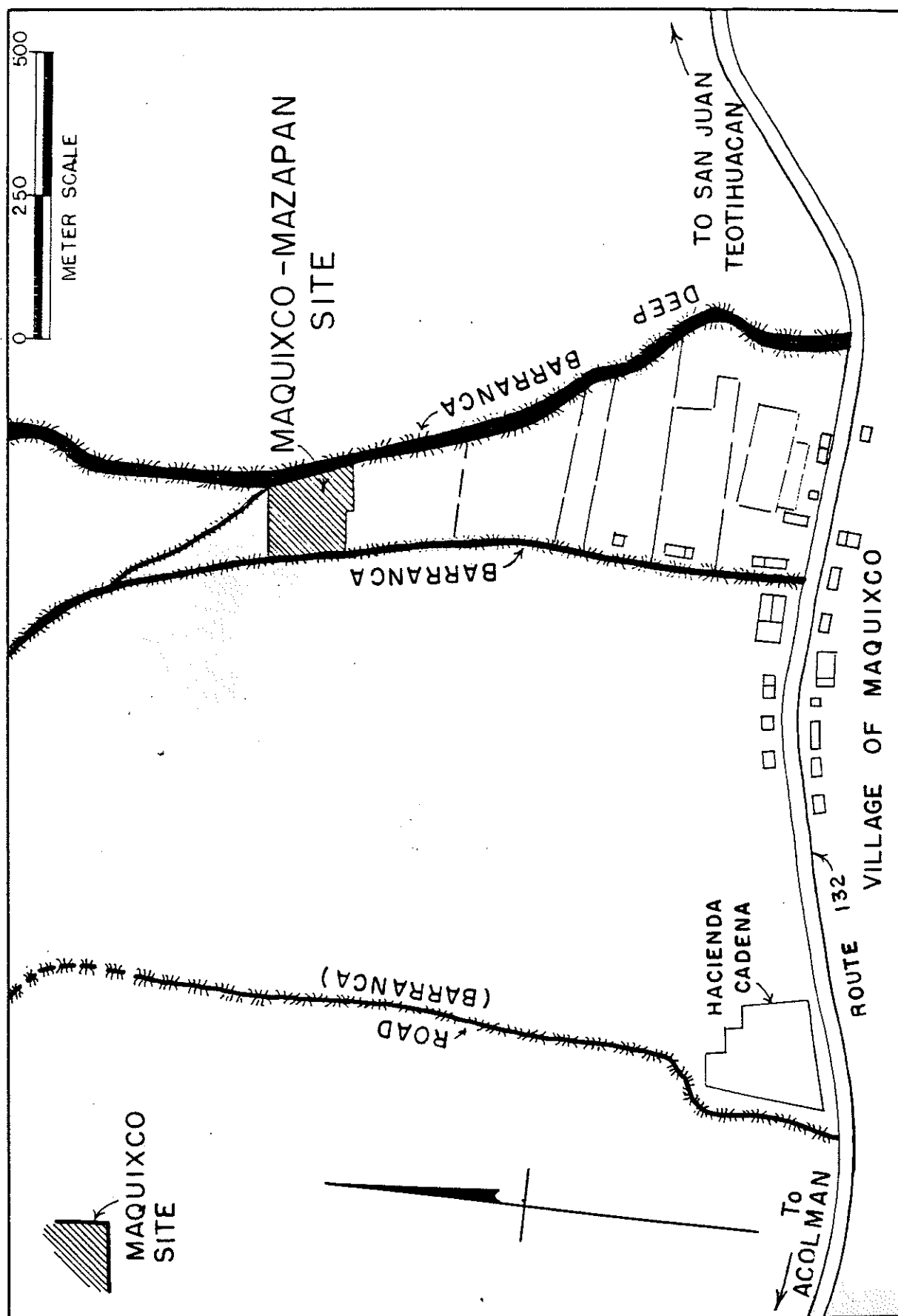
Table 4. Sherd Counts and Percentages of Toltec Types, Classic Wares, and Aztec Wares for the Maquixco-Mazapan Site Listed by Trench.

TYPE NO.	TYPE NAME	TRENCH II							
		LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		#	%	#	%	#	%	#	%
1	Toltec Brown	246	49.8	169	50.8	92	56.1	45	53.5
2	Polished Orange	7	1.4	10	3.0	0	0.0	1	1.2
3	Polished White	4	0.8	1	0.3	0	0.0	0	0.0
4	Mazapan	21	4.3	16	4.8	4	2.4	7	8.3
5	Toltec Red/Buf	57	11.5	24	7.2	11	6.7	7	8.3
6	Wide Band Red/Buf	22	4.5	13	3.9	6	3.7	5	6.0
7	Orange Slip	47	9.5	35	10.5	19	11.6	5	6.0
8	Dark Brown Slip	9	1.8	4	1.2	3	1.8	3	3.6
9	Red-Purple Slip	37	7.5	28	8.4	8	5.0	6	7.1
10	Toltec Coarse Brown	29	5.9	16	4.8	10	6.1	2	2.4
11	Tula Watercolored	8	1.6	11	3.3	3	1.8	1	1.2
	Aztec Wares	4	0.8	2	0.6	4	2.4	0	0.0
	Classic Wares	0	0.0	0	0.0	2	1.2	1	1.2
	Trade Ware	0	0.0	0	0.0	0	0.0	0	0.0
	Unclassified	3	0.6	4	1.2	2	1.2	1	1.2
	TOTAL	494	100.0	333	100.0	164	100.0	84	100.0

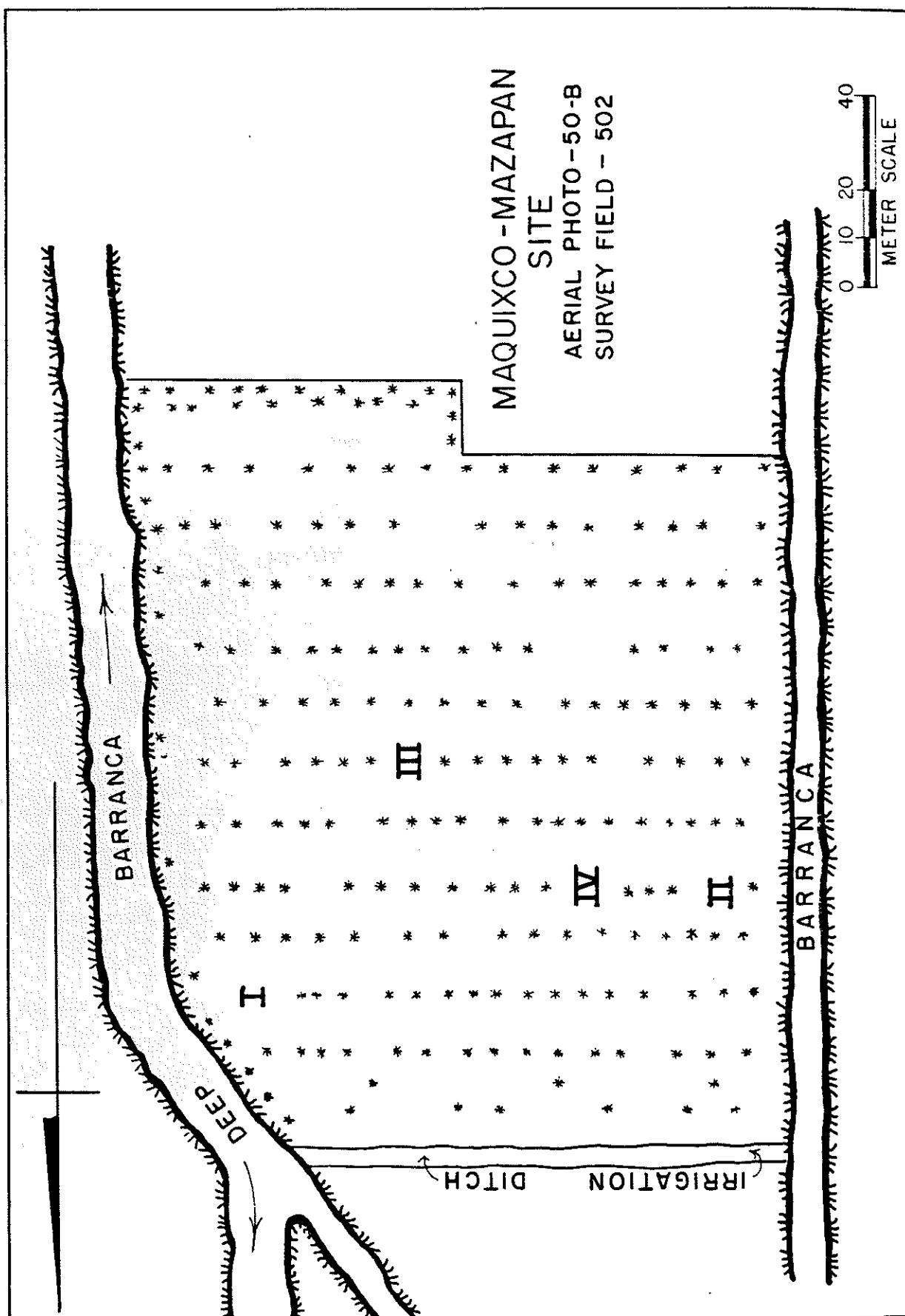
Table 5. Sherd Counts and Percentages for Trench II, Maquixco-Mazapan Site, listed by stratigraphic level to show absence of any trends.

		TRENCH III							
TYPE NO.	TYPE NAME	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		#	%	#	%	#	%	#	%
1	Toltec Brown	442	55.7	102	46.2	113	57.4	55	59.1
2	Polished Orange	23	2.9	5	2.3	2	1.0	0	0.0
3	Polished White	12	1.5	2	0.9	2	1.0	0	0.0
4	Mazapan	33	4.2	16	7.2	10	5.1	6	6.5
5	Toltec Red/Buf	72	9.1	14	6.3	17	8.6	10	10.7
6	Wide Band Red/Buf	26	3.3	10	4.5	8	4.1	3	3.2
7	Orange Slip	63	7.9	31	14.0	13	6.6	6	6.5
8	Dark Brown Slip	15	1.9	9	4.1	7	3.5	0	0.0
9	Red-Purple Slip	34	4.3	14	6.3	16	8.1	4	4.2
10	Toltec Coarse Brown	45	5.7	12	5.4	6	3.1	6	6.5
11	Tula Watercolored	13	1.6	3	1.4	0	0.0	0	0.0
	Aztec Wares	3	0.4	0	0.0	1	0.5	1	1.1
	Classic Wares	4	0.5	0	0.0	1	0.5	1	1.1
	Trade Ware	2	0.2	2	0.9	1	0.5	0	0.0
	Unclassified	6	0.8	1	0.5	0	0.0	1	1.1
	TOTAL	793	100.0	221	100.0	197	100.0	93	100.0

Table 6. Sherd Counts and Percentages for Trench IV, Maquixco-Mazapan Site, listed by stratigraphic level to show absence of any trends.



Map 1. The Maquixco Area, Valley of Teotihuacan--Showing Location of site.



Map 2. The Maquixco-Mazapan Site--Showing Location of Trenches in Maguery rows.

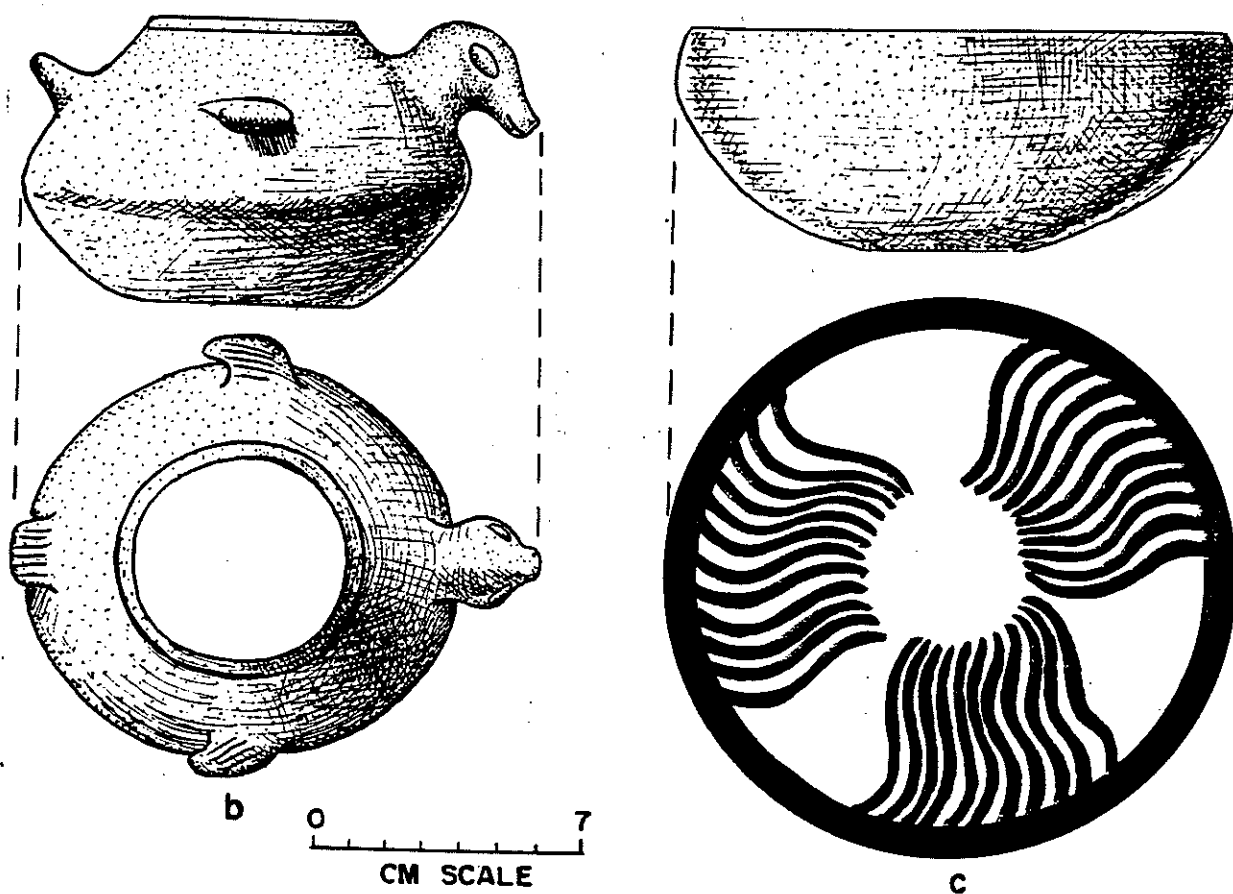
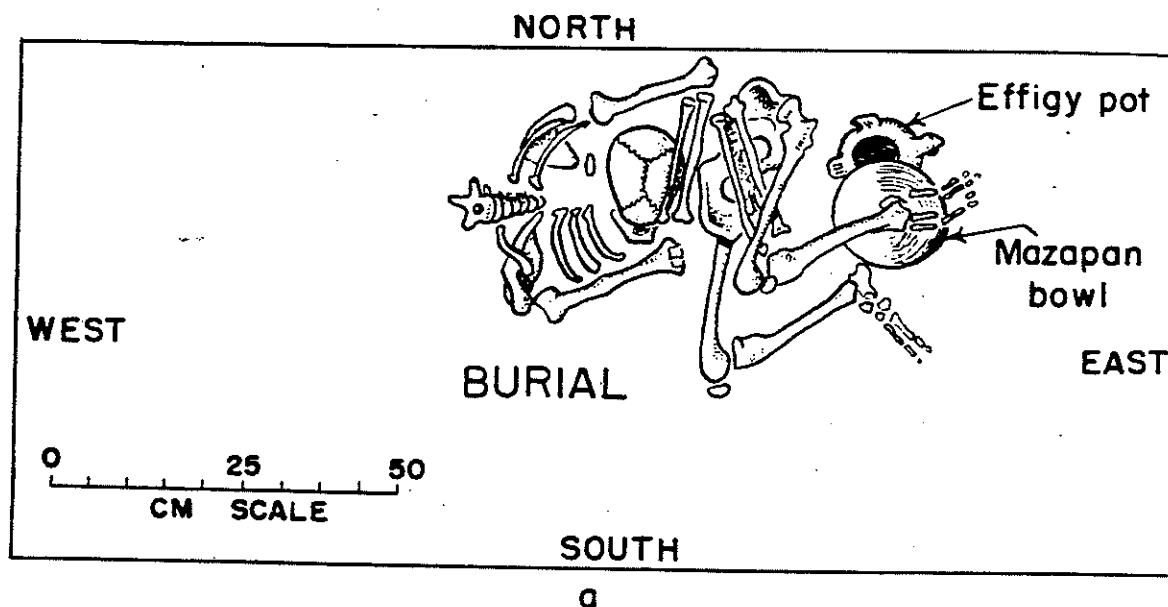


Figure 1. a: Burial uncovered in Trench II-A, showing position of cranium and grave offerings; b: Orange bird effigy pot found with burial; c: Mazapan bowl which was inverted over effigy pot.

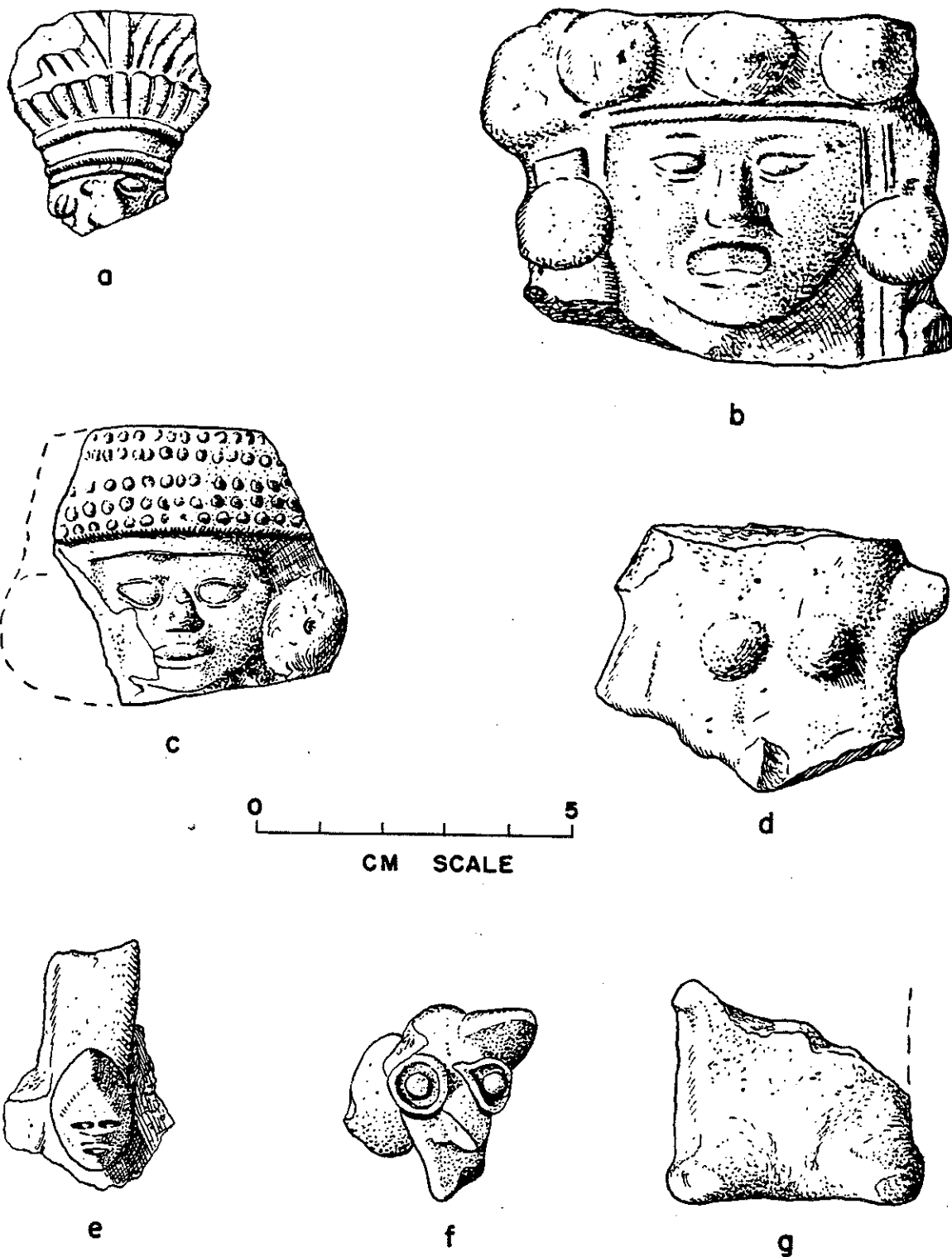


Figure 2. Figurines from the Maquixco-Mazapan Site. a and c: Mazapan figurine (c--bears traces of red paint); b, d, and g: Toltec Slab figurines; e: Clay whistle decorated with modeled head; f: Stylized animal head.

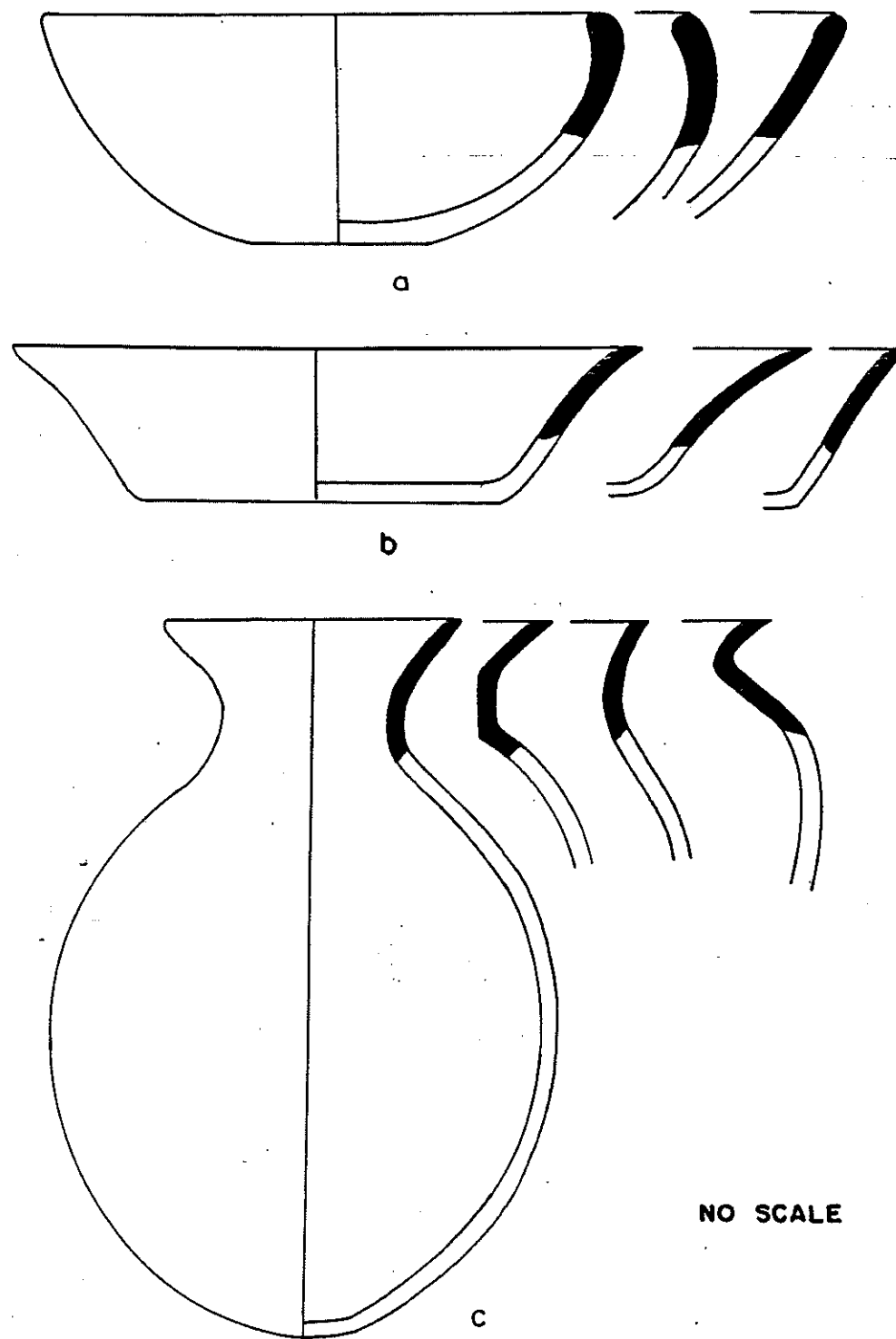


Figure 3. Typical Toltec Vessel Shapes, showing rim forms and variations in relation to the vessel as a whole. a: Hemispherical bowl; b: Basal break bowl (the bottom is not necessarily flat as shown); c: olla.

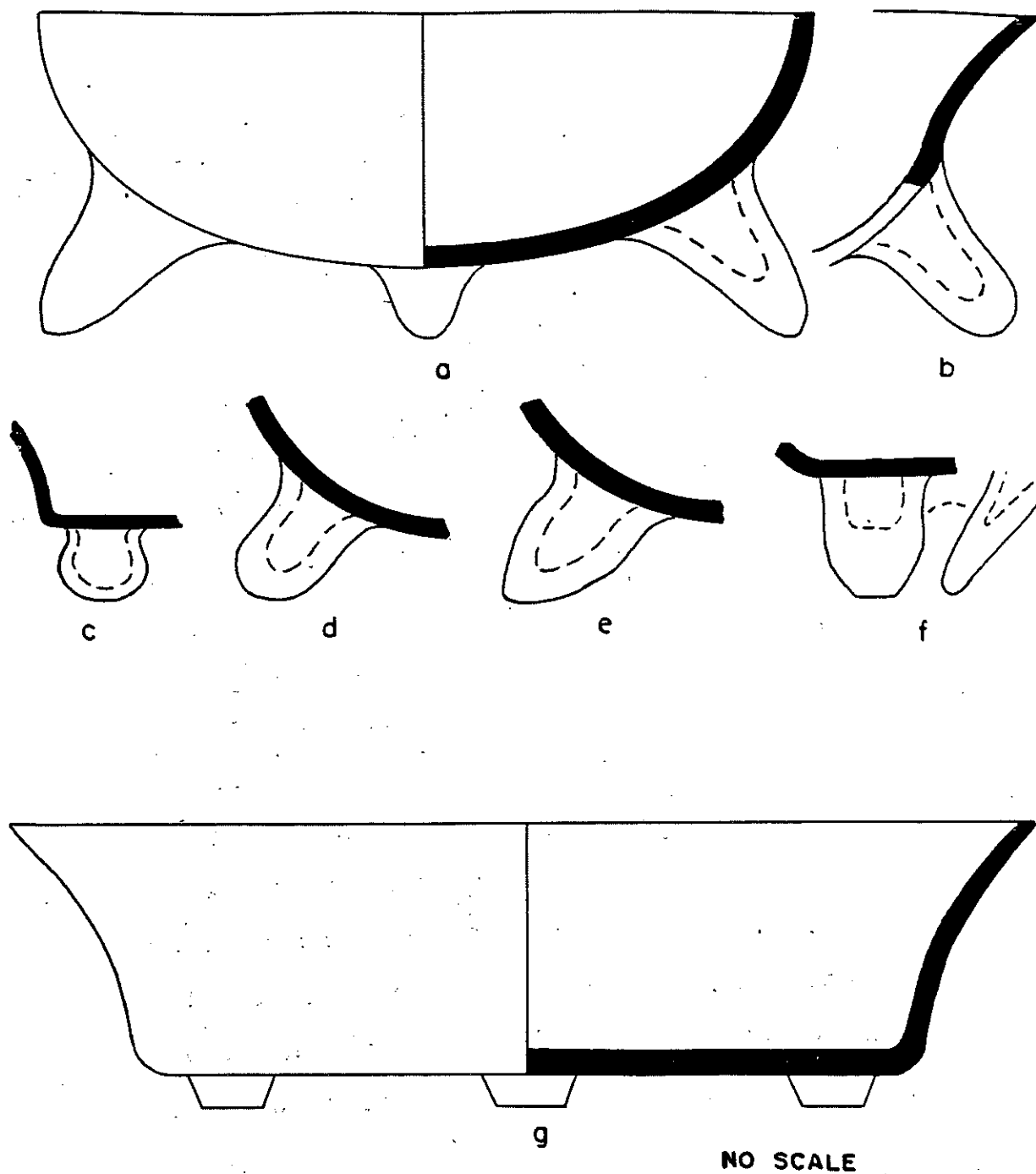


Figure 4. Typical Toltec Vessel Shapes. a: Tripod vessel (bowl) with hollow supports; b: Variations of rim and hollow support; c, d, e, and f: Variations of hollow supports; g: Flat bottomed bowl of the type known as cajetes with solid nubbin supports. (In this report variously referred to as flat bottom bowls with flaring sides or basal break bowls.)

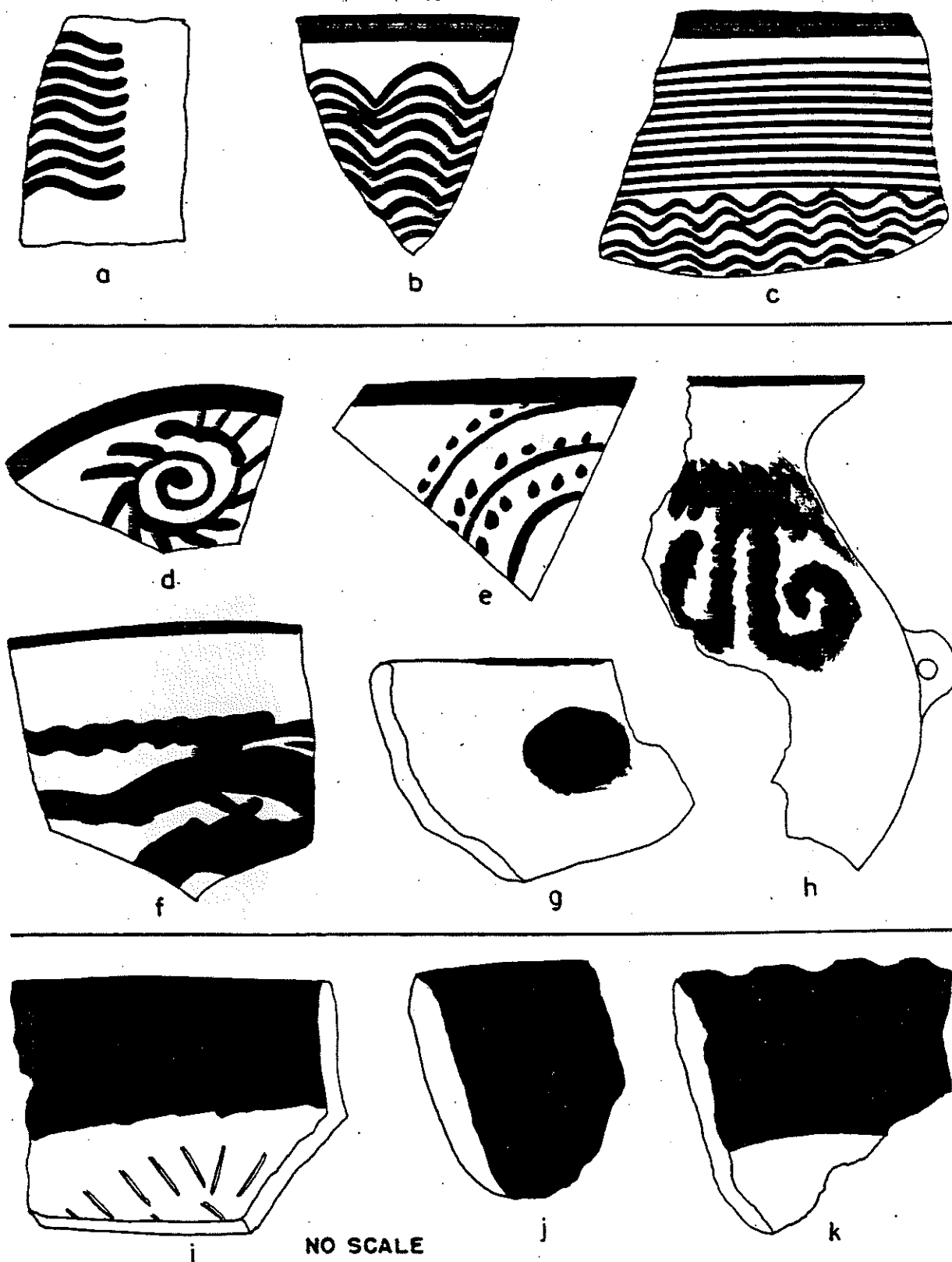


Figure 5. Mazapan Complex Sherds. a, b, and c: Mazapan; d, e, f, and g: Toltec Red/Buf bowl sherds; h: Toltec Red/Buf olla sherd; i, j, and k: Wide Band Red/Buf (i--showing molcajete striations and k--showing scalloped rim).

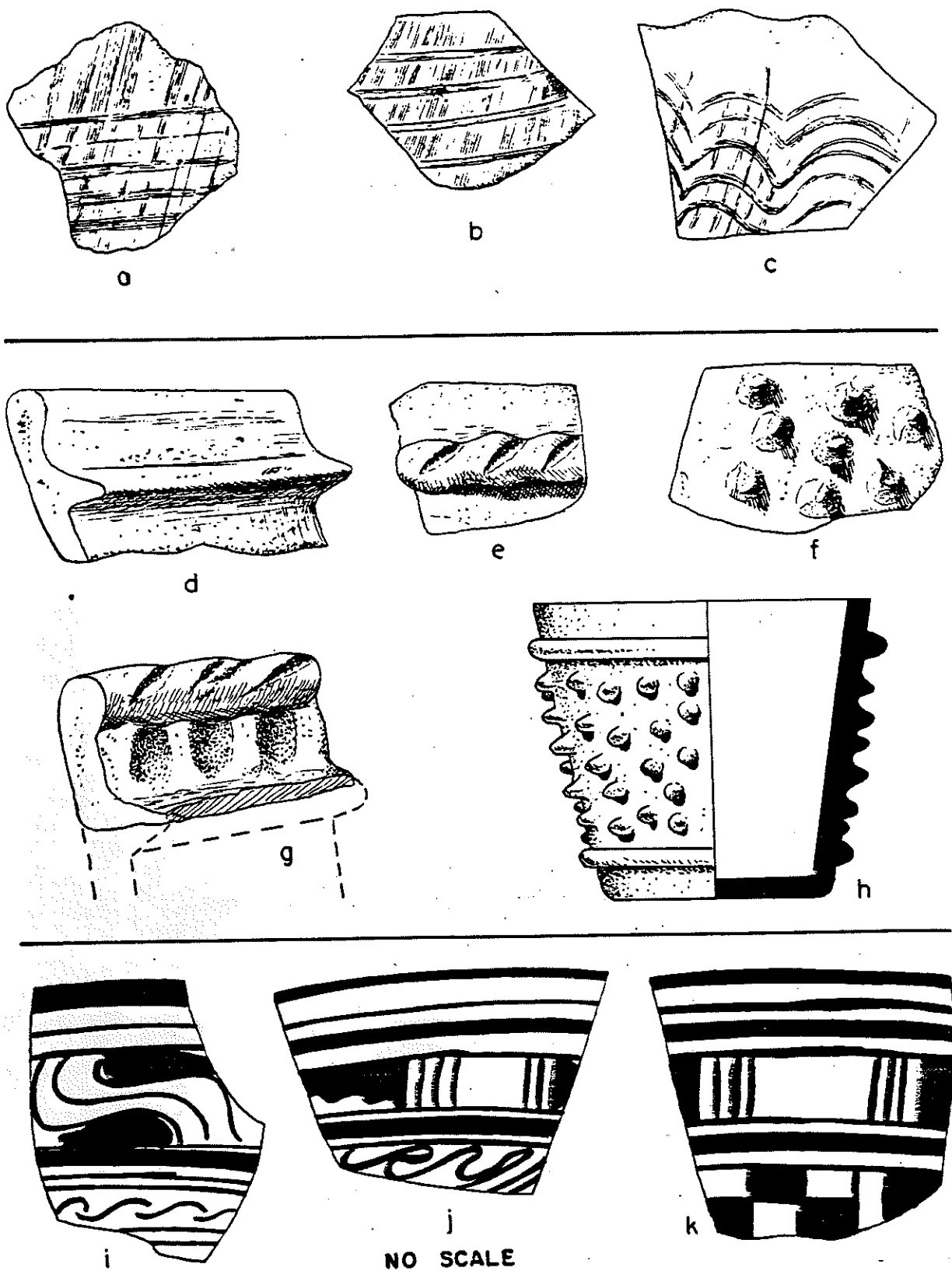
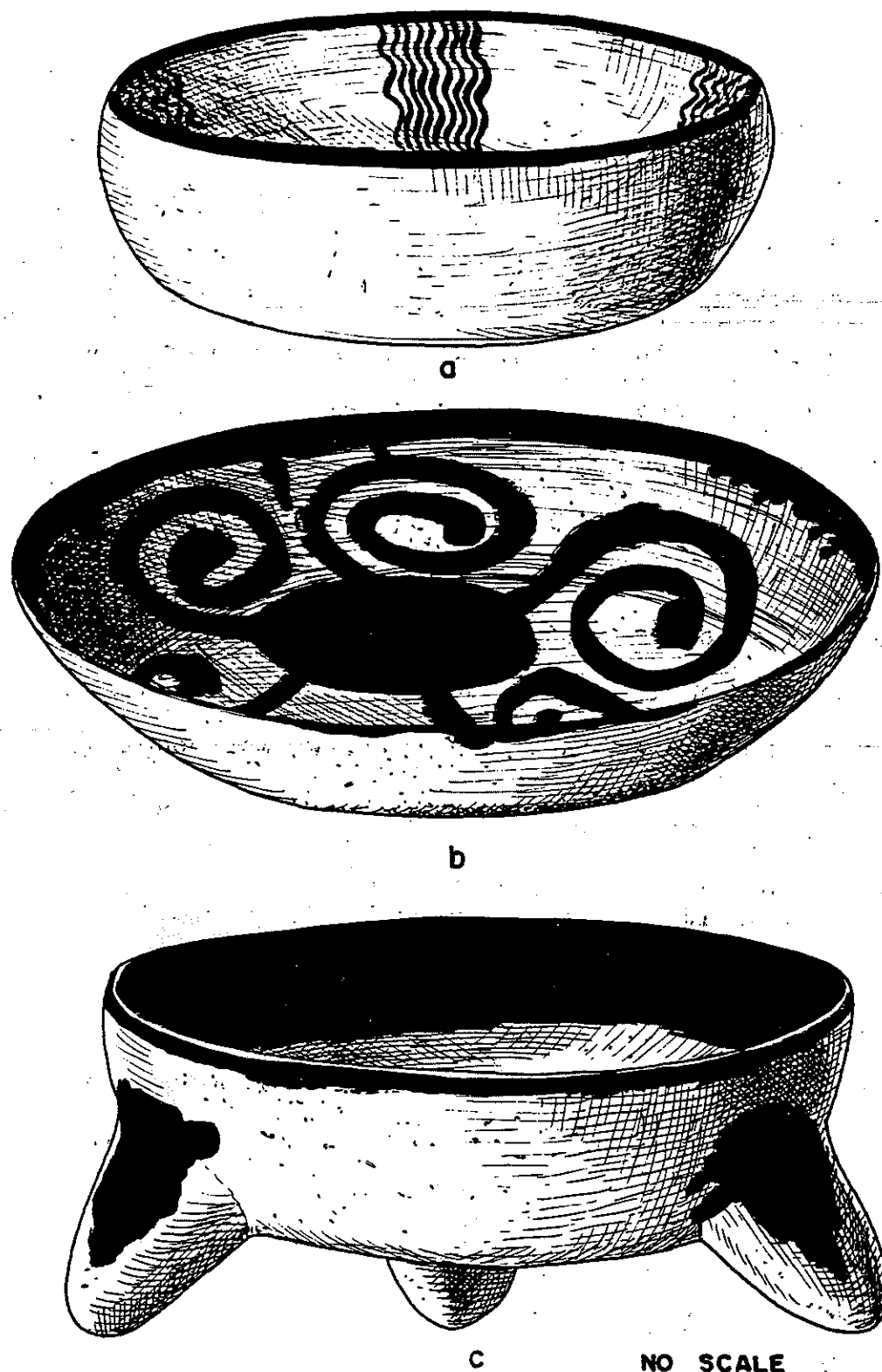


Figure 6. a, b, and c: Tula Watercolored; d, e, f, g, and h: Toltec Coarse Brown (c, d, e, and g-rims and fillets, f-body sherd, h-typical vessel shape); i, j, and k: Coyotlatelco (not found at site, but shown for contrast; samples from the American Museum of Natural History).



NO SCALE

Figure 7. Typical Vessels of the Mazapan Complex, primary types shown to illustrate characteristic decoration on vessel shape with which it is associated. a: Mazapan; b: Toltec Red/Buf; c: Wide Band Red/Buf.

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92
93
94
95
96
97
98
99

Chapter 2. EXCAVATIONS AT XOMETLA (TT21)

by

Deborah Nichols and John McCullough

TABLE OF CONTENTS

	Page
LIST OF TABLES	56
LIST OF FIGURES	58
LIST OF PLATES	61
THE EXCAVATION.....	63
General Description of TT21	63
Condition of the Site	64
Excavation Strategy.....	64
Results of Excavation.....	64
Construction Phase I.....	65
Construction Phase II.....	67
Construction Phase III	67
Construction Phase IV.....	68
Post-Phase IV	68
Summary and Discussion	69
CERAMIC ANALYSIS	70
The Sample.....	70
Methodology.....	71
Monochrome Bowls	72
Flat Bottom Bowls.....	73
Composite Silhouette Bowls	73
Hemispherical Bowls	74
Monochrome Bowls With Plastic Decoration.....	75
Stamped Design.....	75
Incised Decoration.....	75
Utility Ware.....	76
Jars	77
Low Neck Jars	77
Medium to High Neck Jars	78
Basins	79
Basins, Shallow	80
Basins, Medium Deep, Flaring Walls.....	80
Basins, Deep.....	80
Comales	81
Ladles	81
Thin Orange.....	82
Painted and Slipped Ware	82
Red/Buff.....	83
Red/Cream	84
Cream Slipped.....	84
Wide Band Red/Buff	85
Mazapan Wavy Line Red/Buff	85
Toltec Red/Buff.....	86
Coyotlatelco.....	86
Design Analysis of Red/Buff Ceramics	86
Interior Decoration	87
Color	87
Burnishing.....	87

TABLE OF CONTENTS (Continued)

	Page
Interior Painted Decoration.....	87
Design Quality	89
Exterior Decoration	89
Color	89
Burnish	90
Decoration.....	90
Quality of Design Execution.....	91
Miscellaneous Types.....	91
Imported Ware.....	91
Late Huastec Black/White.....	91
Monte Alban Grey	91
Multiple Mouth Vessels	91
Miniature Vessels.....	91
Lacquer Ware	92
Molcajetes	92
Handled Censers	92
Large Censers	92
Formative	93
Classic.....	93
Miscellaneous Late Toltec	93
Aztec.....	93
 SUMMARY AND CONCLUSIONS.....	 93
 BIBLIOGRAPHY	 95
 APPENDIX I -- Appendages	 96
 APPENDIX II -- Xometla Design Analysis Code Sheet.....	 98
 APPENDIX III -- Xometla Ceramic Classification Code Sheet.....	 100

LIST OF TABLES

Table		Page
1	Xometla Wares.....	103
2	Monochrome Bowls.....	103
3	Monochrome Flat Bottom Bowls	104
4	Monochrome Hemispherical Bowls	105
5	Flat Bottom Bowls, Sharp Flare	105
6	Flat Bottom Bowls, Medium Flare	106
7	Flat Bottom Bowls, Vertical to Light Flare	106
8	Flat Bottom Bowls, Flare Undertermined.....	107
9	Small Hemispherical Bowls.....	107
10	Medium Hemispherical Bowls	108
11	Large Hemispherical Bowls	108
12	Hemispherical Bowls, Size Undetermined.....	109
13	Monochrome Bowls, Stamped Decoration	109
14	Monochrome Bowls, Incised Decoration	109
15	Utility Ware	110
16	Jars	112
17	Low Neck Jars	113
18	Low Neck Jar Varieties	114
19	High Neck Jars	115
20	High Neck Jar Varieties	116
21	Basins	117
22	Basins, Shallow Flare.....	118
23	Basins, Medium Flare.....	118
24	Basins, Deep	119

LIST OF TABLES (Continued)

Table		Page
25	Comales	120
26	Ladles	120
27	Thin Orange Ware.....	121
28	Painted and Slipped Ware.....	122
29	Painted and Slipped Decoration.....	123
30	Painted and Slipped Types, Vessel Form.....	124
31	Coyotlatelco Red/Buf Design Analysis.....	125
32	Coyotlatelco Design Motifs and Elements	126

LIST OF FIGURES

Figure		Page
1	Xometla Site Map.....	127
2	Xometla Excavation, Ground Plan	128
3	Xometla Excavation, North-South Profiles	129
4	Xometla Excavation, East-West Profiles	130
5	Designs on Coyotlatelco Red/Buf Pottery.....	131
6	Coyotlatelco Decorated Vessels	132
SHERD PROFILES		
7	Burnished Tan Jars.....	133
8	Burnished Tan Jars.....	134
9	Burnished Tan Jars.....	135
10	Burnished Tan Jars.....	136
11	Burnished Tan Jars.....	137
12	Red Slip Jars.....	138
13	Red Slip, Polished Tan, and Burnished Brown Jars	139
14	Tan with Red Lip Band or Interiors, Basins	140
15	Tan and Tan with Red Lip Band, Basins.....	141
16	Tan and Tan with Red Lip Band, Basins.....	142
17	Tan Basins	143
18	Tan Basins	144
19	Tan Comales	145
20	Tan Comales	146
21	Coyotlatelco Red/Buf Bowls	147

LIST OF FIGURES (Continued)

Figure		Page
22	Coyotlatelco Red/Buf Bowls	148
23	Coyotlatelco Red/Buf Bowls	149
24	Coyotlatelco Red/Buf Bowls	150
25	Coyotlatelco Red/Buf Bowls	151
26	Coyotlatelco Red/Buf Bowls	152
27	Coyotlatelco Red/Buf Bowls	153
28	Coyotlatelco Red/Buf Bowls	154
29	Coyotlatelco Red/Buf Bowls	155
30	Red Banded Red/Buf Bowls.....	156
31	Red Banded Red/Buf Bowls.....	157
32	Red Banded Red/Buf Bowls.....	158
33	Censer Ware and Monochrome Brown	159
34	Monochrome Brown Bowls.....	160
35	Monochrome Brown Bowls.....	161
36	Monochrome Brown Bowls.....	162
37	Monochrome Brown Bowls.....	163
38	Monochrome Brown Bowls.....	164
39	Monochrome Brown Bowls.....	165
40	Monochrome Brown Bowls.....	166
41	Monochrome Brown Bowls.....	167
42	Monochrome Brown Bowls.....	168
43	Monochrome Brown Bowls.....	169

LIST OF FIGURES (Continued)

Figure		Page
44	Monochrome Brown Bowls.....	170
45	Monochrome Brown Bowls.....	171
46	Monochrome Brown Bowls.....	172
47	Monochrome Brown Bowls.....	173
48	Monochrome Brown Bowls.....	174
49	Monochrome Brown Bowls and Censer Ware	175

LIST OF PLATES

Plate		Page
<u>Plates 1 - 3 Excavation Photographs</u>		
1	<ul style="list-style-type: none"> a. General View of Xometla Site to north from Mound 72. b. General View of Mound 72 Excavation, view to the northeast. c. Mound 72 Excavation, stairway exploratory trench, view to the northeast. d. Mound 72 Excavation, construction detail of the stairway, view to the south-southeast..... 	176
2	<ul style="list-style-type: none"> a. Mound 72 Excavation, cross section of the stairway, view to the north. b. Mound 72 Excavation, view of the east retaining wall of Construction Phases II and III, northeast corner. c. Mound 72 Excavation, view of east retaining wall, Construction Phase IV. d. Mound 72 Excavation, small enclosure, possibly a shrine room on the stairway, view to the southeast..... 	177
3	<ul style="list-style-type: none"> a. Mound 72 Excavation, Construction Phase III retaining walls and associated earth floor, view to the north-northeast. b. Mound 72 Excavation, south retaining walls of Construction Phases I - IV and earth floors 1 and 2, early phase of the excavation. c. Mound 72 Excavation, construction detail of the east wall, Construction Phase III..... 	178
<u>Plates 4 - 18 Pottery Surface Treatment Photographs</u>		
4	Coyotlatelco Red/Buff. All sherds are from Xometla except e which is from Oxtotipac. a - n: Interior designs.....	179
5	Coyotlatelco Red/Buff. All sherds are from Xometla. a - e: Interior design. e - l: exterior design (f, i are Red/Cream).....	180
6	Coyotlatelco Red/Buff. All sherds are from Cuanalan East. a - j: Interior design.....	181
7	Coyotlatelco Red/Buff. All sherds are from Cuanalan East. a, i: Interior design. b - g, j: Exterior design. (b - i are Red/Cream)	182
8	All sherds are from Xometla except a, b, and d which are from Cuanalan East. a, b, d: Basins with everted lip band. c: Hollow tubular handle, Red/Yellow. e: Mold-made Censer fragment. f: Incised Monochrome Tan. g, h: Thin Orange. i: Monochrome Brown, grooved and punctate. j - o: Monochrome Brown, stamped	183

LIST OF PLATES (Continued)

Plate		Page
9	Monochrome Brown Sherds from Xometla. a: Incised hemispherical bowls. b, c: Incised and punctated basal break bowls. g, o: Stamped hemispherical bowls. d, h, m, n, r, s, t: Stamped basal break bowls and vases. f: Incised basal break bowl. i - l, p, q: Stamped body sherds.....	184
10	Basins. All sherds are from Xometla except b which is from Cuanalan East. a: Plain with exterior bevelled lip. b: Everted lip and red band. c: Slightly everted lip with red lip band. d: Exterior bevelled lip, orange-red lip and interior. e: Exterior bevel and orange lip band. f: Exterior bevel and orange-red lip band and interior. g: Superior bevelled lip and plain surface.....	185
11	Comales. All sherds are from Xometla except e which is from Cuanalan East. a, b: Exterior views. c - f: Interior views.....	186
12	Trough Handled Ladles. All sherds are from Xometla except b and c which are from Oxtotipac. a: Plain Orange. b, h: Plain Brown. c - g: Red/Orange or Red/Brown.....	187
13	Handled Censers. All sherds are from Xometla. a - c: Jar Handles.....	188
14	Parts of Large Stationary Censers. All sherds are from Xometla	189
15	Jars. All sherds are from Xometla. a, d, e: Low necked jars. b: High necked jar, Red Slipped. c, f, g, h: High necked jars, Brown Ware. (c - h have everted lip, f has flaring lip, and g is bolstered)	190
16	Monochrome Brown Ware from Xometla. All sherds are from basal break bowls with flat bottoms except f which is a composite silhouette bowl. a, g: Interior views. b - f, h: Exterior view	191
17	Monochrome Brown Hemispherical Bowls. All sherds are from Xometla except f which is from Cuanalan East. a - g: Exterior views.....	192
18	Specialized Basal Features. All sherds are from Xometla. a, c, d, g: Solid conical support (Coyotlotelco Red/Buff). b: Solid truncated tubular support of a vessel with a Red Slipped interior. h: Hollow, vented subconical support with traces of Red Slip. j: Solid tubular plain support. e, f, i: Annular bases (e has Red Slip, f and i are plain).....	193

THE EXCAVATION

The Early Toltec phase in the Basin of Mexico remains as one of the most controversial and poorly understood periods in the prehistory of this region. Further understanding of the important changes that occurred during this time is dependent upon establishing tighter chronological controls at both the regional and local level. Towards the partial clarification of this problem, an excavation at the prehistoric settlement of Xometla (TT21) was undertaken to provide a better definition of both the architectural style and artifact assemblages associated with the Early Toltec phase in the Teotihuacan Valley. The following report contains a discussion of the Xometla excavation and a description of the artifact complexes recovered from that excavation.

The excavation at TT21, also known as the Xometla site, was conducted by John McCullough, in 1962, in conjunction with the Teotihuacan Valley Project. Unfortunately, no one who participated in the excavation has ever written a final report. Carl Bebrich, in 1972, began the task of reconstructing the excavation from the available field notes, photographs, and drawings. However, he was unable to complete the work, and as a result, the final site report was not completed until 1976. Joseph Marino is responsible for the preparation of the profile and plan drawings. The ceramics were analyzed, and this final report written by Deborah Nichols.

General Description of TT21

The prehistoric settlement of Xometla (TT21) is located on the eastern piedmont of the lower Teotihuacan Valley, between the modern villages of Xometla and Tepetitlan, at an elevation of 2282 to 2290 m. The piedmont in this part of the valley is approximately 600 to 800 m wide. To the east of the site is the Patlachique Range and to the west lies the alluvial plain.

The site itself covers an area of approximately 50 ha in a 400 m wide band along the piedmont. Sanders (1965) estimates that there are over 100 mounds present on the site, most of which have been at least partially destroyed. In addition to the mounds, is a light to heavy concentration of pottery and rock debris scattered over the area (Figure 1).

Functionally, there appears to be both domestic and civic-ceremonial architecture on the site. A temple pyramid, 12 to 15 m in diameter and 3 to 4 m high, is located near the center of the site at the upper edge. West and south of the pyramid are large plazas; on the northern border of the west plaza is a large, low, rambling mound which appears to be a multi-room structure. The remaining mounds are similar in size to Aztec domestic mounds. The Teotihuacan Valley Survey Project determined that an extensive Early Toltec (Xometla phase) occupation is present on the site, as well as a smaller Late Toltec (Mazapan phase) and an Aztec occupation. Nearly all of the mounds, including the pyramid, have Xometla phase ceramics on their surfaces. Sanders (1965) estimated the Early Toltec population of the site to have been between 1250 and 2500 persons. It should be noted that Xometla is one of the few Toltec settlements in the Teotihuacan Valley with public architecture, an indication that this community may have functioned as a regional center.

Condition of the Site

At present, the Xometla site is encompassed by agricultural fields, hence most of the area has been extensively plowed. Contemporary agricultural terraces have also been constructed along the piedmont. In addition to the disturbance caused by these agricultural activities, a railroad cut, running southwest to northeast, was made through the eastern edge of the site. Quarrying activities in the vicinity of the large pyramid have subsequently widened this cut. Along the northern and southern edges of the site, erosion down to the *tepetate* (the natural bedrock) has occurred. However, where stone terraces and bancals have been maintained, the soil may be as much as a meter deep. Finally, since the original archaeological survey was conducted, two small stone houses have been constructed on the southwestern section of the site.

Excavation Strategy

On the basis of the settlement survey data, it was decided to perform a limited excavation on the site in an attempt to further refine the regional ceramic chronology for the Early Toltec phase. Mound 72 (Figure 1) was selected for excavation on the basis of several factors. First, the survey indicated an abundance of Early Toltec ceramics on the mound's surface. Second, this mound is one of the larger and better preserved mounds on the site. Finally, it was believed at the time, that the unexcavated structure might be an elite residence and would, therefore, yield a representative ceramic sample.

Mound 72 is one of a cluster of mounds located along the eastern edge of the site. On the basis of surface indications, these mounds appear to be slightly larger than the majority of mounds at Xometla. Their size and proximity to one another suggests that this area might have functioned as the civic-ceremonial center of the Toltec community. Furthermore, the excavation revealed a plaza, possibly paved, associated with Mound 72. Additional discussion of this feature will be included in the "Construction Phase I" section. The association of this plaza with the cluster of mounds lends support to the interpretation that this area is the civic-ceremonial focus of the community.

Excavation began by laying out a grid system of 2 m by 2 m squares over the entire surface of the mound. These units were excavated in arbitrary 25 cm levels except where cultural strata such as walls or floors were encountered. Not all units were excavated to the *tepetate*; some lots were only dug deep enough for following the tops of walls. Other units were excavated to a depth sufficient for obtaining samples of the ceramics indicated in the profile drawings. In addition, these profiles show the undulations in the natural stratigraphy. The reader should refer to the photographs and profile and plan drawings throughout the following discussion (Figures 2-4, Plates 1-3).

Results of Excavation

The excavation revealed an initial low platform mound (referred to as Construction Phase I) oriented on a north-south axis with a projecting apron and stairway along the west side. However, the summit of the platform was apparently destroyed prior to the excavation by Post-Conquest plowing. This platform underwent three enlargements (hereafter referred to as Construction Phases II, III and IV) following its initial construction. Discussion of the results of the excavation will follow the historical sequence of the platform's construction, beginning with the initial structure which includes the stairway-apron complex.

Construction Phase I

The Phase I structure consists of a relatively low, single terrace platform with a sloping talud. Attached to the west side of the platform is a small extension (apron) and stairway. The platform measures approximately 9.8 m (length of east and west walls) by 7.0 m (length of north and south walls) which gives the platform a basal area of 68.6 m². These measurements are only approximations as the walls show some warping and only the northwest corner of the Phase I platform was still intact at the time of the excavation. The warping of the walls is at least partially a function of deterioration over time; it is also possible that the walls did not conform to straight lines when constructed.

The platform in Phase I, and all succeeding phases, was constructed on the tepetate. This is evidenced by the fact that the retaining walls rest directly on the tepetate. Furthermore, these walls vary in height according to the undulations in this natural surface. Measurement of the preserved sections of the Phase I walls indicates an average height of 1.25 m. However, the repeated plowings as well as the later construction have removed the tops of many of the walls. Therefore, it is entirely possible that the original Phase I structure was slightly higher.

In terms of the construction technique, the retaining walls are battered and typically consist of roughly shaped rectangular stone and unshaped river cobbles. The Phase I wall facings, like the retaining walls, are constructed out of stone (typically basalt) with mud plaster. In some sections of the walls, the stone was trimmed into rectangular blocks and an apparent attempt had been made to fit the stone during construction. However, most of the preserved wall segments consist of some cut stone blocks and unaltered water-worn cobbles haphazardly set in mud mortar. There is no indication of lime plaster having been used on the wall facings, as is commonly found on buildings of the preceding Classic period. This use of both cut and uncut stone in the wall facings is rather strange. One possible explanation is that the cut stones were removed from some previous construction and were then used in conjunction with the locally available material. Conceivably, this cut stone could have been removed from any of the numerous abandoned buildings at Teotihuacan. If this were the case, then the platform may have been constructed without the use of professional stonecutters.

The fill inside the platform consists of rock, earth, small pieces of obsidian, figurine fragments, and potsherds. All of the potsherds are quite small (1 to 3 cm) in diameter, almost as if they had been deliberately crushed into small fragments for use as fill.

As previously mentioned, the summit of the platform had apparently been destroyed prior to the excavation. Our reasons for believing this are based on the observation that no wall stubs, whose presence would have been an indication of a summit structure, were identified during the excavation. Furthermore, no surfaces were associated with the tops of the walls, which were frequently encountered within Level 1, or the first 25 cm below the surface. This level actually appears to be part of the plow zone, consisting of organic and mineral soils intermixed with rubble and Toltec and Aztec ceramics. No living surfaces associated with the Phase I platforms were identified and the only prepared surfaces occur either within the Phase I platform or outside of it.

The only architectural features associated with the Phase I platform, other than the walls and stairway complex, are a series of packed earth surfaces. These surfaces, as can be seen in the profile and plan drawings, occur both in the interior of the Phase I platform and exterior to it. The packed earth surface within the platform occurs at approximately 50 cm below the surface. In other words, well below the top of the Phase I walls. Towards the center of the platform this surface rests directly on the tepetate; where it approaches the

retaining walls, the surface rests on a thin layer of soil above the tepetate. There are no indications that this feature functioned as a living surface, however its exact function is unclear. One explanation is that this surface was used to level the area to be covered by the platform prior to its construction. An alternative, and more plausible explanation is that this interior packed earth surface predates the construction of the platform and represents a plaza surface on which the platform was later constructed.

The packed earth surface exterior to the platform occurs at the base of the walls and stairway and rests directly on the tepetate. The remains of this surface are found outside and adjoining the Phase I, II, III, and IV platforms. Due to its stratigraphic position and horizontal association with the platform walls, it seems probable that this packed earth surface represents the remains of a prepared plaza surface. Furthermore, there is some indication that this proposed plaza surface was paved; in lot 8S/2W and outside the Phase IV east wall, crushed tezontle gravel overlays the packed earth surface. However, it is not clear whether this red tezontle paving material encountered in lot 8S/2W is outside or inside the south wall of the Phase I platform. Therefore, on the basis of the excavation data, it cannot be determined if the paving of this proposed plaza surface predates the Phase I platform or is contemporaneous with it. In other words, the Phase I platform may have been constructed on a surface which may or may not have been paved at that time. Additionally, this plaza probably continued to function after the construction of the Phase I platform and all subsequent enlargements of it.

It should be noted at this time, that the tepetate on which the platform rests varies in depth. As can be seen in profile drawings, the depth to tepetate increases as one moves away from the center of the Phase I platform. Thus the original platform may have been constructed on a small, natural mound; however, too few of the units inside the platform were actually excavated to the tepetate to determine this conclusively. If the platforms were constructed on a natural mound, this would account for the difference between the depth at which the proposed plaza surface occurs inside the Phase I platform and the depth at which it occurs outside the platform.

The stairway-apron complex was apparently constructed at the same time as the Phase I platform. The apron or porch is a rectangular extension attached to the west side of the platform. As reconstructed in the plan drawing, it measures 7.6 m long (north and south) and 2.0 m wide as measured from the west wall of the Phase I platform.

The construction of the apron is similar in technique to that employed for the Phase I platform. The fill consists of rock, earth, and refuse, including some human bone. In lot 4S/102W, a human skull was encountered and in lot 6S/8W two femora were removed from the apron fill. There are no indications, in terms of pits or associated artifacts, that either of these features represent intentional burials. It seems likely that these human bones were inadvertently included in the earth and artifact refuse used to fill the interior of the apron.

The only definite summit architectural features identified during the excavation are located on the apron. In square 0S/8W, are the remains of an enclosure constructed out of cut and uncut stone set in mud mortar. Given its spatial configuration, as reconstructed in the plan drawing, we believe that this enclosure represents the remains of a small shrine.

A packed earth surface, similar in appearance to the previously described surfaces in the exterior and interior of the platform, is associated with the apron. This surface is located at the same depth as the base of the enclosure walls, in other words, at the top of the apron. Horizontally, the surface forms a continuous area from where it joins the south side of the enclosure until meeting the south wall of the platform. This prepared layer of packed earth appears to represent the functional surface of the apron.

Extending out from the apron, is the stairway and balustrade. The balustrade was constructed using a combination of cut and uncut stone blocks and water-worn cobbles set in mud mortar (the same technique as used on the platform and apron). The balustrade does not slope upward, but forms a horizontal wall 80.0 cm wide enclosing the sides of the stairs.

Interestingly, the stairway differs in its construction technique from both the Phase I platform and the apron. The stairs were apparently first constructed using flat stone slabs over which cut stone blocks were laid. The fitting and consistent use of these cut stones differs quite markedly from the haphazard combining of cut and uncut stone in the balustrade and platform wall facings. As the platform is relatively low, only three steps were required. The stairway and balustrade apparently functioned without alteration from the time of their construction, in conjunction with the Phase I platform, until the abandonment of the Phase IV platform.

Construction Phase II

The Phase II structure simply represents an enlargement of the Phase I platform: the north and south walls were increased from 7.0 m to 8.3 m, in addition to a small increase in the length of the east and west wall to 10.5 m. The basal area of the Phase II platform is 87.2 m², representing an increase of about 28.0% over the Phase I platform. There was little if any increase in the height of the platform.

The architecture, as well as the construction technique, are the same as those of the Phase I platform: wall facings consisting of some cut stone but primarily large cobbles set in mud mortar. Fill between the walls of the Phase I and II platforms consists of earth, rock, and refuse (Early Toltec potsherds, obsidian, and ground stone fragments).

No wall stubs or other indications of a summit structure were found in association with the Phase II platform. Again, the summit of the platform had been destroyed prior to the excavation. Traces of the previously discussed plaza occur outside and at the base of the Phase II walls. Finally, the stairway-apron complex continued to function without alteration despite the enlargement of the platform during Phase II.

Construction Phase III

Following Phase II, the base of the platform was once again enlarged without any significant increase in height. The basal area was increased by slightly more than 35.0% to 118.0 m². The north and south walls were lengthened to 10.2 m and the east and west walls to 11.6 m. As a result of this enlargement, the Phase III platform more closely approximates a square as opposed to the more rectangular Phase I and II platforms. No architectural or other features are associated with the Phase III platform other than the previously discussed plaza surface. Furthermore, no significant alterations were made in the stairway or apron. Finally, the fill between the Phase II and III structures is composed of earth, rock, potsherds, figurine fragments, and obsidian.

Construction Phase IV

The fourth and final construction phase represents a substantial increase in the platform area but only a small increase in height. The basal area (232.6 m²) is more than double that of the preceding Phase III platform: the east-west dimension was increased to 13.6 m and the north-south dimension was also increased to 13.6 m. The top of the highest Phase IV wall measures 1.85 m above the tepetate. However, the tepetate on which the Phase IV walls rest is about 50 cm deeper than that below the Phase I walls.

In addition to the significant increase in the platform area, some sections of the walls show an introduction of a new construction technique. The east wall of the Phase IV platform is constructed out of tabular or slab shaped stone fitted into courses, as opposed to the haphazard use of cut and uncut stone in the previous construction phases. Acosta (1945) has reported similar tabular or slab stone masonry for the Late Toltec (Mazapan) phase at Tula. However, the north wall of the Phase IV platform is of the same architectural style as described for the earlier platforms. Why two different construction techniques should have been employed for the walls of the same structure is unclear and we can offer no explanation for it.

Fill of the Phase IV platform is composed of earth, rock, obsidian artifacts, figurines, and potsherds. In some areas between the Phase III and IV walls this artifact debris had been deposited so rapidly that no soil had settled around the artifacts. Once again the summit of the platform had apparently been destroyed prior to the excavation, as no wall stubs or surfaces were encountered on top of the platform.

The apron also underwent a small enlargement at this time probably in association with the large increase in the platform's area. The apron was lengthened by approximately one meter on both the north and south sides. Although this enlargement could have occurred earlier, the position of the new east wall, perpendicular to the west Phase IV platform wall, indicates that the apron was probably enlarged in conjunction with the Phase IV platform. The construction technique is the same as that employed for the original apron, cut stone and large cobbles set in mud mortar. Despite the enlargement of both the apron and platform, no significant alterations were made in the stairway or balustrade.

Post-Phase IV

In conjunction with the platform excavation, two architectural features were encountered outside of the Phase IV platform. Located approximately 4 m east of the Phase IV platform is a low wall constructed of large blocks of roughly cut stone, about 15 to 20 cm to a side. This wall is associated with a dense concentration of Aztec ceramics, however, no cross walls or other architectural features are associated with it. Based on the observations of similar structures in the Teotihuacan Valley, we have interpreted this feature as a terrace wall presumably associated with the Aztec occupation of the site.

The second architectural feature encountered outside of the Phase IV platform is another low wall constructed of cut stone blocks. This wall is located to the west of the Phase IV platform, diagonally across from the Aztec terrace, east of the platform. This wall is constructed of large cut stone blocks and is capped with a layer of flagstone. We have also interpreted this feature as an agricultural terrace, presumably associated with the Aztec occupation of the site.

Summary and Discussion

Due to the Post-Conquest destruction of the platform's summit no definitive explanation as to the function of this structure can be made. The most probable interpretation is that the platform functioned for civic-ceremonial activities. This interpretation is based on the following evidence. The first supporting point is the association of a paved plaza with the platform. Second, Mound 72 appears to be associated with a cluster of mounds that surrounds this open plaza area. Furthermore, the spatial relationship and proximity of Mound 72 to the other large mounds on the site suggests that this area may have functioned as the civic-ceremonial focus of the community. The final supporting evidence for this argument is based on the size of the platform itself. The Phase I platform was probably too small to have functioned as a residential structure for more than two individuals. Furthermore, the size of the final Phase IV structure probably could not have provided sufficient living area for more than a nuclear family. In other words, the size of the platform is more indicative of a shrine or other type of public building than of a residential structure. Finally we would have expected deposits of midden material somewhere along the edges of the structure if it were residential.

If the platform did serve a public rather than a domestic function, then the periodic enlargements probably occurred within the context of civic-ceremonial activities. Should the other mounds forming the cluster around the plaza be residential structures, then this platform may have served as a shrine for the mound group. The presence of public architecture, such as this platform, in conjunction with the size of the occupation, suggests that Xometla may have functioned as a regional center during the Early Toltec period.

As previously mentioned, the original platform and its several enlargements date to the Early Toltec phase. This is evidenced by the observation that at least 85% of ceramics used in the fill of each platform can be assigned to the Early Toltec or Xometla ceramic complex. Of the remaining 15%, approximately 13% are Aztec ceramics and only 2% are associated with the Late Toltec or Mazapan phase. All of this later material, that is both the Late Toltec and Aztec ceramics, occurs in the upper level of the platform which is part of the disturbed plow zone. However, the use of the tabular construction technique in the Phase IV platform is very similar to Late Toltec architecture at Tula. Based on this information, Sanders (1965) proposed that the Phase IV platform was constructed during the Late Toltec phase. However, this interpretation would seem to be refuted by the presence of only Early Toltec ceramics in the fill of the Phase IV platform as well as by the absence of Late Toltec material even outside Phase IV platform. Therefore, it seems more likely that this new architectural style actually began during the later part of the Early Toltec phase.

Apparently, the platform was abandoned between the end of the Early Toltec phase and the beginning of the Late Toltec phase. Furthermore, it seems likely that the total time span between the construction of the original Phase I platform until the abandonment of the Phase IV structure did not involve more than 100 years. This interpretation of a relatively short duration for the platform is evidenced, architecturally, by the lack of any significant modifications in the stairway, which functioned throughout the history of the platform. It would seem that if the platform had been utilized for more than 100 years the stairway would probably have deteriorated to the point of requiring a major renovation. Thus all the Early Toltec construction probably occurred within a short period of possibly 50 to 75 years.

Further support for this argument is based on the ceramics that were used in the fill of the platform. Ceramic samples were taken from the interior of the Phase I platform and from the fill of the superimposed Phase II, III and IV platforms. These samples are chronologically homogeneous; Coyotlatelco, the temporally diagnostic Early Toltec ceramic type, is abundantly

represented. The description of this Early Toltec ceramic assemblage will be presented in the following section.

In summary, the excavation of Mound 72 on the Xometla site revealed a low platform mound with three superimposed enlargements. This structure was probably utilized for no more than 100 years during the Early Toltec phase. Excavation of this platform has provided data on Early Toltec architectural styles as well as on the ceramic complex of this phase as manifested in the Teotihuacan Valley.

CERAMIC ANALYSIS

The Sample

Nearly all of the rim sherds from Xometla site at The Pennsylvania State University archaeology laboratory were used in the quantitative analysis. The total number of rim sherds is 6341 and all of the Coytlatelco Red/Buf decorated body sherds were included in the design analysis. However, all the available body sherds were used to reconstruct vessel forms and a description of the appendages is provided in Appendix I.

Carl Bebrich (personal communication) attempted to correlate the excavation lots, from which the ceramic samples came, with their appropriate construction phase. His results are as follows:

Phase I: Inside of house platform Construction Phase I.

Surface Levels within Phase I: Lots which may post-date Phase I but are provisionally assigned to that phase.

Phase I - II: Lot numbers assignable to Construction Phases I or II but not specifically to either.

Phase II: Lots assignable to Construction Phase II which encloses Phase I.

Phase I - III: Lots assignable to Construction Phases I, II, or III but not specifically to any one phase.

Phase II - III Lots assignable to Construction Phases II or III but not specifically to either.

Phase III: Lots assignable to Phase III which encloses Phases I and II.

Phase III - IV: Lots assignable to Construction Phases III or IV but not specifically to either.

Phase IV: Lots assignable to Construction Phase IV which encloses Phases I, II, and III.

On Top/Outside Stairway-Apron: These lots probably fall in the range of Construction Phases II - IV and are not specifically assignable to any one phase. The stairway-apron

complex was probably built at the same time as Phase I of the house platform and was thereafter refurbished (but not enlarged or otherwise significantly altered) as the house platform was rebuilt and enlarged. Little excavation into the stairway-apron was conducted, so that the lots recovered probably all derive from the fill of the Aztec terrace. That would make these lots Post-Phase IV in date of deposition, although they contain primarily Toltec materials.

Inside/Outside Phase IV Walls: Lots which may derive from either within Construction Phase IV or Post-Phase IV.

Outside Phase IV: Lots assignable to the phase of construction designated Aztec. Presumably this material contains some of the latest Toltec materials deposited as refuse in the vicinity of this mound during the Early Toltec occupation period. (That is to say that Mound 72 Construction Phases I - IV are probably all Early Toltec in date and encompass no more than about 50-75 years.)

Methodology

Kenneth Good did the initial coding of the Xometla rim sherds, in connection with his analysis of Oxtotipac ceramics, however he was unable to do a detailed analysis of them. Our initial step was to check his rim coding with the actual sample and it appeared relatively accurate. It should be pointed out that the Xometla sherds, on the whole, are quite small and there are no complete or reconstructable vessels from the excavation.

The methodology used here is quite similar to that employed by Sanders and others for describing and classifying the ceramic material collected during the Teotihuacan Valley Project (Sanders et al. 1975).

The ceramics were divided into wares, types, subtypes, and varieties. Archaeologists continue to debate whether artifact types are arbitrary or reflect some mental template. Our point is not to reargue the issue here, but to state that our classification emphasizes attributes of form and function. On the basis of previous work in the Teotihuacan Valley, these attributes appear to be the most useful for comparative and chronological purposes.

Several attributes were used to define the ware categories. This appears more useful than relying on a single criterion for comparing ceramic assemblages either temporally or spatially. Thus, Ware 1 (Monochrome Bowls) includes all unpainted and unslipped bowls, and type divisions are primarily defined on specific form. This ware also includes Monochrome Bowl sherds with any form of plastic decoration which are identical in terms of paste and surface color to undecorated vessels. Functionally, these vessels appear to have served as eating and serving utensils.

Ware 2 (Painted and Slipped Ware) includes the same vessel forms as Ware 1 but with painted decoration. These vessels appear to be identical in terms of paste, size and vessel form to the Monochrome Bowls. They were considered separately because of the chronological importance of the Red/Buff types. Additionally, a design analysis was performed on the Early Toltec Red/Buff (Coyotlatelco), this will be discussed in more detail later.

Ware 3 (Utility Vessels) includes all, thick walled, large vessels with minimal surface finish. These probably functioned as storage and cooking vessels and include jars, basins, and *comales* (griddles).

Ware 4 is Thin Orange, which was classified on the basis of its highly distinctive paste. Ware 5 includes Ladles, which are a distinctive form.

Finally, under Miscellaneous Types, are types which occur in very small numerical quantities such as censers and trade wares. A description of the appendages (handles and supports) is provided in Appendix I.

A 13 column code was used for the computer analysis of the rim sherd sample. Each rim was coded for the following data: ware category, vessel form, color and surface treatment, lip form and orientation, technique of decoration, and excavation provenience number. The computer analysis was performed at The Pennsylvania State University Computation Center. The quantitative analysis was conducted using various subroutines of the *Statistical Package for the Social Sciences*. Time did not permit tabulations of all the different combinations of attributes, therefore, only certain combinations were selected as best suited for our purposes.

The descriptive format for each ware and type will follow a regular order: sample size, paste, color and surface treatment, vessel form, decoration, and a discussion, where appropriate. Drawings and photographs have been included to facilitate description of lip and vessel form and decoration.

Certain attributes such as paste and color are described qualitatively, i.e., pastes were classified on the basis of relative grain size and color. Time did not permit a more detailed analysis, nor did it seem absolutely necessary for our purposes. Emphasis was placed on form, function, and decoration; description of these attributes is much more refined.

Monochrome Bowls

Sample. This ware, Monochrome Bowls, includes 39% (3490 rims) of the total sample from Xometla. It is the second largest ware category in the assemblage, almost equal to the Painted and Slipped Ware (Figures 33,i-k; 34-49,a-g; Plates 8,i, j-o; 9; 16; 17; Table 2).

Paste. Overall, the Monochrome Bowls are relatively homogeneous in terms of paste. They are primarily tan with a few examples of dark brown, orange, and grey. The consistency of the paste appears to be medium grain with a small number of sherds being coarse or fine grain. Some sherds appear to contain some type of metallic inclusions, probably mica or specular hematite. Dark cores are occasionally observable in the rim profiles.

Color and Surface Treatment. Surface color falls within the same range as the paste, except that it is slightly darker due to the effects of burnishing. Tan is by far the predominate surface color of the Xometla Monochrome Bowls; it is found on 2383 rims or 95.7% of the sample. Surface color on the remainder of the rims is either dark brown 4.0% (95 rims), orange 0.2% (6 rims), or grey 0.1% (3 rims). Burnishing tends to be medium in quality; striations are observable which may indicate possible use of the so-called "stick-trailed" method. Frequently, only portions of the vessel wall are burnished, such as the lip or medial strip. An exception to this is found on the incised and stamped monochrome where burnishing tends to be uniformly high. Approximately 63.0% (1563) of the monochrome rims are burnished while the remaining 927 rims or 37.0% are unburnished or only very slightly burnished.

Form. The entire coded sample of Monochrome Bowls is composed of either flat bottom, flare sided bowls (49.8%, 1239 rims) or hemispherical bowls (50.2%, 1251 rims). Other forms are present in very minor quantities, such as the composite silhouette, that were not included in the rim sherd sample. Vessel form will be discussed in more detail under each type.

Decoration. A small percentage of the Monochrome Bowls possess some plastic decoration such as incision (3.7%, 91 rims) or stamping (2.2%, 56 rims). These decorated Monochrome Bowls will be discussed further under each type.

Flat Bottom Bowls

Sample. Flat bottom, flare sided bowls comprise 49.8% (1239 rim sherds) of the Monochrome Bowls (Figures 34.j-k; 39-42; Plate 16; Tables 3; 5-8).

Paste. The paste of the flat bottom bowls is typical of the Monochrome Bowls in general--medium grain and predominately tan.

Color and Surface Treatment. Surface color of flat bottom bowls is almost always tan, comprising 97.8% (1212 rims) of the sample with dark brown rims comprising 2.3% (29 rims) of the total. This group is almost equally divided between medium burnish (49.2%) and very slightly burnished (50.8%).

Form. The predominant form of the flat bottom bowl is a flaring wall with external concavity and a slightly everted lip. The degree of wall flare was divided into three categories: light to vertical flare (24.5%, 303 rims), medium flare (47.6%, 590 rims), and sharp flare (9.6%, 122 rims). For the remaining flat bottom bowl rims, 18.0% or 224 rims, the degree of wall flare could not be determined. The predominate lip form is the slightly everted lip which is found on 87.2% (1080 rims) of all flat bottom bowls. In terms of the degree of wall flare, slightly everted lips are found on 79.5% (97 rims) of those rims with sharp flaring walls, on 82.2% (485 rims) of those with medium flaring walls, on 90.4% (274 rims) of those with light to vertical flaring walls, and on 100.0% (224 rims) of those rims whose degree of wall flare could not be determined. Slightly more everted lips (medium eversion) are found in a low percentage of both sharp flaring wall rims (8.4%, 9 rims) and medium flaring wall rims (6.4%, 38 rims). Direct rounded lips occur on approximately 10.0% of the rims in all categories of wall flare (except those rims whose degree of wall flare is undetermined). Although the majority of flat bottom bowls have medium or light to vertical flaring walls the basal angle is smooth and rounded. The base of the vessel is typically flat or very slightly rounded.

Size and Thickness. The wall thickness of all flat bottom bowls is fairly similar, averaging about 0.50 cm, with a range from 0.35 to 0.75 cm. The range of rim diameters is 8.0 to 34.0 cm and shows no apparent difference by form.

Appendages. Indications of support junctures is observable on a few sherds. They appear to be the hollow conical type. Appendages from the Xometla ceramic assemblage will be discussed in greater detail in a later section.

Composite Silhouette Bowls

Sample. Because of the generally small size of the Xometla rim sherds, only one rim sherd could be definitely identified as part of a monochrome flare sided bowl with a basal ridge. Another ten rims may be from vessels with basal ridges but it is difficult to be certain. Ten basal angle body sherds were found to have basal ridges. It is quite probable that some flare sided bowls with basal ridges have been included in the flat bottom type because rim

sherds lacking the basal angle are indistinguishable from flat bottom bowls with vertical sides (Figures 33,i-k; 34,a-i; 43,d-g; Plate 16,f).

Paste. The consistency and color of the paste from the few examples present appears to be similar to the Monochrome Ware in general. It is predominately tan, 3 are dark brown and one rim sherd is greyish white, all are medium grain.

Color and Surface Treatment. Surface color is similar to the paste being predominately tan. The one clearly recognizable rim sherd with a basal ridge is greyish white and is the only Monochrome Bowl sherd with that surface color. All are medium burnish on both the interior and exterior and striations are observable.

Form. We are calling these flare sided bowls with basal ridges composite silhouettes. This appears to be an elaboration of the flaring wall flat bottom bowl, except that at the juncture of the base and side wall there is a pronounced basal ridge which creates the composite silhouette effect. The wall itself appears fairly vertical with a rounded slightly everted lip. The base is round and has a small flat bottom.

Size and Thickness. Diameters and wall thickness are similar to the flaring wall flat bottom bowls. The average diameter is about 20.0 cm with a wall thickness ranging between 0.3 to 0.5 cm.

Appendages. There are no indications of supports or handles.

Discussion. Despite the possibility that some composite silhouettes may have been included in the flat bottom bowl type, it still appears to be a rare form in the Xometla assemblage. On a few body sherds juncture lines in the paste are observable which may indicate that bases on this type of vessel were made separately.

Hemispherical Bowls

Sample. Hemispherical bowls comprise 50.2% (1251 rims) of the Monochrome Bowls (Figures 35-36; 43,a-c; Plate 17; Tables 4, 9-12).

Paste. The paste is similar to the Monochrome Bowls in general; it is predominately tan with the addition of 3 grey sherds and 6 orange sherds, all are medium grain.

Color and Surface Treatment. The range of surface color is similar to the flat bottom bowls; tan is the predominate color, 93.9% (1173 rims), brown occurs on 5.4% (68 rims), additionally 0.5% (6 rims) are orange and 3 rims are grey. Burnishing tends to be more common in hemispherical bowls; 74.5% (932 rims) of the hemispherical bowls have medium burnish and 24.5% have only slight burnishing. Burnishing also occurs more frequently on both the interior and exterior of hemispherical bowls than it does on the flat bottom bowls. The burnishing also appears to have been done by the "stick-trailed" method.

Form. We have applied the label "hemispherical bowl" to any vessel with convex sides. The "true" hemispherical bowl with a very small flat base may only represent a portion of our hemispherical type. Unfortunately, because of the small size of the Xometla sherds, base size and height are very difficult to determine.

Hemispherical bowls were divided into three arbitrary categories based on the vessel diameter. The first group (20.7%, 59 rims) was classified as small with diameters between 6.0 to 12.0 cm, 68.2% are medium with diameters between 13.0 and 24.0 cm, and 4.9% (61

rim) are large with diameters between 24.0 to 38.0 cm. The remaining 6.2% (78 rims) were too small to determine the vessel diameter. Lip form is predominately direct rounded (98.6%, 1233 rims), some of these lips are slightly tapered. The other lip form is the slightly everted lip which is found on only 1.4% (18 rims) of the hemispherical bowls, all of which are medium sized bowls.

Size and Thickness. Wall thickness shows little variability despite the differences in vessel diameters; the larger bowls tend to have slightly thicker walls. The range of wall thickness falls between 0.40 to 0.75 cm, with the majority at about 0.50 cm.

Discussion. The majority of monochrome hemispherical bowls (68.2%) are medium sized with diameters between 13.0 to 24.0 cm. The medium sized hemispherical bowl is also the most common (34.3%) Monochrome Bowl vessel form. Furthermore, 41.8% of the coded rim sherd sample from Xometla are medium sized hemispherical bowls of which 11.5% are Monochrome and 30.3% are Painted and Slipped.

Monochrome Bowls with Plastic Decoration

This group includes all Monochrome Bowls with some type of plastic decoration such as stamping or incision (Figures 44-49; Plates 8,i, j-o; 9).

A. Stamped Design

Sample. 56 rims or 2.2% of the Monochrome Bowl rims possess stamped decoration (Figures 47, 49; Plates 8-9; Table 13).

Paste. The paste is similar to that of the other Monochrome Bowls--predominately tan but tending to be slightly finer grained.

Color and Surface Treatment. Except for one rim, which is red slipped, the surface color is tan. The entire sample of stamped Monochrome Bowls is well burnished on the interior and exterior.

Form. Stamped decoration occurs on two monochrome vessel forms: 19.6% (11 rims) of the stamped designs occur on flat bottom bowls with medium flaring walls and 80.4% (45 rims) of the stamped decoration occur on medium sized hemispherical bowls.

Decoration. Many of the stamped designs on rim sherds appear to be laid out in bands on the upper exterior wall 1.0 to 4.5 cm below the lip. On other sherds, the designs appear to be distributed over the body wall as well. The basic design elements and motifs are quite similar to those which occur on the typical Coyotlatelco decorated painted ceramics. Rattray (1966) also noted this in her sample of stamped designs from Cerro Tenayo. Design elements present in the Xometla sample include geometric patterns of curvilinear and rectilinear line designs, cross-hatching, simple crosses, undulating lines, and scrolls all of which are arranged in panels. Simple punctate marks occurred on two sherds. One sherd also had a simple red band on the interior lip.

B. Incised Decoration

Sample. 3.7% (91 rims) of the Monochrome Bowls possess incised decoration (Figures 44-46; Plates 8,i; 9,a-c, e-f; Table 14).

Paste. The paste is similar to that of the Monochrome Bowls in general: medium grain although it is usually harder. It is usually tan with some dark brown and orange.

Color and Surface Treatment. Surface color is predominately tan (89.5%, 83 rims of the sample); 7 rims are dark brown, 2 are orange and 1 is red slipped. All incised Monochrome Bowls have a medium to high burnish.

Form. Vessel forms of incised Monochrome Bowls are the same as those for the stamped. 18.7% (17 rims) are flat bottom bowls with medium flare walls and 81.3% (74 rims) are medium size hemispherical bowls.

Size and Thickness. Rim diameters and wall thicknesses are identical to that of medium flare flat bottom bowls and medium size hemispherical bowls.

Decoration. We actually have included in our incised category two decorative techniques. The first is true incision in which the design is made with a sharp pointed implement before the vessel is fired. The second is what Rattray refers to as carved base relief decoration in which the decoration "is cut away with a sharp instrument while the clay is still wet" (Rattray 1966:118). Despite which technique was used, as it is often difficult to tell--the achieved designs are similar. Incised designs are generally simpler than the stamped designs. Many of the sherds have simple linear designs such as a single groove, located 1 to 4 cm below the lip. Other designs are somewhat more complex geometric designs usually arranged in bands. These would include such design elements as parallel lines, triangles, simple scrolls, circles, half circles, and a flower. One incised sherd had a simple red lip band. Simple line incisions occur on the basal angle of some flat bottom bowls. Incised design elements are also similar to the Coyotlatelco design elements on painted vessels. Xometla incised-carved designs seem quite similar to these described by Rattray (1966) in the Cerro Tenayo complex.

Utility Ware

Sample. We have defined Utility Ware on the basis of the coarseness of the paste, thickness of the walls as compared to the other wares, and the generally low degree of surface finish. Utility Ware includes 11.2% (1020 rims) of the Xometla sample (Figures 7-20; Plates 8, a-b, d; 10; 11; 15; Table 15).

Paste. Utility Ware paste is typically coarse grain, porous and softer than the other wares. It is typically tan although cores are darker tan than other wares. There are also a few orange and dark brown pastes. White inclusions occur in the paste, as well as mica or specular hematite.

Color and Surface Treatment. Surface color falls within the same range as the paste; 96.3% of the rims are tan, 2.0% are orange, 1.4% are red slipped, 0.3% are dark brown and one rim is cream slipped. Burnishing is found on 41.0% of the Utility Ware; the remaining 59.0% are unburnished.

Form. These wares are typically thick-walled vessels which include jars, basins, and comales. Functionally, these vessels appear to have been used for storage and other utilitarian purposes. Form will be discussed in more detail under each type.

Decoration. A small amount of decoration does occur on Utility Wares in the form of interior and/or exterior slipping and red lip bands.

Jars

Sample. Jars include 57.3% (585 rims) of the Utility Wares from Xometla (Figures 7-13; Plate 15; Table 16).

Paste. The paste is typical of Utility Wares; it is coarse grain and porous. The color is typically tan with some orange and dark brown.

Color and Surface Treatment Surface color is predominately tan (96.7%) with some orange (2.9%) and 3 dark brown rims. A low burnishing is frequently found on the jar exterior and appears stick-trailed. The unburnished areas are quite porous as a result of the coarse grain paste. On some rims the burnishing continues over the lip and down the neck wall for a few centimeters.

Size and Thickness. Jars were divided into two groups based on the height of the neck: low neck and medium to high neck. Wall thickness varies between 0.5 to 1.4 cm and shows little difference between the low and high neck jars.

A. Low Neck Jars

Sample. Low neck jars comprise a small percentage (6.5%, 45 rims) of the total sample of Xometla jar rims (Figure 7,a-c; Plate 15; Tables 17-18).

Paste. Paste is similar to the jars in general.

(Low neck jars were further subdivided on the attribute of neck flare in order to correlate form with other attributes.)

1. Low Neck Jar, Light to Vertical Neck Flare

Sample. Light to vertical flaring necks include 15.5% (7 rims) of the low neck jars (Figure 7,c).

Paste. Consistency and color of the paste is similar to the jars in general.

Color and Surface Treatment. All of these jars have a tan surface color and a low degree of burnishing on the lip and upper wall.

Form. These are globular jars with a neck about 1.5 to 2.0 cm high and all of the lips are strongly everted, rolled bolstered lips.

Size and Thickness. Wall thickness is within the same range as the jars in general. Neck diameters range from 10.0 to 30.0 cm.

Decoration. There is no decoration observable on these jars.

2. Low Neck Jars, Medium Neck Flare

Sample Medium flaring necks include 28.8% (13 rims) of the low neck jars (Figure 7,b).

Paste. Paste is similar to the jars in general.

Color and Surface Treatment. All of these low neck jars have a tan surface color and a low degree of burnishing on the upper wall, neck, and lip. All are undecorated.

Form. Low neck jars with medium flared necks appear to be smaller vessels than those with vertical necks. The walls are thinner and 46.2% (6) of the rims have medium everted lips while the other 53.8% (7 rims) have strong everted lips with some bolstering. The basic form still appears to be the globular jar.

Size and Thickness. Wall thickness is similar to the jars in general. Neck diameters range from 12.0 to 26.0 cm.

3. Low Neck Jars, Sharp Neck Flare

Sample. Low neck jars with sharp flaring necks comprise the largest subtype of the low neck jars, 55.5% (25 rims) (Figure 7,a).

Color and Surface Treatment. Most of these jars are tan and have a low degree of burnishing. Three rims have a red slip on the exterior and these are well burnished.

Form. These jars appear to be similar in size and wall thickness to the medium flaring low neck jars. Lips are strongly everted and about half have some bolstering. Again, the basic form is probably the globular jar.

B. Medium to High Neck Jars

Sample. The majority of jars (93.5%, 540 rims), are medium to high neck jars (Figures 7,d-h; 8-11; Tables 19-20).

Paste. The paste of the high neck jars is similar to low neck jars in that it is coarse grain, porous, and usually tan. There are a few orange and dark brown pastes as well.

Color and Surface Treatment. Surface color of the high neck jars is predominately tan, 95.7%; 3.7% are orange; and 3 rims are dark brown. Most of the rims have some burnishing on the lip, neck, and upper wall. The decorated high neck jars have a medium burnish where slipped.

(Medium to high neck jars have also been subdivided by the degree of neck flaring.)

1. Medium to High Neck Jars, Light to Vertical Neck Flare

Sample. Light to vertical flare necks occur on 47.6% (252 rims) of the medium to high neck jars (c.f., Figure 7,i-l).

Color and Surface Treatment. Surface color is predominately tan (95.6%, 241 rims); 4.0% are orange, and 1 rim is dark brown. There appears to be no burnishing on the orange rims; the tan and dark brown rims are burnished on the lip, neck, and upper vessel wall.

Form. There is a fairly wide range of lip forms found on these jars: 40.9% (103 rims) are strongly everted, 34.1% (86 rims) are medium everted, 7.5% are medium everted and bolstered, 6.3% (16 rims) are medium everted angled, 4.8% (12 rims) are strongly everted angled, and 1 rim has a wide (5.0 cm) horizontal lip. All these high neck jars have light to vertical flaring necks.

Size and Thickness. Neck diameters range from 8.0 to 20 cm. The neck height, measured from side wall to the lip, averages 6.0 to 12.0 cm.

Decoration. 82.1% (207 rims) of these high neck jars are undecorated. Of the remaining rims, 9.1% (23 rims) have a red slip on the interior, 5.2% (13 rims) have a red slip on the exterior, 2.0% (5 rims) have a red band on the lip, and 4 rims are cream slipped on the interior and exterior. This type of jar has the highest percentage of decoration among all the jar rims.

Appendages. Several rims retained a piece of their handles; they appear to have had strap or loop handles.

2. Medium to High Neck Jars, Medium Neck Flare

Sample. Medium flare necks are found on 53.3% (288 rims) of the high neck jars (c.f., Figure 7,d-h).

Paste. The paste is similar to the jars in general.

Color and Surface Treatment. Again, the predominate surface color is tan (95.8%), 3.5% are orange, and 0.7% are dark brown. The orange rims are unburnished while the tan and dark brown are usually burnished on the lip, neck, and upper wall.

Form. These jars with medium flare necks have a wide variety of lip forms like those jars with light to vertical flare necks. The most common lip form is the medium everted lip, 57.6% (166 rims); next is the strong everted lip with bolstering, 17.7% (51 rims); 9.7% (28 rims) are medium everted lips with bolstering; 6.9% are slightly everted lips; 6.6% (19 rims) are very everted lips with bolstering; and 4 are medium wide horizontal lips.

Size and Thickness. Rim diameters are the same as that for light to vertical flare high neck jars. The neck height measured from side wall to lip averages 2.0 to 4.0 cm.

Decoration. Only 4.9% (14 rims) of the medium flare high neck jars are decorated. This decoration simply consists of a red band on the lip.

Basins

Sample. Basins include 30.8% (305 rims) of the Utility Ware (Figures 14-18; Plates 8,a-b, d; 10; Tables 21-24).

Paste. The paste is coarse and black cores (2.0 cm wide) occur more frequently in basins than any other vessel form. The color of the paste is always tan.

Color and Surface Treatment. Nearly all of the rims are burnished (94.8%, 289 rims); only 16 rims are unburnished. Red and cream slipping also occurs and will be discussed under decoration.

Form. Basins are large open vessels with thick walls and very flaring to vertical sides. Basins have the widest variety of lip forms found on any vessel form. Basins were further subdivided into three subtypes based on form.

Decoration. Basins are quite distinctive in that the majority (57.4%, 175 rims) are decorated, 47.5% (145 rims) have a red lip band, 8.5% (26 rims) have a red slip on the lip and interior, 3 rims have a red slip on the interior, and 1 rim has cream slipping on the interior and exterior.

A. Basins, Shallow

Sample. Shallow basins include 7 rims or 2.3% of all basins.

Paste. The paste is quite similar to the basins in general.

Color and Surface Treatment. All of these basins are tan; 3 rims are unburnished and 4 are burnished.

Form. Only two lip forms are found on these basins, 3 rims have direct rounded lips, and 4 have flat top lips.

Decoration. Three rims have burnished red slips on the interior; the other 4 are undecorated.

B. Basins, Medium Deep, Flaring Walls.

Sample. Medium deep flare wall basins include 40.7% or 124 rims of the basins.

Paste. Similar to the basins in general.

Color and Surface Treatment. All of these basins are tan and only 12 rims or 9.7% are unburnished.

Form. These basins show a wide variety of lip forms: 38.7% (48 rims) have exterior beveling with bolstering, 38.7% (48 rims) are slightly everted, 7.3% (9 rims) are medium everted lips, 4.0% (5 rims) are horizontal bevel, 4.0% (5 rims) are direct rounded lips, 2.4% (3 rims) are slightly everted bolstered, and 1 rim has interior beveling. Despite the variety, the majority of lips are either slightly everted (38.7%) or have exterior beveling with bolstering (38.7%).

Decoration. The majority of these basins are decorated; 54.8% (68 rims) have a red band on the lip and 1.6% (2 rims) have a red slip on the lip and exterior. The remainder (43.5%, 54 rims) are undecorated.

C. Basins, Deep

Sample. This form includes the majority of basins, 57.1% (174 rims).

Paste. Similar to the basins in general.

Color and Surface Treatment. Similar to the other basins.

Form. These basins also have a wide variety of lip forms: 39.1% (68 rims) are exterior beveled bolstered lips, 26.4% (46 rims) are narrow horizontal, 20.9% (19 rims) are slightly everted, 6.9% (12 rims) are horizontal bevel, 6.3% (11 rims) are square, 3.4% (6 rims) are interior bevel, 3.4% (6 rims) are incurved, 1.7% (3 rims) are direct round, and 3 rims are direct bolstered.

Decoration. The majority of these vessels are decorated: 44.3% (77 rims) have a red slip on the lip, 13.8% (24 rims) have a red slip on the lip and interior surface, and 1 rim is cream slipped on both the interior and exterior surface. The remaining 72 rims (41.5%) are undecorated.

Discussion. There are two distinctive characteristics of Xometla basins. First is the relatively high frequency, 38.0% (116 rims), of exterior beveled bolstered lips. The basins with everted lips tend to have thinner walls than those with exterior bolstering, which may indicate different functions for these vessels. Secondly, 47.5% (145 rims) of the Xometla basins have a red band painted on the top surface of the lip; it is found on all the different lip forms. The band and the interior surface are well burnished.

Comales

Sample. Comales include 12.7% (130 rims) of the Utility Ware (Figures 19-20; Plate 11; Table 25).

Paste. The paste is coarse grain and porous. All of the comales have a tan paste and a few rim profiles show dark cores.

Color and Surface Treatment. All of the rims are tan and have a light burnish on the lip and interior surface. The underside of the vessel is crackled or roughened and this roughening extends up to the rim.

Form. All of the Xometla comales are shallow; maximum height of the side wall is 3.0 cm. The majority of the Xometla comales have a flat base with side walls that are vertical to slightly flaring and the base and side wall form a smooth angle on 71 rims or 44.5%. Another 17.7% (23 rims) have a basal ridge at the juncture of the base and side wall. The remaining 27.7% (36 rims) have a slightly different form. They have flat bottoms with slight upcurving or slight flaring walls and slightly everted lips. Except for the slightly everted lips, all others are either simple rounded or bolstered.

Size and Thickness. The base thickness, measured just before the rim, ranges from 0.8 to 1.3 cm. Diameters range from about 42.0 to 58.0 cm.

Ladles

Sample. Ladles comprise 4.3% (270 rims) of the total Xometla assemblage (Plate 12; Table 26).

Paste. Paste is generally fine with dark cores. The tan paste is slightly more coarse and porous than the orange paste.

Color and Surface Treatment. Color is predominately tan (77.0%, 208 rims); 23.0% (62 rims) are orange. Burnishing is low-dull in all cases.

Form. The basic form of Xometla ladles is that of a deep trough ladle, possessing a bowl at one end and a trough running the entire length of the ladle.

Size and Thickness. Two arbitrary divisions were made based on size--small and large. Small ladles occurred at a higher percentage, 78.1% (213 rims); large ladles comprised the remaining 21.1% (57 rims) of the sample.

Decoration. The majority of rims, 55.9% (regardless of size or color) possessed a red band around the interior rim surface.

Discussion. The lack of any burning or smudging tends to indicate that these ladles functioned as utensils rather than censurs. The presence of a red band on the interior rim surface on the majority of the Xometla Ladles appears to be an indicator for the Xometla phase assemblage. Ladles of this type have not been recorded for either the Late Teotihuacan ceramic complex or for the Mazapan phase complex. Rattray (1966) also describes trough ladles with red banding as part of the Cerro Tenayo complex.

Thin Orange

Sample. Thin Orange is rare in the Xometla assemblage; there is a total of 10 rims (0.2% of the total sample) (Table 27).

Paste. The paste of the Thin Orange is quite distinctive compared to the other pastes. It is fine grained and fired throughout to a bright orange. The paste is porous and contains white temper particles.

Color and Surface Treatment. All of the Thin Orange present in the Xometla sample is bright orange and has a medium to high burnish.

Form. This group of Thin Orange comes entirely from small hemispherical bowls, between 6.0 to 10.0 cm in diameter. Wall thickness ranges from 0.2 to 0.4 cm. All of the Thin Orange hemispherical bowls have direct rounded lips.

Discussion. Although Thin Orange ware is predominately associated with Teotihuacan period ceramic assemblages in the Valley of Mexico, it continues to be found at low percentages in the Early Toltec assemblages as well.

Painted and Slipped Ware

Painted and Slipped ware comprises nearly 40.0% of the Xometla rim sherd sample. Of the 2524 painted or slipped rims, 47.0 % have Coyotlatelco Red/Buf decorative designs and 45.3% are Miscellaneous Red/Buf. Because of the diagnostic importance of these Painted and Slipped types we decided to include a design analysis of them. This section on the Painted and Slipped ware will be divided into two parts. The first part will follow the methodology utilized in describing and classifying the other wares. The second part will deal with the design analysis of the red on buff Coyotlatelco types.

This ware includes all non-utility vessels with any form of slip or painted decoration.

Sample. Painted and Slipped ware includes 2524 rim sherds or 40.0% of the total sample (Tables 28-30).

Paste. The consistency and color of the paste in the Painted and Slipped ware is the same as the Monochrome Bowls.

Color and Surface Treatment. Nearly all of this ware is burnished on at least one surface, usually the interior. Approximately 50.0% of the rims have little or no burnishing on the exterior. Colors represented are red slipping, buff, plain tan unslipped surface, cream, and orange. This will be discussed further under each subtype.

Form. Vessel form is similar to that of the Monochrome Bowls. Hemispherical bowls are the predominate vessel form; 2.3% (57 rims) are small hemispherical bowls, 79.9% (1916 rims) are medium size hemispherical bowls, 5.8% (146 rims) are large hemispherical bowls, and 7.3% (183 rims) are from hemispherical bowls whose rim diameters could not be determined. Flat bottom bowls include a small percentage of the Painted and Slipped ware: 4.7% (119 rims) are flat bottom bowls with medium flare walls, 0.8% (20 rims) are flat bottom bowls with light to vertical flaring walls, 0.2% (6 rims) are flat bottom bowls with sharp flaring walls, and 3.1% (77 rims) are from vessels whose degree of wall flare could not be determined. Nearly all of the hemispherical bowls have direct rounded lips except for some medium size hemispherical bowls, of which 0.9% (18 rims) have slightly everted lips and 0.7% (14 rims) have horizontal beveled lips. The flat bottom bowls have more variability in terms of lip form; 2.3% (5 rims) have medium everted lips, 16.2% (34 rims) have direct rounded lips, 81.5% have slightly everted lips, and 2 rims are strongly everted. The predominate Painted and/or Slipped vessel form is the medium size hemispherical bowl with a direct rounded lip.

Red/Buff

This type, which we are calling Red/Buff includes those sherds which have a red band and/or a red slip on the monochrome tan paste (Figures 30-32).

Sample. The Red/Buff category comprises 45.3% (1142 rims) of the Painted and Slipped ware.

Paste. The consistency of the paste is identical to that of the Monochrome Bowls and it is entirely tan.

Color and Surface Treatment. All of the rims have some slipping over the tan base color. Of the 253 rims, 22.0% have a red lip on both the interior and exterior. Burnishing is nearly always found on the interior and on 50.0% of the exteriors.

Form. The range of Red/Buff vessel forms is similar to that of the Painted and Slipped ware as a whole: 16.4% are flat bottom bowls and 86.6% are hemispherical bowls.

Size and thickness. Wall thickness and vessel diameter is the same as that for monochrome hemispherical and flat bottom bowls.

Decoration.

1. Interior plain, exterior red band. This combination occurs on 26.1% (298 rims) of the Red/Buff. The red band is usually below the rim. Occasionally, the band extends over the lip and onto the interior wall for 0.5 cm. This exterior red banding occurs primarily on hemispherical bowls except for 9 rims (3.0%) where it is found on medium flare hemispherical bowls.

2. Interior plain, exterior red slip. 17.6% (201 rims) of the Red/Buff have only a red slip on the exterior. The exterior red slip has a medium to high burnish while the interior has no burnishing or very little. The plain interior with an exterior red slip appears primarily on hemispherical bowls except for two flat bottom bowl rims.

3. Interior red band, exterior plain. This variant occurs on 13.0% (130 rims) of the Red/Buff. This is simply the reverse of the interior plain, exterior red band and is found only on hemispherical bowls.

4. Interior red slip, exterior plain. This combination is found on 105 rims (9.2%) of the Red/Buff. The interior red slip has a medium to high burnish while the exterior has little or no burnishing. This is found on all forms of flat bottom and hemispherical bowls as well as the only decorated composite silhouette rim.

5. Interior red band, exterior red band. This group includes 101 rims or 8.8% of the Red/Buff. The red band is 0.5 to 3.0 cm wide and covers all of the lip extending over to both sides of the wall. This is only found on hemispherical bowls.

6. Interior red slip, exterior red slip. This group of rims does not correctly belong in the Red/Buff category in that both surfaces are red slipped. This includes 253 rims or 22.1% of the Red/Buff. It occurs on all forms of both hemispherical and flat bottom bowls. One reason for subsuming this group under the Red/Buff is that the red slipping is identical in color to the other red slips. Medium burnish occurs on both the interior and exterior.

7. Interior red band, exterior red slip. This combination is found on 5 rims, all of which are medium flare, flat bottom bowls.

8. Interior red slip, exterior red labial band. This is found on 2.6% (30 rims) of the Red/Buff. It occurs on medium flare, flat bottom bowls and medium size hemispherical bowls.

9. Red/Buff residual. This group of 88 rims or 3.5% of the Painted and Slipped were too small to determine whether they had red bands or red slips.

Discussion. These Red/Buff combinations are identical in color and surface treatment to the Coyotlatelco decorated Red/Buff. Because of the small size of these rims it is quite probable that many actually belong to Coyotlatelco decorated vessels.

Red/Cream

Sample. This group includes 9 rims or 0.4% of the Painted and Slipped ware.

Paste. The consistency of the paste is medium to fine grain and is tan in color.

Color and Surface Treatment. These rims have a red design applied over a cream slip and are all well burnished.

Form. This type of decoration is only found on medium size hemispherical bowls with rim diameter and wall thickness similar to the Monochrome Bowls.

Decoration. Decoration is typically a red band around the rim with Coyotlatelco designs painted on the cream slip either on the interior or exterior. Coyotlatelco designs will be discussed with the design analysis.

Cream Slipped

Sample. Cream slipping includes 47 rims or 18.6% of the Painted and Slipped ware.

Paste. The color of the paste ranges from tan to orange with dark cores and white temper particles. The tan paste is medium grain while the orange is slightly finer grain.

Color and Surface Treatment. The cream slip is rather severely worn and the color ranges from orange-cream to an off-white. Most of the rims have an interior and exterior slip which is well burnished.

Form. Cream slipping is only found on medium size hemispherical bowls.

Decoration. 47.0% (22 rims) are cream slipped on the interior with a red band on the exterior. The band is usually located on the lip and may extend from both sides or is in an exterior medial position. 17 rims are cream slipped on both the interior and exterior while the remaining 8 rims have cream slipping only on the interior. Slipped and unslipped surfaces are equally well burnished.

Wide Band Red/Buff

Sample. 18 rims or 0.7% of the Painted and Slipped ware are Wide Band Red/Buff.

Paste. The paste is typically tan, medium grain with dark cores; however, a finer grain orange paste is also present.

Color and Surface Treatment. The red band is slightly darker than the Red/Buff or Coyotlatelco red; it tends more towards a maroon color.

Form. This Wide Band Red/Buff occurs on shallow convex bowls with hollow conical supports.

Size and Thickness. Wall thickness ranges from 0.6 to 0.8 cm and they have diameters similar to the medium size hemispherical bowls.

Decoration. A wide maroon-red band extends from the lip down the interior surface for 3 to 4 cm. This red band has a medium burnish.

Discussion. This Wide Band Red/Buff from Xometla is quite similar to that found in the Late Toltec sample from Maquixco Bajo, and along with Mazapan Wavy Line and Toltec Red/Buff these three are time markers for that phase. As is noted below, they occur in very low frequencies in the Xometla excavated sample.

Mazapan Wavy Line Red/Buff

Sample. Mazapan Wavy Line is found on 12 rims or 0.5% of the Painted and Slipped ware.

Paste. The consistency of the paste is medium to fine grain with white inclusions. The color is tan and some have black cores.

Color and Surface Treatment. Surface color is light tan with much less burnishing than the other red on buff types.

Form. All of the Mazapan Wavy Line ware occurs on medium size hemispherical bowls with direct round lips. Wall thickness ranges from 0.6 to 0.7 cm.

Decoration. Decoration is the typical Mazapan parallel wavy line design located on the interior surface with a red lip band. The surface finish is a low dull burnish.

Toltec Red/Buff

Sample. Toltec Red/Buff occurs on 19 rims or 0.8% of the Painted and Slipped ware.

Paste. The color of the paste ranges from bright orange to tan; the consistency of the tan is slightly finer grained. White temper particles occur in all the sherds.

Form. Toltec Red/Buff only occurs on medium size hemispherical bowls.

Size and Thickness. Wall thickness averages 0.4 to 0.5 cm and have medium diameters.

Decoration. Decoration only occurs on the interior of vessels. The designs include a red lip band and large concentric circles sometimes with large red dots. The designs appear poorly executed, their edges are rough and blurred as if the surface was burnished before the red paint had dried.

Coyotlatelco

Sample 47.1% (1189 rims) of the Painted and Slipped ware have typical Coyotlatelco painted designs (Figures 21-29; Plates 4-7).

Paste. The paste is similar to the Monochrome Bowls; it is tan and medium grain with mica or specular hematite inclusions observable in approximately one-third of the sherds.

Color and Surface Treatment. All of the Coyotlatelco in the rim sherd sample is Red/Buff. The interior has a medium burnish while about half of the exterior surfaces have little or no burnishing.

Form. Coyotlatelco designs are found primarily on hemispherical bowls (98.9%, 1176 rims); only 13 rims (1.1%) are from flat bottom bowls with medium flare walls.

Decoration. Coyotlatelco designs found on the Xometla sherds include a similar range of motifs and elements as has been described for other Coyotlatelco samples. They consist of a variety of geometric designs arranged in bands separated by concentric parallel lines. The most common designs are the undulating line and the "S" figure. This will be discussed further in the following section on the design analysis.

Design Analysis of Red/Buff Ceramics

This design analysis emphasizes the stylistic aspects of the Early Toltec Red/Buff ceramic varieties. In addition to the rim sherd sample described in the previous section we included Coyotlatelco decorated body sherds, both Red/Buff and Red/Cream. This was done primarily to obtain a more complete representation of decorative motifs and elements. Thus, this sample included 3253 sherds, 25% (813) of which are body sherds and 75% (2440) of which are rim sherds. Due to the small size of the rim sherds and the similarity in paste, and color and surface treatment, there is no way to differentiate rims with simple red banding that once belonged to Coyotlatelco decorated vessels and those that did not. Based on published descriptions of Coyotlatelco, there appears a wide range in the elaborateness of Coyotlatelco decoration. At sites such as Oxtotipac, vessels may be decorated with simple red lip bands and a single additional band of decoration such that most of the surface of the vessel contains no painted decoration. At sites in the southern parts of the valley, such as Xico, vessels may be elaborately decorated with both Coyotlatelco painted designs and stamping. For purposes

of the Xometla design analysis, we have treated sherds with only simple red lip banding as those with definite Coyotlatelco designs as a single group. Unfortunately, due to the small size of the Xometla sherds, no reconstructions of the layouts of design units could be made.

Each sherd was coded for the following stylistic attributes: interior and exterior slip, type of burnishing on the interior and exterior, design elements/motifs present on the interior and exterior, and quality of design execution where appropriate. The design elements and motifs were grouped into categories of curvilinear-rectilinear and outlined-solid. The curvilinear-rectilinear distinction refers to whether the design element is cursive or angular. The hollow-solid distinction refers to whether a design is an outline against an empty background or is solidly filled in. Finally, each sherd was assigned to its appropriate construction phase based on the mound excavation.

We have modeled much of our analysis on Rattray's design analysis motifs. Following Rattray (1966:162), ". . . an element is the smallest area of composition having meaningful dimensions. A motif is a combination of two or more elements." Rattray's description of Coyotlatelco elements and motifs was used as a basis for identification of those on Xometla sherds.

Interior Decoration

Color

63.0% (2106) of the sherds in this sample have Red/Buff interiors. This group includes all of those sherds with only red lip bands and those with clearly identifiable Coyotlatelco designs on the interior. The red slip on 72 of these sherds (2.2% of the total sample) has a very smokey appearance which may have been either accidental or intentional. Only a small group (1.4%, 47 sherds of the total sample) has Red/Cream interiors. This group also includes those sherds with only red lip bands and those with clearly identifiable Coyotlatelco designs. A third group of 20 sherds (0.6% of the sample) is Red/Cream/Buff. Rattray (1966:155) has described the technique which was used to produce the tri-color effect: on Red/Cream sherds the tan base color was included in the design element by applying the cream first and then outlining or painting over it in red. (Tri-color decorated sherds occur at a low frequency in the Cero Tenaya complex as they do at Xometla.) The remainder of the sherds (36.0%) has no interior decoration. 857 sherds (27.7% of the sample) have red slipped interiors, 212 sherds (6.3% of the sample) have buff interiors, and 3 sherds are cream slipped. Another 62 sherds (1.9% of the sample) are red slipped on major portions of the interior wall.

Burnishing

Only 4.7% (157) of the sherds in the sample have unburnished interiors. 12.5% or 417 sherds have a dull smooth interior burnish. The majority (59.7%, 1998 sherds) have an uneven glossy burnish on the interior (i.e., there are striations or streaks of burnished and unburnished areas). The remaining 773 sherds (23.1%) have a high gloss burnish which is uniform over the interior surface.

Interior Painted Decoration

Interior painted decoration occurs on 65.0% of the sherds. The following Coyotlatelco motifs and elements were identified on the interior surfaces of the Xometla sherds.

1. Red Lip Band. Red lip bands, which extend from the lip for 1.0 to 3.0 cm onto the interior wall, occur on 44.1% (1436) of the sherds. 823 sherds in this group (24.6% of the sample) were quite small and had no other decoration on them other than the red lip band.

This interior red lip band is the most common design element present on the Xometla sherds. This is partially the result of having more rim sherds in the sample from Xometla than body sherds.

2. Concentric Bands. These are series of encircling parallel lines that are used to underly or divide other design elements (Figure 5,x). They are usually less than 1.0 cm wide but vary in terms of spacing. These concentric bands occur on the interior of approximately 31.0% (1006) of the sherds.

3. Undulating Lines. The next most common Coyotlatelco design element is the undulating or wavy line (Figure 5,a). On 10 sherds (0.3% of the total sample) the undulating line is in a vertical or diagonal position. Another 49 sherds (1.5% of the sample) have a series of undulating lines which run horizontally on the interior surface. On the majority of sherds with undulating lines (359 sherds, 11.2% of the sample) the undulating lines are bordered by concentric bands. Altogether, the undulating line is found on the interior of 418 sherds or 13.0% of the total sample.

4. Rectilinear Line Element. These are design motifs which are composed of angular or rectilinear lines (Figure 5,l). This type of design occurs on the interior of 4.7% (156) of the sherds. These may have functioned as space fillers between other design units.

5. "Z" Figure. This angular "Z" figure is found on the interior of approximately 2.8% (71) of the sherds (Figure 5,u). It usually occurs in a repeating horizontal sequence with concentric bands above and below it.

6. "S" Curves. This element, the "S" curve, is found on the interior of 79 sherds (2.5% of the sample). The "S" curve has a curvilinear appearance as opposed to the angular "Z". One variation is the interlocking or hooked "S" curves which occurs on 55 of the sherds. Occasionally, the "S" will be very elongated.

7. Curvilinear Line Element. Curvilinear lines, like the rectilinear lines, were apparently used as elements to form various motifs which were probably used as space fillers (Figure 5,b). This type of motif was identified on the interior of 54 sherds (1.7% of the sample).

8. Checkerboard. As the name implies, this design motif resembles a checkerboard; apparently the outline was drawn first and then alternating squares were filled in (Figure 5,f). This was identified on the interior of 48 sherds (1.5% of the sample) and it is frequently found on the interior surface of the base of the vessel.

9. Stepped Figure. This stepped figure has a curvilinear appearance (Figure 5,m). The corners of the steps are rounded with undulating border lines. The bottom of the figure meets the concentric band border. It is found primarily on the interior surface (43 sherds, 1.3% of the sample).

10. Ellipse. The ellipse is typically a solid figure and on a few examples it was outlined with a red line (Figure 5,q). It was identified on the interior surface of 20 sherds (0.6% of the total sample).

11. Half Circles and Scallops. Scallops are actually a variant of the half circle in which half circles are joined to form a border around the vessel rim (Figure 5,s, p). This was identified on 17 rims (0.5% of the sample). Another 7 sherds (0.2% of the sample) have half circles in horizontal rows or linked vertically.

12. Crescent. The crescent or quarter moon element is always filled in solidly with paint (Figure 5,j). It was identified on the interior of 9 sherds (0.3% of the sample).

13. Flower. The flower is the only naturalistic Coyotlatelco form found on the Xometla sherds (Figure 5,w). It occurred on the interior of only 8 sherds (0.2% of the sample).

14. Double Line Cross. This double line cross is another rare element at Xometla (Figure 5,i). It was found on the interior of 6 sherds (0.2% of the total sample).

15. "U" Figure. This U-shaped figure is found either in outline or filled in (Figure 5,g). It was identified on the interior of 6 sherds (0.2% of the total sample).

16. Cusps. This cusp figure occurs as a linked series with an underlying baseline (Figure 5,t). It was found on the interior of only 5 sherds (0.2% of the sample).

17. Dots. Dots were identified on the interior of 4 sherds (Figure 5,r).

18. Triangle. The triangle is another rare design element at Xometla; it was found on the interior of only 4 sherds where it was used as a border design (Figure 5,v).

19. Rays. Only 1 sherd from Xometla had a ray on the interior (Figure 5,n). In this single example, a solid ray was outlined by several parallel rays.

20. Xonecuilli. Only 1 sherd has what Rattray (1966) refers to as the Xonecuilli or a horizontal "S" with a framing line that parallels the figure (Figure 5,c).

Design Quality

On those sherds which possessed painted interior Coyotlatelco designs, other than just a red lip band, a subjective judgment was made of the quality of design execution. For the interior painted designs, on approximately 9.2% of the sherds, the quality of the design was judged high or well defined and precisely executed. On 772 sherds (approximately 23.0% of the sample) the designs were not as well executed, the design elements tended to be slightly larger and their edges were not as precisely defined. On the remaining 237 sherds (6.9% of the sample) the Coyotlatelco designs had a relatively "sloppy" appearance. The edges of the designs were not well defined--designs might overlap one another--and, in general, appeared to lack precision in their execution.

Exterior Decoration

Color

The majority of the sherds in the sample have no exterior decoration: 66.1% (2154 sherds) have buff exteriors, on about 240 of these sherds the buff is smokey or blackened; 11.9% (401 sherds) have red slipped exteriors; and 7 sherds (0.2% of the sample) have creamed slipped exterior. Red/Buff occurs on 556 exteriors (17.3%). A red slip on major portions of the vessel wall was found on 54 sherds (1.6%). Red/Cream occurs on 36 sherds or approximately 10.0% of the sample. The tri-color combination, Red/Cream/Buff was found on the exterior of 27 sherds (0.8%) and 3 sherds are Cream/Buff. Approximately 50 of the sherds with red slipping were smokey or blackened.

Burnish

The majority of the exterior surfaces (55.1%) were unburnished. 8.0% of the sherds have dull smooth exterior burnishing. 25.0% have the streaky or patchy high gloss burnishing and 11.5% have a high glossy burnishing which is uniform over the exterior surface.

Decoration

Coyotlatelco painted designs occur much less frequently on the exterior than on the interior. Painted designs were found on the exterior of approximately 20.0% of the sherds.

1. Red Lip Band. Exterior red lip bands are found on 367 or 11.3% of the sherds in the sample. The band usually extends for 1 to 2 cm from the lip onto the exterior wall. 172 of these rim sherds have red lip bands on buff and 8 have red lip bands on cream.

2. Concentric Bands. These concentric bands, used as spacers or dividers, are found on the exterior of 284 sherds or 8.7% of the total sample.

3. Rectilinear Line Element. Designs composed of rectilinear lines are found on the exterior of 2.7% (87 sherds) of the sherds in the total sample.

4. Undulating Lines. The wavy line element occurs on the exterior of 81 sherds or 2.1% of the total. On 3 sherds, the wavy lines run vertically; on 28 sherds, the wavy lines are in horizontal parallel series; and on the remaining 58 sherds, the undulating lines are separated by concentric bands.

5. Curvilinear Line Element. Elements composed of curvilinear lines are found on the exterior of 40 sherds (1.3% of the total).

6. Scroll. Scrolls occur on 33 sherds or 1.0% of the sample.

7. "S" Curves. Unhooked and hooked "S" curves are found on the exterior of 32 sherds (0.9% of the total sample).

8. Stepped Figure. The stepped figure motif occurs on the exterior of 20 sherds (0.6% of the sample).

9. "Z" Figure. The angular Z was found on 16 sherds (0.4% of the sample).

10. Half Circles and Scallops. Half circles combined to form scallops were identified on only 6 rims or 0.4% of the sample. The half circle element, either in a horizontal series or vertically linked, occurs on the exterior of 15 sherds (0.4% of the sample).

11. Double Line Cross. The double line cross motif was identified on the exterior of only 6 sherds or 0.2% of the sample.

12. Checkerboard. Only 5 sherds (0.1% of the sample) had checkerboards on their exterior surfaces.

13. Ellipse. The ellipse was identified on the exterior of only 4 sherds (0.1% of the sample).

14. Flower. The naturalistic flower motif occurs on the exterior of only 4 sherds.

15. Crescents. The crescent or quarter-moon is on the exterior surface of only 3 sherds.

16. Cusps. The linked cusp element appeared on the exterior of 3 sherds.

17. Cross-hatching, Triangle, "U" Figure, and Circle. These forms were identified on the exterior surface of 2 sherds each.

Quality of Design Execution

Judgment of the quality of the design execution was made on those sherds which possess exterior Coyotlatelco designs other than just simple lip bands. On approximately 162 sherds, the decoration was considered to be of a relatively high quality; elements were precisely defined and the spacing of elements was quite uniform. On 226 sherds, the design execution was medium quality. On 27 sherds, the designs were much larger; the spacing was frequently irregular and edges were less clearly defined. Although the quality of design execution is largely a subjective judgment, others such as Rattray (1966) and Good (1972) have noticed differences in the uniformity of the spacing of the design elements, their size, and overall precision in the painting of the designs.

Miscellaneous Types

Imported Ware

A. Late Huastec Black/White

Two sherds of the Huastec Black/White were identified in the Xometla complex. One sherd has wide black bands on white and the other has very thin black lines. Both sherds have an off-white paste and are from thin walled vessels.

B. Monte Alban Grey

Four sherds of the highly burnished Monte Alban Grey type were found in the Xometla sample. The paste is grey and very fine. The two rim sherds appear to be from hemispherical bowls while the two body sherds are from some type of flat bottom vessels.

Multiple Mouth Vessels

Ten rims from Multiple Mouth Vessels were found in the Xometla complex. The paste and surface color is tan to dark brown and the consistency of the paste is medium grain. The wall thickness of these vessels averages 0.5 cm. All of the rims appear to be unburnished.

Miniature Vessels

Approximately 25 rims from Miniature Vessels were identified in the Xometla complex. Forms include 10 jar rims and 15 hemispherical bowls. The color of the paste is primarily tan, although a few orange are present. The consistency of the paste is medium to fine grain. Wall thickness averages 0.3 to 0.4 cm. Most of the rims are monochrome; however, four of the hemispherical bowl rims have interior red lip bands. The exact function of these small vessels is unknown; it is possible that some were used for toys.

Lacquer Ware

Two small body sherds have what appears to be orange lacquer on their exterior surface. The paste is orange, fine grained and lacks the calcite inclusions found in the thin orange paste. The wall thickness of these two sherds is about 0.2 to 0.3 cm. The size of the sherds did not permit determination of their vessel form.

Molcajetes

Three Molcajete sherds, which are unlike the Late Toltec or Aztec forms, were found in the Xometla sample. The paste is dark brown and the surface color is dark brown to almost black. The consistency of the paste is medium grain. These Molcajete sherds appear to be from very flat shallow vessels, possibly flat enough to be considered plates. The one rim sherd has a direct rounded lip and the scoring begins just below the lip. The scoring, which is on the interior, is blackened and has a diamond pattern on one sherd and an irregular rectangular pattern on the other two.

Handled Censers

Forty-one sherds were identified as belonging to small handled censers (Plate 13,a-c). The consistency of the paste is medium grain and the color is tan. These censers are small, shallow, flat bottomed vessels with medium flare walls and direct round or slightly everted lips. Their form and decoration is similar to those described by Acosta from Tula (1945, Figure 20,q). Decoration consists of a red band 3 to 4 cm wide that is located either on the interior surface of the lip or in a medial position on the interior wall. All of the sherds are unburnished and have a tan surface color. Rim diameters range from 14 to 28 cm and wall thickness averages about 2 to 3 cm.

An additional ten sherds belonging to handles from these censers were identified in the sample. These are hollow tubular handles which were attached at right angles to the vessel wall. Four of these handles were decorated with red bands running around the circumference of the handle.

Large Censers

In addition to the handle censers in the Xometla complex there are large high walled censers (Figure 33,a-h; Plate 14). Of the 153 sherds from such censers, only 8 are rim sherds. The consistency of the paste is medium to coarse grain. The color is primarily tan with a few examples of orange paste. The surface color is similar to the paste and all of the sherds appear to be unburnished. Several sherds have lime encrusted on the interior surface. These censers appear to be flat bottomed, high walled vessels with flaring sides and large opened mouths. The only rims present in the sample have slightly bolstered lips. Wall thickness averages 0.8 to 2.0 cm.

Approximately 66.0% (100 sherds) of these censer fragments are undecorated body sherds. The remaining 53 sherds possess some form of plastic decoration on the exterior surface. Twenty sherds are decorated with lugs; the lugs vary in size from 0.5 to 1.0 cm in height and in some cases the lugs appear to be arranged in horizontal rows. The remaining sherds have a variety of plastic appliques like those illustrated by Acosta (1945) from Tula. The top of the lip on one of the rim sherds was fluted.

Formative

The Xometla excavated sample included eight rim sherds from Tzacualli flat bottom bowls. The sherds have direct round lips with channeling located below the lip. They have typical Tzacualli paste, tan surface color, and a medium burnish.

Classic

The Xometla sample included one Classic sherd. It is a thin walled angular base, probably from a drinking goblet. The paste is fine and the surface color is dark brown and well burnished.

Miscellaneous Late Toltec

In addition to the previously described Late Toltec Painted and Slipped types, several other Late Toltec sherds were identified in the sample.

The first one was a Mazapan orange paste, high neck jar rim with a medium everted lip. The paste is medium grain with mica or specular hematite inclusions. The exterior surface is slightly burnished.

Two Tula Watercolor body sherds and one unburnished body sherd with red and black painted bands on an orange surface were present.

One Mazapan flat bottom bowl rim with a wide exterior red lip band was identified. The paste and surface color is orange with some burnishing on the exterior surface.

Aztec

Over 500 Aztec sherds were recovered from the upper levels of the mound excavation. These will be analyzed in the volume on the Aztec Occupation of the valley.

SUMMARY AND CONCLUSIONS

Xometla has served as the type site for defining the Early Toltec or Xometla phase ceramic complex in the Teotihuacan Valley. The ceramic sample from the mound excavation seems to be relatively homogeneous. The small quantity (approximately 50 sherds) of Late Toltec ceramics included in the sample were primarily associated with Construction Phase IV or outside the walls of this structure. The 550 Aztec sherds in the excavated sample were also recovered from the upper levels of the mound excavation. Comparatively, the ceramic complex from the Xometla excavation appears to be relatively representative of Early Toltec (i.e., Coyotlatelco) assemblages in the Teotihuacan Valley.

The major temporal attributes of the Xometla assemblage will be summarized here. The vessel forms of Monochrome Bowls are almost evenly divided between flat bottom and hemispherical bowls with direct round or slightly everted lips. The composite silhouette is a relatively rare form. The predominate monochrome surface color is tan and plastic decoration (incision or stamping) occurs on only 6.0% of the Monochrome ware.

Of the functional types defined in the Utility Ware category, jars are the most frequent type. Furthermore, high neck jars are the most frequent form of Xometla phase jars. This may be reflective of a temporal trend that begins in the Late Teotihuacan times. Metepec jars almost always have low necks; Xometla jars are predominately but not entirely high necked; and Mazapan phase jars are almost exclusively high necked. Lip form is quite variable on Xometla jars.

Xometla basins possess two distinctive attributes: the relatively high frequency (38.0%) of exterior beveled-bolstered lips and red lip bands (47.5%). Xometla comales differ from the Teotihuacan ones in two primary ways: roughening of the underside of the vessel and their shallow form. The interior red banding on Xometla Ladles does not occur on either Teotihuacan or Mazapan Ladles. The ten Thin Orange rims may be the result of mixing that would have occurred during any of the several construction phases. It is also possible that the low frequency of Thin Orange may represent a continued but diminished production of this typically Teotihuacan ware into the Early Toltec phase.

Determination of the origin of the Coyotlatelco style will require archaeological research outside of the Teotihuacan Valley before the problem can be solved. This classification of the Xometla complex will, hopefully, provide a useful description of an Early Toltec ceramic assemblage from the Teotihuacan Valley. Given the sociopolitical marginality of the valley at this time, ceramic assemblages from sites in this region cannot be assumed to be characteristic of other areas in the Basin of Mexico. Unfortunately, the usual published descriptions of Early Toltec ceramic assemblages are confined to discussion of Coyotlatelco stylistic attributes. This practice of defining ceramic assemblages solely on the basis of the presence of a particular decorative style can be misleading and is practically useless for comparative purposes. It is for this reason we have used functional and technical attributes as well as stylistic for describing and classifying the Xometla assemblage. A technical analysis of ceramics from the Teotihuacan Valley would provide useful information on the differences in paste and color and other technical attributes.*

*Editor's Note: This paragraph was written before Marino's analysis of the Xometla phase occupation at Teotihuacan itself and prior to surface surveys conducted by Blanton, Parson, and Sanders elsewhere in the Basin of Mexico. It now appears that Teotihuacan was the largest site and urban community in the Basin of Mexico during Xometla times. Whatever the origin of the Coyotlatelco style was, the Teotihuacan Valley was clearly not marginal at the time.

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APPENDIX I--Appendages

Handles

The excavated ceramic sample from Xometla includes 262 handle fragments (Plate 13,d-e).

1. Double loop handles. 122 double loop handles were identified in the sample, 22 of these are single loop fragments of such handles. 104 of these handles are monochrome tan paste and the remaining 18 are monochrome orange paste. Approximately 50.0% of these double loop handles have some burnishing on the exterior surface.

2. Strap handles. The Xometla sample included a total of 54 strap handles. These handles are flattened and have ellipse-shaped cross sections. 45 of these have monochrome tan paste, 5 have orange paste, and 3 have dark brown. The surface color is the same as the paste except for one handle which is red slipped.

3. Thick strap handles. These handles are thicker than the above mentioned strap handles and have oval-shaped cross sections midway between the flattened strap handle and the rounded loop handle. A total of 22 of these handles were identified in the sample; 4 are orange paste, 2 are dark brown, and the rest are monochrome tan paste. Surface color is the same as the paste and one-third are slightly burnished.

4. Loop handles. The Xometla sample contained a total of 48 loop handles. These handles have rounded cross sections. The paste is predominately tan, however, there are 10 orange paste handles. The paste contains mica or specular hematite and white inclusions; 3 handles have exterior red slips and 15 have some exterior burnish.

5. Simple loop handles. Eight very small loop handles were found in the sample. They have either tan monochrome paste (5 handles) or orange monochrome paste (3 handles).

6. Twist rope handles. The Xometla sample included nine twisted rope or braided handles. All have monochrome tan paste.

Bases and Supports

1. Annular bases. The Xometla sample included a total of 104 annular bases. These bases are the typical annular form and were probably attached to hemispherical bowls. Their diameters range from 3 to 6 cm. The consistency of the paste is medium grain and the color is tan; 45 of the bases have plain tan monochrome surface color and the remaining 59 are red slipped.

2. Solid conical supports. A total of 113 solid conical supports were identified in the Xometla sample. This is the most common type of support represented in the complex. The paste is either medium grain tan (96 supports) or orange (7 supports). Coyotlatelco Red/Buf decoration occurs on the interior bottom of eight supports. One Coyotlatelco decorated support was still attached to a flat bottom bowl with medium flare walls. This is the only type of support to have Coyotlatelco decoration. Approximately 10.0% or 11 supports have red slips on the interior bottom surface. The remaining supports have exterior surfaces similar to their paste. One fragment is from an exceptionally large orange conical support.

3. Hollow conical supports. Four, probably Mazapan, hollow conical supports were found in the Xometla sample. One of these has an orange paste and surface color. Another, which has a tan paste and surface color, is red slipped and incised on the exterior juncture of the support and side wall. The other two hollow conical supports are well burnished with tan surface color and paste and Toltec Red/Buff interior base surfaces.

4. Residual hollow supports. This group includes fragments of 13 hollow supports that could not be assigned to any of the types. Two of these supports have dark brown pastes and surface colors. The remainder are all tan paste, two of which are red slipped and three have smudged or blackened surfaces.

5. Subglobular supports. Two subglobular supports were identified in the Xometla complex. The surface color and paste is tan and one support has simple linear incised decoration.

6. Globular supports. The Xometla sample included only one monochrome tan globular support.

7. Small nubbin supports. The Xometla sample included 14 nubbin supports. The paste is tan except for one orange support. Surface color is the same as the paste and one support has an interior red slip.

APPENDIX II--Xometla Design Analysis Code Sheet

Columns 1-4: Excavation lot number

Columns 6-8: Interior slip

B	buff
B/S	buff-smokey
R/P	red slip major portions of vessel wall
RBB	red lip band on buff
R/B	red/buff
RBC	red lip band on cream
RBS	red/buff-smokey
C	cream slipped
C/R	cream/red
R/C	red/cream
R/C/B	red/cream/buff
R	red slipped
R/S	red-smokey

Columns 10-12: Interior design element class

S	solid (thickened, bold designs)
H	hollow (unthickened, linear elements/motifs)
S/H	solid-hollow combination

C	curvilinear
R	rectilinear
C/R	curvilinear-rectilinear combination

Columns 10-28: Interior design elements/motifs

(02 - 19--curvilinear/20 - 30--rectilinear)

02	curvilinear lines (solid, hollow, or combination S/H)
03	"S" curves hooked (hollow)
04	Xonecuilli (combination S/H)
05	half-circles (hollow)
06	scallops (solid or hollow)
07	crescents (solid)
08	circles (hollow)
09	dots (solid)
10	scrolls (solid)
11	ellipse (solid, hollow, combination S/HO)
12	cusps (solid)
13	undulating lines-vertical or diagonal (hollow)
14	undulating lines-horizontal, parallel series not separated by concentric bands (hollow)
15	undulating lines separated by concentric bands (hollow)
16	"S" curves, unhooked (hollow)
19	"U" figure (solid or hollow)
20	rectilinear lines (hollow or S/H combination)
21	concentric bands used as divider or outline (hollow)
22	rays (hollow or S/H combination)
24	rectangular greque (S/H combination)
25	checkerboard (combination S/H)

- 26 double line cross (hollow)
- 27 stepped figure (solid or combination S/H)
- 28 "Z" figure (hollow)
- 29 cross-hatching (hollow)
- 30 red lip band (solid)
- 32 Oxtotipac cylindrical vessel sherds
- 40 flower (natural)
- 41 bud (natural)
- 42 human foot (natural)

Column 30: Design element quality-interior
 H high, uniform, well-defined, fine
 M medium, average in above qualities
 L low, poor execution in terms of above qualities

Column 31: Interior burnishing
 1 uniform, high gloss
 2 streaky-patchy gloss
 3 dull smooth
 4 unburnished

Columns 33-35: Exterior slip

Columns 37-39: Exterior design element class

Columns 40-43: Exterior design element form

Columns 45-55: Exterior design elements/motifs

Column 57: Exterior design elements quality

Column 58: Exterior burnish

Column 60: Type of sherd
 R rim
 B body

Columns 62-63: Metallic specks
 31 present

Columns 70-80: Site and internal phasing

APPENDIX III--Xometla Ceramic Classification Code Sheet

Column 1: Wares

- 1 monochrome
- 2 painted and slipped
- 3 utility
- 4 thin orange
- 5 censers
- 6 ladles
- 7 exotics

Columns 2-3: Vessel form--rims

- 01 flat bottom bowls, sharp flare (shallow bowl)
- 02 flat bottom bowls, medium flare
- 03 flat bottom bowls, light flare to vertical
- 04 hemispherical bowls, small
- 05 hemispherical bowls, medium
- 06 hemispherical bowls, large
- 07 basal ridge
- 08 basin, shallow (sharp flare)
- 09 basin, medium flare
- 10 basin, deep (slight to vertical flare)
- 11 comal, deep
- 12 molcajete
- 13 censer
- 14 low neck jar, light to vertical neck
- 15 low neck jar, medium flare
- 16 low neck jar, sharp flare
- 17 high neck jar, light flare to vertical neck
- 18 high neck jar, sharp flare
- 19 high neck jar, sharp flare
- 20 tecomate
- 21 ladle, large, orange
- 22 ladle, small orange
- 23 ladle, large, tan
- 24 ladle, small, tan
- 25 hemispherical bowl, size undetermined
- 26 low neck jar (neckless), lip only
- 27 basin, medium flare, medium angle
- 28 NOT USED
- 29 comal, shallow
- 30 flat bottom bowl, flare undetermined
- 31 basal ridge ?
- 32 cylindrical vessel

Columns 4-5: Color and surface treatment

- 01 black burnished
- 02 black unburnished and very lightly burnished
- 03 grey burnished
- 04 grey unburnished and very lightly burnished
- 05 dark brown burnished
- 06 dark brown unburnished and very lightly burnished

- 07 tan burnished (buff)
- 08 tan unburnished and very lightly burnished
- 09 orange burnished
- 10 orange unburnished and very lightly burnished
- 11 cream burnished
- 12 cream unburnished and very lightly burnished
- 13 red slip burnished
- 14 red slip unburnished and very lightly burnished
- 15 red wash burnished
- 16 red wash unburnished and very lightly burnished

Columns 6-7: Lip form and orientation

- 01 direct, round
- 02 direct, bolstered
- 03 incurved
- 04 slight everted
- 05 slight everted, bolstered
- 06 medium everted
- 07 medium everted, bolstered
- 08 strong everted
- 09 strong everted, bolstered
- 10 horizontal narrow lip
- 11 horizontal medium lip
- 12 horizontal wide lip
- 13 external bevel
- 14 internal bevel
- 15 square
- 16 slight evert angle, flattened lip
- 17 medium evert angle
- 18 strong evert angle
- 19 horizontal bevel
- 20 round flat top
- 21 external bevel bolstered
- 22 incurved
- 23 Xometla evert lip
- 24 comal, flat bottom
- 25 comal, slight evert
- 26 incurved, comal
- 27 basal ridge comal
- 28 basal angle comal

Columns 8-9: Decoration

- 00 undecorated
- 01 negative painting, interior
- 02 negative painting, exterior
- 03 negative painting, interior and exterior
- 04 incised
- 05 NOT USED
- 06 stamped
- 07 NOT USED
- 08 red/buff, interior plain, exterior red band
- 09 red/buff, interior plain, exterior red slip
- 10 red/buff, interior red band, exterior plain
- 11 red/buff, interior red slip, exterior plain

- 12 red/buff, interior red band, exterior red band
- 13 red/buff, interior red slip, exterior red slip
- 14 red/buff, interior red band, exterior red slip
- 15 red/buff, interior red slip, labial red band
- 16 Mazapan red/buff wavy line
- 17 Toltec red/buff
- 18 wide-band red/buff
- 19 Coyotlatelco red/buff, parallel line, SSS interior
- 20 Coyotlatelco red/buff, parallel line, undulating
- 21 Coyotlatelco red/buff, parallel line, miscellaneous
- 22 Coyotlatelco red/buff, exterior miscellaneous
- 23 Coyotlatelco red/buff, interior miscellaneous
- 24 Coyotlatelco red/buff, interior and exterior miscellaneous
- 25 Xometla red/white slip
- 26 polychrome
- 27 cream slip, interior slip, exterior plain
- 28 cream slip, interior slip, exterior red band
- 29 cream slip, interior plain, exterior slip
- 30 cream slip, interior slip, exterior slip
- 31 cream slip, miscellaneous
- 32 red slip, exterior
- 33 red slip, interior
- 34 NOT USED
- 35 red wash, burnished
- 36 red wash, unburnished
- 37 red/buff, interior red slip, exterior medium red band
- 38 red/buff, residual miscellaneous
- 39 horizontal denticulate ridge
- 40 horizontal diagonally slashed strip
- 41 excised band-dots
- 42 lug and vertical diagonally slashed strip
- 43 Coyotlatelco concentric circles
- 44 Coyotlatelco vertical lines interior
- 45 Coyotlatelco vertical lines exterior
- 46 Coyotlatelco SSS exterior
- 47 Coyotlatelco stepped design
- 48 Coyotlatelco stepped design exterior
- 49 red band on lip
- 50 red lip and interior slip
- 51 red lip and exterior slip

Columns 10-13: Square-level number

TYPE	COUNT (RIMS)	PERCENT OF TOTAL
Monochrome bowls	2490	39.4
Painted and Slipped	2524	40.0
Utility	1020	16.2
Ladles	270	4.2
Thin Orange	10	0.2
TOTALS	6314	100.0

Table 1. Xometla Wares.

	COUNT	PERCENT OF MONOCHROME	% OF TOTAL
Vessel Form			
FBB, sharp flare	122	4.9	1.9
FBB, medium flare	590	23.7	9.3
FBB, light flare	303	12.2	4.8
FBB, flare unknown	224	9.0	4.1
Hemispherical, small	259	10.4	4.1
Hemispherical, medium	853	34.3	11.5
Hemispherical, large	61	2.4	1.0
Hemispherical, unknown	78	3.1	1.2
Lip Form			
Direct round	1345	54.0	21.3
Slight evert	1098	44.1	17.4
Medium evert	47	1.9	0.7
Color Surface Treatment			
Grey burnished	1		
Grey unburnished	2	0.1	
Dark Brown burnished	90	3.6	1.4
Dark Brown unburnished	5	0.4	
Tan burnished	917	36.8	14.5
Red Slip burnished	1		
Orange burnished	6	0.5	
Decoration			
Undecorated	2326	93.4	36.8
Incised	91	3.7	1.4
Stamped	56	2.2	0.9

Table 2. Monochrome Bowls (2490 rims, 39.4% of total).

	COUNT	% OF FBB	PERCENT OF MONOCHROME
Vessel Form			
FBB, sharp flare	122	9.6	4.9
FBB, medium flare	590	47.6	23.7
FBB, light flare	303	24.5	12.2
FBB, flare unknown	224	18.1	9.0
Color Surface Treatment			
Tan unburnished	628	50.8	25.2
Tan burnished	582	47.0	23.4
Dark brown burnished	27	2.2	1.1
Lip Form			
Direct round	112	9.0	4.5
Slight evert	1080	87.2	43.4
Medium evert	47	3.8	1.7
Decoration			
Undecorated	1211	97.8	48.7
Incised	17	1.3	0.7
Stamped	11	0.9	0.4

Table 3. Monochrome Flat Bottom Bowls (1239 rims, 49.8% of Monochromes).

	COUNT	PERCENT OF HEMISPHERICAL	PERCENT OF MONOCHROME
Vessel Form			
Hemispherical, small	259	20.7	10.4
Hemispherical, medium	853	68.2	34.3
Hemispherical, large	61	4.9	2.4
Hemispherical, unknown	78	6.2	3.1
Color Surface Treatment			
Grey burnished	1	0.1	
Grey unburnished	2	0.1	
Dark Brown burnished	63	5.0	2.5
Dark Brown unburnished	5	0.9	0.4
Orange burnished	6	1.0	0.5
Tan burnished	862	67.0	35.5
Tan unburnished	311	24.9	11.6
Lip Form			
Direct round	1233	98.6	
Slight evert	18	1.4	
Decoration			
Undecorated	1115	89.1	44.7
Incised	74	5.9	3.0
Stamped	45	3.5	1.8

Table 4. Monochrome Hemispherical Bowls (1242 rims, 50.2% of Monochromes).

	COUNT	PERCENT OF FBB SHARP FLARE
Color Surface Treatment		
Tan unburnished	72	59.0
Tan burnished	50	41.0
Decoration		
Undecorated	122	100.0
Lip Form		
Direct round	16	13.1
Slight evert	97	79.5
Medium evert	9	8.4

Table 5. Flat Bottom Bowls, Sharp Flare (122 rims, 4.9% of Monochromes).

	COUNT	PERCENT OF FBB MEDIUM FLARE
Color Surface Treatment		
Dark Brown burnished	7	1.2
Tan burnished	351	59.5
Tan unburnished	230	39.0
Decoration		
Undecorated	562	95.3
Incised	17	2.9
Stamped	11	1.9
Lip Form		
Direct round	67	11.4
Slight evert	485	82.2
Medium evert	38	6.4

Table 6. Flat Bottom Bowls, Medium Flare (590 rims, 23.7% of Monochromes).

	COUNT	% OF FBB, LIGHT TO VERTICAL FLARE
Color Surface Treatment		
Dark Brown burnished	20	6.6
Tan burnished	141	46.5
Tan unburnished	142	46.9
Decoration		
undecorated	303	100.0
Lip Form		
Direct round	29	9.6
Slight evert	274	90.4

Table 7. Flat Bottom Bowls, Light to Vertical Flare (303 rims, 12.2% of Monochromes).

	COUNT	PERCENT OF FBB FLARE UNKNOWN
Color Surface Treatment		
Tan burnished	40	17.9
Tan unburnished	184	82.1
Decoration		
Undecorated	224	100.0
Lip Form		
Slight evert	224	100.0

Table 8. Flat Bottom Bowls, Flare Unknown (224 rims, 9.0% of Monochromes).

	COUNT	% HÈMISPHERICAL SMALL
Color Surface Treatment		
Grey burnished	1	0.4
Grey unburnished	1	0.4
Dark Brown burnished	3	1.2
Tan burnished	186	71.8
Tan unburnished	68	26.2
Decoration		
Undecorated	259	100.0
Lip Form		
Direct round	259	100.0

Table 9. Small Hemispherical Bowls (259 rims, 10.4% of Monochromes).

	COUNT	% HEMISPHERICAL MEDIUM
Color Surface Treatment		
Grey unburnished	1	0.1
Dark Brown burnished	60	7.0
Dark Brown unburnished	5	0.6
Tan burnished	576	67.5
Tan unburnished	204	23.9
Orange burnished	6	0.7
Decoration		
Undecorated	717	84.1
Incised	74	8.7
Stamped	45	5.3
Lip Form		
Direct round	835	97.9
Slight evert	18	2.1

Table 10. Medium Hemispherical Bowls (853 rims, 34.3% of Monochromes).

	COUNT	% HEMISPHERICAL LARGE
Color Surface Treatment		
Tan burnished	44	72.1
Tan unburnished	17	27.9
Decoration		
Undecorated	61	100.0
Lip Form		
Direct round	61	100.0

Table 11. Large Hemispherical Bowls (61 rims, 2.4% of Monochromes).

	COUNT	% HEMISPHERICAL UNKNOWN
Color Surface Treatment		
Tan burnished	56	71.8
Tan unburnished	22	28.2
Decoration		
Undecorated	78	100.0
Lip Form		
Direct round	78	100.0

Table 12. Hemispherical bowls, Size Unknown (78 rims, 3.1% of Monochromes).

	COUNT	% OF STAMPED
Vessel Form		
FBB, medium flare	11	19.6
Hemispherical, medium	45	80.4
Color Surface Treatment		
Dark Brown burnished	1	1.8
Tan burnished	55	98.2

Table 13. Monochrome Bowls, Stamped Decoration (56 rims, 2.2% of Monochromes).

	COUNT	% OF INCISED
Vessel Form		
FBB, medium flare	17	18.7
Hemispherical, medium	74	81.3
Color Surface Treatment		
Dark Brown burnished	7	7.5
Tan burnished	83	89.5
Orange burnished	2	2.0
Red Slip	1	1.0

Table 14. Monochrome Bowls, Incised Decoration (91 rims, 3.7% of Monochromes).

	COUNT	% OF UTILITY	% OF TOTAL
Vessel Form			
Basin, shallow	7	0.7	0.1
Basin, medium, flaring	124	12.2	2.0
Basin, deep	174	17.1	2.8
Low Neck Jar, medium flare	13	1.3	0.2
Low Neck Jar, sharp flare	25	2.5	0.4
High Neck Jar, light/vertical flare	252	24.7	4.0
High Neck Jar, medium flare	288	28.2	4.6
Comal	130	12.7	2.1
Low Neck Jar, light/vertical flare	7	1.0	0.1
Lip Form			
Direct round	11	1.1	0.2
Direct bolstered	3	0.3	0.0
Slight evert	83	8.1	1.3
Slight evert, bolstered	3	0.3	0.0
Medium evert	267	26.2	4.2
Medium evert, bolstered	47	4.6	0.7
Strong evert	161	15.8	2.5
Strong evert, bolstered	51	5.0	0.8
Horizontal narrow	46	4.5	0.7
Horizontal medium	20	2.0	0.3
Horizontal wide	1	0.1	0.0
Exterior, bevel	116	11.4	1.8
Interior, bevel	7	0.7	0.1
Square	11	1.1	0.2
Medium evert angle	15	1.5	0.2
Strong evert angle	12	1.2	0.2
Horizontal bevel	17	1.7	0.3
Flat Top	9	0.9	0.1
Incurved	6	0.6	0.1
Xometla evert	4	0.4	0.1
Comal, flat bottom	15	1.5	0.2
Comal, slight evert	21	2.1	0.3
Comal, uncurved	54	5.3	0.9
Comal, basal ridge	23	2.3	0.4
Comal, basal angle	17	1.7	0.3

Table 15. Utility Wares (1020 rims, 16.2% of total).

	COUNT	% OF UTILITY	% OF TOTAL
Color Surface Treatment			
Dark Brown unburnished	3	0.3	0.0
Tan burnished	404	39.6	6.4
Tan unburnished	578	56.7	9.2
Orange unburnished	20	2.0	0.3
Cream burnished	1		
Red Slip burnished	14	1.4	0.2
Decoration			
Undecorated	780	76.5	12.4
Cream Slip interior	5	0.5	0.1
Red Slip exterior	16	1.6	0.3
Red Slip interior	29	2.8	0.5
Red Band on Lip	190	18.6	2.9

Table 15. (Continued) Utility Wares (1020 rims, 16.2% of total).

	COUNT	% OF JARS
Vessel Form		
High Neck Jar, light to vertical flare	252	37.0
High Neck Jar, medium flare	288	53.3
Low Neck Jar, light to vertical flare	7	1.0
Low Neck Jar, sharp flare	25	3.6
Low Neck Jar, medium flare	13	1.9
Color Surface Treatment		
Dark Brown burnished	3	0.4
Tan unburnished	562	96.7
Orange unburnished	20	2.9
Decoration		
Undecorated	523	91.1
Cream Slip interior and exterior	4	0.6
Red Slip exterior	16	2.3
Red Slip interior	23	3.3
Red Band on lip	19	2.7
Lip Form		
Medium evert	258	51.2
Medium evert bolstered	47	6.9
Strong evert	161	22.3
Horizontal medium	20	2.9
Horizontal wide	1	0.1
Medium evert angle	15	2.4
Strong evert angle	12	2.0
Slight evert	20	3.3
Strong evert bolstered	51	7.7

Table 16. Jars (585 rims, 57.3% of Utility Wares).

	COUNT	% OF LOW NECK JARS	% OF JARS
Vessel Form			
Low Neck Jar, light flare	7	15.5	1.0
Low Neck Jar, medium flare	13	28.8	1.9
Low Neck Jar, sharp flare	25	55.5	3.6
Color Surface Treatment			
Tan unburnished	45	100.0	6.5
Decoration			
Undecorated	42	93.3	6.1
Red Slip exterior	3	6.6	0.4
Lip Form			
Strong evert	39	86.6	5.7
Medium evert	6	13.3	0.9

Table 17. Low Neck Jars (45 rims, 4.8% of Utility Wares).

VARIETY	COUNT	PERCENT OF LIGHT FLARE
LIGHT FLARE (N = 7)		
Color Surface Treatment Tan unburnished	7	100.00
Decoration Undecorated	7	100.0
Lip Form Strong evert	7	100.0
		PERCENT OF MEDIUM FLARE
MEDIUM FLARE (N = 13)		
Color Surface Treatment Tan unburnished	13	100.0
Decoration Undecorated	13	100.0
Lip Form Medium evert Strong evert	6 7	46.2 53.8
		PERCENT OF SHARP FLARE
SHARP FLARE (N = 25)		
Color surface Treatment Tan unburnished	25	100.0
Decoration Undecorated Red Slip exterior	22 3	88.0 22.0
Lip Form Strong evert	25	100.0

Table 18. Low Neck Jar Varieties.

	COUNT	PERCENT OF HIGH NECK JARS	% OF JARS
Vessel Form			
High neck jar, light/vertical flare	252	47.6	37.0
High neck jar, medium flare	288	53.3	53.3
Color Surface Treatment			
Dark brown burnished	3	0.5	0.4
Tan unburnished	517	95.7	90.2
Orange unburnished	20	3.7	2.9
Decoration			
Undecorated	481	89.1	85.0
Cream Slip, interior/exterior	4	0.7	0.6
Red Slip, exterior	13	2.4	1.9
Red Slip, interior	23	4.2	3.3
Red Lip Band	19	3.5	2.7
Lip Form			
Medium evert	252	46.6	41.7
Medium evert bolstered	47	8.7	8.1
Strong evert	12	22.6	20.7
Medium horizontal lip	20	3.7	2.9
Wide horizontal lip	1	0.2	0.1
Medium evert angle	12	2.2	1.9
Strong evert angle	12	2.2	1.9
Slight evert	20	3.7	3.0
Strong evert bolstered	51	9.4	9.1

Table 19. High Neck Jars (540 rims, 52.9% of Utility Wares).

VARIETY	COUNT	PERCENT OF HIGH NECK JAR, LIGHT FLARE
HIGH NECK JAR, LIGHT/VERTICAL FLARE		
Color Surface Treatment		
Dark Brown unburnished	1	0.4
Tan unburnished	241	95.6
Orange unburnished	10	4.0
Decoration		
Undecorated	207	82.1
Cream Slip, interior/exterior	4	1.6
Red Slip exterior	13	5.2
Red Slip interior	23	9.1
Red Band on lip	5	2.0
Lip Form		
Medium evert	86	34.1
Medium evert bolstered	19	7.5
Strong evert	103	40.9
Horizontal medium lip	16	6.3
Horizontal wide lip	1	0.4
Medium evert angle	15	6.0
Strong evert angle	12	4.8
		PERCENT OF HIGH NECK JAR, MEDIUM FLARE
HIGH NECK JAR, MEDIUM FLARE		
Color Surface Treatment		
Dark Brown unburnished	2	0.7
Tan unburnished	276	95.8
Orange unburnished	10	3.5
Decoration		
Undecorated	274	95.1
Red Band on lip	10	3.5
Lip Form		
Slight evert	20	6.9
Medium evert lip	166	97.6
Medium evert bolstered	28	9.7
Strong evert	19	6.6
Horizontal medium lip	4	1.4

Table 20. High Neck Jar Varieties.

	RIM COUNT	% OF BASINS
Vessel Form		
Basin shallow	7	2.3
Basin medium flare	124	40.7
Basin deep	174	57.1
Color Surface Treatment		
Tan burnished	274	89.8
Tan unburnished	16	5.2
Cream burnished	1	0.3
Red Slip burnished	14	4.6
Decoration		
Undecorated	130	42.6
Red Slip interior	3	1.0
Red Band on lip	145	47.5
Red lip and interior slip	26	8.5
Cream Slip, interior and exterior	1	0.3
Lip Form		
Horizontal narrow lip	46	15.1
Exterior bevel	116	38.0
Interior	7	2.3
Square	11	3.6
Horizontal bevel	17	5.5
Incurved	6	2.0
Direct round	11	3.6
Direct bolstered	3	1.0
Slight evert	67	21.9
Round	9	3.0
Slight evert bolstered	3	1.0
Medium evert	9	3.0

Table 21. Basins (305 rims, 30.8% of Utility Wares).

	COUNT	% OF BASINS, SHALLOW FLARE
Color Surface Treatment		
Tan burnished	4	57.1
Tan unburnished	3	42.9
Decoration		
Undecorated	4	57.1
Red Slip interior	3	42.9
Lip Form		
Direct round	3	42.9
Round, full top	4	57.1

Table 22. Basins, Shallow Flare.

	COUNT	% OF BASINS MEDIUM FLARE
Color Surface Treatment		
Tan burnished	109	87.9
Tan unburnished	12	9.7
Red Slip burnished	3	2.4
Decoration		
Undecorated	54	43.5
Red Band on lip	68	54.8
Red lip and exterior slip	2	1.6
Lip Form		
Exterior bevel	48	38.7
Interior bevel	1	0.8
Horizontal bevel	5	4.0
Round, full top	5	4.0
Direct round	5	4.0
Slight evert	48	38.7
Slight evert bolstered	3	2.4
Medium evert	9	7.3

Table 23. Basins, Medium Flare.

	COUNT	% OF BASINS, DEEP FLARE
Color Surface Treatment		
Tan burnished	161	92.5
Tan unburnished	1	0.6
Cream burnished	1	0.6
Red Slip burnished	11	6.3
Decoration		
Undecorated	72	41.5
Cream Slip, interior and exterior	1	0.6
Red Band on lip	77	44.3
Red lip and interior slip	24	13.8
Lip Form		
Horizontal narrow lip	46	26.4
Exterior bevel	68	39.1
Interior bevel	6	3.4
Square	11	6.3
Horizontal bevel	12	6.9
Incurved	6	3.4
Direct round	3	1.7
Direct bolstered	3	1.7
Slight evert	19	20.9

Table 24. Basins, Deep Flare.

	COUNT	% OF COMALES
Vessel Form Comal, shallow	130	100.0
Color Surface Treatment Tan burnished	130	100.0
Decoration Undecorated Red Slip interior	127 3	97.7 2.3
Lip Form Flat bottom comal Slight evert comal Basal ridge comal Basal angle comal Incurved	15 21 23 17 54	11.5 16.2 17.7 3.1 41.5

Table 25. Comales (130 rims, 12.7% of Utility Wares).

	COUNT	% OF LADLES	% OF TOTAL
Vessel Form Large Orange Small Orange Large Tan Small Tan	11 51 46 162	4.1 18.9 17.0 60.0	0.2 0.8 0.7 2.6
Lip Form Direct round	270	100.0	
Color Surface Treatment Tan uburnished Orange unburnished	208 62	77.0 23.0	3.3 1.0
Decoration Undecorated Red Band on lip	119 151	44.1 55.9	1.9 2.4

Table 26. Ladles (270 rims, 4.3% of Total Sample).

	COUNT	PERCENT OF THIN ORANGE	% OF TOTAL
Vessel Form Hemispherical, small	10	100.0	0.2
Lip Form Direct round	10	100.0	0.2
Color Surface Treatment Oange burnished	10	100.0	0.2
Decoration Undecorated	10	100.0	0.2

Table 27. Thin Orange Ware.

	COUNT	% OF PAINTED AND SLIPPED	% OF TOTAL
Vessel Form			
FBB, sharp flare	6	0.2	0.2
FBB, medium flare	119	4.7	1.9
FBB, light flare	20	0.8	0.3
FBB, ? flare	77	3.1	1.2
Hemispherical, small	57	2.3	0.9
Hemispherical, medium	1916	75.9	30.3
Hemispherical, large	146	5.8	2.3
Hemispherical, ? size	183	7.3	2.9
Lip Form			
Direct round	2304	91.3	36.5
Slight evert	199	7.9	3.2
Medium evert	5	0.2	0.1
Strong evert	2	0.1	0.0
Horizontal bevel	14	0.6	0.2
Color Surface Treatment			
Red Slip burnished	212	8.4	3.4
Red Slip unburnished	10	0.4	0.2

Table 28. Painted and Slipped Ware (2524 rims, 40.0% of Total Sample).

	COUNT	% OF PAINTED/ SLIPPED	% OF TOTAL
Red/Buf--interior plain, exterior red band	298	11.8	4.7
Red/Buf--interior plain, exterior red slip	201	8.0	3.2
Red/Buf--interior red band, exterior plain	149	5.9	2.4
Red/Buf--interior red slip, exterior plain	105	4.1	1.6
Red/Buf--interior red band, exterior red band	101	4.0	1.6
Red/Buf--interior red slip, exterior red slip	253	10.0	5.5
Red/Buf--interior red band, exterior red slip	5	0.2	0.1
Red/Buf--interior red slip, exterior labial red band	30	1.2	0.5
Mazapan Red/Buf wavy line	12	0.5	0.2
Tolteco Red/Buf	19	0.8	0.3
Wide Band Red/Buf	18	0.7	0.3
Coyotlatelco--parallel line SS interior	40	1.6	0.6
Coyotlatelco--parallel line undulating	232	9.2	3.7
Coyotlatelco--parallel line miscellaneous	276	10.9	4.4
Coyotlatelco--exterior miscellaneous	91	3.6	1.4
Coyotlatelco--interior miscellaneous	364	14.4	5.8
Coyotlatelco--interior and exterior miscellaneous	85	3.4	1.3
Xometla Red/White Slip	9	0.4	0.1
Cream--interior, exterior plain	8	0.3	0.1
Cream--interior, exterior red band	22	0.9	0.3
Cream--interior and exterior	17	0.7	0.3
Red/Buf--residual miscellaneous	88	3.5	1.4
Coyotlatelco--vertical lines interior	16	0.6	0.3
Coyotlatelco--vertical lines exterior	32	1.3	0.5
Coyotlatelco--SSS exterior	22	0.9	0.3
Coyotlatelco--stepped design	22	0.9	0.3
Coyotlatelco--stepped design exterior	9	0.4	0.1

Table 29. Painted and Slipped Decoration (2524 rims, 40.0% of Total Sample).

VESSEL FORM	COUNT	% OF PAINTED AND SLIPPED
Red/Buff		
FBB, sharp flare	6	0.2
FBB, medium flare	89	3.5
FBB, light flare	20	0.8
FBB, ? flare	77	3.1
Hemispherical, small	31	1.2
Hemispherical, medium	664	26.3
Hemispherical, large	66	2.6
Hemispherical, ? size	66	2.6
Basal ridge	183	7.3
Coyotlatelco		
FBB, medium flare	13	0.5
Hemispherical, small	21	0.8
Hemispherical, medium	1087	43.1
Hemispherical, large	68	2.7
Cream Slipped		
Hemispherical, medium	47	1.9
Mazapan Red/Buff Wavy Line		
Hemispherical, large	12	0.5
Toltec Red/Buff		
Hemispherical, medium	19	0.8
Xometla White/Red		
Hemispherical, medium	9	0.4
White Band Red/Buff		
Hemispherical, medium	18	0.7
Red/Buff Residual		
FBB, medium flare	16	0.6
Hemispherical, medium	72	2.9

Table 30. Painted and Slipped Types, Vessel Form.

	INTERIOR		EXTERIOR	
	COUNT	%	COUNT	%
Slip				
Red/Cream/Buff	20	0.6	27	0.8
Red/Buff-smokey	72	2.2	32	1.1
Red Lip Band on Cream	10	0.3	8	0.2
Red Lip Band on Buff	813	24.3	172	5.1
Red Slip-smokey	32	1.0	18	0.5
Red Slip, major portion of vessel wall	62	1.9	54	1.6
Red Slip	825	24.7	383	11.4
Red/Cream	37	1.1	28	0.8
Red/Buff	1221	36.5	352	11.1
Cream/Buff	0	0.0	3	0.1
Buff-smokey	0	0.0	7	0.2
Cream	3	0.1	7	0.2
Buff	212	6.3	1910	58.0
Burnish				
Uniform	773	23.1	338	11.5
Streaky	1998	59.7	842	25.4
Dull	417	12.5	264	8.0
Unburnished	157	4.7	1789	55.1
Quality of Design Execution				
Low	237	6.9	27	0.8
Medium	772	22.8	226	7.4
High	312	9.2	162	5.4
No Determination	2025	62.1	2823	85.9
Design Form				
Rectilinear	594	18.0	194	6.3
Curvilinear/Rectilinear	510	16.8	126	4.4
Curvilinear	150	4.5	91	2.9
No Determination	2025	62.1	2823	85.9
Design Class				
Solid	63	1.9	44	1.3
Solid/Hollow	166	5.0	38	1.1
Hollow	1018	31.0	331	10.5
No Determination	1960	62.0	2823	85.9

Table 31. Coyotlatelco Red/Buff Design Analysis.

MOTIF/ELEMENT	INTERIOR		EXTERIOR	
	COUNT	%	COUNT	%
Curvilinear lines	54	1.7	40	1.3
"S" Curves, hooked	55	1.7	21	0.6
"S" Curves, unhooked	24	0.8	11	0.3
Xonecuilli	1	----	0	0.0
Half Circles	7	0.2	15	0.4
Scallops	17	0.5	6	0.2
Crescents	9	0.3	3	0.1
Circles	0	0.0	3	0.1
Dots	4	0.1	1	----
Scrolls	40	1.3	33	1.0
Ellipse	20	0.6	4	0.1
Cusps	5	0.1	3	0.1
Undulating lines: vertical and diagonal	10	0.3	3	0.1
Undulating lines: horizontal series	49	1.5	20	0.6
Undulating line	359	11.2	58	1.8
"U" Figure	6	0.2	2	0.1
Rectilinear lines	156	4.7	2	0.1
Concentric bands	1006	31.0	284	8.7
Rays	1	----	0	0.0
Triangles	4	0.1	2	0.1
Rectilinear greque	0	0.0	0	0.0
Checkerboard	48	1.5	5	0.1
Double-line cross	6	0.2	6	0.2
Stepped figure	43	1.3	20	0.6
"Z" Figure	71	2.8	16	0.4
Red Lip Band	1436	44.1	367	11.3
Flower	8	0.2	4	0.1
Screen	0	0.0	2	0.1

Table 32. Coyotlatelco Design Motifs/Elements.

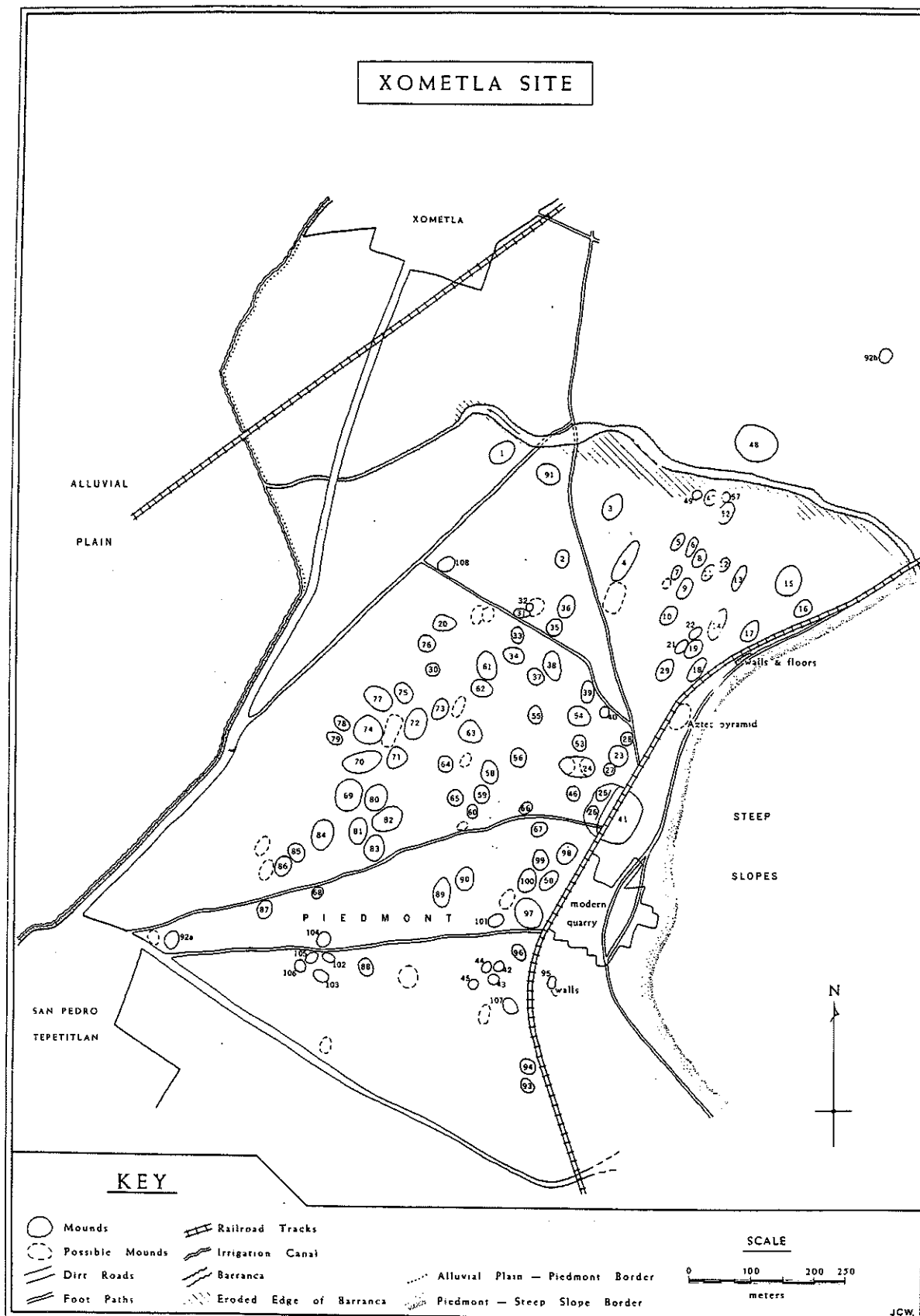


Figure 1. Xometla Site Map.

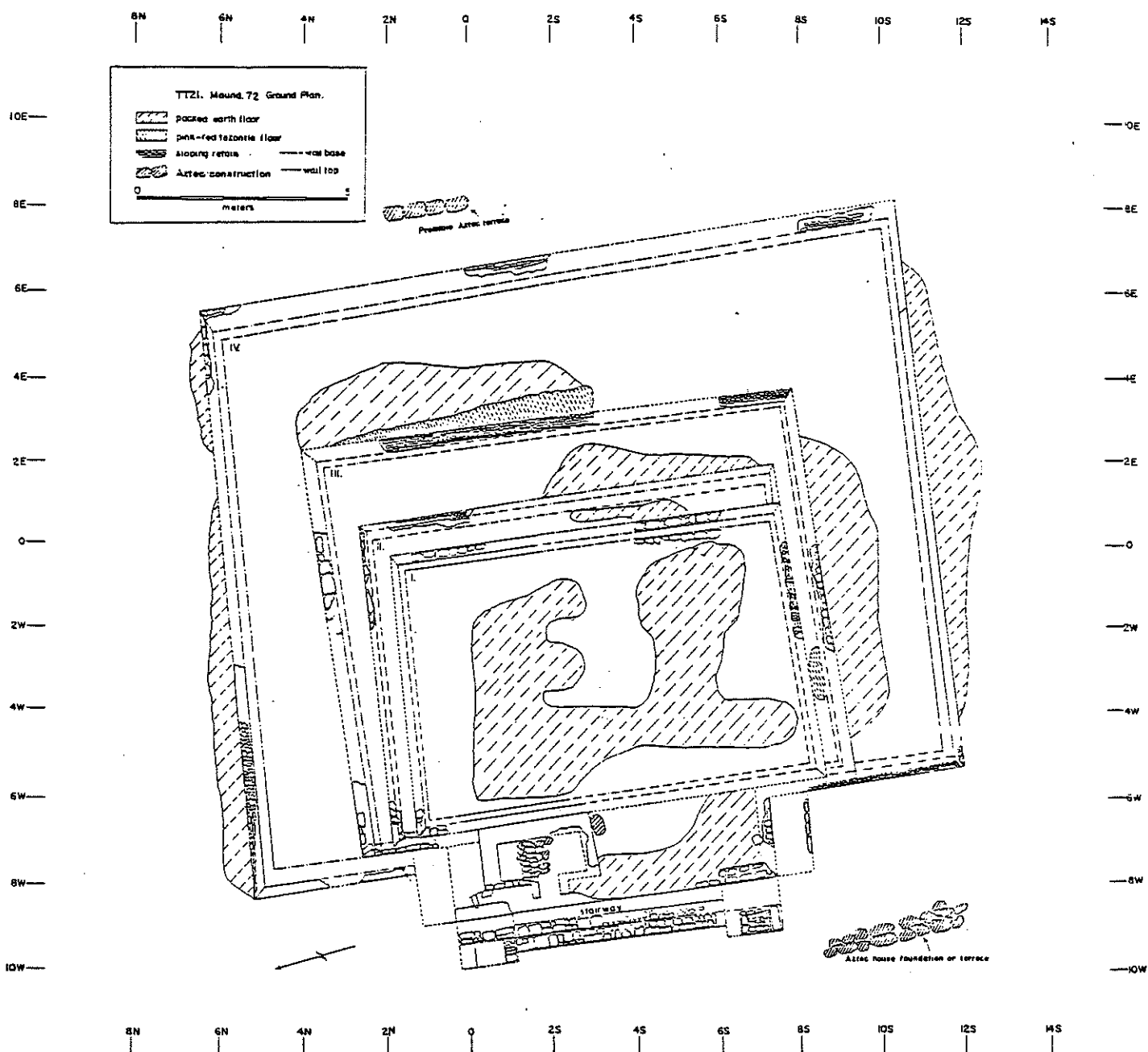


Figure 2. Xometla Excavation: Ground Plan.

TT-21 Mound 72. North-South Profiles.

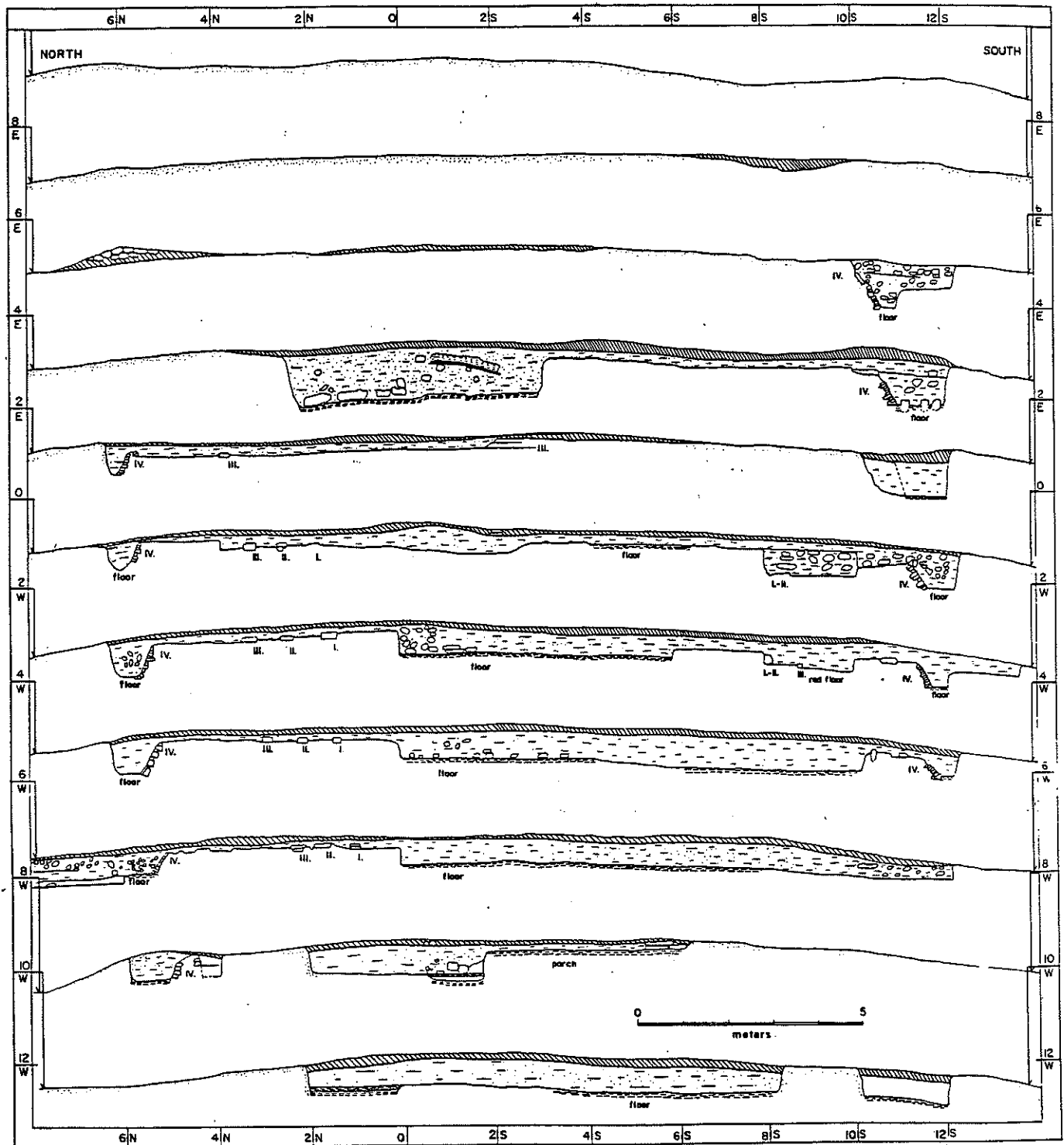


Figure 3. Xometla Excavation: North-South Profiles.

TT-21. Mound 72. East-West Profiles.

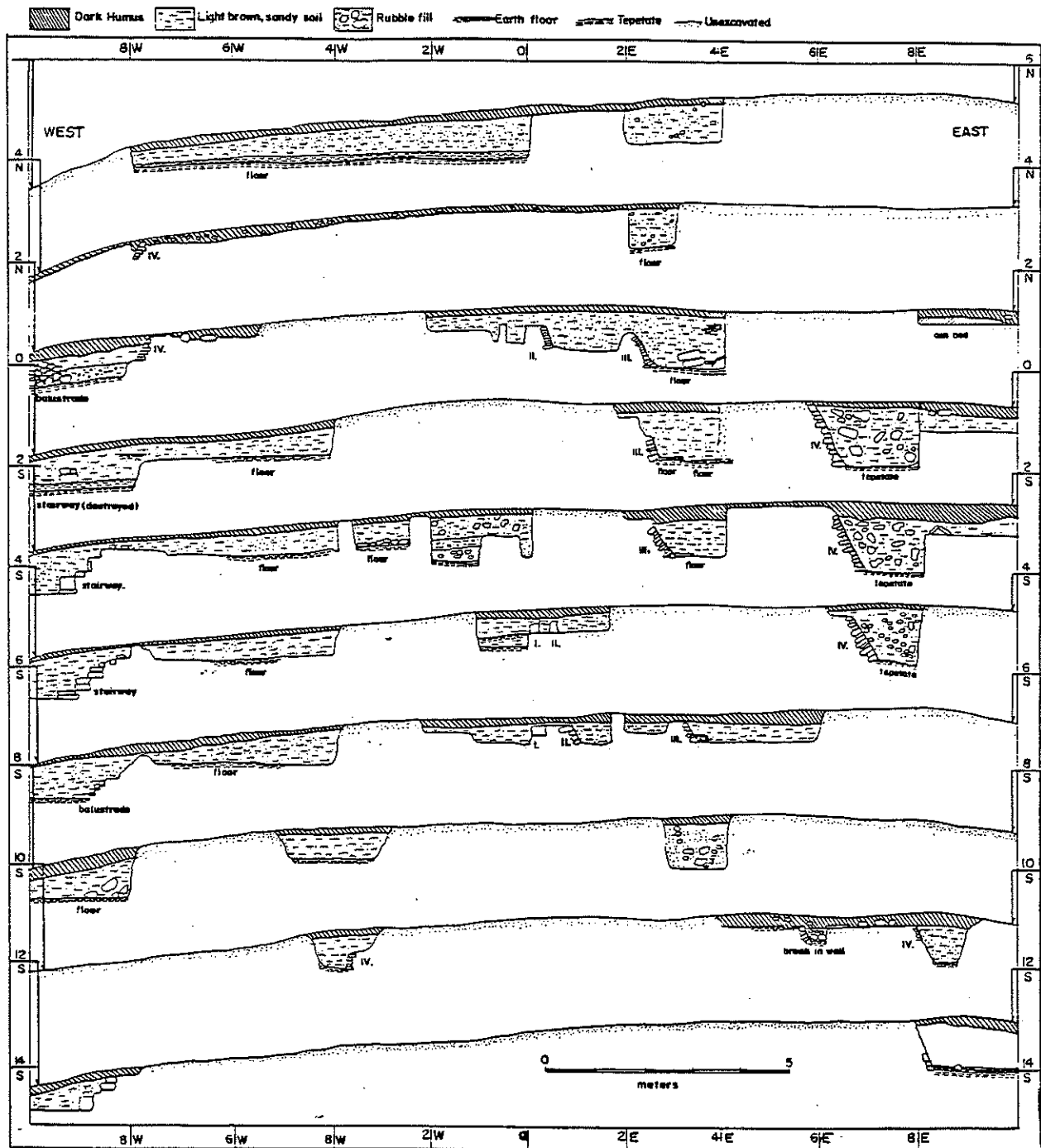


Figure 4. Xometla Excavation: East-West Profiles.

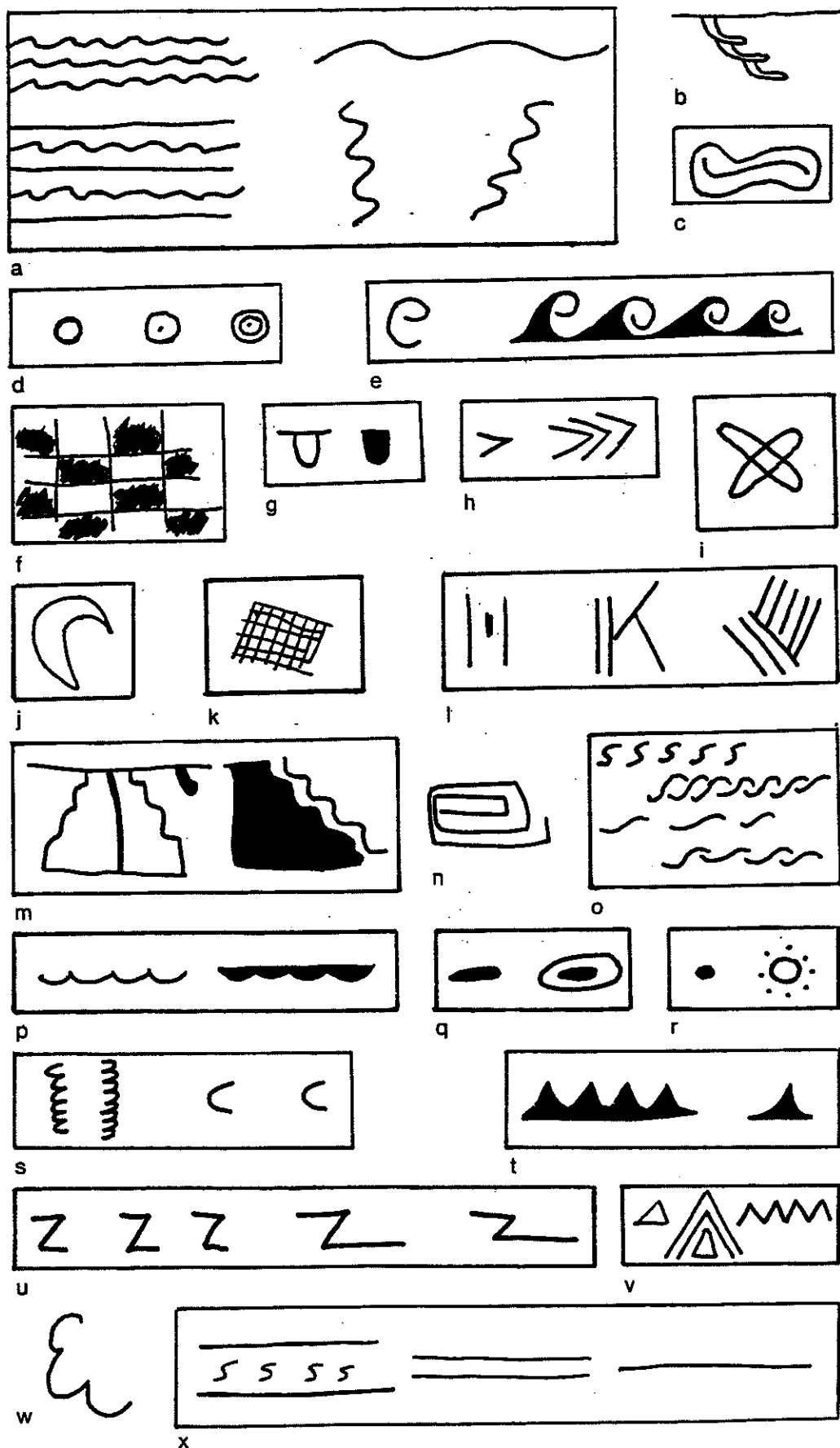


Figure 5. Designs on Coyotlatelco Red/Buf Pottery.



Figure 6. Coyotlatelco Decorated Vessels. a,b: Cerro Tenayo Plates (Rattray 1966); c, d: sherds from Xometla; e: sherds from Oxtotipac; f: Tula sherds (Acosta 1945).

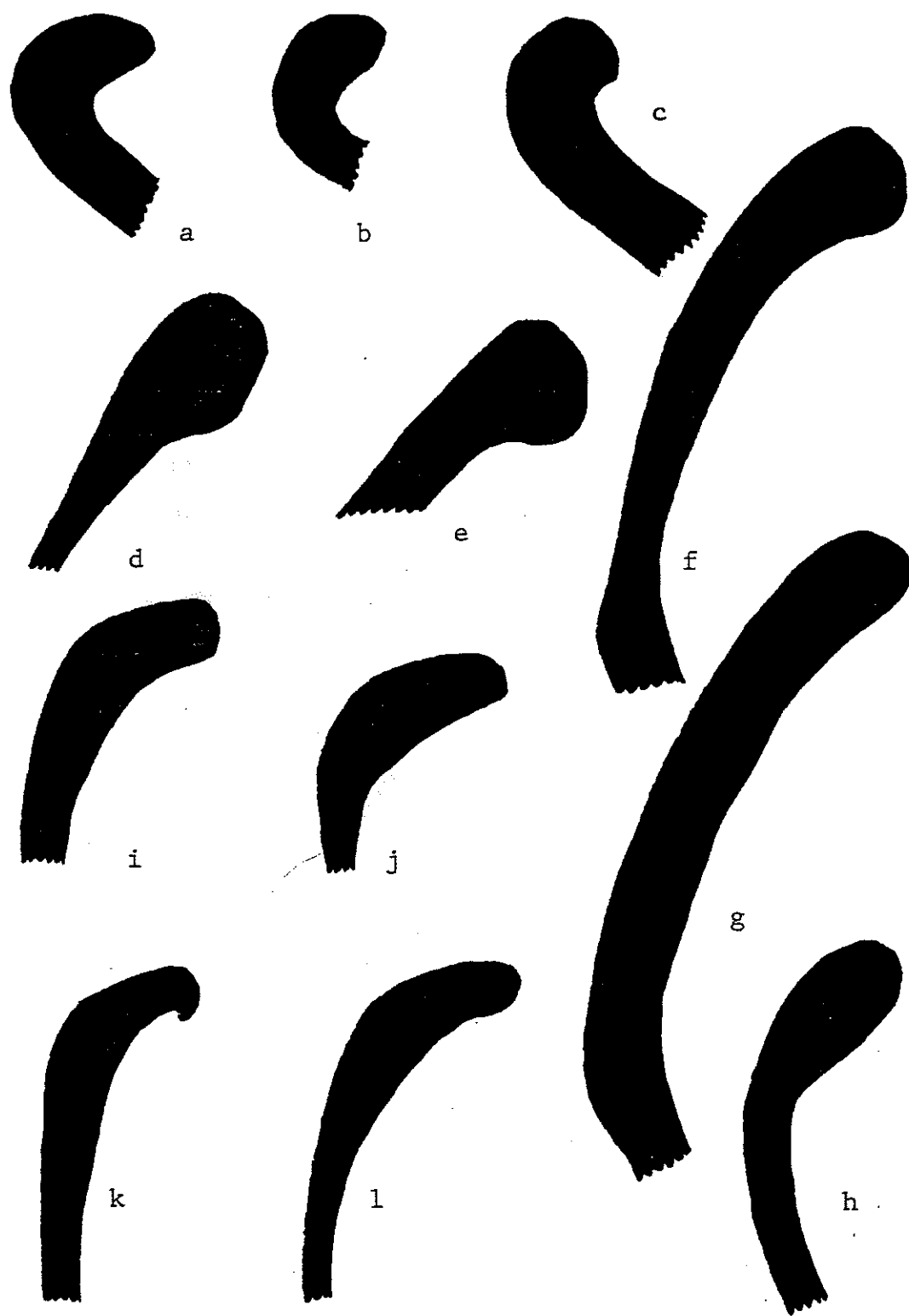


Figure 7. Burnished Tan Jars. a-c: low neck; d-h: medium/high neck, flaring neck, bolstered lip; i-l: medium/high neck, vertical neck.

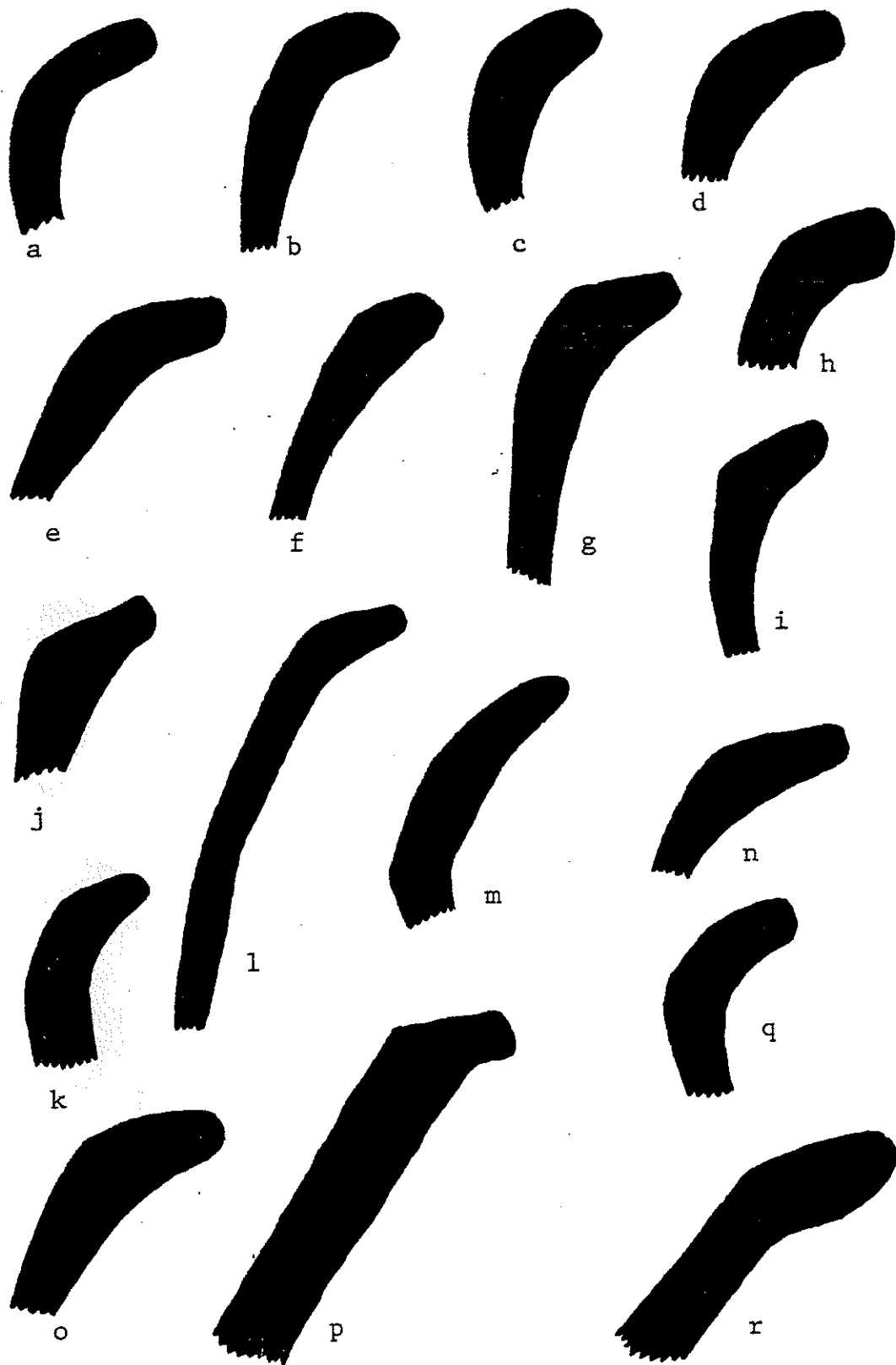


Figure 8. Burnished Tan Jars, Medium/High Neck with Flare.

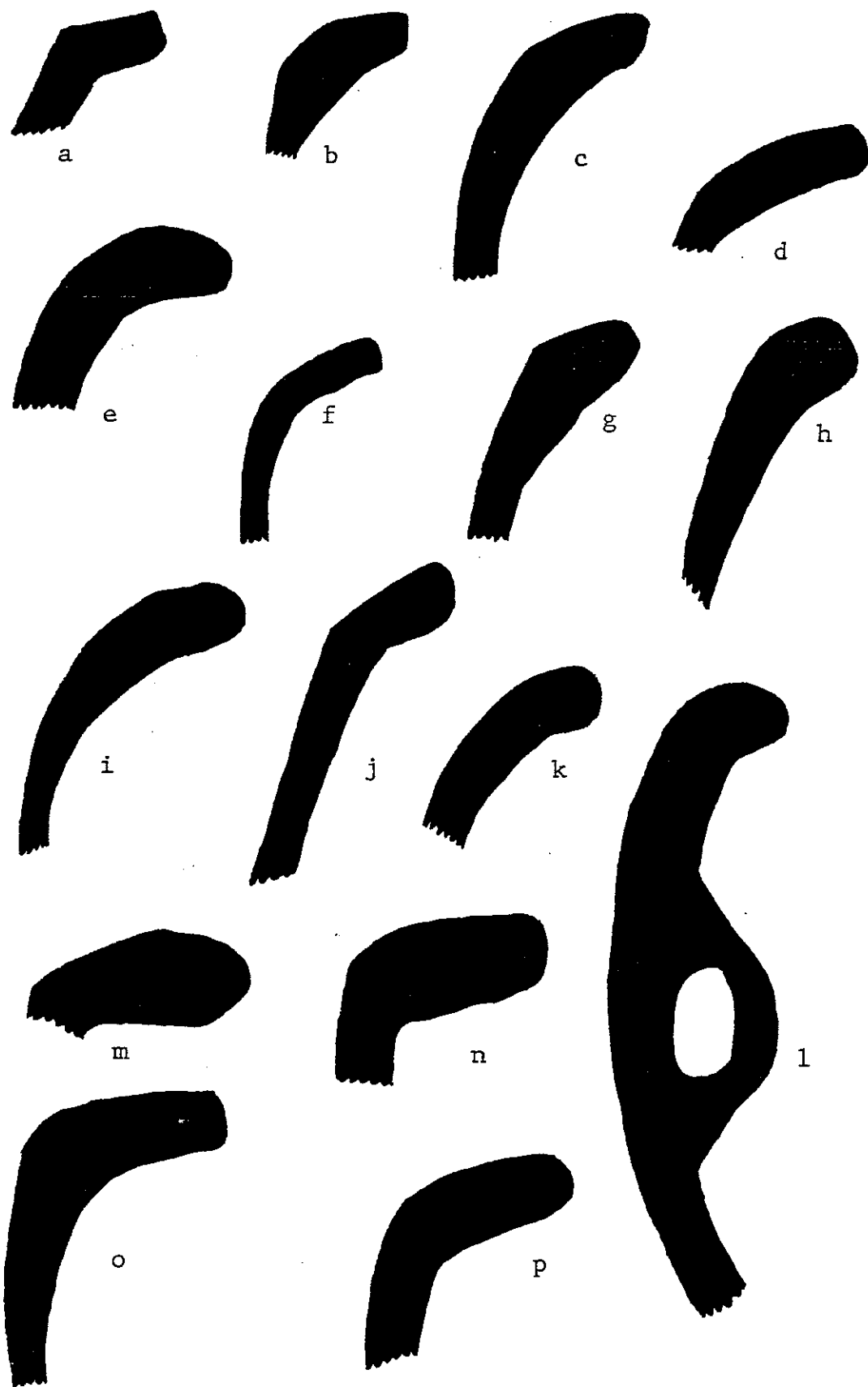


Figure 9. Burnished Tan Jars, Medium/High Neck. a-k: flaring neck; h-l: bolstered lip; m-p: everted lip, vertical neck.

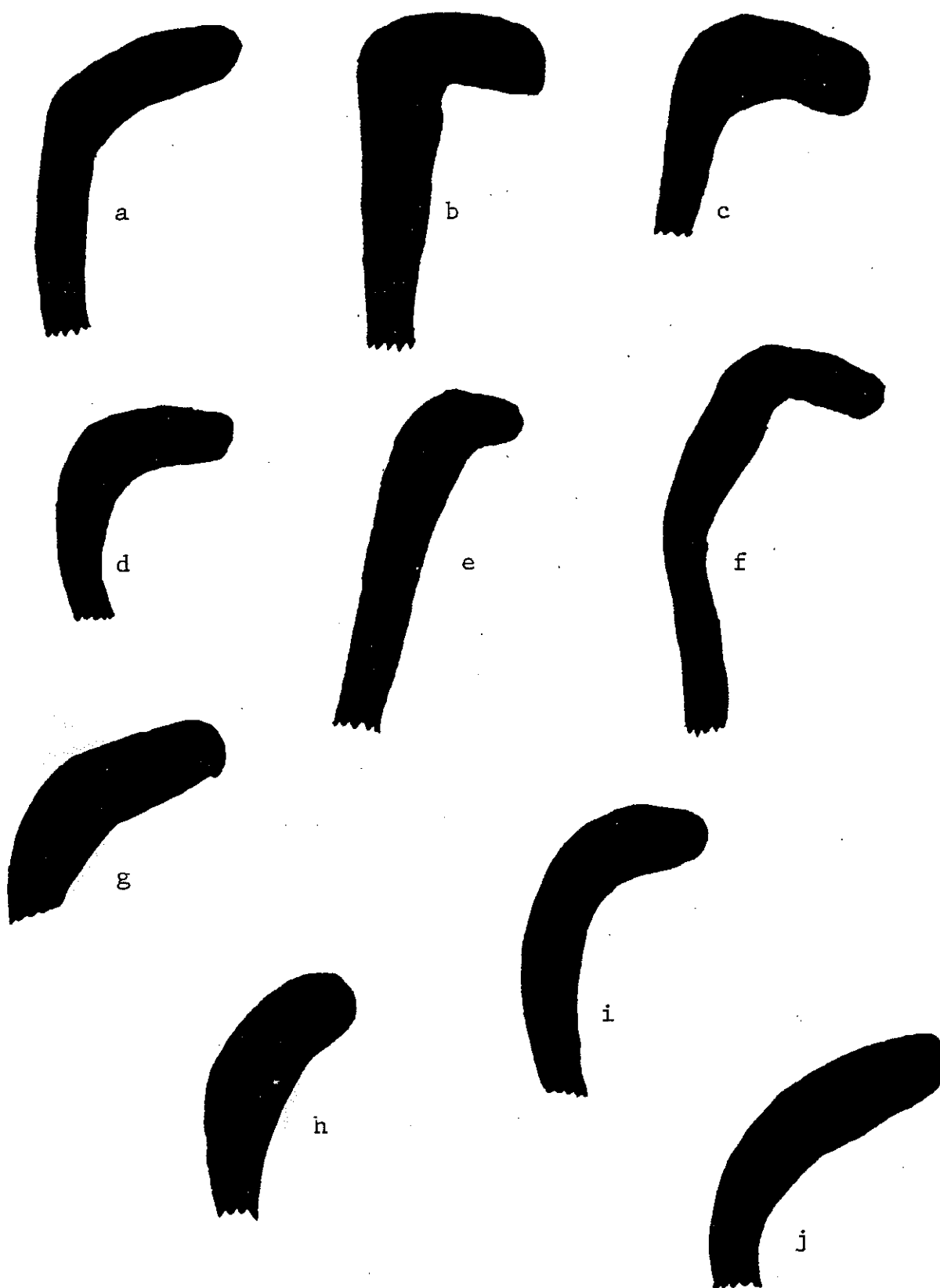


Figure 10. Burnished Tan Jars, Medium/High Neck. a-g: everted lip; h-j: flaring neck.



Figure 11. Burnished Tan Jars, Medium/High Neck with Everted Lip.

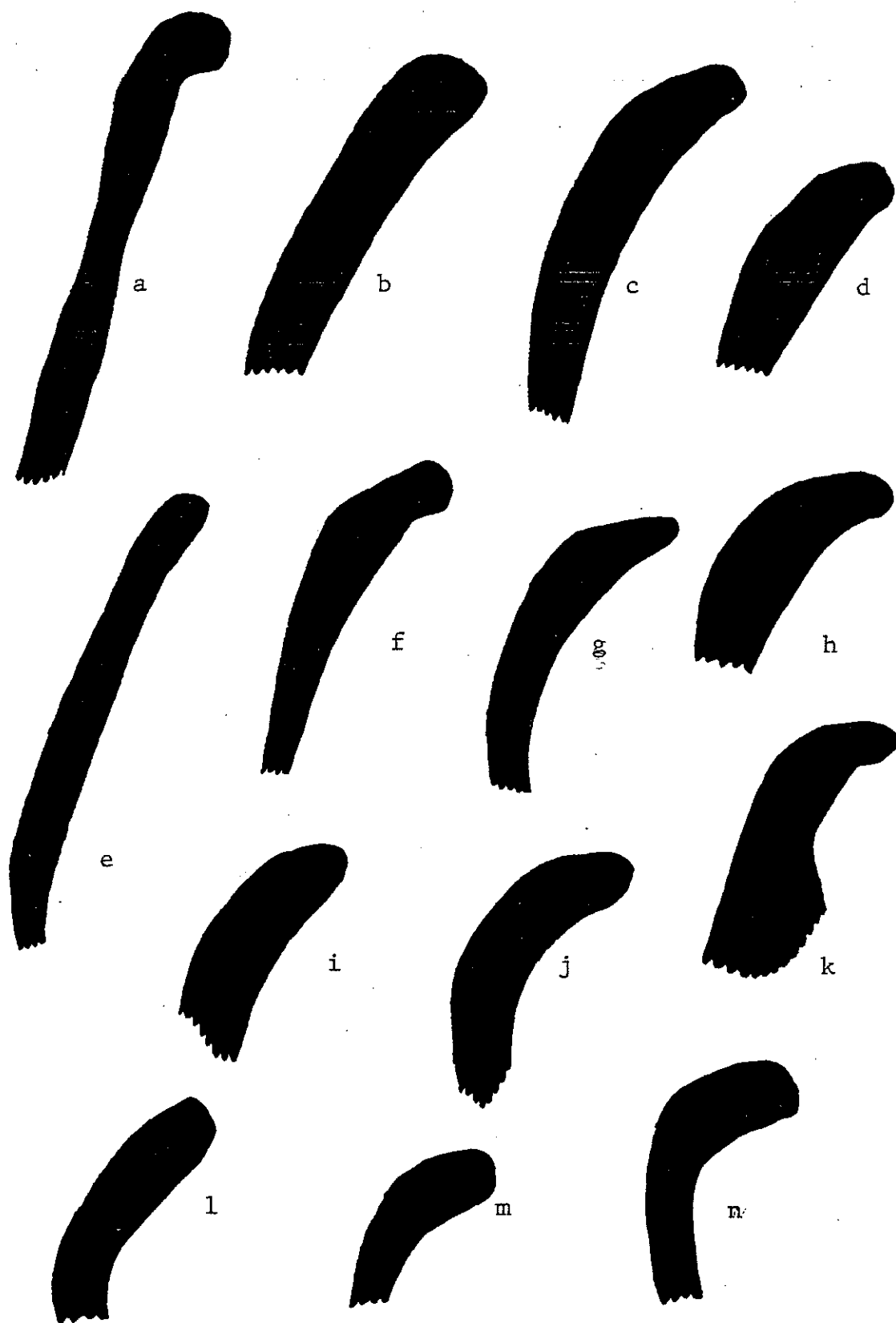


Figure 12. Red Slip Jars, Medium/High Neck with Variable Lip.



Figure 13. Jars. a-e: red slip, medium/high neck; f-k: polished tan, medium/high neck; l-o: burnished tan, small, low neck.



Figure 14. Basins, Tan with Red Lip Band or Interiors, Exterior Bevelled Lip.

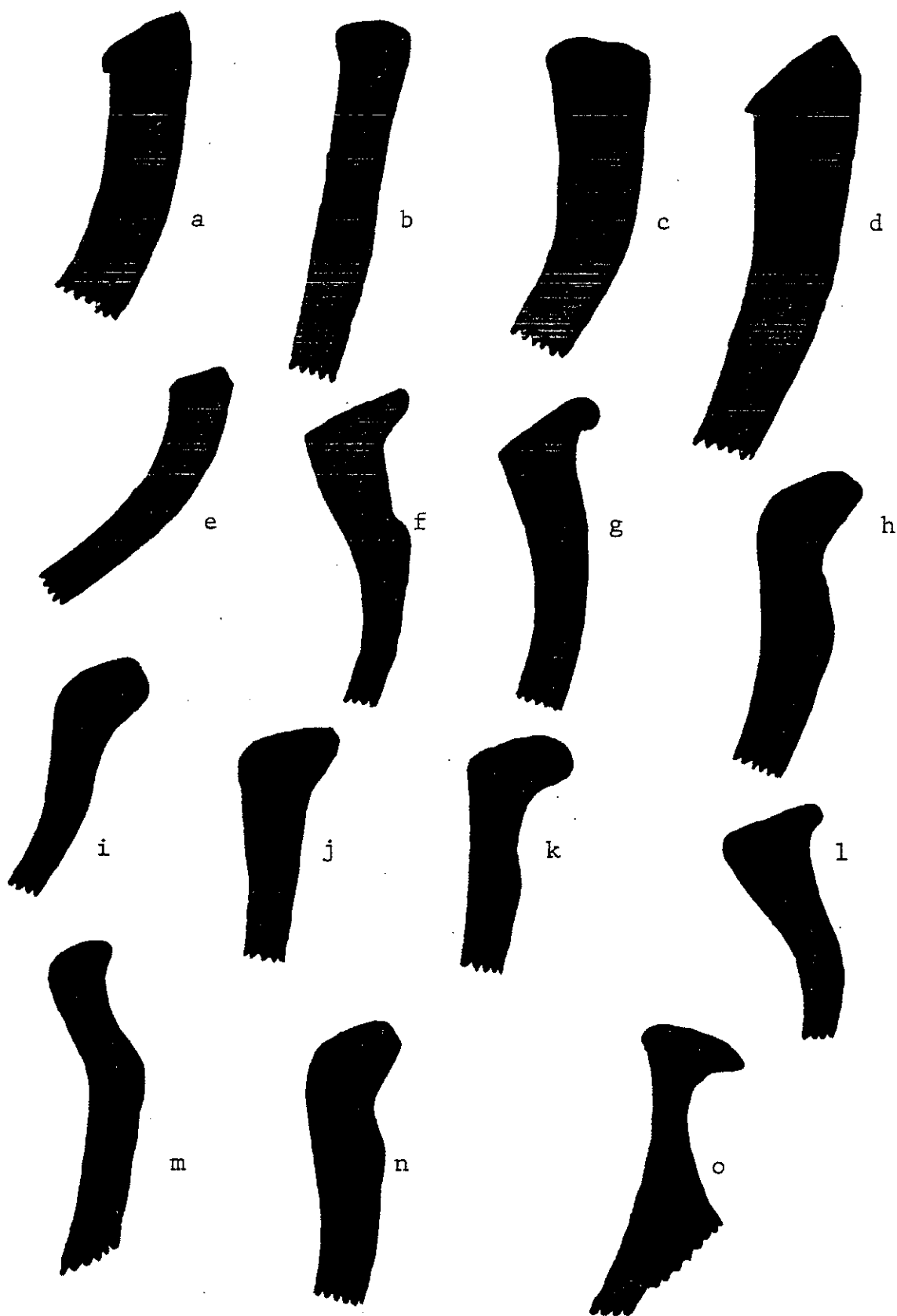


Figure 15. Basins. a,d: tan with interior bevelled lip; b,c: thickened horizontal lip; f-o: tan with red lip band and everted lip.

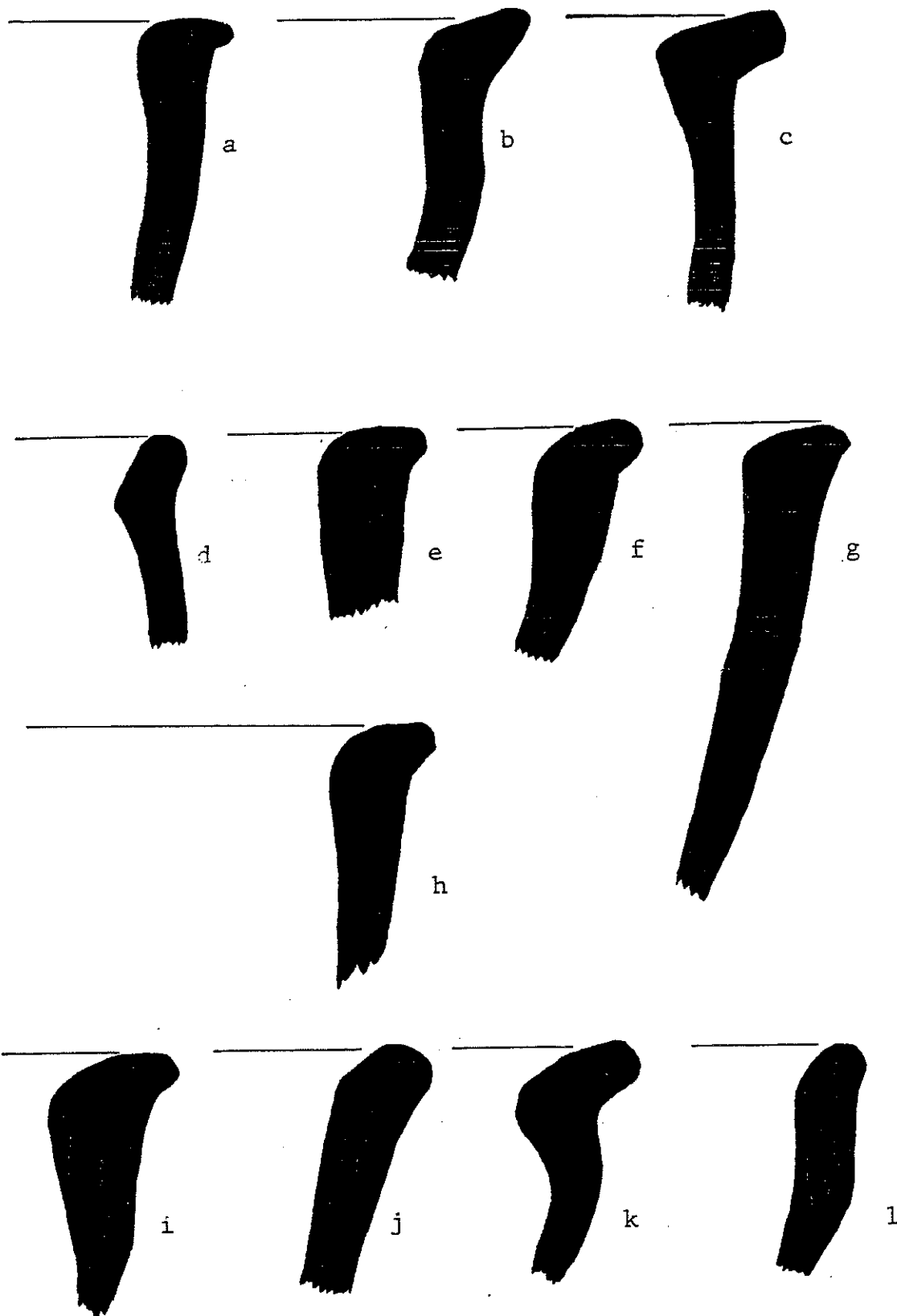


Figure 16. Basins. a-g: tan with red lip band, everted lip; h-k: tan with lightly everted lip; l: rounded lip.



Figure 17. Tan Basins. a-d: lightly everted lip; e-l: wide mouth.

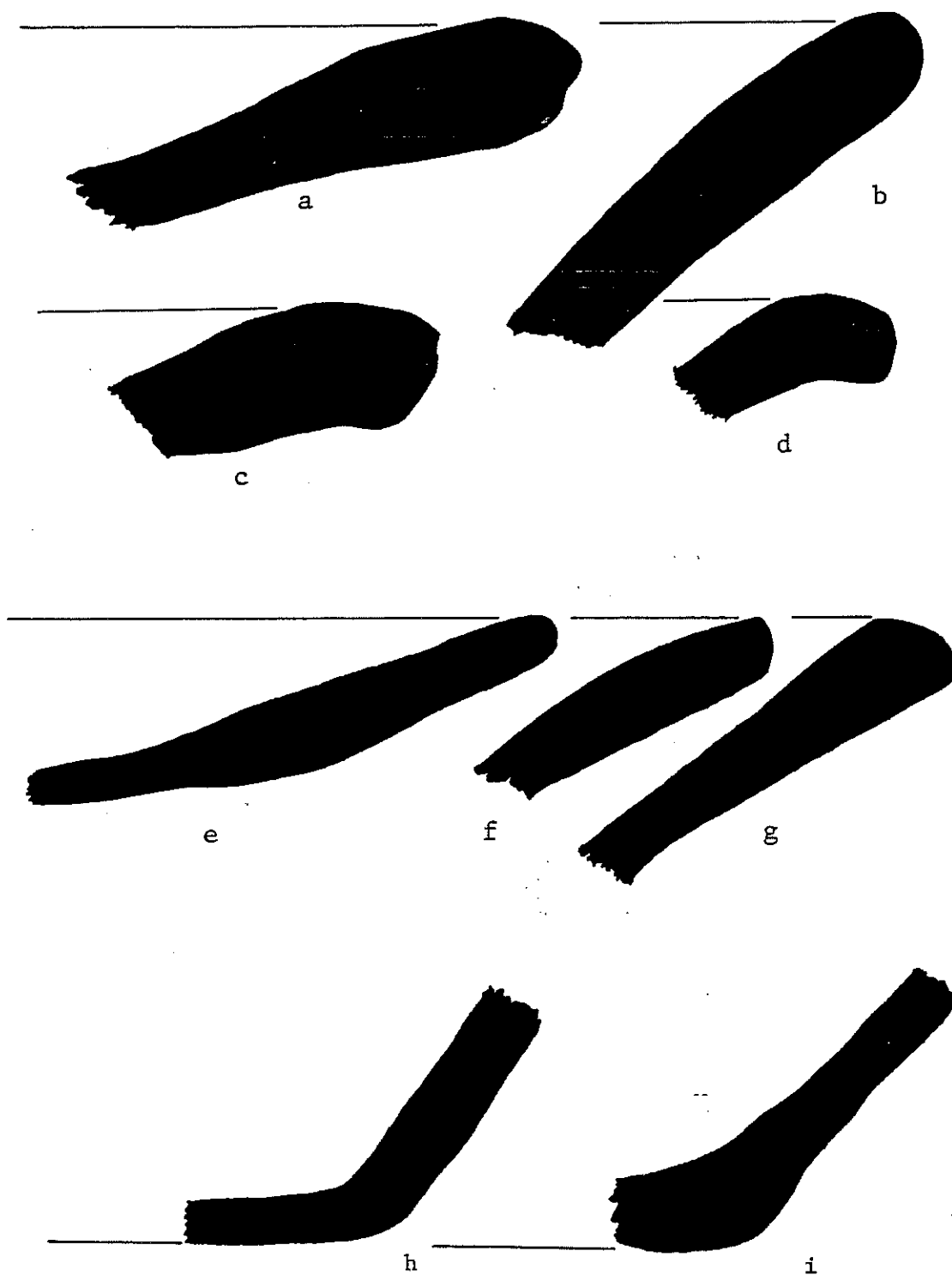


Figure 18. Tan Basins. a-g: wide mouth; h-i: basal angles.

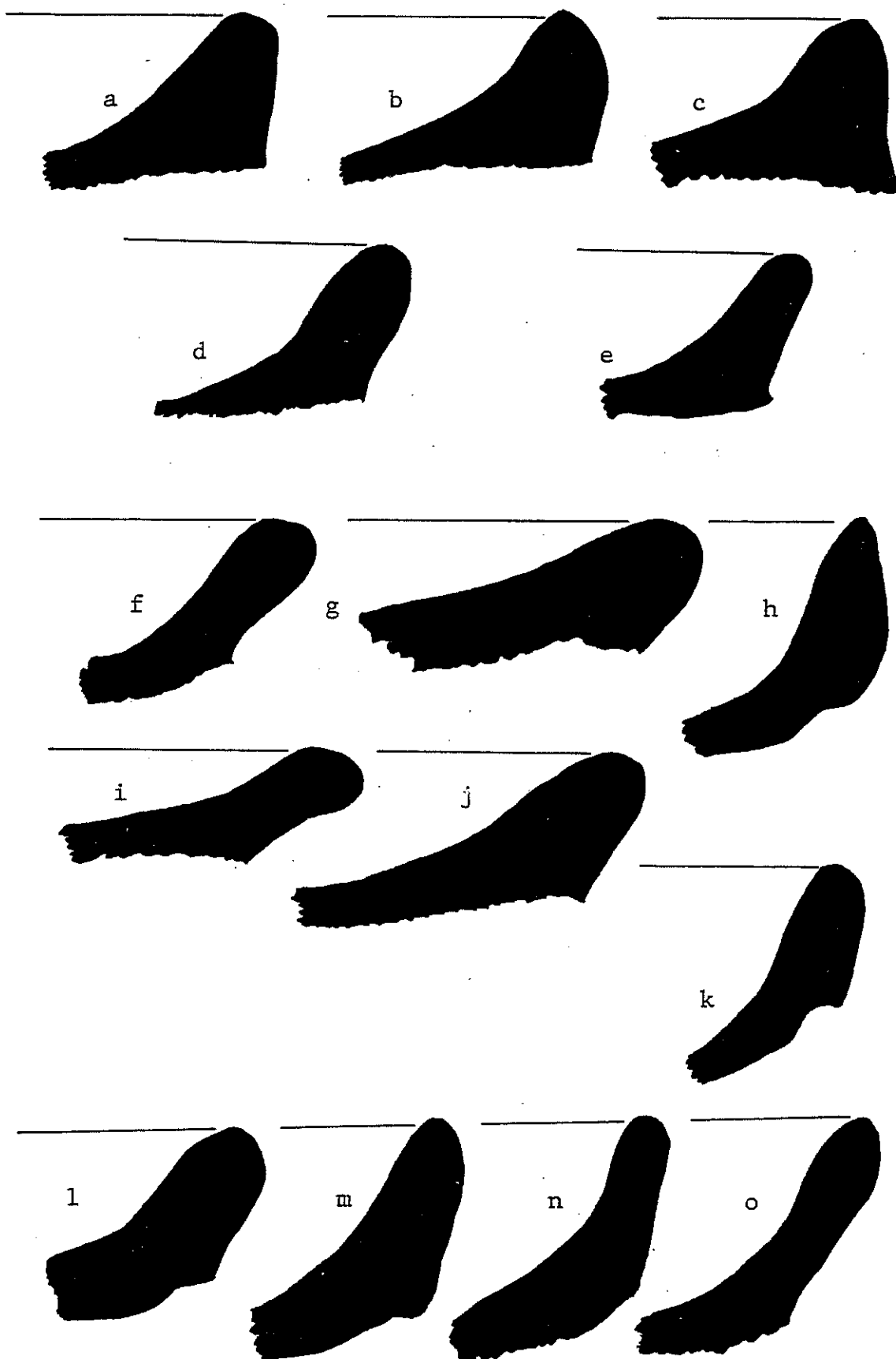


Figure 19. Tan Comales.

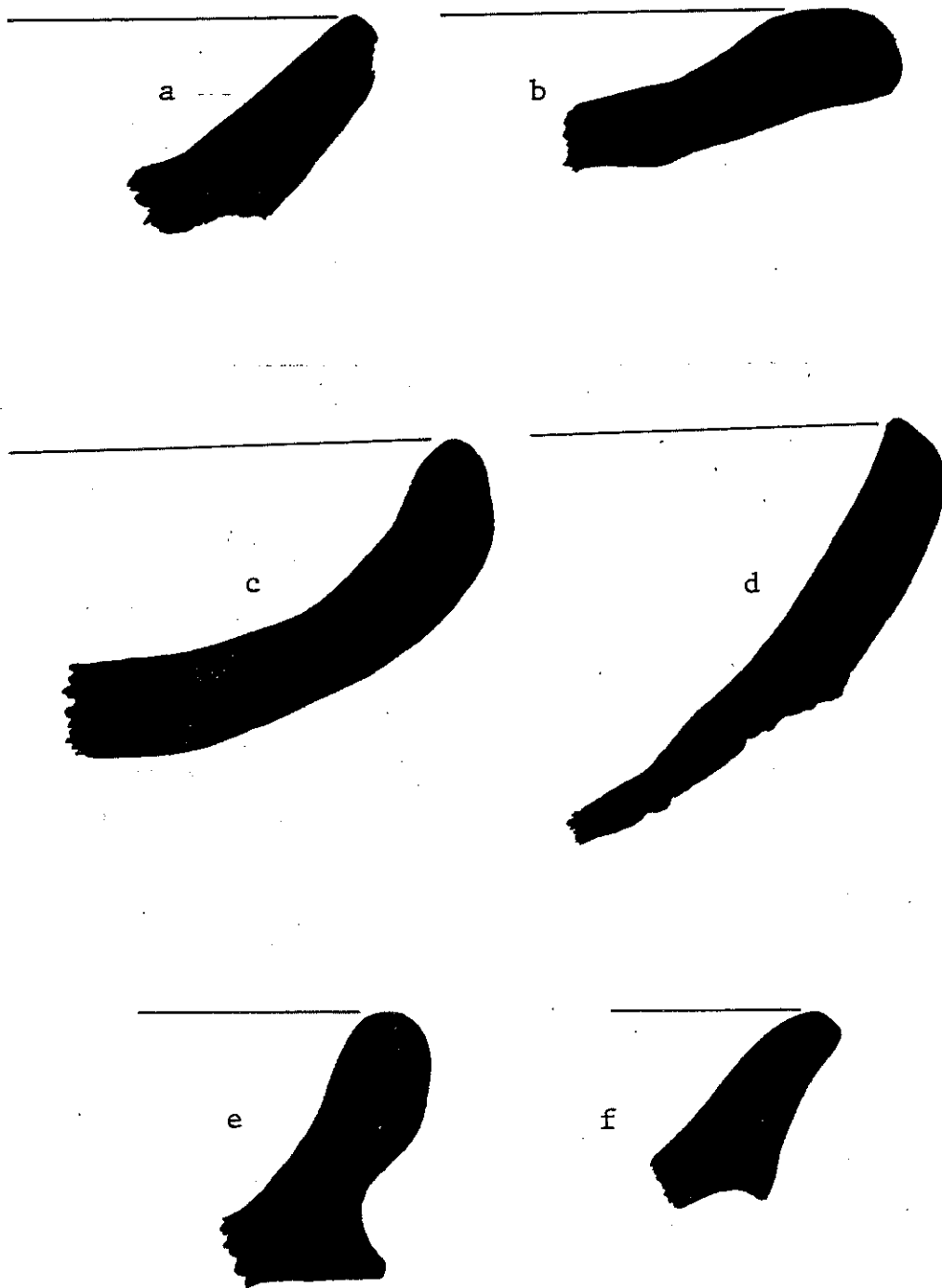


Figure 20. Tan Comales.

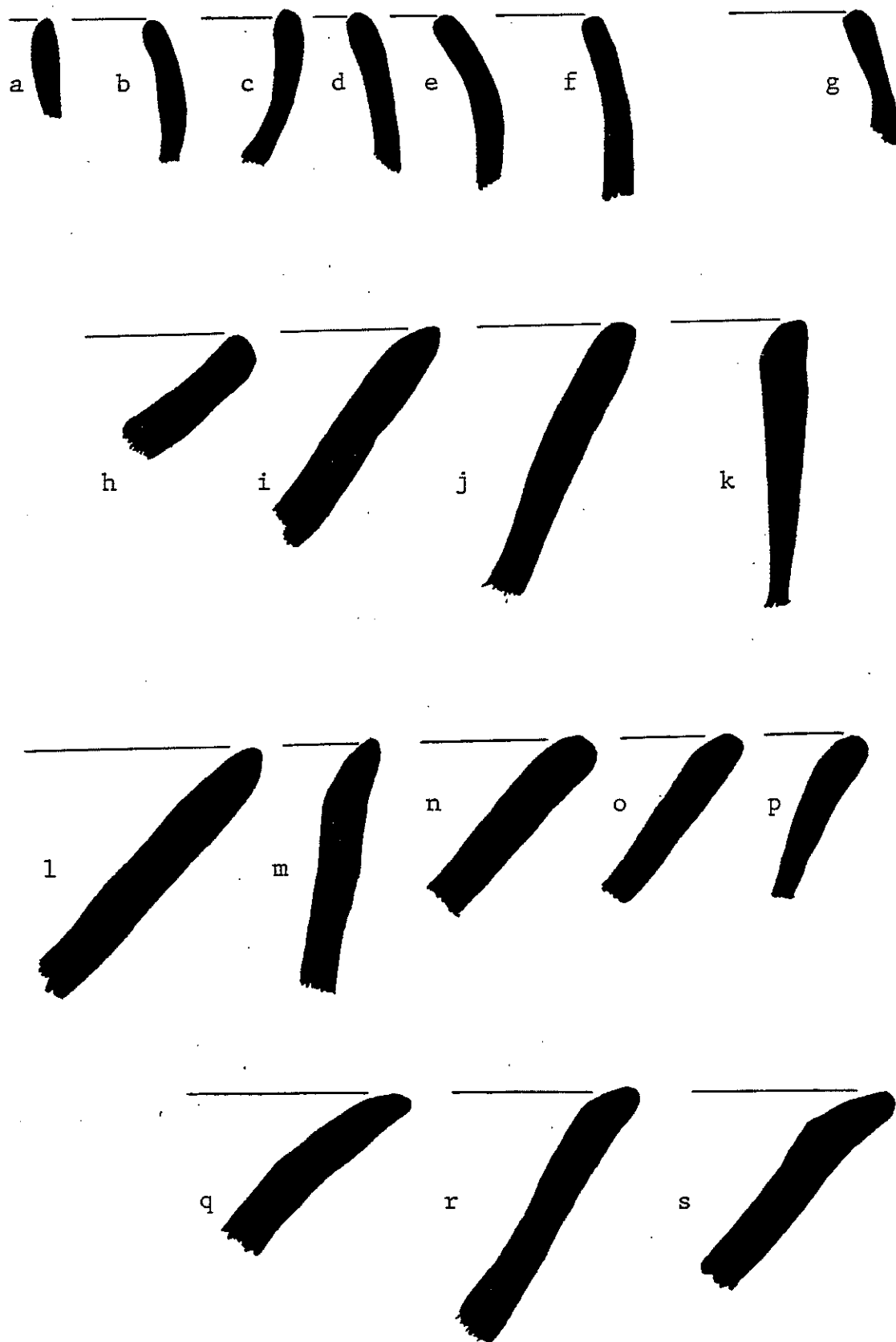


Figure 21. Coyotlatelco Red/Buff Bowls. a-g: small hemispherical, exterior design; h-s: straight sided, exterior design.

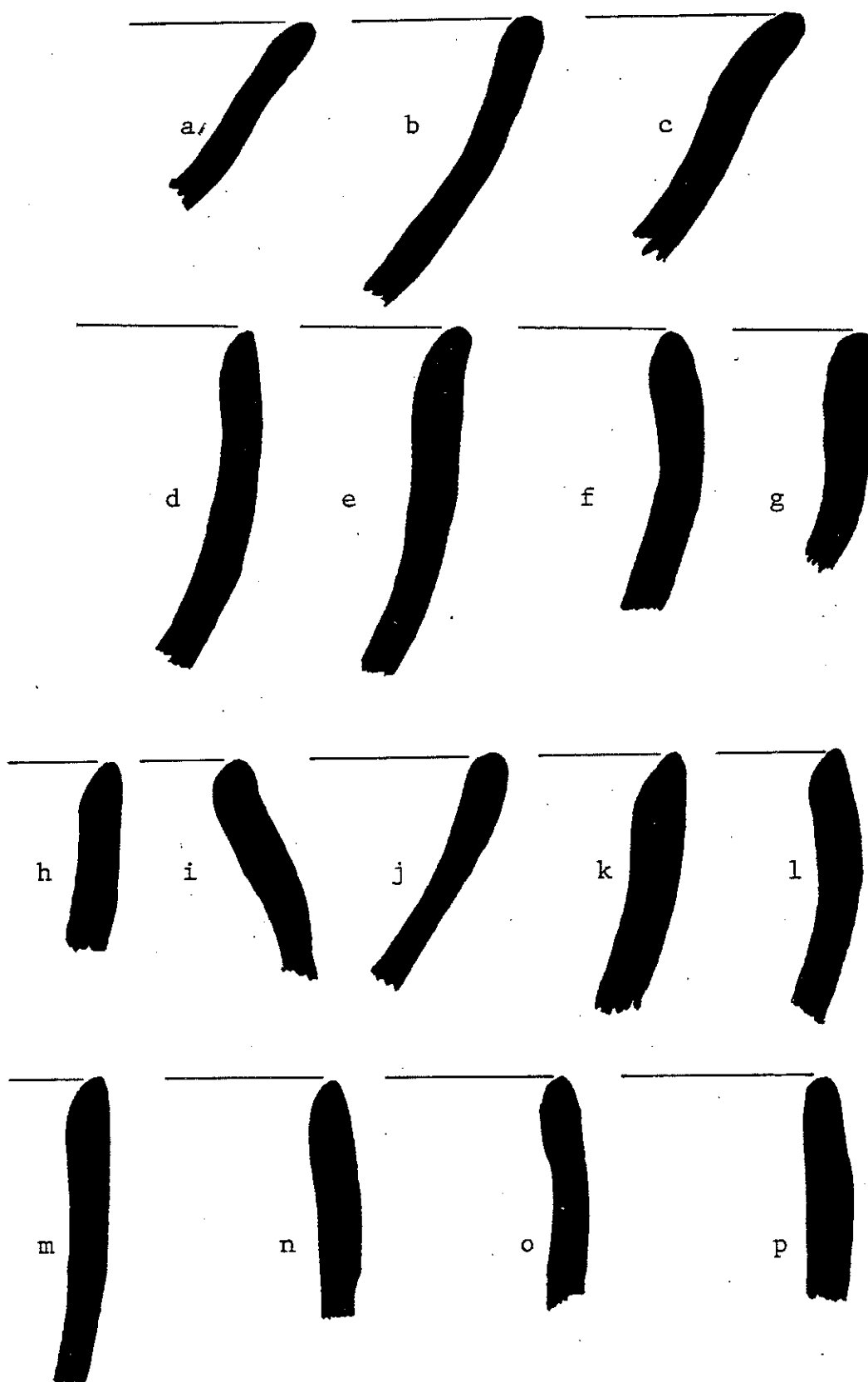


Figure 22. Coyotlatelco Red/Buf Hemispherical Bowls, Exterior Design.

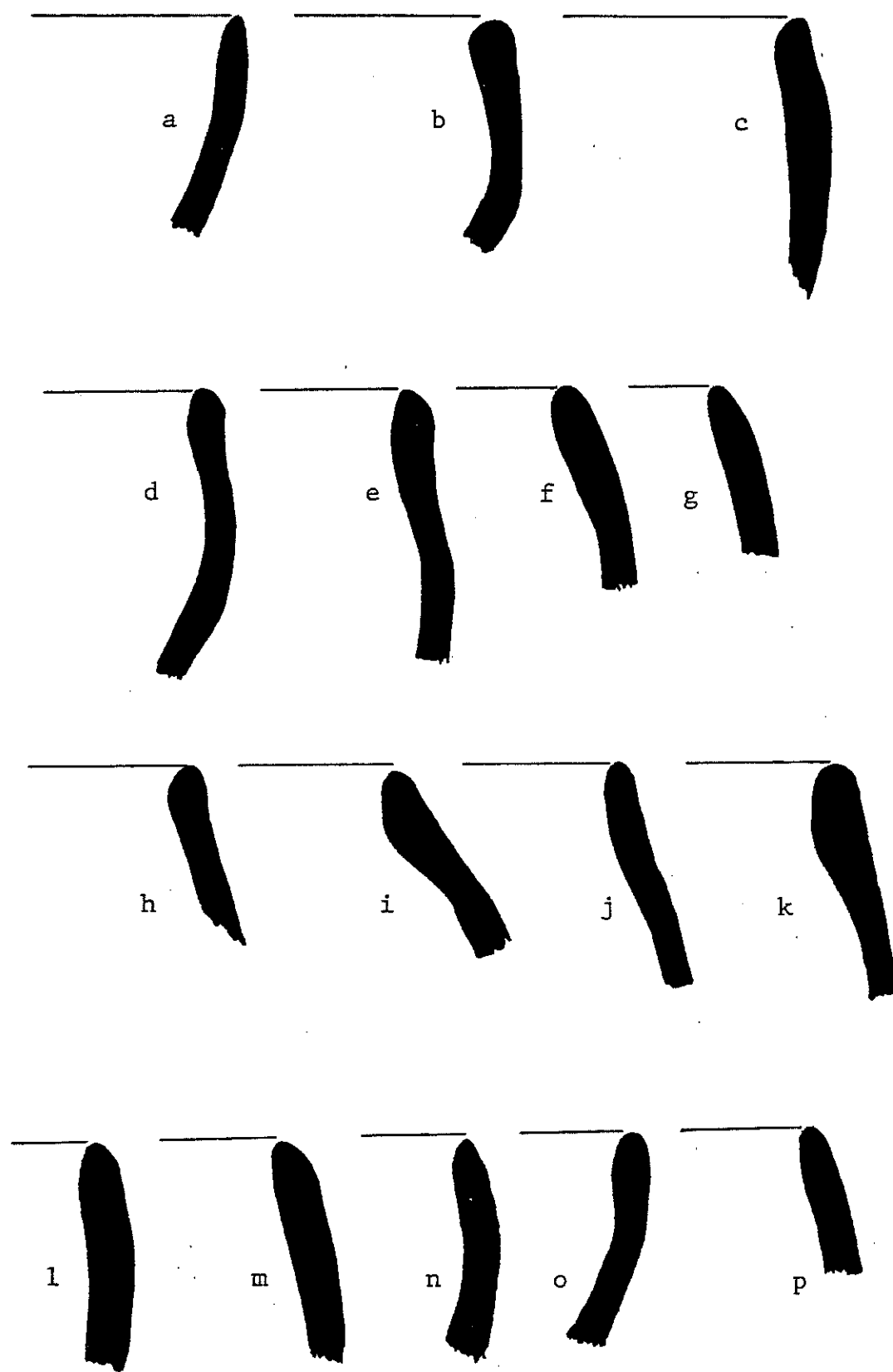


Figure 23. Coyotlatelco Red/Buf Hemispherical Bowls, Exterior Design.

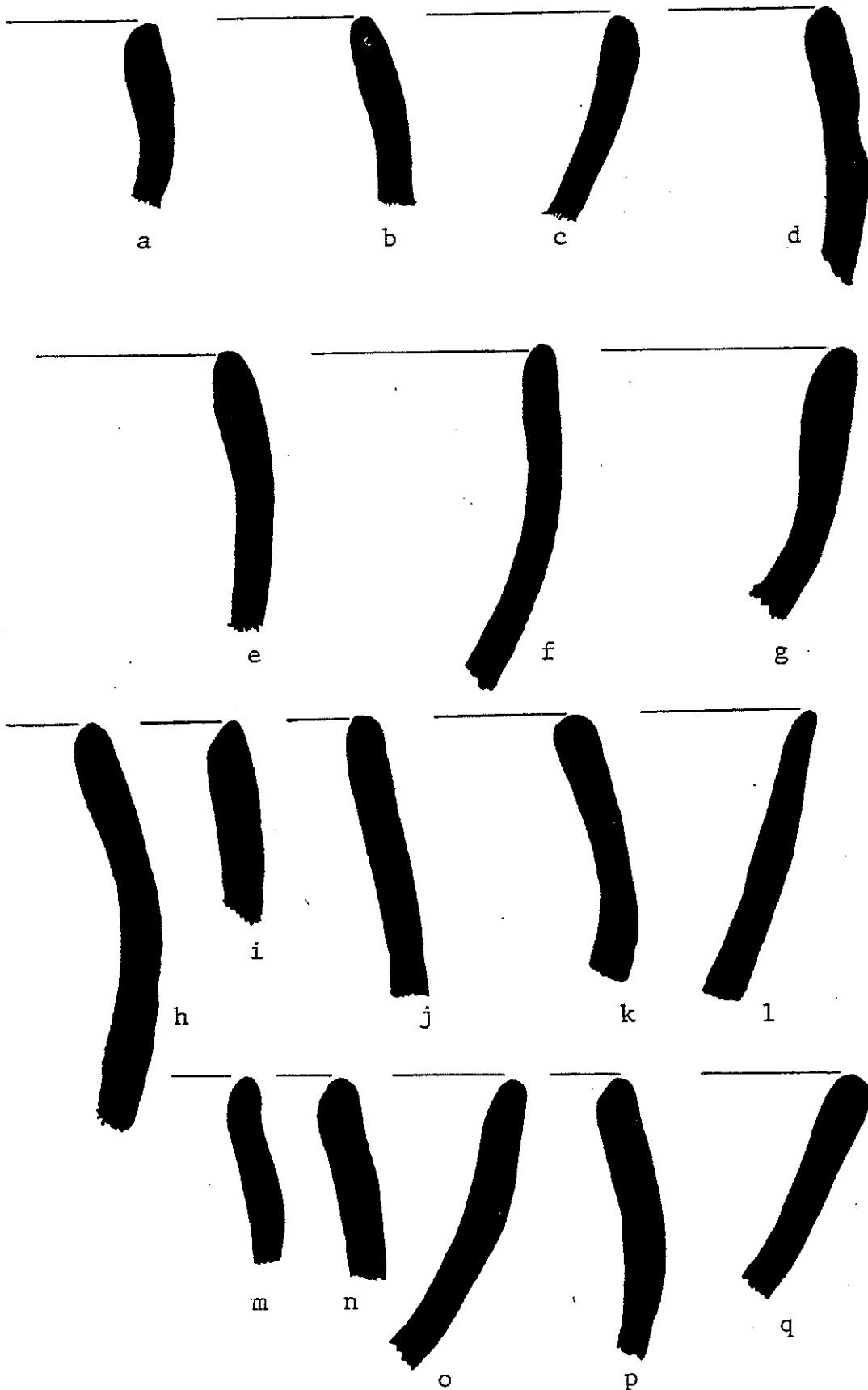


Figure 24. Coyotlatelco Red/Buf Hemispherical Bowls, Exterior Design.

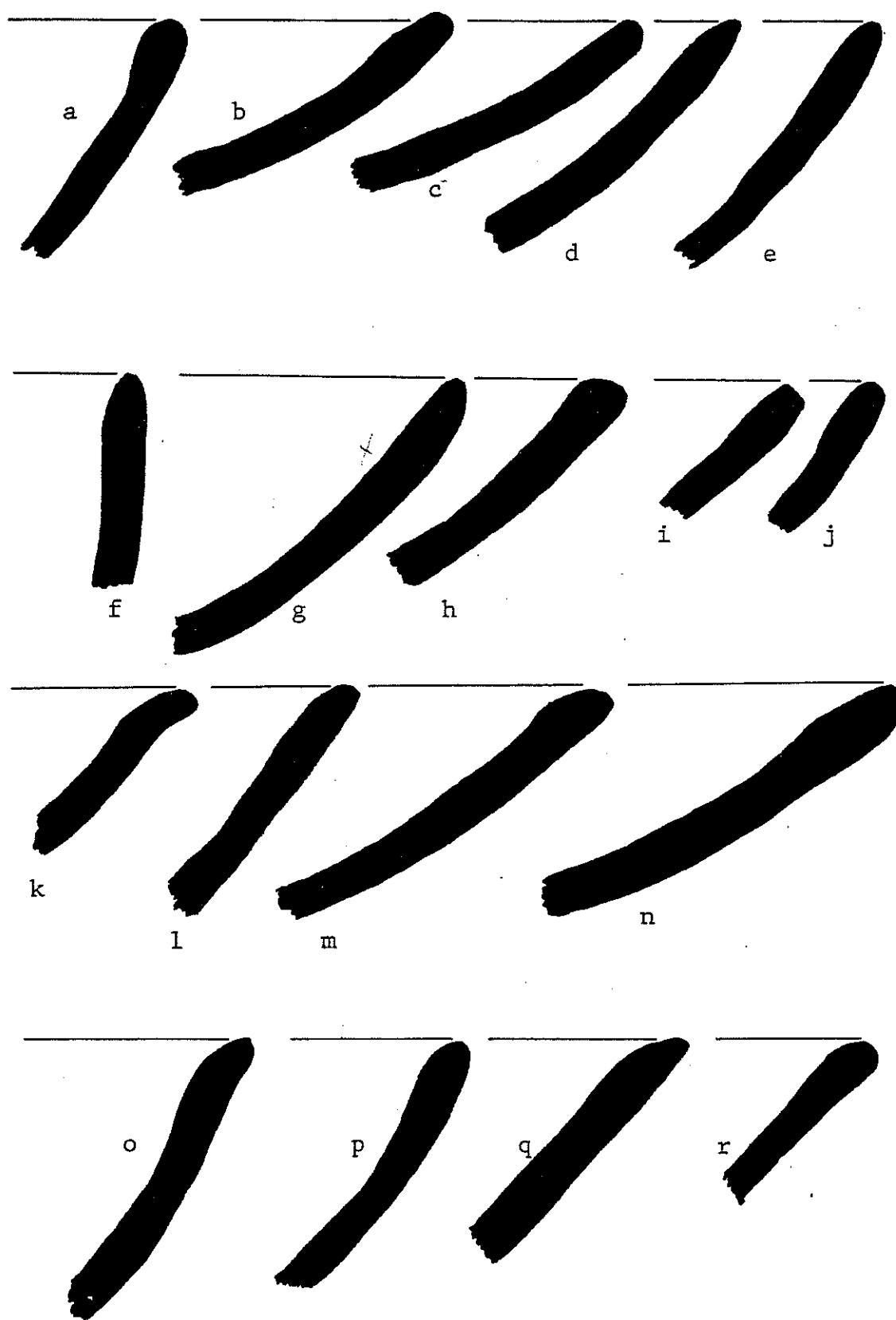


Figure 25. Coyotlatelco Red/Buf Hemispherical Bowls, Interior Design.

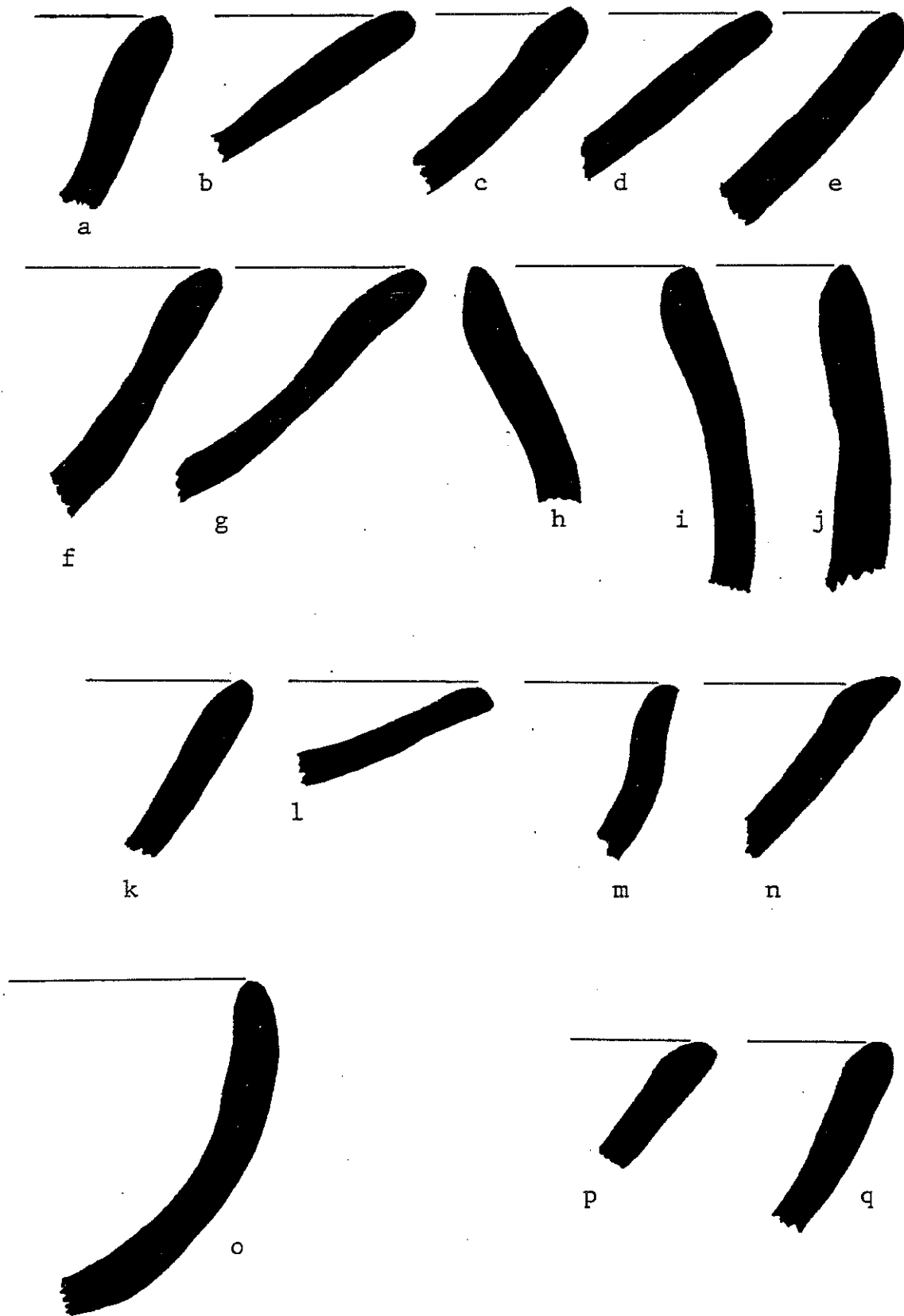


Figure 26. Coyotlatelco Red/Buf Hemispherical Bowls, Interior Design.

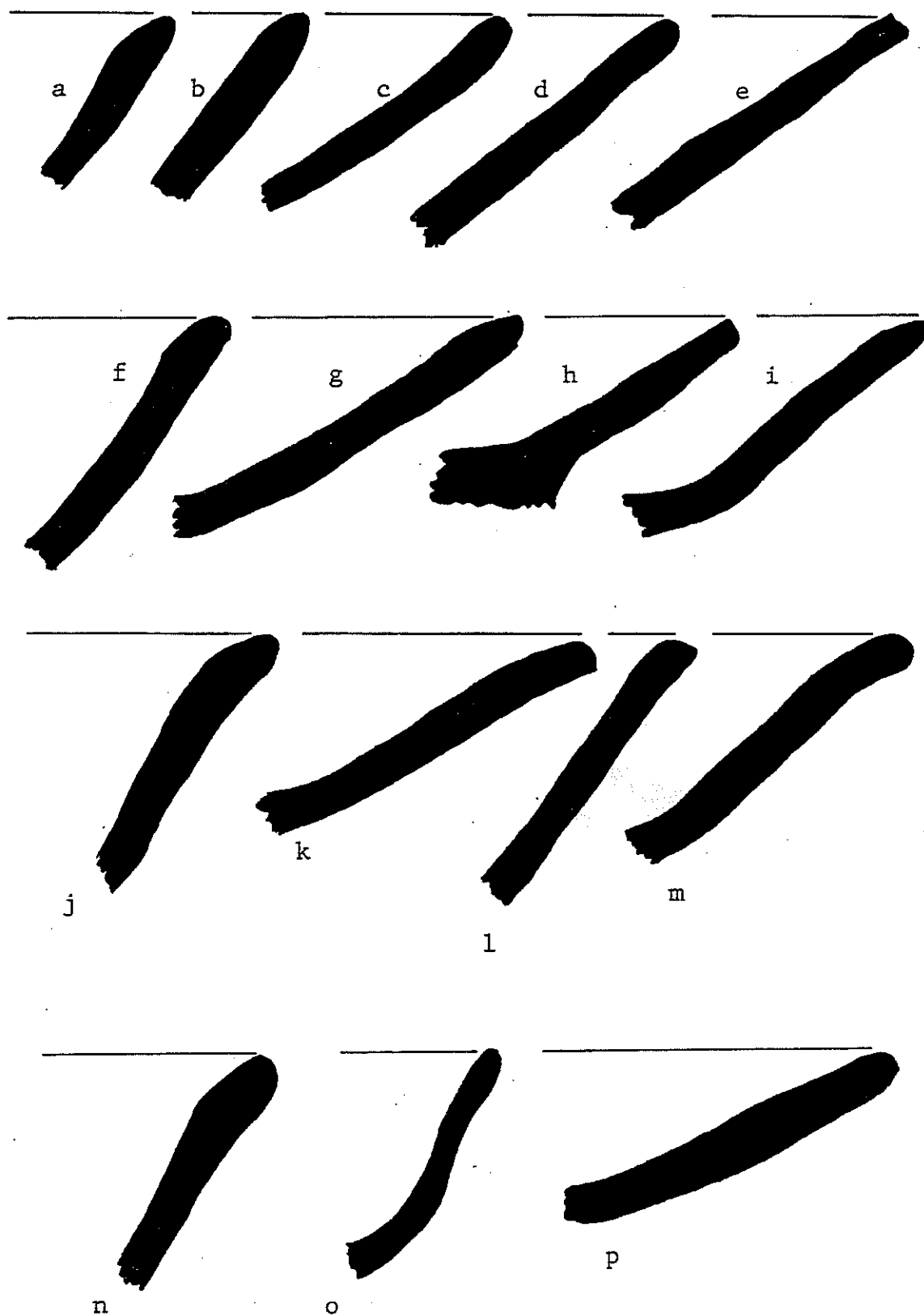


Figure 27. Coyotlatelco Red/Buf Basal Break Bowls, Interior Design.

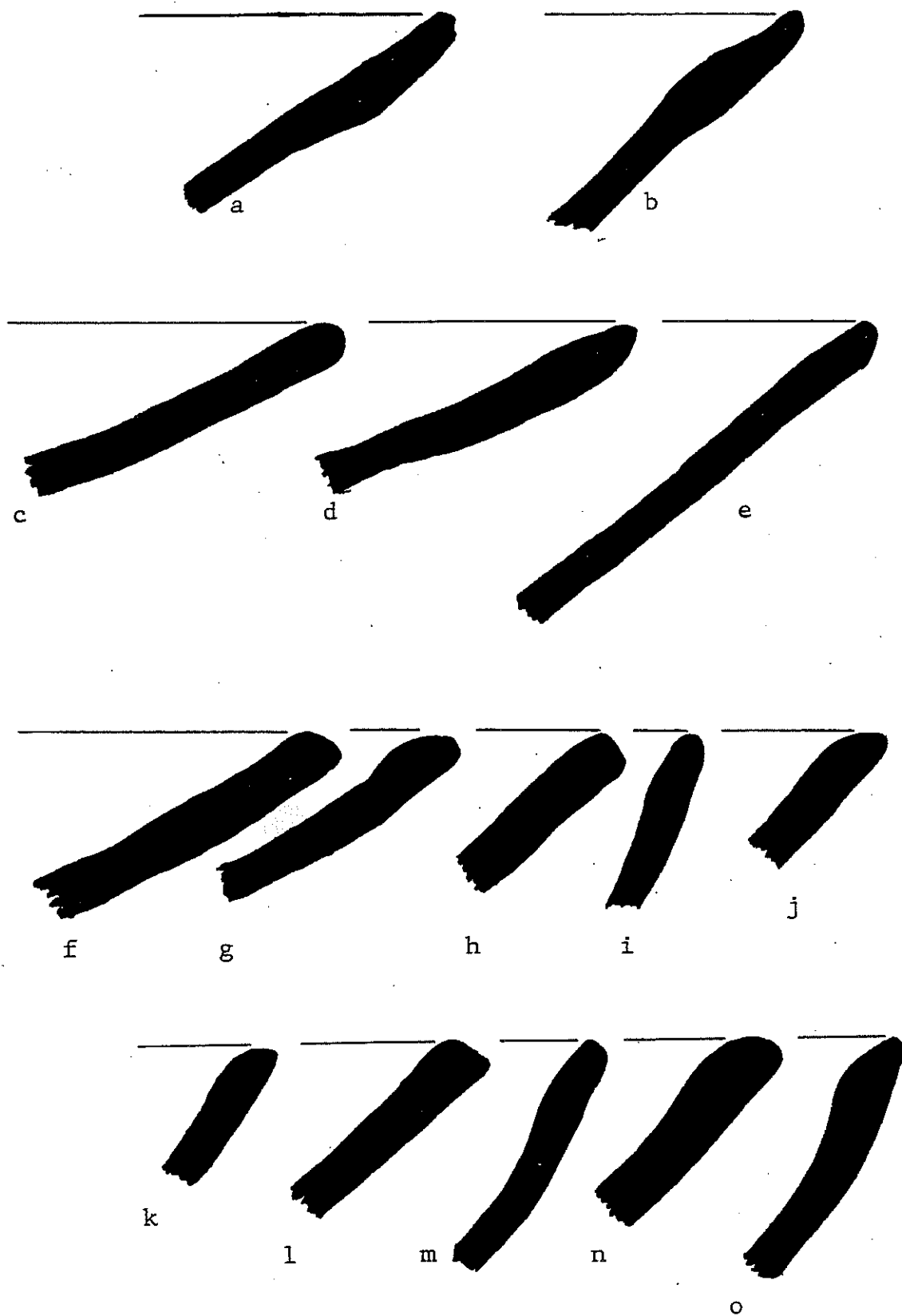


Figure 28. Coyotlatelco Red/Buf Bowls. a-e: basal break, interior design; f-o: hemispherical and straight sided, Tepetitlan interior design.

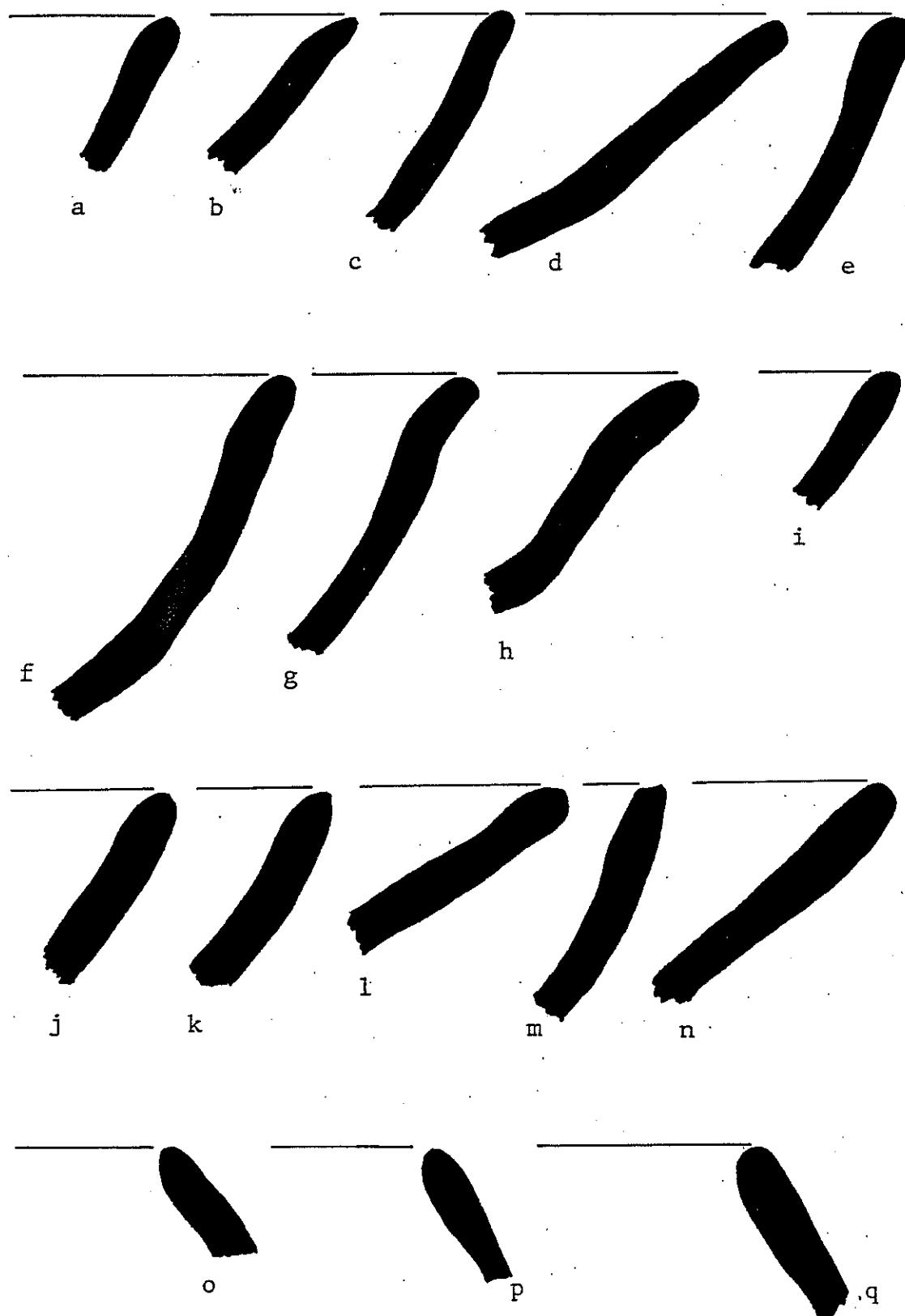


Figure 29. Coyotlatelco Red/Buf Hemispherical and Straight Sided Bowls, Tepetitlan Interior Design.

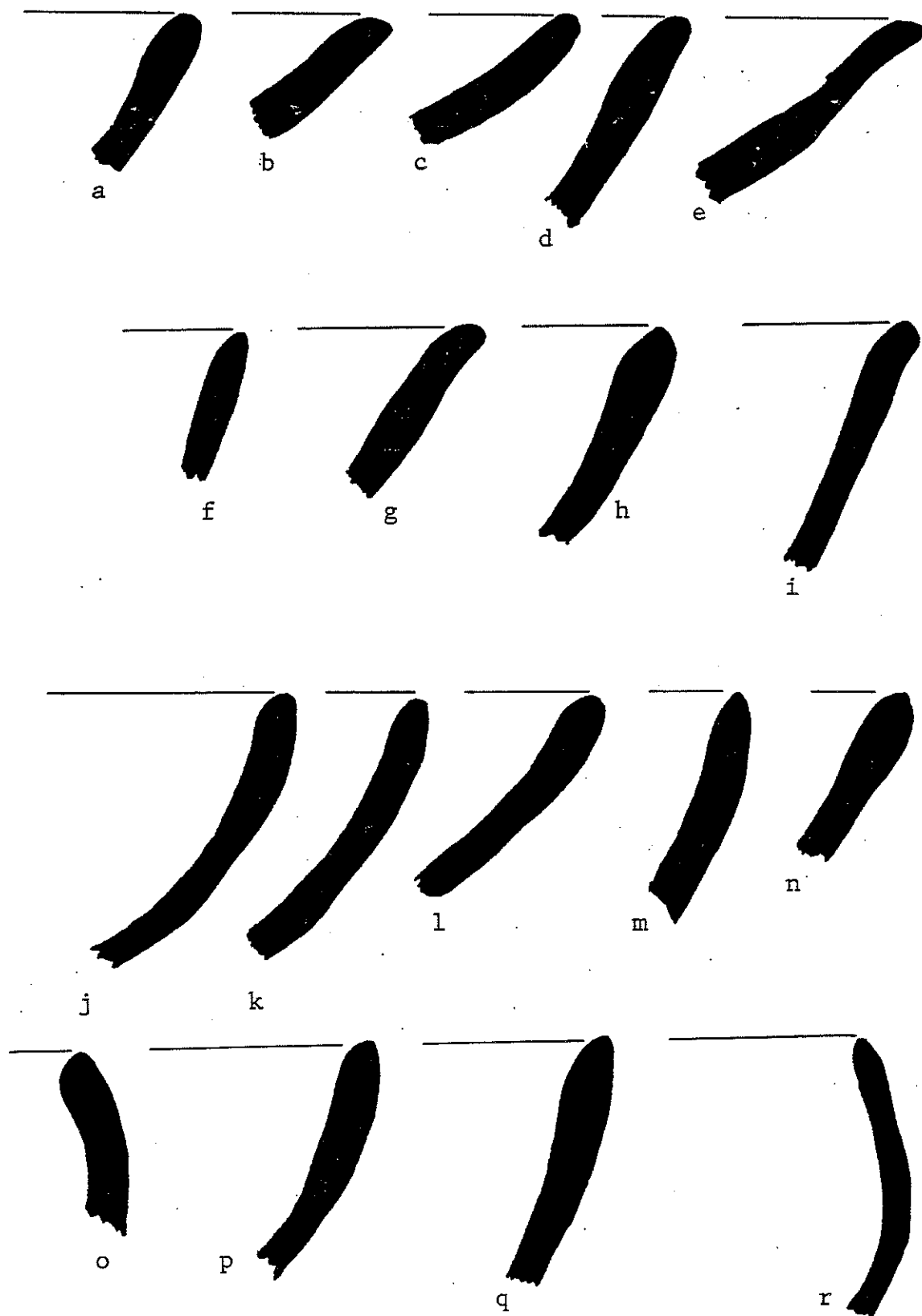


Figure 30. Red Banded Red/Buf Hemispherical Bowls.

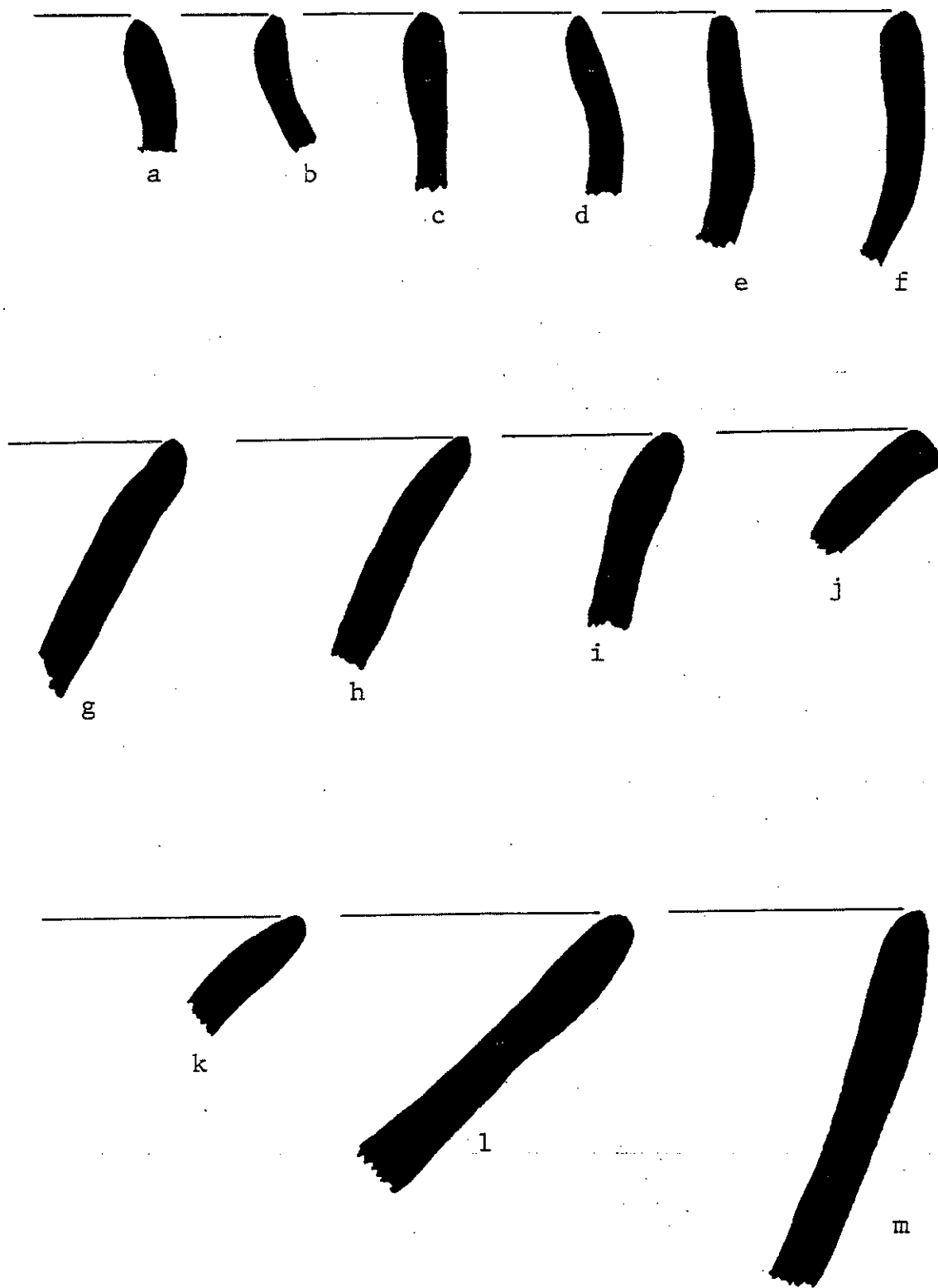


Figure 31. Red Banded Red/Buf Bowls. a-f, l-m: hemispherical; g-k: straight sided and basal break.

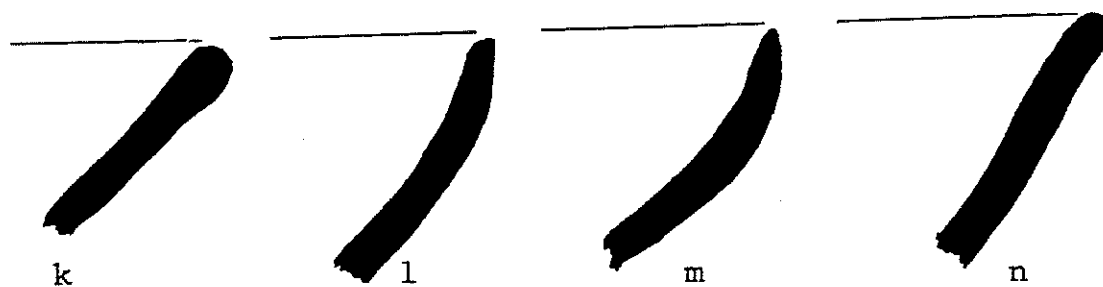
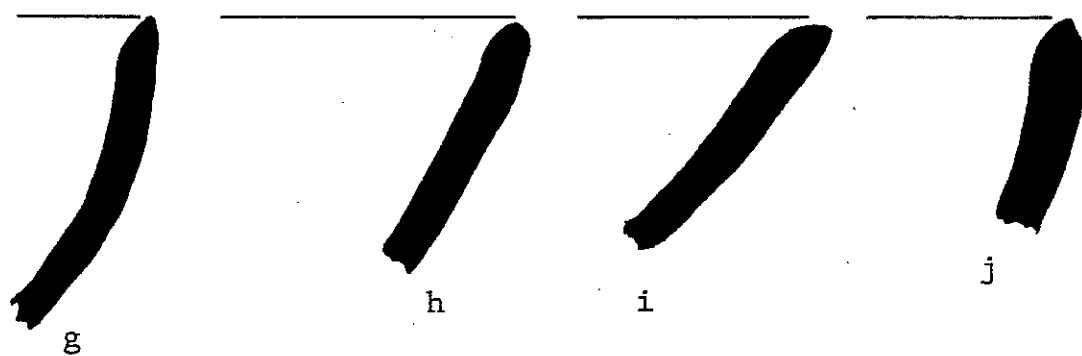
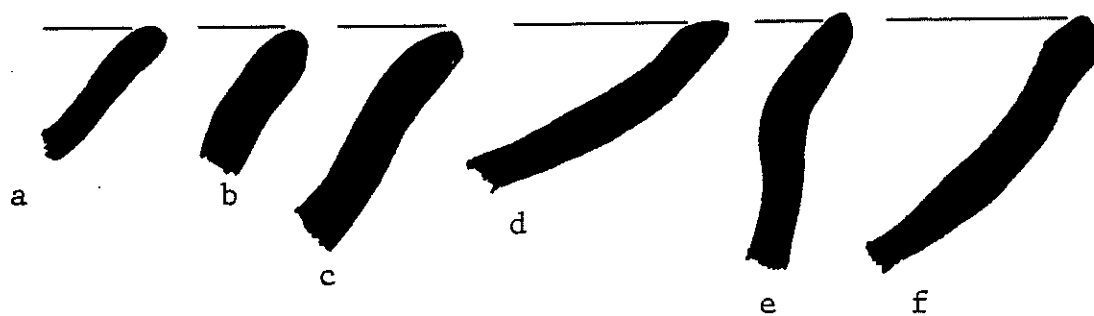


Figure 32. Red Banded Red/Buff Small Hemispherical Bowls.

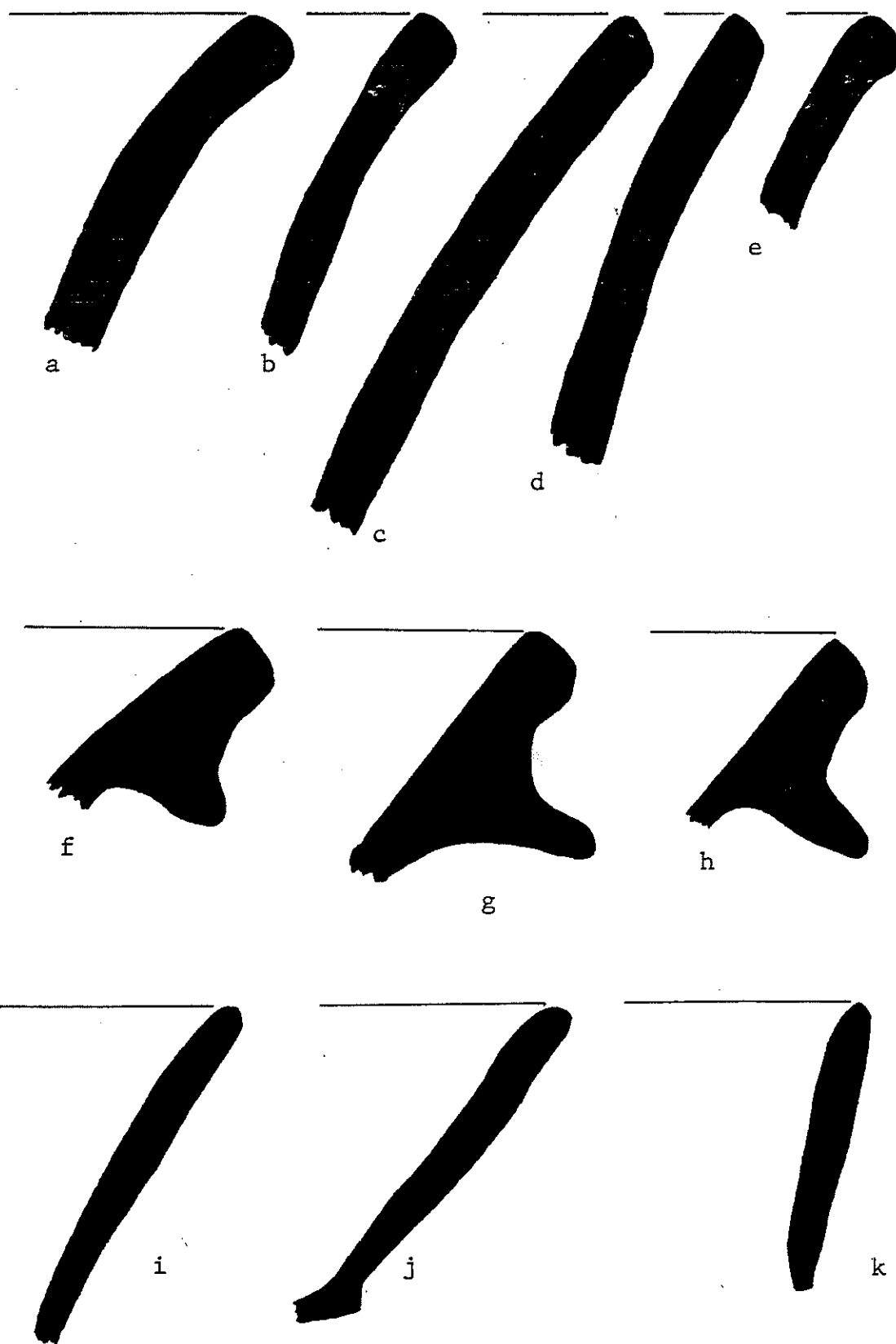


Figure 33. Censer Ware and Monochrome Bowls. a-h: censer ware; i-k: monochrome brown, composite silhouette.

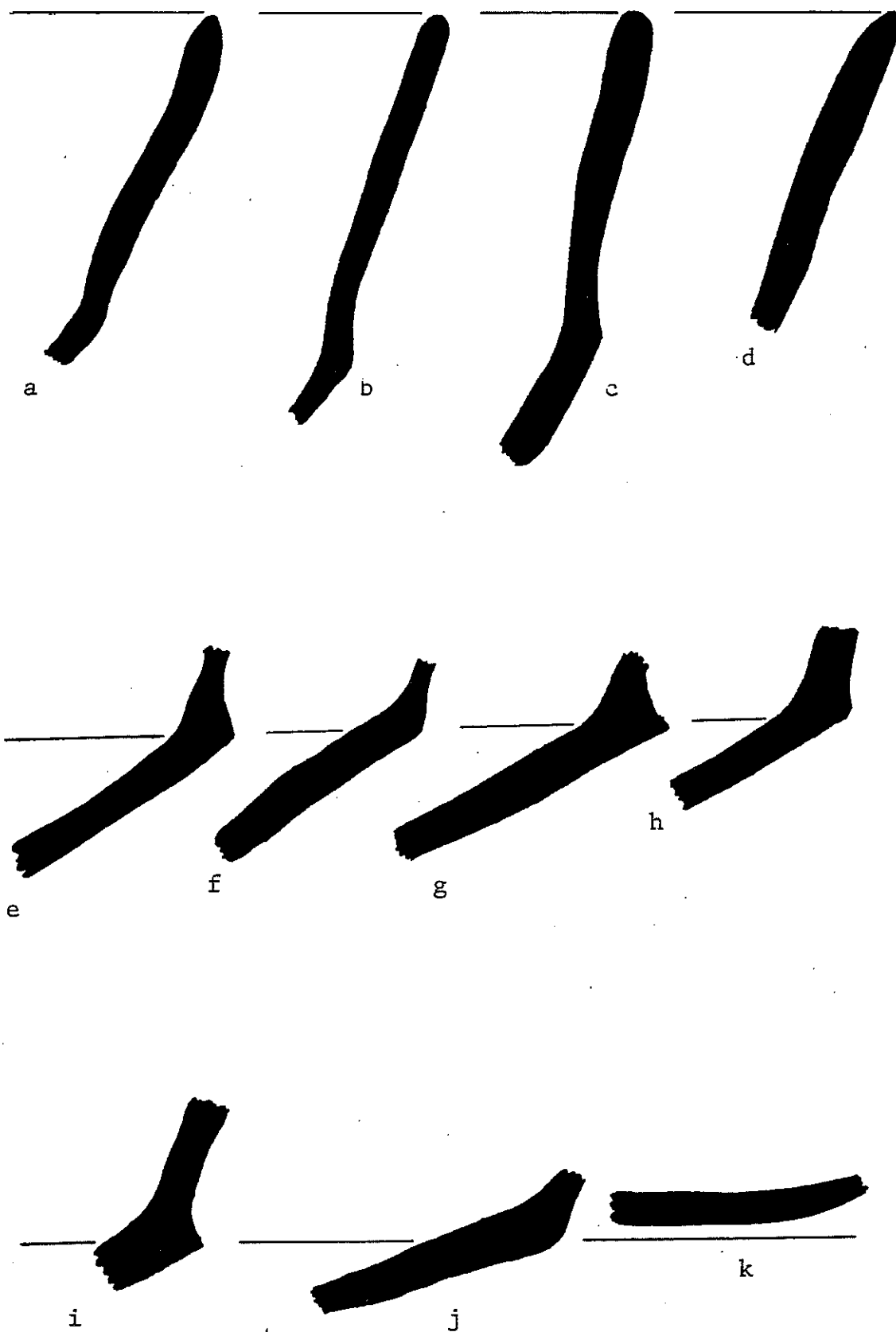


Figure 34. Monochrome Brown Bowls. a-d: composite silhouette; e-k: basal angles.

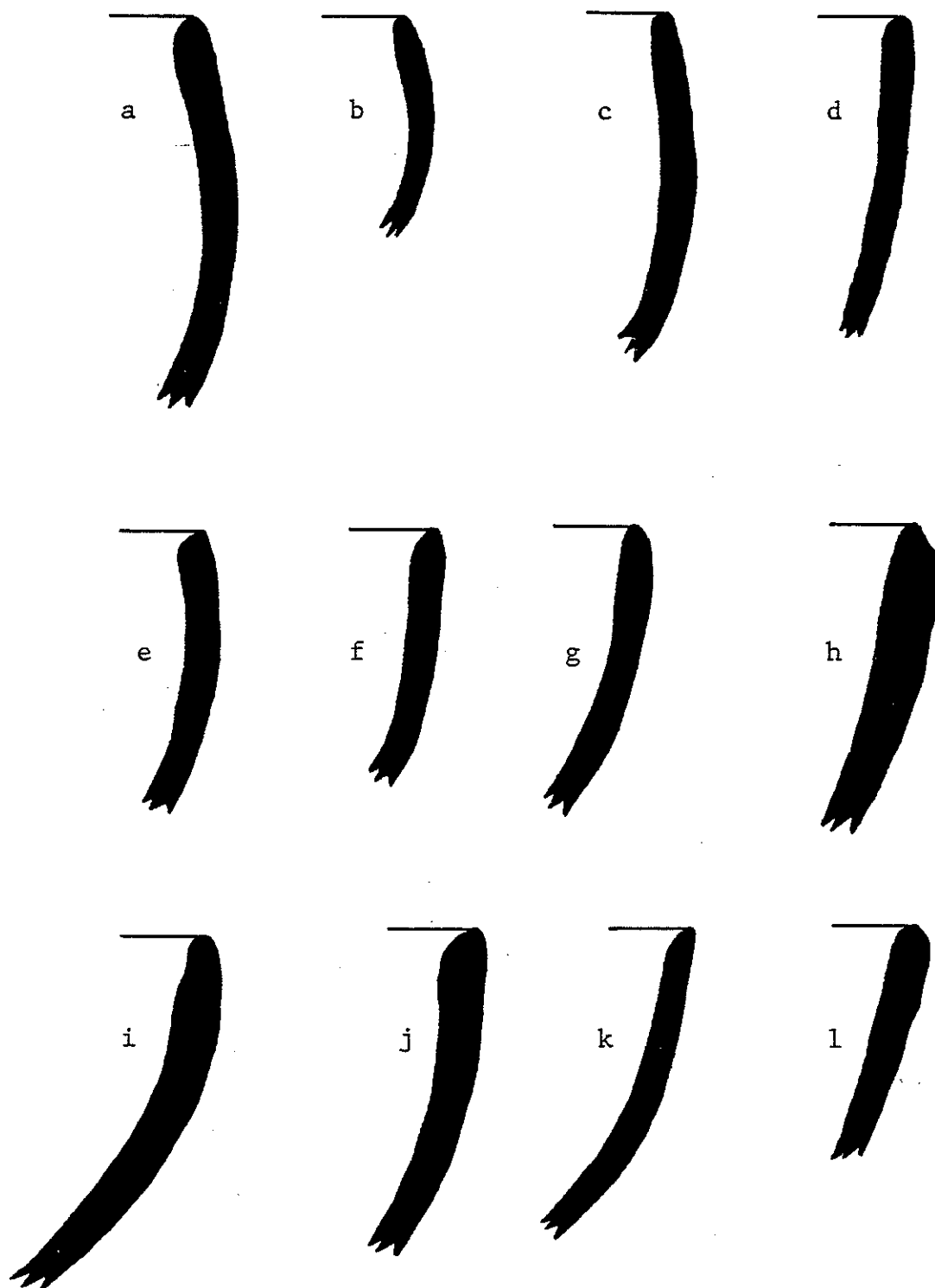


Figure 35. Monochrome Brown Hemispherical Bowls.

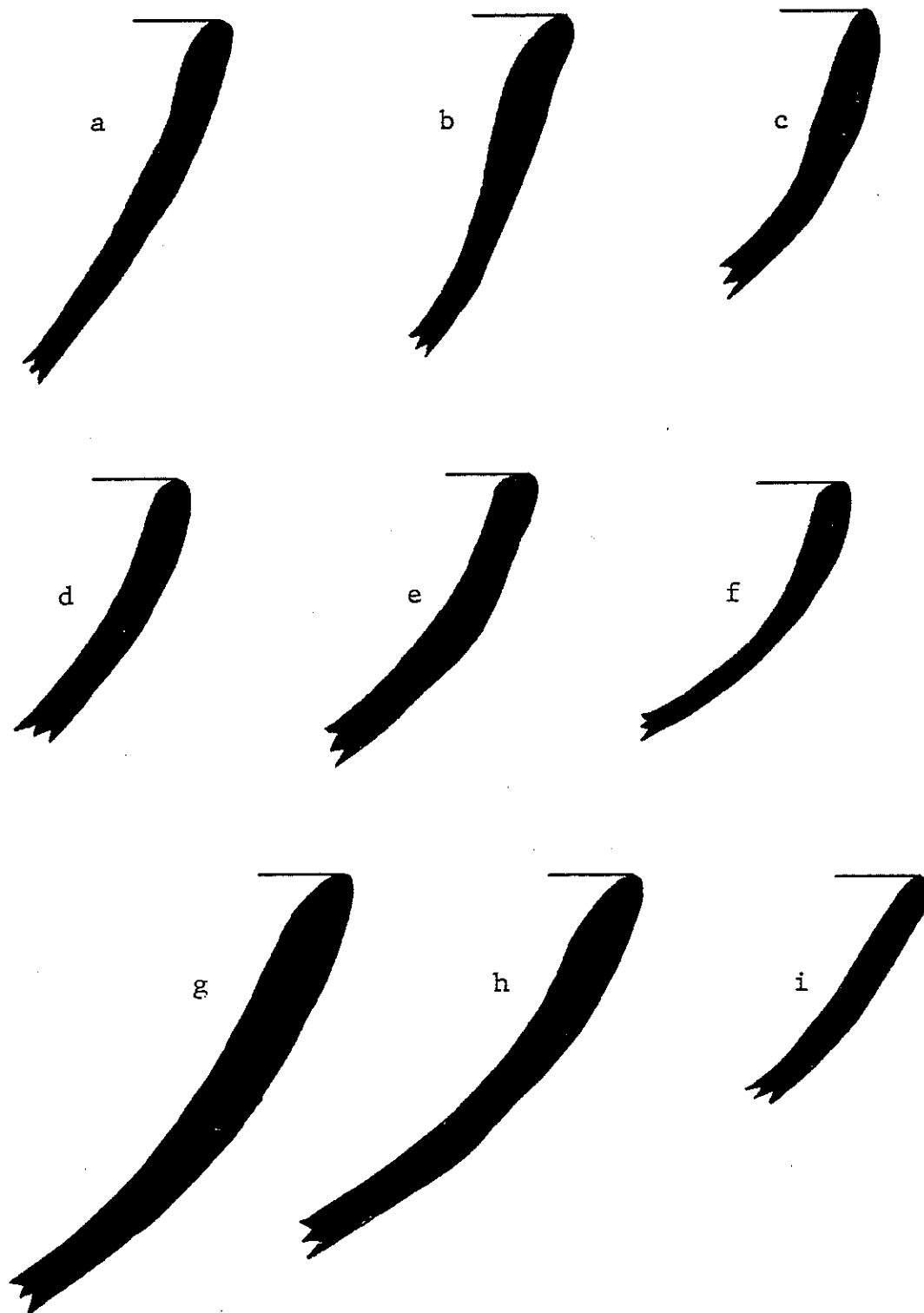


Figure 36. Monochrome Brown Hemispherical Bowls.

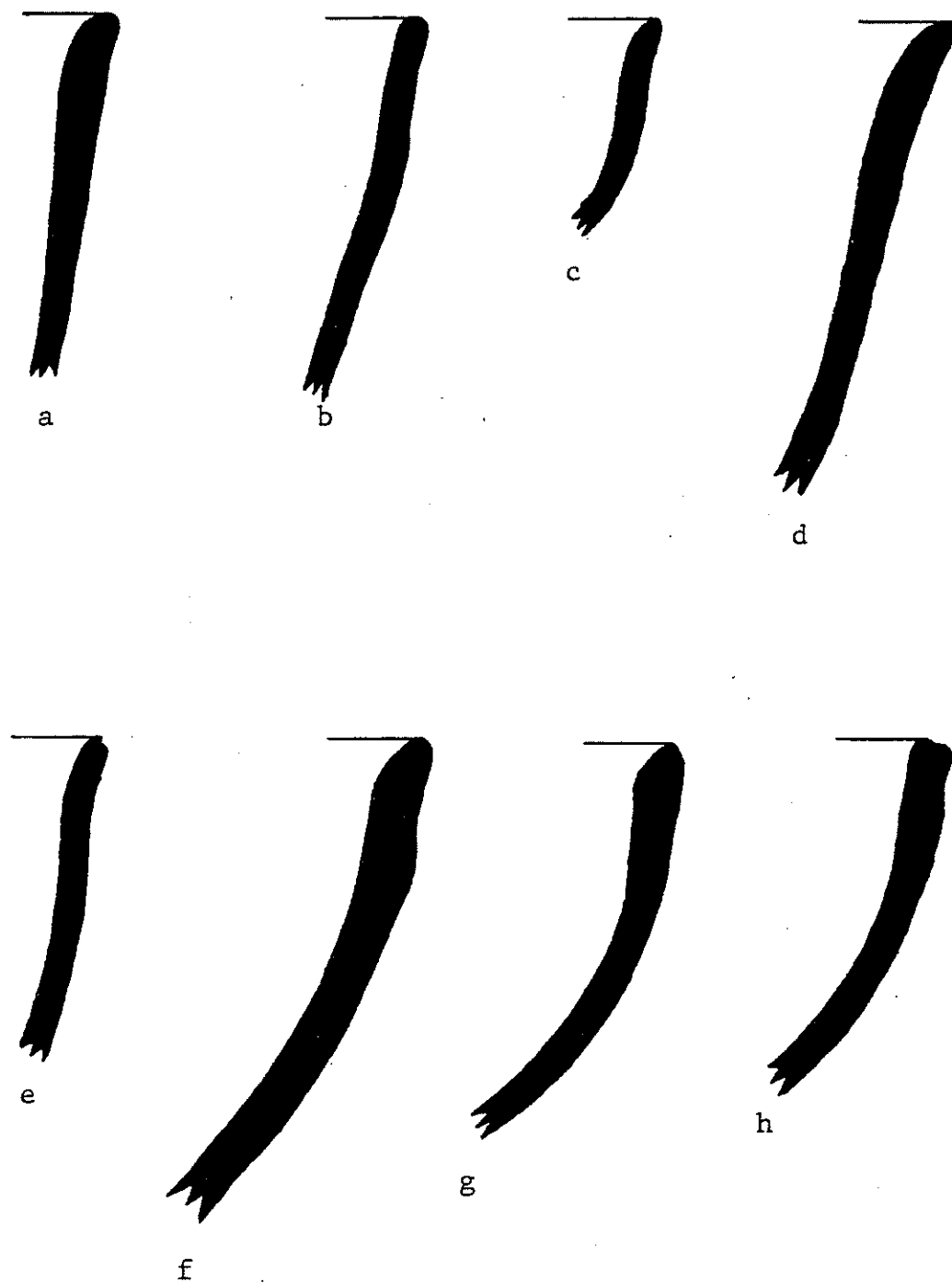


Figure 37. Monochrome Brown Hemispherical Bowls, Undulating Profiles.

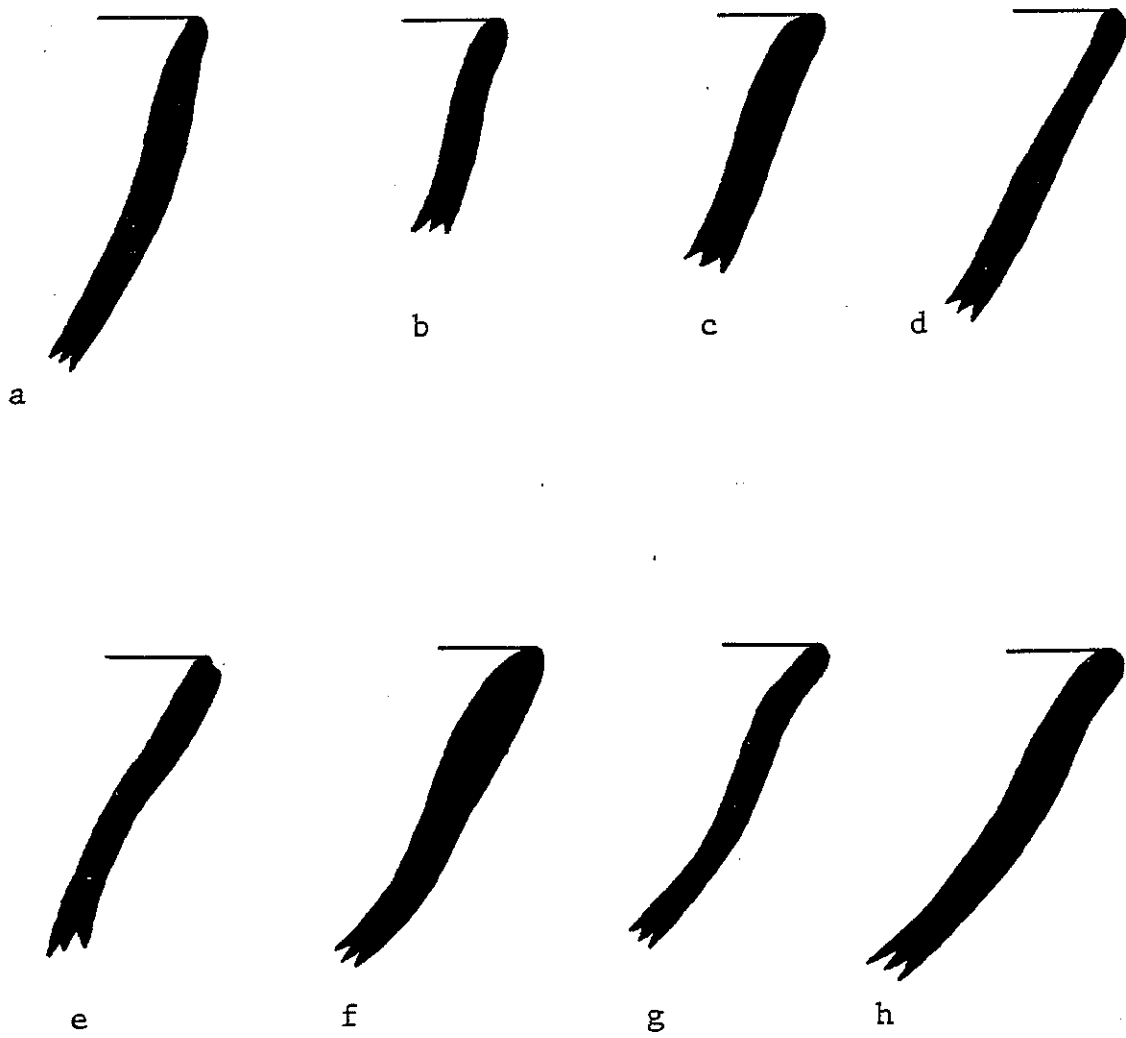


Figure 38. Monochrome Brown Hemispherical Bowls, Undulating Profiles.

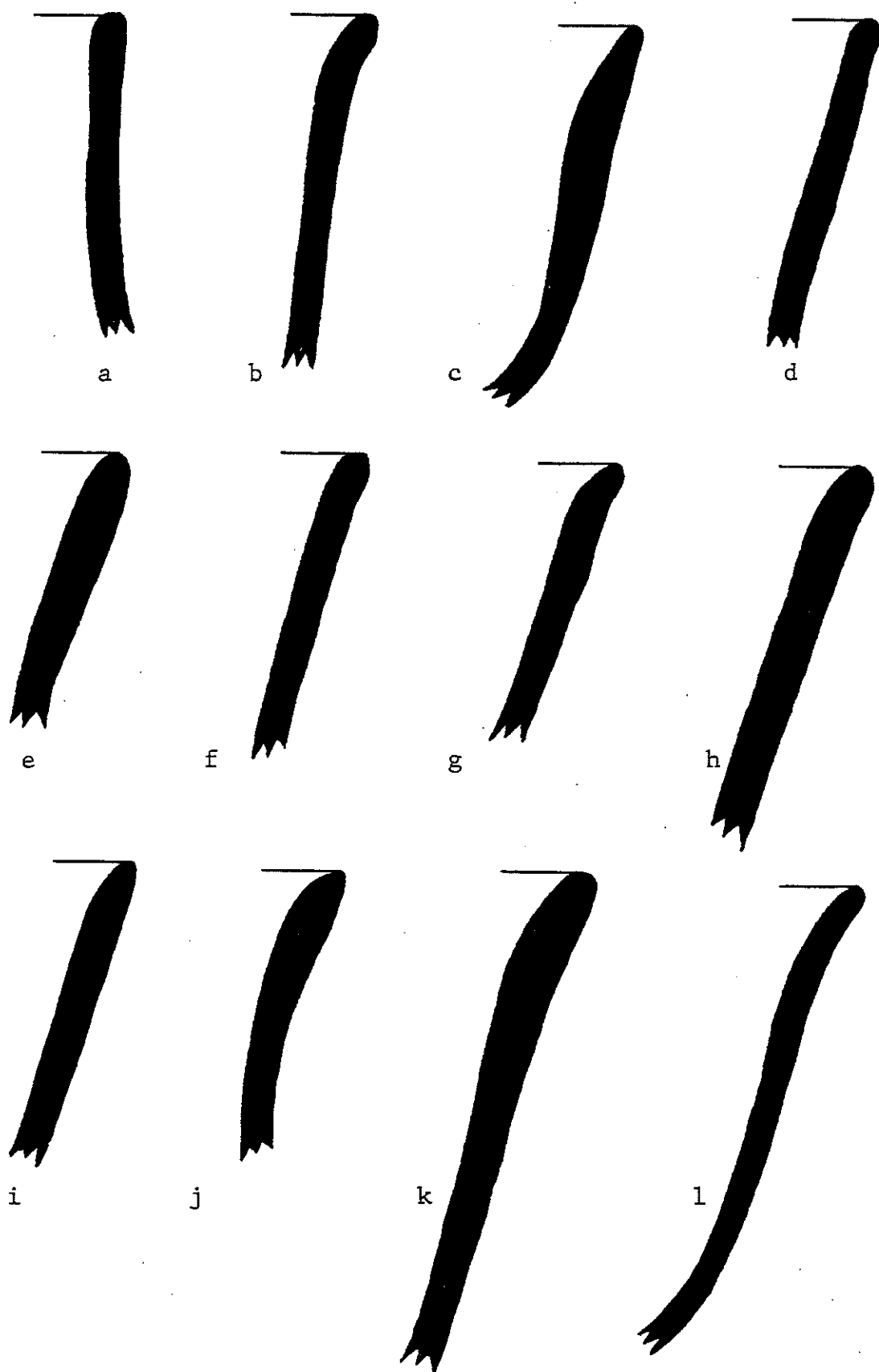


Figure 39. Monochrome Brown Flat Bottom Basal Break Bowls.

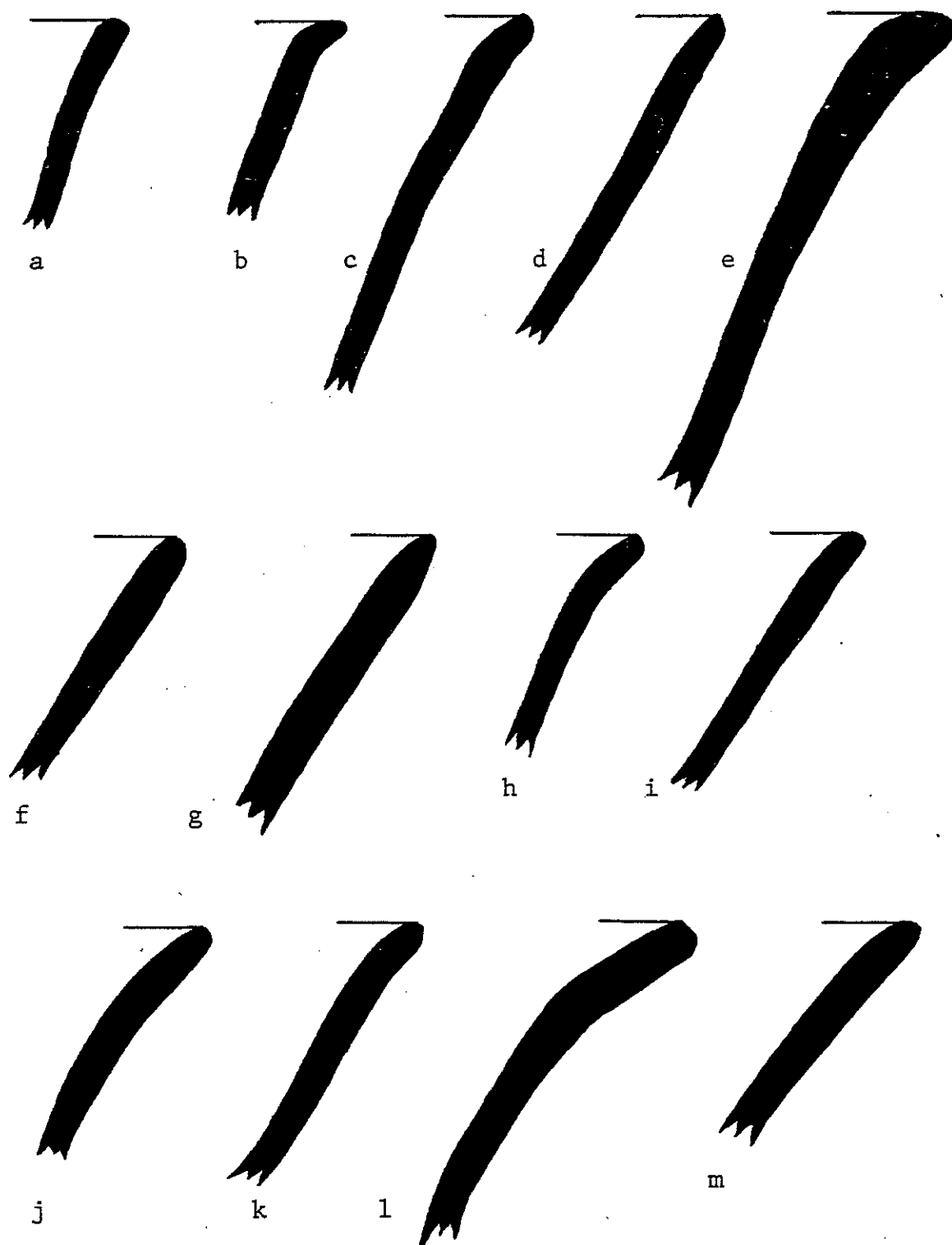


Figure 40. Monochrome Brown Flat Bottom Basal Break Bowls.

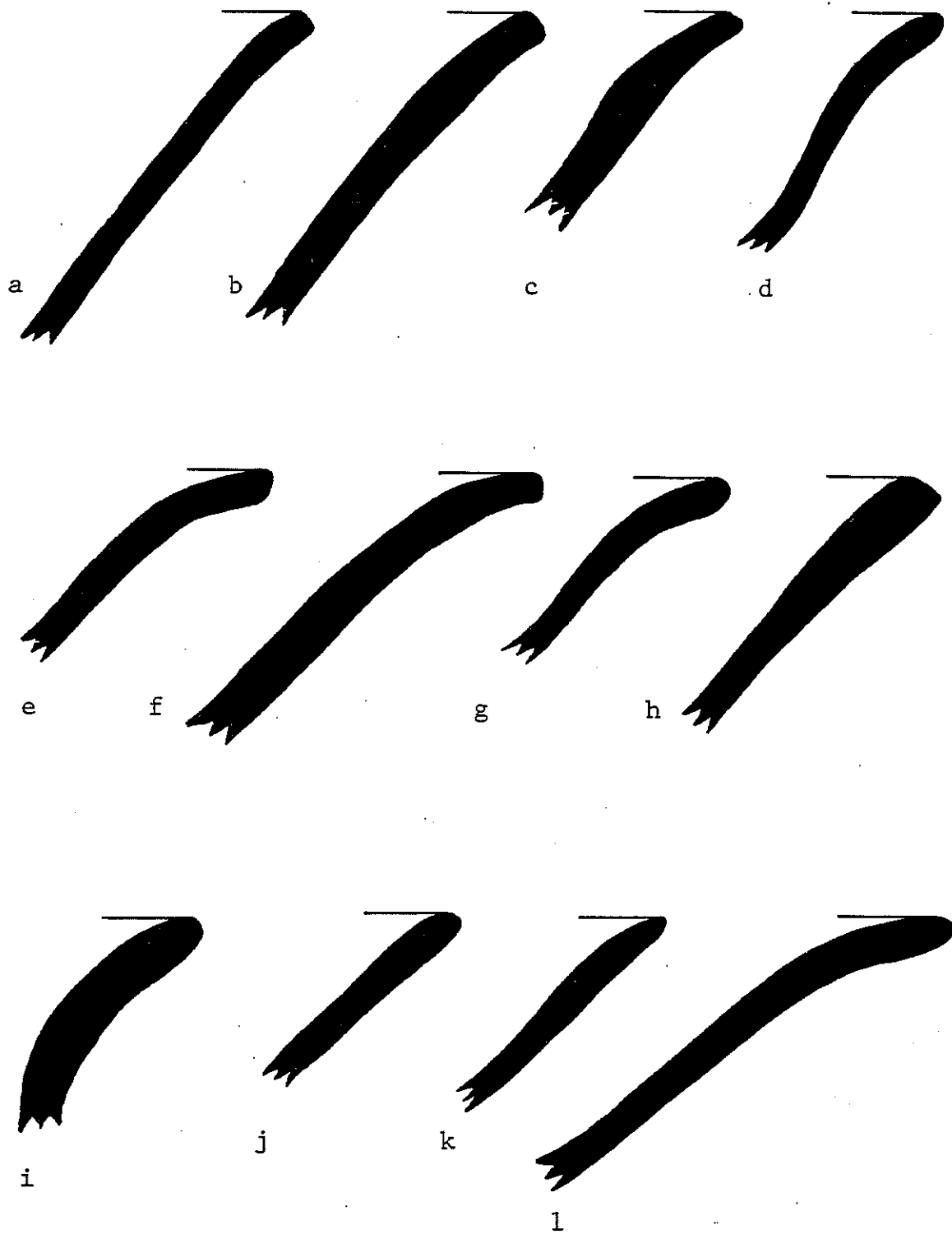


Figure 41. Monochrome Brown Flat Bottom Basal Break Bowls.

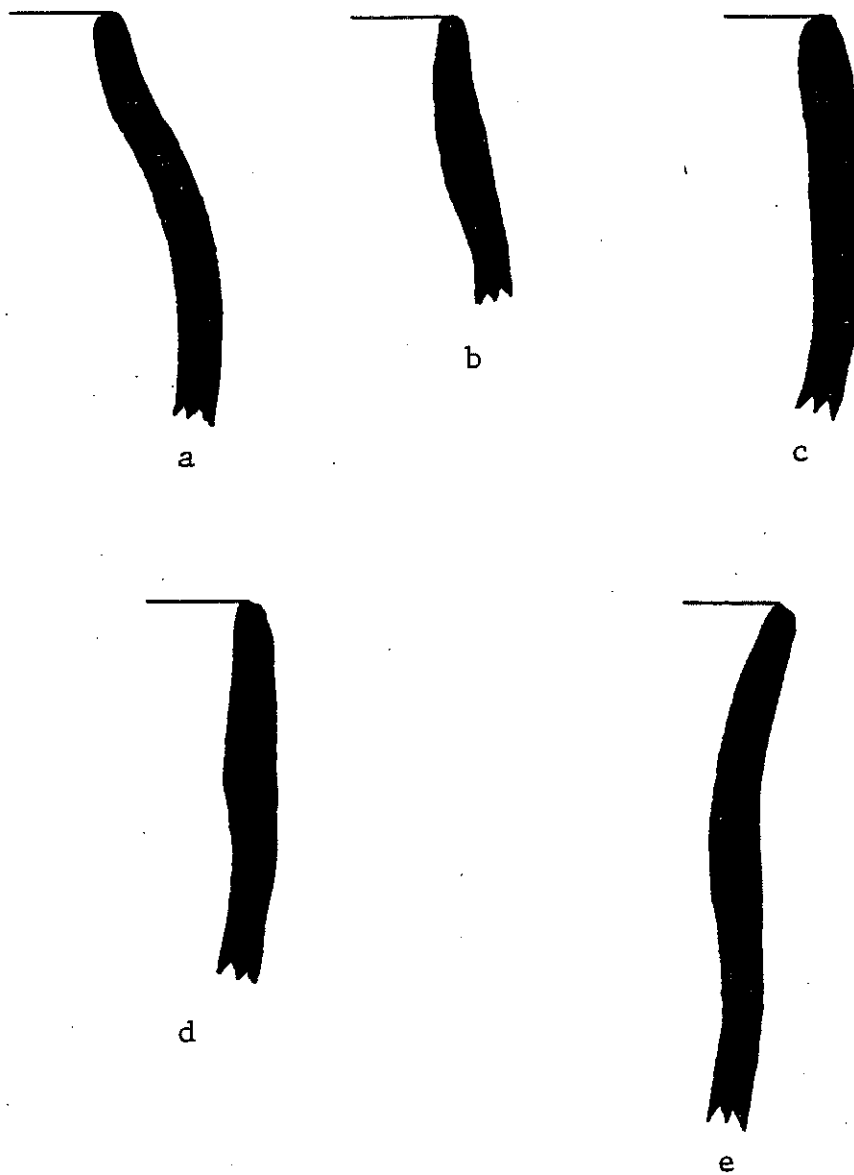


Figure 42. Monochrome Brown Incurved or Vertical Wall Bowls.

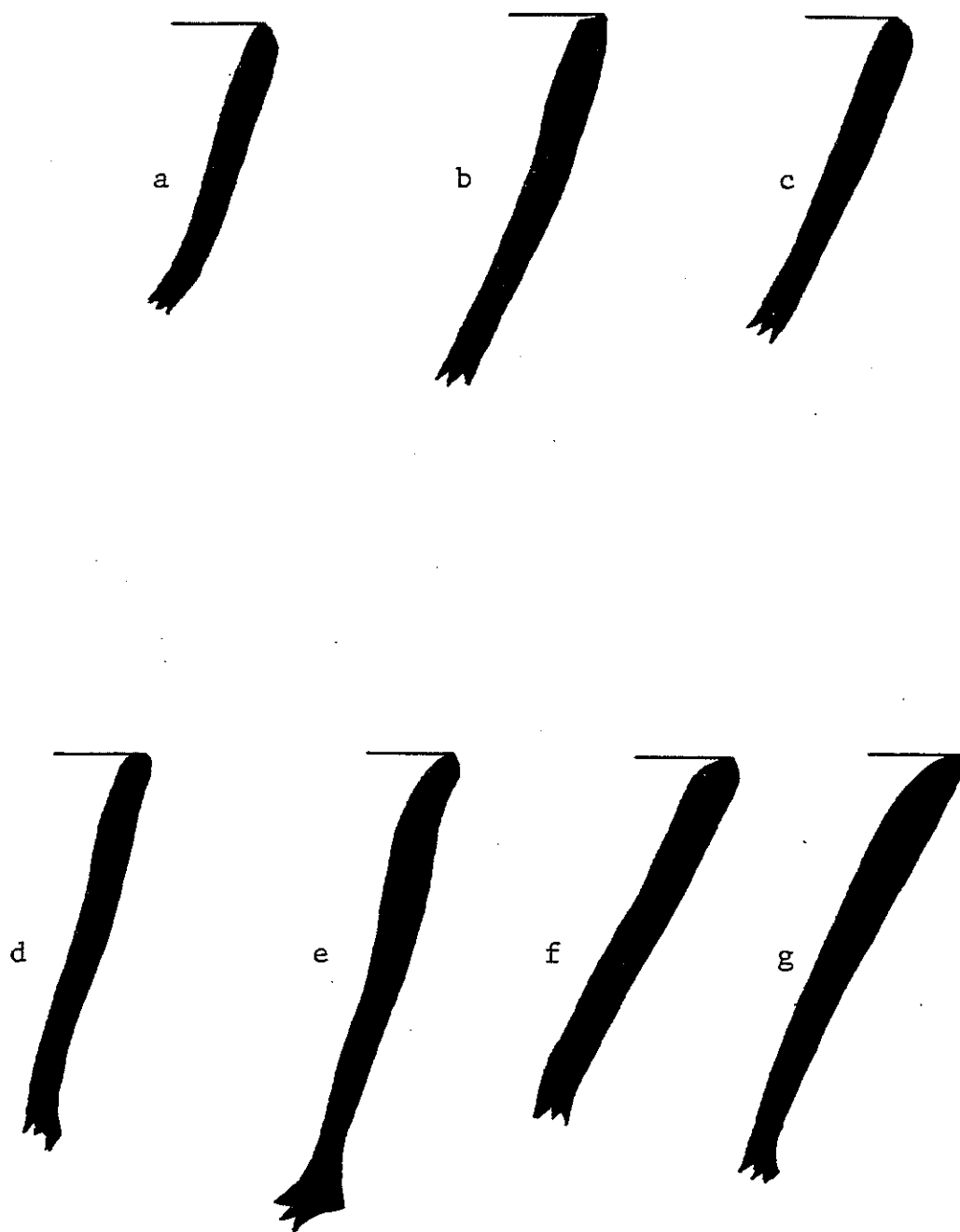


Figure 43. Monochrome Brown Bowls. a-c: hemispherical; d-g: composite silhouette.

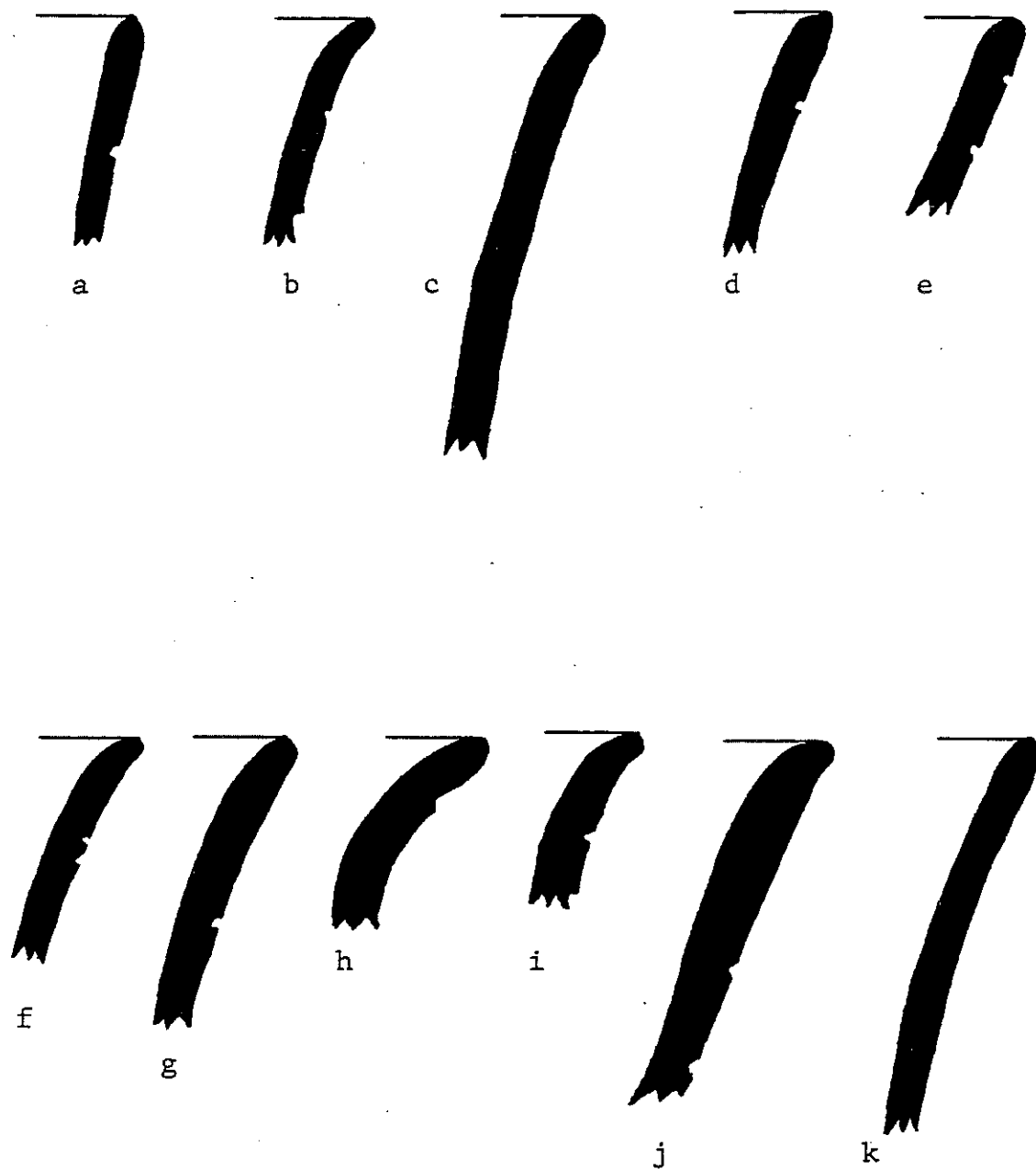


Figure 44. Monochrome Brown Flat Bottom Basal Break Bowls, Incised.

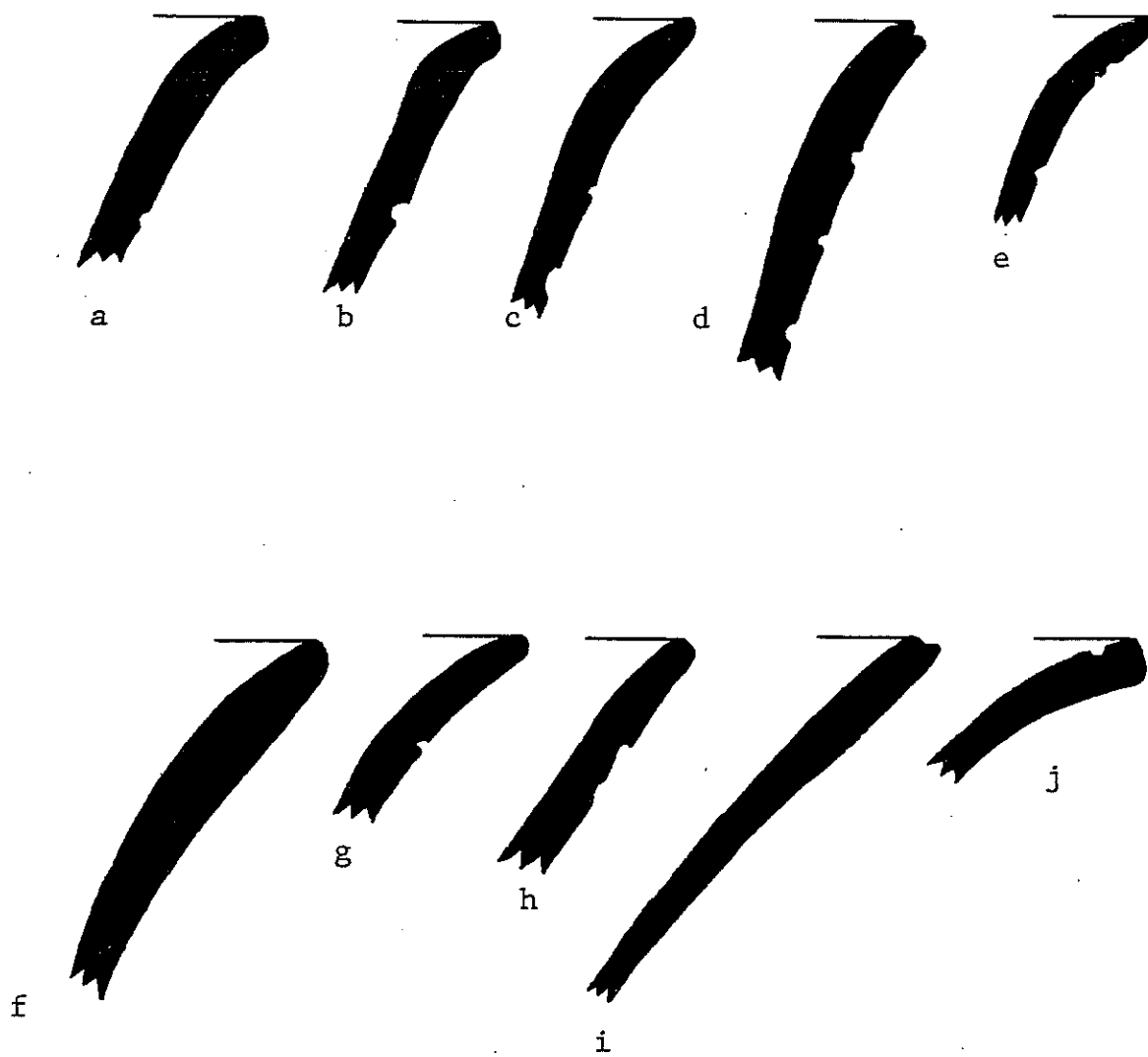


Figure 45. Monochrome Brown Flat Bottom Basal Break Bowls, Incised.

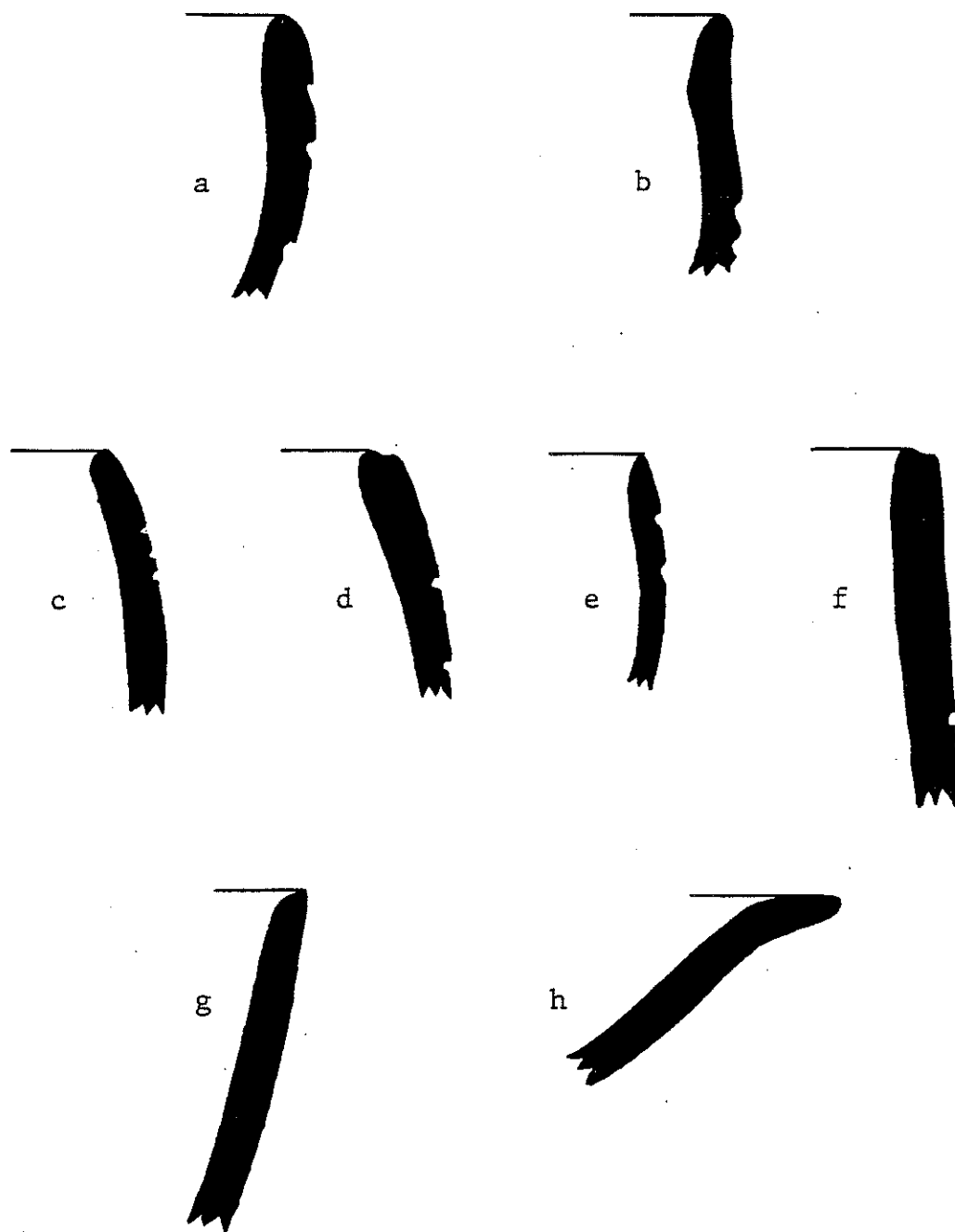


Figure 46. Monochrome Brown Bowls, Incised. a-e, g: hemispherical; f: straight sided, vertical; h: flat bottom, basal break.

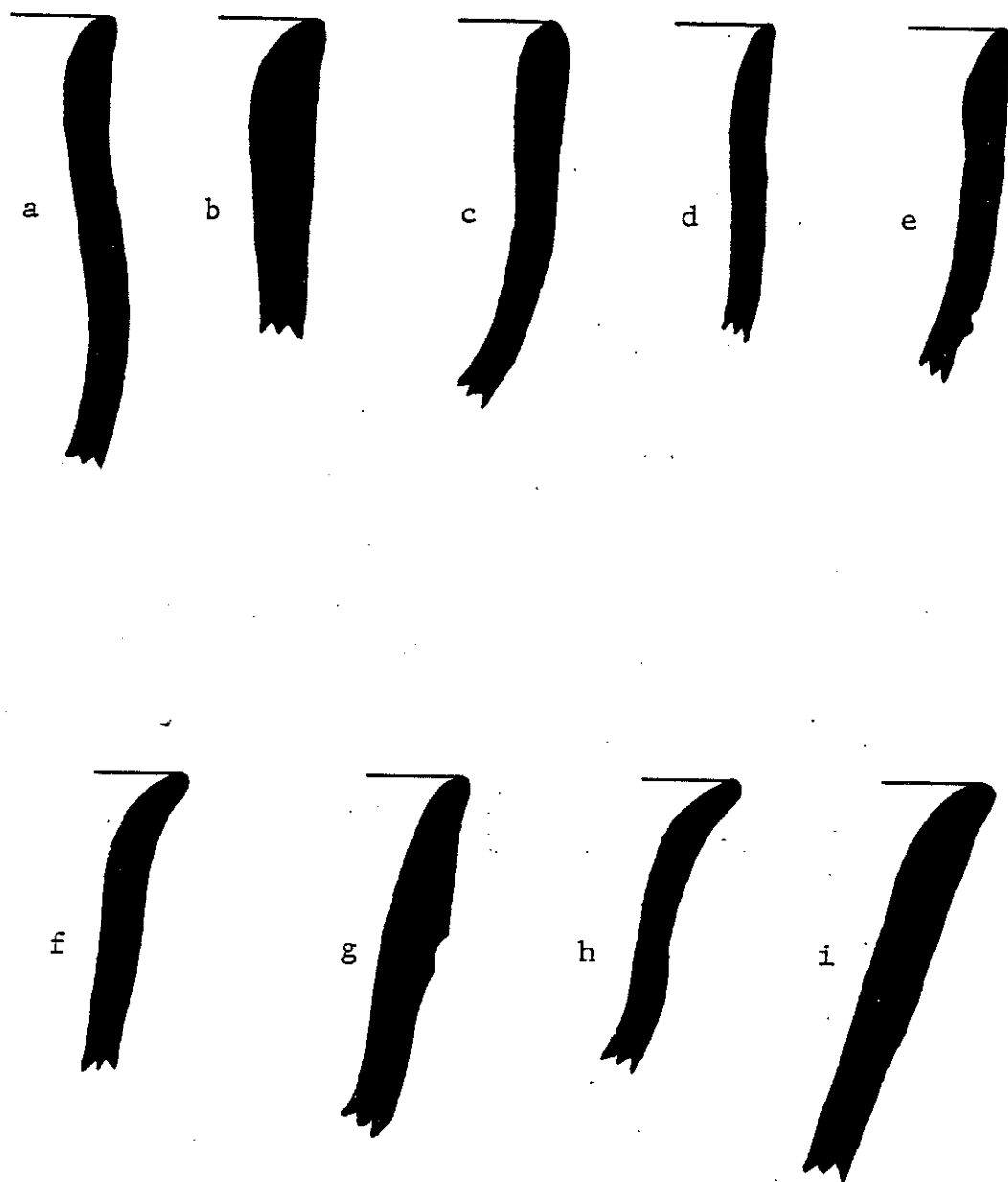


Figure 47. Monochrome Brown Bowls, Stamped. a-b, d-g: hemispherical, undulating wall profiles; c: hemispherical, i: flat bottom basal break.

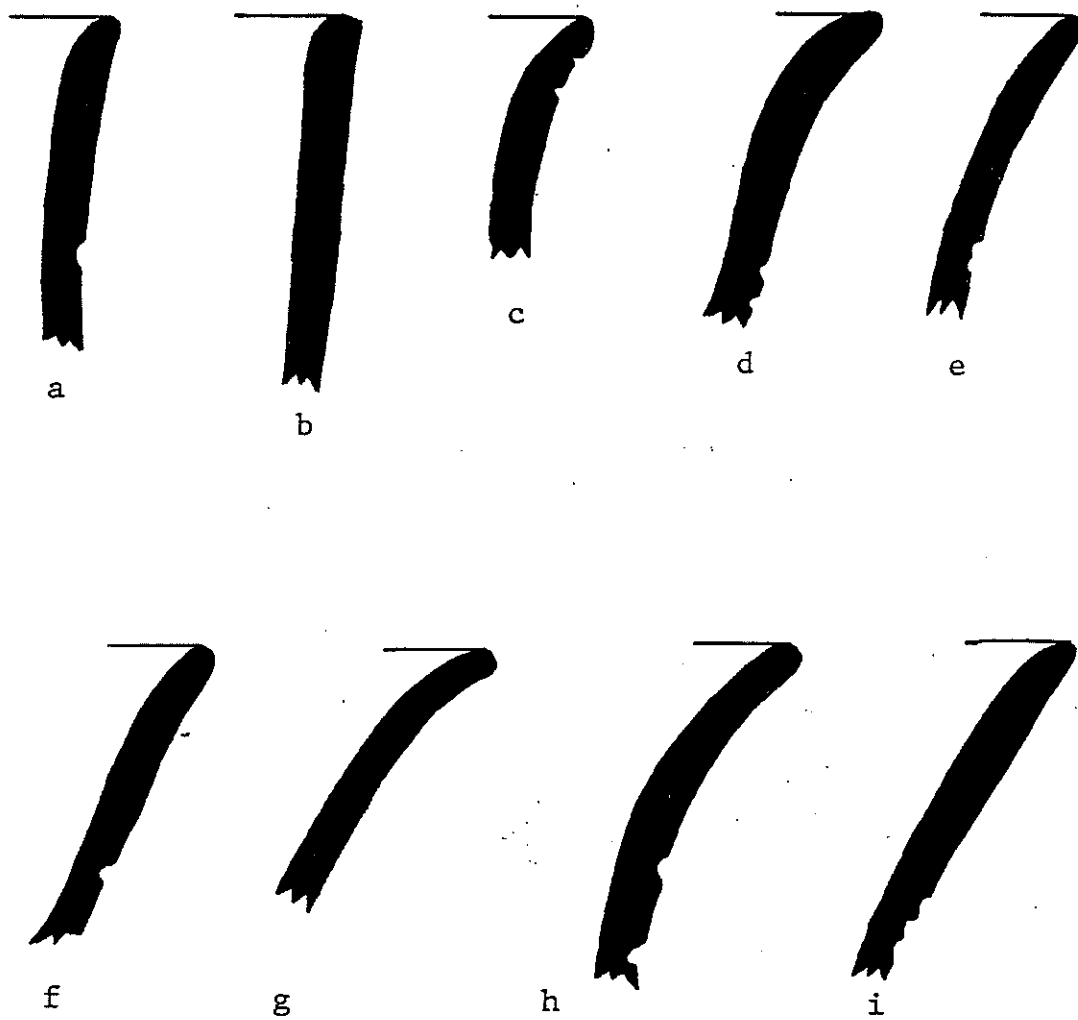


Figure 48. Monochrome Brown Flat Bottom Basal Break Bowls, Stamped and Incised Design.

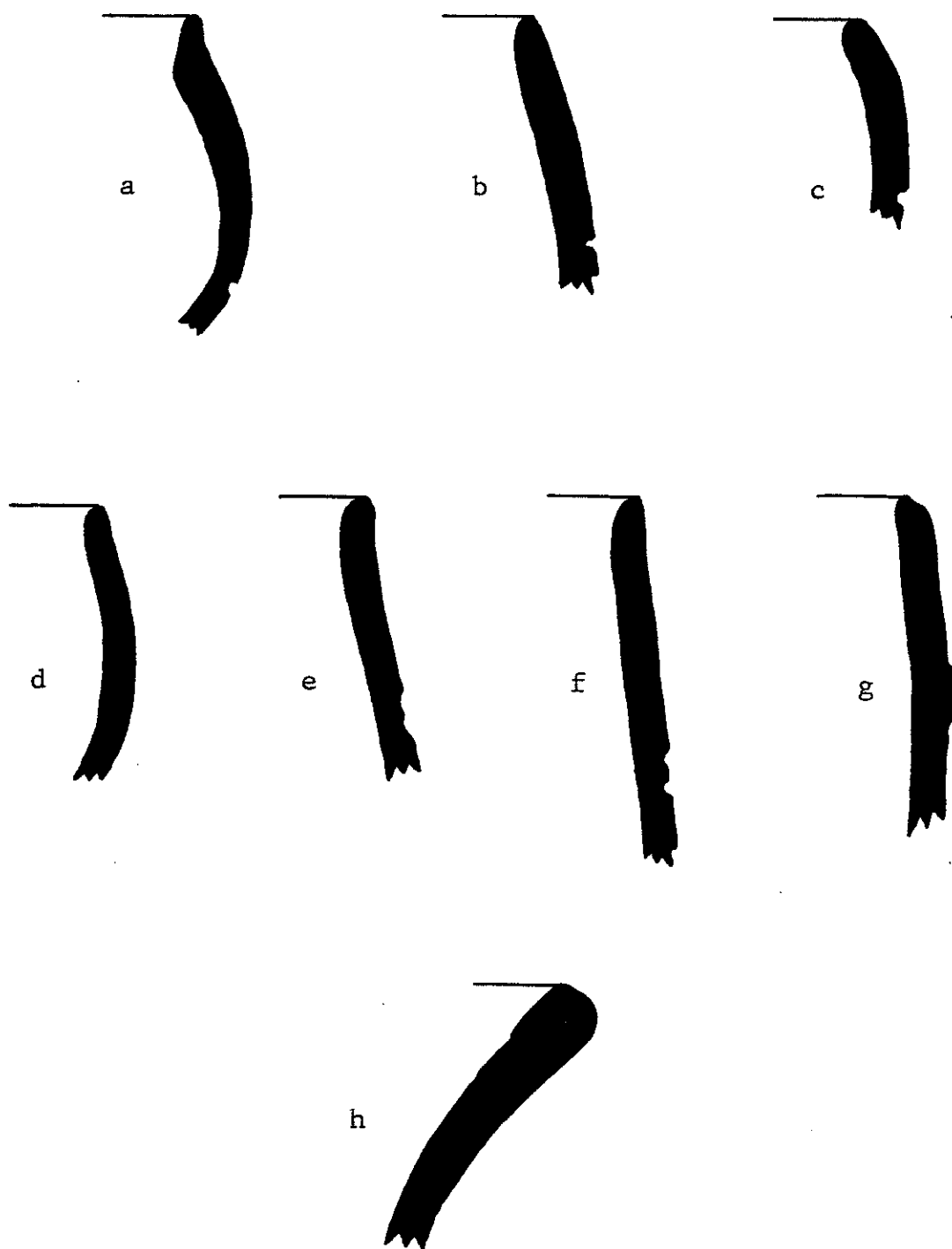


Figure 49. Monochrome Brown Bowls, Incised. a-d: hemispherical; e-g: straight sided; h: censer ware.

b

d

a

c



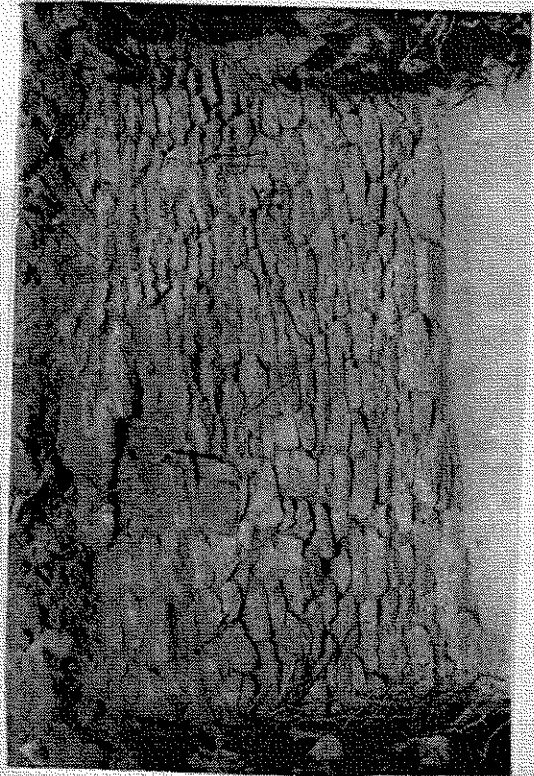
b



d



a

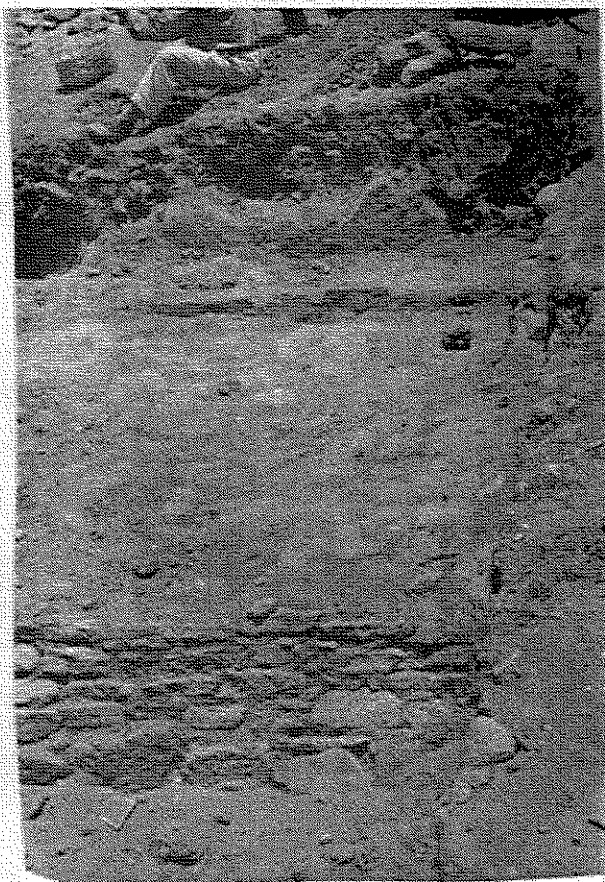


c

Plate 2.



a



Wall 1-2

- F2

Wall 3

- F1

Wall 4

b



c

Plate 3.

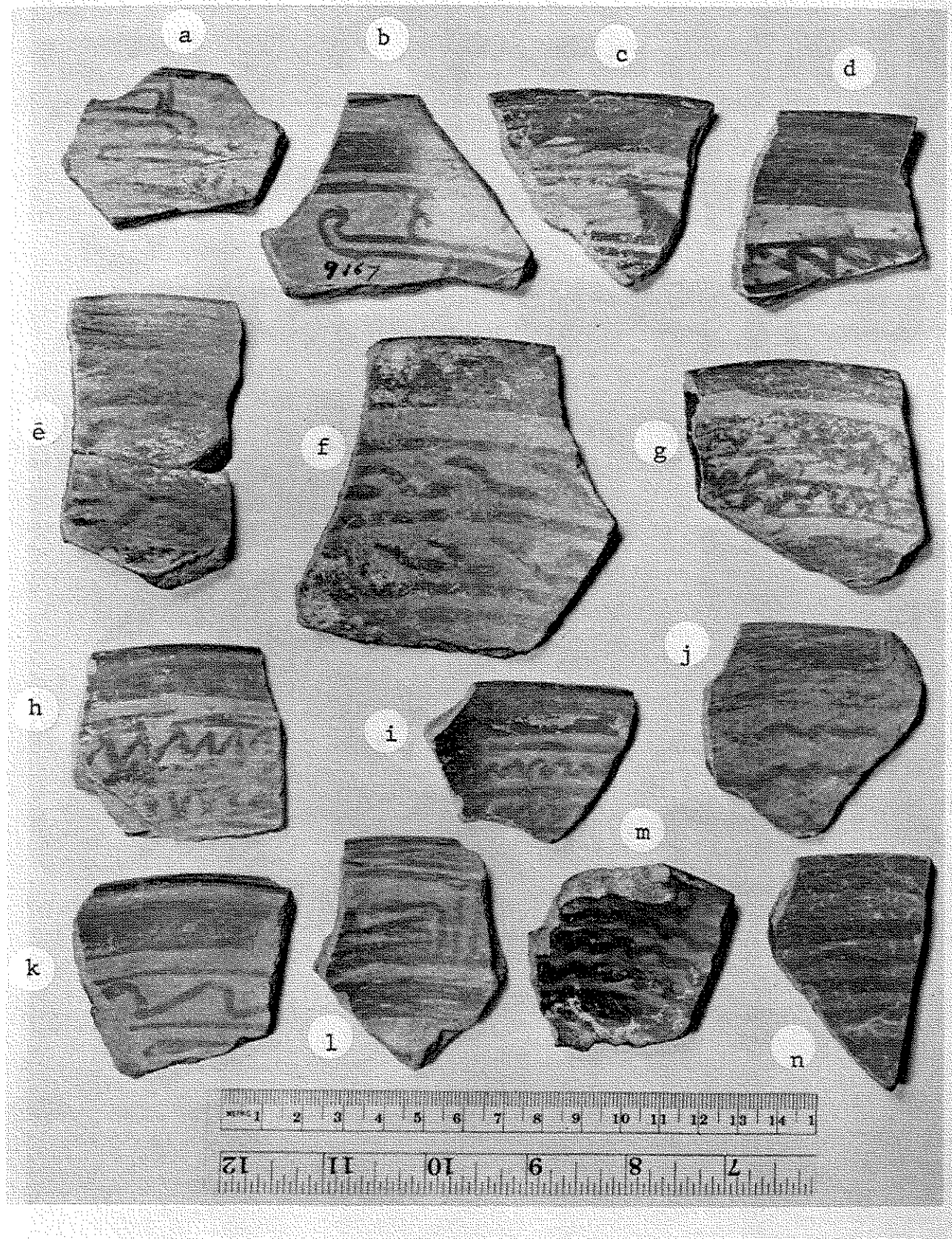


Plate 4.

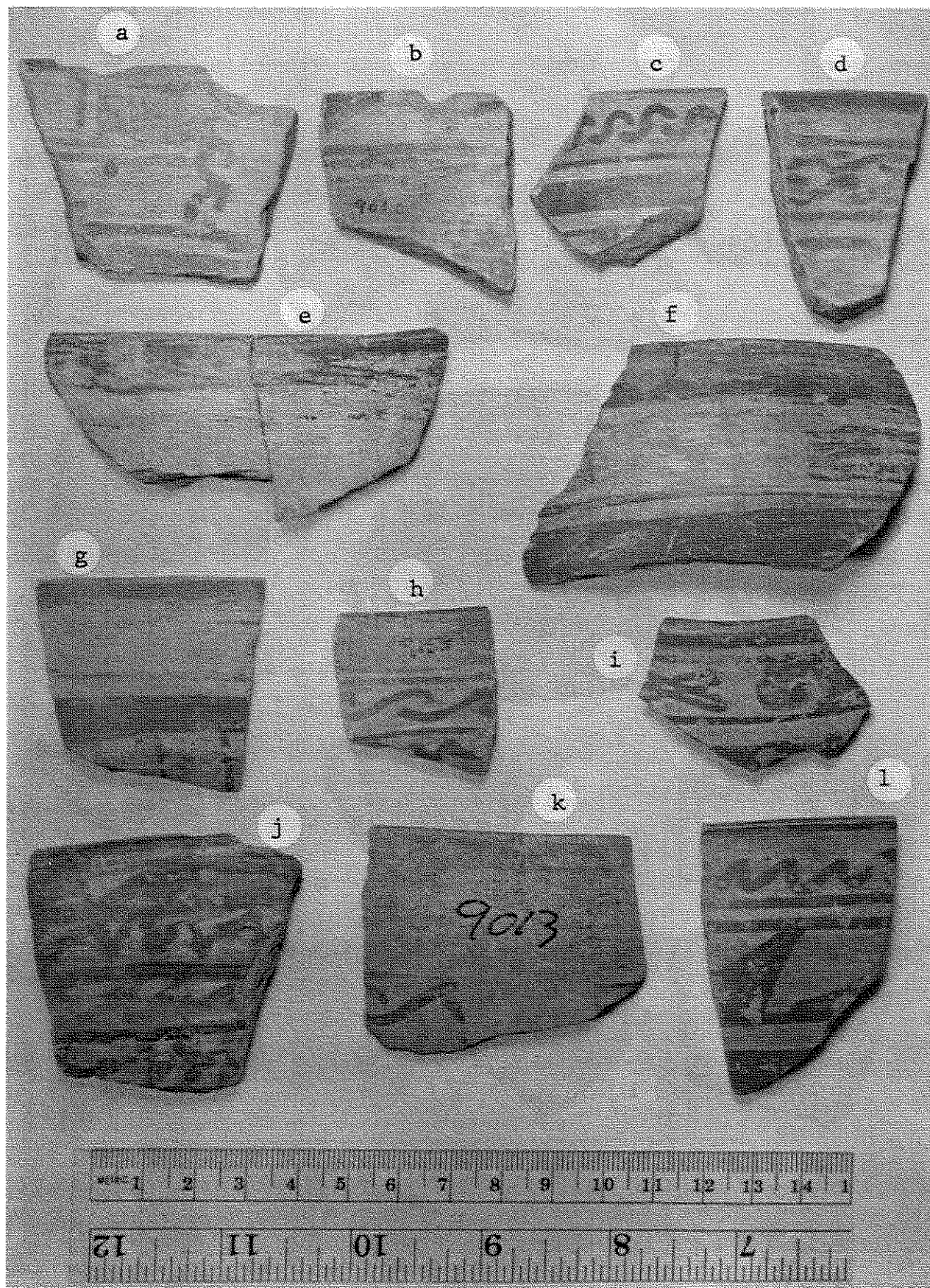


Plate 5.

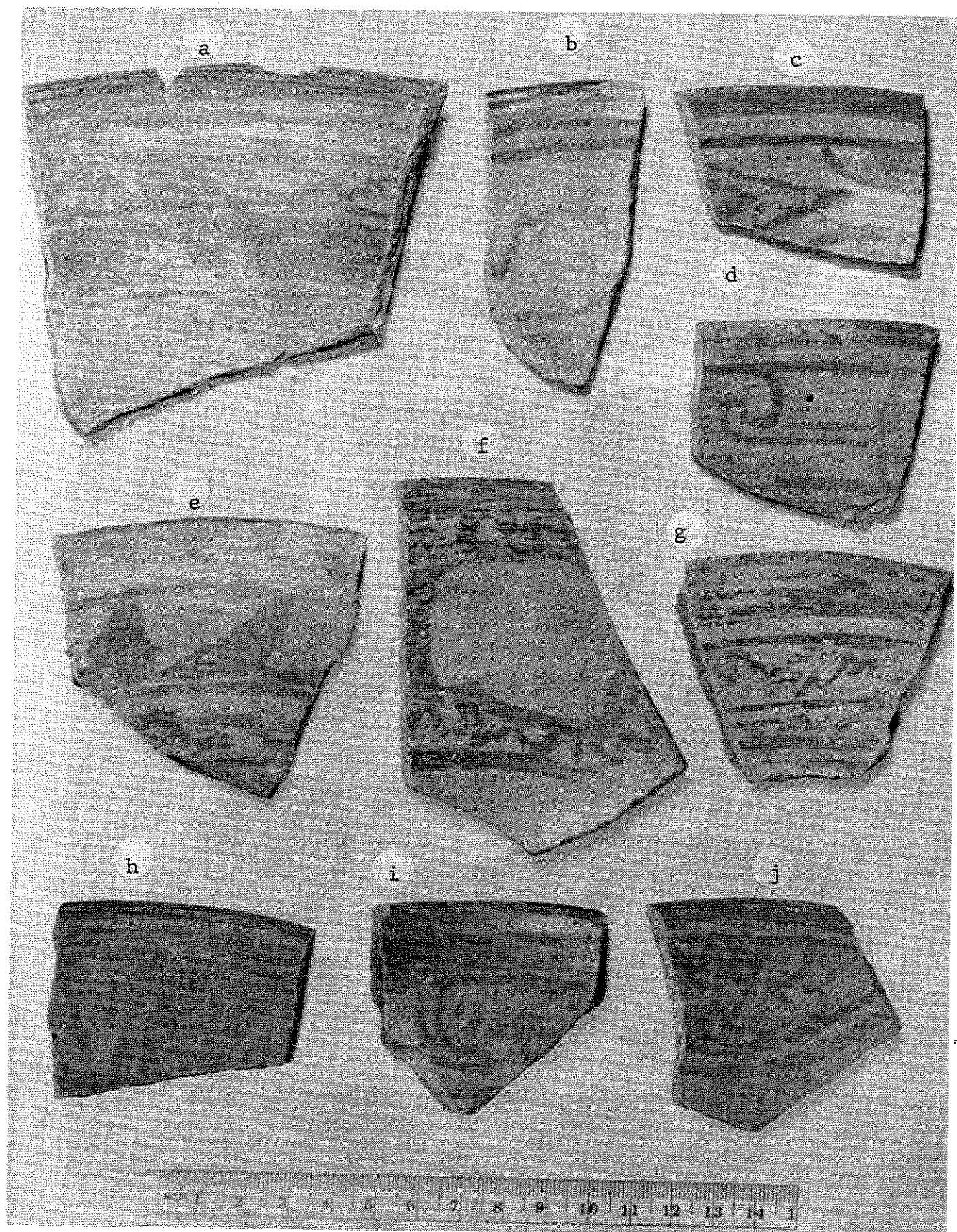


Plate 6.

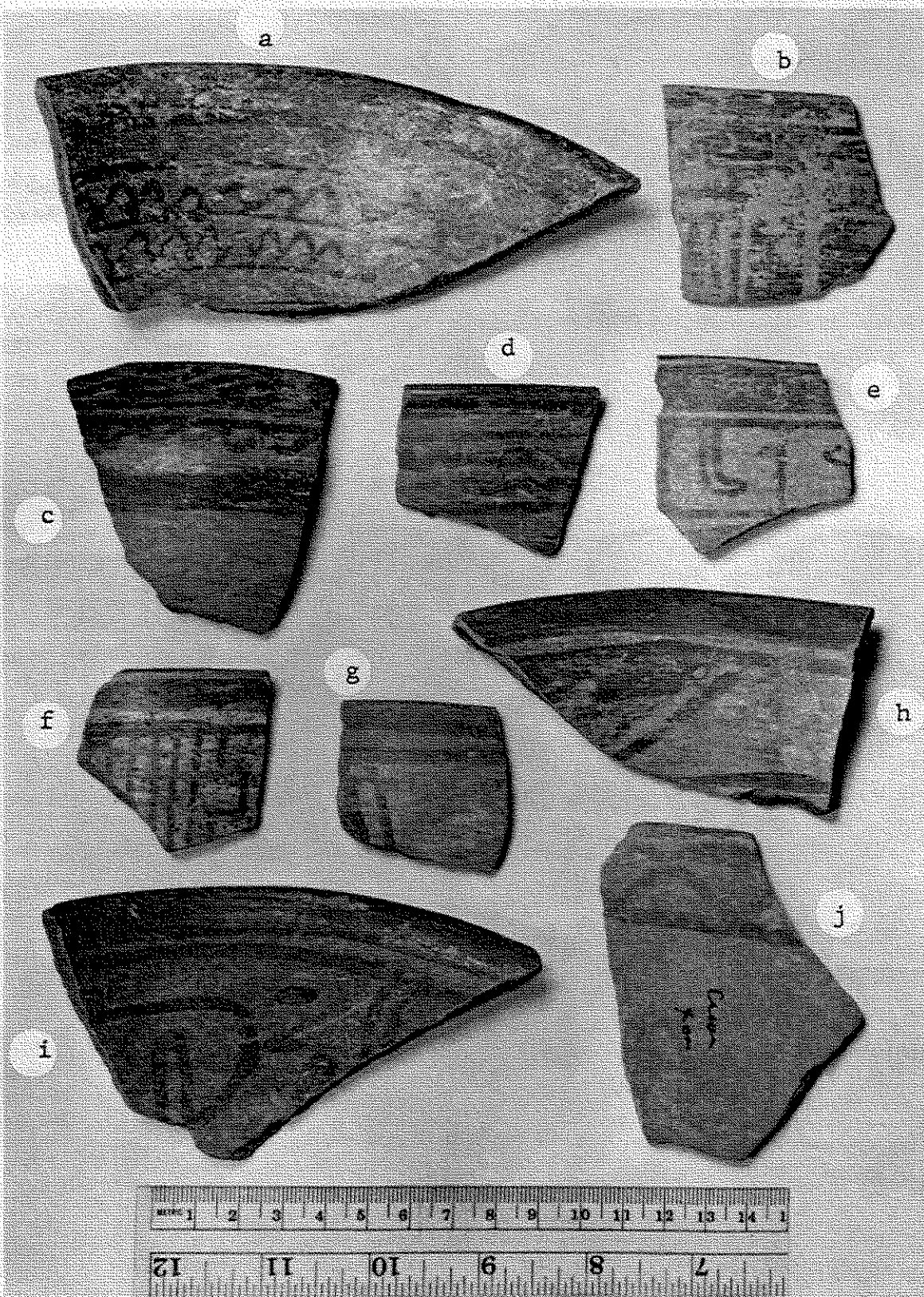


Plate 7.

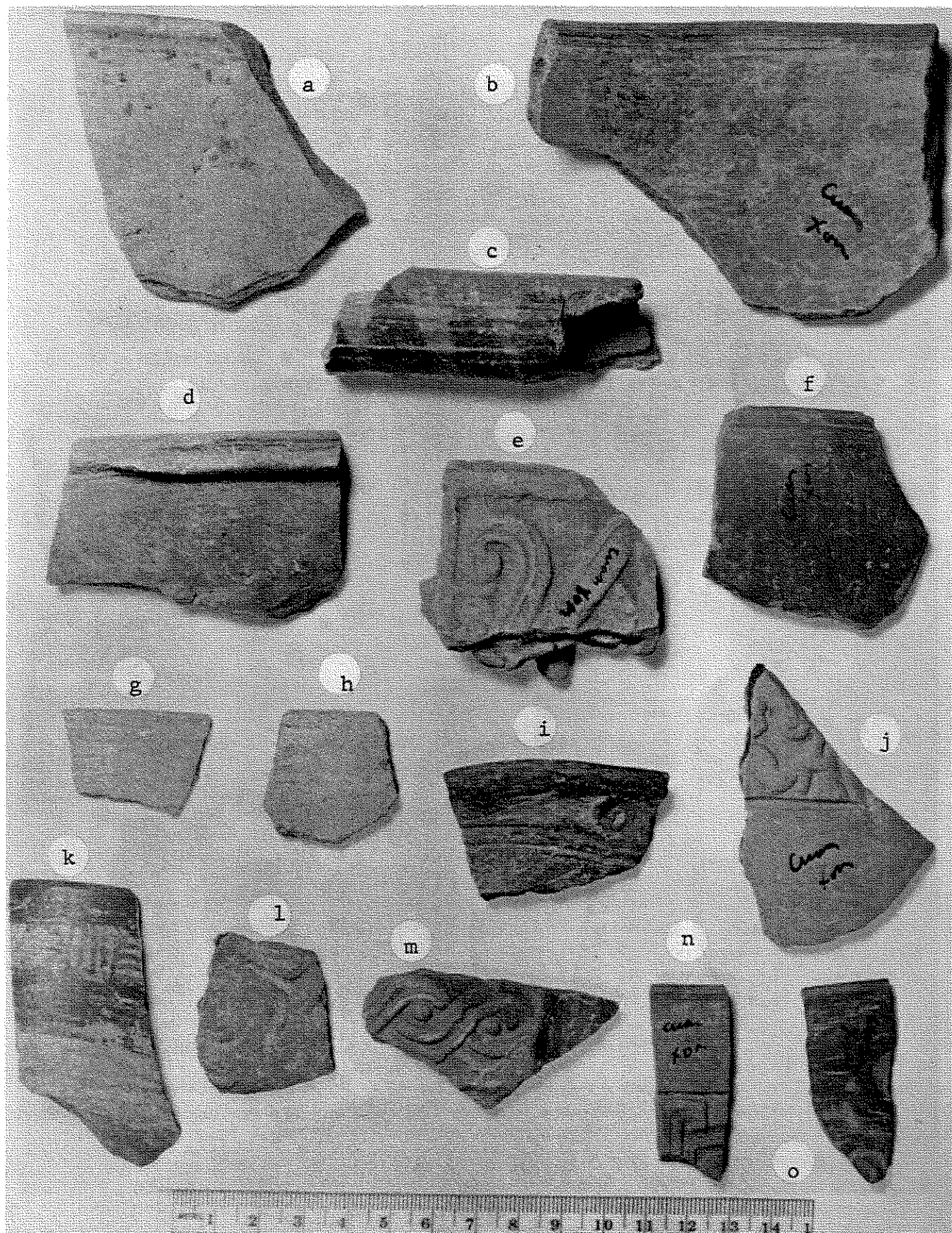


Plate 8.

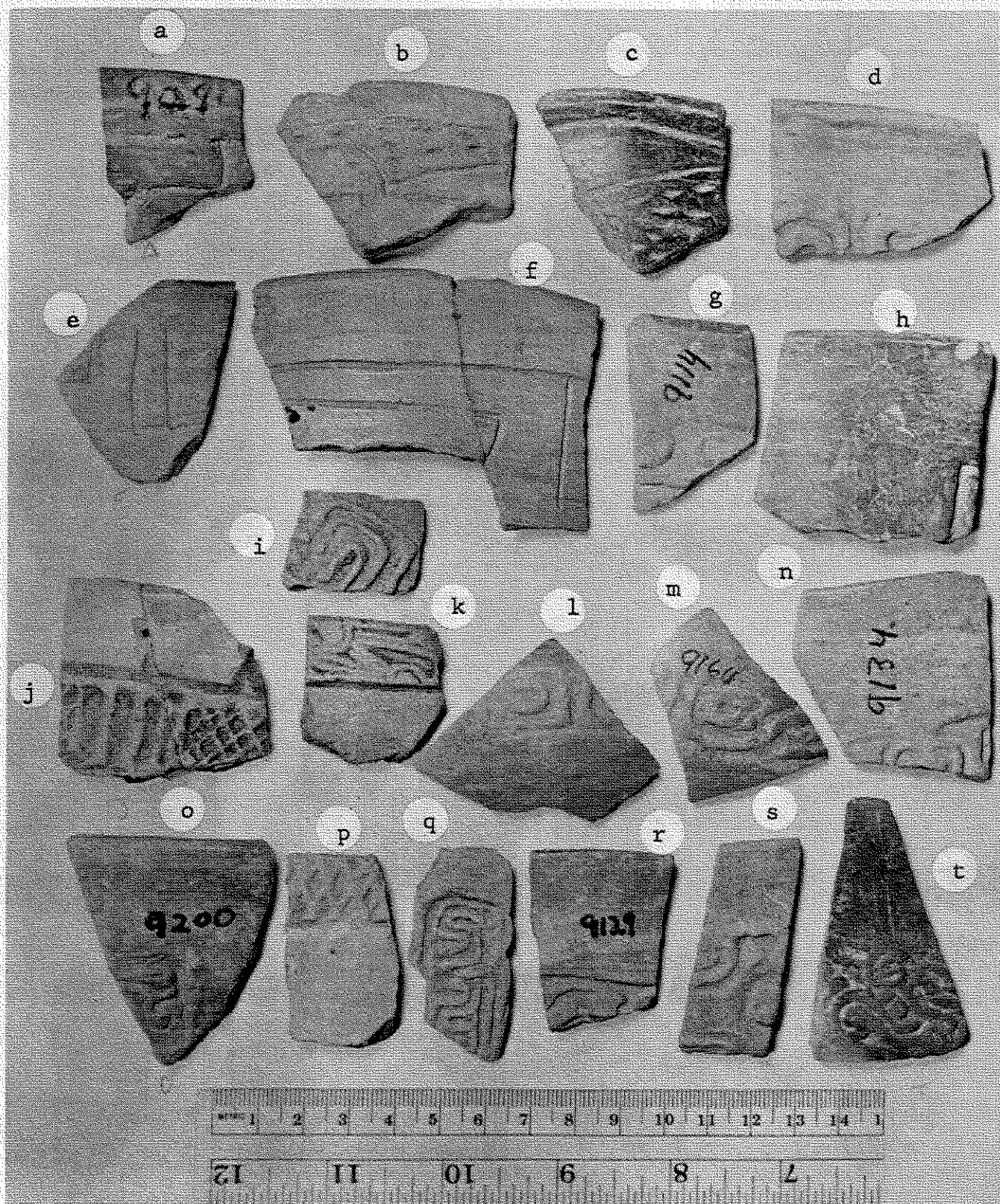


Plate 9.

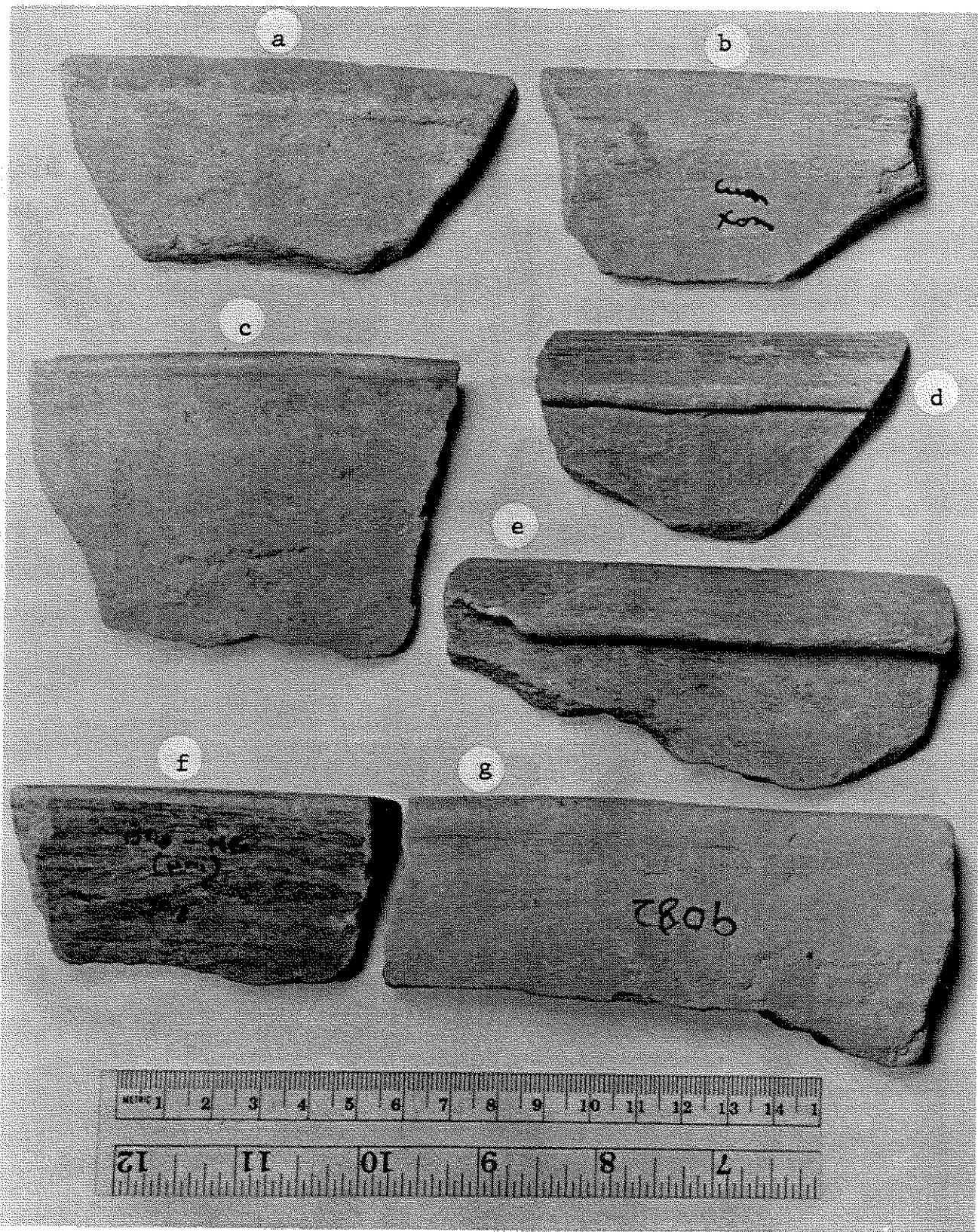


Plate 10.

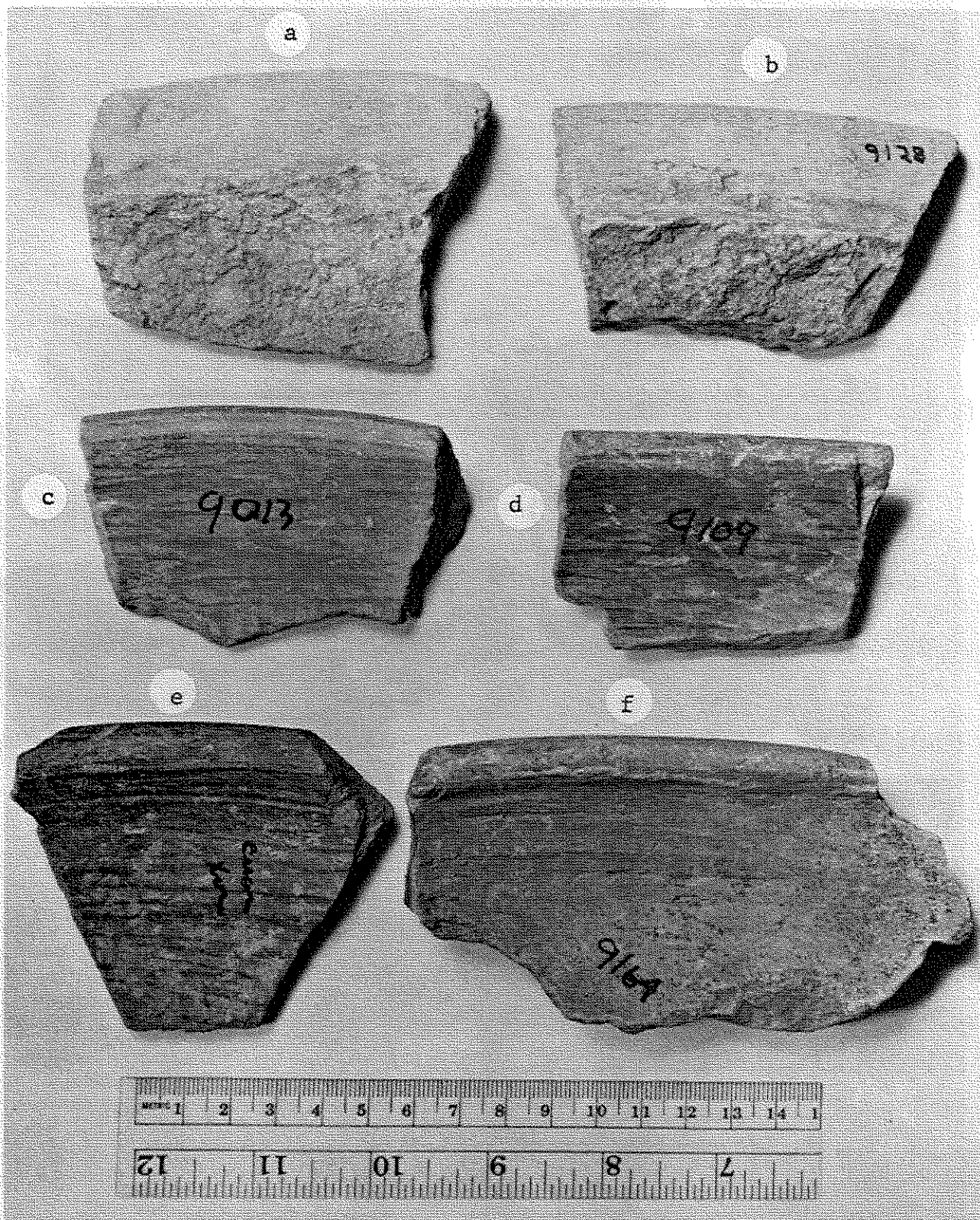


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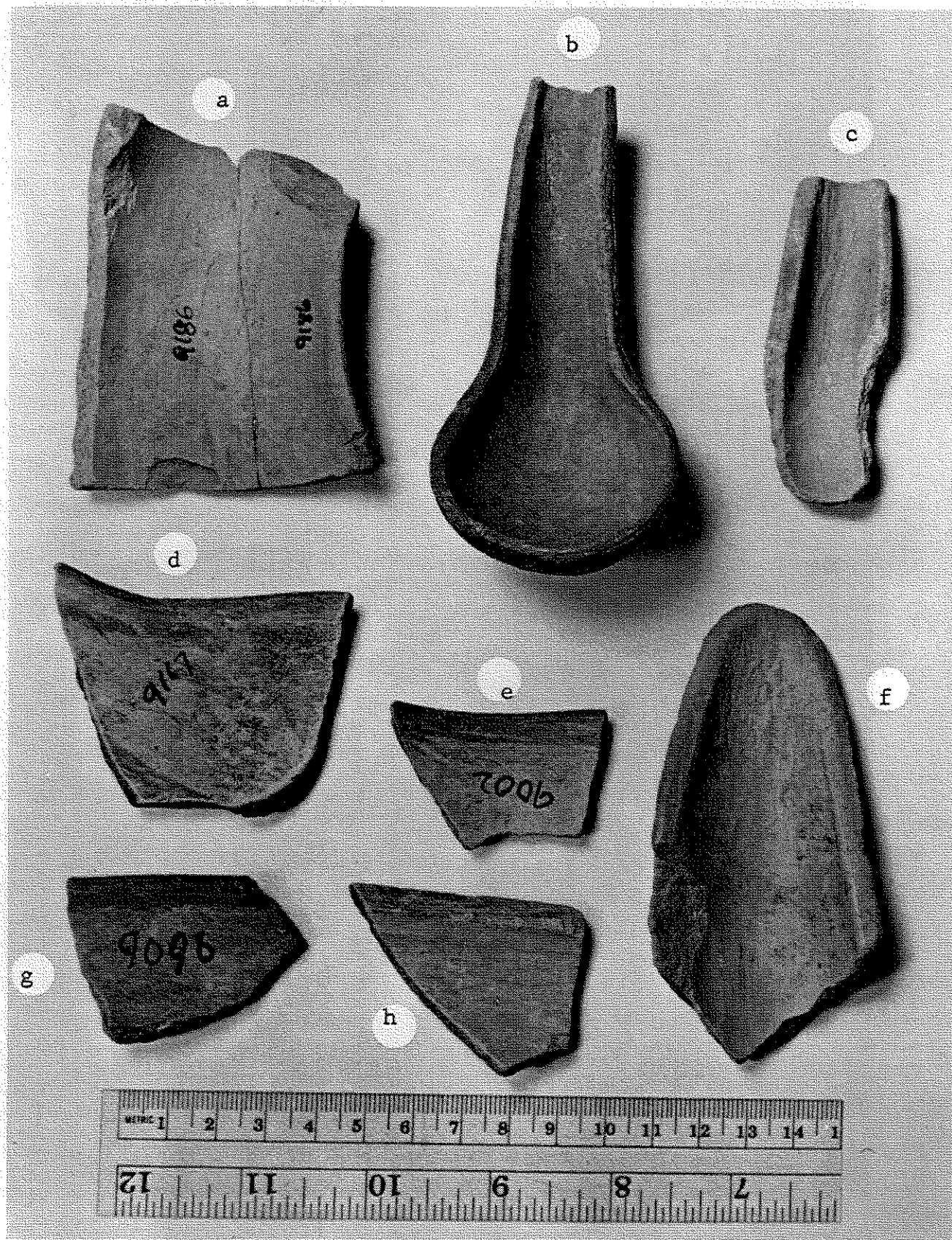


Plate 12.

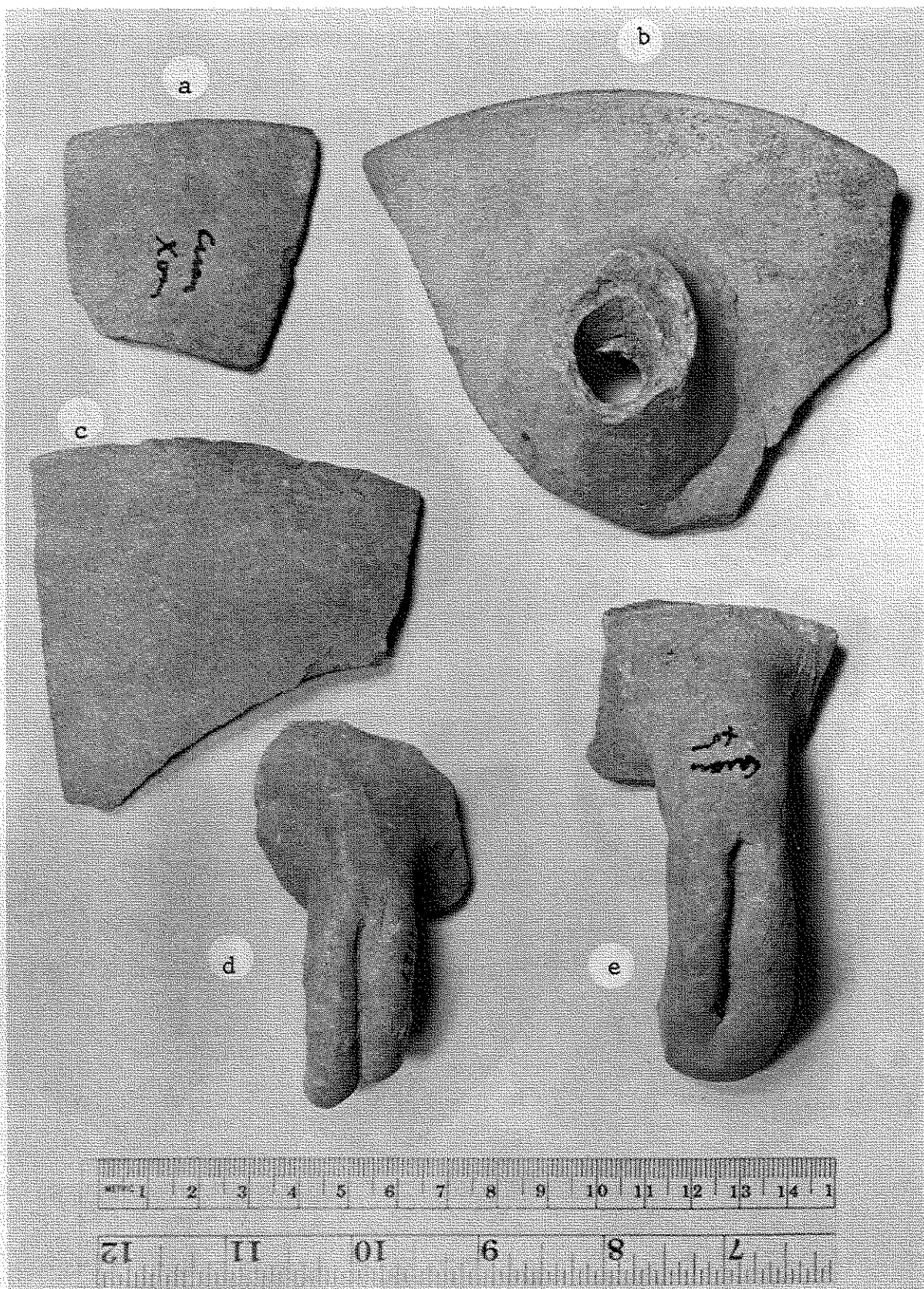


Plate 13.

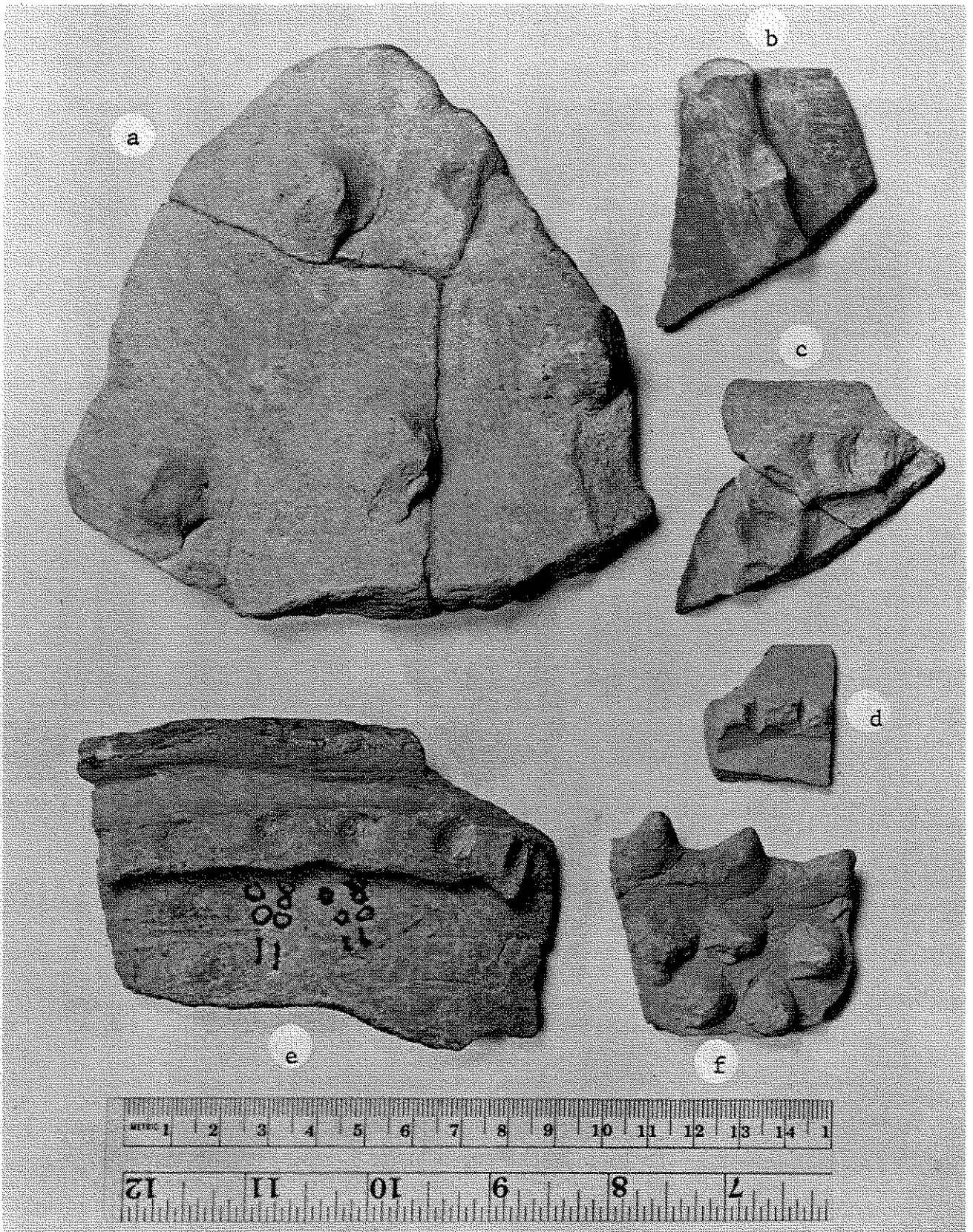


Plate 14.

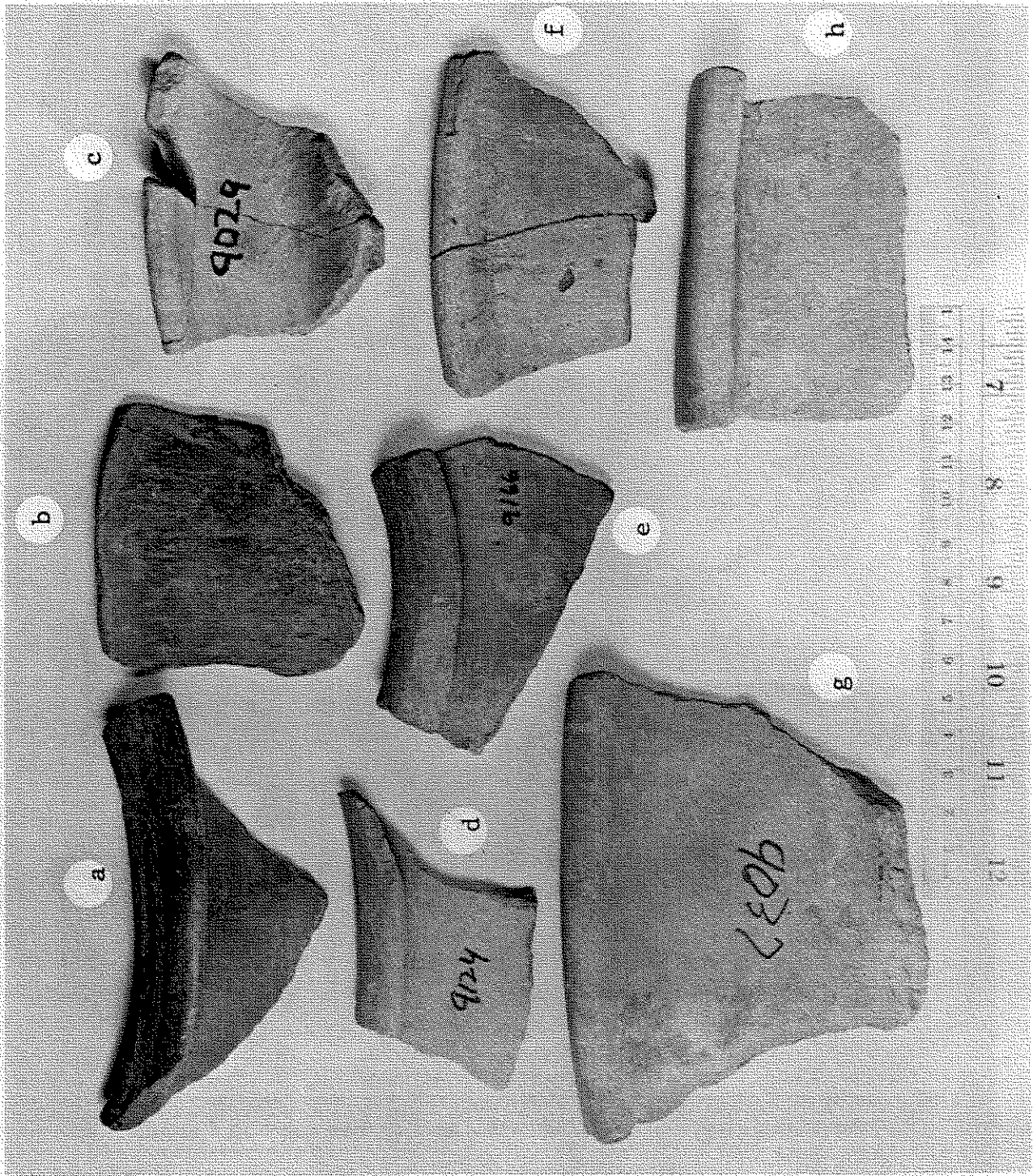


Plate 15.

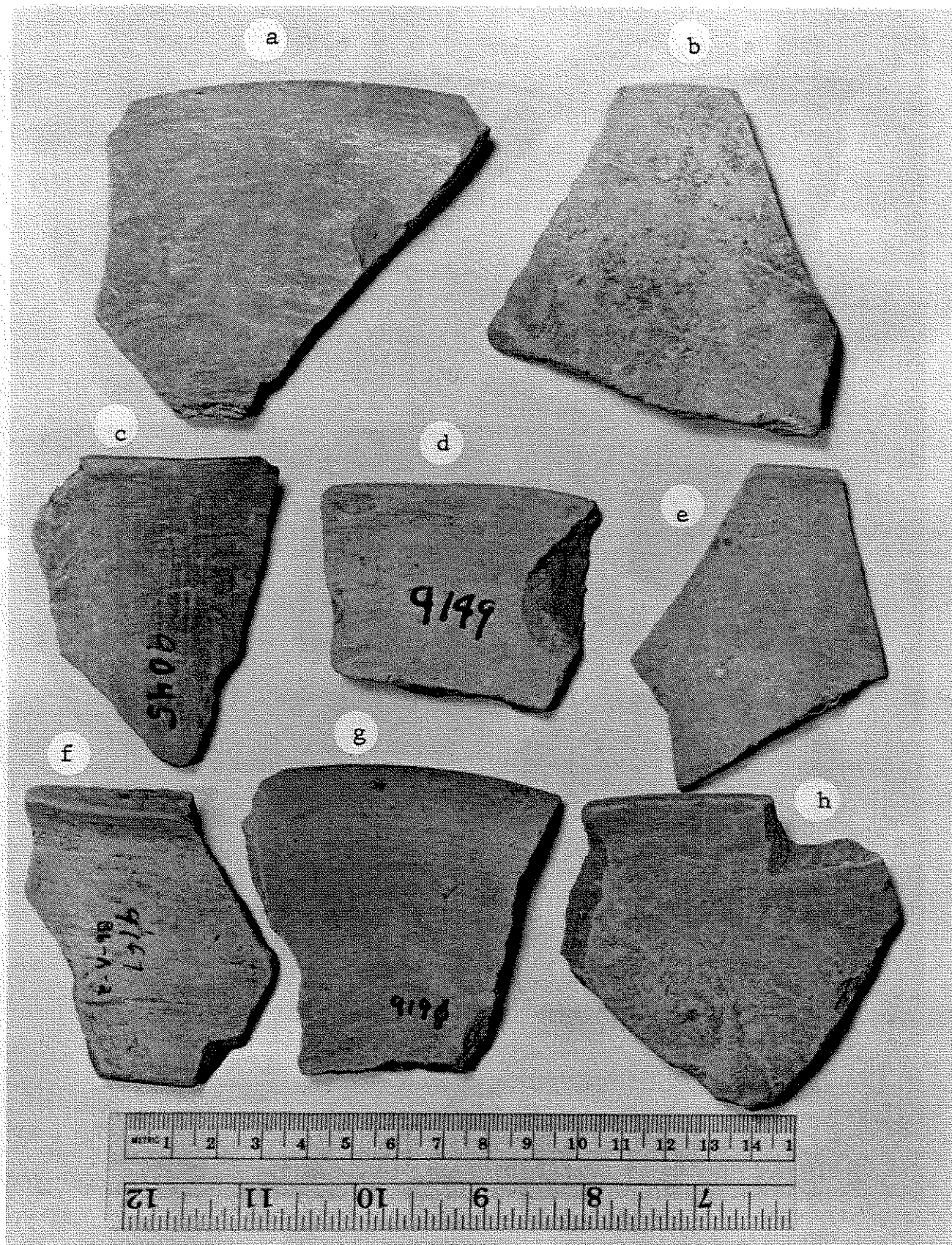


Plate 16.

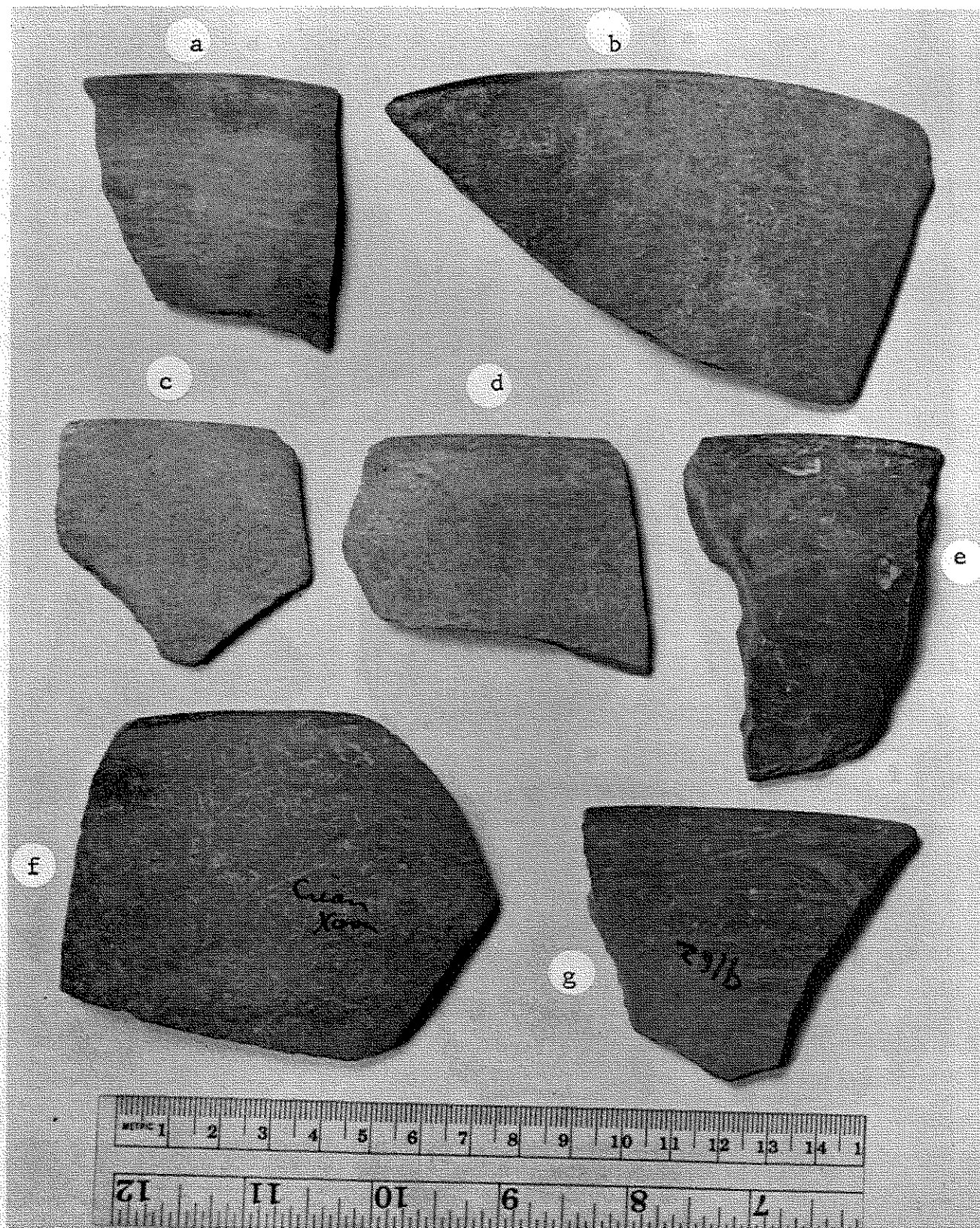


Plate 17.

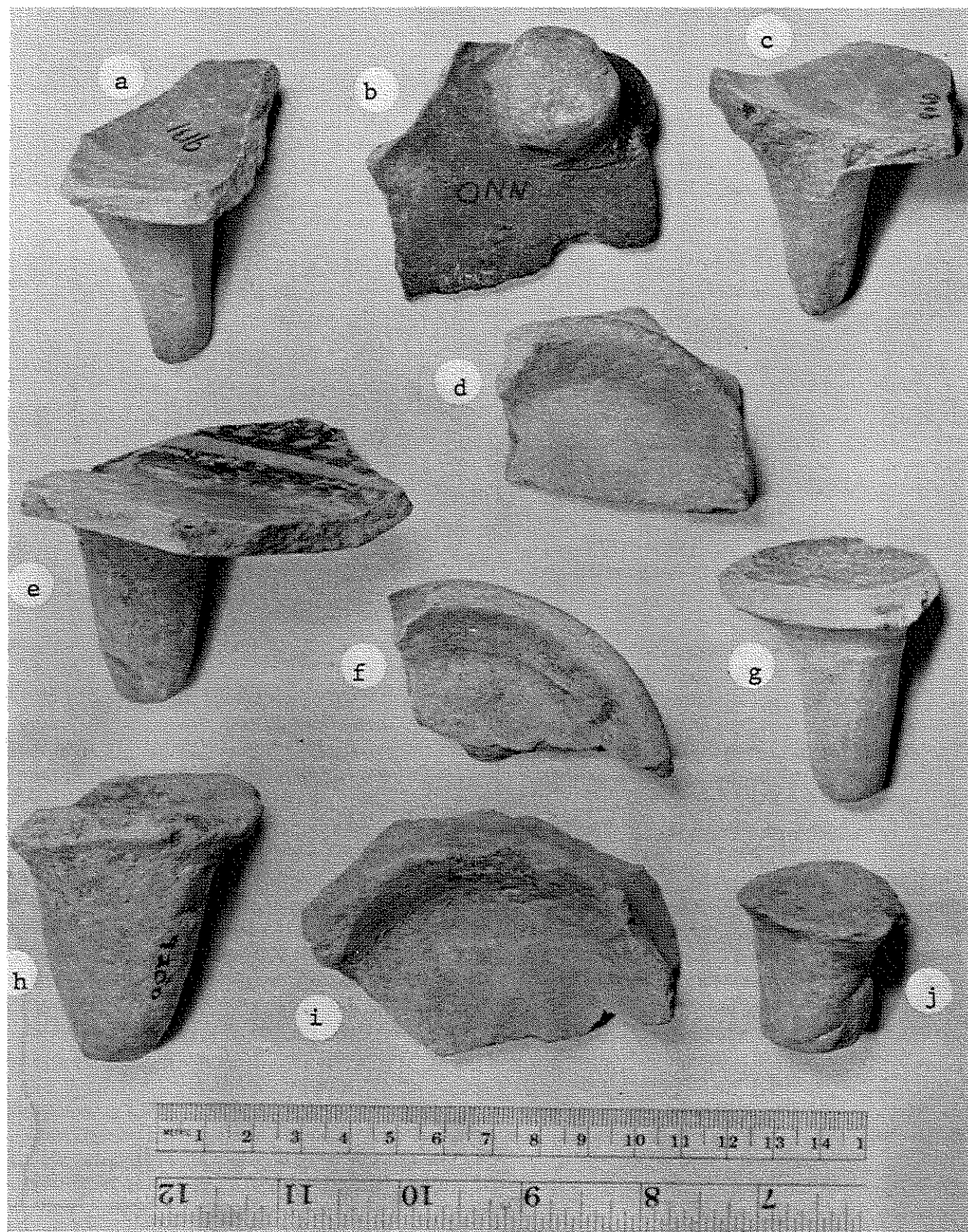


Plate 18.

Chapter 3. EXCAVATIONS AT OXTOTIPAC (TT82)

by

Kenneth Good and Gerald Obermeyer

TABLE OF CONTENTS

	Page
LIST OF TABLES	198
LIST OF FIGURES	199
LIST OF PLATES	200
METHODOLOGY: EXCAVATION AND STRATIGRAPHY.....	202
Cave Setting	202
Description of the Cave	202
Formation of the Cave.....	203
Procedure and Techniques of Excavation	204
Soil Profile	206
CERAMIC ANALYSIS	208
Methodology.....	208
Descriptive Format	209
Paste.....	209
Color and Surface Treatment.....	210
Form.....	210
CERAMIC DESCRIPTION.....	210
Monochrome Bowls	210
Flat Bottom Bowls.....	211
Composite Silhouette Bowls	212
Hemispherical Bowls	212
Stamped Design	213
Simple Design.....	213
Complex Design.....	213
Incised Design	214
Miscellaneous Plastic Designs	215
Utility Ware.....	216
Basins	216
Shallow	217
Medium	217
Deep.....	217
Comales	217
Jars	217
Low Neck Jars	218
Medium to High Neck Jars	219
Painted and Slipped Ware	220
Red/Buff.....	221
Coyotlatelco Red/Buff	222
Mazapan Wavy Line Red/Buff.....	222
Toltec Red/Buff.....	223
Wide Band Red/Buff	223
White/Red	223
Polychrome	224
Huastec 6 Polychrome	224

TABLE OF CONTENTS (Continued)

	Page
Cholula Polychrome	224
Cream Slip	224
Negative Painting	225
Ladles	225
Thin Orange	236
CERAMIC STRATIGRAPHY	227
BIBLIOGRAPHY	228
APPENDIX I--Appendages	230
APPENDIX II--Oxtotipac Ceramic Classification Code Sheet	232

LIST OF TABLES

Table		Page
1	Wares	210
2	Monochrome Bowls.....	214
3	Monochrome Surface Treatment.....	215
4	Plastic Design.....	216
5	Utility Ware	220
6	Painted and Slipped Ware.....	225
7	Ladles	226
8	Quantification of Vessel Form by Level.....	235
9	Quantification of Design Type by Level.....	236

LIST OF FIGURES

Figure		Page
1	Basin of Mexico, Locations of Various Sites	237
2	Valley of Teotihuacan Chronology	238
3	Settlement Pattern Survey Map of Oxtotipac	239
4	Hueixtoci Cave, Oxtotipac, Mexico: Floor Plan of Excavations	240
5	Hueixtoci Cave, Oxtotipac, Mexico: Main Trench, East Face	241
6	Monochrome Hemispherical Bowls	242
7	Monochrome Basal Break Bowls with Flat Base	243
8	Monochrome Composite Silhouette Bowls and Basal Break Bowls	244
9	Basins	245
10	Basins	246
11	Low Neck Jars	247
12	High Neck Jars	248
13	Comales	249
14	Hemispherical Bowls	250
15	Red/Buf Vessels	251

LIST OF PLATES

Plate		Page
1	<ul style="list-style-type: none"> a. View Downslope from Hueoxtoc Cave b. View of Mouth of Hueoxtoc Cave c. Another Cave at Oxtotipac, Used Today as an Animal Corral d. Closeup of Geological Profile of the Roof of Hueoxtoc Cave e. Closeup of Roof of Hueoxtoc Cave Showing Nature of Deposit 	252
2	<ul style="list-style-type: none"> a. View of the Excavation from Outside the Cave b. View of Geological Profile of Cave Roof c. View of Cave During the Excavations Showing Dust Clouds d. View of Cave Interior During the Excavation 	253
3	<ul style="list-style-type: none"> a. Hueoxtoc Cave Excavation, Square 2L, 0S b. Hueoxtoc Cave Excavation, East Wall of 2L, 2S Showing Wall or Subfloor Construction c. Hueoxtoc Cave Excavation, Square 4L, 0S, Showing Fireplace d. Hueoxtoc Cave Excavation, Square 2R, 10S, Showing Circular Platform 	254
4	<ul style="list-style-type: none"> a. Complete Vessels Associated with Huehueteotl Feature b. Unused Mano and Metate Associated with Huehueteotl Feature c. Artifacts of the Huehueteotl Feature d. Huehueteotl Stone Censer, Front View e. Huehueteotl Stone Censer, Back View..... 	255
5	<ul style="list-style-type: none"> Complete Vessels from the Oxtotipac Excavation a,d,f. Red/Buf Hemispherical Bowl b. Stamped Monochrome Hemispherical Bowl c. Red/Cream Hemispherical Bowl e. Teotihuacan Period Vessels g,h. Jars From Oxtotipac Levels 	256
6	Monochrome Hemispherical, Flat Bottom, and Basal Bowls.....	257
7	Monochrome Bowls with Plastic Design	258
8	<ul style="list-style-type: none"> a-m. Examples of Molded, Filleted and Incised Sherds n-t. Bird Effigies, Three of which are Duck Effigies from Monochrome Bowl Rims 	259
9	Red/Buf and White/Red Sherds	260
10	Coyotlatelco Red/Buf--Plate 10 includes virtually all good good diagnostic sherds from the excavation	261
11	<ul style="list-style-type: none"> a-e. Negative Painted Bowls f-h. Cream Slipped Bowls i-n. Mazapan Red/Buf 	262

LIST OF PLATES (Continued)

Plate		Page
12	High and Low Neck Jars	263
13	Ladles, Comales, and Monochrome Ware	264
14	Supports, Annular Bases, and Handle.....	265

METHODOLOGY: EXCAVATION AND STRATIGRAPHY

Cave Setting

Hueoctoc Cave is situated 2350 m above sea level on the northwest slope of a small hill which rises about 75 m above the Teotihuacan Valley plain. The site is only 7 km from the urban zone of Teotihuacan and, from the terrace of the cave, the Sun Pyramid is easily visible. The hill descends to the valley floor in a gradual slope and is cut by barrancas in the lower region. The soil deposit on the hill is characteristically thin with small stones and pieces of volcanic gravel scattered about. Erosion control of the hillside is carried out today probably much as it was in prehistoric times; the slope is planted with rows of maguey which follow the contour of the hill. At the base of the hill where it adjoins the plain, maize cultivation begins. The terrace of the cave is planted with a number of cactus types.

From the cave site, it is only a short walk to the top of the hill where the village church and plaza are located. The population of the village of Oxtotipac is about 800 and the settlement pattern is the scattered-village type having about 180 households dispersed over the whole hill area. A dirt road connects Oxtotipac with the town of San Juan Teotihuacan and ultimately with Mexico City. The road was built in 1960 with the combined effort of village manpower and Federal funds. The road gets little use except for burro traffic between the village and the maize fields. The new road has an unfortunate connection with the cave: in the course of the road-building, debris was thrown down onto the terrace of the cave. The cave lies directly underneath the road and consequently the cave was all but sealed shut when we began work.

Geologically, the mountain ranges which enclose the Valley of Mexico and the sub-valley of Teotihuacan are of volcanic origin. At some time in the past, the hill of Oxtotipac was covered by, or formed from, deep deposits of volcanic debris, deeper in some places than in others. Fragments of volcanic ash are scattered over the entire hill area, and are even seen welded into the *tepetate* (natural bedrock) where the top soil is gone. Parallel with the contour of the hill runs a vertical cliff face, about 3 to 4 m high, of pyroclastic materials. It extends from the cave across the entire north side of the hill. Some agency was responsible for this striking regularity in formation; whether it was a natural one or a human one was a question to be answered. Hueoctoc Cave is carved into this cliff face as are a number of small caves.

Description of the Cave

The outstanding characteristic of both the cliff face and the cave itself is their regular dimensions. None of the workers nor any village elder could explain the origin of either in their present formation. The floor of the cave is relatively level varying only from 1.45 to 1.51 m below datum point. It slopes up to 1.12 m below datum at the mouth where road-building debris has washed in. The height of the cave interior ranges from 4.0 to 4.7 m, the highest point being at the center. The cave opening is 4.0 m high at the center and tapers symmetrically from this point to ground level. The distance from the mouth to the rear wall measures 8.5 m. The rear wall has been cut vertically from the floor level to the ceiling and runs in a straight line the width of the cave. There are no side walls, as such, for the roof slants down to floor level on either side of the cave.

The cave, and all areal deposits, are made up of a volcanic agglomerate of various textures. Most of the material is best described by comparing it to coal cinders. The pyroclastic constituents of the agglomerate range from volcanic dust, sand, and cinders to volcanic bombs, as shown in Plate 1,d-e. The color of the material is either red, yellow or black. In Mexico, large fragments of this material are called *tezontli*.

The activities of man seem to account for the interior formation of the cave. The southwest corner has been tunneled out so that the cave adjoins with a number of smaller caves which open onto the common terrace. It was not possible to get a photograph of the caves' relation to each other because of the entanglement of cacti on the terrace which blocked the field of vision (Plate 1,a). In the southeast corner of the cave a grotto-like niche has been carved back into the wall; the ceiling and walls contiguous to this area are scorched. This is probably the result of cooking fires rather than a catastrophic fire, because the scorched area is confined to this one small section. The soil cover in this section of the cave is too thin for any significant archaeological testing. All along the rear wall of cave, small niches have been carved out at about a 2 m level above the floor. It is not inconceivable that these constitute the remnants of small shrines used by the prehistoric inhabitants of the cave. The workers did not know of any modern function for the niches.

Hueixtoci is the only cave not in current use by the modern population. Two adjacent caves are used as an animal corral for mules and burros and for hay storage, respectively. The workers told of a fire which took place in Hueixtoci Cave about 25 years previously in which five burros were burned to death. When the identification of the bone material from the cave is made, the evidence may bear witness to such a fire.

Formation of the Cave

There is no doubt that the vertical cliff face is the result of a cutting agent. (The fact that we had no geologist in our field party was indeed a handicap.) The consistent regularity of the cliff face would seem to indicate that the deposition was not a natural situation, and thus, perhaps the cave represents an artificial or cultural landscape. In approaching the problem of the formation of the cave and the vertical cliff face, we considered the agents of mechanical weathering, water, and man. Weathering would entail the mechanical disintegration and chemical decomposition of the igneous rocks involved. Since there was no observable evidence of this, weathering, as an agent, was given no further consideration. The one idea which seemed logical, considering the extent and nature of the regularity of the cliff face, was that the terrace area represented a silted-in barranca bed. Two terrace excavations were carried out to test this hypothesis. The first trench, directly in front of the cave, showed deposits similar to those from inside the cave. The second trench, which eventually reached a depth of 5 m, was dug across the breadth of the terrace, between the cliff face and a large outcrop of bedrock, to detect any evidence of previous water activity in the area. This excavation also failed to reveal any hydraulic evidence, the soils resembling those of the cave. If the cave had been water-sculptured, presumably the igneous materials would show signs of being water-worn, which they did not. We might assume then, by process of elimination, that both the cliff face and the cave were the work of man. A major factor arguing for man as the causative factor is the nature of the volcanic deposits. When pyroclastic materials are deposited they tend to take on a stratified appearance as dust and ash particles of the same size settle together to the earth. In this respect, the beds resemble sedimentary rock strata. This seems to describe the situation shown in Plate 2b. However, these strata are unnaturally broken by an abrupt gap which is the cave mouth. Obviously, the cave opening is an artificial intrusion into the volcanic deposits, and man is the most likely candidate for the explanation.

Procedure and Techniques of Excavation

The general progress of the excavations and all pertinent data were noted in a daily field diary. The excavation crew consisted of eight native laborers and four students.

The Hueixtoci site presented a number of problems which called for special techniques which would be absent in an open-air site and in some other cave sites. All dirt was screened. The screening process, which was necessary because of abundant artifacts and soil texture, constituted a great time loss because it created dust problems so severe that the cave had to be evacuated at times. A practical solution was to screen outside the cave, but this entailed carrying the dirt some distance.

The excavation area was initially marked off in 2 m squares using wooden stakes and twine. However, these were soon removed by local pranksters who visited the cave after working hours. A practical solution to this problem was to remove the stakes each day. This practice very soon resulted in crumbled profiles and a "messy" excavation. The profile formed by volcanic dust and particles of ash is one so loose and insecure that care must be taken when walking even at a considerable distance away. The problem was finally solved by hiring a night watchman.

Not the least of the problems was that of lighting. At a depth of 3 m it was necessary to use a Coleman Lantern in the trenches. The lantern, under such conditions, can be considered only a limited success. It was efficacious to the extent that it was the only alternative. The thick dust continually put the apparatus out of operable condition.

Dust presented the most serious problem, and one to which there was no solution. The dust came from the fine grey silt of the occupation level. No water was available in the village area to wet-down the soil, moreover, the intensity of the dust would have required amounts of water which may have resulted in muddy conditions. United States Army dust respirators proved to be more of an annoyance than an aid.

The major problem brought on by the dust involved proper recording of the excavation. The dust factor limited, and actually reduced, the number of profile drawings and photographs which could be made. Soil profiles and photographs could not be obtained until the dust had settled. This, in itself, created work stoppages. The dust was usually so thick that, after settling, it obscured the stratigraphic features. It is not possible to produce "clean profiles" when one is working with such deposits. Thus, a routine photograph or profile drawing became a complicated operation.

Before beginning excavations, a datum point was established and permanently marked (Figure 4). The zero stake was shot in with the alidade and designated as the northwest corner stake of the main trench. The trench was oriented on a north-south axis. The 12 m long trench was marked off into 2 m squares with wooden stakes and twine. The trench was laid out so as to include an area near the mouth of the cave (where the surface collection was particularly abundant) and at the same time extend all the way to the rear of the cave. Such a sample should constitute a good cross-section.

The excavation was normally in 25 cm levels, but at times the structure of the soil profile dictated that we excavate with different levels. Pottery was extremely abundant and eventually amounted to approximately one and a half tons. The cultural level was about 100 cm deep in most places except at the rear of the cave where it was relatively thin, and in the extreme northeast section where it was much deeper. When excavating in the powdery cultural deposit, dust, as noted above, was the big problem; below this, either the extreme

compactness or the extreme flimsiness of the volcanic materials presented their own problems. The Mexicans refer to the compact or consolidated volcanic gravel, ash, and dust as *cascajo*, and the loose fragments of various sizes and textures as *tezontli*. The *tezontli* deposits are very similar to coal cinders, whereas *cascajo* might be described as *tezontli* compressed into a matrix of cement.

The main trench was first excavated to a depth of about four levels before any outward expansion of the excavated area was undertaken. Below the fourth level it was necessary to open new trenches to the right and left of the main trench. By so doing the immediate problem and danger of a cave-in was eliminated and work could move ahead in the Main Trench. In Squares 1 and 2 of the Main Trench, it was decided to test the depth of the cave, i.e., this was to be the one area which would reach bedrock, having realized that there would probably not be enough time to take the whole area down to this level. Unfortunately, bedrock was never reached in the cave. Squares 1 and 2 of the Main Trench were excavated to a depth of 7 m and 4 m, respectively and the last 5 m of Square 1 was through cement-like *cascajo*. The cultural deposit ended abruptly at about 100 cm in Squares 1 and 2 where *cascajo* began and it became necessary to use a pick. Two workers were kept busy in these two squares throughout the field season. Since the *cascajo* came out in huge chunks, and practically no cultural material was present, it was usually not necessary to screen. In Squares 3 and 4 of the Main Trench, profiles were virtually impossible to maintain because of the texture of the deposits. However, with difficulty, we did excavate to a depth of about 3 m in Square 3 and 1.5 m in Square 4. Digging in Squares 5 and 6 of the Main Trench was like excavating in talcum powder and the mixture of straw throughout the powdery soil made it impossible to maintain levels effectively. Below the cultural level, shovels were useless and *cascajo* chunks and volcanic bombs usually had to be removed by hand. Under these circumstances, Square 5 was excavated to a depth of 80 cm and Square 6 was excavated to a depth of 1.25 m.

Cut A was made primarily as a protective device against cave-in. The cultural deposit never exceeded 100 cm in this cut, and generally was shallower. The stratigraphy of Squares 1 and 2 in Cut A resembled that of Squares 1 and 2 in the Main Trench. A depth of 2.50 m was reached in these two squares. Towards the rear of the cave, in Squares 5 and 6 of both Cut A and the Main Trench, most of the cultural material taken out was charred. This was more than likely the result of the fire which took place in the cave about 25 years previously. Overall, the deposits of Cut A resembled those of the Main Trench.

Cuts B and C were planned to test an obviously disturbed area. The abundance of the surface collection and nature of the soil indicated it to be an area of heavy occupation, as indeed it was. Most of the season's pottery came from this area. Figure 5 shows the east face profile of the Main Trench. Squares 1, 2, and 3 (the first 6 m of the profile shown in Figure 5) show the stratigraphy of this area of heavy occupation. This was the main source of the dust, but it was the one area which had to be excavated. The stone construction in Square 2 presented a danger to the workers in the Main Trench and the powdery soil of Cuts B and C was not at all supportive. This whole area, which was comprised of 4 squares in Cut B and 4 squares in Cut C, was taken down to a level of 1.0 to 1.25 m.

Terrace Trench 1 (Figure 4) showed deposits comparable to those of the cave. The soil deposit on this part of the terrace amounted to only 17 cm; below this, the difficult *cascajo* began. We excavated through the *cascajo* to a depth of 50 cm without any soil change. This excavation was abandoned in favor of Terrace Trench 2 so that the "hydraulic theory" could be tested. The second trench was 2 x 4 m, dug perpendicularly to the long axis of the terrace. The length of the trench was limited by rows of maguey plants which grew along the base of the cliff face and the proximal border of the bedrock outcrop. The soil deposit was 50 cm deep after which *cascajo* began. The workers "grumbled" through these deposits to a depth of 5 m,

at which point excavations were halted. The confinement of this trench called for a special technique of dirt removal as the trench became deeper. A retaining wall made of large chunks of cascajo was constructed horizontally across the trench, dividing it into two equal sections. The excavated material was inspected and then thrown behind the wall. Thus, the portion excavated to a depth of 5 m was really only half of the trench. As the depth of one half of the trench increased, the level of the other half approached ground level. This technique facilitated not only the removal of the dirt, but also getting in and out of the trench. The 5 m profile of Terrace Trench 2 showed no evidence of water-deposited material or other water activity; the deposits were essentially the same as those found in the cave. A technique for removing dirt and controlling cave-in (similar to that used in Terrace Trench 2) was used in Squares 1 and 2 of the Main Trench towards the end of the field season. Also, in the cave excavations below 5 m it became necessary to throw the dirt from Square 1 up to the level of Square 2 then again up to the level of Square 2 in Cut A and finally out of the trench. When it was necessary to screen the material, the screen was placed on Square 2, Cut A level. A *petate* (large straw mat) was placed on the Square 2, Main Trench level to keep the dirt to be screened from contamination.

The stone construction which occurs in the upper level (Plate 36; Figure 5) of the trench appears to be associated with the tezontli floor at the same level. If this is the case, and there is no way to be certain, then these two features combined may represent a stone-faced house platform. This would then be considered a very specialized type of cave dwelling. Added significance (perhaps of a religious or ceremonial nature) is given to the structure when we consider that the building stones were not of volcanic origin but were selected and imported stones. Why local materials, such as volcanic bombs, were not used is a mystery. The wooden post near the mouth of the cave seemed to be in no way associated with the structure, and from its position and condition appeared to be modern.

The Teotihuacan period materials excavated from Cut A, Square 2, at a depth of about 3 m and well into the cascajo deposit, represent the richest find of the field season (Plate 4). The stone-sculpture of "The Old God", *Huehuateotl* (10" high), two San Miguel corrugated vessels (c.f., Tolstoy 1958), and two complete *manos* and *metates* were found in a lone midden pit along with a heavy concentration of sherds and stone and bone tools. There were no other signs of occupation connected with this feature. The majority of the sherds from the midden were from three or four large cooking vessels. This feature constitutes practically the whole of the Teotihuacan occupation for the cave. The problem of the occurrence of the god, *Huehuateotl*, and the associated artifacts of the Teotihuacan period under such peculiar circumstances will be dealt with in more detail below.

Soil Profile

The cave deposits, with the exception of the cultural strata, are all of volcanic origin (Figure 5). Our description of the volcanic deposits is based primarily upon two sources, Branson (1954) and Cornwall (1958). Cornwall (1958:46) summarizes the origin and classification of volcanic materials as follows:

Volcanic action is accompanied by the emission of enormous volumes of gases and vapours from the vent, as well as the more permanent and obvious lava-flows. Indeed, it is the subterranean pressure of these, building up through the ages, which gives rise to the catastrophic explosions whose influence is more wide-spread than that of any lava-stream. When such a sudden release of pent-up pressures takes place, large volumes of molten rock are blown out of

the crater, solidifying as they fly, and, according to their size, come to rest nearer or further from the volcano. The larger masses are called volcanic bombs, those of pebble-size lapilli, and the finest particles of ash or dust.

The cave deposits form two distinct occupation zones, the lower zone below the level of the platform structure, and the upper zone essentially above this level. The lower zone is characterized by cascajo with intermittent deposits of volcanic gravel, cinders, and lapilli and a sparsity of cultural materials. The upper zone is marked by a powdery grey silt interspersed with charcoal and ash lenses and an abundance of cultural materials.

Fortunately, the volcanic materials of the lower zone are seldom encountered by the archaeologist. The cascajo was extremely compact and difficult to pick through. The intermittent deposits of cinders, gravel, and lapilli gave a loose texture to the profile which presented hazardous problems of cave-in. Deposits labelled as volcanic gravel in Figure 5 might also be referred to as volcanic sand since the particles range in diameter from 1/16 mm to 2 mm. The size of the volcanic cinders ranged from 10 to 25 cm in diameter. The nature of the deposits of the lower zone does not reveal the stratigraphic pattern characteristic of volcanic deposits. They are, in fact, arranged in no discernible pattern. Since we have assumed that man is responsible for the formation of the cave, we might also assume that he is responsible for the disturbance to the normal pattern of the volcanic deposits within the cave. Such an assumption must be based on archaeological evidence attesting man's presence in the lower deposits of the cave.

There is substantial evidence showing a Late Teotihuacan "occupation" in the lower zone. The evidence takes the form of numerous and scattered ash middens and the Teotihuacan feature which included the Huehuateotl statue and associated artifacts. The term "occupation" should be qualified, as used here, since the evidence points to a temporary occupation of a rather specialized nature. This point will be taken up below.

The cultural materials from the upper zone could be separated into two basic levels: an upper level marked by typical Aztec and modern wares, and a lower level marked by pottery types exhibiting Teotihuacan-like and Toltec-like traits. These materials from the lower level of the upper zone were most interesting and constituted an undefined assemblage in the Basin of Mexico chronology. It was ultimately defined as the Oxtotipac Phase. The admixture of modern and Aztec ware in the upper level of the upper zone was largely the result of modern intrusion in the cave deposits. Quantities of modern pottery were even found in the lower level of the upper zone. (A careful examination of the upper level material by Charlton shows that virtually all of it is 16th Century Post-Conquest with very little Aztec.)

It is rather difficult to attach a date to the platform structure since all three types (Modern, Aztec, and Oxtotipac) were associated with the tezontli floor. However, if we assume it to be Post-Oxtotipac, we can account for much of the admixture of types found in the lower level of the upper zone.

In the ceramic analysis presented in the following section, we have excluded the Aztec, Post-Conquest, and Teotihuacan ceramics and deal only with those from the general Toltec period. The overwhelming majority of the Toltec pottery pertains to our newly defined Oxtotipac subphase and includes only a few sherds of Mazapan. The complex is very similar to that from Xometla (and hence we are using the same rim code) but with certain significant differences. The ceramics also show strong resemblances to those of the final or Metepec

phase of the Teotihuacan period and generally seems to bridge the gap between Metepec and Xometla.*

CERAMIC ANALYSIS

Methodology

The initial step of the sorting procedure was to peruse the entire collection to get a general idea of the range of variation and how the sherds might be divided into wares. After establishing the wares, each was subdivided into types, varieties, and sub-varieties. Without getting into a philosophical discussion as to whether the type is an abstraction of the archaeologist or a kind of mental template conceived by the potter and "discovered" by the researcher, we decided to classify the sherds primarily on the basis of form and probable function, feeling that these criteria lend themselves best to the comparative analysis of ceramics of sequential time periods. This is particularly true in the ceramics of Mesoamerica where rather detailed and elaborate descriptions have been established for the major periods of its culture history.

For establishing the wares, we found that the use of several criteria was more desirable than holding to only one. We feel this will be of particular value for comparison with ceramics of other sites and time periods. Thus, Ware 1, Monochrome Bowls, includes all unpainted and unslipped bowls. Types within this ware are based primarily on more specific forms. Also included in this ware are monochrome sherds with any form of plastic decoration such as incised and stamped designs. These types are identical in paste and form to the undecorated monochromes and therefore, fit best into this ware. Vessels in this ware are those appearing most useful for serving foods.

Ware 2, Painted and Slipped, includes all vessel forms of Ware 1 with any kind of painted decoration. Although many of these forms are identical in paste, size, and form to Ware 1, they were considered separately because of the special value of Red/Buf types for analysis of style, an important marker for this time period in Central Mexico.

Ware 3 is labeled Utility Ware and includes all thick walled, large vessels with minimal surface finish, most apparently used for storage, cooking, etc. These include jars, basins, and comales, both plain and decorated. A fourth ware includes Thin Orange, based on paste, a kind which is so distinctive that no other criterion was needed. The last major ware is Ladles, a distinctive form of this time period.

Bases and supports were also available for analysis but were not included in the computer analysis, mainly because the the small sample size made this unnecessary.

*In the literature, this new phase has been variously written as Oxtoticpac and Oxtotipac. The former is the correct sixteenth century form but modern maps and censuses have deleted the "c". Since our choronology is based on the modern place name, we have elected to use the contemporary spelling.

For purposes of the computer analysis, a 13 column code was devised for rims. Column 1 represents the ware number and Columns 2-3 are used for vessel form. Appropriate attributes were coded for each ware. Thus, flat-bottom bowls are classified on the basis of the flare of the wall, a characteristic useful for determining trends throughout the entire time span of the prehistory of the Basin of Mexico. Basins, for similar reasons, are classified on the basis of depth and flare of the wall, while jars are grouped by height and flare of the neck. In Columns 4-5 color and surface treatment are coded on the basis of surface color and the degree of burnishing. Columns 6-7 designate lip form and orientation, taking in the entire range manifested in the collection. Finally, Columns 8-9 record the type and location of decoration. The last four columns are used for recording provenience based on the square and level of the excavation.

Use was made of The Pennsylvania State University Computation Center for deriving and quantifying types. Several runs were made using variations of the package program known as *The Statistical Package for the Social Sciences*. Several objectives guided us in formulating runs. Since it was not possible to ask for all of the different combinations of attributes, we had to carefully select our desired information and program accordingly. These selected combinations of attributes were then used for the descriptive analysis. Each type was quantified in relation to three samples: 1) the entire assemblage, 2) by level within the entire excavated area, and 3) by level within three selected squares which had the greatest cultural depth, offering the greatest possibility of determining internal phasing.

Thus by simple cross tabulations, a given ware with a selected attribute (i.e., Monochrome Bowls, flat bottom) was examined for the three samples. An additional attribute was then selected and correlated with the others. By progressively adding attributes, types were derived (i.e., Monochrome Bowls, flat bottom, burnished was correlated with all the lip variations and so on through each ware). Absolute and relative frequencies were tabulated for the three selected samples.

Descriptive Format

The attributes of each type will be described in a regular sequence to facilitate reading and comparisons with the ceramics of other sites and time periods. The order of description will be: sample size, paste, color and surface treatment, vessel form, and discussion, when necessary. Most of these attributes are self-explanatory; however, a few need some further explanation.

Paste

In this analysis, paste was not considered in great detail for several reasons. First, paste qualities within the Basin of Mexico at this particular time period appear to be of a relatively similar nature, and thus, little diagnostic value would be gained in comparison to the extensive amount of time and effort which is required for a thorough paste analysis. Information for comparative analysis would also be limited since few detailed descriptions of paste appear in the literature. Given the tremendous significance of form and decoration and the fact that one never has unlimited time for analysis, this attribute had to be given a lower priority.

Pastes were classified into three general textures: coarse, medium, and fine grain. No exact measurements were made of grain size, but instead categories based on relative sizes were established, taking into consideration the range within the assemblage. In general, the thick-walled Utility Ware manifests coarser grain paste, while the Monochrome and Painted

and Slipped bowls have a medium grain paste. Ladles, Thin Orange Ware, and some of the bowls were classified as fine grain.

Having omitted measurement, the classification was, nonetheless, not wholly without a point of reference. Rather, terminology used frequently in ceramic descriptions of familiar Mesoamerican wares guided us in establishing these categories.

Color and Surface Treatment

Surface color is described in terms most commonly used in descriptions of Mesoamerican ceramics. Because of the homogeneity of surface color in this assemblage, elaborate and complicated color schemes such as the Munsell color charts were judged unnecessary. Also, because of its homogeneity, surface treatment was divided into two broad categories of burnished and unburnished or slightly burnished. Such descriptions are elaborated in the text wherever it is considered necessary, particularly in cases of comparison.

Form

Again we must emphasize that form, function, and decoration were given priority in our analysis, and in these categories much greater refinement of description was attempted. Since in the case of form, descriptions such as sharp, medium, and strong flare as well as eversion can best be conveyed by photographs and drawings, extensive reference to the figures and plates is made. This is also true for decoration.

CERAMIC DESCRIPTION

The following analysis is concerned with only the rim sherds. Each ware will be described and quantified separately. The reader is referred to the tables, figures and plates.

Table 1. Wares		
	COUNT	% TOTAL
Monochrome Bowls	2395	58.03
Painted and Slipped	742	17.97
Utility Vessels	595	14.41
Thin Orange	32	0.78
Ladles	363	8.79
TOTALS	4127	99.98

Monochrome Bowls

Sample. Monochrome Bowls comprise the largest percentage of the total complex. 2395 or 58% of the sherds fall within this ware (Figures 6-8; Plates 6-8).

Paste. Quite homogeneous in quality, ranging from light tan or buff to dark brown with a few black sherds. Also a few greys are present and a small sample of orange paste. The consistency is medium grain with evidence of inclusions appearing to be mica. Almost without exception the cores of the entire range of colors are black and approximately one-half the thickness of the wall.

Color and Surface Treatment. Surface color follows the same range as the paste color except that the shades are slightly darker due to the effects of burnishing. Approximately 45% are dark brown while tans comprise 41%. The remaining are orange (0.5%) and cream (0.5%). 56% of the sherds are burnished while 35% are either unburnished or very lightly burnished. The remaining 9% include types that were not divided into subtypes and were excluded from this analysis.

Form. 97% of the Monochrome Bowls are flat bottom, flaring side or hemispherical. Form will be discussed in greater detail under each subtype.

Discussion. Burnishing on the Monochrome Bowls universally appears to have been what is frequently called stick-trailed. Streaks of burnished surface result in and suggest a stick or other narrow object as the burnishing tool. To our knowledge there is no ethnographic analogy confirming the actual use of the stick. Often times only sections of the vessel wall are burnished such as the lip or a medial strip. In a few cases burnishing was so thoroughly executed that the striations are difficult to observe.

Flat Bottom Bowls

Sample. 1368 or 57% of the Monochrome Bowls are flat bottom with flaring sides (Figure 7; 8,g-k; Plate 6,a-d).

Paste. Characteristic of the Monochrome Ware: medium grain with dark cores.

Color and Surface Treatment. Surface colors are 46% dark brown and 41% tan. A small number were grey or orange. Burnishing outnumbers unburnished or very slightly burnished by approximately a 3:1 ratio.

Form. In general, the vessel form is a flaring wall with external concavity and a direct or everted lip. The wall curves smoothly into the base which is either flat or slightly rounded (Figure 7). The degree of flare was divided into three categories: sharp (Figure 7,a, d) represents 12% of the flat bottom bowls, medium (Figure 7,b-c) 47%, and light to vertical (Figures 7,f, h; 8,g-h) 32%. In the sharp and medium flare categories, 61 to 77% of the lips are slightly everted (Figure 7,a, d) and approximately 20% are direct round (Figure 7,c, g). In the light to vertical flare category, many more lips are direct round and about half are slightly everted. In all categories, about 5% are medium everted lips while only in the medium flare are strong eversions present (5%).

Size and Thickness. Wall thickness is relatively uniform for all types, averaging about 0.5 cm, with extremes as low as 0.35 cm and as high as 0.7 cm. Likewise, diameters show no differences by form. The range is 6.0 to 36.0 cm, with an average of approximately 20.0 cm.

Appendages. Evidence of support junctures is present on a few sherds, these appear to be the hollow conical type. Handle junctures are also evident, suggesting a single loop type. Appendages for the entire collection will be discussed in greater detail below.

Composite Silhouette Bowls

Sample. Only 51 sherds, or 2%, of the Monochrome Ware are definitely or probably flare-sided bowls with basal ridges (Figure 8,a-f; Plate 6,e, g), but quite likely many more are subsumed in the flat bottom category, since rim sherds not retaining the basal ridge are indistinguishable from flat bottom bowls with vertical sides.

Paste. Typical of the Monochrome Ware: medium grain with dark cores.

Color and Surface Treatment. Approximately 50% are dark brown and 50% tan. All are burnished on the interior and exterior surfaces with the stick-trailed method.

Form. The composite silhouette is essentially a variant of the flat bottom bowl. At the juncture of the base and side wall, however, a pronounced basal ridge creates a composite silhouette effect (Figure 6,k). The base is rounded and has a small flat bottom. Most sherds have a fairly upright wall with rounded slightly everted lips. A few have a medium flaring side wall.

Size and Thickness. Diameters fall within the range of the flat bottom bowls. The average is approximately 22.0 cm, with extremes from 10.0 to 30.0 cm.

Appendages. No evidence of handles or supports.

Discussion. Apparently the base of this vessel was made separately, possibly on a standard form with the sides added to it. On a few sherds, juncture lines in the paste are visible.

Hemispherical Bowls

Sample. Of the total number of Monochrome Bowls hemispherical forms represent 41%, or 976 rim sherds (Figure 6; Plate 6,f).

Paste. Same as other Monochrome Bowls.

Color and Surface Treatment. The color range is the same as flat bottom bowls. 45% of the vessels were tan and 49% dark brown to black. The remainder were orange or grey. As is often the case in flat bottom bowls, the exterior is dark brown to black while the interior is tan. This we attribute to smudging effects on the exterior and thus we classified these bowls by interior color when differences appear. Burnishing is identical to the flat bottom bowls and shows the same percentages. Hemispherical bowls, however, are more often burnished on both the interior and exterior sides.

Form. The term hemispherical, for this report, is broadly applied to any vessel with convex sides, regardless of the nature of the base (Figure 6). The true hemisphere with very small flat bases probably represents only a fraction of the total hemispherical bowl category. Base size and height are particularly difficult to determine from only a fragment of the vessel rim.

Three arbitrary categories of hemispherical bowls were established based on the diameter of the vessel. Five percent are classified as small (6.0 to 12.0 cm), 69% are medium (13.0 to 24.0 cm), and 22% large (25.0 to 38.0 cm). The remaining sherds have too small a rim to determine the diameter.

Size and Thickness. Wall thickness is rather uniform for all sizes, showing only a slightly thinner wall for the small bowls. The range spreads from 0.4 to 0.7 cm, with a concentration at about 0.5 cm.

Discussion. In general, the sherds are much smaller than those of the flat bottom bowls, apparently due to differential breakage because of thinner walls. While this might bias the ratio within a complex, it would maintain its significance for comparative purposes with other collections.

Stamped Design

Stamped designs were divided into two general categories: simple and complex, based on the elaboration and quality of the work (Figure 14,f-k; Plate 7).

A. Simple Design

Sample. 49 rim sherds, 26 body sherds. These sherds are included in the hemispherical monochrome rim tabulations.

Paste. Same as the Monochrome.

Color and Surface Treatment. 90% are dark brown. Almost all are burnished on the interior and exterior surfaces.

Form. All are identical to the monochrome hemispherical bowls.

Size and Thickness. Small to medium hemispherical bowls with the same wall thickness as the monochrome hemispherical bowls.

Decoration. All of the designs in the simple category are laid out in bands on the upper exterior wall approximately 2.0 to 5.0 cm below the lip. The design is repeated around the entire circumference and often not in a straight line (Plate 7).

B. Complex Design

Sample. 6 rim sherds, 35 body sherds.

Paste. Same as the monochrome hemispherical bowls.

Color and Surface Treatment. Predominantly tan, only a few dark brown. Most are burnished.

Form. Hemispherical bowls with medium diameter. Two are straight sided, light flared, flat bottom bowls.

Size and Thickness. Same as the simple design.

Decoration. These designs are much more elaborate than the simple stamped designs. The designs run in bands along the upper wall, but many sherds show designs distributed throughout the body wall. One large sherd has a diagonally slashed bar above the design (Plate 7). Another sherd, appearing to be from an incensario, has a red band on the interior and exterior wall. Part of the base is attached and has a large nubbin support.

Table 2. Monochrome Bowls (2359 rims, 58.03%).			
	COUNT	PERCENT OF FBB	PERCENT OF MONOCHROME
Flat Bottom Bowls	1368		57.11
Sharp flare	160	11.69	6.68
Medium flare	641	46.85	26.76
Light to vertical flare	423	30.92	17.66
Undetermined flare	144	10.52	6.01
		PERCENT OF HEMISPHERICAL	
Hemispherical Bowls	976		40.74
Small	53	5.43	2.21
Medium	676	69.26	28.22
Large	218	22.33	9.10
Undetermined size	29	2.97	1.21
		PERCENT OF BASAL RIDGE	
Basal Ridge Bowls	51		2.13
Definitely basal ridge	21	41.17	0.88
Probably basal ridge	30	58.82	1.25

Incised Design

Sample. 37 sherds. These rims are included in the rim count of Monochrome basal break and composite silhouette bowls (Plate 8, h-j, l-m).

Paste. Dark brown and tan paste, fine grain with dark cores; hard paste.

Color and Surface Treatment. Predominantly dark brown (60%). Tan (40%). Most are burnished.

Form. In general, they are very thin walled, flat bottom bowls with vertical to slight flaring sides. Lip form is most often slight to medium eversion. One sherd includes the basal ridge and presumably some of the other sherds are also from basal ridge bowls.

Size and Thickness. Small to medium hemispherical bowls. The wall thickness is the same as in the hemispherical bowls.

Decoration. Simple linear designs appearing as if they were made with a pointed stick (almost a scratch effect). The most common forms are seen in Plate 8. One sherd has the incision on a red slip and three body sherds are black with a plumbate-like finish. The burnish is very high. The paste is very fine and very hard, giving a high pitch ringing sound when dropped. The design is a *champleve* mixed with simple line incision.

Table 3. Monochrome Surface Treatment (2395 rims, 58.0%).			
	COUNT	PERCENT OF FBB	PERCENT OF MONOCHROME
Flat Bottom Bowls (1)			
Burnished	786	57.45	32.81
Unburnished	459	33.55	19.16
Dark Brown	633	46.27	26.43
burnished	417	30.48	17.41
unburnished	216	15.78	9.01
Tan	560	40.93	23.38
burnished	333	24.34	13.90
unburnished	227	16.59	9.47
Miscellaneous	36	2.63	1.50
burnished	20	1.46	0.84
unburnished	16	1.16	0.67
		PERCENT OF HEMISPHERICAL	
Hemispherical Bowls (2)			
Burnished	555	59.00	23.17
Unburnished	392	41.00	16.36
Dark Brown	468	49.41	23.38
burnished	303	31.99	12.65
unburnished	165	17.42	6.88
Tan	425	44.89	17.74
burnished	211	22.28	8.81
unburnished	214	22.59	8.93
Miscellaneous	54	5.70	2.25
(1) Basal ridge bowls and undetermined rims excluded.			
(2) Undetermined forms excluded.			

Miscellaneous Plastic Designs

Sample 24 sherds (Plate 8,a-g).

Paste. Tan and dark brown as in the Monochrome Bowls.

Color and Surface Treatment. Dark brown with low burnish. One sherd has a red slip.

Form. Hemispherical bowl, flat bottom, *tecomate*.

Size and Thickness. Medium to small.

Decoration.

1. Applique strip around the circumference, some combined with a stamped design. 9 sherds.
2. Horizontal denticulate ridge. 3 sherds. One sherd has a red band and upright flaring sides. The interior is very smudged. Probably is an incensario.

3. Excised band. 8 sherds. Consists of a band of rondelle (dots) with excised background.

4. Vertical slash strip with lugs. 3 sherds.

Table 4. Plastic Design.			
	COUNT	PERCENT OF PLASTIC	PERCENT OF MONOCHROME
Stamped Design	55	47.40	2.30
Incised Design	37	31.90	1.54
Miscellaneous Plastic	24	20.69	1.00
TOTALS	116		4.84

Utility Ware

Utility Wares are distinguished from Monochrome Bowls by their coarseness of paste, greater thickness of wall, and lack of any degree of surface finish (Figures 9-13; Plates 12-13,e-i). These vessels, including jars, basins, and comales appear most useful for storage and other heavy utilitarian purposes. Few sherds appear with smudge marks, leaving the question of what may have been used for cooking purposes. In total there are 595 rims representing 15% of the entire collection.

Basins

Sample. 200 rim sherds or 34% of the Utility Wares (Figures 9-10).

Paste. Coarse; black cores are common comprising from 30 to 80% of the width of the wall.

Color and Surface Treatment. Approximately 95% are unburnished or very lightly burnished. Most of the burnished sherds are red slipped,. By far the predominant color is tan (75%) while only 21% are dark brown. One noticeable group of rims has a red slip over the entire interior surface (4%). One rim has only a red band on the lip. Four sherds are orange in surface color, while one sherd appears to have a cream slip.

Form. The basins are very large, shallow, open vessels with vertical to extreme flaring sides which manifest a number of lip forms. In classifying vessel form, the basins were divided into three main categories and one special subcategory on the basis of depth and flare of the side walls. Lip characteristics are highly variable in their form. They include the following: 1. direct rounded (Figures 9,g-h; 10,g); 2. square (Figures 9,j; 10,c); 3. horizontal bevelled (Figure 9,i); 4. flat or widely everted (Figure 10,e); 5. exterior bevelled (Figures 9,a; 10,a); 6. exterior bolstered (Figure 10,f); 7. interior and exterior bolstered (Figure 9,k); and 8. interior bevelled (Figure 9,b-c). Furthermore, one very distinctive lip occurs (Figure 9,d, f) which has a combination of bevelled surfaces and a folded bolster.

A. Shallow

15% of the basins. The bulk of these have either a direct round lip (41%) or a square lip (35%). Only 2 (7%) have a horizontal level, while 5 (17%) have a flat lip. It is this form which includes the one sherd with a cream slip covering the interior and exterior surfaces.

B. Medium

42% of the basins. These are basically the same in color and surface treatment as the shallow basins but exhibit a much greater variety of lip forms. The most common form is a horizontal bevel which makes up 34% of this category; square lips represent 24%. The remaining lip forms consist of direct, medium everted, external bevel and external bolstered. One group of 25 sherds (13% of the basins) has a distinctive angled lip. All have a burnished surface and are undecorated.

C. Deep

44% of the basins. This group has basically the same range color and surface treatment as the other basins. 84% have either a direct round lip, an external bevel or a square rim. Two lip forms not found in any of the other types are a direct lip with an interior-exterior bolster (5%) and an internal bevel (12%).

Comales

Sample. 25 rim sherds or 4% of the Utility Ware (Figure 13; Plate 13,e-i).

Paste. Coarse grain; porous with dark cores. White inclusions.

Color and Surface Treatment. Five (20%) are dark brown; 18 (72%) are tan; 2 (8%) are orange. All have a light burnish on the interior surface and the lip. The underside is roughened or crackled extending to the rim.

Form. Most are very flat and plate-like with only a slight upcurving at the rim with either a bolstered or tapered lip (Figure 13). Six of the 25 comales were classed as "deep" in that a distinct angle is formed at the base-rim juncture giving the side wall a height of about 4.0 cm. In these cases, the outer surface of the rim is burnished to the base juncture where, in several, a flange is formed. As discussed below, this is the characteristic form of the Xometla complex. All of these types are tan as are the Xometla comales.

Size and Thickness. Diameters range from about 48.0 to 56.0 cm. The base thickness just before the rim ranges from 0.7 to 1.0 cm.

Decoration. All are undecorated.

Jars

Sample. Jars comprise the largest group of the Utility Wares with 370 rim sherds making up 62% of this ware (Figures 11-12; Plate 12).

Paste. Paste. Generally coarse and porous with very little surface treatment. It is softer than the Monochrome Bowl and when dropped gives a lower pitch than the ring-like sound of the Monochrome Bowls. Rim profiles show dark cores comprising 60 to 90% of the thickness of the wall.

Color and Surface Treatment. Burnishing is usually present on the exterior surface; stick trailed but with very little luster. The unburnished areas are very porous due to the large grain paste. The burnishing extends over the lip 1.0 to 3.0 cm down the neck wall to the point where the interior surface is no longer visible when looking directly into the jar.

Size and Thickness. Jars were divided into two varieties: low neck and medium to high neck. Wall thickness varies very little between these two groups averaging 0.9 to 1.2 cm with some as thick as 1.3 cm.

A. Low Neck Jars

Sample. 219 rim sherds or 59% of the jars (Figure 11, Plate 12,b, d, e).

Paste. Typical of the jars for all forms.

(In order to more closely correlate form with other characteristics, the low neck jars were subdivided on the basis of neck flare. Each division will be described separately.)

1. Vertical to Light Flare

Sample. 187 sherds or 85% of the low neck jars (Figure 11,e-g).

Color and Surface Treatment. Most (88%) are unburnished or very lightly burnished. Dark brown is the predominant color (62%) with tan representing only about a quarter (26%) of the total amount. A fair size group (11%) has a burnished red wash while 1% are orange. As in the burnishing, the red wash extends over the lip and down the inside to a point where the wall is no longer visible when looking directly into the jar.

Form. A globular jar with a short vertical neck about 2.0 cm high. 83% of the lips are outcurving bolster forms (Figure 11,e). The remaining are simple direct lips (12%) with a few everted forms.

Size and Thickness. Neck size ranges from 1.0 to 4.0 cm from the body to the lip. Wall thickness falls within the range of the jars in general. Neck diameters at the smallest point range from 14.0 to 30.0 cm.

Decoration. Most sherds are undecorated (86%). Besides the red wash already mentioned only 9 sherds have any form of decoration, this being a red band which occurs on the exterior surface in all cases except one.

2. Medium to Sharp Flared Neck

Sample. 27 sherds or 12% of the low neck jars (Figure 11,a-d, h).

Color and Surface Treatment. All the tan (56%) and dark brown (27%) are unburnished. Four red wash, 1 red slip and 1 orange are all well burnished.

Form. These appear to be smaller vessels than the vertical neck jars. The walls are thinner and lip eversion is less pronounced. The sherds are very small but appear to be the same basic globular jar.

Size and Thickness. Wall thickness ranges from 0.6 to 0.9 cm. Neck diameters range from 12.0 to 27.0 cm.

3. Neckless

Sample. 5 rim sherds (Figure 11,i-j).

Color and Surface Treatment. All are unburnished and undecorated. All but one are tan in color.

Form. Large globular jars averaging 32.0 cm in diameter. Instead of a neck, the clay is simply folded over at the mouth.

B. Medium to High Neck Jars

Sample. 151 sherds or 41% of the jars (Figure 12; Plate 12,a, c, f).

Paste. Typical of the jars in general.

(This category will also be discussed by flare of the neck.)

1. Vertical to Light Flare

Sample. 36 or 24% of the high necks (Figure 12,b-d, h).

Color and Surface Treatment. All the plain sherds (83%) of this category have little or no burnishing. All those with a red slip are burnished. There are about twice as many tan than dark brown.

Form. While the most frequent rim form is direct round, the light flared high necks have the greatest variety of lip forms of all the jars. One common type has a medium to strong eversion which is often bolstered. Another type has a horizontal lip approximately 1.5 to 2.0 cm wide and is found only in this group (Figure 12,d).

Size and Thickness. The neck height averages 5.0 to 10.0 cm from the lip to the side wall. The diameters of the neck at the smallest point range from 8.0 to 18.0 cm.

2. Medium Flare

Sample. This is the largest group of the high neck jars with a total rim count of 104 representing 69% of this group.

Color and Surface Treatment. Surface color is comparable to the light to vertical flare group except that many more burnished red slips are present (25%).

Form. Very similar to the previous group minus the horizontal lip.

Size and Thickness. The neck height is approximately 2.0 to 3.0 cm. Diameters range from 10.0 to 18.0 cm.

Appendages. Three sherds retain the handle. Two have a vertical single loop handle 5.0 cm below the rim and 5.0 cm in length (Plate 12,f). The third has a slightly longer handle (6.0 cm) situated a little lower on the wall. The form is basically the same as the first two, except that it is a twist form (Plate 12,a). Several other sherds retain only a piece of the handle. Their orientations suggest a similar type handle.

Table 5. Utility Ware (595 rims, 14.41% of Total).				
VESSEL FORM	COUNT	% BASIN	% UTILITY	%TOTAL
Basin	200	100.00	33.61	4.84
Shallow	29	14.50	4.87	
Medium	84	42.00	14.12	
Deep	87	43.50	14.62	
		% JARS		
Jars	370	100.00	62.18	9.96
Low Neck Jars	219	59.18	36.80	
High Neck Jars	151	40.81	25.37	3.65
		% Low Neck		
Low Neck Jars				
Light flare	187	85.38	31.42	
Medium flare	27	12.32	4.54	
Neckless	5	2.28	0.84	
		% High Neck		
High Neck Jars				
Light flare	36	23.84	6.05	
Medium flare	104	68.87	17.47	
Sharp flare	11	7.28	1.85	
		% COMALES		
Comales	25	100.00	4.20	0.61

3. Sharp Flare

Sample. 11 rim sherds, or 7% of the high necks. All are unburnished except one red slip (Figure 12,g). All other characteristics are the same as the other high neck jars.

Painted and Slipped Ware

All non-utility vessels with any form of painted decoration or slip are included in this category (Figures 14,a-e; 15; Plates 9-11).

Sample. A total of 742 rim sherds, or 18% of the entire collection fall within this category.

Color and Surface Treatment. Most of this ware has a burnished surface (66% of the Painted and Slipped). About half have a red slip on the interior and/or exterior surface. 22% have a plain tan surface. Other colors represented are cream, dark brown, and orange.

Paste. Identical to the Monochrome Ware exhibiting the same degree of coarseness and range of colors.

Form. Almost all (94%) have a direct round lip which is the most common form of the hemispherical bowls. 39 have a slight eversion and only two have a bolstered slightly everted lip.

Red/Buff

This group, while having some sherds with miscellaneous designs, consists almost entirely of the typical monochrome tan paste with a red band and/or a red slip (Figure 15; Plates 9-10).

Sample. 573 sherds, or 77% of the Painted and Slipped Ware.

Paste. Identical to the Monochrome Wares in color, fineness, and dark cores.

Color and Surface Treatment. Almost all are tan in color with a few dark brown. Almost all are burnished both on the interior and the exterior surfaces.

Form. 96% are hemispherical with only 19 flat bottom bowls. All have direct round or slightly tapered lips.

Size and Thickness. The same range and averages as the monochrome hemispherical bowls.

Decoration. A number of different combinations of red bands and slips were categorized and each will be tabulated separately.

1. Interior Plain/Exterior Red Band. 103 rim sherds, or 18% of the Red/Buff. 34 have a 1.0 to 3.0 cm wide band located 0.5 to 3.0 cm below the lip. 46 have a similar band up to the edge of the lip. On three, the band runs over the top to about 0.5 cm down the interior wall. 4 have a double band, one on the lip and the other in a medial location, 1.0 to 2.0 cm down the exterior wall. One sherd has a band 0.5 cm down the exterior wall but is cross-hatched instead of solid (Plate 9,g).

2. Interior Band/Exterior Plain. 57 sherds, or 10% of this group. Three of these have an orange paste with a band on the interior lip surface. 39 have an interior band up to the lip. 17 have a medial band 1.0 to 3.0 cm down the interior wall surface.

3. Interior and Exterior Red Band. 47 (8%) of the Red/Buff. The band is 0.5 to 2.0 cm wide and goes over the lip and down both sides of the wall.

4. Interior Red Band/Exterior Red Slip. 9 sherds (1.6%).

5. Interior Red Slip/Exterior Red Band. 74 sherds, or 13% of the Red/Buff. 58 have a labial band and are large shallow hemispherical bowls. 16 have a medial red band.

6. Interior Plain/Exterior Red Slip. 9 sherds (1.6%).

7. Interior Red Slip/Exterior Plain. 221 sherds (40%) of the Red/Buff. By far the most common type.

8. Interior and Exterior Red Slip. 53 sherds. Four of these are flat bottom bowls.

Discussion. Extracting the most common characteristics, this type can be summed up as a medium size hemispherical bowl with a direct lip. It has a burnished tan paste with a wall thickness of about 0.4 to 0.5 cm. It most frequently has an interior red slip and exterior red band on the lip.

Coyotlatelco Red/Buff

Included in this group are sherds which manifest design motifs characteristic of a type previously found at other sites (Plate 10).

Sample. 42 rim sherds or 5.7% of the Painted and Slipped Ware.

Paste. The paste is identical to the monochrome tan wares with a medium coarseness and dark cores.

Color and Surface Treatment. Buff paste burnished on both surfaces.

Form. 90% are hemispherical bowls with only a few (4 sherds) flat bottom bowls. The lips are direct round.

Size and Thickness. The hemispherical bowls are small to medium with a small base.

Decoration. In most cases the design is on the interior surface. Generally, the pattern consists of two predominant designs bordered by parallel red bands.

1. "S" Series. 23 rim sherds (Plate 10). Most have an interior red band up to the lip, and in several it runs over the lip and down the exterior wall 1.5 cm. In a few sherds the red band is located 1.5 cm down the exterior wall. Almost all have a single set of parallel lines bordering the design motif. Two sherds have a set of double parallel lines. Repetition of design pattern directly below the initial one is frequently the case. Most often the design is rather sloppily executed.

2. Undulating Line. This form is identical to the "S" Series except that in one case the bowl is flat bottom with a basal break and a slightly everted lip (Plate 10). Single parallel lines border the design. Some have a very thick band (1.0 cm) and these, in particular, have a sloppily executed design. Most of the undulating lines are irregular, and only one has a uniform design. On some sherds there are 2 to 3 parallel spirals instead of the single undulating line.

3. Miscellaneous Design. 8 sherds: four flat bottom and four hemispherical (Plate 10). Interior and exterior designs.

Discussion. To sum up the Coyotlatelco Red/Buff, two designs predominate: the "S" and undulating line. They are generally medium hemispherical bowls with medium paste and a wall thickness of about 0.4 to 0.5 cm. The design is on the interior but occasionally is on the exterior.

Mazapan Wavy Line Red/Buff

Sample. Two sherds (Plate 11,i).

Paste. Tan, fine to medium grain, slightly finer than the Coyotlatelco Red/Buff. White inclusions.

Color and Surface Treatment. Tan burnished, slightly darker than the Coyotlatelco Red/Buff, but greyer in hue and not as highly burnished.

Form. Hemispherical bowls

Size and Thickness. Medium diameters, wall thickness approximately 0.6 cm.

Decoration. Parallel wavy lines, red band, and diverging sets of parallel wavy lines (Plate 11,i). A thin red band is always on the rim.

Toltec Red/Buff

Sample 8 sherds (Plate 11,j).

Paste. Tan to bright orange. The tan is medium grain while the orange is slightly finer. All have small white temper particles.

Color and Surface Treatment. Tan to bright orange burnished.

Form. Hemispherical.

Size and Thickness. Medium diameter, wall thickness averaging approximately 0.5 cm.

Decoration. Interior designs: red band on the lip and large concentric circles, poorly executed. The edges are very rough and apparently the surface was burnished after the application of the red paint.

Wide Band Red/Buff

Sample. 5 rim sherds (Figure 11,k).

Paste. Tan to orange with white inclusions. The tan paste is medium grain; orange paste is medium to fine grain.

Color and Surface Treatment. Well burnished interior and upper half of exterior surface. Dark tan to brown surface color.

Form. Shallow hemispherical bowls about 8.0 cm in height with, direct round lips. One small sherd could be from a flat bottom bowl.

Size and Thickness. Medium diameter with range of wall thickness of 0.6 cm to 0.8 cm.

Decoration. A 2.0 to 4.0 cm wide red band runs from the lip down the interior surface. The red is darker than the other Red/Buff tending towards a maroon color and is generally well burnished.

White/Red

Sample. 19 rim sherds (2.6 %) (Plate 11,k).

Paste. Tan to dark tan with black cores.

Color and Surface Treatment. Tan paste as in the Monochromes, usually well burnished. Most often there is a red slip on both interior and exterior surfaces.

Form. All are hemispherical bowls with direct round lips except two which are flat bottom flare sided.

Size and Thickness. Medium diameter with wall thickness averaging 0.4 cm.

Appendages. Three body sherds retained supports or fragments of supports. One has solid sub-conical support about 0.2 cm long. The others are very small nubbin supports.

Decoration. The designs, in contrast to the other decorated wares, appear on the exterior surface. They consist of white paint applied over a red slip similar to the cream slip which easily wears off. In many cases the white is worn so thin that the red can be seen through it. The most common forms are parallel horizontal medial bands down the entire wall and extending on the base. Other patterns are simple curvilinear designs.

Polychrome

Sample. This group represents 1.2% of the Painted and Slipped Wares. It has been divided into two types.

A. Huastec 6 Polychrome

Two sherds from a single vessel have convex sides. The bowl is very shallow, approximately 0.2 cm in height with a flat base. The paste is a fine grain tan. Brown bands are painted on the lip and base with alternating orange bands. This same orange is used for an exterior slip over the entire side wall.

B. Cholula Polychrome

Three sherds: 1) Medium flat bottom bowl; the surface is covered with an orange slip and an interior design consists of thin brown horizontal and vertical lines and thick red medial and labial band. 2) A medium flare flat bottom bowl with large diameter. The paste is grey and coarse grain and the design is on interior consisting of a brown lip band, dots and thin lines with a red medial band. 3) A small hemispherical bowl with tan paste has an interior red slip and exterior alternating bands of orange and red.

Cream Slip

Sample. 57 rim sherds (7.7%) (Figure 14,a-e; Plate 11,f-h).

Paste. Tan to orange. The tan is medium grained and the orange is slightly finer. Thick dark cores with white temper particles.

Color and Surface Treatment. The cream slip is very thin and flaky; most are badly worn off. The slip as well as the unslipped areas are always well burnished.

Form and Decoration.

1. Interior Slip. 40 rim sherds. Hemispherical; medium to large diameters. Two of these have a red band on the lip and exterior medial red bands.
2. Exterior Slip. 6 rim sherds. Flat bottom medium to slight flare; sides with slightly everted lips. One body sherd has a basal ridge and sloping base.
3. Interior and Exterior Slip. Forms include thin walled large flat bottom bowls, thin walled orange paste hemispherical, and very small thin walled hemispherical bowls. One sherd, from a hemispherical bowl, has a poorly executed Coyotlatelco Red/Buf design on the exterior surface. The slip on this sherd is much whiter than the others and has more of a waxy feeling. The paste is orange.

Size and Thickness. Medium to large diameters; wall thickness ranges from 0.4 to 0.8 cm averaging around 0.6 cm.

Negative Painting

Sample. 27 (3.6%) rim sherds; 40 body sherds (Plate 11,a-e).

Paste. All are tan paste with dark cores.

Color and Surface Treatment. Most have a highly burnished tan interior and exterior surface, but also included are dark brown to almost black sherds, as well as one red slip.

Form. All are hemispherical bowls with direct round or tapered lips.

Size and Thickness. Most are medium size diameters with a few large bowls. Wall thickness ranges from 0.4 to 0.6 cm, most around 0.5 cm.

Decoration. Designs most often occur on both interior and exterior surfaces but also on the interior only. Never do they occur on the exterior only. The most frequent design consists of rows or small dots banded on both sides oriented vertically or in concentric squares. Another frequent design consists of clusters of dots encircled by a band. On one case, spirals and concentric circles make up the pattern. The design is always the paste color, being created by the resist substance. The paint is usually a dark brown. In two cases, a deep red-maroon band occurs on the interior lip about 1.5 cm. wide. In one case, a red slip was applied first on the interior and exterior surfaces and then designs created by resist technique.

Table 6. Painted and Slipped Ware (742 rims, 19.49% of Total).		
	COUNT	PERCENT OF PAINTED AND SLIPPED WARE
Red/Buf	573	77.22
Coyotlatelco Red/Buf	42	5.66
Late Toltec Red/Buf	15	2.02
Negative Painting	27	3.64
Cream Slip	57	7.68
White/Red	19	2.56
Polychrome	9	1.21

Ladles

Sample. 363 rim sherds or 9% of the total complex (Plate 13,a-d).

Paste. Fine with dark cores. White temper particles. The tan paste is less fine than the orange and more porous.

Color and Surface Treatment. A range from bright orange to dull orange blending into tans and dark tans. 248 (68%) are orange color, the remaining are various shades of tan. Almost all have a low burnish, with only 15 having a higher burnishing.

Form. Deep trough ladles with a bowl at one end and a trough running the full length of the handle.

Size and Thickness. The bowl end ranges from 4.0 to 12.0 cm in diameter. Handle lengths range from 6.0 to 30.0 cm. There is no concentration of any particular size nor any size correlation with color. Wall thickness ranges from 0.2 to 0.6 cm.

Decoration. Only 3 sherds have any decoration, this being a narrow red band around the rim of the ladle.

Discussion. Both the large numbers and lack of burning or smudge marks make it unlikely that these are censer ladles, but instead probably were utensils, possibly functioning as ladles.

Table 7. Ladles.			
	COUNT	% LADLES	% TOTAL
Ladles	363		8.79
Large	194	53.44	4.70
Orange	125	34.43	
Tan	69	19.00	
Small	169	46.55	4.09
Orange	123	33.88	
Tan	46	12.67	
Orange (total)	248	68.31	6.00
Tan (total)	115	31.68	2.78

Thin Orange

Sample. 32 rim sherds or 0.78% of the total complex.

Paste. Medium to fine grain bright orange fired throughout. No dark cores. Paste is rather porous and contains white temper particles.

Color and Surface Treatment. Ranges from a dull greyish orange to a bright orange. The bright orange is much more highly burnished and has fewer irregularities in the surface.

Form. Medium to large hemispherical bowls. Some apparently have annular bases. One base fragment is from a flat bottom cylindrical vessel with hollow cylindrical supports.

Size and Thickness. Diameters range from 20.0 to 36.0 cm. Wall thickness ranges from 0.3 to 0.5 cm.

Decoration. Almost all sherds have a zoned punctate design consisting of a single or double row of punctations approximately 1.5 cm below the lip on the exterior wall. One sherd has a set of five parallel grooves below a single row of punctations. Others have one or two parallel grooves.

Discussion. Two pieces are quite similar to ear flares or spools on the thin orange effigy vessels mentioned by Kidder, Jennings, and Shook (1946, Figure 192) from Esperanza, or Middle Classic burials at Kaminalijuyu, Guatemala.

CERAMIC STRATIGRAPHY

One of our primary objectives is to determine if there is any evidence of internal phasing in the complex. This would enable us to more precisely establish the relationship of the Oxtotipac materials to the final or Metepec phases of Teotihuacan as well as to the Toltec styles. If phasing exists, we would expect to find an overall higher Teotihuacan-like assemblage in the lower levels and Xometla influences in the upper ones.

In order to evaluate any vertical differences in the ceramics, the nature of the deposits must be considered. As mentioned earlier, a major division in the 25 cm levels occurs between Level 3 and Level 4 where major differences in soil quality were observed; this was defined as the dividing point between the upper and lower zones. A second boundary is the clay floor found between Levels 1 and 2, dividing the Oxtotipac occupation from the Aztec and modern ones. Levels 2 and 3 contained approximately half of the total Oxtotipac wares from all levels. However, the largest absolute number of Oxtotipac sherds comes from Level 1, although it comprises a smaller percentage of the total count from the level.

In the flat bottom flaring and hemispherical monochrome bowls categories very little variation occurs in Levels 1-5, each comprising approximately one-third of the total count. Basal ridge bowls occur only in Levels 1-3 in approximately equal quantities. Ladles also show very little variation in prevalence in Levels 1-3. Basins have a slightly heavier concentration in Level 3, the lower of the two Oxtotipac levels.

Low neck jars in Level 3 predominate over high necks in almost a 2:1 ratio. In Level 2, the upper Oxtotipac phase level, their predominance increases to greater than a 3:1 ratio. In Level 1 the ratio reverses, and high necks predominate in over a 4:1 ratio.

We have mentioned that in the Oxtotipac Monochrome Bowls dark brown paste outnumbered the tan paste, the latter being more common in the Xometla materials. However, when the paste color of all vessels is considered, including the Utility and other wares, tan outnumbers the dark brown.

Red/Buf wares occur in almost identical percentages in Levels 1-4 as do the undecorated varieties. Coyotlatelco Red/Buf peaks in Level 2.

In viewing the complex as a whole, there seem to be no significant sequences to indicate internal phasing. The combined total of Levels 1-3, or 75 cm of stratigraphy, comprises 90.1% of the total collection. The other 9.9% is spread over five additional levels, the surface sample, and a feature. We, therefore, have only three levels with large enough samples for significant comparison.

It appears that the Oxtotipac phase materials are the result of a single occupation over a relatively short period of time and over a Teotihuacan occupation. Levels 2 and 3 are more homogeneous Oxtotipac, and while Level 1 has a higher quantity of Oxtotipac sherds, they are mixed with large numbers of Aztec and modern wares.

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APPENDIX I--Appendages

Supports

The reader should refer to Plate 14.

Solid Conical. 77 sherds or 29.8% of the supports. These range in length from 1.5 to 6.0 cm with a mode around 3.5 cm. They are sharply tapered from about 2.0 to 3.0 cm wide at the top to 1.0 cm at the tip. About 90% are tan unburnished paste. The remaining are dark brown, except 5 which are an orangish paste. Judging from those supports with parts of the vessel intact, most are from hemispherical bowls. This type also is exclusively associated with Coyotlatelco Red/Buf. Three sherds have a red slip on the interior bottom surface. Four others have Coyotlatelco designs. None have any design on the support itself, and they are always unburnished even in cases when the bowl is burnished.

Nubbin. Of the 53 nubbin supports 37 are dark brown, 13 orange, and 9 tan paste. Two have a red slip on the interior of the bowl. All appear to be from hemispherical bowls. They range from 1.0 to 1.5 cm in height. These supports along with the solid conical appear to be the only forms used for plain and decorated hemispherical bowls. One White/Red slip hemispherical bowl sherd includes a nubbin support.

Hollow Tubular. 81 sherds or 31.4% of the supports. This type is almost always dark brown and appears to be a discrete marker for the Oxtotipac complex. Generally, they are a 3.0 to 6.0 cm long cylindrical form with no tapering and with an open base. They were used on flat bottom flaring wall bowls, and, along with the exterior of the bowl, are very lightly burnished. Two orange paste sherds are included in this group. None of the sherds are decorated.

Hollow Tubular to Conical. A variety of hollow supports other than the open ended tubular variety are included in this group.

1. Seventeen of this group are simple cylindrical forms with a closed bottom (Plate 14) most often associated with hemispherical bowls. They range in size from 2.0 to 3.0 cm long and 1.5 to 2.0 cm wide. One has a red slip on the bowl bottom and one has a red exterior support. Four contain rattles.

2. Ten supports are rather bulbous or globular often with the bottom wider than the rest of the support. Their average size is approximately 5.0 cm long and 4.0 cm wide. Two have a red slip on the entire surface.

3. Ten are more conical in shape; a few have a mammiform-like shape. These have a large opening on the inner side. One orange paste support has a concentric circle design carved on the outer sides.

Bases and Handles

Annular Bases. 25 annular bases have a pedestal-like form. Most of these are tan paste with 8 orange, 2 red slipped, and 2 dark brown. They have little or no burnishing and range in size from 3.0 to 9.0 cm in diameter (Plate 14). Apparently they are from hemispherical bowls.

Handles. 181 handles were sorted. All are the single loop type with only a few minor variations. Most are tan unburnished from Utility Wares, particularly large jars. Generally they are vertically oriented. They range from 3.0 to 8.0 cm in length. Four of these are double loop while only 2 are twisted (diagonally slashed). Sixteen have either a red slip or red wash and 21 are orange paste.

Duck Effigy. A group of 34 sherds are effigies of ducks and appear to have been situated on the lips of hemispherical bowls (Plate 8). One has a red slip while most are a dark brown paste.

APPENDIX II--Oxtotipac Ceramic Classification Code Sheet

Column 1: Wares

- 1 monochrome bowls
- 2 painted and slipped
- 3 utility
- 4 thin orange
- 5 censers
- 6 ladles
- 7 exotics

Columns 2-3: Vessel Form--Rims

- 01 flat bottom bowl, sharp flare
- 02 flat bottom bowl, medium flare
- 03 flat bottom bowl, light flare to vertical
- 04 hemispherical bowl, small
- 05 hemispherical bowl, medium
- 06 hemispherical bowl, large
- 07 basal ridge
- 08 basin, shallow
- 09 basin, medium flare
- 10 basin, deep
- 11 comal, deep
- 12 molcajete
- 13 censer
- 14 low neck jar, light flare to vertical neck
- 15 low neck jar, medium flare
- 16 low neck jar, sharp flare
- 17 high neck jar, light flare to vertical neck
- 18 high neck jar, medium flare
- 19 high neck jar, sharp flare
- 20 tecomate
- 21 ladle, large, orange
- 22 ladle, small, orange
- 23 ladle, large, tan
- 24 ladle, small, tan
- 25 hemispherical bowl, size undetermined
- 26 low neck jar (neckless), lip only
- 27 basin, medium flare, medium angle
- 28 NOT USED
- 29 comal, shallow
- 30 flat bottom bowl, flare undetermined
- 31 basal ridge ?
- 32 cylindrical vessel

Columns 4-5: Color and Surface Treatment

- 01 black, burnished
- 02 black, unburnished and very lightly burnished
- 03 grey, burnished

- 04 grey, unburnished and very lightly burnished
- 05 dark brown, burnished
- 06 dark brown, unburnished and very lightly burnished
- 07 tan, burnished (buff)
- 08 tan, unburnished and very lightly burnished
- 09 orange, burnished
- 10 orange, unburnished and very lightly burnished
- 11 cream, burnished
- 12 cream, unburnished and very lightly burnished
- 13 red slip, burnished
- 14 red slip, unburnished and very lightly burnished
- 15 red wash, burnished
- 16 red wash, unburnished and very lightly burnished

Columns 6-7: Lip Form and Orientation

- 01 direct, round
- 02 direct, bolstered
- 03 incurved
- 04 slight everted
- 05 slight everted, bolstered
- 06 medium everted
- 07 medium everted, bolstered
- 08 strong everted
- 09 strong everted, bolstered
- 10 horizontal, narrow lip
- 11 horizontal, medium lip
- 12 horizontal, wide lip
- 13 external bevel
- 14 internal bevel
- 15 square
- 16 slight evert, angle
- 17 medium evert, angle
- 18 strong evert, angle
- 19 horizontal bevel
- 20 round, flat top
- 21 external bevel, bolstered

Columns 8-9: Decoration

- 00 undecorated
- 01 negative painting, interior
- 02 negative painting, exterior
- 03 negative painting, interior and exterior
- 04 incised, simple
- 05 incised, miscellaneous
- 06 stamped, simple
- 07 stamped, miscellaneous
- 08 red/buff, interior plain, exterior red band
- 09 red/buff, interior plain, exterior red slip
- 10 red/buff, interior red band, exterior plain
- 11 red/buff, interior red slip, exterior plain
- 12 red/buff, interior red band, exterior red band
- 13 red/buff, interior red slip, exterior red slip

- 14 red/buff, interior red band, exterior red slip
- 15 red/buff, interior red slip, labial red band
- 16 Mazapan red/buff
- 17 Toltec red/buff
- 18 Wide band red/buff
- 19 Coyotlatelco red/buff, parallel line, SSS
- 21 Coyotlatelco red/buff, parallel line, miscellaneous
- 22 Coyotlatelco red/buff, exterior miscellaneous
- 23 Coyotlatelco red/buff, interior miscellaneous
- 24 Coyotlatelco red/buff, interior and exterior miscellaneous
- 25 white/red
- 26 polychrome
- 27 cream slip, interior slip, exterior plain
- 28 cream slip, interior slip, exterior red band
- 29 cream slip, interior plain, exterior slip
- 30 cream slip, interior slip, exterior slip
- 31 cream slip, miscellaneous
- 32 red slip, exterior
- 33 red slip, interior
- 34 red slip, exterior and interior
- 35 red wash, burnished
- 36 red wash, unburnished
- 37 red/buff, interior red slip, exterior medium red band
- 38 red/buff, residual miscellaneous
- 39 horizontal denticulate ridge
- 40 horizontal diagonally slashed strip
- 41 excised band, dots
- 42 lug and vertical diagonally slashed strip
- 43 Coyotlatelco concentric circles

Columns 10-13: Square--Level Number

	FLAT BOTTOM		HEMISPHERICAL		BASAL RIDGE		LADLES	
	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.
Surface	8	24.3	12	36.4	0	0.0	4	12.1
Level 1	596	35.1	595	40.0	10	0.6	149	8.8
Level 2	495	36.3	537	39.4	6	0.4	121	8.9
Level 3	211	35.6	225	37.8	3	0.5	47	7.9
Level 4	16	33.4	15	31.3	0	0.0	5	10.5
Level 5	10	34.5	11	38.9	0	0.0	5	17.2
Level 6	62	40.0	6	30.0	0	0.0	0	0.0
Level 7	0	0.0	3	75.0	0	0.0	1	25.0
Level 8	0	0.0	1	100.0	0	0.0	0	0.0

	LOW NECK JARS		HIGH NECK JARS		BASINS	
	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.
Surface	1	3.0	3	9.1	4	12.1
Level 1	78	4.6	73	20.4	67	4.0
Level 2	83	10.1	39	2.9	64	4.7
Level 3	36	6.0	21	3.6	42	7.1
Level 4	6	12.5	3	6.3	2	4.2
Level 5	1	3.4	1	3.4	1	3.4
Level 6	3	15.0	1	5.0	2	10.0
Level 7	0	0.0	0	0.0	0	0.0
Level 8	0	0.0	0	0.0	0	0.0

Table 8. Quantification of Vessel Form by Level.

	UNDECORATED		RED/BUFF		DARK BROWN		TAN	
	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.
Surface	24	72.7	5	15.0	9	33.3	12	33.6
Level 1	1346	79.1	224	13.1	658	38.6	688	40.4
Level 2	1072	78.7	185	13.6	459	33.7	613	45.0
Level 3	457	76.9	187	14.6	179	30.1	270	45.5
Level 4	39	81.3	1	2.1	32	45.9	16	33.1
Level 5	23	79.3	3	10.2	12	41.3	7	24.1
Level 6	16	80.0	2	10.2	8	40.0	5	25.0
Level 7	3	75.0	1	25.0	1	25.0	1	25.0
Level 8	0	0.0	1	100.0	0	0.0	0	0.0

	COYOTLATELCO		MAZAPAN TOLTEC		NEGATIVE PAINT		STAMPED	
	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.
Surface	0	0.0	0	0.0	1	0.3	1	3.0
Level 1	13	0.8	2	0.2	5	0.4	21	1.2
Level 2	17	1.3	2	0.1	11	0.8	18	1.3
Level 3	5	0.9	2	0.3	6	1.0	8	1.3
Level 4	0	0.0	0	0.0	0	0.0	1	2.1
Level 5	0	0.0	0	0.0	0	0.0	0	0.0
Level 6	0	0.0	0	0.0	1	5.0	0	0.0
Level 7	0	0.0	0	0.0	0	0.0	0	0.0
Level 8	0	0.0	0	0.0	0	0.0	0	0.0

	INCISED		MISC. PLASTIC		CREAM SLIP		WHITE/RED	
	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.	Count	Rel. Freq.
Surface	0	0.0	0	0.0	2	6.1	0	0.0
Level 1	17	1.0	12	0.8	18	1.1	14	0.8
Level 2	12	0.9	5	0.3	19	1.5	5	0.3
Level 3	5	0.8	6	1.0	11	1.8	6	1.0
Level 4	2	4.2	1	2.1	1	2.1	1	2.1
Level 5	0	0.0	0	0.0	1	3.4	0	0.0
Level 6	0	0.0	0	0.0	0	0.0	0	0.0
Level 7	0	0.0	0	0.0	0	0.0	0	0.0
Level 8	0	0.0	0	0.0	0	0.0	0	0.0

Table 9. Quantification of Design Type by Level.

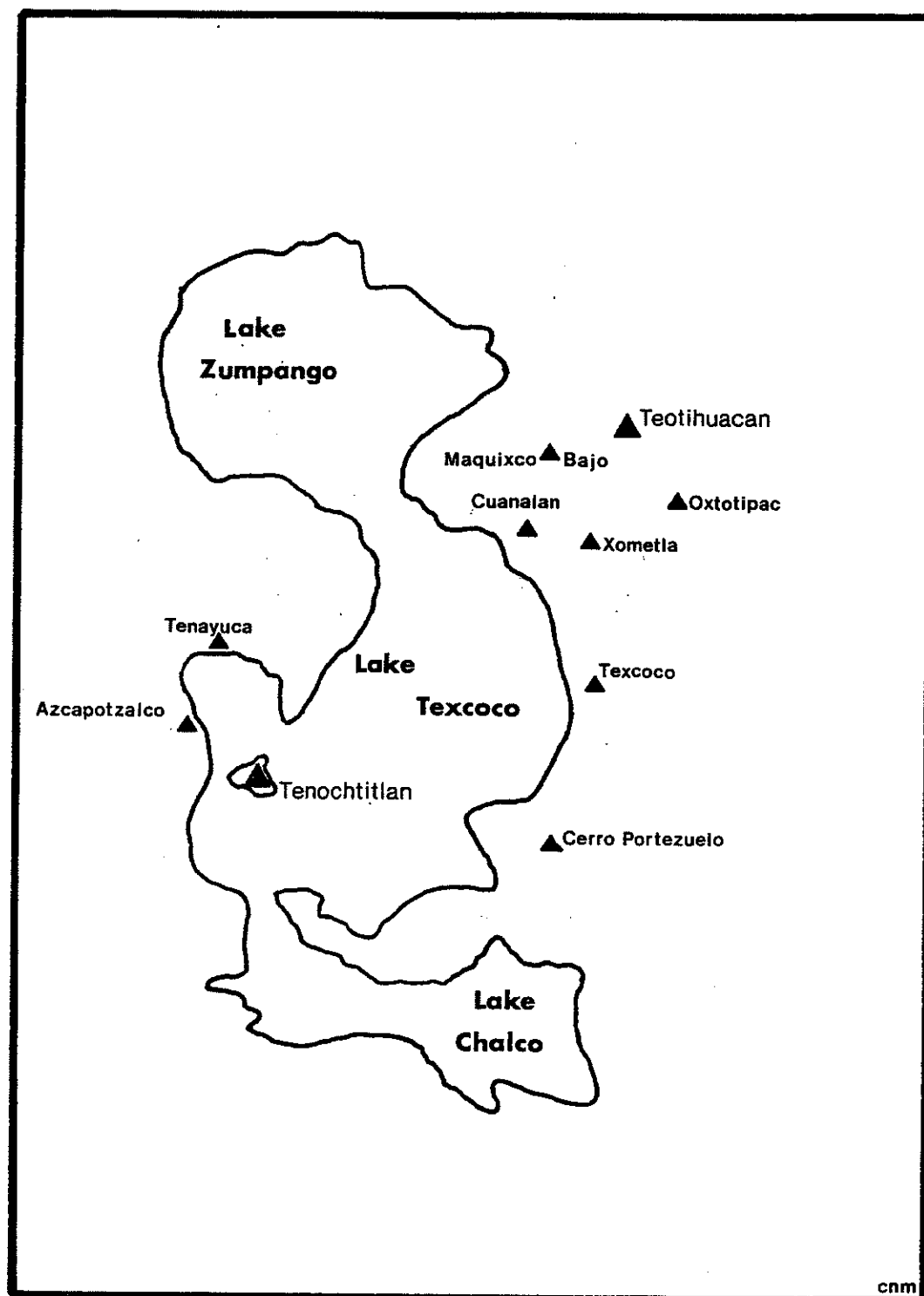


Figure 1. Basin of Mexico, Locations of Various Sites.

A.D. 1200			
1100	ATLATONGO		POST-CLASSIC
1000	MAZAPAN		PERIOD
900			
	XOMETLA		
800			
	OXTOTIPAC		
700			CLASSIC
	METEPEC		
600			PERIOD
	XOLALPAN		
500			
400			
300	TLAMIMILOLPA		
200			TERMINAL
	MICCAOTLI		FORMATIVE
100			
A.D. 0	TZACUALLI		
B.C. 100	PATLACHIQUE		
200			

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Figure 2. Valley of Teotihuacan Chronology.

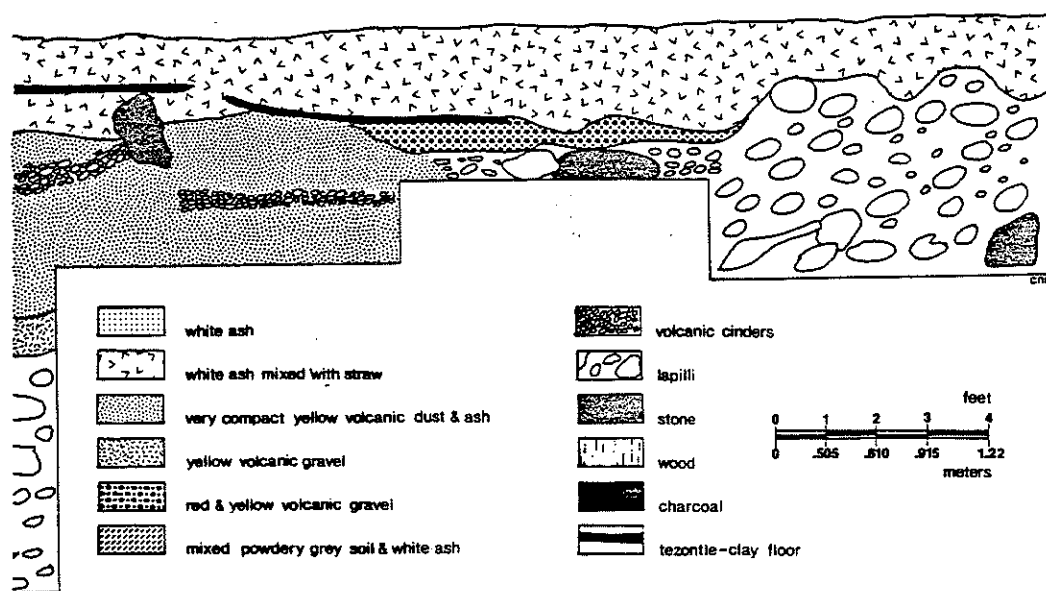
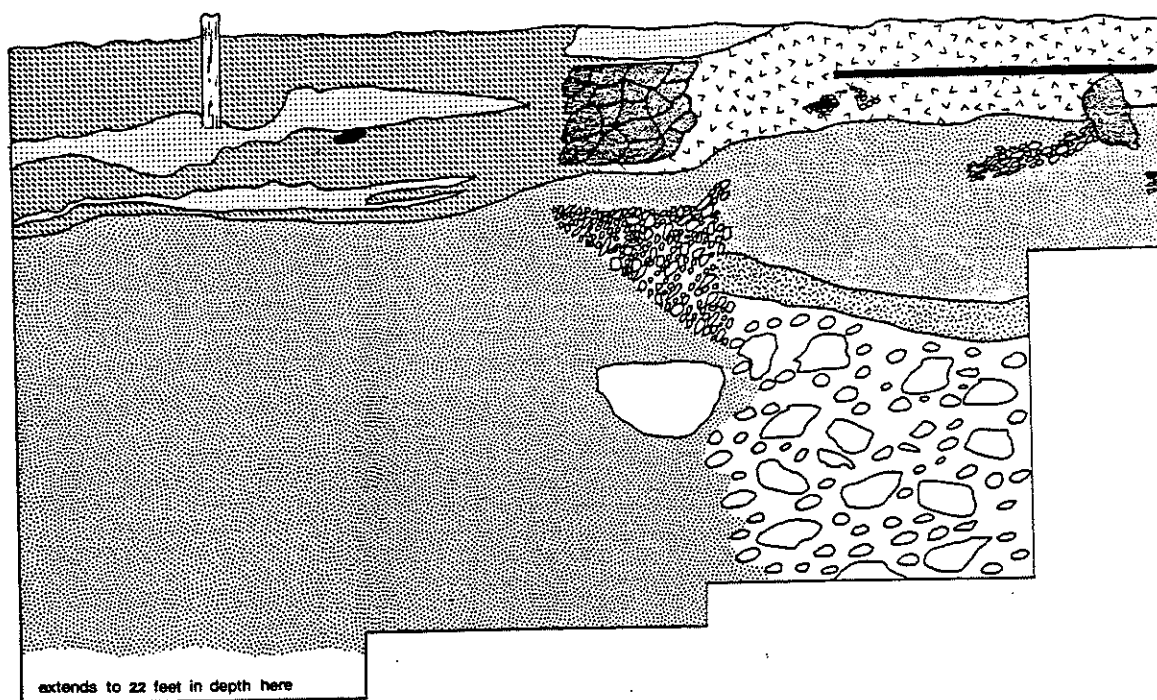


Figure 3. Huexotoc Cave, Oxtotipac, Mexico: Portion of Main Trench, East Face (Adapted from Obermeyer 1962).

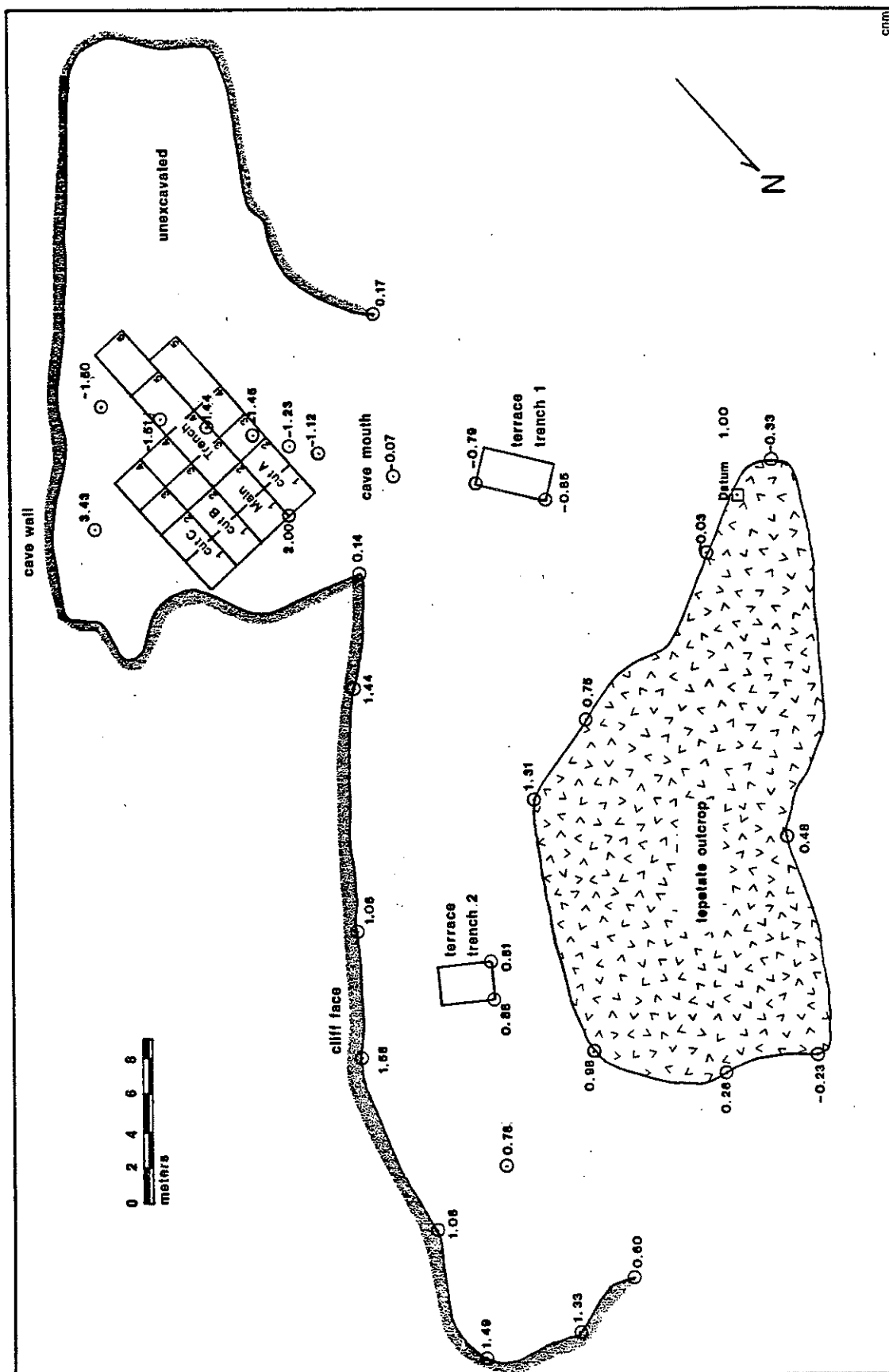


Figure 4. Huexotoc Cave, Oxtotipac, Mexico: Floor Plan of Excavations.

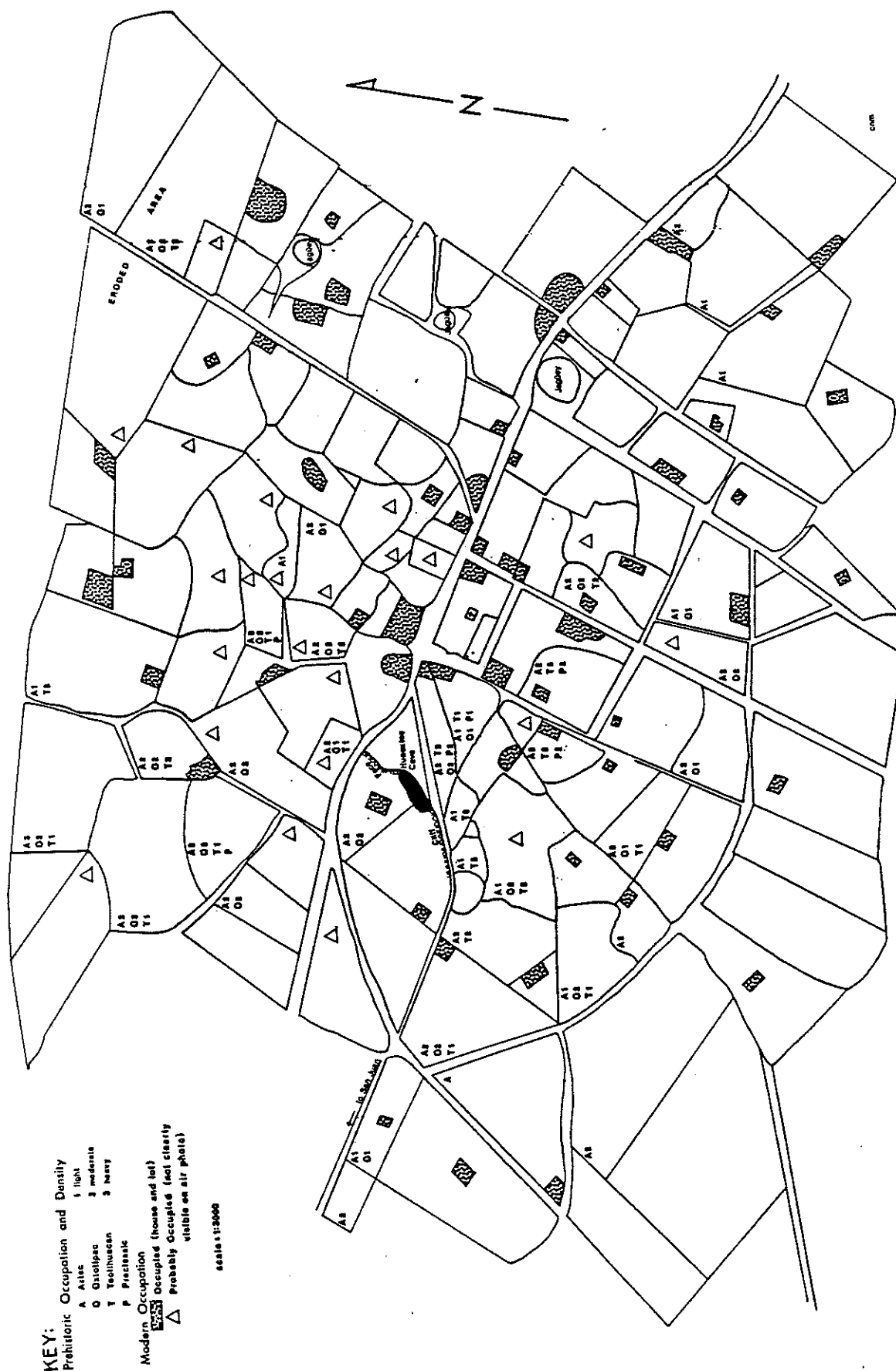


Figure 5. Settlement Pattern Survey Map of Oxtotipac.

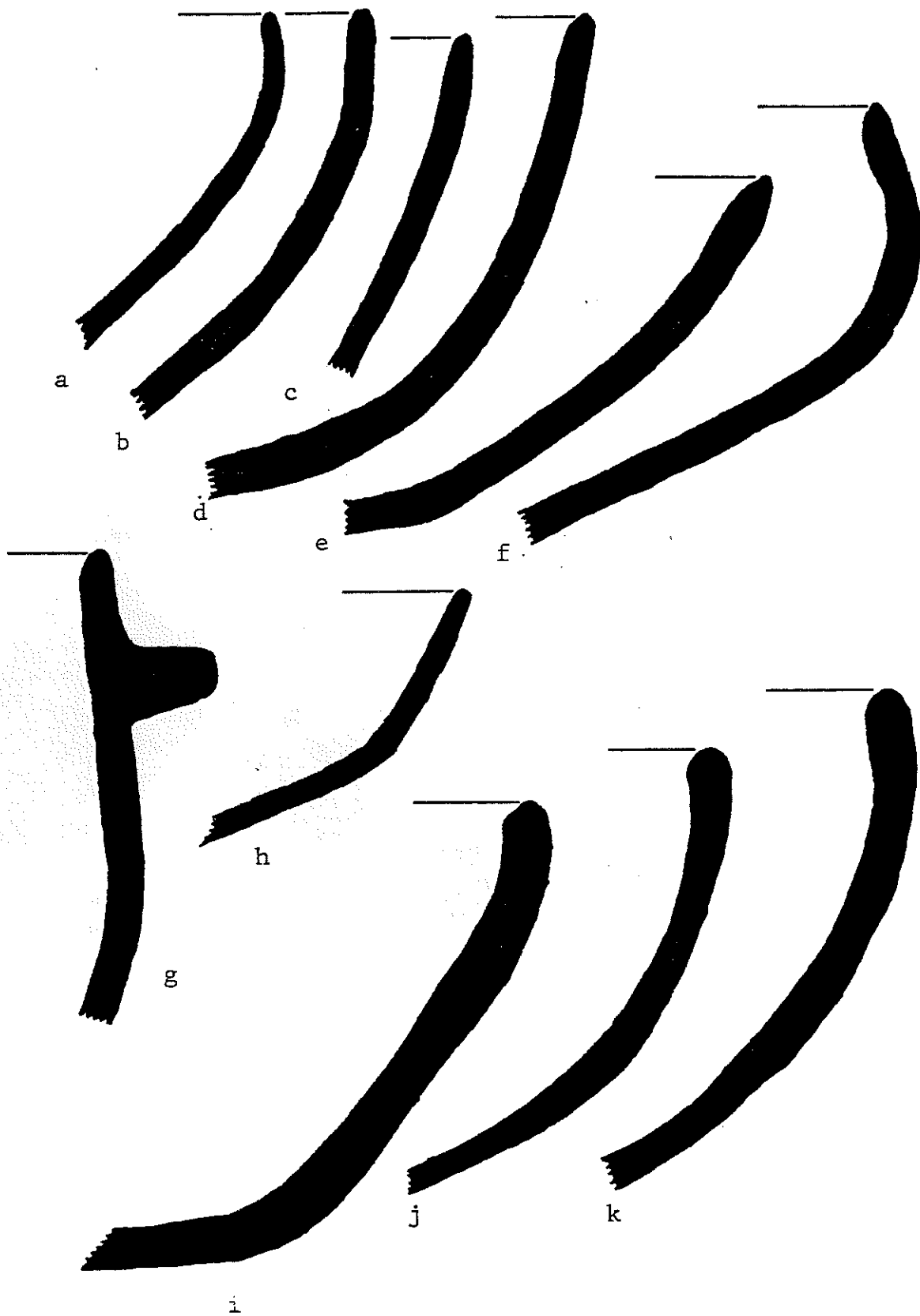


Figure 6. Monochrome Hemispherical Bowls.

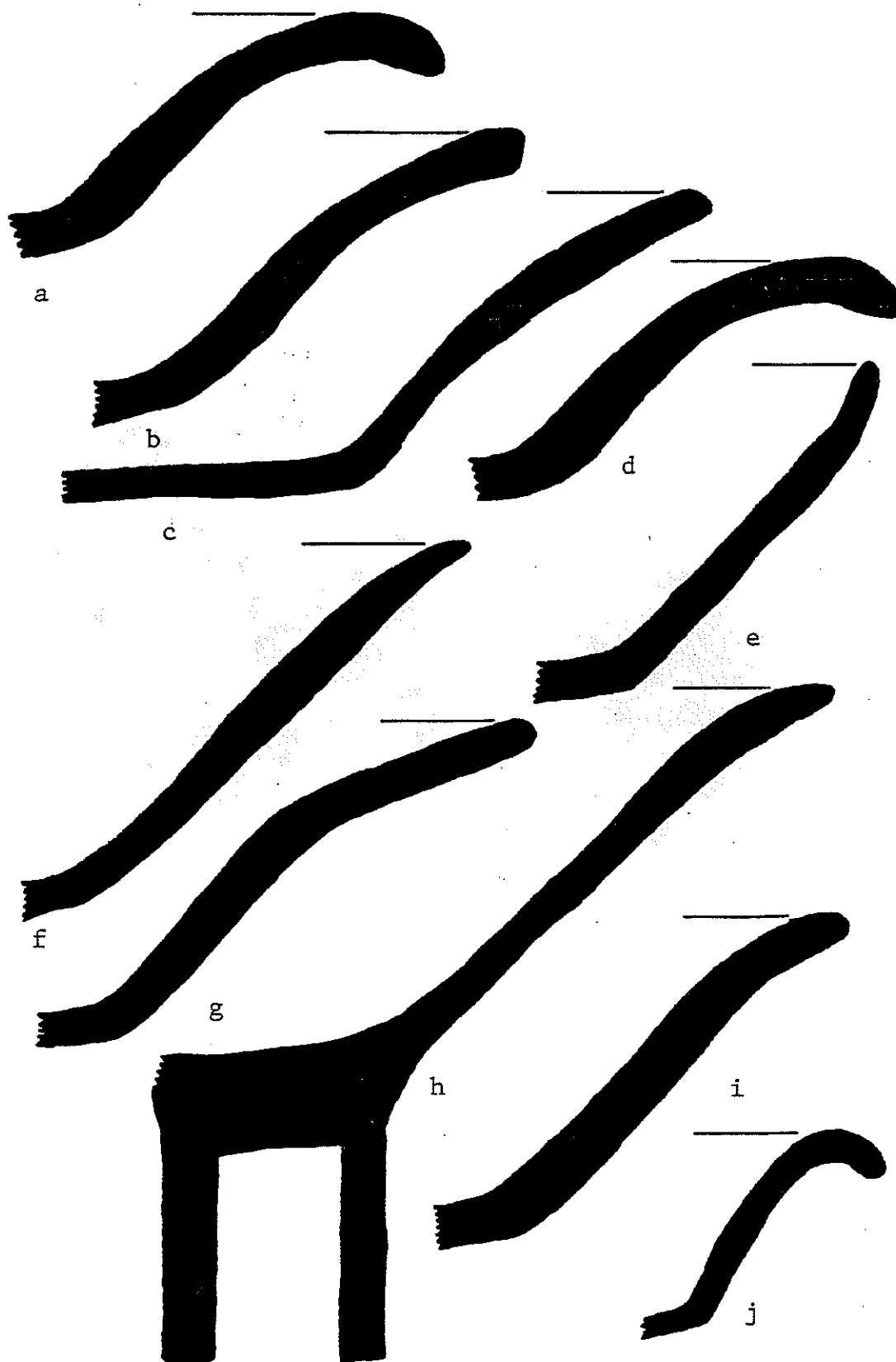


Figure 7. Monochrome Basal Break Bowls with Flat Base.

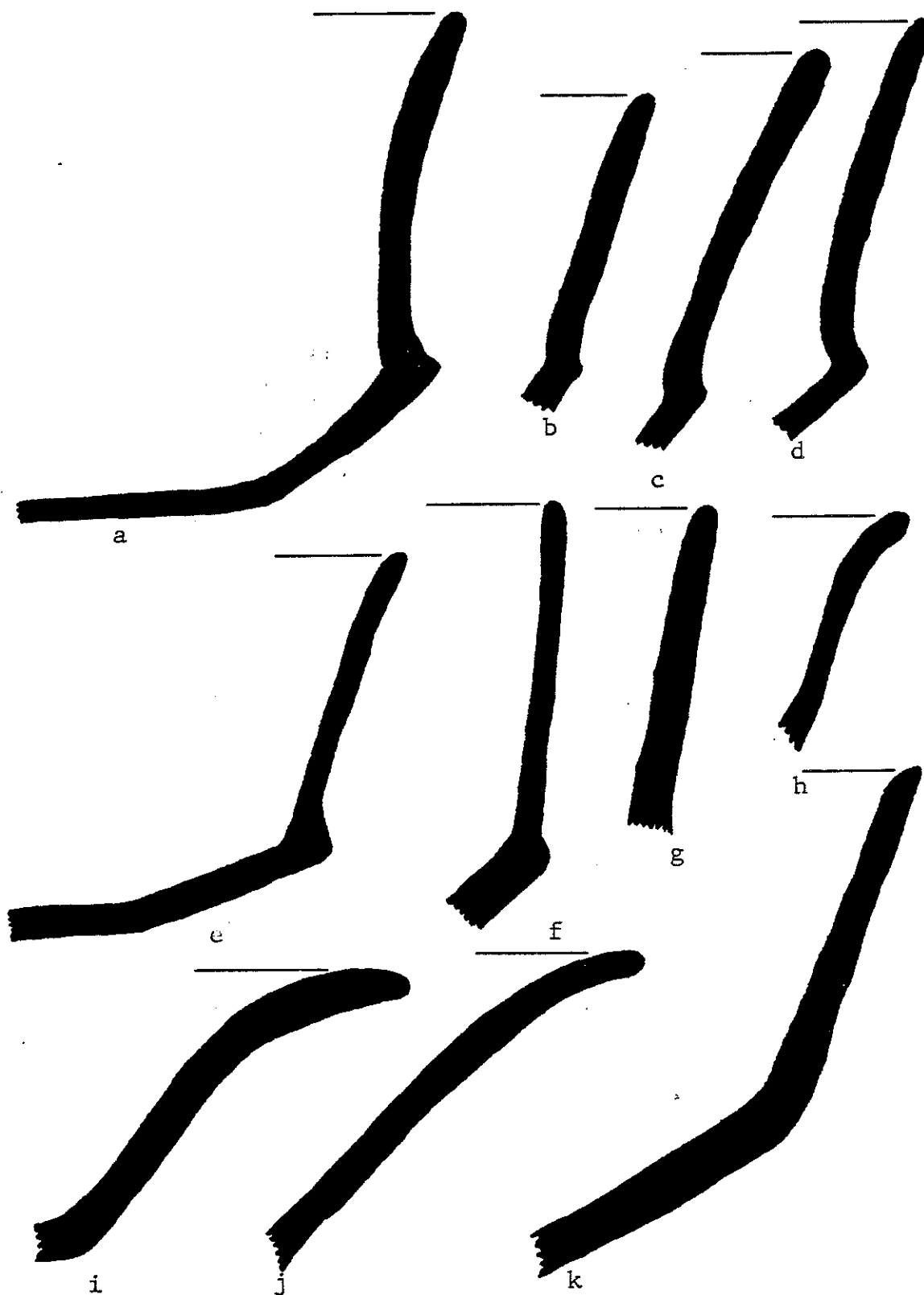


Figure 8. Monochrome Bowls. a-f: composite silhouette, g-k: basal break with flat base.



Figure 9. Basins.



Figure 10. Basins.

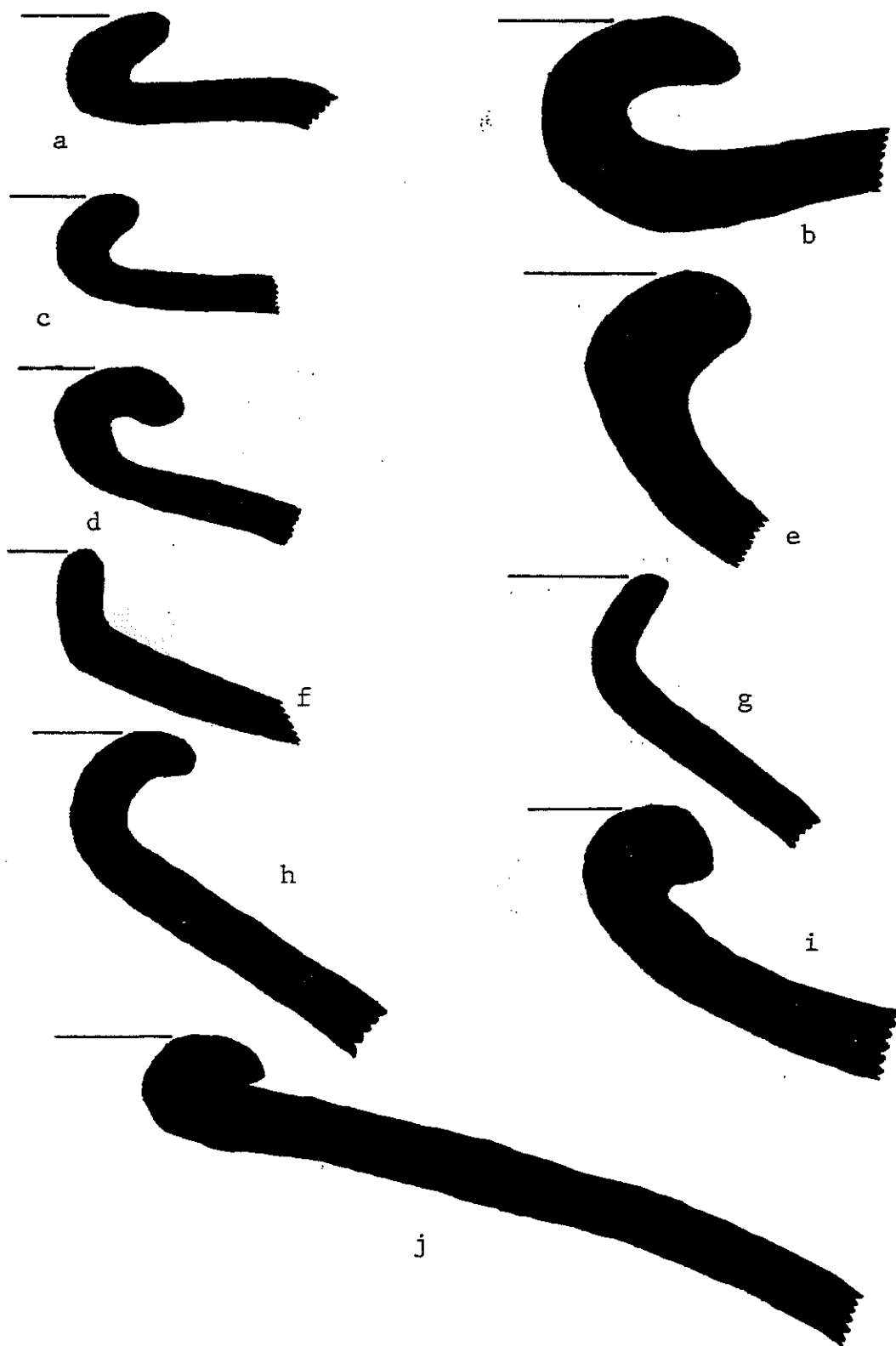


Figure 11. Low Neck Jars.

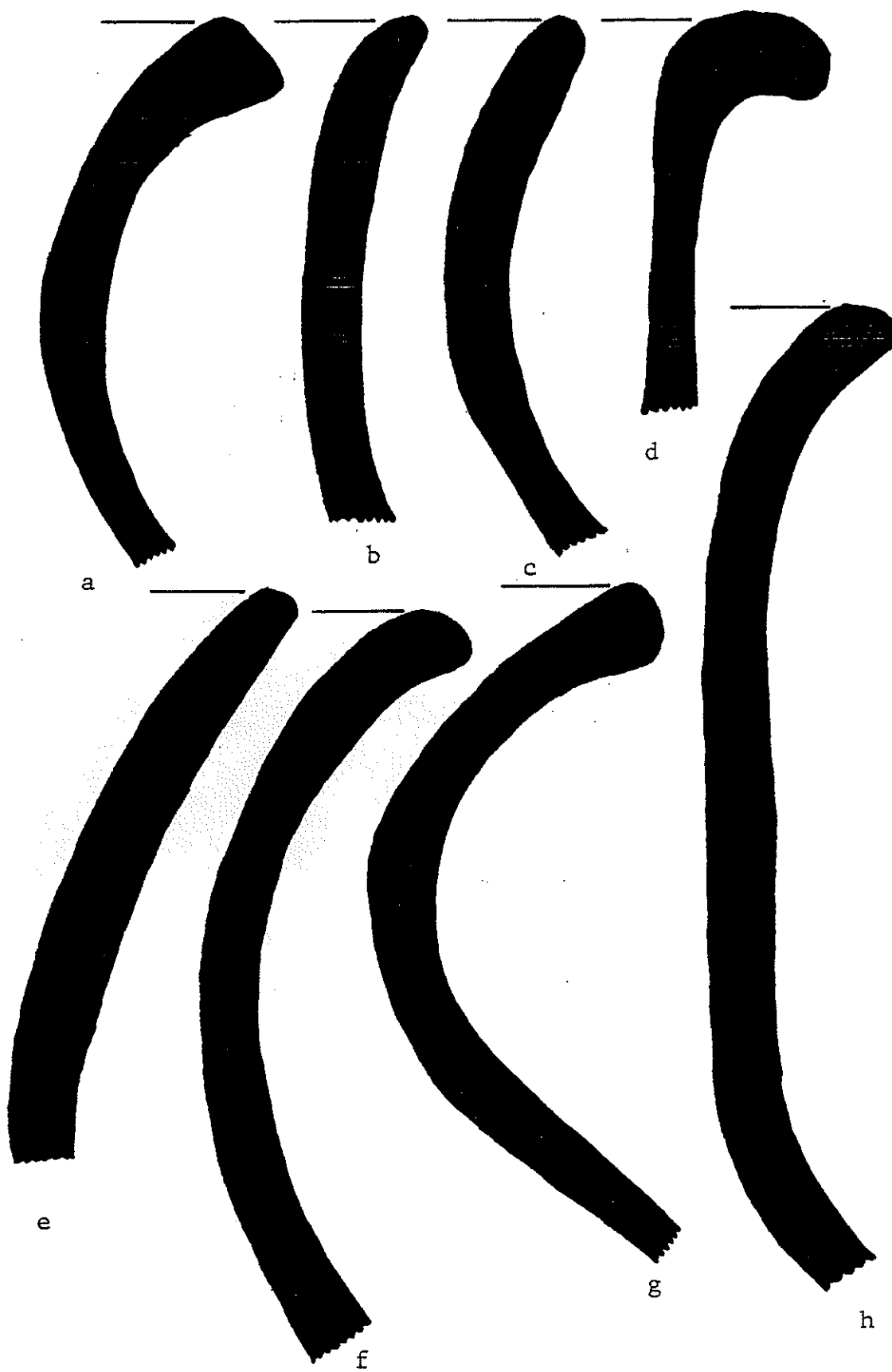


Figure 12. High Neck Jars.

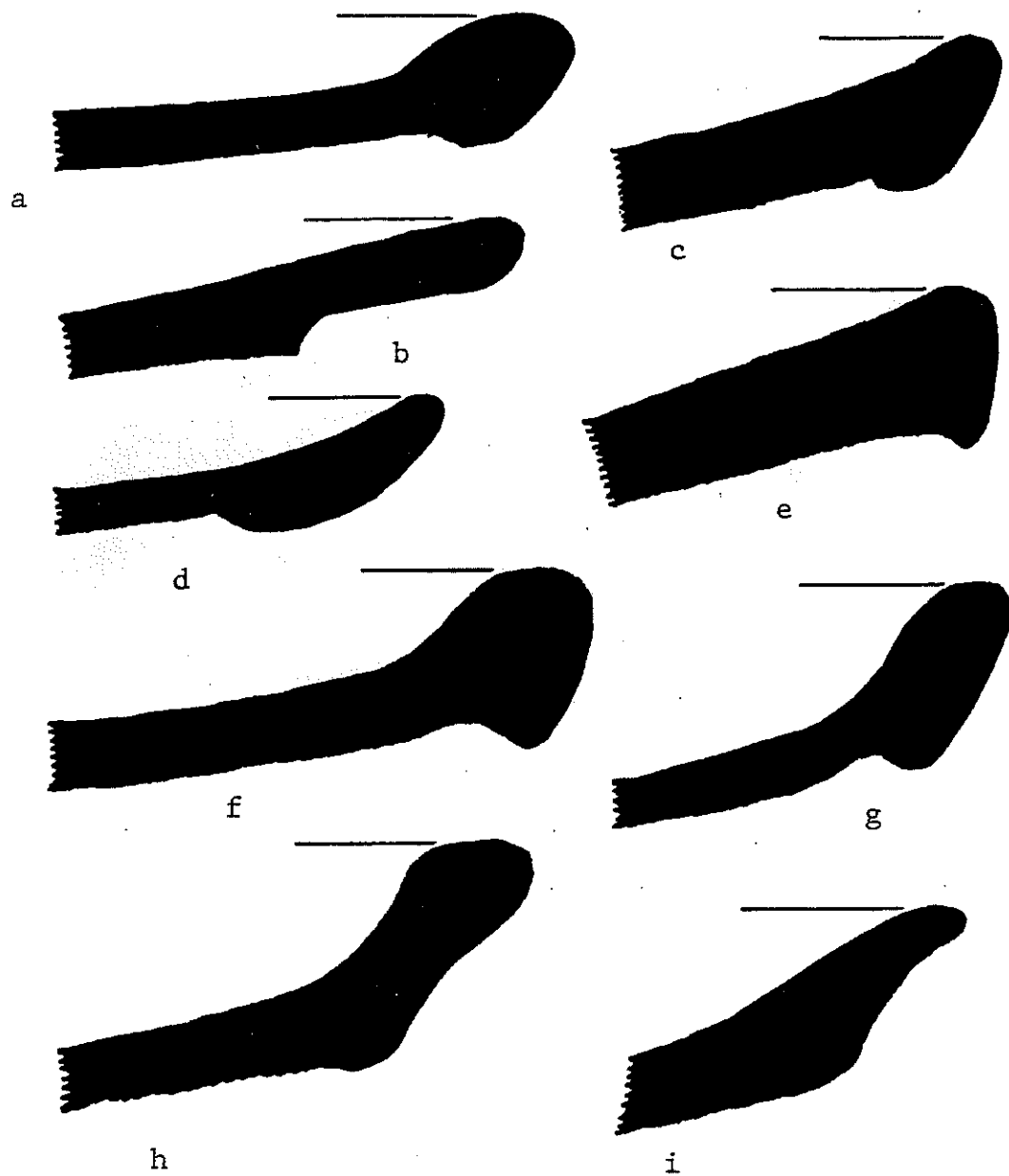


Figure 13. Comales.

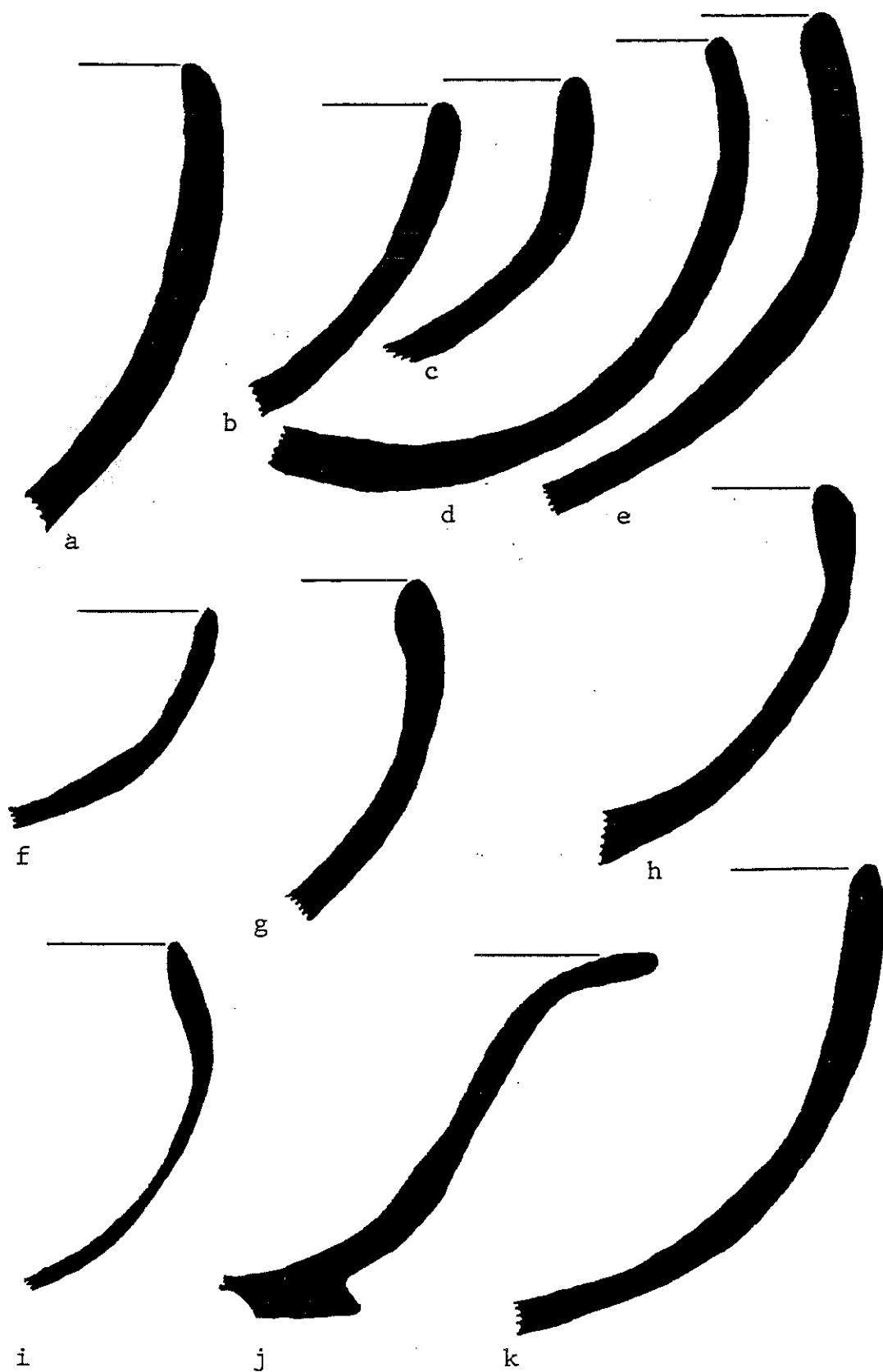


Figure 14. Hemispherical Bowls. a-e: cream slip, f-k: stamped design.

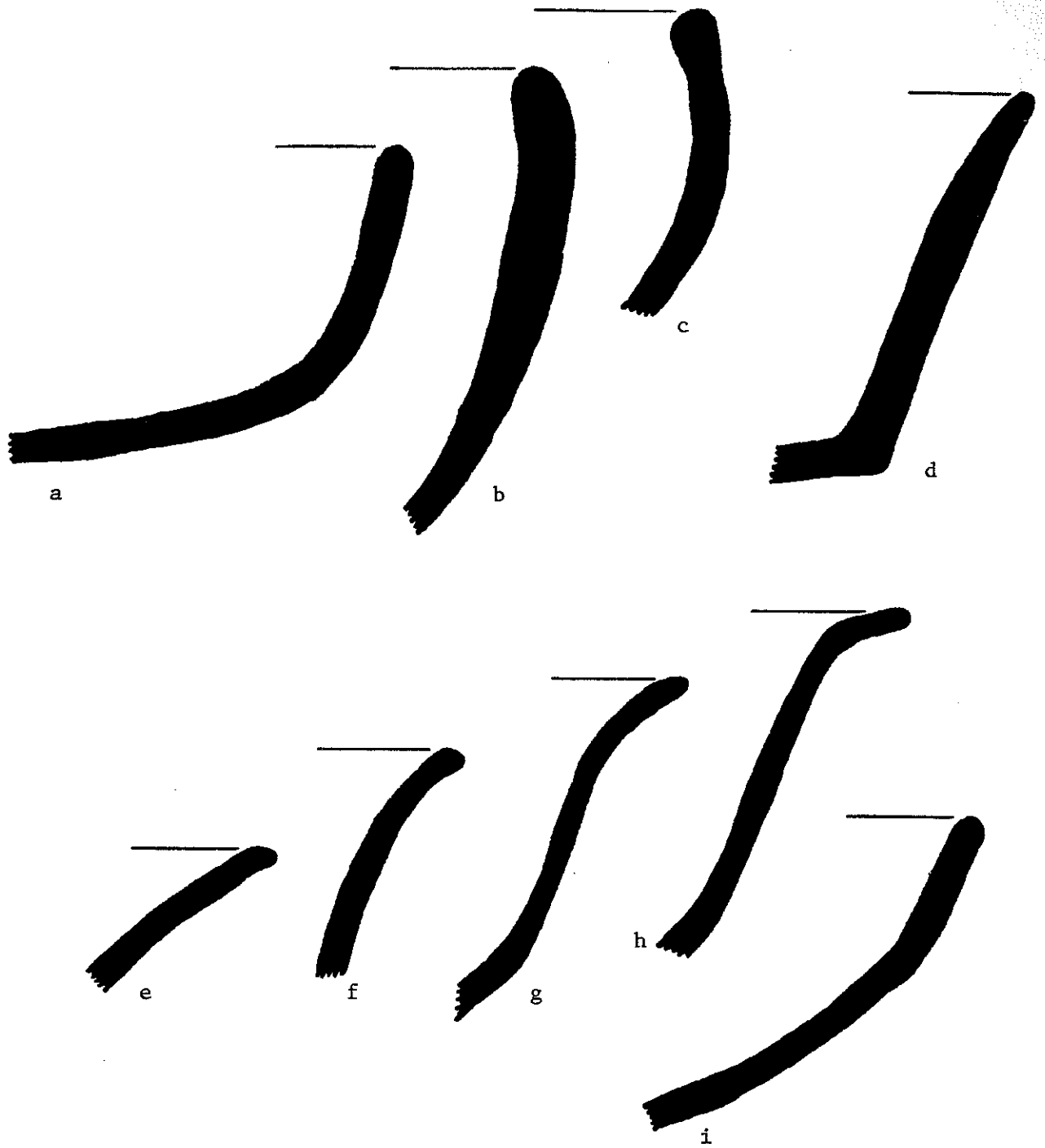
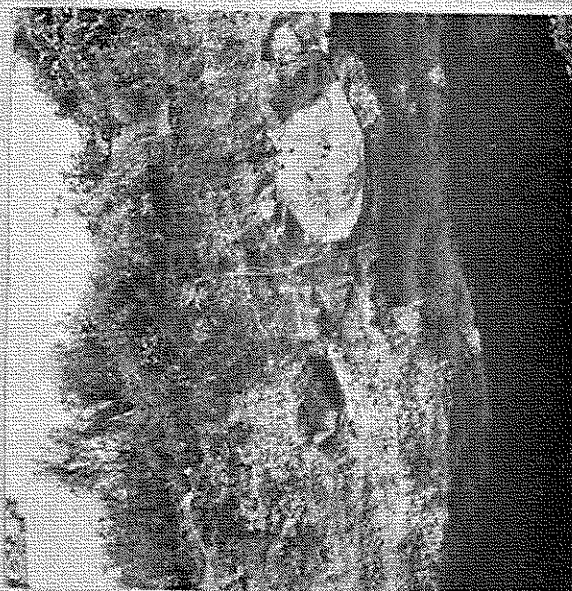


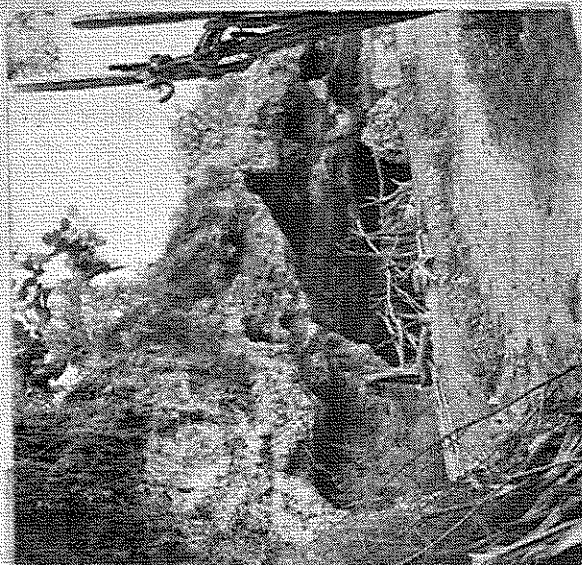
Figure 15. Red/Buf Vessels.



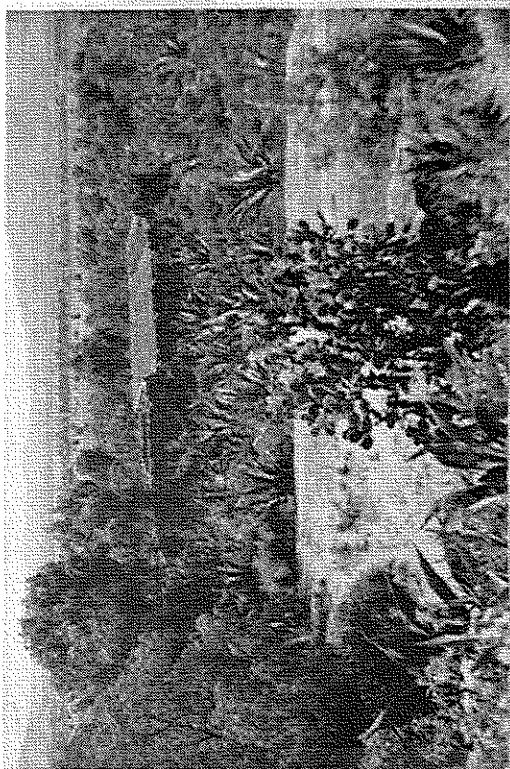
b



d



c

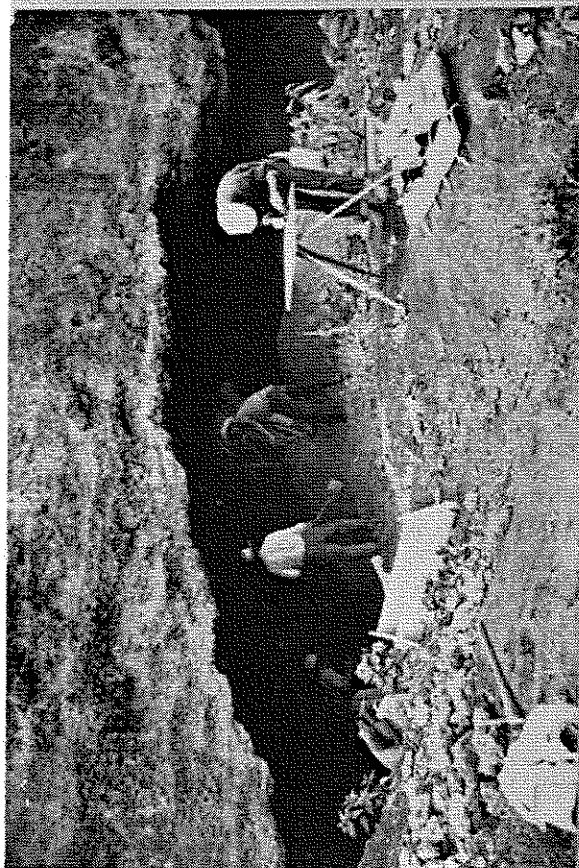


a

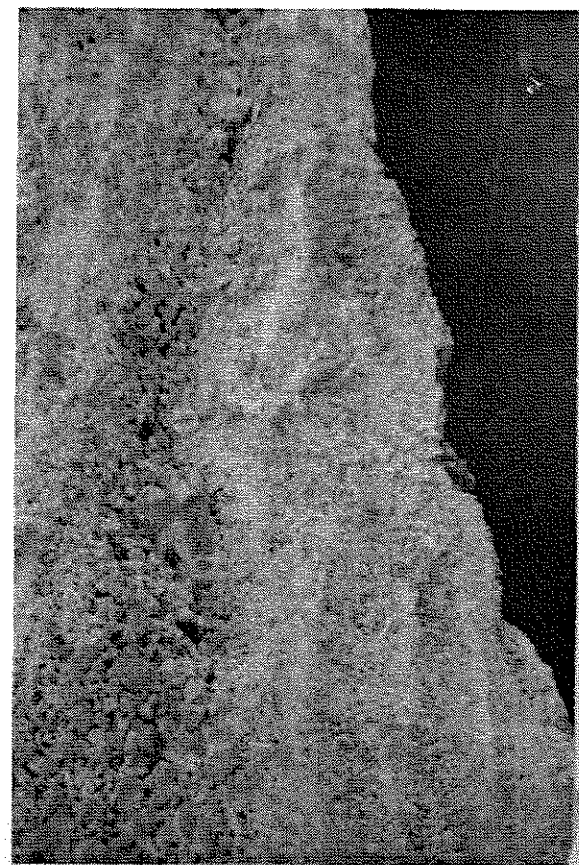


e

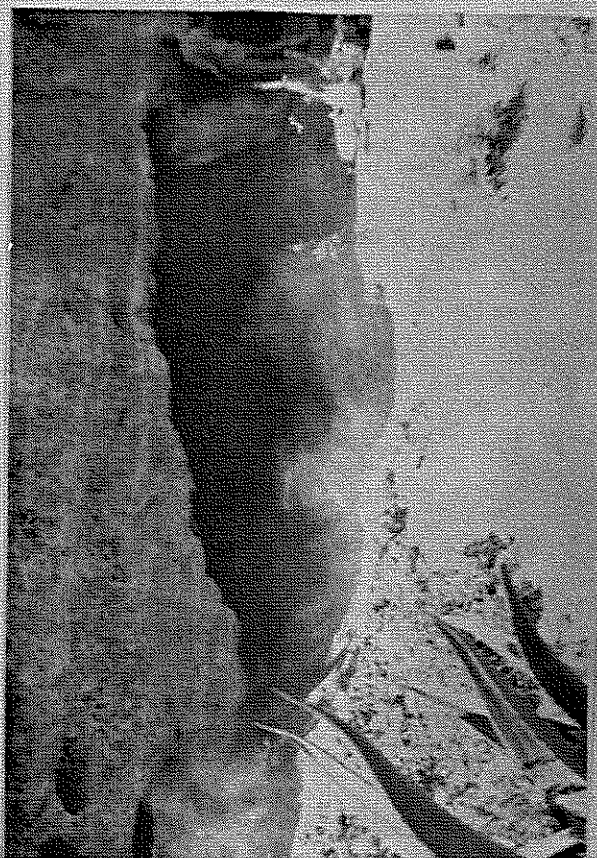
Figure 1. Burrows of the



a



b



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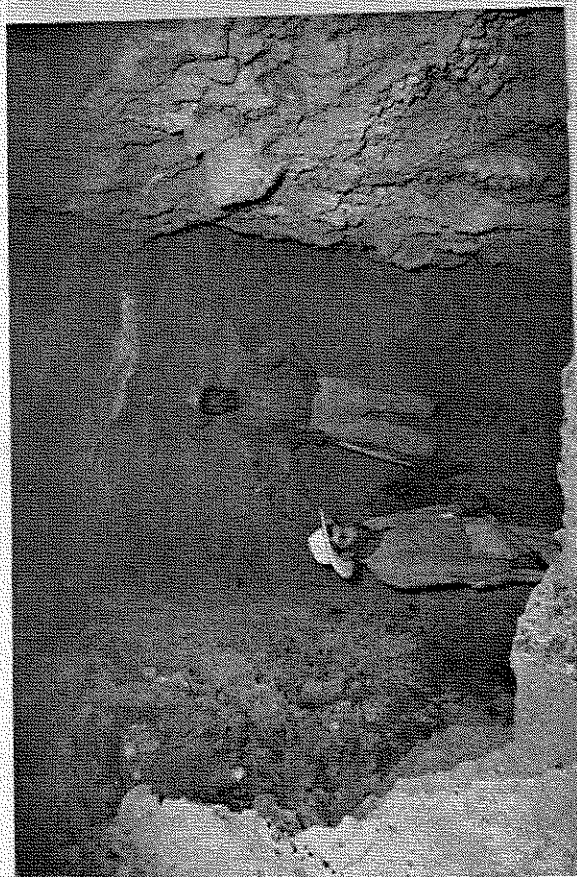
d



b



d



a

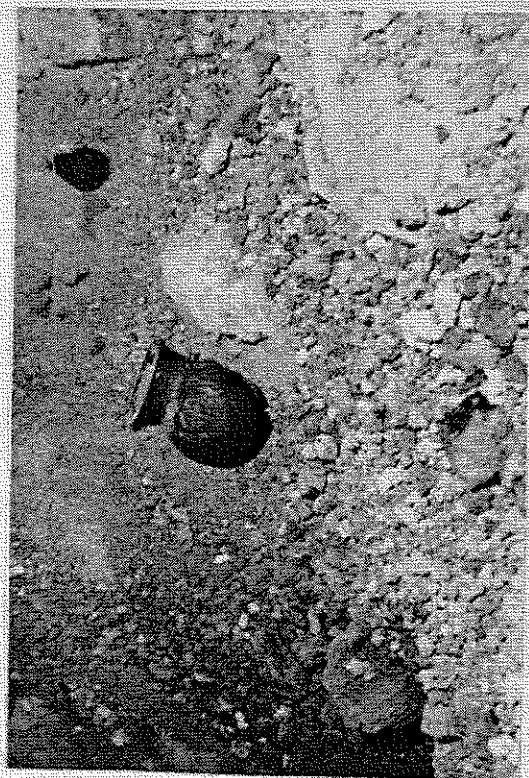


c

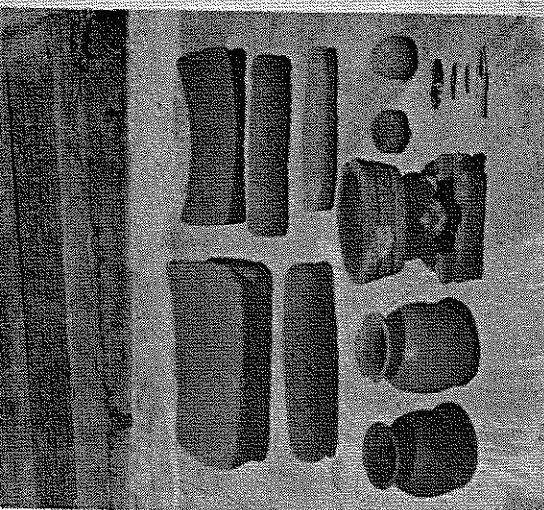
Plate 3.



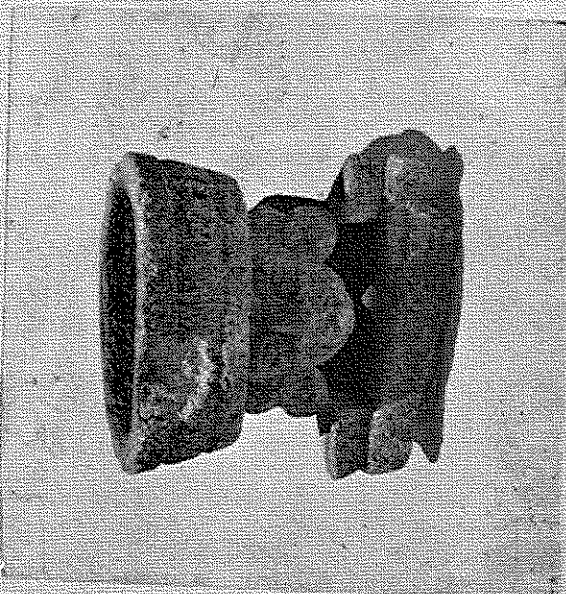
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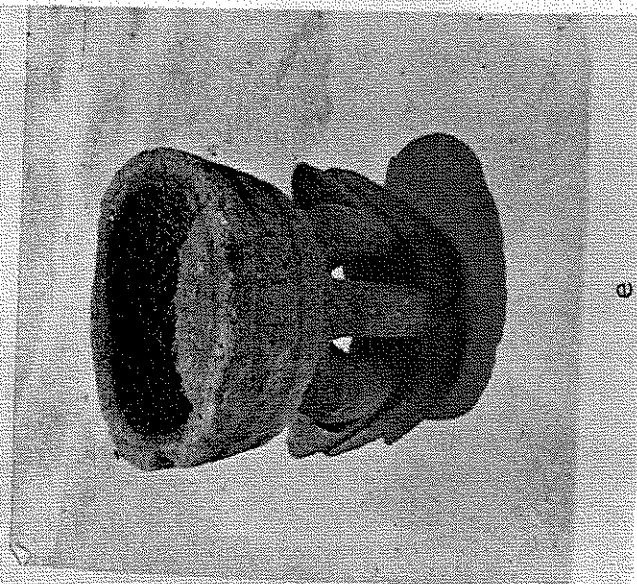
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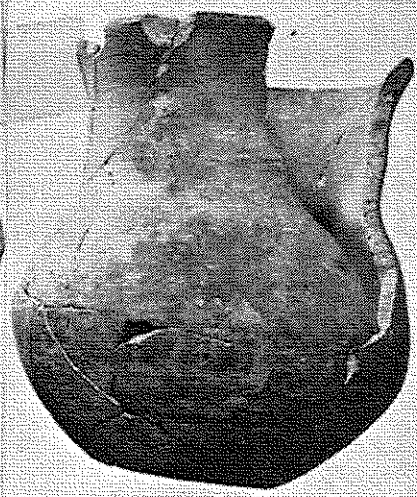
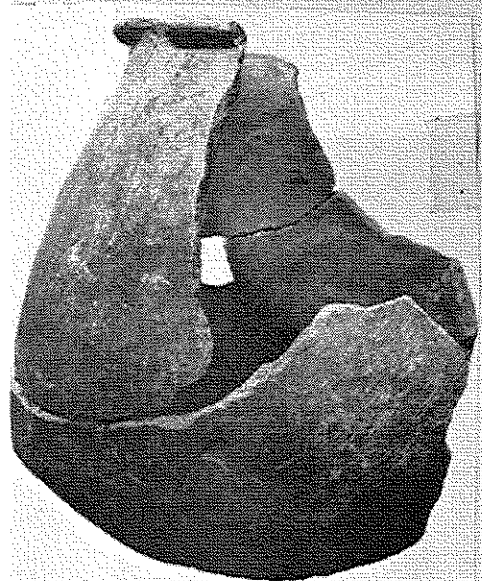
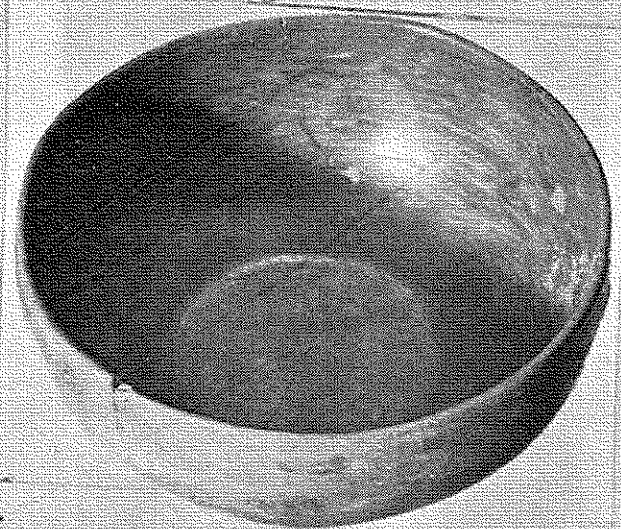
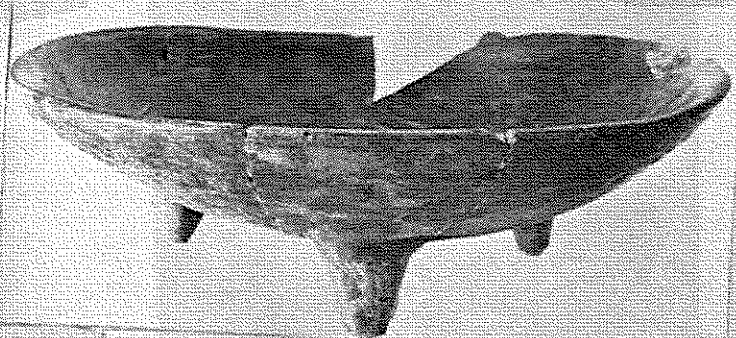
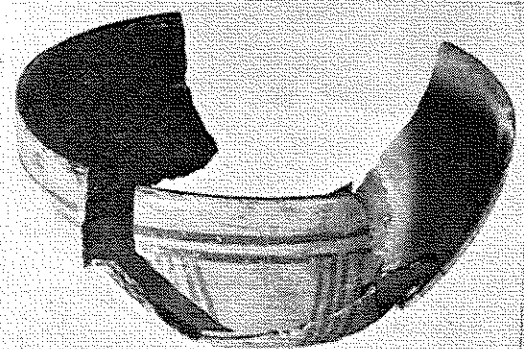
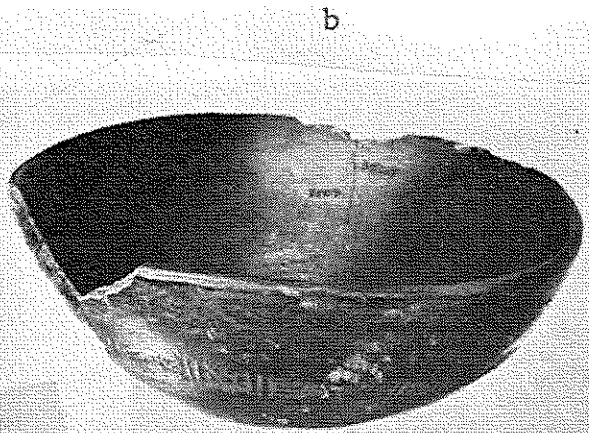
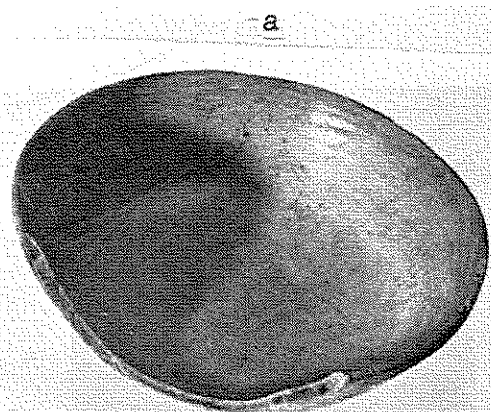


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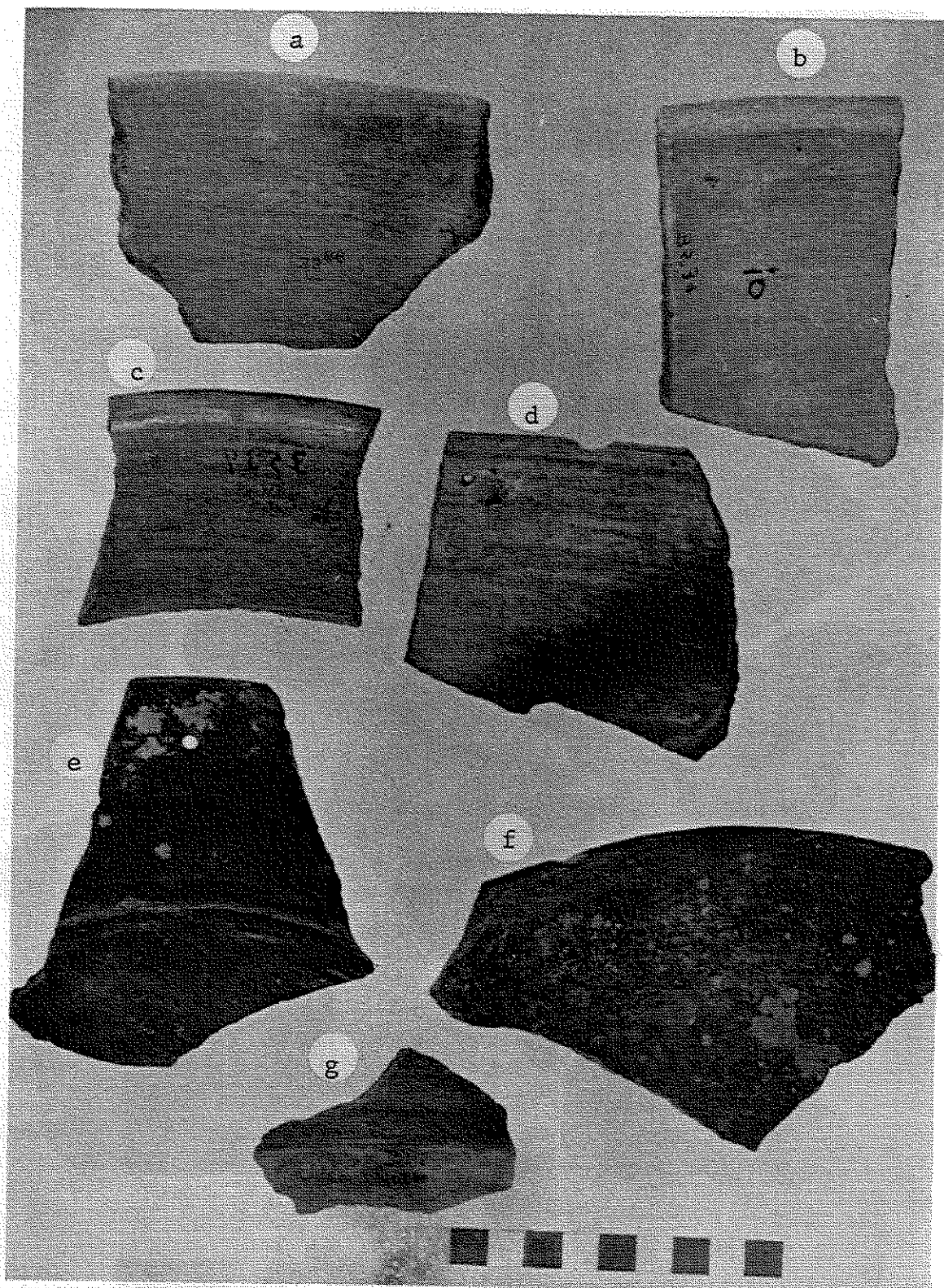


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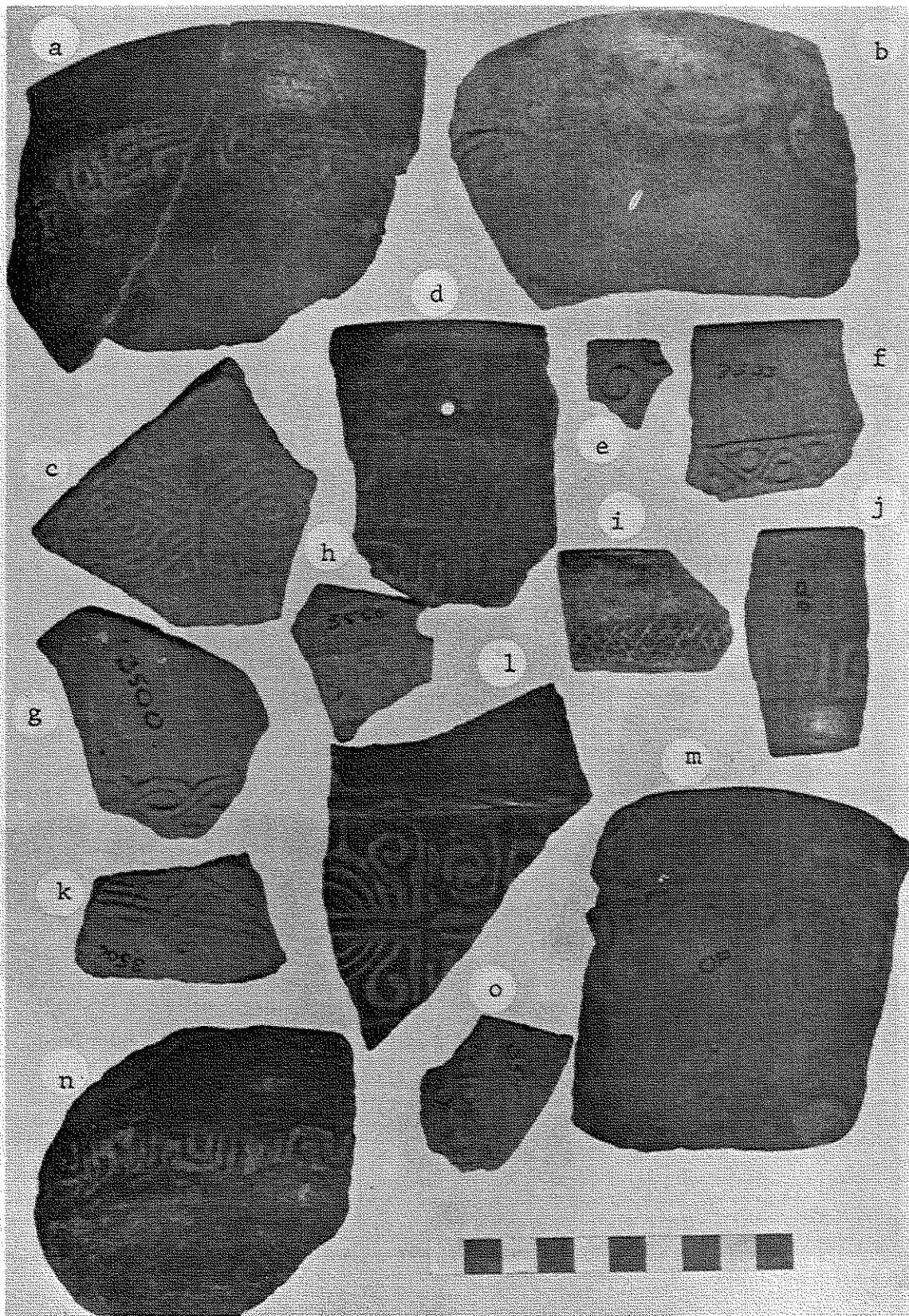
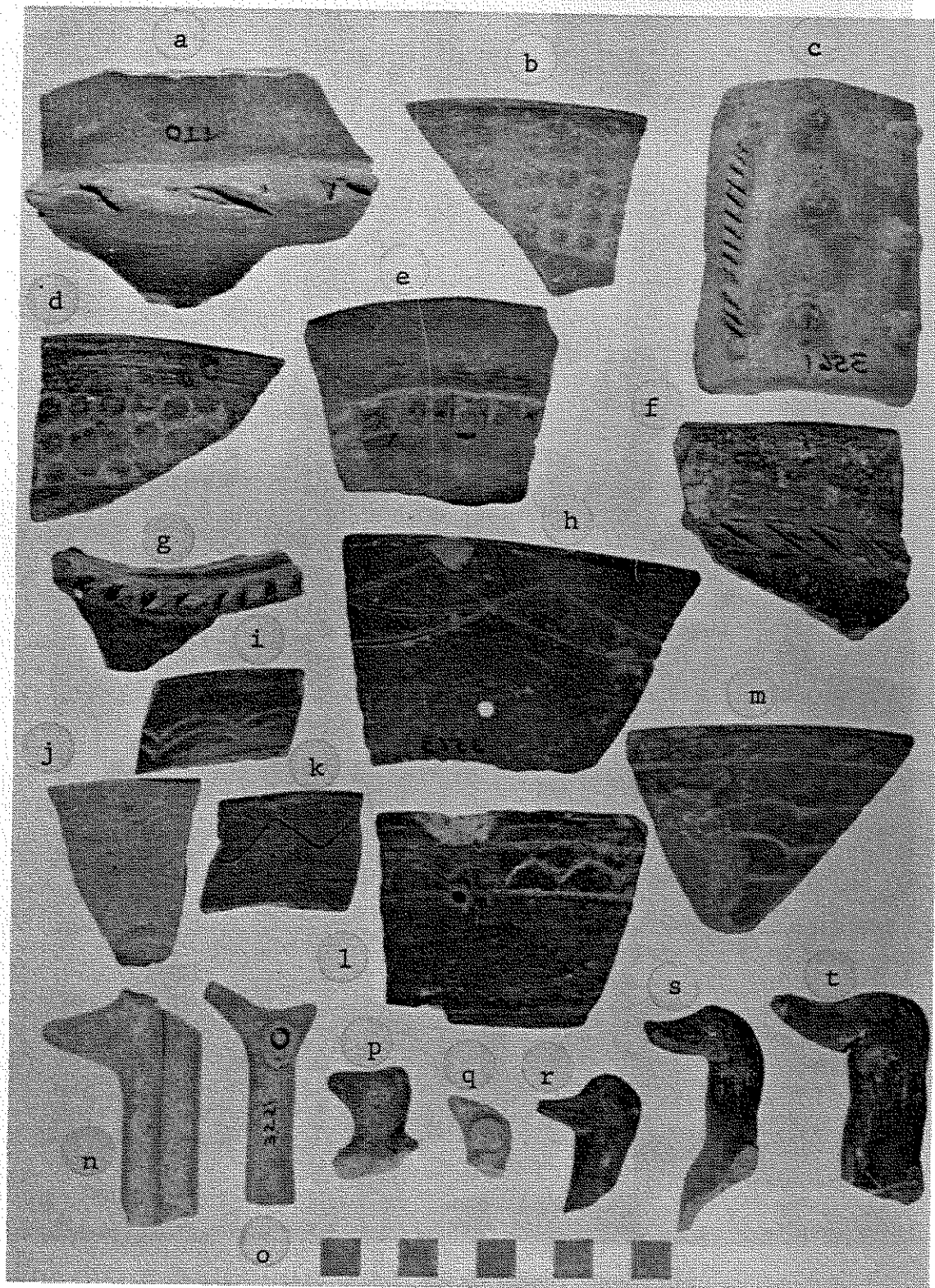
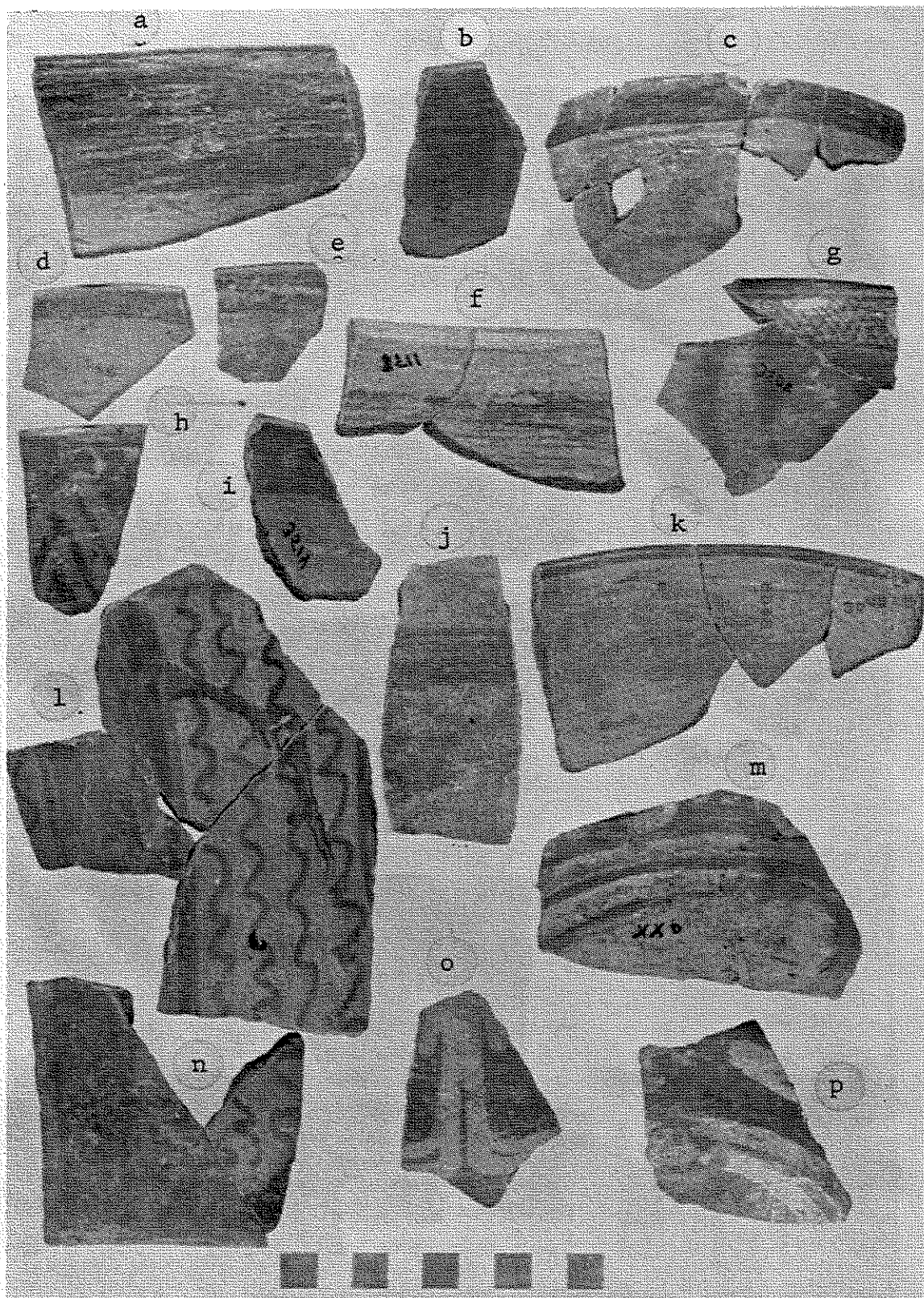
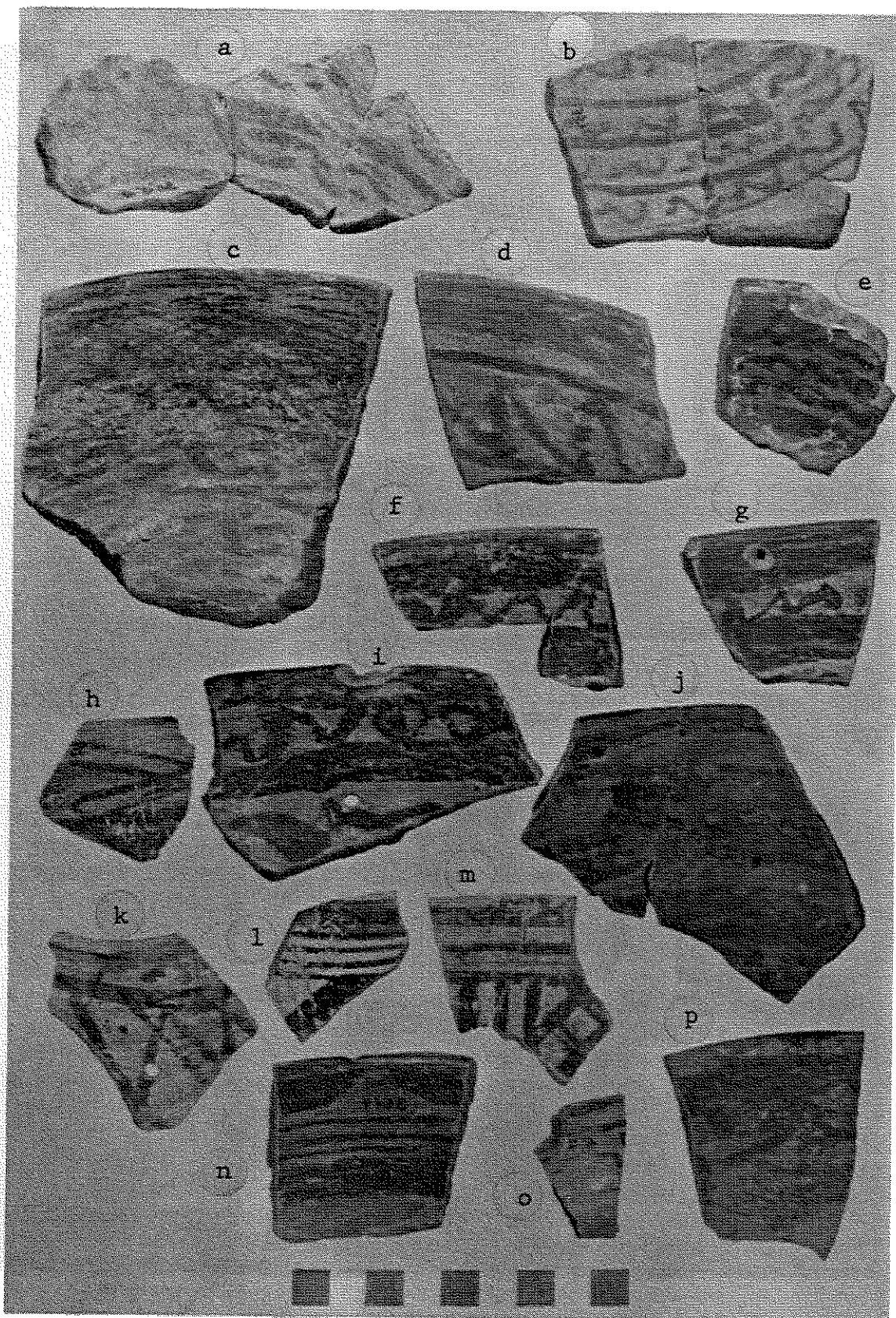
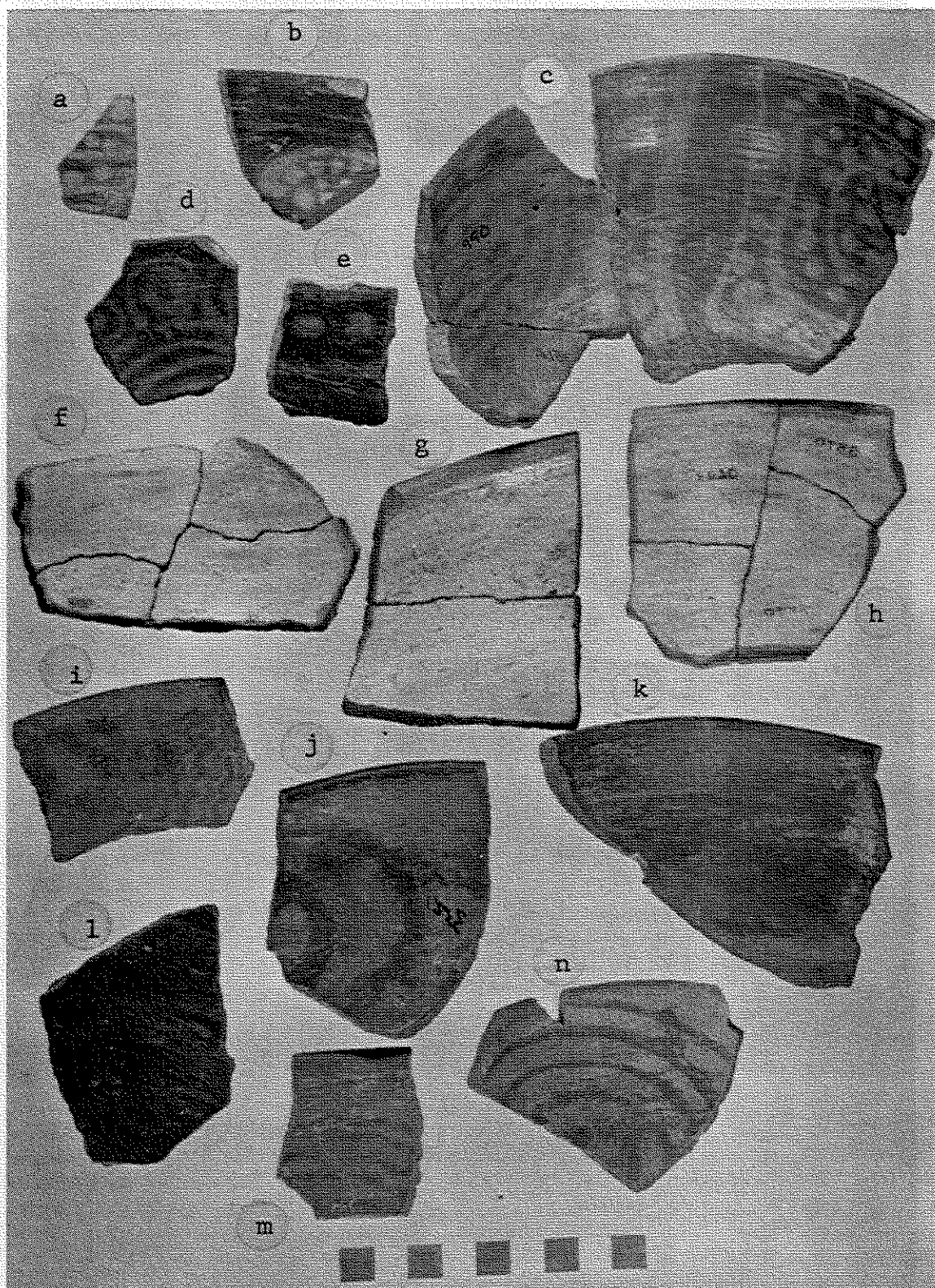


Plate 7.









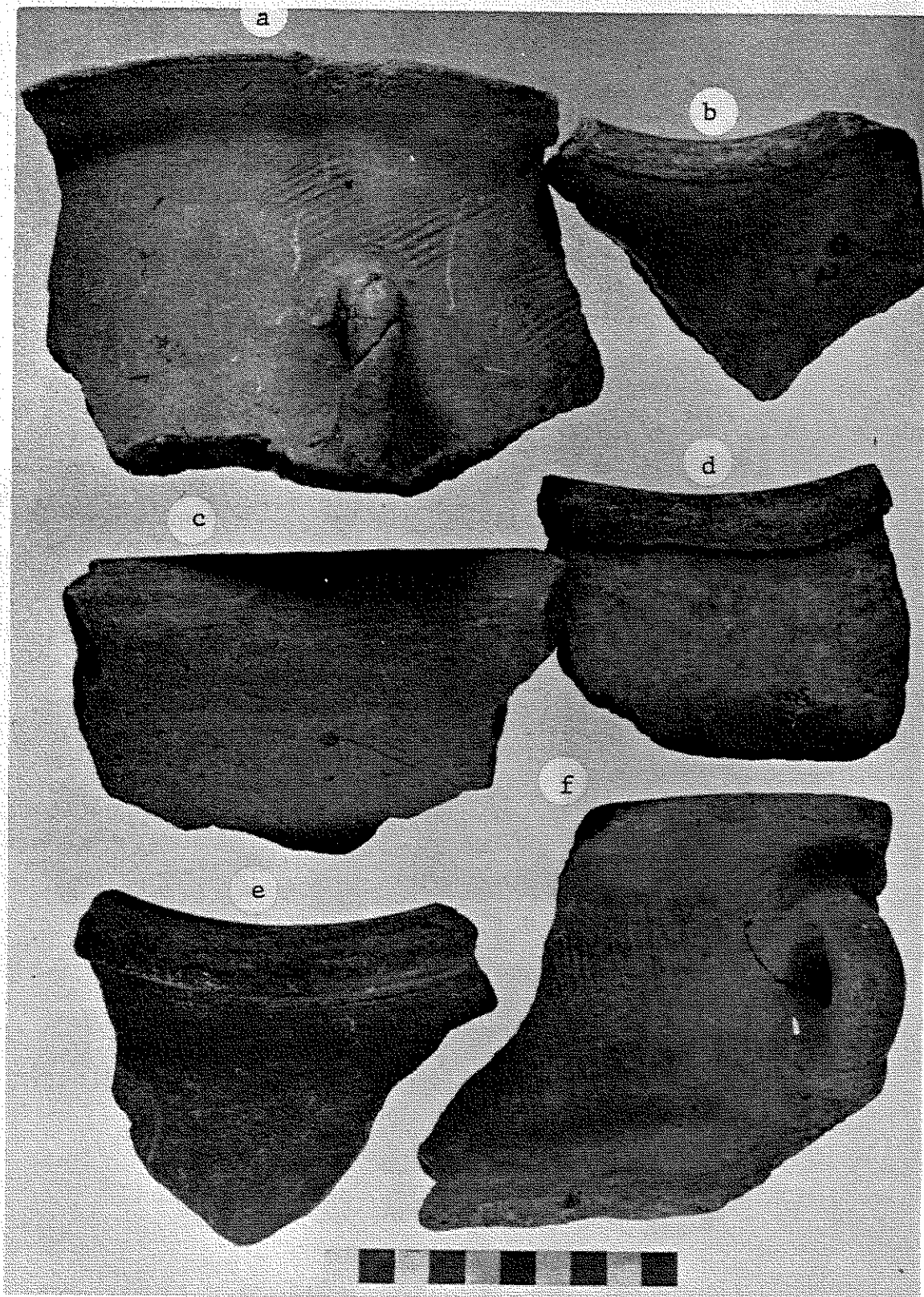


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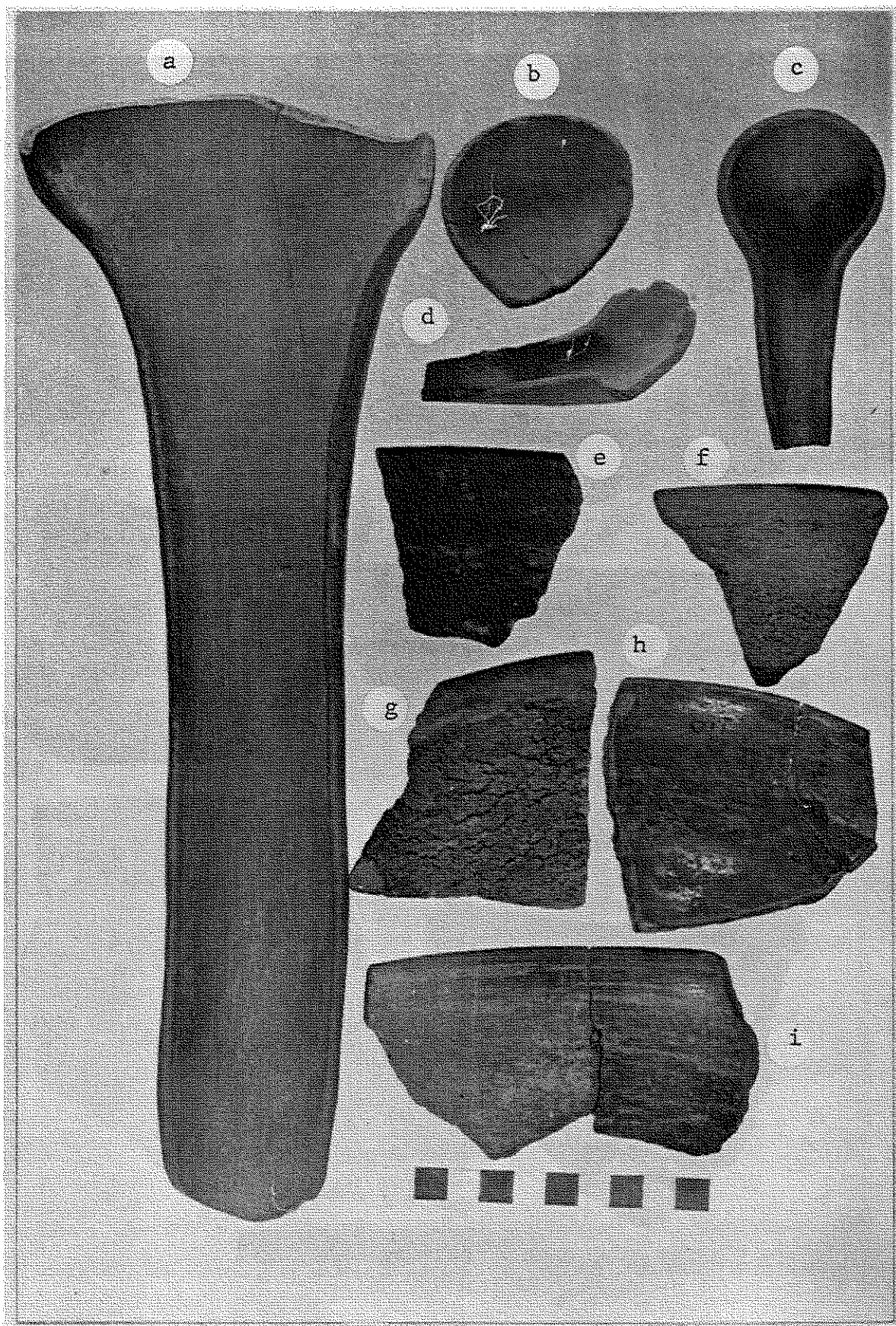


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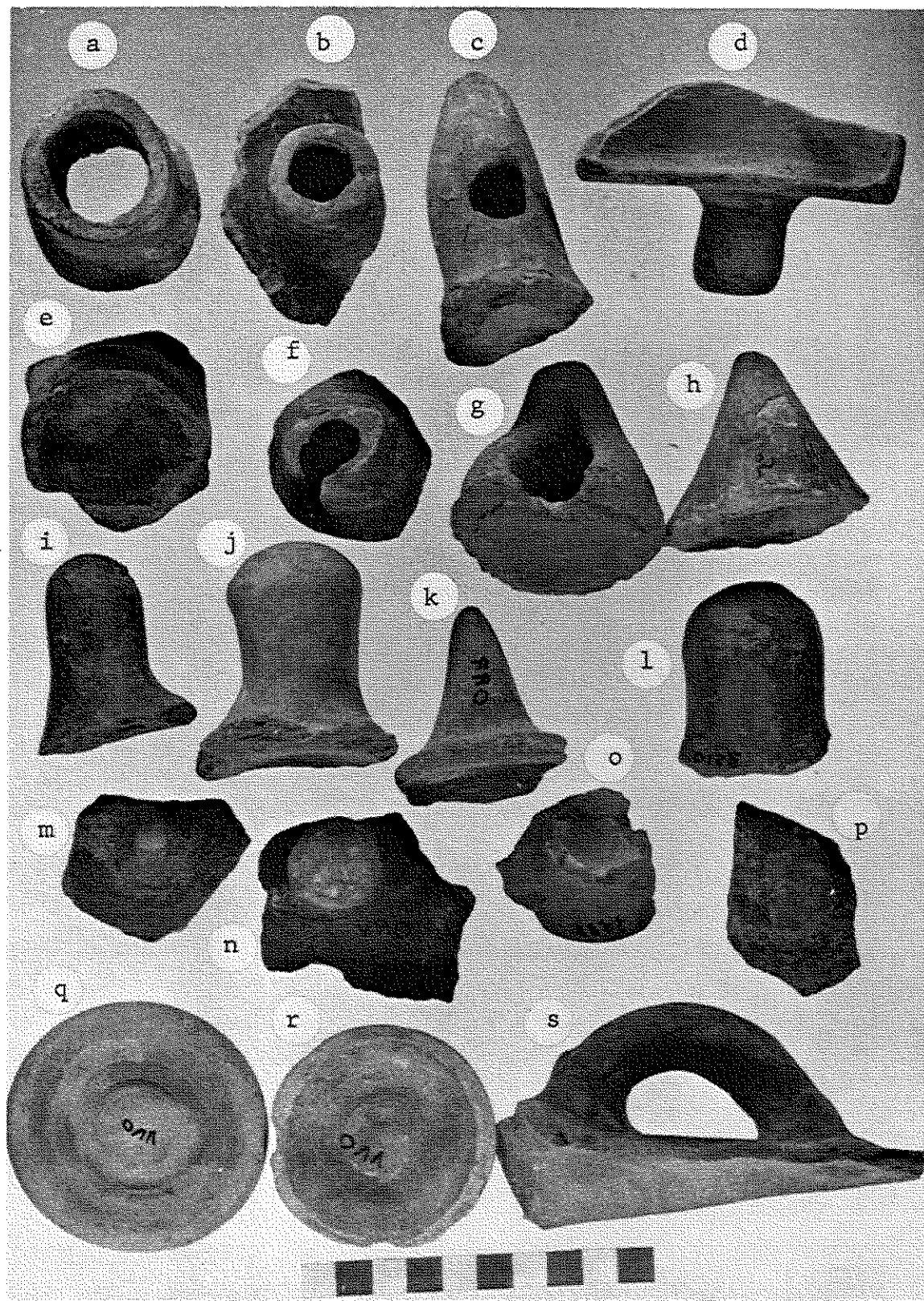


Plate 14.

Chapter 4. EXCAVATIONS AT CUANALAN EAST (TT28)

by

Willian T. Sanders and Horacio Corona Olea

TABLE OF CONTENTS

	Page
LIST OF TABLES	269
LIST OF FIGURES	270
LIST OF PLATES	270
INTRODUCTION	271
THE EXCAVATION.....	271
Unit A	272
Unit B.....	272
Unit C.....	273
CERAMIC ANALYSIS	273

LIST OF TABLES

Table		Page
1	Tabulation of Rim Sherds: Cuanalan East.....	275
2	Monochrome Bowls.....	276
3	Utility Vessels.....	277
4	Trough Ladles	278
5	Red/Matte Censers	279
6	Painted and Slipped Vessels.....	280

LIST OF FIGURES

Figure	Page
1 Ground Plan of Cuanalan East, Excavations	281

LIST OF PLATES

Plate	Page
1 a: Overall View of the Excavation. (Note area of white plaster in left center.) b: Close-up of Central Area of the Excavation. c: Xometla Phase Red/Buf Vessels from Unit B Imbedded in Adobe	282

INTRODUCTION

At the eastern edge of the village of Cuanalan there is a small plaza and church, the latter called the *Capilla del Calvario*. A large pit, with a depth of over 2 m, had been excavated into the plaza area to obtain construction sand. In the profile of the pit, within a few centimeters from the surface, was a clearly defined lime plaster floor. The surface ceramics pertained to the Aztec 2-3 phases along with typical Coyotlatelco Red/Buff, suggesting the possibility that the floor dated to our Xometla phase. The overall impression of the floor profile and the surface configuration of the plaza was that the structure was a multiroom residential complex, not unlike the Classic period houses at Teotihuacan. We decided to remove the shallow soil deposit over the floor in order to expand our knowledge of both Xometla ceramics and residential architecture. The excavations were conducted in 1961 under the direction of Horacio Corona Olea, then head of the Archaeological Zone of Teotihuacan.

At the end of the field season, Corona wrote a detailed report of the excavations. This report, combined with discussions of the excavations conducted by Sanders with Corona in 1976, provided the basis of this final report, written by Sanders. Richard Diehl, then a graduate student at The Pennsylvania State University, processed the ceramic samples, using the same rim code designed for the Oxtotipac and Xometla samples, with final revisions by Sanders, who also wrote the analytical discussion of the sample.

THE EXCAVATION

The total area excavated was 120 m³ and the maximum depth of the excavation was 50 cm. A one-meter grid was applied to the area and excavation was conducted on the basis of these grid units. The first phase of the excavation consisted of a unit-by-unit removal of the superficial layer of hard, compact earth that covered the floor. This layer averaged approximately 25 cm in depth. Its texture suggested that it was primarily building debris, probably melted adobes from the walls of the rooms. Sherds in this layer included Post Conquest, Aztec, and Xometla types. In several areas, particularly Units A and B, masses of preserved adobe bricks were encountered protruding through the superficial layer. These were left intact during the excavation of the layer. Also exposed were a series, in various states of preservation, of wall bases, that divided up the area into three definite room-like spaces that we are referring to as Units A, B, and C. We are being intentionally vague in our terminology because the degree of preservation was so bad that we cannot state for certain whether these spaces are rooms, porticos, or patios. Unit C may have been partitioned further, making four units in all. In most cases, the walls were no more than linear scars traversing and interrupting the plaster surface of the floor. In no cases were the wall bases more than a few inches high, hence we were unable to define doorways. The wall bases were constructed of irregular pieces of volcanic rock imbedded in adobe mortar. In a few places, remains of adobe bricks were found superimposed over the stone and earth base indicating that most of the wall was constructed of adobe brick. The lime plaster floor was preserved only in Unit A.

Unit A

This unit appears as a relatively flat L-shaped area, most of which had a well preserved plaster surface. Masses of adobe were found in the south arm of the "L", heavily mixed with rock. The plastered surface was poorly preserved and paper thin. The subflooring below it consisted of a thin layer of *tenzontle* gravel and clay textured soil.

Unit B

The surface of this unit was thoroughly disturbed with no trace of the plaster floor preserved. The masses of adobe brick encountered in the upper level were concentrated in this area. The adobes seem to have occurred in two separate construction levels, separated by a layer of hard earth, and each level composed of two layers of adobe bricks. Corona, in his field notes, originally interpreted this as evidence that the adobe was used to pave the floor of the unit and deposited into two horizontal layers. He also reported finding Aztec and Coyotlatelco sherds imbedded in the adobes of the upper "floor" and what he called Teotihuacan IV sherds imbedded in the adobes of the lower "floor". At the time he wrote his report, no one had described the Coyotlatelco plain wares and he was apparently identifying the monochrome tan basal break bowls as Late Teotihuacan. In fact, there were very few Teotihuacan sherds in the excavated sample. Imbedded in the lower floor were several Xometla phase Red/Buf vessels and portions of other vessels of the same period.

If Corona is correct in his interpretation, the adobe brick floor is a unique architectural form unknown from previously excavated Mesoamerican sites.

An alternate interpretation is that the adobes are collapsed walls and that there were two houses: an Aztec house and a Xometla phase house. This interpretation leaves unexplained the presence of the vessels and the complete destruction of the lime plaster floor. It is possible, however, that this unit had an earth floor and that Unit A functioned as a patio, the plaster serving to protect the surface from muddying. This interpretation would be further supported by the peculiar L-shape of Unit A and the fact that plaster was absent in Unit C which was presumably, following this interpretation, another living unit fronting on the patio.

With respect to the vessels, Corona's description indicates the possibility at least that they were not actually within the adobe brick layer but imbedded within a homogeneous bench of adobe soil that could have been part of a room bench. We quote his field notes in detail:

En la hilada superior metida en un banco de lodo se conservaba una vasija de silueta compuesta rojo sobre anaranjado, conteniendo manchas de sangre en el interior--a una distancia de .50 mts al sur de esta vasija y bajo una capa de tierra bofa o lodo, y a .08 mts mas abajo, aparecio una vasija subglobular, con la misma decoracion que la anterior. . . (*Editor's note: This is actually red paint.)*

In summary, there are two possible interpretations of the evidence and the problem is unresolvable at this time.

Unit C

Unit C lacked the masses of adobe and any traces of the plaster surface of Unit A. The exposed surface consisted of an uneven hard earth surface. Small areas of deeper excavation in both Units C and B revealed that this hard earth surface overlies the natural soil surface of the area. The profile of the pit indicates that much of the subsoil of the area consists of beds of gravel and coarse textured sand.

As can be noted, the excavation was limited in scope and was inconclusive as to the sequence of events. What is virtually certain is that the structure was residential, based on the plan and associated artifact types. The walls, plaster floor, and some of the adobe masses in Unit B were of the Xometla phase and there was a later Aztec construction in the Unit B area. Beyond this, the interpretation favored by us is that Unit A is a paved patio and Units B and C were living rooms fronting on the patio: Unit B contained adobe benches within which had been placed offering vessels; the adobes found in Unit B were wall debris.

CERAMIC ANALYSIS

Since the Xometla phase ceramic sample from Cuanalan East virtually duplicates the sample from the Xometla type site there is no need to repeat the type descriptions here. We will simply summarize the major features of the sample in quantitative terms. The data are presented in tabular form in Tables 1-6.

Aztec and glazed wares were relatively abundant in the sample but will not be further discussed. This part of the sample will be discussed in Volume 5 on the Aztec occupation of the valley. Other than Aztec, the sample included one Late Cuanalan rim, one Mazápan Wide Band Red/BufF rim, 15 Teotihuacan period rims, and 320 rims from the Xometla phase.

Major types represented in the Xometla phase assemblage include Monochrome Bowls (23.75%); Painted, primarily Red/BufF (44.68%); Utility (19.38%); Trough Ladles (2.19%); Red/BufF Matte Ware, Handled Censers (8.19%); and Thin Orange (2.81%). Some of the last type could be from the Teotihuacan period but we have sufficient evidence from excavated and surface samples to indicate that small amounts of Thin Orange were still being manufactured in Xometla times, therefore, we have included it here.

The majority of the Monochrome Ware consists of undecorated lightly burnished tan or grey vessels with direct or lightly everted lips. They were about evenly divided between hemispherical and basal break bowls. Minor types included basal ridge bowls and incised and stamped vessels.

The Utility Vessels were about evenly divided between basins and jars and nearly all of the jars had medium to high necks. Comales also occurred as a minor type. As at Xometla, lip form was highly variable, and included the direct round, slightly everted, and medium everted forms, as well as five other variants. Nearly all vessels were a lightly burnished to unburnished tan or grey color. A few basins, approximately 18%, had red paint applied to the lip and the entire interior of the vessel.

Painted and Slipped types were very abundant, running to almost half the sample. In this type, medium size, hemispherical bowls make up 9/10 of the sample; the remainder are

basal break bowls. Direct rounded or slightly everted lips were characteristic of 85% of the rims and over 90% were burnished tan or grey. With respect to decoration, approximately 32% had simple red lip bands, over 60% had the typical complex Coyotlatelco design (of which 2/3 were interior design) and the remaining sherds were Red and Cream on Buff. Secondary types of the sample include Trough Handled Ladles, Red/Buff Censers, and Thin Orange Ware.

In general, the sample of Early Toltec pottery from Cuanalan East duplicates our Xometla sample except for some slight differences. These differences may be chronological but are probably more functional in significance.

	COUNT	PERCENTAGE
Monochrome Bowls	76	23.75
Painted and Slipped Vessels	143	44.68
Utility Vessels	62	19.38
Trough Ladles	7	2.19
Red/Matte Censers	23	7.19
Thin Orange	9	2.81
TOTAL	320	100.00

Table 1. Tabulation of Rim Sherds: Cuanalan East.

	COUNT	PERCENTAGE
Vessel Form		
Flat Bottom Bowls		
Sharp Flare	0	0.00
Medium FLare	17	22.37
Light Flare	17	22.37
Intermediate	8	10.53
Hemispherical Bowls		
Small	4	5.26
Medium	29	38.16
Large	0	0.00
Basal Ridge Bowls	1	1.32
Lip Form		
Direct rounded	42	55.26
Slightly everted	9	11.84
Medium everted	1	1.32
Strongly everted	1	1.32
Tapered	23	30.26
Surface Color		
Black	9	11.84
Dark Brown	16	21.05
Tan	41	53.95
Orange	10	13.16
Decoration		
Incised	1	1.32
Stamped	5	6.58
Plain	70	92.11

Table 2. Monochrome Bowls (76 rims).

	COUNT	PERCENTAGE
Vessel Form		
Basin		
Shallow	5	8.60
Medium	17	27.42
Deep	4	6.45
Jar		
Low neck	2	3.23
High vertical neck	8	12.90
High flaring neck	5	6.45
Jar or Basin	13	20.97
Comale	8	12.90
Lip Form		
Direct rounded	14	22.58
Direct bolstered	5	8.06
Slightly everted	16	25.81
Medium everted	16	25.81
Exterior bevel	6	9.68
Interior bevel	2	3.23
Square	2	3.23
Bevelled and bolstered	1	1.61
Surface Color and Treatment		
Tan unburnished	53	85.48
Black unburnished	3	4.84
Grey unburnished	1	1.61
Orange unburnished	3	4.84
Red unburnished	2	3.23
Decoration		
Plain	51	82.26
Exterior red band	4	6.45
Interior red band	7	11.29

Table 3. Utility Vessels (62 rims).

	COUNT
Lip Form Rounded	7
Decoration Red lip band	7
Color Orange Buff	4 3

Table 4. Trough Ladles (7 rims).

	COUNT
Lip Form	
Direct rounded	1
Slightly everted	22
Color	
Tan unburnished	23
Vessel Form	
Hemispherical bowls	23
Decoration	
Red lip band	14
Plain	9

Table 5. Red/Matte Censers (23 rims).

	COUNT	PERCENTAGE
Vessel Form		
Flat bottom bowl		
Medium flare	10	6.99
Light flare	2	1.40
Hemispherical bowl		
Medium size	131	91.60
Lip Form		
Direct rounded	72	50.35
Slightly everted	50	34.97
Medium everted	2	1.40
Incurved	5	3.50
Tapered	14	9.79
Surface Color and Treatment		
Lightly burnished tan	132	92.30
Red slip	11	7.69
Decoration		
Red interior band	16	11.19
Red interior slip	13	9.09
Red exterior band	6	4.20
Overall red slip	11	7.69
Red/Buf residual	46	32.17
Coyotlatelco		
Interior design	60	41.96
Exterior design	28	19.58
White/Red	8	5.59
Cream slip	1	0.70

Table 6. Painted and Slipped Wares (143 rims).

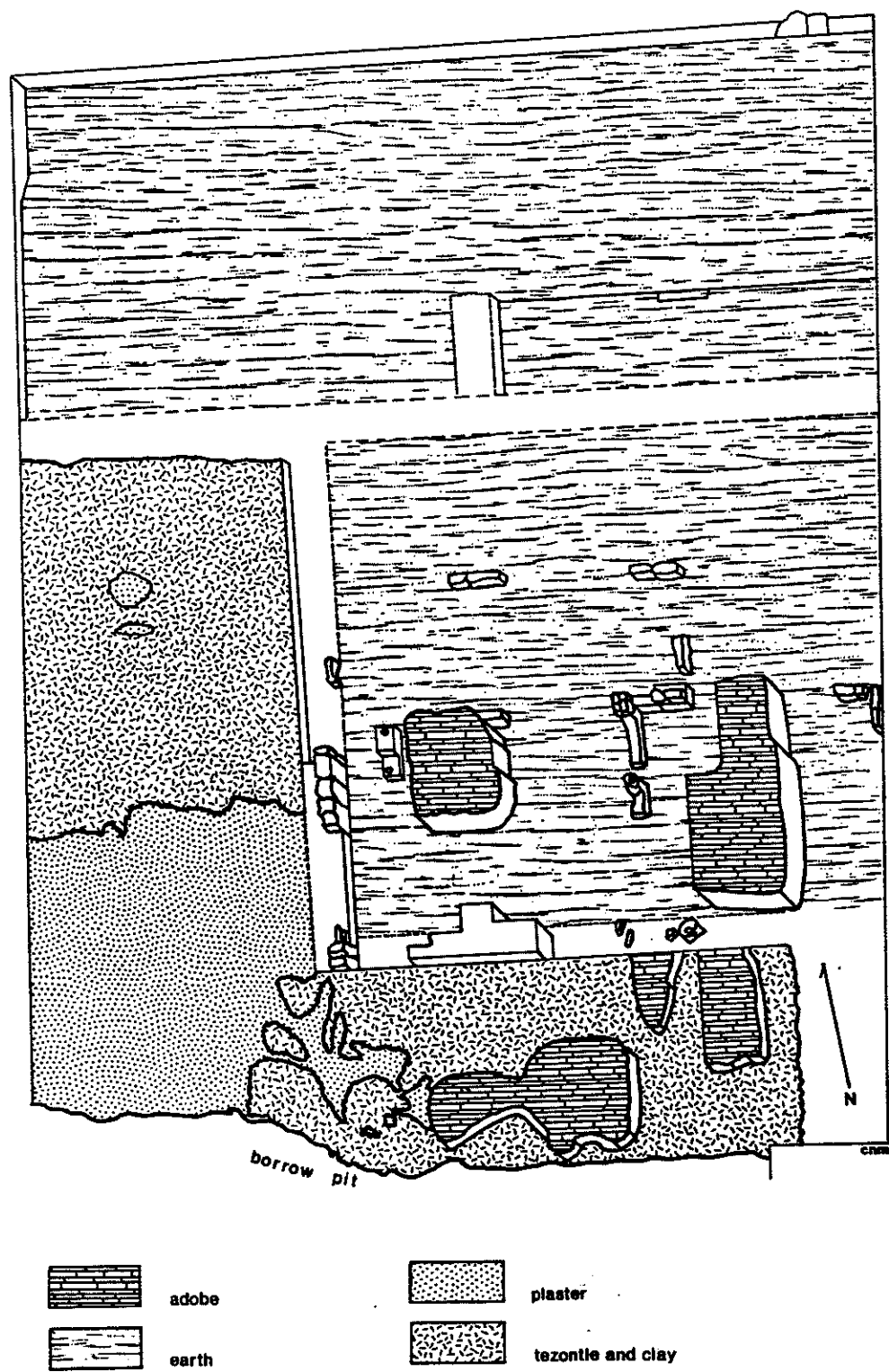
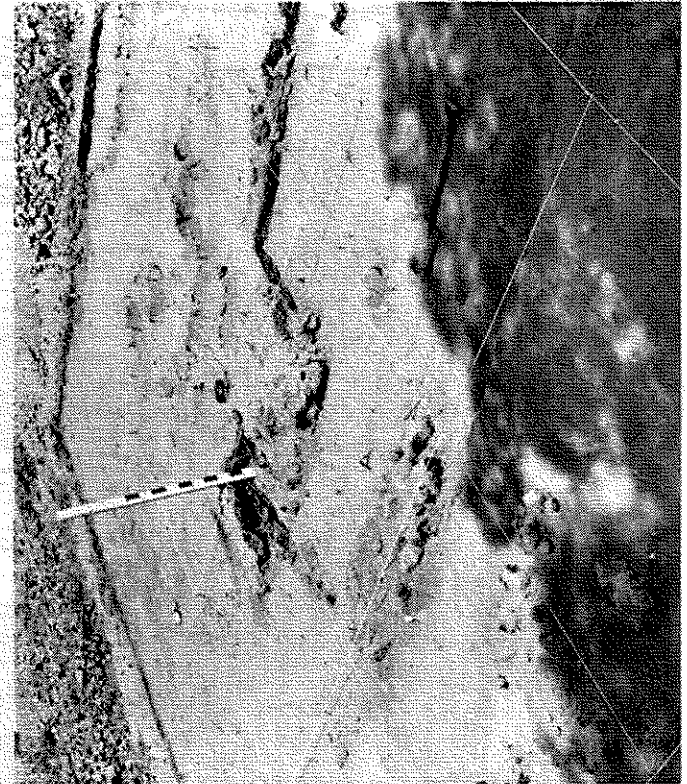


Figure 1. Ground Plan of Cuanalan East, Excavations.



The sample is a thin section of a rock, showing a dark, elongated mineral grain and a lighter, circular feature. The scale bar indicates a length of 1 mm.



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Plate 1.

Chapter 5. ANALYSIS OF THE SURFACE SAMPLE CERAMICS

by

Susan T. Evans

TABLE OF CONTENTS

	Page
LIST OF TABLES	286
LIST OF MAPS	287
LIST OF FIGURES	288
LIST OF PLATES	289
INTRODUCTION	290
METHODS	290
Surface Sample from the Teotihuacan Valley	290
Methods of Analysis	291
TOLTEC CERAMICS: McCULLOUGH'S SEQUENCE	294
Early Toltec	294
Oxtotipac	294
Xometla	294
Transition	294
Late Toltec	295
Mazapna	295
Atlatongo	295
THE SURFACE SAMPLES	295
Monochrome Bowls	296
Decorated Bowls	297
Painted and Slipped Decoration	299
Plastic Decoration	299
Coyotlatelco	299
Mazapan Red/Buf	299
Red/Buf Residual	300
Cream Slip	300
Red Slip	300
Utility Wares	303
Jars	305
Basins	306
Comales	306
Censers and Ladles	307
Miniature Jars	307
Exotic and Plumbate Ware	307

TABLE OF CONTENTS (Continued)

	Page
SUMMARY AND CONCLUSIONS.....	307
Review of the Toltec Sequence.....	307
Seriation of Sites.....	308
Occupation Area Analysis.....	309
Teotihuacan Valley.....	309
Xometla Site.....	310
North Slope of Cerro Gordo.....	310
BIBLIOGRAPHY.....	311

LIST OF TABLES

Table	Page
1 The Surface Collection Compared to the Xometla Excavated Sample.....	291
2 Distribution of Monochrome Bowls by Site, Color, and Surface.....	296
3 Tan and Orange Ware Frequencies Compared by Site.....	297
4 Distribution of Monochrome Bowls by Surface and Form.....	298
5 Coyotlatelco, Mazapan, and Cream Slip Frequencies by Site	300
6 Distribution of Decorated Bowls by Site and Decoration Category	301
7 Chronological Trends of Red Slip and Red/Buf Residual Frequencies by Site	302
8 Scalloping on Wide Band Red/Buf Rims by Site.....	303
9 Scalloping on Wide Band Red/Buf Rims by Sample	304
10 Distribution of Utility Wares by Site and Form.....	304
11 Jar Forms by Site	305
12 Basin Forms by Site.....	306
13 Comal Forms by Site.....	306
14 Censers and Ladles by Site.....	307
15 Expected Frequencies of Monochrome and Decorated Bowls for the Early and Late Toltec.....	308
16 Expected Frequencies of Jars and Basins for the Early and Late Toltec.....	309
17 Teotihuacan Valley Diagnostic Frequencies.....	312
18 Xometla Site Diagnostic Frequencies	315
19 Maquixco-Alto Site Diagnostic Frequencies	317

LIST OF MAPS

Map		Page
1	Valley of Teotihuacan, Xometla Phase Sites	319
2	Valley of Teotihuacan, Mazapan Phase Sites	320
3	Xometla Site, Surface Sample Localities	321
4	Maquixco Alto, Surface Sample Localities.....	322

LIST OF FIGURES

Figure		Page
1	Utility Ware, Jars	323
2	Utility Ware, Jars	324
3	Utility Ware, Jars	325
4	Utility Ware, Jars	326
5	Utility Ware, Jars	327
6	Utility Ware, Jars	328
7	Utility Ware, Jars	329
8	Utility Ware, Jars	330
9	Utility Ware, Basins.....	331
10	Utility Ware, Basins.....	332
11	Utility Ware, Comales	333
12	Utility Ware.....	334
13	Mazapan Wide Band Red/Buf.....	335
14	Mazapan Wide Band Red/Buf.....	336
15	Mazapan Wavy Band Red/Buf.....	337
16	Mazapan Wavy Band Red/Buf.....	338
17	Toltec Red/Buf.....	339
18	Toltec Red/Buf.....	340
19	Toltec Red/Buf.....	341
20	Toltec Wares	342
21	Toltec Orange Ware	343
22	Toltec Wares	344
23	Toltec Wares	345
24	Toltec Wares and Censors	346
25	Tula Watercolored, Toltec, and Miscellaneous Untyped Sherds.....	347

LIST OF PLATES

Plate		Page
1	Utility Jars	348
2	Utility Jar	349
3	Utility Jars	350
4	Utility Basins	351
5	Comales	352
6	Red/Buf Jars	353
7	Wide Band Red/Buf Molcajetes	354
8	Mazapan Wavy Line Red/Buf Bowls	355
9	Mazapan Wavy Line Red/Buf Bowls	356
10	Toltec Red/Buf Bowls.....	357
11	Toltec Red/Buf Bowls.....	358
12	Toltec Orange Bowls.....	359
13	Toltec Orange Bowls.....	360
14	Toltec Cream Slipped Bowls.....	361
15	Toltec Brown Ware Bowls.....	362
16	Censers	363
17	Tula Watercolored and Imitations of Tula Watercolored	364
18	Miscellaneous Sherds. a-b: monochrome brown ware; c, e, h: monochrome brown incised; d,m: plumbate; f-g, and i-l: uncertain identification	365

INTRODUCTION

This study presents a comparative analysis of Toltec period ceramic surface samples collected by the Teotihuacan Valley Project, from the Teotihuacan Valley and from an adjacent area, the north slope of Cerro Gordo. The analysis has a twofold purpose. First, it will provide an additional body of data to assist in the chronological refinement of the Toltec period sequence and especially the Late Toltec period phase. Secondly, it will enable time phasing of the sites from which the samples have been drawn, based on the refined chronology of Toltec ceramics.

METHODS

Surface Samples from the Teotihuacan Valley Project

The ceramic material which this study attempts to analyze was collected in the course of surface surveys conducted by the Teotihuacan Valley Project. The process of collection was intensive and selective: the surveyors surface-collected intensively at the sites which had been located, selecting diagnostic Pre-Conquest sherds, especially rim sherds, decorated wares, and diagnostic body sherds. Individual samples were collected from relatively small areas--either from, on, or near constructions or in cases where constructions were absent, from areas with a radius of no more than 10 m.

There are several problems involved in use of the surface collections. First is the obvious detrimental effect of weathering on the collection. Since color, surface finish, and decoration are all important diagnostics in categorizing sherds, such alteration can greatly reduce the value of the sample. Secondly, since no rigorous procedure of collecting was applied, there is an unconscious sampling bias, a tendency to collect large and/or decorated sherds, as the small monochrome sherds are less easily seen. Table 1 compares ware proportions from the Xometla excavation and from the collection under analysis here.

The greatest area of divergence from the Xometla excavation data is Monochrome Wares (bowls and Utility Wares) in which the proportions are reversed. This is probably the result of surface sampling bias in favor of large sherds, which would account for the higher proportion of Utility Ware. The proportions of decorated bowls, however, are very similar since the most important diagnostics of phase representation occur in this category, it can be assumed that bias here is negligible and that the site phase definitions resulting from this analysis have an accuracy approaching those obtained from analysis of excavated data.

Other problems of surface samples are somewhat more complex. A surface sample can be seriated, but the chronological direction of the seriation, and its absolute dating referents, must be established by reference to a similar sample which can be dated by some absolute method, or where stratigraphy confirms the order of the seriation. Considering the importance of the Toltec period, it is somewhat surprising that so little excavation work has been done with the purpose of examining the ceramic chronology. Koehler's 1962 excavation at Maquixco Bajo, west of San Juan Teotihuacan, was part of the Teotihuacan Valley Project (see this volume), and his report has been extremely valuable for the present analysis. Other useful sources are Rattray's (1966) report, Cobean's (1974) preliminary report on the findings

of Diehl's Tula Project, McCullough's (1966) evaluation of Koehler's excavation notes and the surface samples from the Teotihuacan Valley sites, Nichols' (see this volume) analysis of Early Toltec ceramics at the Xometla site, and Good's analysis of ceramics of the same phase for the Oxtotipac site, both in the Teotihuacan Valley.

	EXCAVATED	SURFACE			
	Xometla (6341)	Teo. & Toltec Totals (5313)	Teo. Valley (3488)	TT21 Xometla (886)	Maquixco Alto (939)
Ware Type	Freq.	Freq.	Freq.	Freq.	Freq.
Monochrome Bowls	39.4	16.6	18.3	14.8	11.8
Decorated Bowls	40.0	43.7	46.5	39.7	37.0
Utility Ware	16.2	37.4	33.1	39.8	50.7
Censers	----	0.5	0.4	1.1	0.3
Ladles	4.3	1.2	1.0	3.5	0.1
Thin Orange	0.2	----	----	----	----
Exotics and Plumbate	----	----	(2)	----	----
Miniature Jars	----	0.6	0.6	1.1	0.1

Table 1. The Surface Sample Collection Compared to the Xometla Excavated Sample.

Finally, a surface collection which is ordered by seriation displays variations which sometimes cannot be definitely ascribed to either time or space. That is to say, the appearance of a ceramic type in a collection which is thought to be a characteristic of a particular culture phase known to exist in another area may reflect either the spread of political influence of the originating area over other areas, or indigenous acceptance of a diffused design attribute. Even when the source of the type can be absolutely dated, the same date cannot be automatically generalized to all collections in which the type occurs. This problem normally only arises when an isolated unusual ceramic type appears in a collection; in general, a ceramic complex will consist of a number of diagnostic types which consistently recur. The presence of several types, plus the presence or absence of the expected types for the sequence in that area will allow a more comprehensive view of the specific ceramic chronology of any one area.

Methods of Analysis

The samples used in this study were drawn from the Teotihuacan Valley Project survey collection at The Pennsylvania State University. William T. Sanders, director of the project, made the initial selection of those samples which included ceramics of the Toltec period. Each selected sample was then sorted into categories of the Basin of Mexico sequence: Formative, Classic, Toltec, and Aztec. The non-Toltec ceramic components were not analyzed.

The next stage of analysis was sorting the Toltec ceramic component into functional and stylistic categories. These were predefined; the sorting system which was used was developed by Kenneth Good of The Pennsylvania State University for an analysis of ceramics from the Oxtotipac site in the Teotihuacan Valley (see Good and Obermeyer, this volume). Since the

purpose of this analysis is to study intersite variability through comparison of ceramic types which have already been established, it was not thought to be relevant to independently establish the categories as a prerequisite to comparison.

The first sort was that of ware categories: Monochrome Bowls, Painted and Slipped Bowls, Utility, Censers, Ladles, Exotics, and Plumbate. At this level one can perceive a slight confusion of stylistic and functional attributes: bowls are categorized separately on the basis of decoration; Utility Wares, Censers, and Ladles constitute functional categories; and Exotics and Plumbate are both defined by the uniqueness of their sets of attributes. However, sequences and more specific sortings (vessel form, color and surface, lip form and orientation, and decoration) equalize the level of refinement at which stylistic aspects are fully defined.

Once a sample had been sorted into general ware categories, rim sherds were separated by further analysis. Only rim sherds were analyzed, as their shape and estimated orientation offer a more accurate representation of the whole vessel than could be obtained through the use of body sherds.

There are several problems which occur when rim sherds are used exclusively. As might be expected of a ceramic sample gathered in a surface survey, no whole vessels were found. In fact, very few of the 5313 rim sherds used in the analysis measured more than 5.0 cm across. Thus, direct evidence of whole vessel form was lacking in this sample, and the estimated form of the whole vessel of which the sherd was once an integral part was inferred by comparison of the rim sherd to large rims or whole vessels from excavated collections, and from the presence of diagnostic body sherds, such as basal breaks, globular supports, and *molcajete* floors, from the collection analyzed.

A further problem in the use of very small rim sherds was encountered in assigning decorated sherds to accurate categories. Each sherd was categorized according to its decoration, even when it was highly probable that it should be included in another category. That is, there were no sherds assigned to any "probable inclusion" categories. For example, the decoration category Red/Buff Residual was established for buff colored sherds with a red lip band. This red lip band is common to the Coyotlatelco, Mazapan Wavy Line and Toltec Red/Buff categories. Many sherds with other characteristics (paste, shape, orientation, lip form, and surface) which pointed to inclusion in one of these categories, but which (probably because of their small size) had no design element except for the red lip band, were classified as Red/Buff Residual. No doubt this created a numerical bias in favor of Red/Buff Residual, at the expense of Coyotlatelco, Mazapan Wavy Line and Toltec Red/Buff. Another case was that of small red-slipped sherds. In Wide Band Red/Buff the lip band often extended over the rim to the exterior of the sherd. A sherd classified as red slip may, instead, have been part of Wide Band Red/Buff vessel.

It is difficult to assess the degree of bias created by assigning sherds conservatively, rather than intuitively classifying them as to probable inclusion categories. Since the analysis of decorated ware is based on comparison of groups of decorated types (such as the Mazapan group, consisting of Mazapan Wavy Line, Toltec Red/Buff, and Wide Band Red/Buff; the Coyotlatelco group, and the cream slip group) it is probable that the ratios of these groups with respect to each other have not been significantly affected by probable inaccuracies in the Red/Buff Residual or red slip categories.

Another problem caused by the limitation of the sample to rim sherds is the virtual lack of numerical representation of Tula Watercolored Ware. Sherds of Tula Watercolored were present in the collection; however, all but one were body sherds. Koehler, analyzing body and rim sherds from his excavation of the Maquixco-Mazapan site in the Teotihuacan Valley, found that 60 sherds (1.69% of his total sample of 3554) were Tula Watercolored. He notes

that this decorative pattern occurs exclusively on jars. The one rim sherd in our collection which exhibits this pattern is that of a low necked jar with light flare, from TT72. It is interesting to note that this sample was from a cave, and due to the relative protection offered by the cave, the sherds were much larger than those of the other samples. Insofar as one sherd can offer confirmation of Koehler's findings, ours did. The number of body sherds of Tula Watercolored was very small and statistically insignificant in terms of the total sample. However, it should be noted that this unique Toltec type was present.

Good's coding system was used; each rim sherd was categorized and given an appropriate 13-digit coding number (see this volume).

The facilities of The Pennsylvania State University Computation Center were used in analysis of the coded data. A subroutine of the *Statistical Package for the Social Sciences* (Nie et al. 1975) provided cross-tabulations of the categories. The cross-tabulations are listed with their most important analytical functions.

1. Wares by Sample Number. Provided a very general picture of the composition of each sample, and an average ratio for the entire collection.

2. Lip Form by Vessel Form by Wares by Sample Number. Important diagnostic changes in lip form of certain of the Utility Wares were observable through this cross-tabulation.

3. Vessel Form by Decoration by Wares by Sample Number. Important in determining the extent to which decoration occurred in the various vessel forms of the Utility Ware category, and in comparing percentages of types of decoration on bowls.

4. Color Surface by Vessel Form by Sample Number. Allows investigation of the assumption that tan, the predominant color of ceramics of the Toltec period, begins to be replaced by cream and especially orange ware in the Late Toltec.

5. Decoration by Lip Form by Sample Number. Increasing frequency of scalloped lip on Wide Band Red/Buf is expected for Late Toltec ceramics.

6. Color Surface by Decoration by Sample Number. A way of investigating the increasing frequency of orange ware over time, in the decorated rather than the monochrome category.

The total sample consisted of 106 subsamples from 29 sites in the Teotihuacan Valley and 20 subsamples from the north slope of Cerro Gordo (Maquixco Alto). Many of these subsamples contained a small number of sherds, so it was decided to combine the subsamples from the Teotihuacan Valley under their site numbers to gain a more meaningful perspective. An exception was made in the case of the Xometla site (TT21) which was analyzed by subsamples in order to study intrasite variability.

Thus, there are three separate categories of analysis: TT28 samples (resulting from combining the 85 subsamples into appropriate site samples), 21 subsamples of TT21, and 20 Maquixco Alto subsamples.

TOLTEC CERAMICS: McCULLOUGH'S SEQUENCE

On the basis of excavated samples, the Toltec period in the Teotihuacan Valley was divided into two generally accepted phases: the Early Toltec, defined by the presence of Coyotlatelco ceramics and lasting from the end of the Teotihuacan period, about A.D. 800 to A.D. 1000, and the Late Toltec, defined by ceramics of the Mazapan Red/Buf complex, and lasting from A.D. 1000 to A.D. 1200, terminating with the introduction of Aztec ceramics.

McCullough, on the basis of the preliminary analysis of the excavated surface samples from the project, attempted to further refine this chronology, resulting in the subdivision of each of the two phases into two subphases.

Early Toltec

Oxtotipac

Characteristic of this phase are low neck jars, tubular supports, bevelled rim basins, orange ware trough handle ladels, and a red/buff. Good (1972) has described the Red/Buf Ware as being tan with a red lip band, similar to what this study defined as Red/Buf Residual. The basins are deep with an externally or internally bevelled lip, and Monochrome Wares are generally tan.

Xometla

Characterized by the presence of Coyotlatelco decorated ceramics, this phase has been studied by Rattray (1966) who was instrumental in establishing the validity of the Coyotlatelco category as distinct from other Toltec Red/Buf pottery. Tolstoy (1958) had not made the distinction, thus obscuring the value of Coyotlatelco ware as a diagnostic of the Early Toltec. Nichols (see this volume) has analyzed ceramics from the Xometla site. She found that 95.7% of the Monochrome Bowls were tan. The predominate decorated ware is Coyotlatelco. Of Utility Wares, most jars are medium to high neck, medium flare, with an everted lip; basins are either medium depth (often with an everted lip), or deep, with a bevelled lip. 57.4% of the basins had some form of decoration, usually a red lip band, sometimes with red interior slip. *Comales* of both Oxtotipac and Xometla phases are deep with a rounded incurving wall.

Transition

McCullough (1966) has argued for the establishment of a transitional phase between Early and Late Toltec, which he has named "Huistonco". This phase is based on the presence of a decorated ware which

is very definitely transitional from Coyotlatelco to Mazapan, having a zig-zag wavy-line design midway between the two types, a Coyotlatelco-like burnish and surface treatment, and a Mazapan paste and vessel form (McCullough 1966).

Other investigators, such as Rattray, have maintained that there is a fairly clear break between the Coyotlatelco and Mazapan complexes. The viability of a "Huistonco" phase will need further investigation before it can be accepted as part of the Toltec ceramic sequence. Unfortunately, such an analysis is beyond the scope of the present study. Decorated ceramics were categorized without reference to nuances of quality in the execution of design: a sherd bearing the characteristic multiple wavy line probably executed "by means of a multiple brush technique" (Koehler 1962:44) was classified as Mazapan Wavy Line, its burnish and surface treatment being considered secondarily. The "Huistonco" phase, thus does not figure in this analysis.

Late Toltec

Mazapan

The major diagnostic of this phase is the Mazapan Red/Buff complex, which includes the decorated ware types Mazapan Wavy Line, Toltec Red/Buff, and Wide Band Red/Buff. Monochrome Bowls are tan: of the Monochrome Bowl sherds studied by Koehler from the Maquixco Bajo excavation, 78% are tan. The characteristic jar form is medium neck, medium flare, with a square lip form. Basins are deep, often with a basal break; lip form is usually round or internal bevel. Comales throughout the Late Toltec are deep, with a basal break wall rather than being rounded and incurving.

Atlatongo

Orange and cream wares occur in small amounts throughout the Toltec sequence but begin to account for a high percentage of the total toward the end of the period. As McCullough defines it, this period sees the continuation of the Mazapan Red/Buff complex, with lip scalloping becoming common on Wide Band Red/Buff. The Atlatongo wares are monochrome orange, and cream slip, the latter commonly with a red lip band. McCullough, unfortunately, does not include any comparative percentages in this preliminary report, but one would expect a decrease in the percentage of monochrome tan bowls as monochrome orange becomes more common, and an increase in cream slipped decorated wares at the expense of red/buff wares. As the Atlatongo wares are thought to originate in Tula, it is expected that they will be found in greater quantities in the northern part of our sample area. This subphase ends with the introduction of Aztec ceramics, and the increasing proportion of orange ware can be seen as transitional between the tan or buff ceramics so common in the Toltec, and the predominant orange of the Aztec period.

THE SURFACE SAMPLES

The ware categories constitute the first analytical sort of the ceramic data. There are two bowl categories, Monochrome and Decorated; a Utility Ware category; and other categories for Censers, Ladles, Exotic Sherds, Plumbate, and Miniature Jars. Analysis within each ware category varies as to which attributes are considered most significant. For Monochrome Bowls, the analysis focuses on color/surface and vessel form; decoration is the most important attribute of Decorated Bowls, and vessel form and lip form and orientation is of primary concern in analyzing Utility Wares. Analysis of paste was not attempted; the complexity of this type of analysis made it impossible to include it in the rest of the study due

to time limitations, and the paste of Toltec wares displays a homogeneity which renders it far less useful than other attributes for gauging variability in the sample (Tolstoy 1958).

Monochrome Bowls

Monochrome Bowls account for 16.6% of the entire sample (881 of 5313 sherds), and includes hemispherical bowls, flat-bottom bowls with flaring walls, and basal ridge bowls (Figures 20,k-p; 21; 22,a-e; 23,h-n; 24,a-k; Plates 12-13; 15). This category is limited to unslipped bowls, and bowls slipped with clay identical to that of the bowl. The single exception is a sherd which appears to have been slipped with a thin red wash; this has been included in the monochrome category. Monochrome Bowls with plastic design (either incised or stamped) were included in the category of decorated bowls.

Teotihuacan Valley		
Tan		83.1% of monochrome bowl sherds (531/639)
Matte		84.2% of tan monochrome bowl sherds (447/531)
Burnished		15.8% of tan monochrome bowl sherds (84/531)
Orange		16.1% of monochrome bowl sherds (103/639)
Matte		47.6% of orange monochrome sherds (49/103)
Burnished		52.4% of orange monochrome sherds (54/103)
Grey		0.16% of monochrome bowl sherds (1/639)
Matte		100.0% of grey monochrome sherds (1/1)
Black		0.48% of monochrome bowl sherds (3/639)
Burnished		100.0% of black monochrome sherds (3/3)
Xometla Site		
Tan		96.2% of monochrome bowl sherds (126/131)
Matte		96.8% of tan monochrome sherds (122/126)
Burnished		3.2% of tan monochrome sherds (4/126)
Orange		3.1% of monochrome bowl sherds (4/131)
Burnished		100.0% of orange monochrome sherds (4/4)
Grey		0.7% of monochrome bowl sherds (1/131)
Burnished		100.0% of grey monochrome sherds (1/1)
Maquixco Alto		
Tan		87.4% of monochrome bowl sherd (97/111)
Matte		92.8% of tan monochrome sherds (90/97)
Burnished		7.2% of tan monochrome sherds (7/97)
Orange		12.6% of monochrome bowl sherds (14/111)
Matte		42.9% of orange monochrome sherds (6/14)
Burnished		57.1% of orange monochrome sherds (8/14)
Table 2. Distribution of Monochrome Bowls by Site, Color, and Surface.		

Samples. 1) Teotihuacan Valley: 18.3% of entire sample (639 of 3488 sherds); 2) Xometla site: 14.8% of entire sample (131 of 886 sherds); 3) Maquixco Alto: 11.8% of entire sample (111 of 939 sherds).

General Comment. In terms of diversity of color categories, the Teotihuacan Valley sample provides the greatest range. Sweeping conclusions from this should be avoided, however, since the grey, black, and red wash categories of the valley sample are represented by a total of 5 sherds (6 if the Xometla sample is included). This is probably a function of the larger size of the valley sample.

Tan and orange definitely predominate, averaging 85.6% and 13.7%, respectively. The great majority of tan sherds have a matte surface finish in all three sets of samples, while burnishing predominates slightly in the orange ware.

Comparing tan and orange ware by groups of sites reveals that orange ware achieves greatest frequency in the Teotihuacan Valley, slightly less at Maquixco Alto, and is rare at the Xometla site.

	Xometla	Teotihuacan Valley	Maquixco Alto
Tan	96.2%	83.1%	87.4%
Orange	3.1%	16.1%	12.6%

Table 3. Tan and Orange Ware Frequencies Compared by Site.

Nichols found a monochrome orange bowl frequency of 0.5% in her study of Xometla ceramics and Koehler reports that bowls in the "Polished Orange" category at Maquixco Bajo account for about 4.0% of all bowls. Both these figures are considerably lower than the findings of this study, but they do show the same trend toward increasing use of orange ware in the Late Toltec. If McCullough's phasing is correct, the excavated sample from Maquixco Bajo should be primarily Mazapan subphase in date.

General Comment. An average of 75% of monochrome tan bowls in the collection have a hemispherical form, 24.5% are flat bottomed, with outward flaring walls, and 0.5% have a basal ridge. Of orange ware, 54.5% are hemispherical, 41.3% flare walled, and 4.2% basal ridge.

Decoration. In this category, decoration is limited to burnishing. None of the ware exhibits the high degree of burnishing which could also be described as polishing. Rather, the burnished ware, here, appears to have been the result of smoothing over the matte finish.

Decorated Bowls

The largest ware category, Decorated Bowls, consists of 43.7% of the entire sample (2320 of 5313 sherds) and encompasses bowls with plastic, painted, and slipped decoration (Figures 12,d-j; 13-19, 20,a-j; 22,f-r; 23,a-g; Plates 7-11; 14). Of the attributes which could be studied (such as type of decoration, surface treatment, vessel form, lip form, and paste) attention was focused on decoration. The major reason for this narrow analysis is that the Painted and Slipped decorative categories cover a wide range of variation, and the variants are

important chronological diagnostics. A cursory examination of vessel form, paste, surface treatment, and lip form reveals a remarkable homogeneity throughout the sample. Most decorated bowls are hemispherical, there are no unusual paste types associated with any of the wares, and the surface treatment is almost always limited to the matte/low burnish range of finishing. One exception to the general homogeneity occurs in the lip form attribute: in Wide Band Red/Buff. The scalloped lip form is thought to be proportionally more frequent over time, a factor which will be studied in the discussions of individual samples.

Teotihuacan Valley		
Tan		
Hemispherical		75.0% of tan bowl sherds (398/531)
Flat bottom, flared		24.3% of tan bowlsherds (129/531)
Basal ride		0.7% of tan bowl sherds (4/531)
Orange		
Hemispherical		59.2% of orange bowl sherds (61/103)
Flat bottom, flared		35.9% of orange bowl sherds (37/103)
Basal ridge		4.9% of orange bowl sherds (5/103)
Grey		
Flat bottom, flared		100.0% of grey bowl sherds (1/1)
Black		
Hemispherical		66.7% of black bowl sherds (2/3)
Flat bottom, flared		33.3% of black bowl sherds (1/3)
Red Washed		
Hemispherical		100.0% of red washed bowl sherds (1/1)
Xometla Site		
Tan		
Hemispherical		73.0% of tan bowl sherds (92/126)
Flat bottom, flared		27.0% of tan bowl sherds (34/126)
Orange		
Hemispherical		50.0% of orange bowl sherds (2/4)
Flat bottom, flared		50.0% of orange bowl sherds (2/4)
Grey		
Flat bottom, flared		100.0% of grey bowl sherds (1/1)
Maquixco Alto		
Tan		
Hemispherical		77.0% of tan bowl sherds (75/97)
Flat bottom, flared		23.0% of tan bowl sherds (22/97)
Orange		
Hemipshpherical		21.0% of orange bowl sherds (3/14)
Flat bottom, flared		79.0% of orange bowl sherds (11/14)
Table 4. Distribution of Monochrome Bowls by Site, Color, and Form.		

Plastic Decoration

Very few bowl sherds with plastic design were found. They were grouped under "incised-stamped", which includes designs made by cutting into the clay with a sharp instrument before the clay is fully hardened and fired, and those designs presumed to be pressed into the wet clay by stamp molds.

Painted and Slipped Decoration

These wares are grouped by the type of design, into design complexes. Thus Mazapan Wavy Line, Toltec Red/Buff, and Wide Band Red/Buff are considered separately as well as being grouped under Red/Buff wares. Coyotlatelco has not been similarly broken into more discrete design categories, since the ware's presence alone is of sufficient value as a diagnostic category. The red slip wares are studied together and separately as they occur with interior slipping, exterior slipping, and both. Cream slipped wares are studied as a unit with the exception of cream slip with red lip band, which McCullough (1966) considers to be diagnostic of the Atlatongo phase.

A. Coyotlatelco

This red/buff design complex occurs on hemispherical vessels with incurving and everted rims. Designs are on a much smaller scale, and more neatly executed than the free wheeling Toltec Red/Buff. Repeating step patterns, geometrics, and spirals are common.

B. Mazapan Red/Buff

1. Mazapan Wavy Line

The characteristic design element is the group of about ten undulating red lines painted onto the surface of a hemispherical unsupported bowl (Figures 15-16; Plate 9). Accompanying the characteristic design is a red band around the rim. The design virtually always appears on the inside of the bowl.

2. Toltec Red/Buff

Sloppy is the word most commonly used to characterize this design (Figures 17-19; 20,a-j; Plates 10-11). Swirls and sunbursts are painted on the interior of hemispherical bowls with little regard for either centering the design on the bowl or for fineness of execution. Since the edges of the design elements are often smeared, and red paint is streaked across the tan surface, it appears that the low burnish which this ware exhibits was achieved before the paint was fully dry.

3. Wide Band Red/Buff

A band of red paint extending from the rim almost to the bowl floor is the characteristic decoration on this type (Figures 13-14; Plate 7). It is thought that this design primarily occurs on molcajetes. This assumption can be neither confirmed nor denied here since no whole or nearly whole vessels were found. Four rim sherds in the total collection had scored inner floors and were classified as molcajetes; of these, three were Wide Band Red/Buff and one was Toltec Red/Buff. It appears that Wide Band Red/Buff bowls commonly had hollow globular supports; some sherds which included the supports were found, many sherds had scars where the supports had broken off, and many of this type of support were included in the collection. Finally, this design type sometimes exhibits a special lip form which was called "scalloping" in

in this study and "crenulation" elsewhere. As mentioned above, McCullough considers scalloping to occur in the Atlatongo phase.

C. Red/Buf Residual

This category of plain tan bowls with red lip banding is large, but of dubious value. As was discussed above, there is a high probability that many of the sherds assigned to this category actually belong elsewhere. Its inclusion here is justified, however, from the standpoint of giving an accurate proportional count of decorated bowls.

D. Cream Slip

Cream slip wares are thought by McCullough to be diagnostic of the final, Atlatongo phase of the Toltec era (Figures 22; 23,a-g; Plate 14). This category subsumes two groups: cream slip with red lip band, and all other cream slip wares.

There is a wide range of variation in intensity of white color on the bowl surface, presumed to correlate with the thickness of the applied slip. The color ranges from a pearly, pale orange, produced by a thin slip, to opaque white resulting from slip which has been thickly applied.

E. Red Slip

This red/buff category has three components: red slip on the interior of the vessel, red slip on the exterior and interior, and exterior slipping.

Samples. 1) Teotihuacan Valley: 46.5% of entire sample (1621 of 3488 sherds); 2) Xometla Site: 39.7% of entire sample (352 of 886 sherds); 3) Maquixco Alto: 37.4% of entire sample (347 of 939 sherds).

General Discussion This ware category is extremely valuable in terms of attempting to establish a chronological ordering of sites. If it is accepted that Coyotlatelco ware represents the latter part of the Early Toltec, Mazapan Red/Buf predominates in the Late Toltec, and cream slip represents the final part of the Late Toltec, the following tentative sequence can be presented.

	XOMETLA	TEOTIHUACAN VALLEY	MAQUIXCO ALTO
Coyotlatelco	36.0%	10.8%	1.2%
Mazapan Red/Buf	32.4%	48.5%	48.7%
Cream Slip	3.7%	8.3%	13.3%

Table 5. Coyotlatelco, Mazapan, and Cream Slip Frequencies by Site.

Teotihuacan Valley	
<u><i>Painted and Slipped</i></u>	
Coyotlatelco	10.8% of decorated bowls (175/1621)
Mazapan Red/Buff	48.5% of decorated bowls (786/1621)
Mazapan Wavy Line	24.4% of Mazapan Red/Buff (192/786)
Toltec Red/Buff	35.9% of Mazapan Red/Buff (282/786)
Wide Band Red/Buff	39.7% of Mazapan Red/Buff (312/786)
Red/Buff Residual	26.2% of decorated bowls (432/1621)
Cream Slip	8.3% of decorated bowls (134/1621)
Cream w/ red lip band	59.7% of Cream Slip (80/134)
Other Cream Slip	40.3% of Cream Slip (54/134)
Red Slip	5.7% of decorated bowl sherds (95/1621)
Interior slip	3.2% of Red Slip (3/95)
Exterior slip	7.3% of Red Slip (7/95)
Interior & exterior slip	89.5% of Red Slip (85/95)
<u><i>Plastic Decoration</i></u>	
Incised or Stamped	0.5% of decorated bowl sherds (8/1621)
Xometla Site	
<u><i>Painted and Slipped</i></u>	
Coyotlatelco	36.0% of decorated bowl sherds (127/352)
Mazapan Red/Buff	32.4% of decorated bowl sherds (114/352)
Mazapan Wavy Line	45.6% of Mazapan Red/Buff (52/114)
Toltec Red/Buff	18.4% of Mazapan Red/Buff (21/114)
Wide Band Red/Buff	36.1% of Mazapan Red/Buff (41/114)
Red/Buff Residual	20.7% of decorated bowl sherds (73/352)
Cream Slip	3.7% of decorated bowl sherds (13/352)
Cream w/ red band	38.5% of Cream Slip (5/13)
Other Cream Slip	61.5% of Cream Slip (8/13)
Red Slip	5.9% of decorated bowl sherds (21/352)
Interior slip	9.5% of Red Slip sherds (2/21)
Exterior slip	23.8% of Red Slip sherds (5/21)
Interior & exterior slip	66.7% of Red Slip sherds (14/21)
Red/Buff	0.3% of decorated bowl sherds (1/352)
Exterior red band	100.0% of Red/Buff (1/1)
<u><i>Plastic Decoration</i></u>	
Incised or Stamped	0.9% of decorated bowl sherds (3/352)
Table 6. (Continues) Distribution of Decorated Bowls by Site and Decoration Catetgory.	

Maquixco Alto

Painted and Slipped

Coyotlatelco	1.2% of decorated bowl sherds (4/347)
Mazapan Red/Buf	48.7% of decorated bowl sherds (169/347)
Mazapan Wavy Line	15.4% of Mazapan Red/Buf (26/169)
Toltec Red/Buf	43.2% of Mazapan Red/Buf (73/169)
Wide Band Red/Buf	41.4% of Mazapan Red/Buf (70/169)
Red/Buf Residual	33.4% of decorated bowl sherds (116/347)
Cream Slip	13.3% of decorated bowl sherds (46/347)
Cream w/ red lip band	45.7% of Cream Slip (21/46)
Other Cream Slip	54.3% of Cream Slip (25/46)
Red Slip	2.9% of decorated bowl sherds (10/347)
Interior & exterior slip	100.0% of Red Slip (10/10)

Table 6. (Continued) Distribution of Decorated Bowls by Site and Decoration Category.

In ordering these three sets of sites, all of which have some Mazapan component, it appears that the samples from Xometla represent an early-mid Toltec habitation, and the Teotihuacan Valley sites consist of a range extending throughout the Toltec, with Late Toltec predominating. The Maquixco Alto sites seem to be solidly Late Toltec.

The Red Slip and Red/Buf Residual wares also show trending over time.

	XOMETLA	TEOTIHUACAN VALLEY	MAQUIXCO ALTO
Red Slip	5.9%	5.7%	2.9%
Red/Buf Residual	20.7%	26.2%	33.4%

Table 7. Chronological Trends of Red Slip and Red/Buf Residual Frequencies by Site.

The higher proportion of Red/Buf Residual associated with sites thought to be Late Toltec would seem to confirm the suspicion that many of the sherds thus classified represent other red/buff categories. This conclusion tends to contradict Good's association of Red/Buf Residual type wares with the Xometla/Oxtotipac, or earliest Toltec phase. However, since these wares cannot be categorized with any certainty, any generalizations are extremely tentative.

Red slip has greatest proportional frequency at the Xometla sites, declining at Teotihuacan Valley and Maquixco Alto sites. The significance of red slipped wares is difficult to assess, but some confirmation of the trend shown here is to be found in a comparison of Nichols' study of Xometla ceramics, in which wares similar to those categorized as red slip in this study account for 22.1% of the decorated wares, with Koehler's report on a Late Toltec site in which red slip does not occur at all on bowls. Obviously, conclusions here must be even more tentative than those presented for Red/Buf Residual, but it is possible that red slip ware may be an early to mid-Toltec ware.

As mentioned above, scalloping on Wide Band Red/Buff is considered to be a time marker of the Late Toltec. Frequency occurred as shown in Table 8.

	XOMETLA	TEOTIHUACAN VALLEY	MAQUIXCO ALTO
Scalloped Wide Band Rims	21.9% (9/41)	18.9% (59/312)	24.3% (17/70)
Table 8. Scalloping on Wide Band Red/Buff Rims by Site.			

Koehler reports that over 25% of the Wide Band rims in his study are scalloped. Compared with the above frequencies, only Maquixco Alto conforms to this expectation. The higher than expected frequency at Xometla, and the lower than expected for the Teotihuacan Valley are, however, within a rather narrow range of variation.

In order to study McCullough's hypothesis that scalloping on rims of Wide Band Red/Buff is most common in the Atlatongo phase, Table 9 was prepared. This lists every sample with its frequency of scalloping on Wide Band Red/Buff; its frequency of cream slip proportional to the three diagnostically most useful decorated categories (cream slip, Coyotlatelco, and Mazapan Red/Buff wares); and its frequency of monochrome orange, proportional to combined orange and tan monochrome wares. If McCullough is correct, we should expect the lowest frequency at the Xometla samples, and the highest at Maquixco Alto. The Xometla average is, however, almost as high as that of Maquixco Alto and is higher than that of the Teotihuacan Valley. This may be a result of the inclusion of 21-26, which has the highest proportion of scalloped rims (80%) of any sample in the collection. If this sample is ignored, the Xometla average drops to 13.9% (5/36), which is within expected range.

Proportional averages of sets of samples, however, give only a very general impression of covariation of the three sets of decorated wares. A more accurate representation of correlation is gained by considering those samples which have either cream or orange ware.

Of the 33 samples in which the scallop rimmed Wide Band Red/Buff occurred in this collection, only 2 samples contained neither orange nor cream slip wares. Thus scallop rim Wide Band Red/Buff correlates to either orange ware or cream slip, or both, in 94% of the samples. It appears that McCullough's assertion was correct.

Utility Wares

Utility Wares (jars, basins, and comales) represent 37.4% of the entire sample (1985 of 5313 sherds). Of this category, 51.2% are jar sherds (1016 sherds), 34.5% are basin sherds (678 sherds), 6.9% are comal sherds (137 sherds), and 7.7% are either jar or basin sherds which could not be assigned to either category with certainty (154 sherds). The attributes considered to be most important are vessel form and lip form on all Utility Wares, and decoration on basins, since these are the three factors which are cited most frequently as time markers.

	TOTAL	INCLUDING SCALLOPED	WITHOUT SCALLOPED
Teotihuacan Valley			
Orange only	2	0	2
Cream only	6	5	1
Both	14	12	2
Subtotal	(22)	(17)	(5)
Neither	6	0	6
Total	28	17	11
Xometla			
Orange only	1	0	1
Cream only	5	2	3
Both	2	2	0
Subtotal	(8)	(4)	(4)
Neither	13	0	13
Total	21	4	17
Maquixco Alto			
Orange only	0	0	0
Cream only	6	4	2
Both	9	5	4
Subtotal	(15)	(9)	(6)
Neither	5	2	3
Total	20	11	9
Table 9. Scalloping on Wide Band Red/Buf Rims by Sample.			

Teotihuacan Valley	33.1% of entire sample (1156/3488)
Jars	38.8% of Utility Wares (449/1156)
Basins	40.1% of Utility Wares (464/1156)
Comales	8.7% of Utility Wares (100/1156)
Jar or Basin	12.4% of Utility Wares (143/1156)
Xometla	39.8% of entire sample (353/886)
Jars	56.4% of Utility Wares (199/353)
Basins	33.1% of Utility Wares (117/353)
Comales	7.5% of Utility Wares (26/353)
Jar or Basin	3.0% of Utility Wares (11/353)
Maquixco Alto	50.7% of entire sample (476/939)
Jars	77.3% of Utility Wares (368/476)
Basins	20.4% of Utility Wares (97/476)
Comales	2.3% of Utility Wares (11/476)
Table 10. Distribution of Utility Wares by Site and Form.	

Jars

There are three major jar categories: low, medium, and high neck. Each is subdivided as to the degree of flare in the jar rim: vertical to light, medium (about a 45° angle), sharp flare to horizontal (Figures 1-8; Plates 1-3).

JAR FORM	XOMETLA SITE (N = 199)	TEOTIHUACAN VALLEY (N = 449)	MAQUIXCO ALTO (N = 386)
Low Neck			
Light	0.0%	2.7% (12)	0.0%
Medium	7.0% (14)	2.9% (13)	0.3% (1)
Sharp	4.0% (8)	2.5% (11)	0.0%
Medium Neck			
Light	2.5% (5)	2.5% (11)	0.0%
Sharp	0.0%	8.7% (39)	0.0%
High Neck			
Light	25.6% (51)	6.2% (28)	0.0%
Medium	2.5% (5)	0.6% (3)	0.0%
Sharp	0.6% (1)	0.2% (1)	0.0%
Table 11. Jar Forms by Site.			

General Discussion. The most striking frequency in this analysis is, obviously, the frequency of medium neck, medium flare jars at Maquixco Alto. Furthermore, 97.5% of those jars (358 of 367) had square lips. This jar form with the square lip is considered to be a definite Mazapan type, which nicely confirms the indications from Monochrome and Decorated Bowl frequencies that Maquixco Alto was a Late Toltec area. Sanders notes that the area, which is on the north slope of Cerro Gordo, is now used for maguey cultivation and pulque manufacturing, and suggests that the same industry was operating in Toltec times, necessitating large quantities of storage jars. Not only does the medium neck, medium flare, square lip jar form account for virtually all jars from Maquixco Alto, but jars constitute a much higher proportion of Utility Vessels in Maquixco Alto (77.3%) than they do in either Xometla (56.4%) or the Teotihuacan Valley sites (38.8%).

The three general trends in jar forms over time (if Xometla is assumed to represent the earliest sample and Maquixco Alto the latest) are a decrease in low neck jars, a decrease in high neck jars, and an increase in medium neck, especially those with medium flare.

Basins

Four main categories of basins are considered: shallow, with widely flaring walls; medium, with flaring walls; deep, with vertical walls; and basal break, a deep basin form with a basal ridge (Figures 9-10; Plate 4).

BASIN FORM	XOMETLA SITE (N = 117)	TEOTIHUACAN VALLEY (N = 464)	MAQUIXCO ALTO (N = 97)
Shallow	0.0%	2.6% (12)	0.0%
Medium	31.6% (37)	35.2% (168)	15.5% (15)
Deep	58.1% (68)	51.7% (240)	11.3% (11)
Basal Break	10.3% (12)	9.5% (44)	73.2% (71)
Table 12. Basin Forms by Site.			

General Discussion. In general, the results shown in Table 12 conform to expectations that deep basins are found throughout the Toltec, deep basal break basins being a specifically Mazapan form. Medium basins become common in early to mid-Toltec.

Comales

Comales are large, flat bottomed griddles with walls usually not more than 5.0 cm high, the bases of which are deliberately roughened in order to facilitate conduction of heat (Figures 11-12; Plate 5). They are used to bake tortillas. A shallow form, with almost horizontally flaring walls, is common to both the Classic and Aztec periods, but in the Toltec period comales with relatively sharp flaring walls were common. There are two basic forms of this type of comal: one with incurving walls, and one with flaring walls and usually, a basal ridge.

COMAL FORM	XOMETLA SITE (N = 26)	TEOTIHUACAN VALLEY (N = 100)	MAQUIXCO ALTO (N = 11)
Shallow	3.8% (1)	4.0% (4)	0.0%
Deep Incurving	15.4% (4)	12.0% (12)	18.2% (2)
Flared Wall	80.0% (21)	84.0% (84)	81.8% (9)
w/ basal ridge	80.0% (21)	70.0% (70)	36.3% (4)
Table 13. Comal Forms by Site.			

The comal forms exhibit relative constancy over time; no ordering of sites can be made from the frequency ratios shown in Table 13.

Censers and Ladles

Occasionally, sherds belonging to one of these two categories would be found in the samples (Plate 16). The ladles were trough ladles in tan or orange ware, the former often decorated with a red rim band. The censers were of the "flowerpot" shaped variety, with applied plastic decoration. One exception was a ladle censer.

	XOMETLA SITE (N = 9)	TEOTIHUACAN VALLEY (N = 3488)	MAQUIXCO ALTO (N = 939)
Censers	1.1% (9)	0.37% (13)	0.3% (3)
Ladles	3.5% (31)	1.03% (36)	----- (1)

Table 14. Censers and Ladles by Site.

Miniature Jars

Miniature jars seemed to be a non-utilitarian form; whether or not it can be considered a "luxury" ware is beyond the scope of this analysis. The ware was usually decorated with exterior red slip. Miniature jars represented 1.1% (10 of 886) of the sherds from Xometla; 0.6% (21 of 3488) from the Teotihuacan Valley; and 0.1 % (1 of 939) of the sherds from Maquixco Alto.

Exotic and Plumbate Ware

The entire collection contained one Plumbate rim sherd, from TT25 (Figure 12; Plate 18). Since Plumbate is fairly common in the Late Toltec at Tula (Cobean 1974) it is probable that scarcity of the ware in the Teotihuacan Valley reflects its high value: such a ware would be unlikely to be present in great quantity in a non-urban setting such as the Teotihuacan Valley during the Toltec period.

TT65 provided the "exotic" sherd: probably from a hemispherical bowl with incurving rim, bearing a white and red painted geometric design on the outside.

SUMMARY AND CONCLUSIONS

Review of the Toltec Sequence

McCullough's phase definitions of the Toltec sequence were generally substantiated by the findings of this analysis. The earliest phase, which he calls Oxtotipac, was not investigated as an entity, largely because the nebulous nature of the Red/Buf Residual type did not lend itself to specific phase definitions, and the diagnostic decorated bowl type for the Oxtotipac phase fell within that category.

The Xometla phase was investigated and substantiated. Nichols' analysis of the Xometla excavation revealed that 49.6% of decorated bowls were Coyotlatelco, while Mazapan Red/Buf wares accounted for 2.0% and cream slip wares 1.9%. Of Monochrome Bowls, orange ware accounted for only 0.2%, tan or brown bowls were 99.7%. Thus the excavated sample, which can be assumed to be a relatively uncontaminated sample of that phase, shows a strong positive correlation between Coyotlatelco and monochrome tan, which was confirmed by this analysis of the surface samples.

The Huistonco phase which McCullough presents as a transition between the Early and Late Toltec, was not substantiated for the reasons cited earlier in this study.

The third Toltec phase, Mazapan, is characterized by the Mazapan Red/Buf complex. Koehler's Maquixco-Mazapan excavation report was extremely useful in establishing expected frequencies for ceramic types of the Mazapan phase. Koehler found no Coyotlatelco, but the Mazapan Red/Buf complex accounted for 80% of Decorated Bowls and polished white with red lip band the remaining 20%. Of Monochrome Bowls, 81% were brown and 19% orange. The same strong correlation between the Mazapan complex, cream slip, and increasing frequency of orange ware was noted in the analysis of the surface samples.

The final phase, Atlatongo, was defined by McCullough by the presence of the cream and orange wares, and by scalloping on the rims of the Wide Band Red/Buf. Data presented earlier in this paper confirm this correlation although there was, unfortunately, no excavation sample against which to compare our findings.

Seriation of Sites

Using Nichols' analysis to define the Xometla phase and Koehler's to define the Mazapan-Atlatongo, the following expected frequencies can be established for the Early and Late Toltec.

	XOMETLA	MAZAPAN/ ATLATONGO
Monochrome Bowls		
Tan	100%	80%
Orange	-----	20%
Decorated Bowls		
Coyotlatelco	50%	-----
Mazapan Red/Buf	2%	80%
Cream Slip	2%	20%
Table 15. Expected Frequencies of Monochrome and Decorated Bowls for the Early and Late Toltec.		

Furthermore, the frequencies of Utility Wares shown in Table 16 are expected to be correlated to the two phases. Note that Koehler does not mention basins in his report. Sanders (personal communication) believes that the basal ridge basins become common in the Late Toltec, possibly the only form for the Atlatongo phase.

	XOMETLA	MAZAPAN/ ATLATONGO
Jars		
Low neck	6.5%	-----
Medium neck/square lip	-----	100%
High neck/variable lip	90.0%	-----
Basins		
Shallow	2.3%	absent
Medium	40.7%	present
Deep	57.1%	present
Basal Ridge	-----	predominant
Table 16. Expected Frequencies of Jars and Basins for the Early and Late Toltec.		

Tables 17, 18, and 19 present a site-by-site description of sherd frequencies in these diagnostic categories and the proposed phase designation for each site. Some sites were no doubt continuously occupied over the course of two or all three of the phases under study. This problem brings up the question of how to distinguish a residual assemblage from one which constitutes a separate major phase assemblage. For example, one would expect a small percentage of Coyotlatelco ware at a Mazapan phase site which had been occupied from the early Mazapan phase onward. However, if the site were occupied in the Xometla phase and the Mazapan phase, but the latter population was much larger than the former, Coyotlatelco ware might, in this case as well, be represented as a fairly small percentage of the decorated bowls. The decision as to whether Xometla could have been a definite phase occupation then would depend not only on decorated bowls, the strongest diagnostic category, but on frequencies in the other ware categories as well. Thus, frequencies of low and high neck jars would be an important analytic factor in such a case.

Occupation Area Analysis

Maps 1-4 are maps of the three site areas which illustrate the phase occupations in those areas.

Teotihuacan Valley

In general, the analysis confirms Sanders' (1965:128) statement that "an extraordinary continuity exists in settlement location between Early and Late Toltec". The analysis does, however, reveal that the Xometla settlements centered in the lower valley. In the Mazapan and Atlatongo phases a few of these were abandoned but most remained occupied and in the upper valley a great number of new settlements were established.

Xometla Site

The analysis reveals that settlements of the Mazapan phase almost exclusively continued in the areas of earlier occupation; only 21-21 and 21-70 had negligible Xometla ceramics in the surface samples. The occupations cluster in three distinct groups. The eastern group consists of 21-23, 21-24, 21-25, 21-26, and 21-50. These are Xometla and Mazapan phase occupations showing a fair degree of frequency variation in ware types. The western cluster includes 21-69, 21-70, 21-80, 21-82. Here Xometla, Mazapan, and Atlatongo phases are represented, and 21-80 was the only Xometla sample considered to represent the Atlatongo as well as Xometla and Mazapan phases, because of the presence of both orange cream wares, and the exclusive presence of medium neck jars in the jar category. The northern cluster is less closely grouped, consisting of 21-21, 21-10, and the outlying 21-48. The latter two are Xometla and Mazapan phase sites, while 21-21 is represented by Xometla phase.

North Slope of Cerro Gordo

The Maquixco Alto sites are distinctive in reflecting very Late Toltec occupation. Some Xometla phase material was found in MA4-5; all other samples are either Mazapan or Mazapan and Atlatongo, with the exception of MA6 which was considered Atlatongo. Again, site clustering is quite distinct.

The definition of the overall Early Toltec phase and its separation into an early subphase (Oxtotipac) and a later (Xometla) is clearly described and abundantly illustrated in the two chapters on the excavations at Oxtotipac and Xometla. Koehler has provided us with a clear definition of the overall Late Toltec phase from the excavations at Maquixco Bajo. His report, however, has two deficiencies. First, his sample size was small and fragmentary and second, he was not able to refine the phase into its Mazapan and Atlatongo subphases. The drawings and plates accompanying this chapter are all selected sherds from the *Late Toltec* phase surface collections only and are meant to amplify the limited illustrations provided by Koehler.

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	MONO-CHROME BOWLS		DECORATED BOWLS			JARS			BASINS				
Site No.	Tan	Orange	Coyot	Maz. R/B	Cream Slip	LN	MN	HN	Shal-low	Med.	Deep	Basal Ridge	Probable Major Occupation Phase(s)
TT 1	77	23		83	17		100		7	33	37	23	<u>Mazapan-Atlatongo</u> : high % orange & cream; no Coyotlatelco
TT 4	95	5	4	95	1	6	88	6	16	32	49	3	<u>Mazapan</u> : both Xometla & Atlatongo elements present in small quantities; high % of Mazapan Red/Buf, medium neck jars, tan ware
TT 6	87	13	3	77	20	5	95			8	59	33	<u>Mazapan-Atlatongo</u> : high % orange & cream; high % medium neck jars, basal ridge basins
TT 7	100			100			100			50	50		<u>Mazapan</u> : no other phase elements
TT 8	100		66	31	3		100		7		93		<u>Xometla</u> : very high % Coyotlatelco, Mazapan
TT 9	100		50	50			100			100			<u>Xometla</u> : very high % Coyotlatelco, Mazapan
TT 10	98	2	35	57	8	11	86	3		50	41	9	<u>Xometla-Mazapan</u> : presence of orange & cream wares with high % of Mazapan Red/Buf & Coyotlatelco
TT 11	100		15	79	6	16	63	21	6	29	65		<u>Mazapan</u> : decorated bowls are mostly Mazapan Red/Buf, with low % of Coyotlatelco & cream; <u>Xometla</u> : Coyotlatelco low & high neck jars
TT 12	100		100							50	50		<u>Xometla</u> : all tan mono-chrome; all Coyotlatelco
TT 14	71	29	2	80	18	4	96		3	50	47		<u>Mazapan-Atlatongo</u> : high % orange & cream wares
TT 15	76	24		92	8		100			50	50		<u>Mazapan-Atlatongo</u> : high % orange & cream wares
TT 16	100			80	20	33	67				100		<u>Mazapan-Atlatongo</u> : high % cream ware; all basins deep
TT 17	100			81	19		100			56	11	33	<u>Mazapan-Atlatongo</u> : high % cream ware; all medium neck jars; high % basal ridge basins
Table 17. (Continues) Teotihuacan Valley Diagnostic Frequencies (in percentages).													

	MONO-CHROME BOWLS		DECORATED BOWLS			JARS			BASINS				
Site No.	Tan	Orange	Coyot	Maz. R/B	Cream Slip	LN	MN	HN	Shal-low	Med.	Deep	Basal Ridge	Probable Major Occupation Phase(s)
TT 18										50		50	<u>Mazapan-Atlatongo</u> : high % basal ridge basins
TT 19	82	18		50	50	50	50				100		<u>Mazapan-Atlatongo</u> : high % orange; cream wares
TT 20	100		96	4		50		50		20	80		<u>Xometla</u> : very high Coyotlatelco
TT 22	62	38	21	75	4		100			40	40		<u>Xometla</u> : high % Coyotlatelco, <u>Mazapan-Atlatongo</u> : high % orange, some cream; all medium neck jars
TT 23	72	28	15	75	10		100			16	84		<u>Xometla</u> : Coyotlatelco, <u>Mazapan-Atlatongo</u> : orange & cream wares; all medium neck jars
TT 24	60	40	83	17		100			10	90			<u>Xometla</u> : very high % Coyotlatelco, <u>Mazapan-Atlatongo</u> : very high % orange ware; all medium neck jars
TT 25	87	13	21	71	8		100			16	42	42	<u>Xometla</u> : high % Coyotlatelco, <u>Mazapan-Atlatongo</u> : orange & cream wares; all medium neck jars; many basal ridge basins
TT 26	67	33	5	81	14	8	77	15		69	23	1	<u>Mazapan-Atlatongo</u> : orange & cream wares; mostly medium neck jars
TT 47	89	11	3	71	26	5	90	5			50	50	<u>Mazapan-Atlatongo</u> : orange & cream wares; mostly medium neck jars; high % basal ridge basins
TT 61	100			100						75	25		<u>Mazapan</u> : all decorated bowls are Mazapan Red/Buff
TT 62	100		4	80	16	9	91			75	25		<u>Mazapan</u> : very low Coyotlatelco; no orange ware; no basal ridge basins
TT 63	56	44	11	89			100			14	72	14	<u>Mazapan</u> : despite high %, no cream; some Coyotlatelco
Table 17. (Continues) Teotihuacan Valley Diagnostic Frequencies (in percentages).													

Site No.	MONO-CHROME BOWLS		DECORATED BOWLS			JARS			BASINS				Probable Major Occupation Phase(s)
	Tan	Orange	Coyot	Maz. R/B	Cream Slip	LN	MN	HN	Shal-low	Med.	Deep	Basal Ridge	
TT 64	46	54		78	22		100			25	62	13	Mazapan-Atlatongo: very high % orange; high % cream; all medium neck jars; some basal ridge
TT 65	100		58	40	2	13	48	39		55	42	3	Xometla: very high % Coyotlateico; no orange ware
TT 72	60	40	5	75	20	35	45	20	7	27	40	26	Xometla: high % low & high neck jars, Mazapan-Atlatongo: high % orange & cream
Table 17. (Continued) Teotihuacan Valley Diagnostic frequencies (in percentages).													

	MONO-CHROME BOWLS		DECORATED BOWLS			JARS			BASINS				
Site No.	Tan	Orange	Coyot	Maz. R/B	Cream Slip	LN	MN	HN	Shal-low	Med.	Deep	Basal Ridge	Probable Major Occupation Phase(s)
21-00				100									Mazapan
21A	100		82	18		38	31	31		10	50	40	Xometla: high % Coyotlatelco; high % high neck & low neck jars; Mazapan: high % medium neck jars; basal ridge basins
21D	100			100		12	83						Mazapan
21-10	100		38	50	12		76	24		25	65	10	Xometla: high % Coyotlatelco, Mazapan some cream slip, high % medium neck jars
21-21							100						Mazapan: high % medium neck jars
21-23	93	7	100			31	31	38		60	40		Xometla: all Coyotlatelco, high % high & low neck jars Mazapan: some orange high % medium neck jars
21-24	100		86	14	0.3	20	16	64		20	80		Xometla: high % Coyotlatelco, high % high neck jars
21-25	100		92	8			100				100		Xometla: high % Coyotlatelco, Mazapan: all medium neck jars
21-26	100		58	25	17		100				100		Xometla: high % Coyotlatelco, Mazapan: high % cream; all medium neck jars
21-30 21-34 21-44 21-46													No assessment possible
21-48	100		70	30			67	33		57	43		Xometla: high % Coyotlatelco, Mazapan: some Mazapan Red/Buf, high % medium neck jars
Table 18. (Continues) Xometla Site Diagnostic Frequencies (in percentages).													

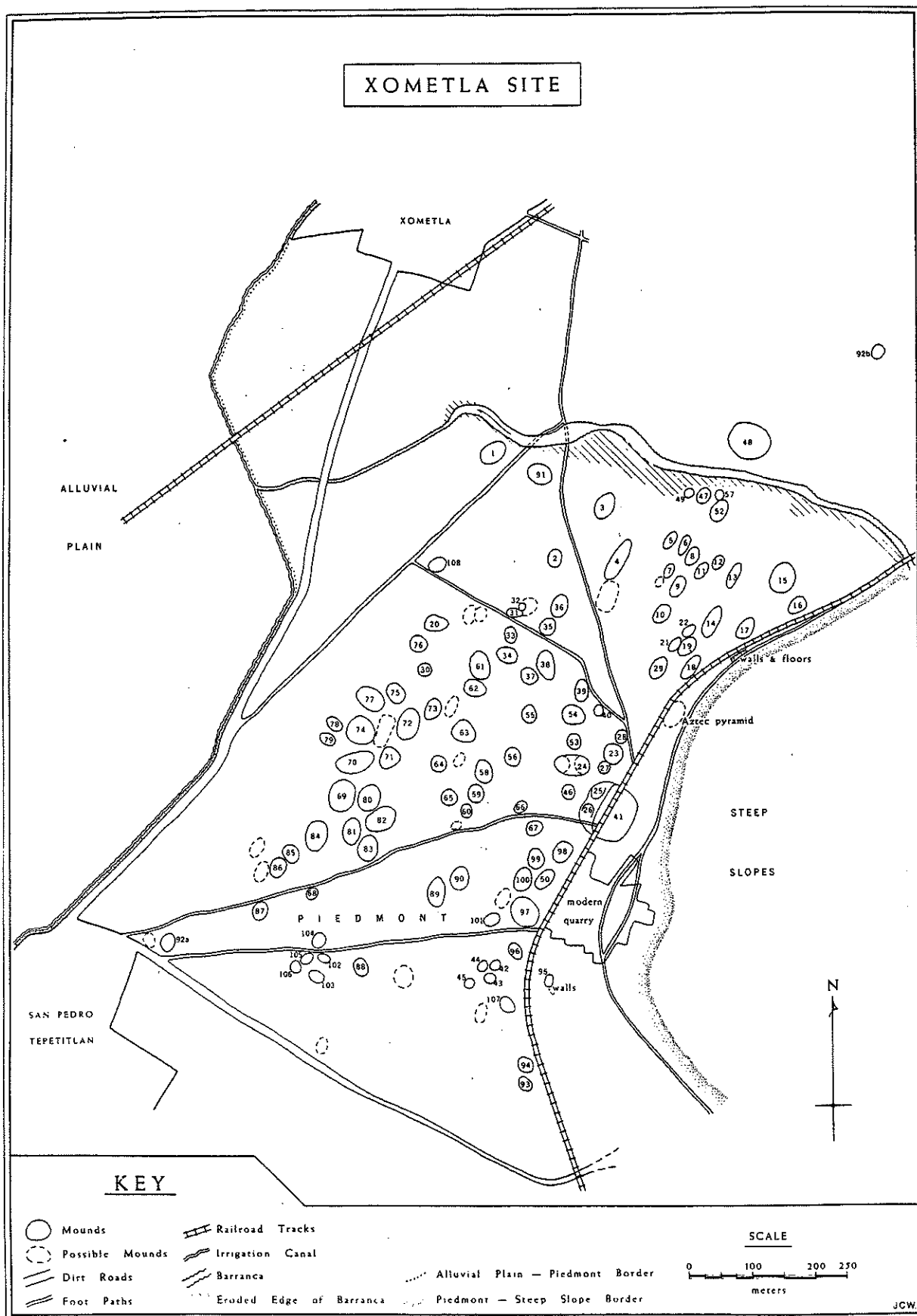
	MONO-CHROME BOWLS		DECORATED BOWLS			JARS			BASINS				
Site No.	Tan	Orange	Coyot	Maz. R/B	Cream Slip	LN	MN	HN	Shal-low	Med.	Deep	Basal Ridge	Probable Major Occupation Phase(s)
21-50	92	8	7	90	3	2	88	10		75	25		<u>Mazapan</u> : traces of Xometla & Atlatongo phase wares present
21-54								100					No assessment possible
21-69	100		34	60	6		100			14	86		<u>Xometla</u> : high % Coyotlatelco, <u>Mazapan</u> : high % Mazapan Red/Buf, some cream slip; all medium neck jars
21-70	100			100									<u>Mazapan</u> : all Mazapan Red/Buf
21-74									100			100	No assessment possible
21-80	75	25	43	48	9		100			29	52	19	<u>Xometla</u> : high % Coyotlatelco, <u>Mazapan</u> : high % orange & cream wares all medium neck jars; high % basal ridge basins
21-82	100		18	78	4		100			20	60	20	<u>Xometla</u> : all tan monochromes, some Coyotlatelco, <u>Mazapan</u> : high % Mazapan Red/Buf, some cream slip; all medium neck jars; high % basal ridge basins
Table 18. (Continued) Xometla Site Diagnostic Frequencies (in percentages).													

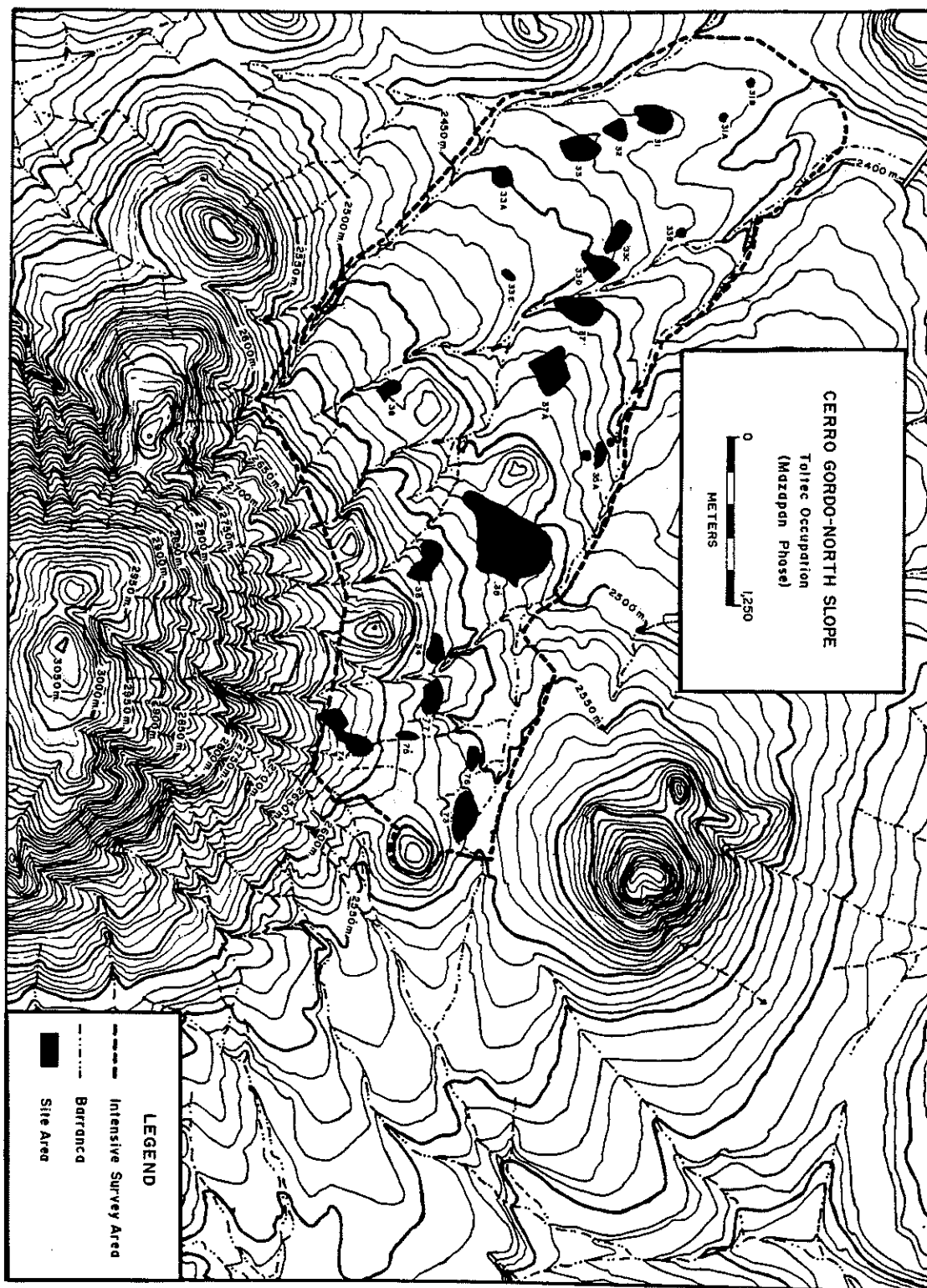
	MONO-CHROME BOWLS		DECORATED BOWLS			JARS			BASINS				
Site No.	Tan	Orange	Coyot	Maz. R/B	Cream Slip	LN	MN	HN	Shal-low	Med.	Deep	Basal Ridge	Probable Major Occupation Phase(s)
MA 3		100		85	15		100			56	1	33	Mazapan-Atlatongo: all orange monochrome; all medium neck jars; high % basal ridge basins
MA 4	80	20		62	38		100					100	Atlatongo: very high cream; all medium neck jars; all basal ridge basins
MA 4-5	100		14	67	19		100			50	25	25	Xometla: some Coyotlatelco; no orange ware, Mazapan-Atlatongo: high % Mazapan Red/Buf & cream; all medium neck jars; high % basal ridge basins
MA 5	50	50		88	12		100			50		50	Mazapan-Atlatongo: high % orange, cream; all medium neck jars
MA 6	100				100		100			100			Atlatongo: all cream decorated bowls
MA 7	100			100			100					100	Mazapan: all Mazapan Red/Buf; all medium neck jars
MA 8	100			100			100			33		67	Mazapan: all Mazapan Red/Buf; all medium neck jars
MA 9	88	12		80	20		100					100	Mazapan-Atlatongo: high % orange & cream; all medium neck jars; all basal ridge basins
MA 11	100			100			100					100	Mazapan: all Mazapan Red/Buf; all medium neck jars, basal ridge basins
MA 23	100			75	25		100				25	75	Mazapan-Atlatongo: high % cream
MA 25A	88	12		90	10	8	92					100	Mazapan-Atlatongo: some cream, all basal ridge basins
Table 19. (Continues) Maquixco-Alto Site Diagnostic Frequencies (in percentages).													

	MONO-CHROME BOWLS		DECORATED BOWLS			JARS			BASINS				
Site No.	Tan	Orange	Coyot.	Maz. R/B	Cream Slip	LN	MN	HN	Shal-low	Med.	Deep	Basal Ridge	Probable Major Occupation Phase(s)
MA 25B	85	15		67	33		100			20		80	<u>Mazapan-Atlatongo</u> : some orange, high % cream, medium neck jars & basal ridge basins
MA 27	80	20		83	17		100				14	86	<u>Mazapan-Atlatongo</u> : high % orange & cream, & basal ridge basins; all medium neck jars
MA 28	100		5	80	15		100				17	83	<u>Mazapan-Atlatongo</u> : some cream; all medium neck jars, high % basal ridge basins
MA 29	100			80	20		100			67		33	<u>Mazapan-Atlatongo</u> : some cream, all medium neck jars
MA 30	93	7		78	22		100			50	50		<u>Mazapan-Atlatongo</u> : some orange & cream
MA 31	100						100					100	<u>Mazapan</u> : all medium neck jars
MA 36	100			75	25		100				50	50	<u>Mazapan-Atlatongo</u> : high % cream; all medium neck jars; high % basal ridge basins
MA 38	75	25		89	11		100					100	<u>Mazapan-Atlatongo</u> : high % Mazapan Red/Buf, some cream, all medium neck jars
MA 55	100						100				14	86	<u>Mazapan</u> : all medium neck jars, high % basal ridge basins
Table 19. (Continued) Maquixco Alto Diagnostic Frequencies (in percentages).													

LATE TOLTEC PHASE
SETTLEMENT TYPES







Map 4. Maquixco Alto, Surface Sample Localities. Site TT35: samples 3, 4, 5, 4-5, 6, 7, 8, 9, 11; Site TT36: samples 23, 25, 27, 28, 29, 30, 31; Site TT34: samples 36, 38; Site TT38: sample 55.

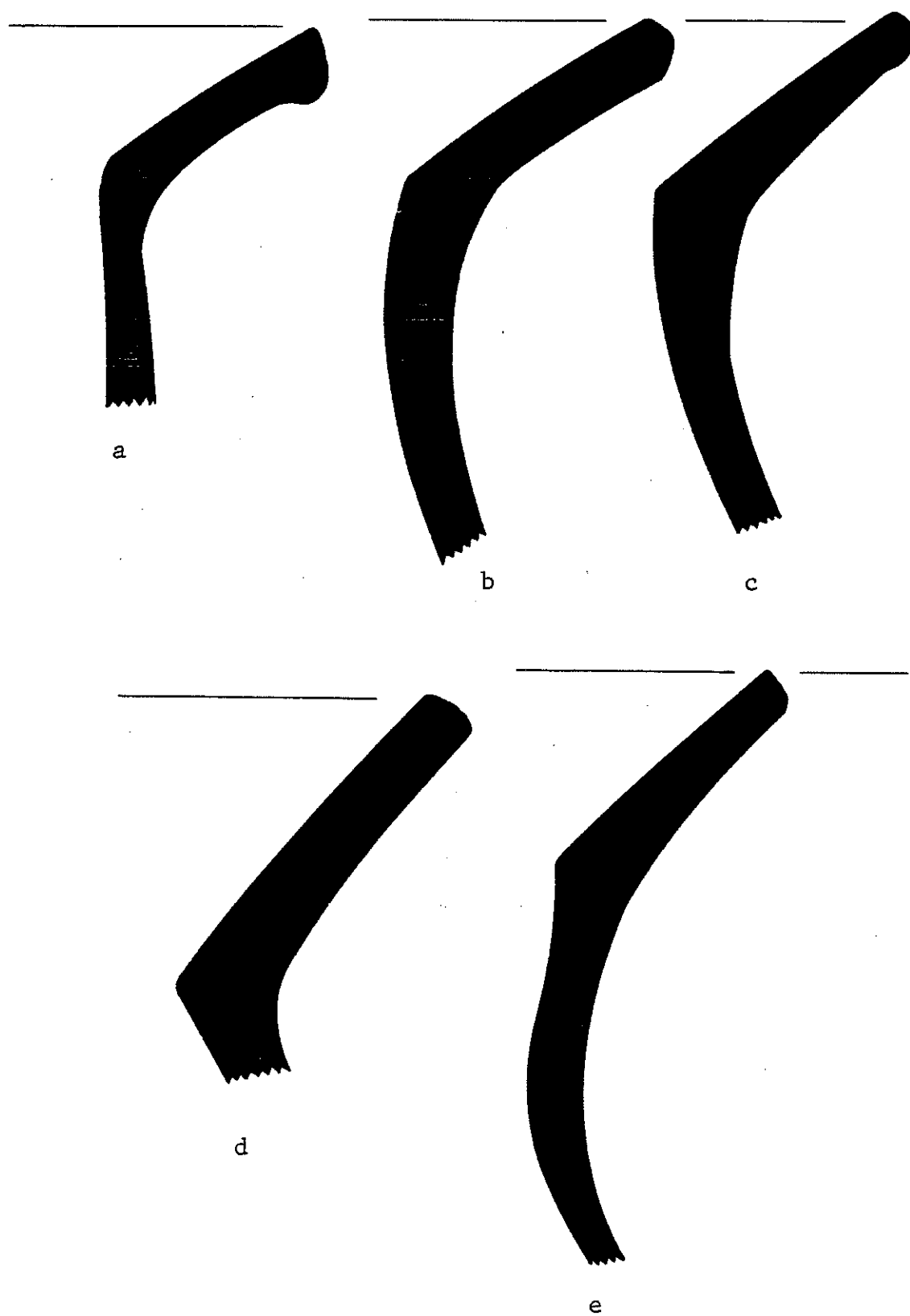


Figure 1. Utility Ware, Jars.

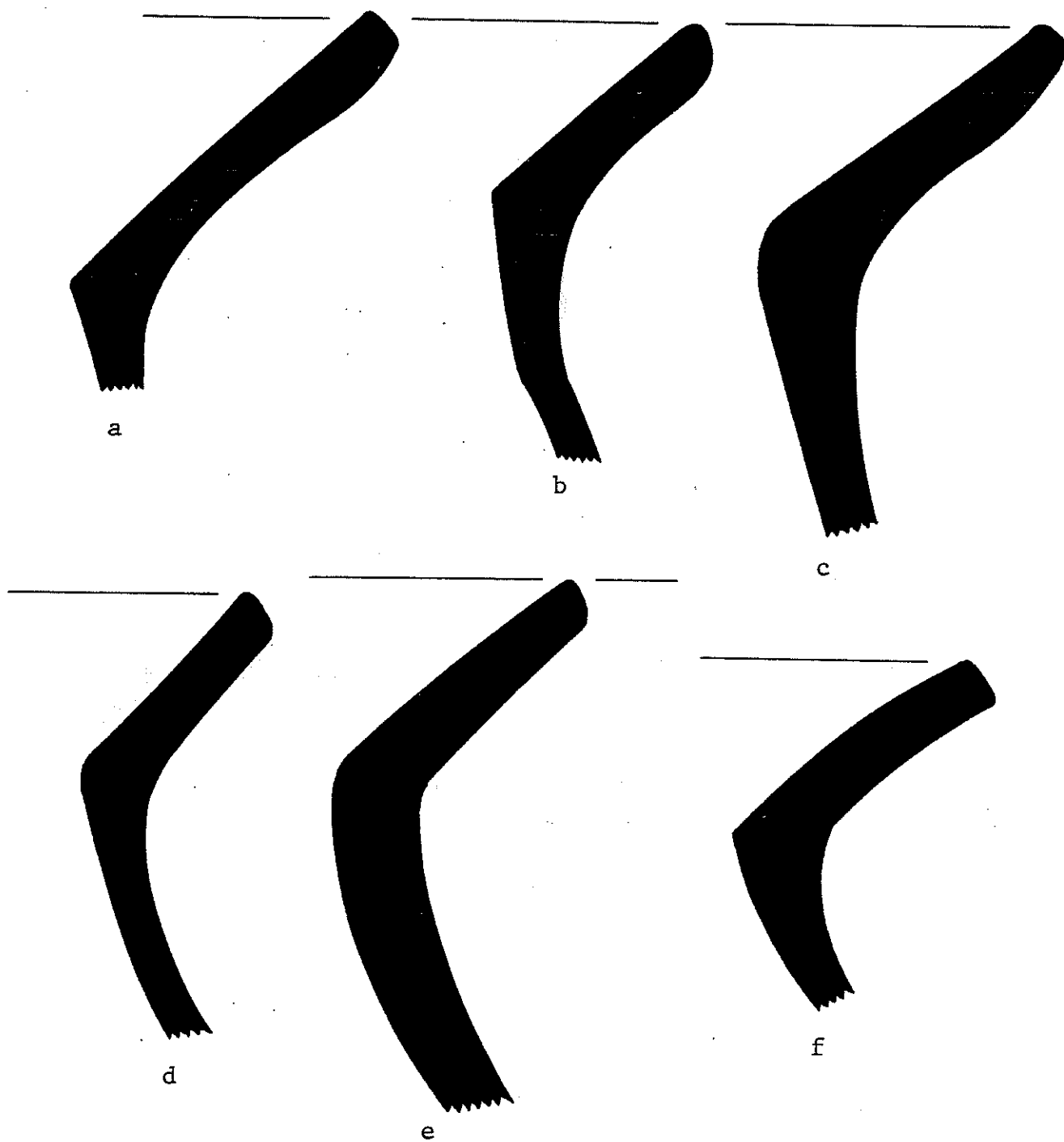


Figure 2. Utility Ware, Jars.

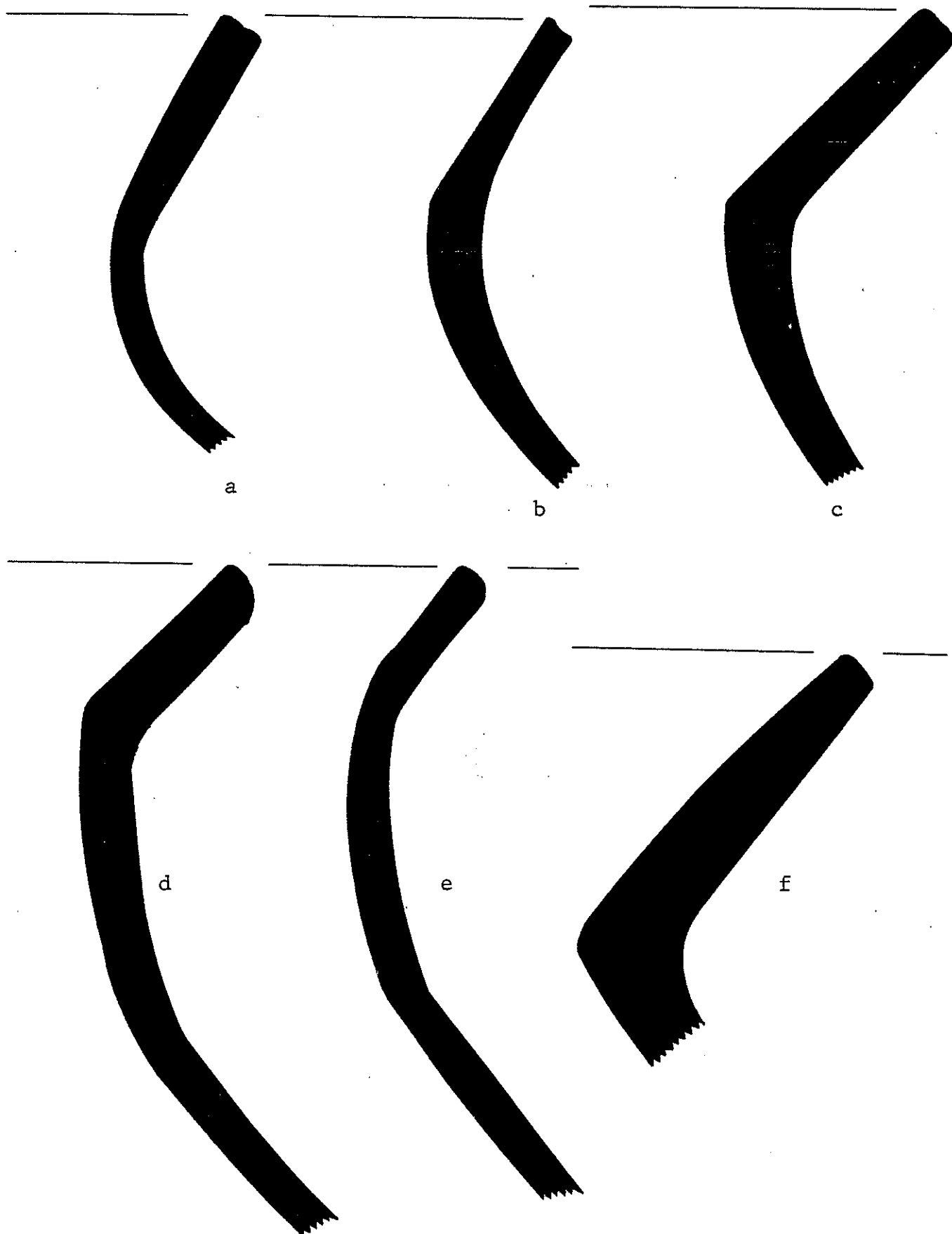


Figure 3. Utility Ware, Jars.

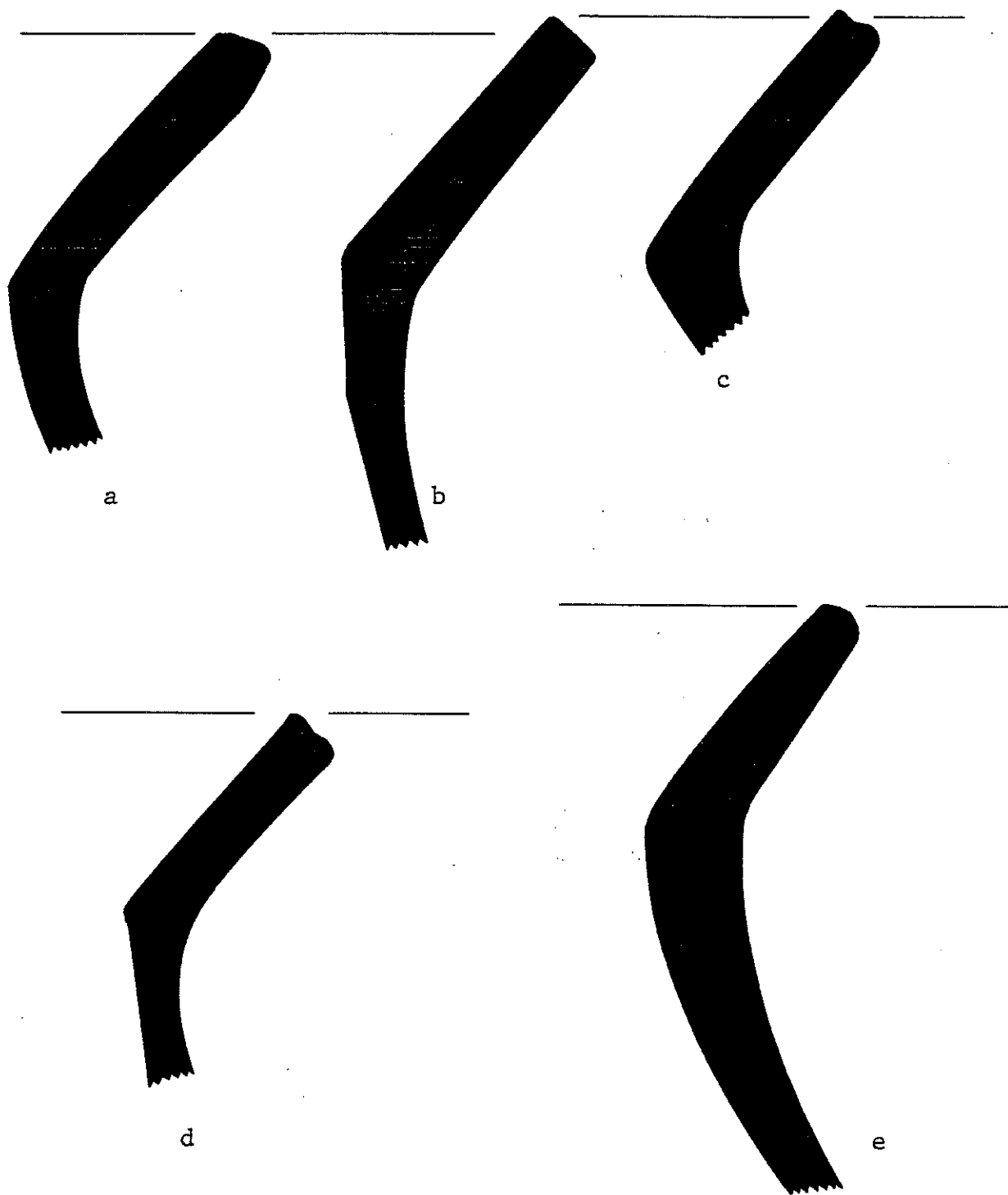


Figure 4. Utility Ware, Jars.

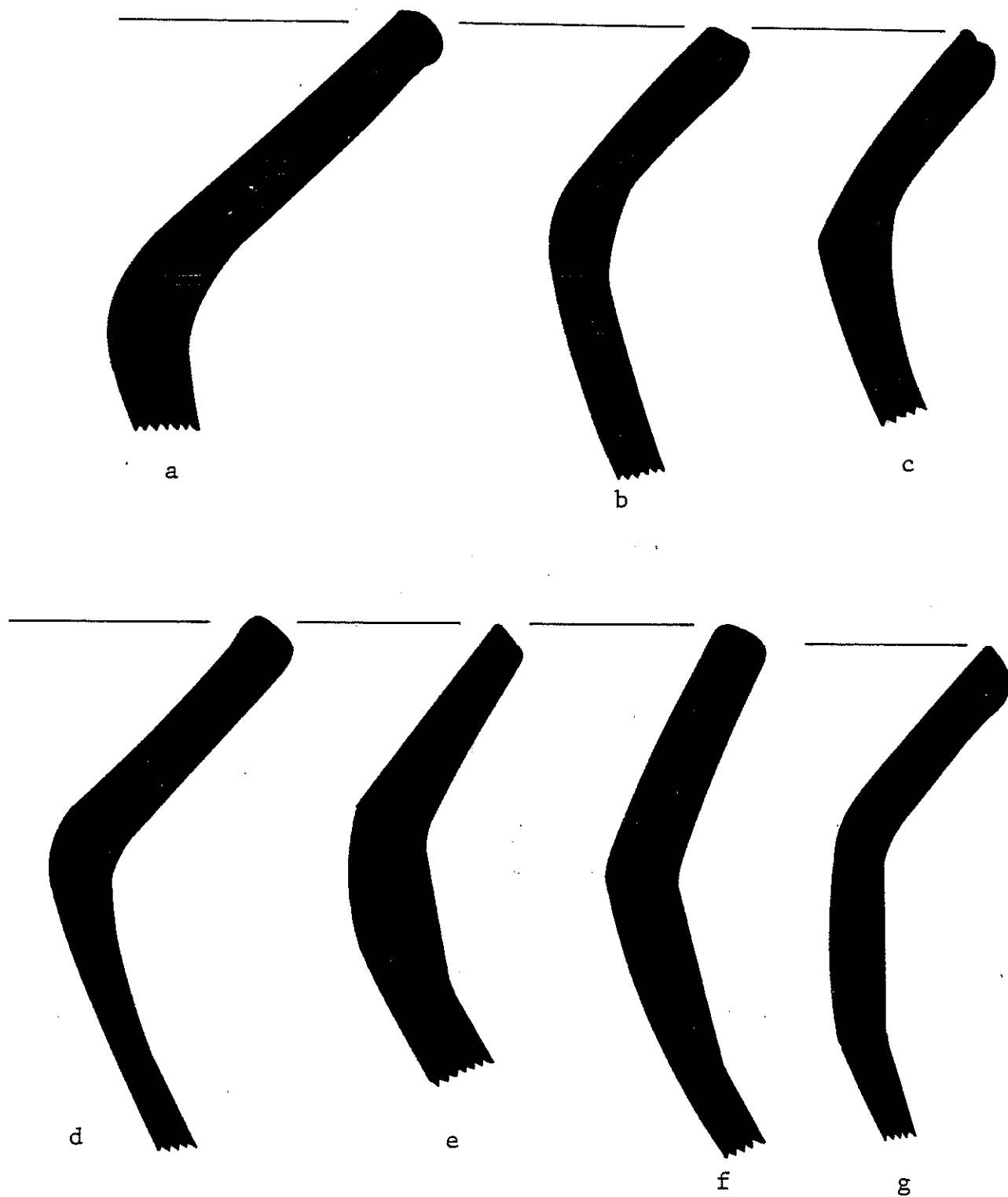


Figure 5. Utility Ware, Jars.

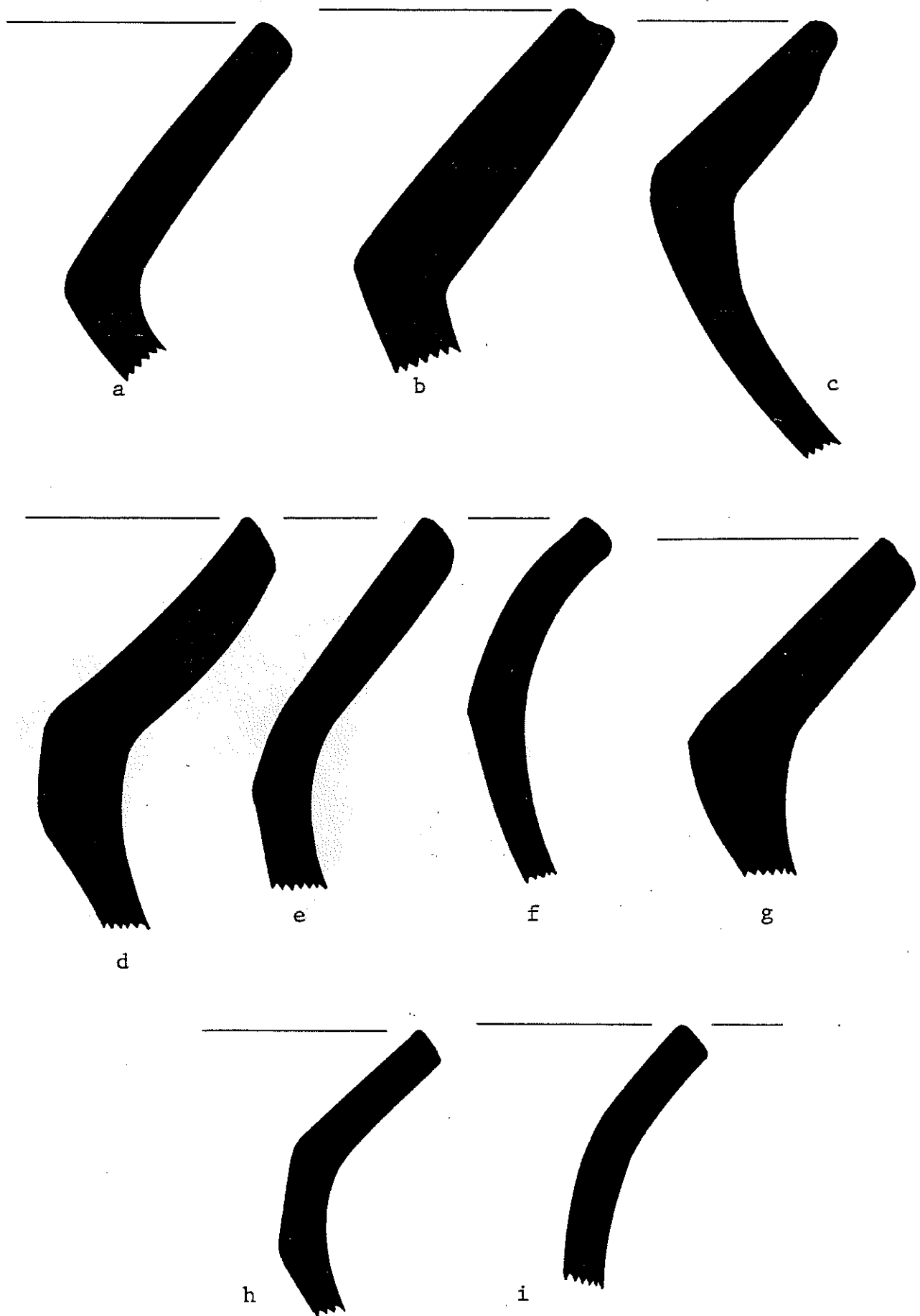


Figure 6. Utility Ware, Jars.

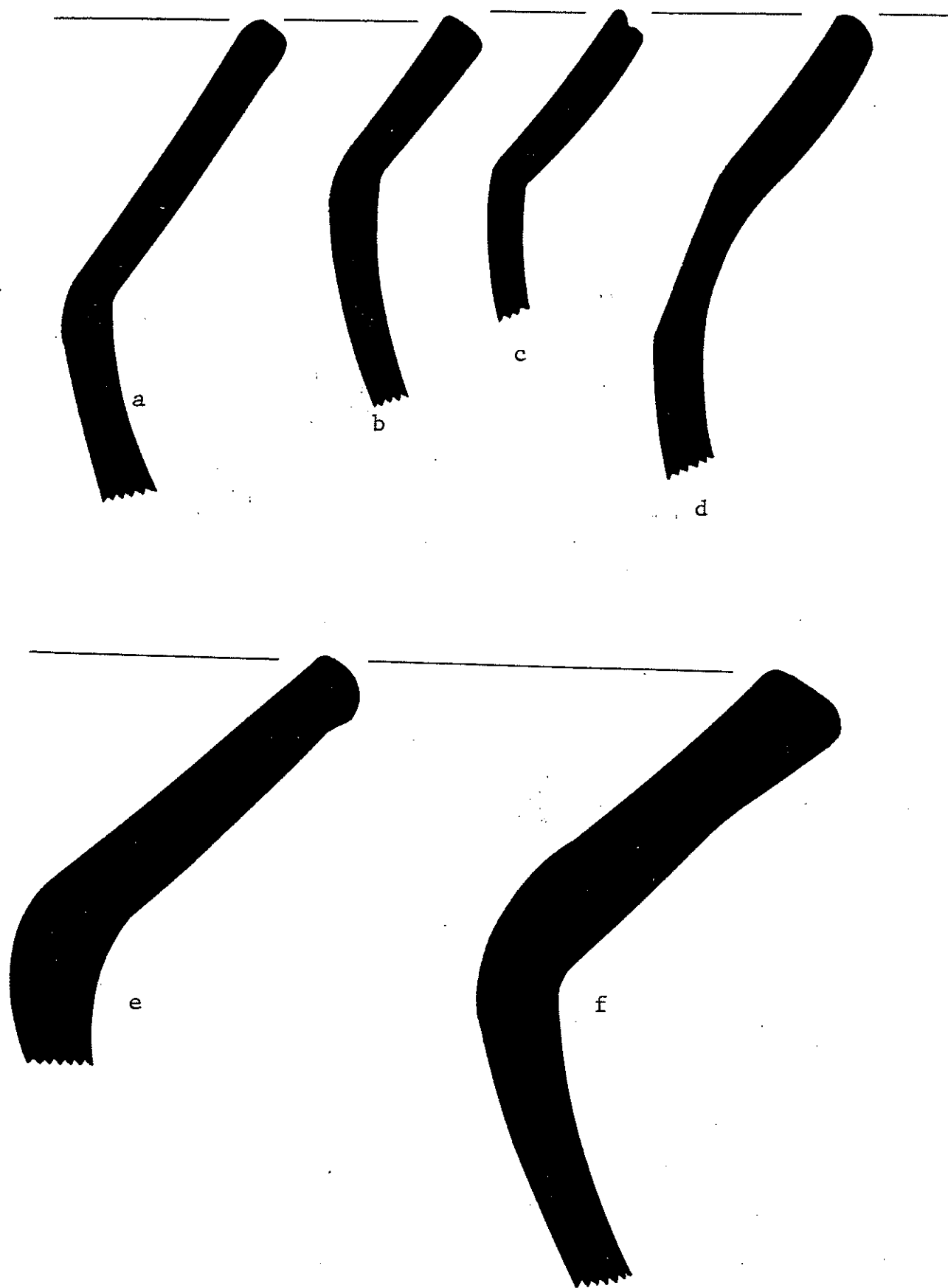


Figure 7. Utility Ware, Jars.

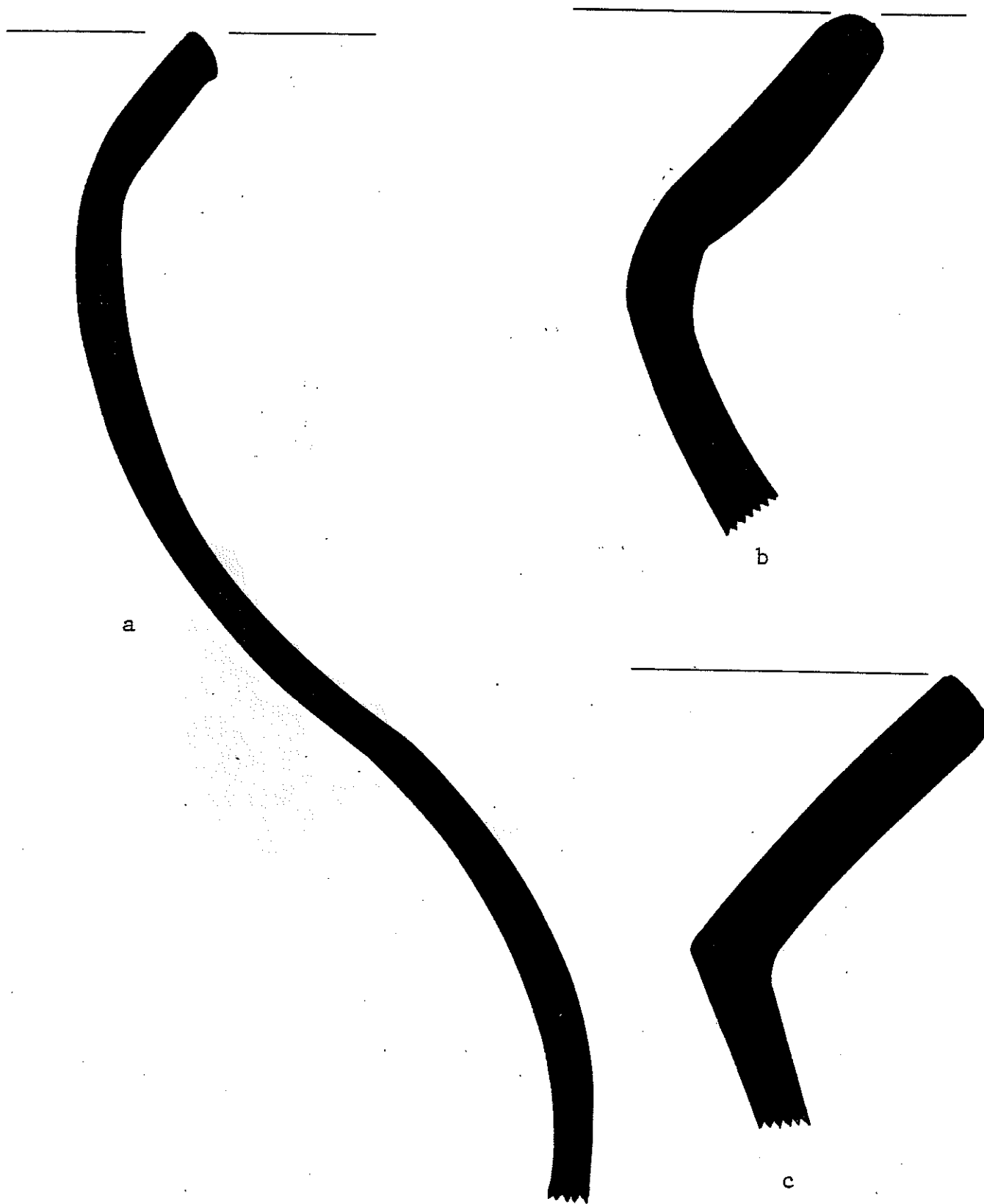


Figure 8. Utility Ware, Jars.



Figure 9. Utility Ware, Basins.

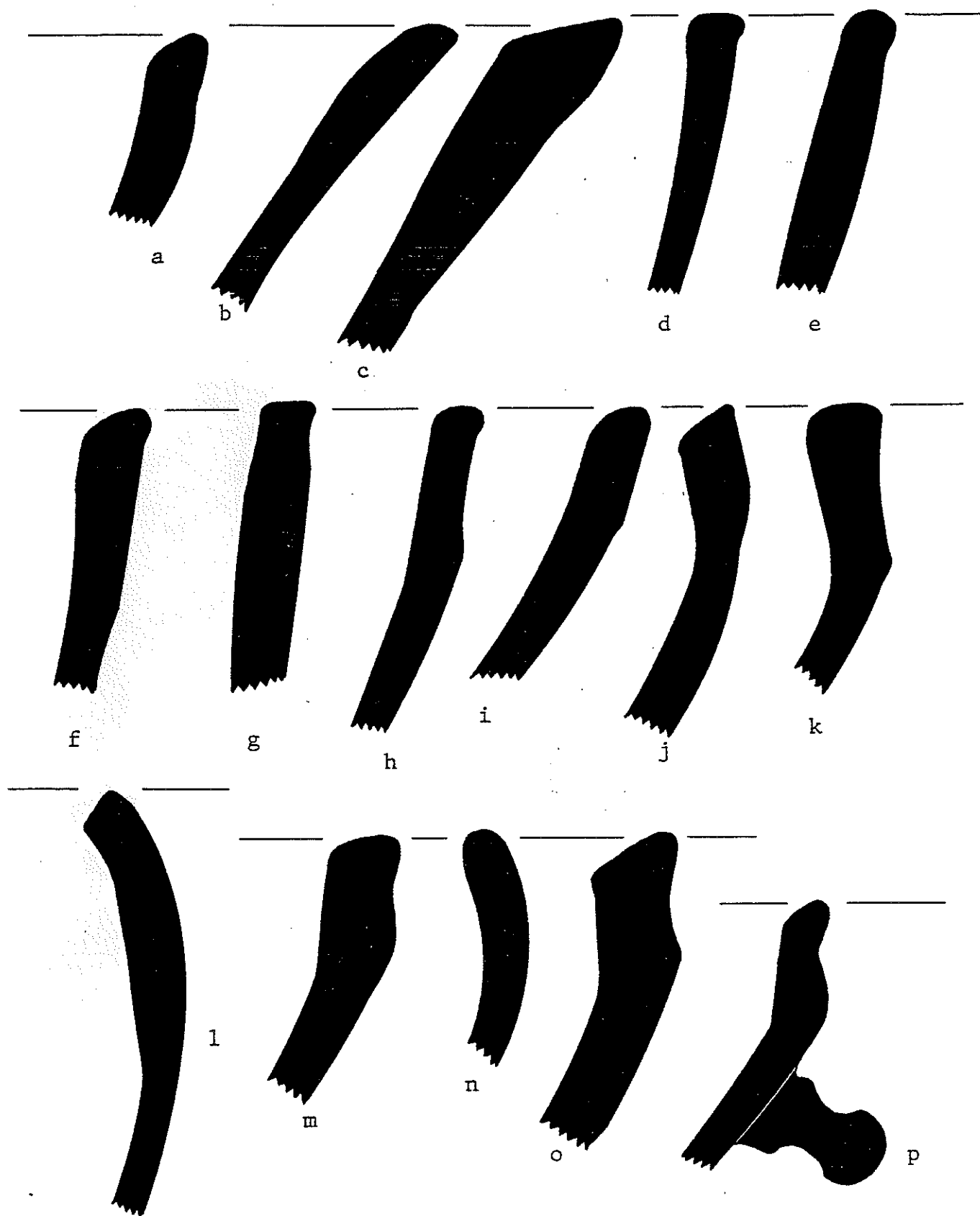


Figure 10. Utility Ware, Basins.

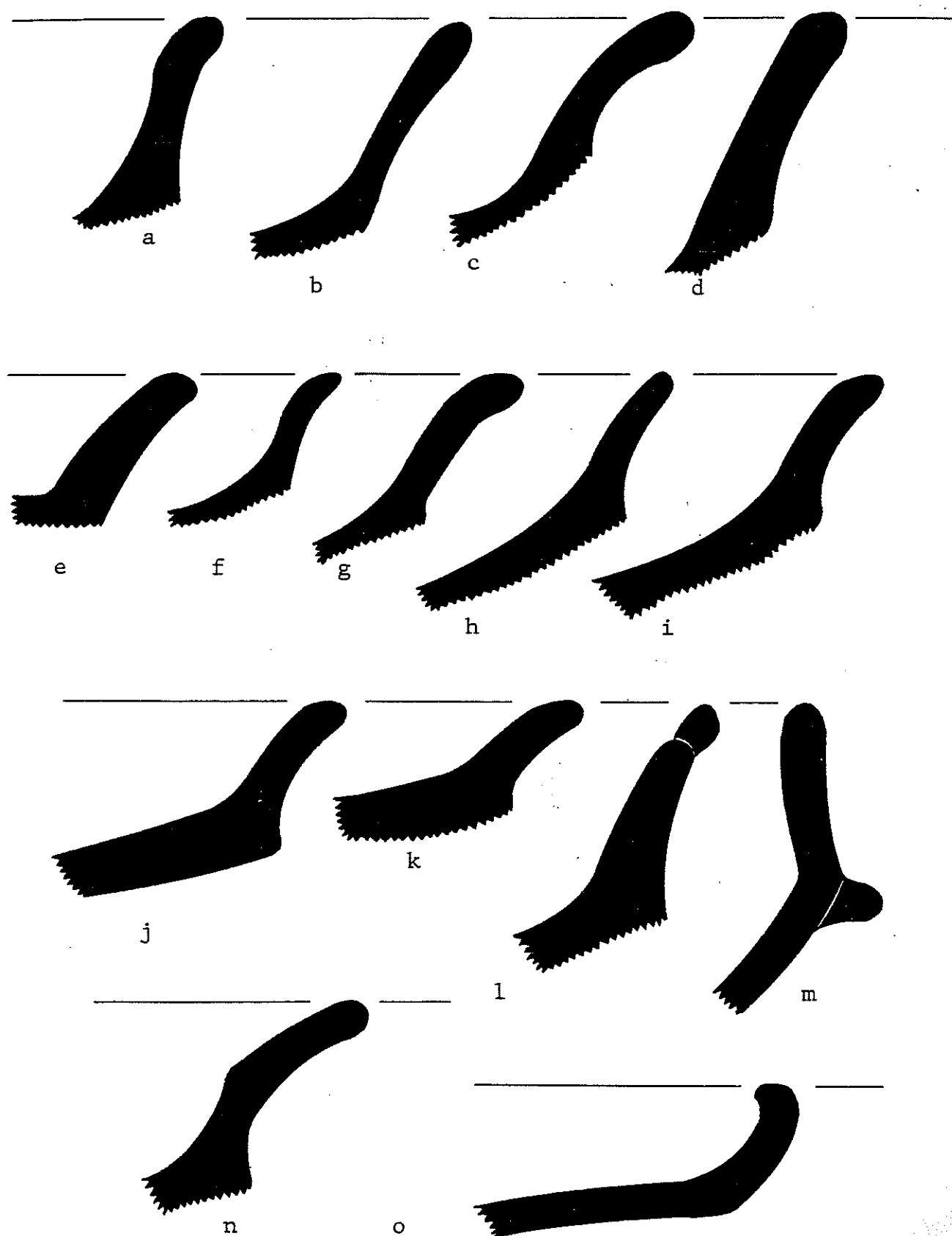


Figure 11. Utility Ware, Comales.

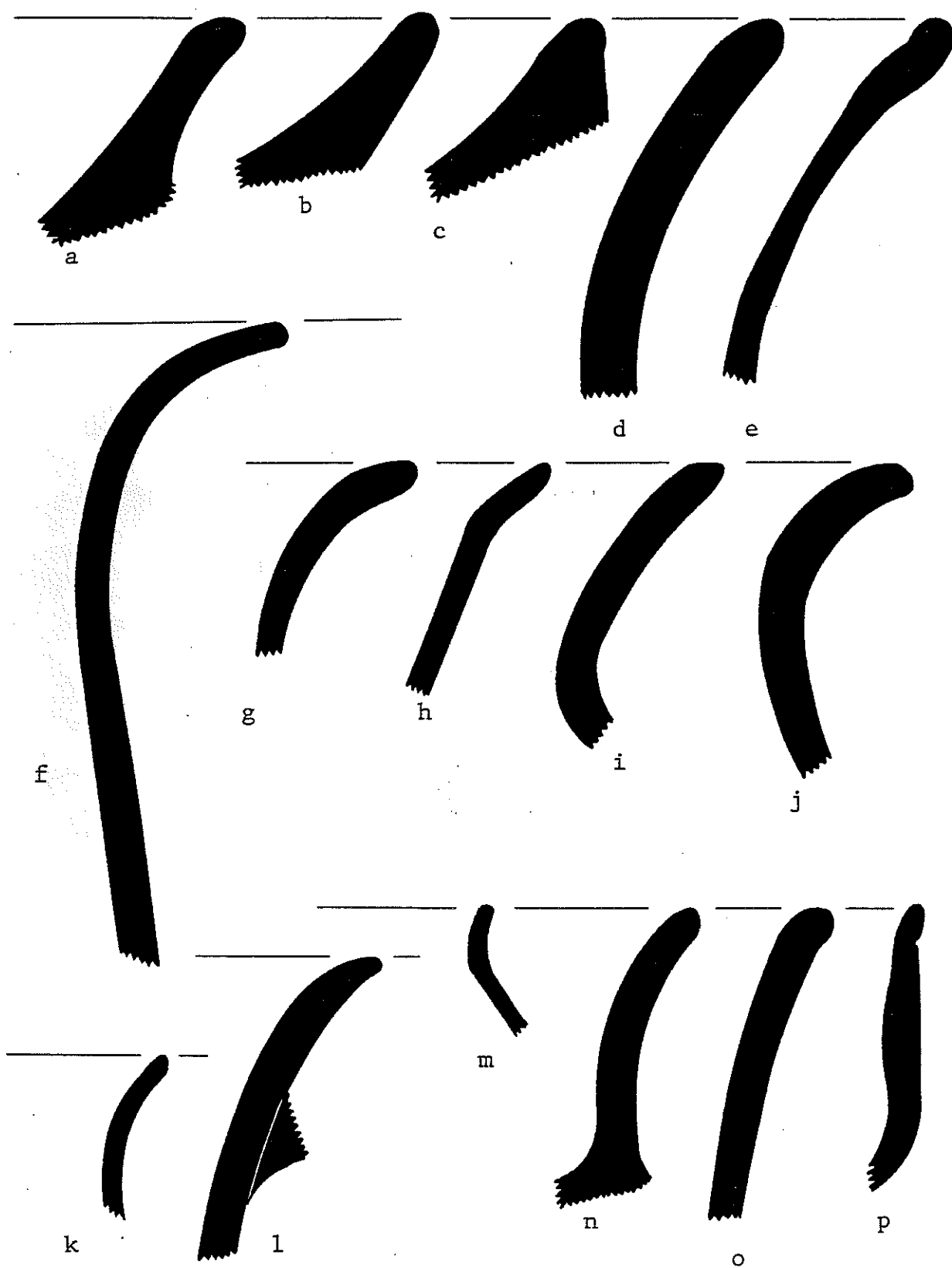


Figure 12. Utility Ware. a-c: comales; d-j: red/buff jars; k-l: plumbate; m-p: imitation plumbate.

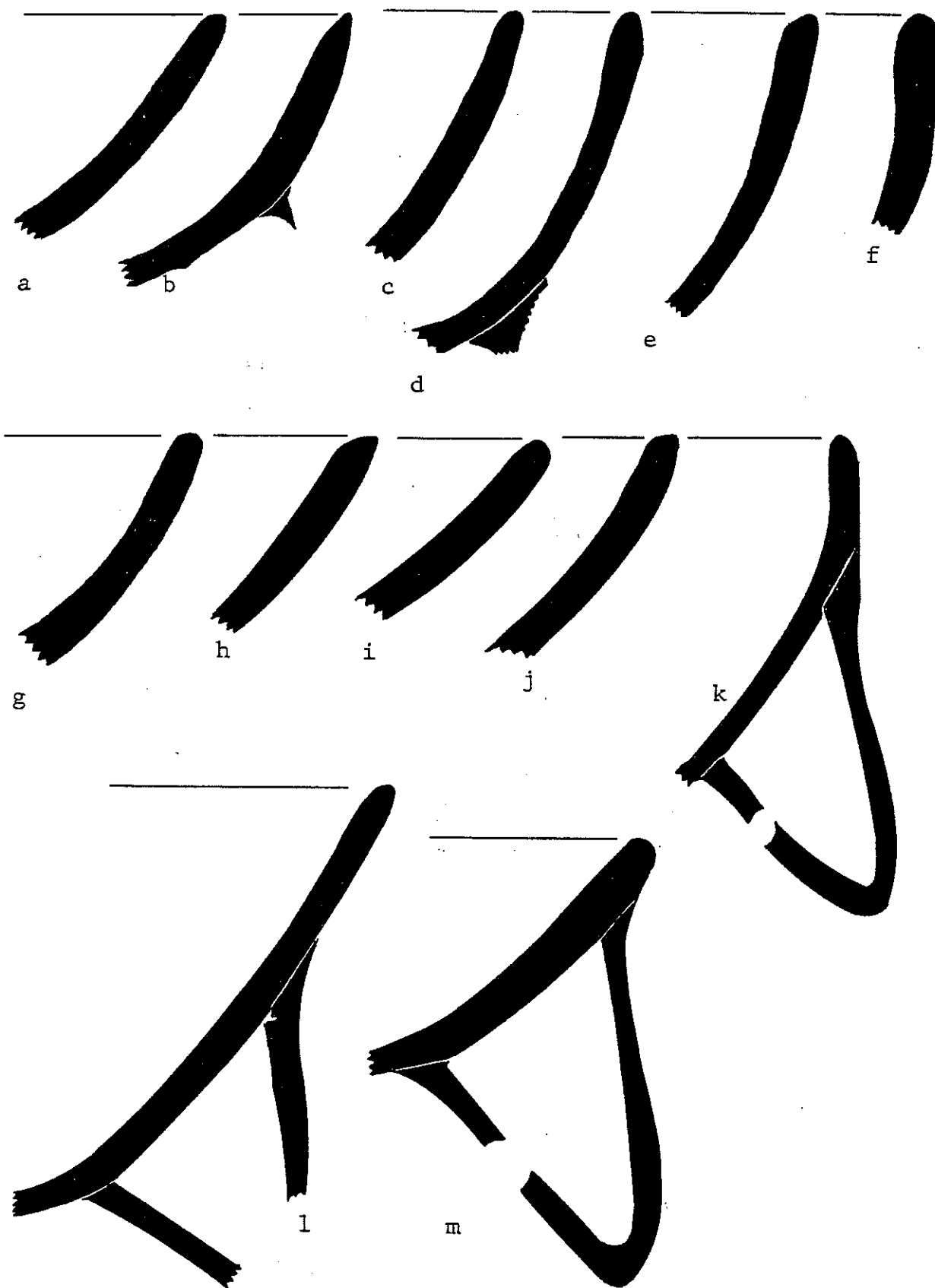


Figure 13. Mazapan Wide Band Red/Buf.

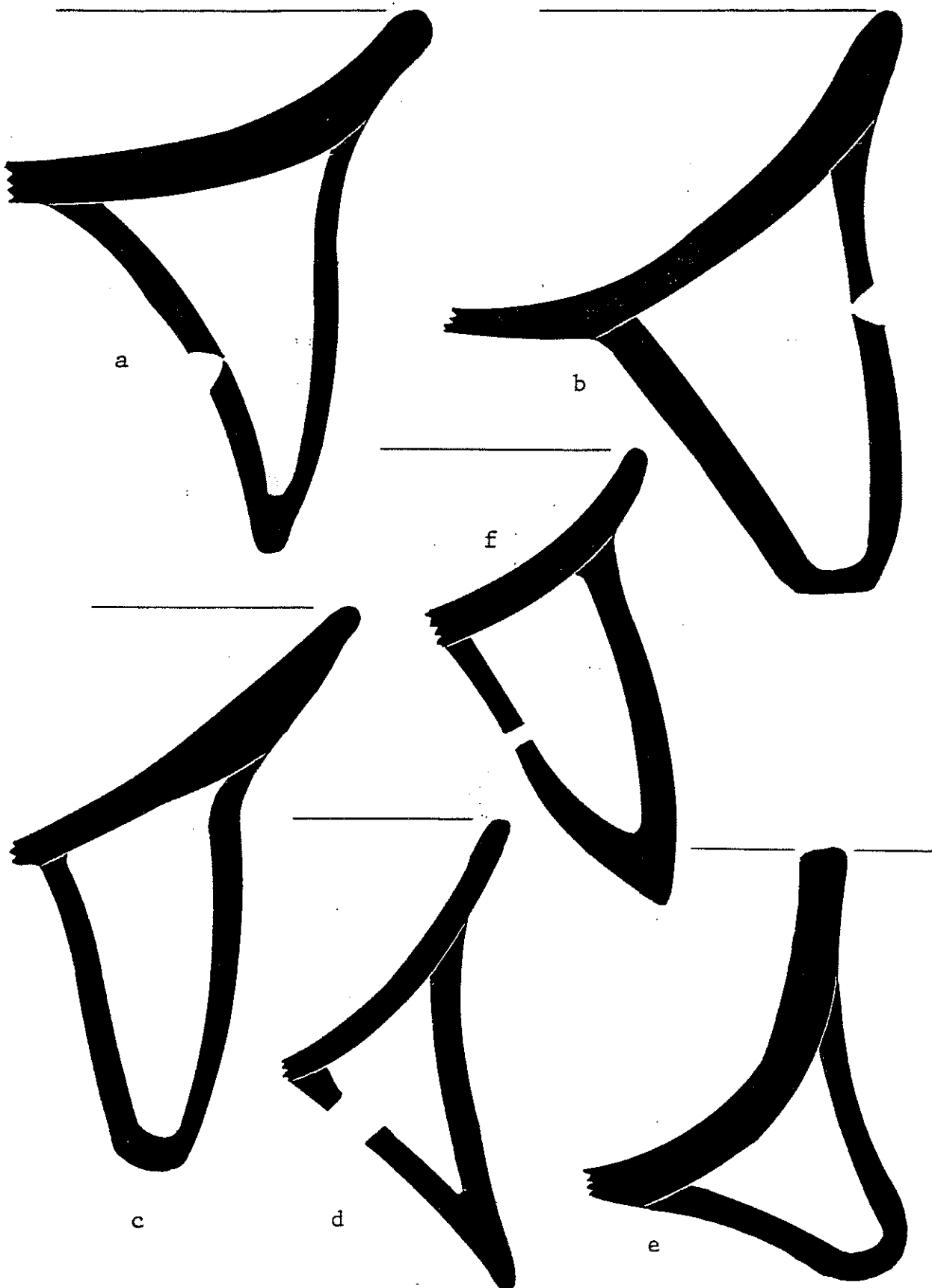


Figure 14. Mazapan Wide Band Red/Buff.

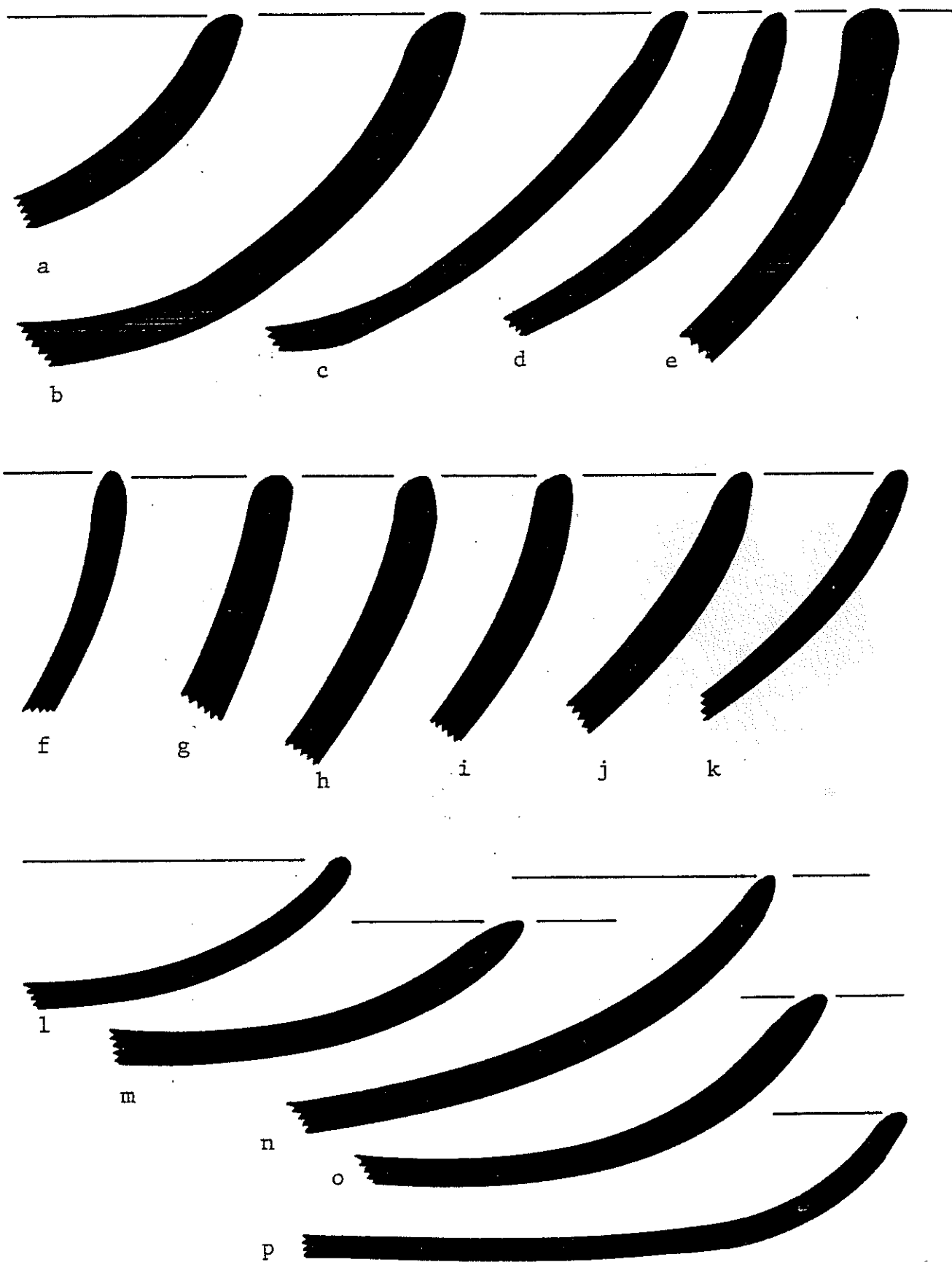


Figure 15. Mazapan Wavy Line Red/Buf.

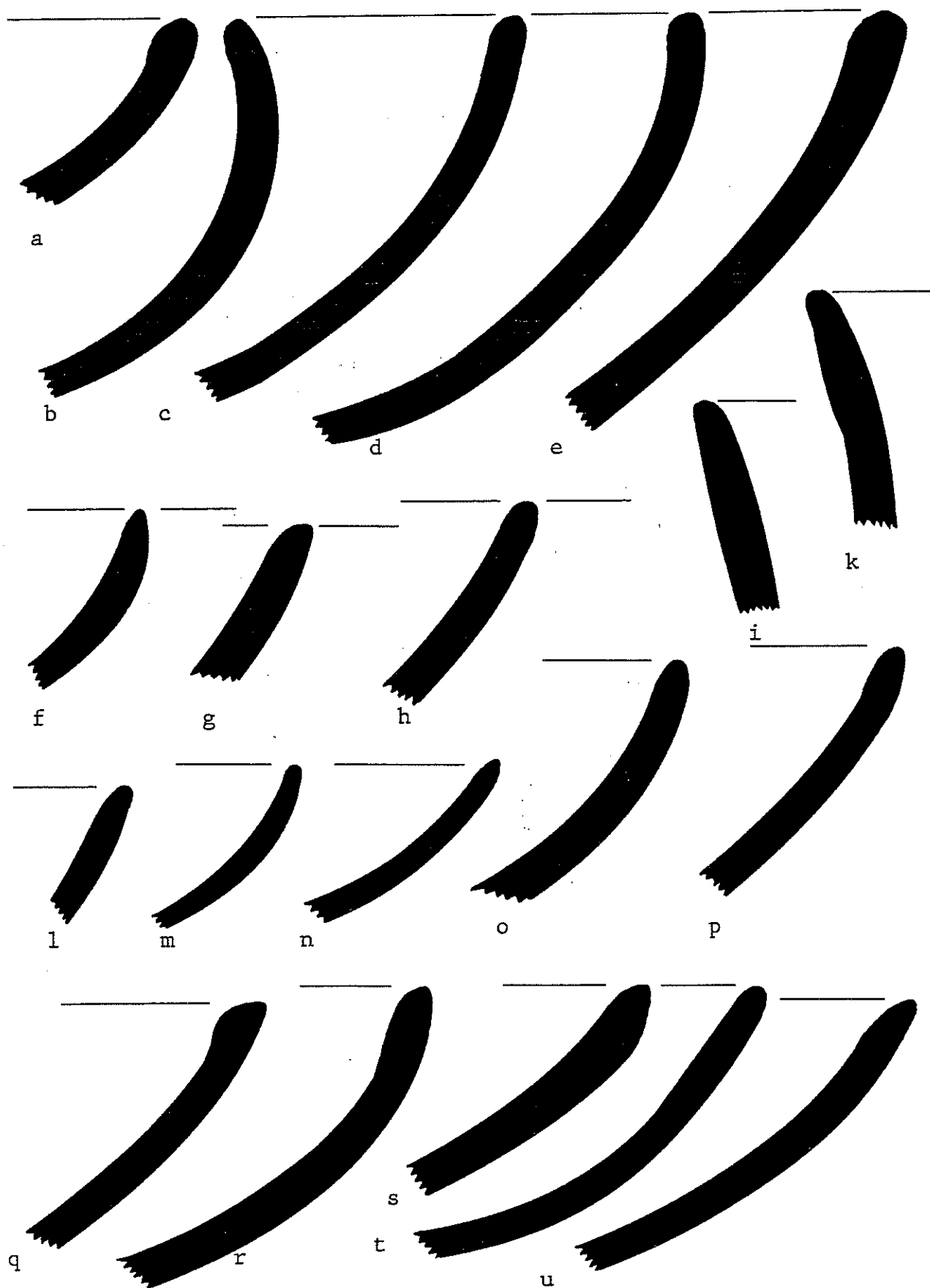


Figure 16. Mazapan Wavy Line Red/Buf.

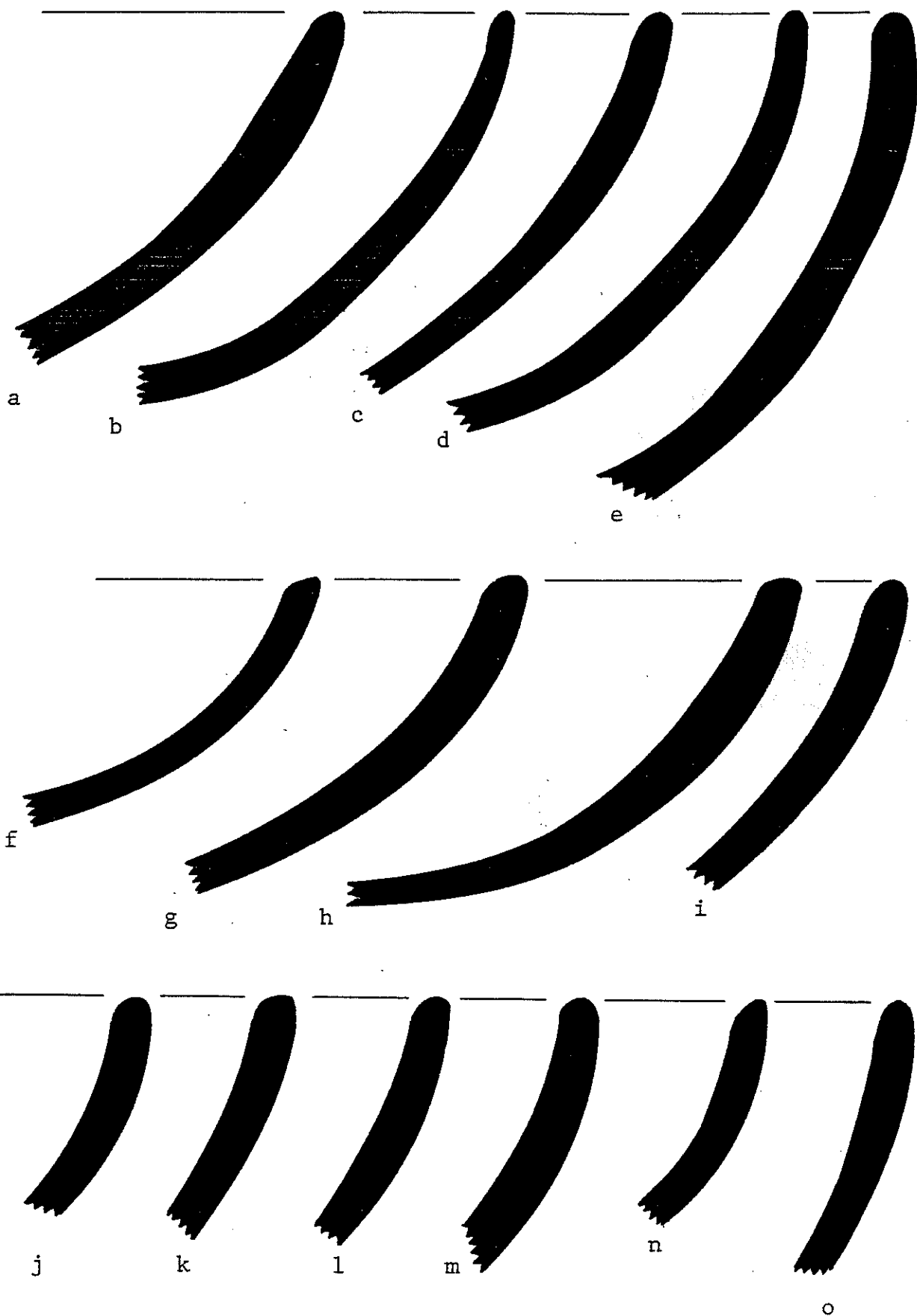


Figure 17. Toltec Red/Buf.

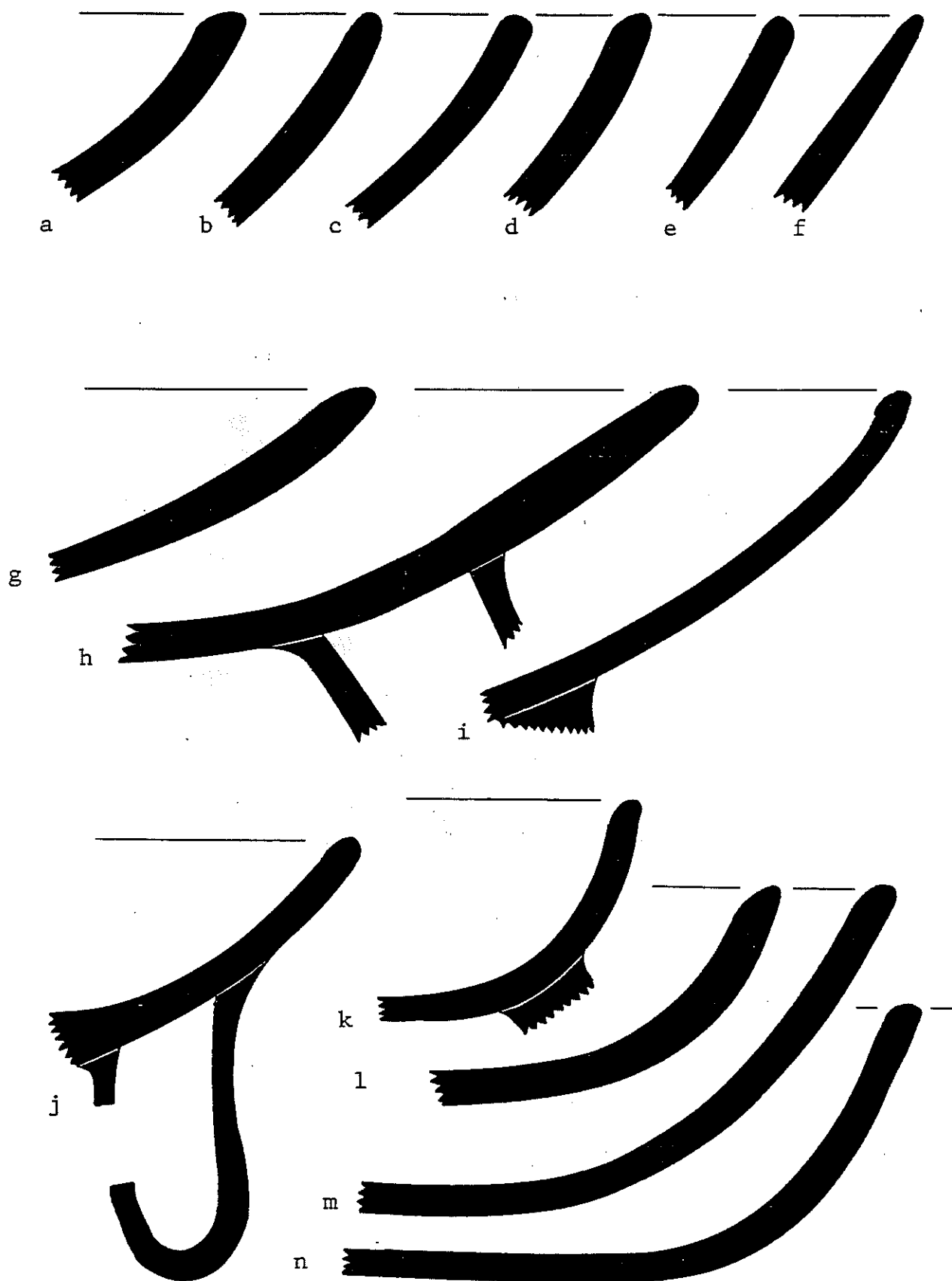


Figure 18. Toltec Red/Buf.

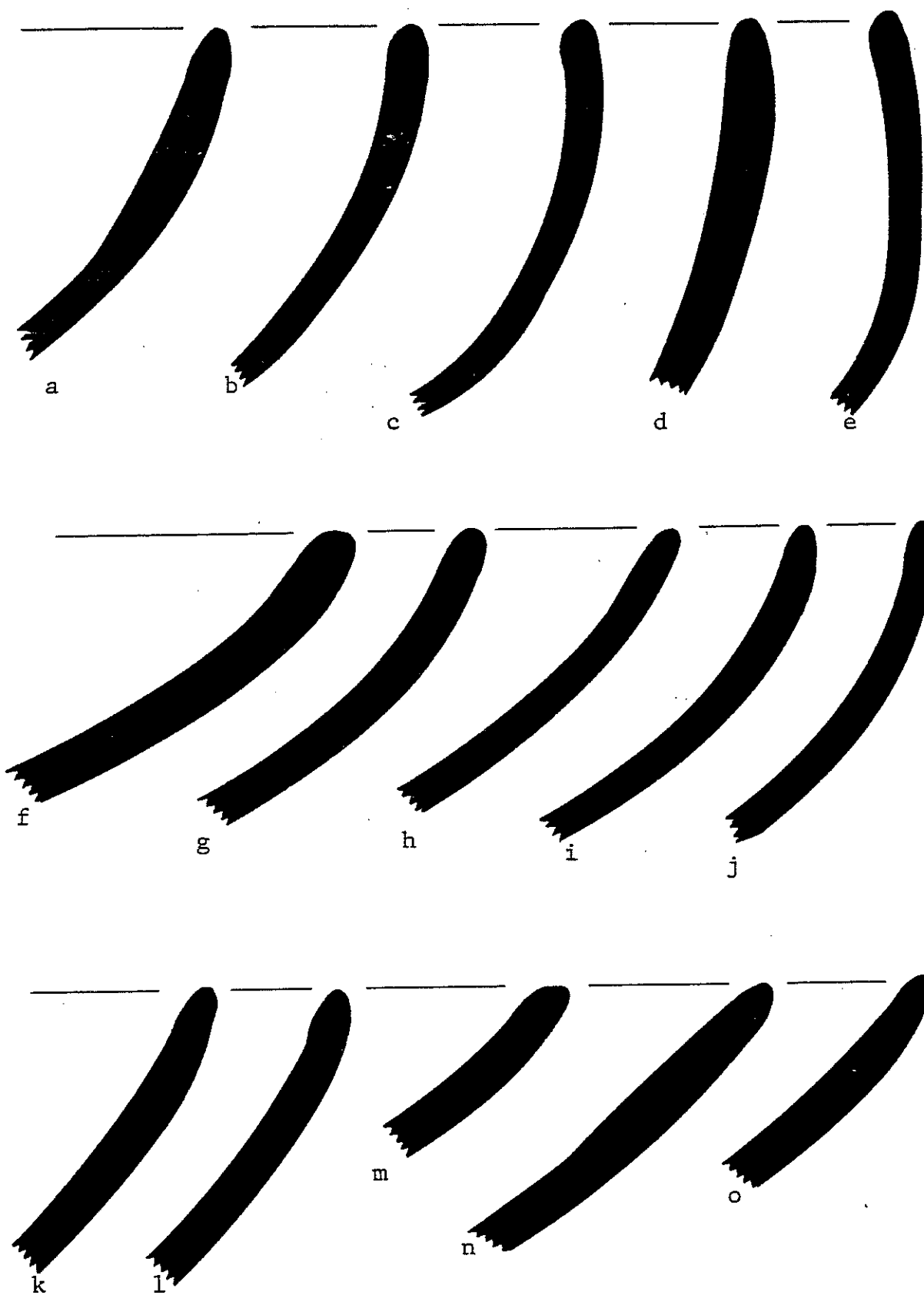


Figure 19. Toltec Red/Buf.

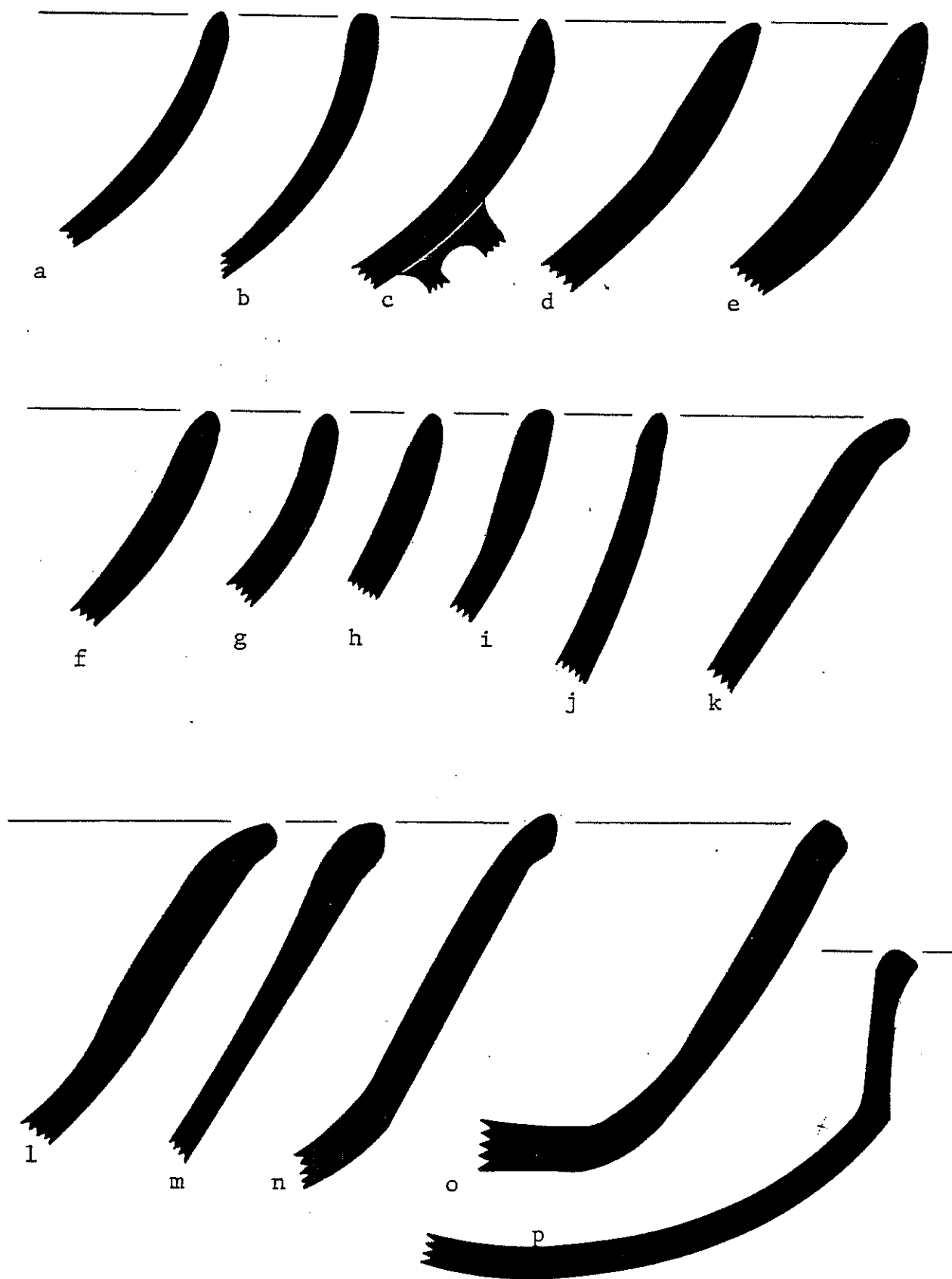


Figure 20. Toltec Wares. a-j: red/buff ware; k-p: orange ware.

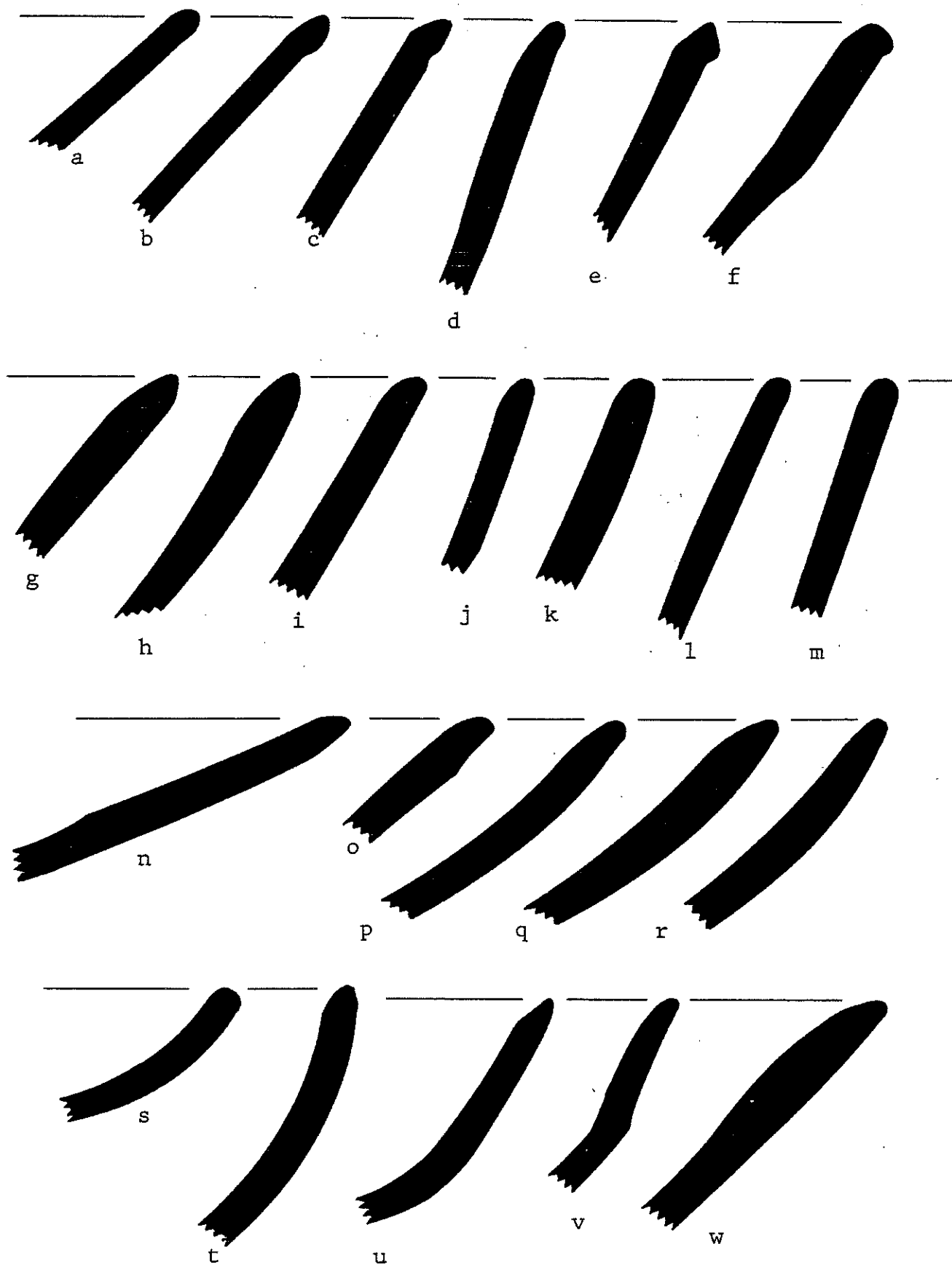


Figure 21. Toltec Orange Ware.

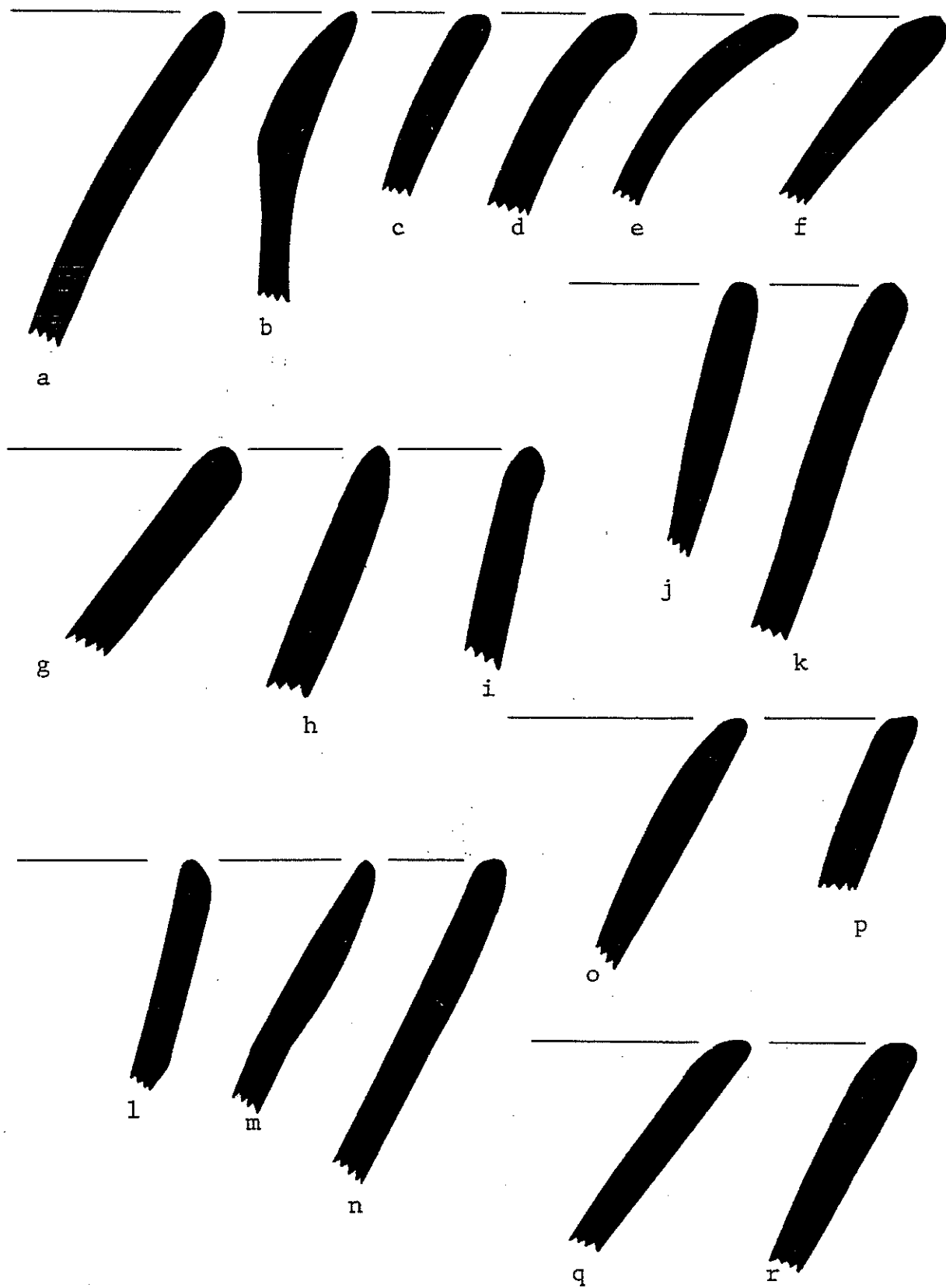


Figure 22. Toltec Wares. a-e: orange ware; f-r: cream slipped ware.

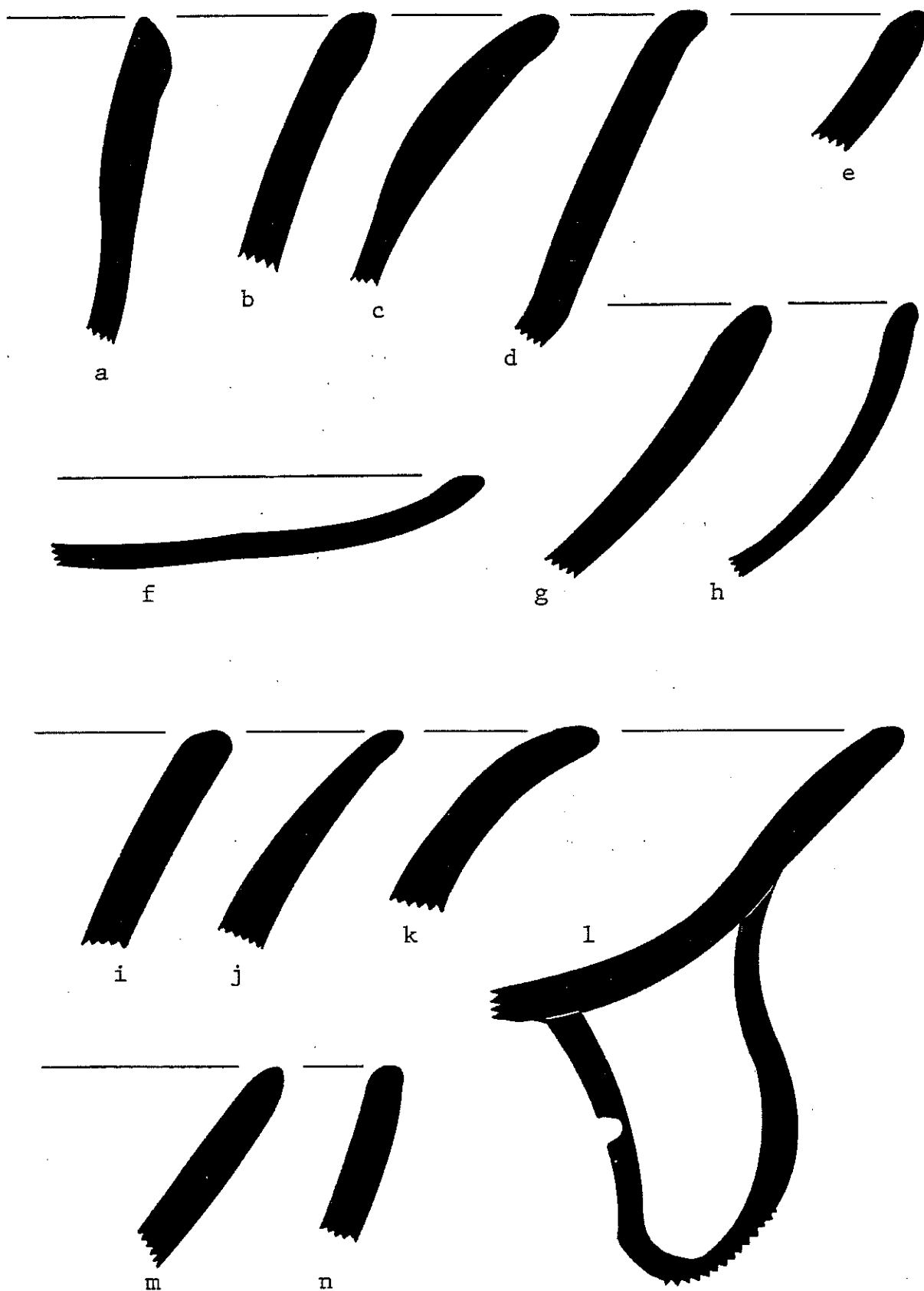


Figure 23. Toltec Wares. a-g: cream slipped ware; h-n: brown ware.

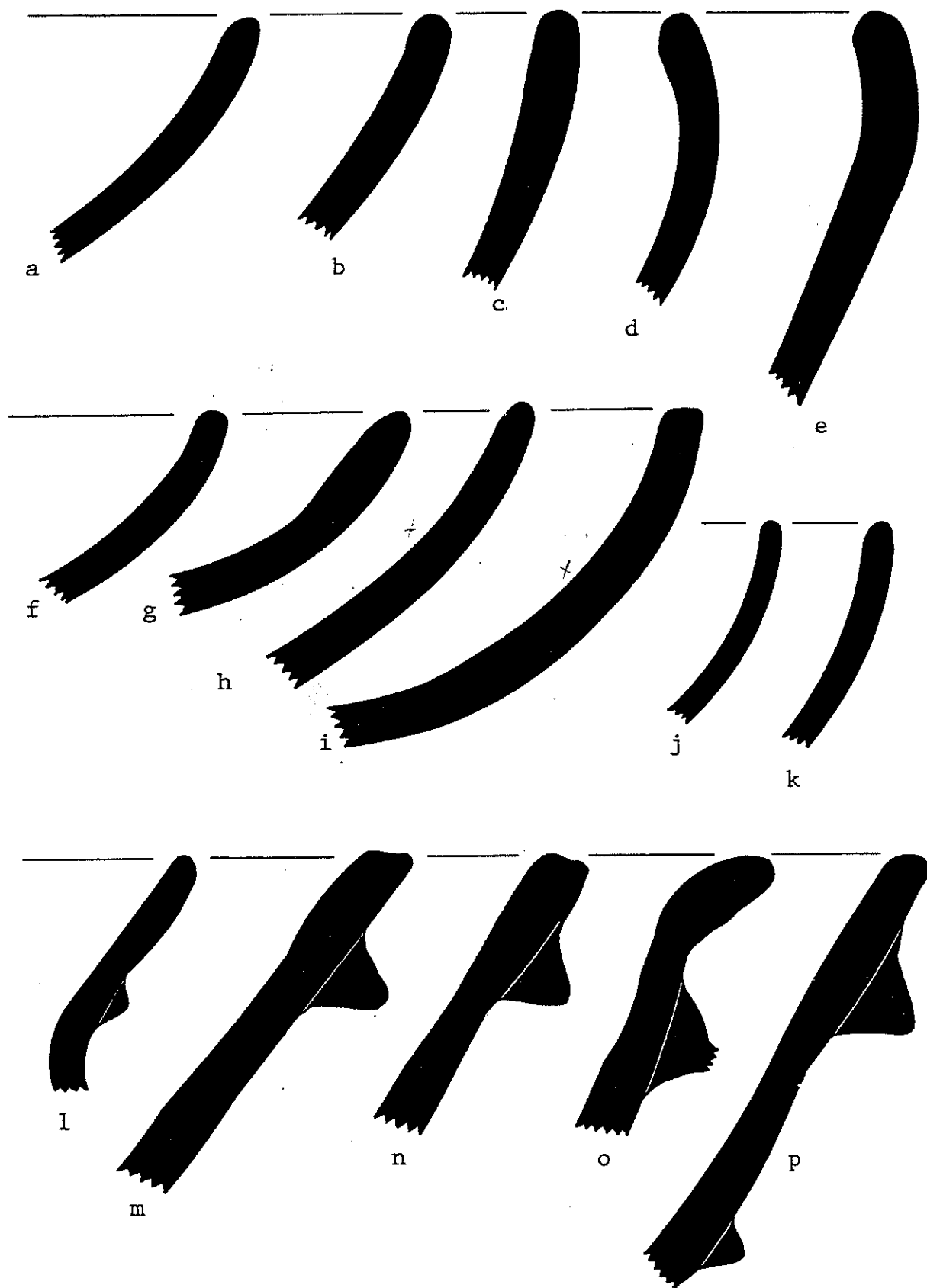


Figure 24. Toltec Wares and Censors. a-k: brown ware; l-p: censors.

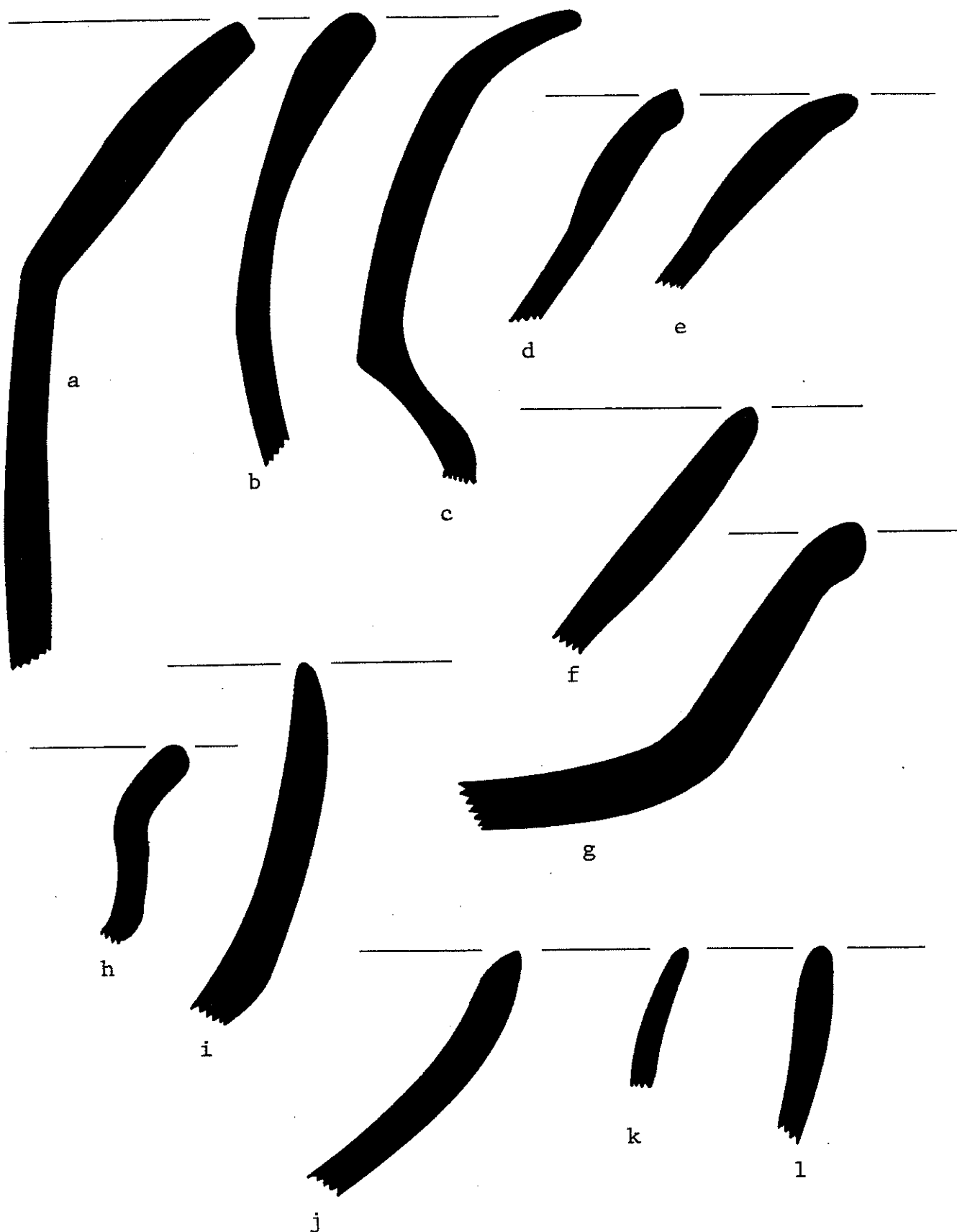


Figure 25. Tula Watercolored, Toltec, and Miscellaneous Untyped Sherds. a-c: Tula watercolored; f: Toltec cream slipped and stamp; j: Toltec brown wavy line; d-e, g-i, k-l: untyped.

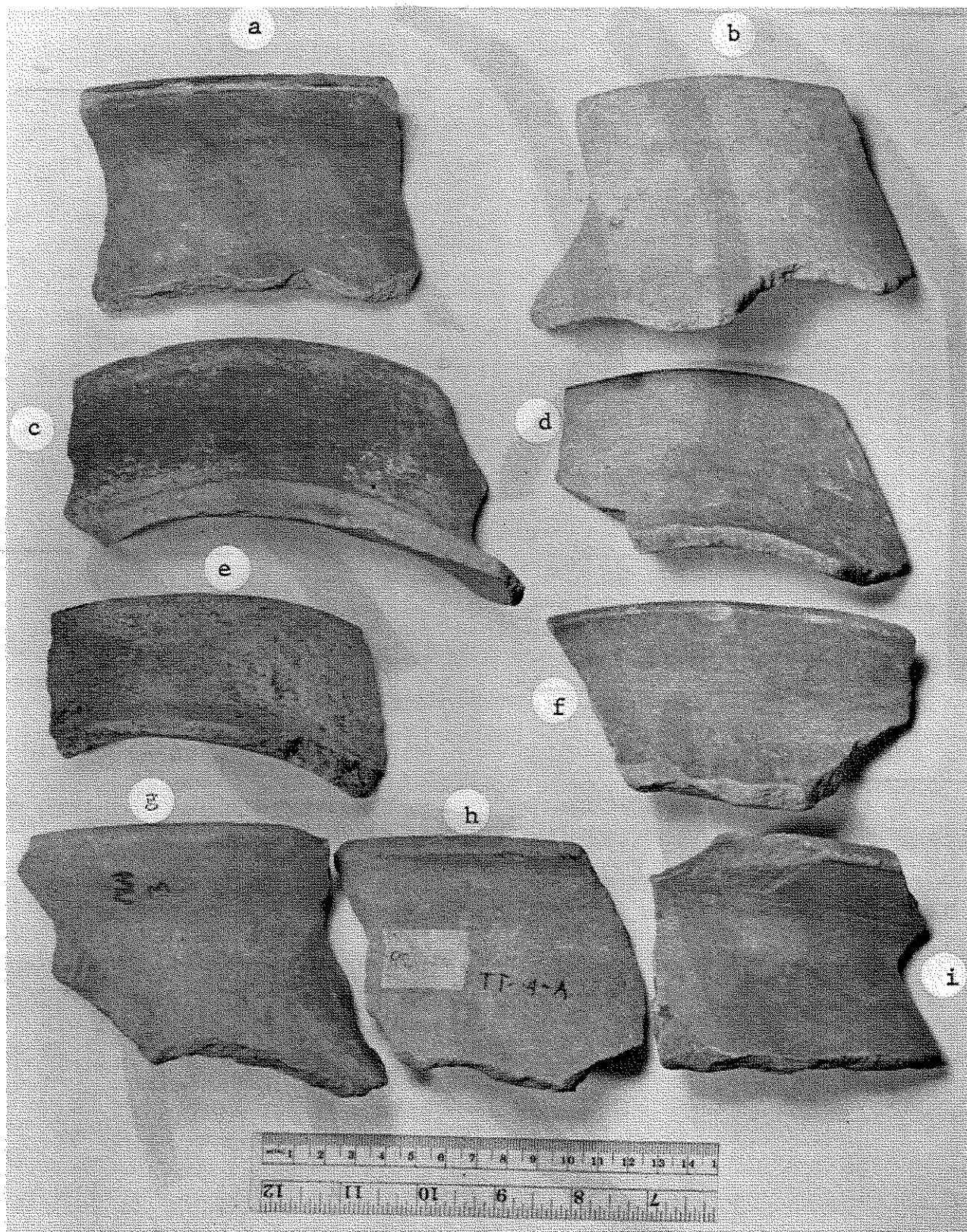


Plate 1.

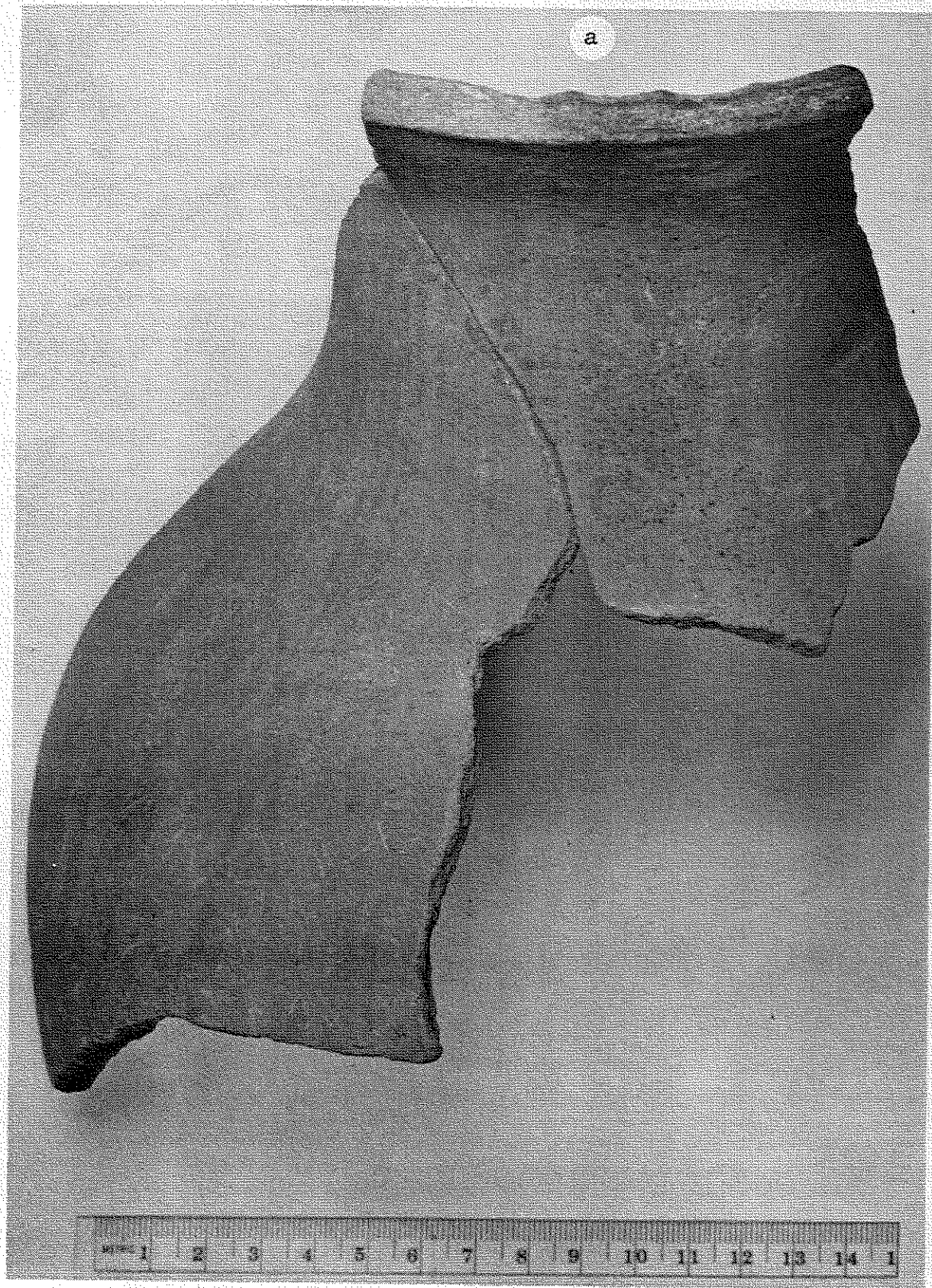


Plate 2.

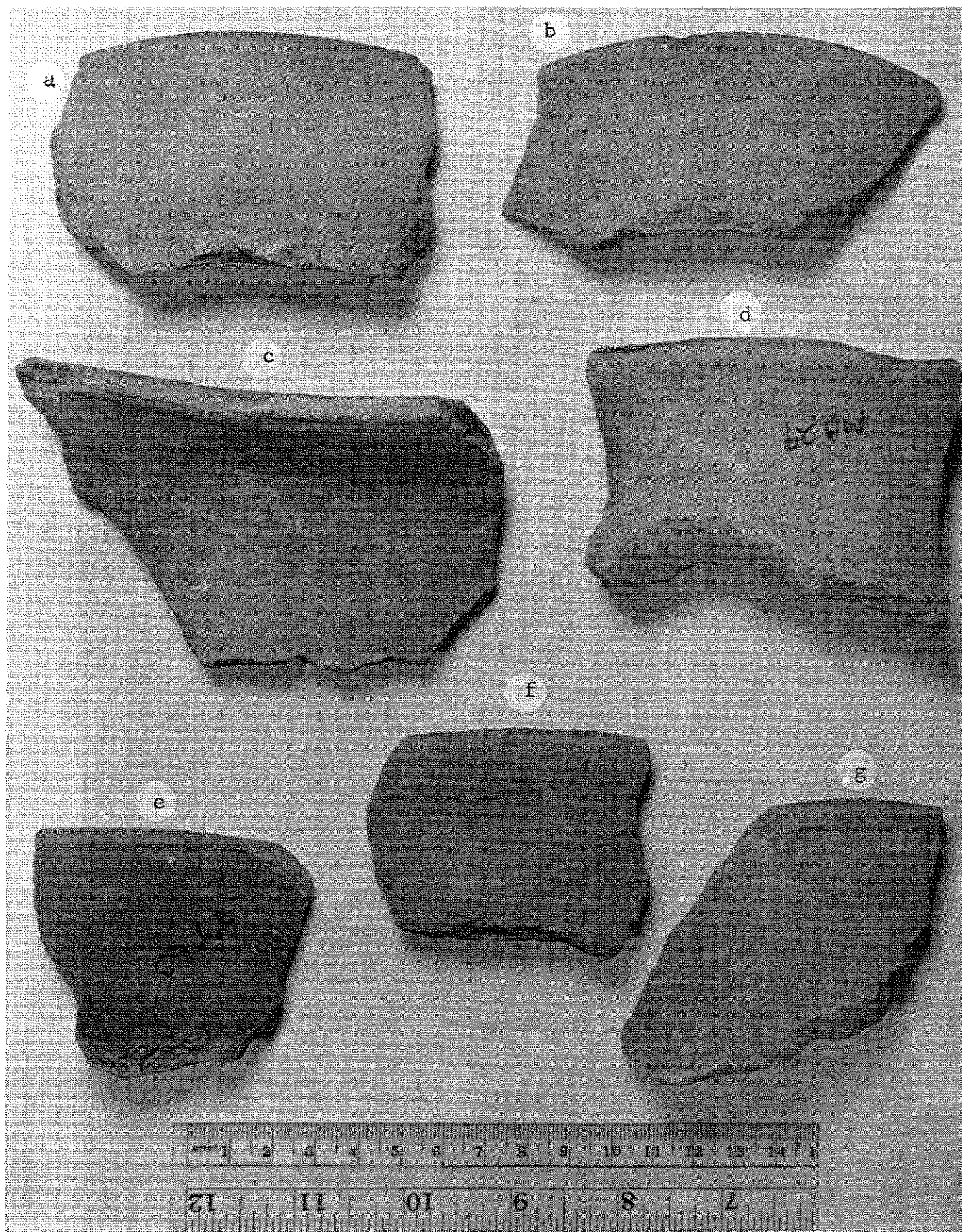


Plate 3.

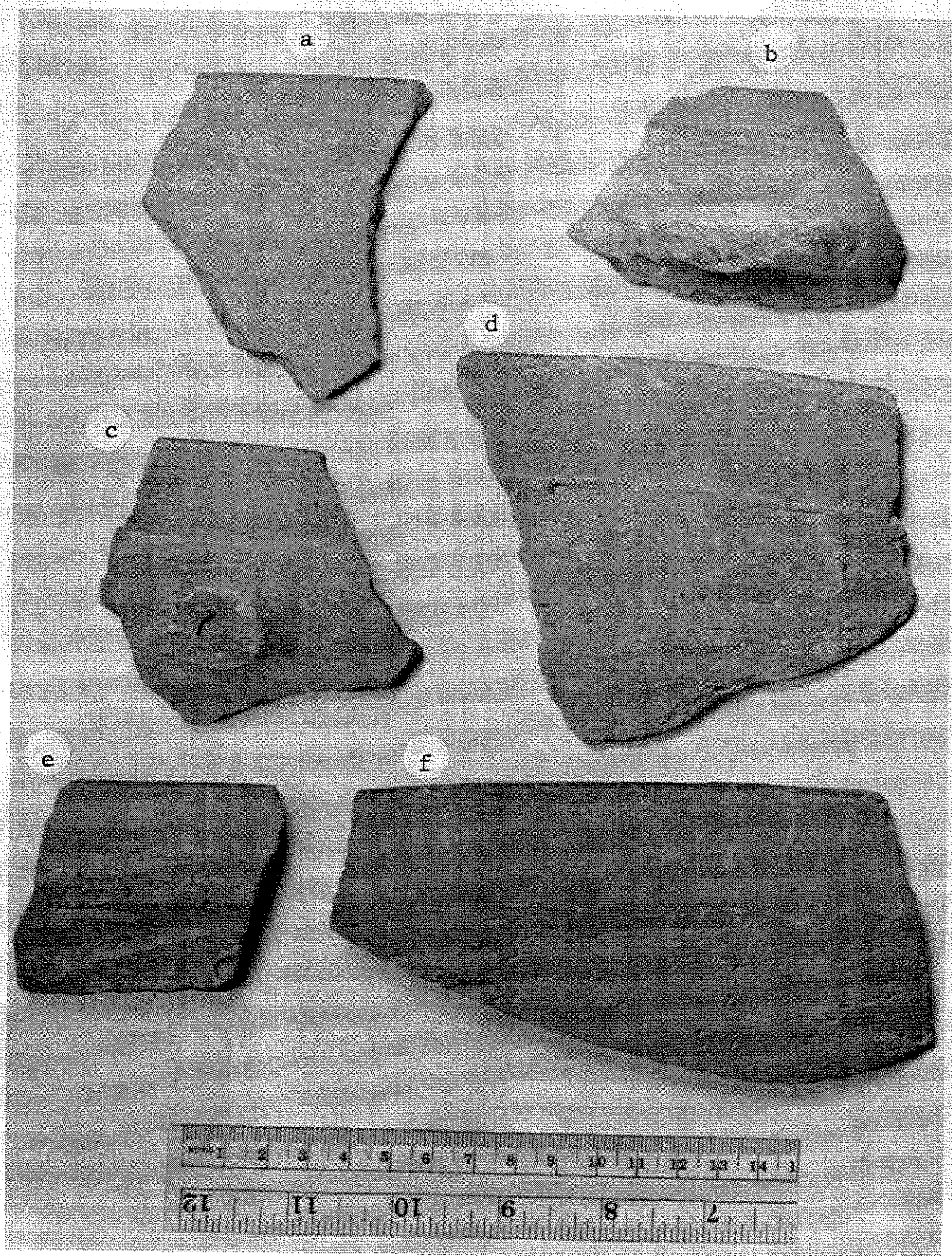


Plate 4.

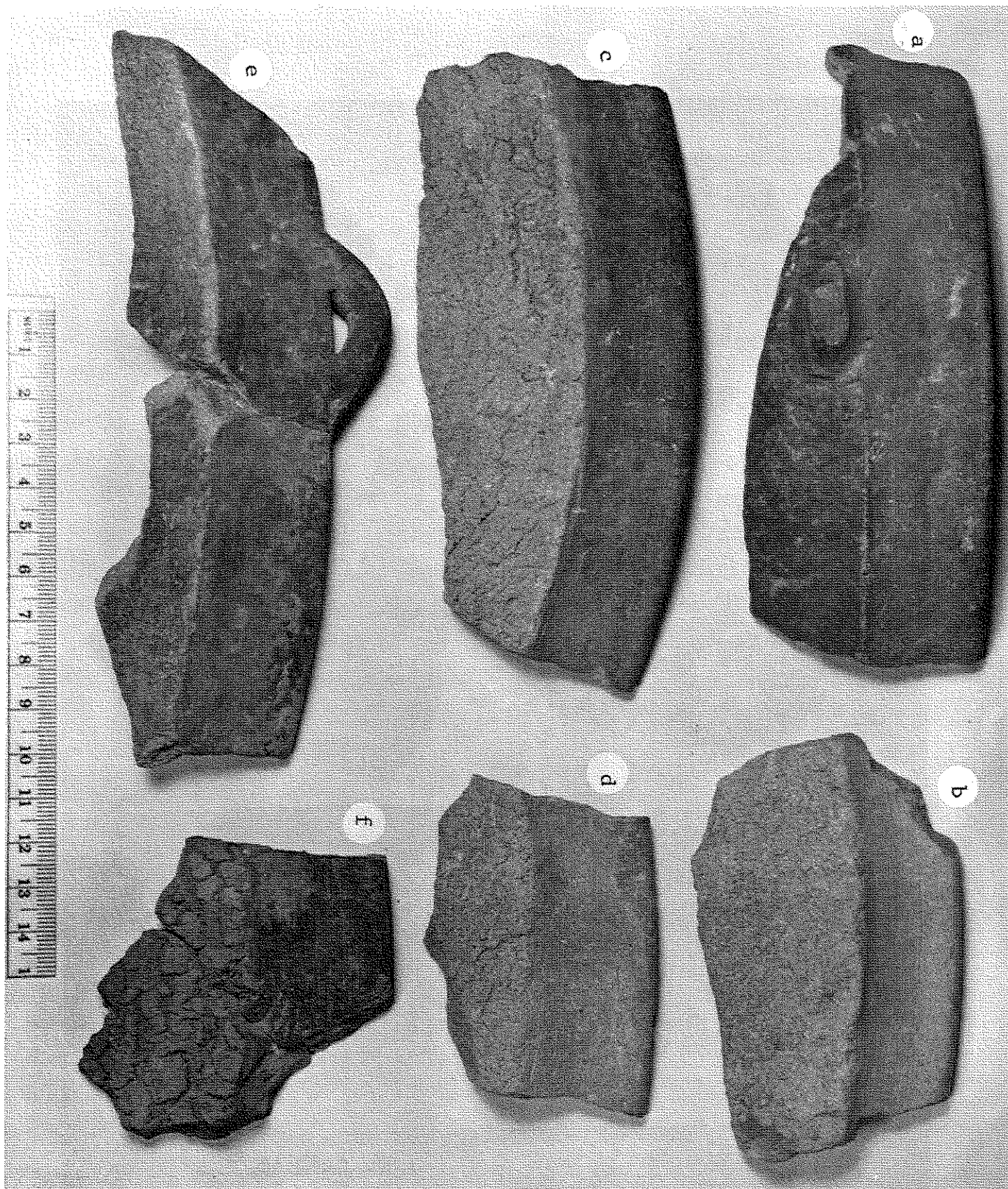


Plate 5.

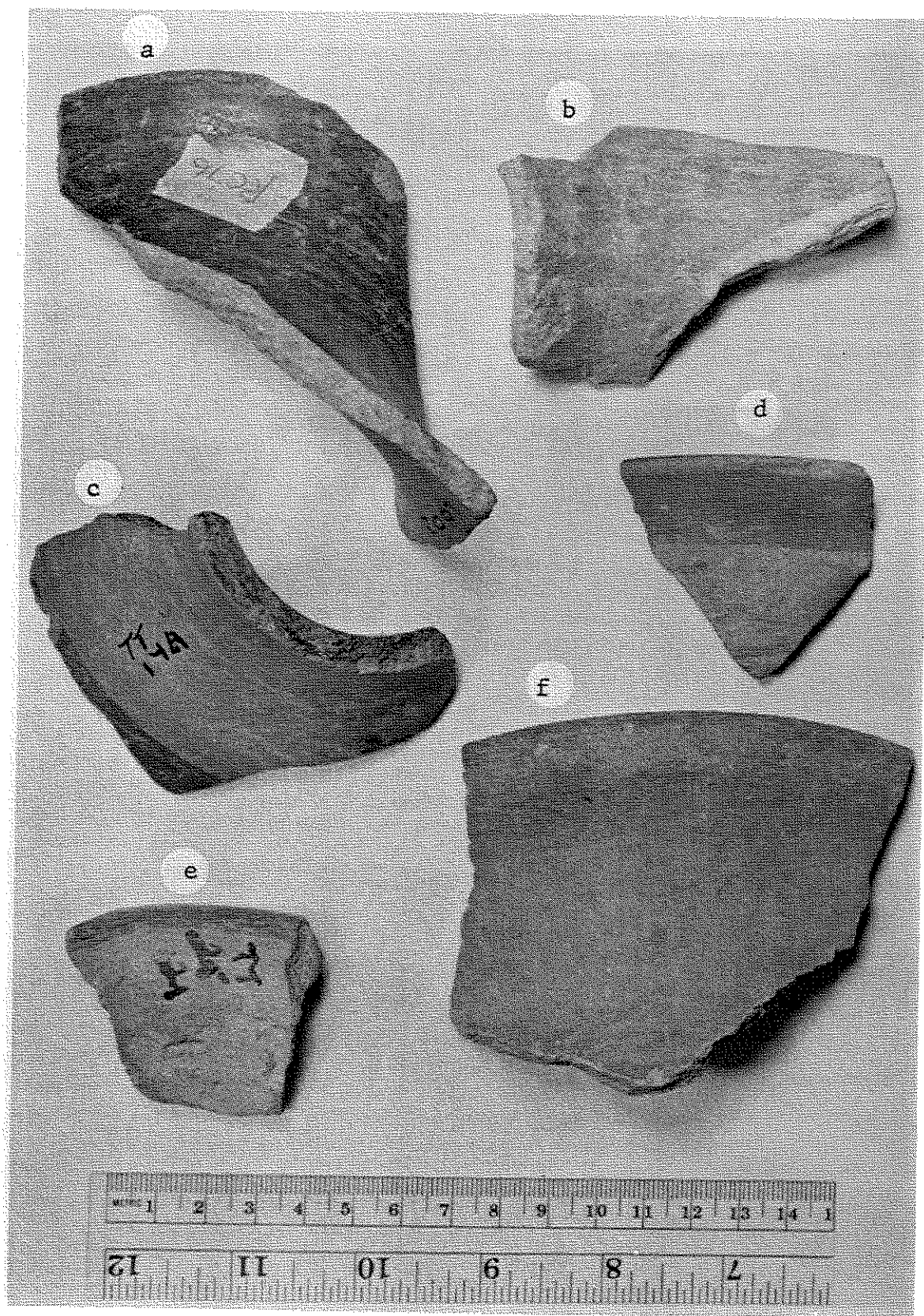


Plate 6.

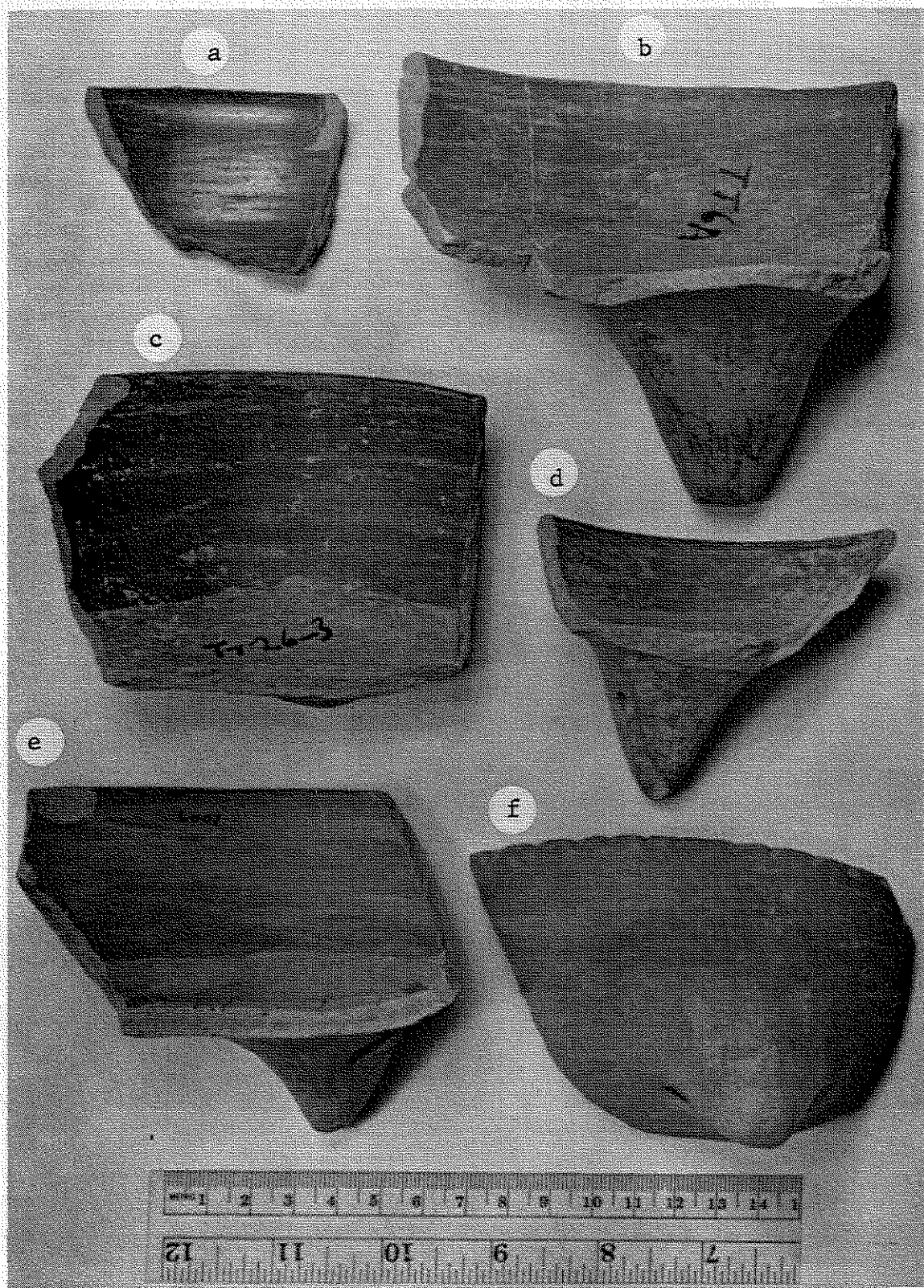


Plate 7.

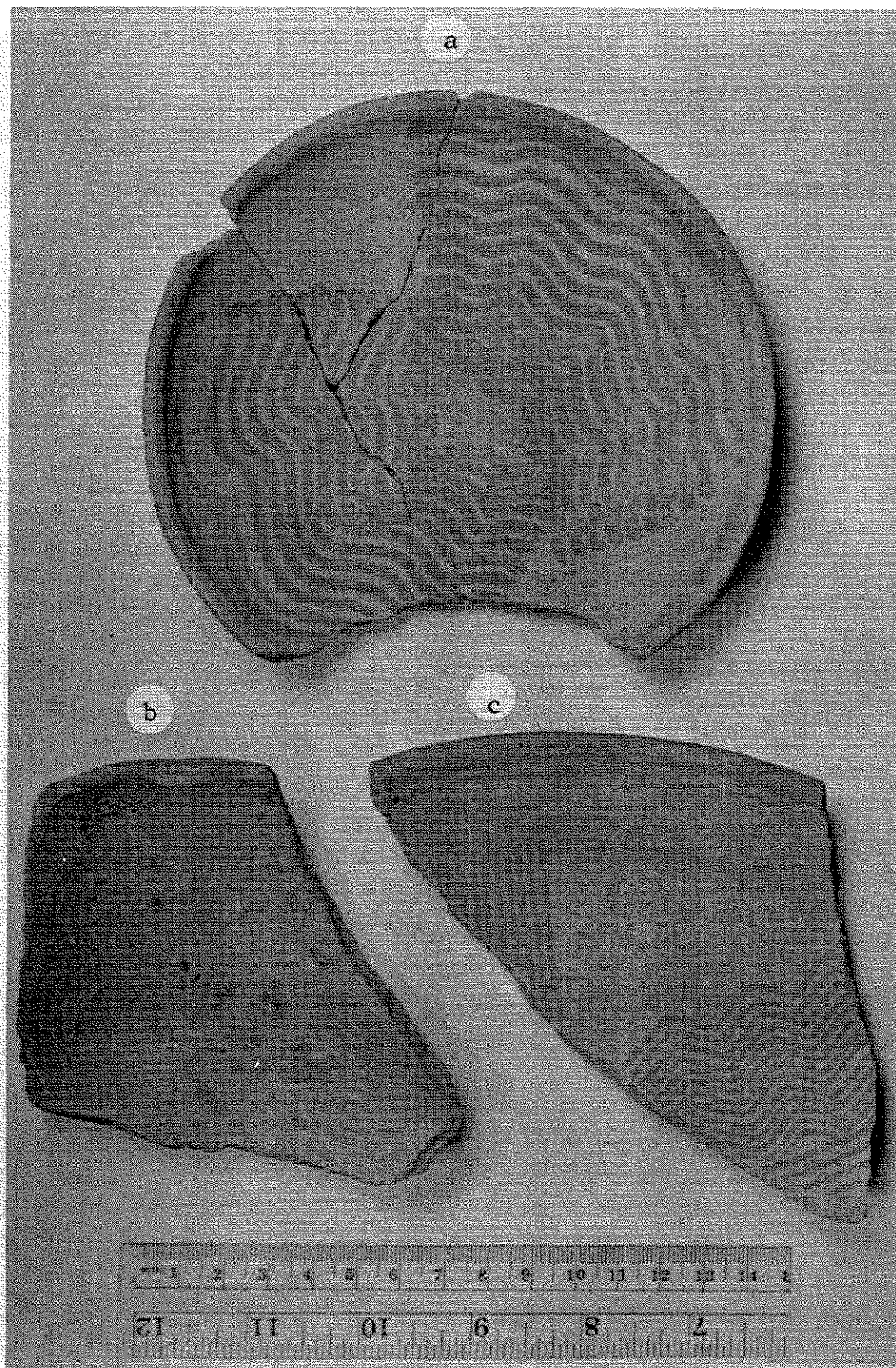


Plate 8.

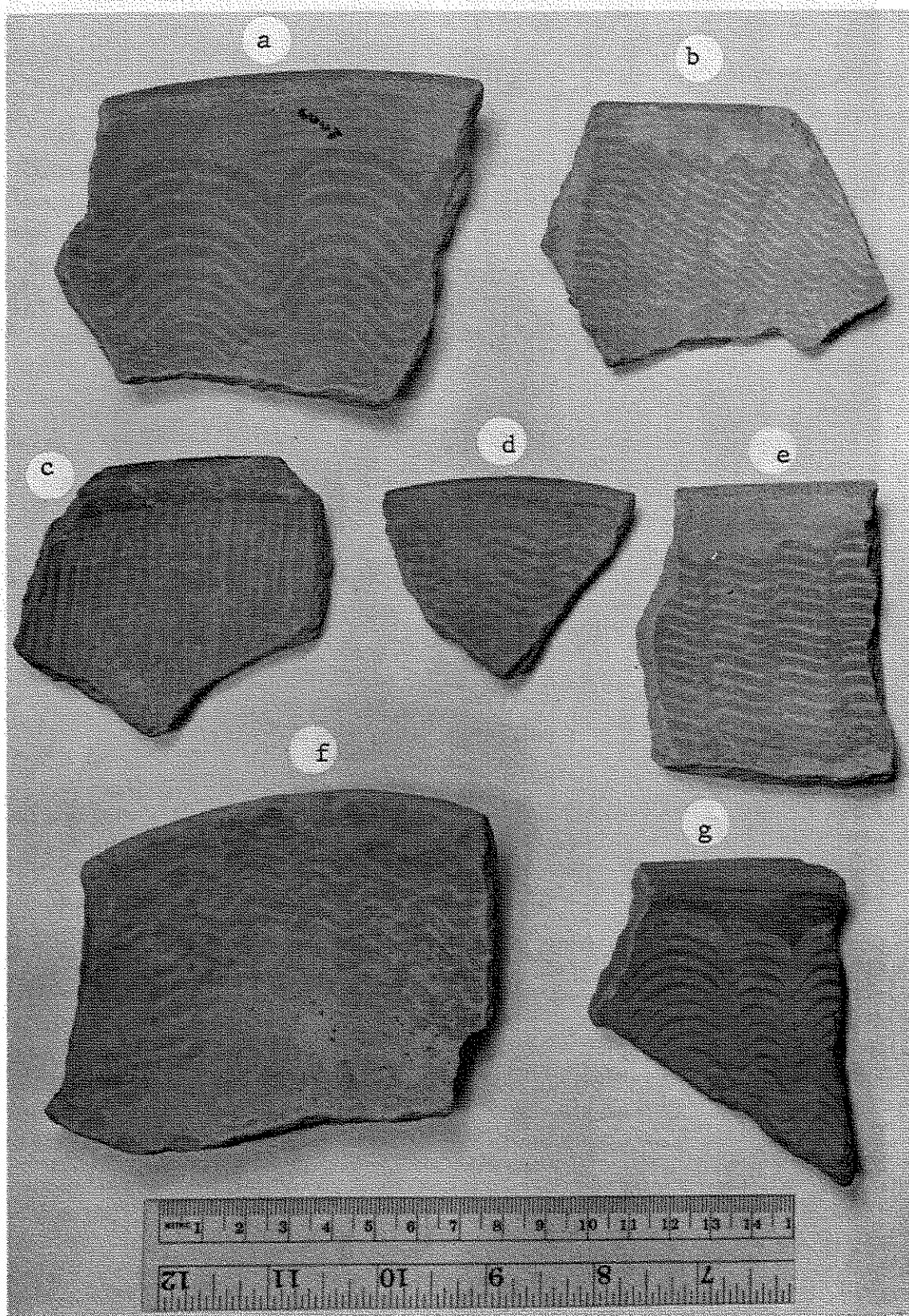


Plate 9.

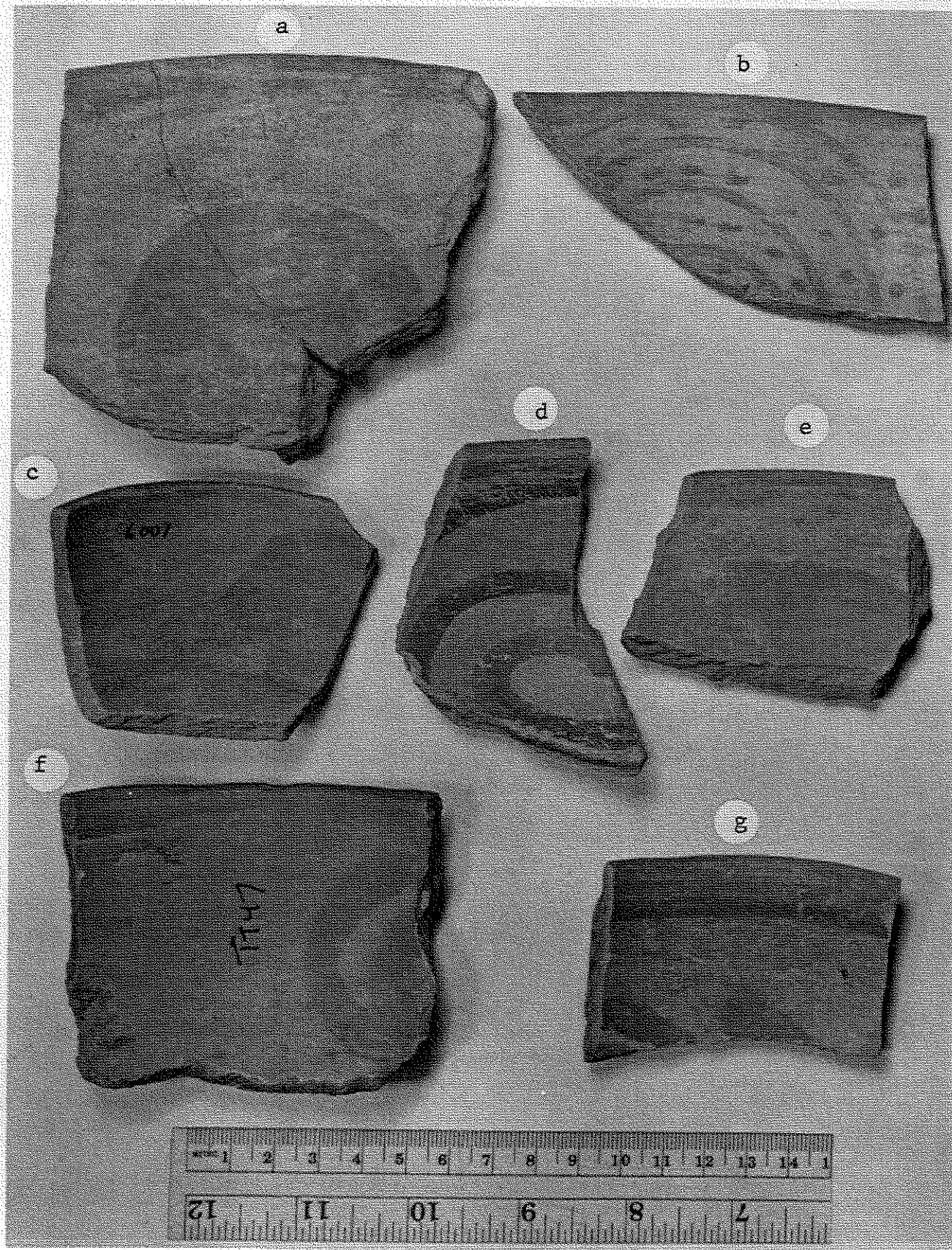


Plate 10.

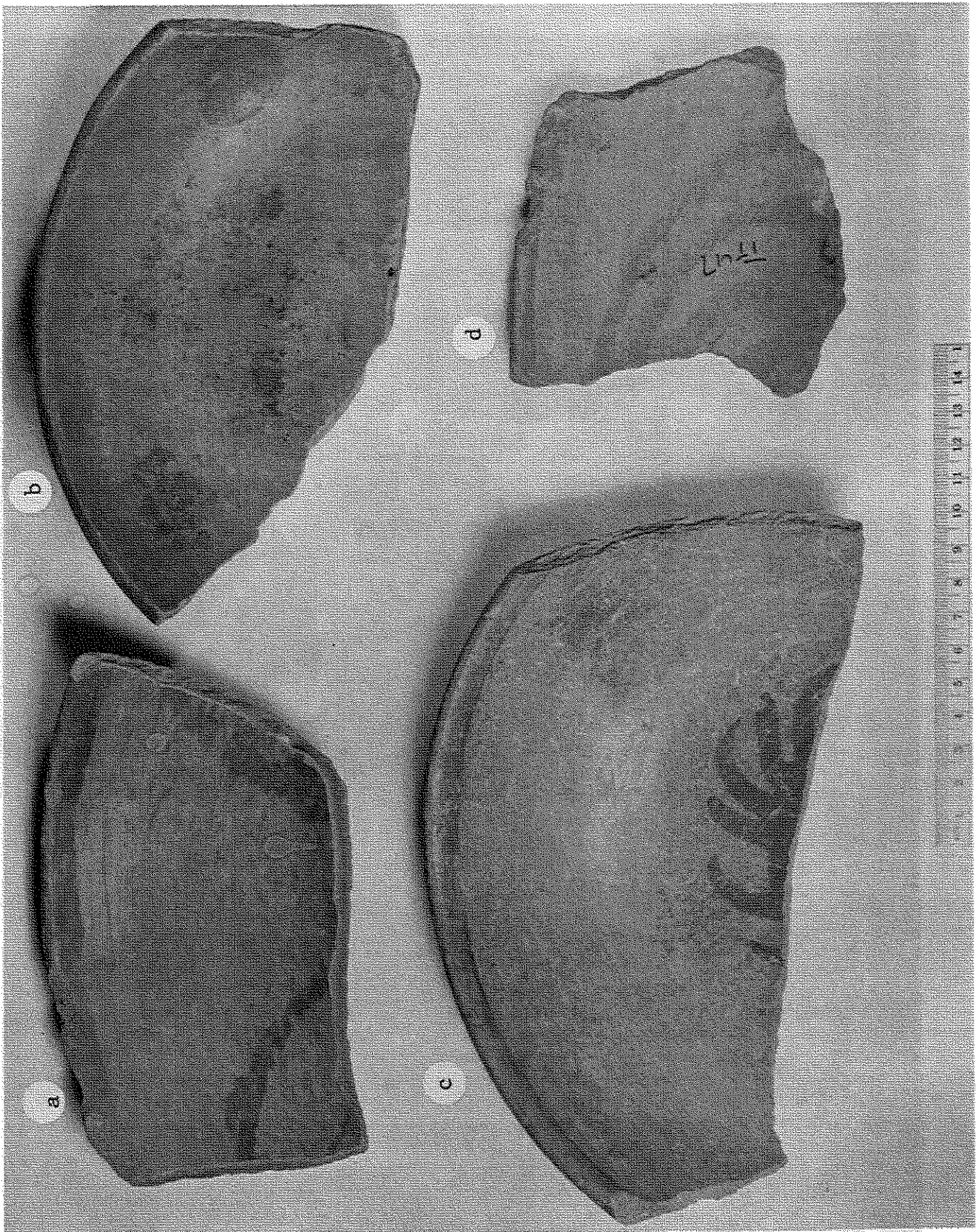


Plate 11.

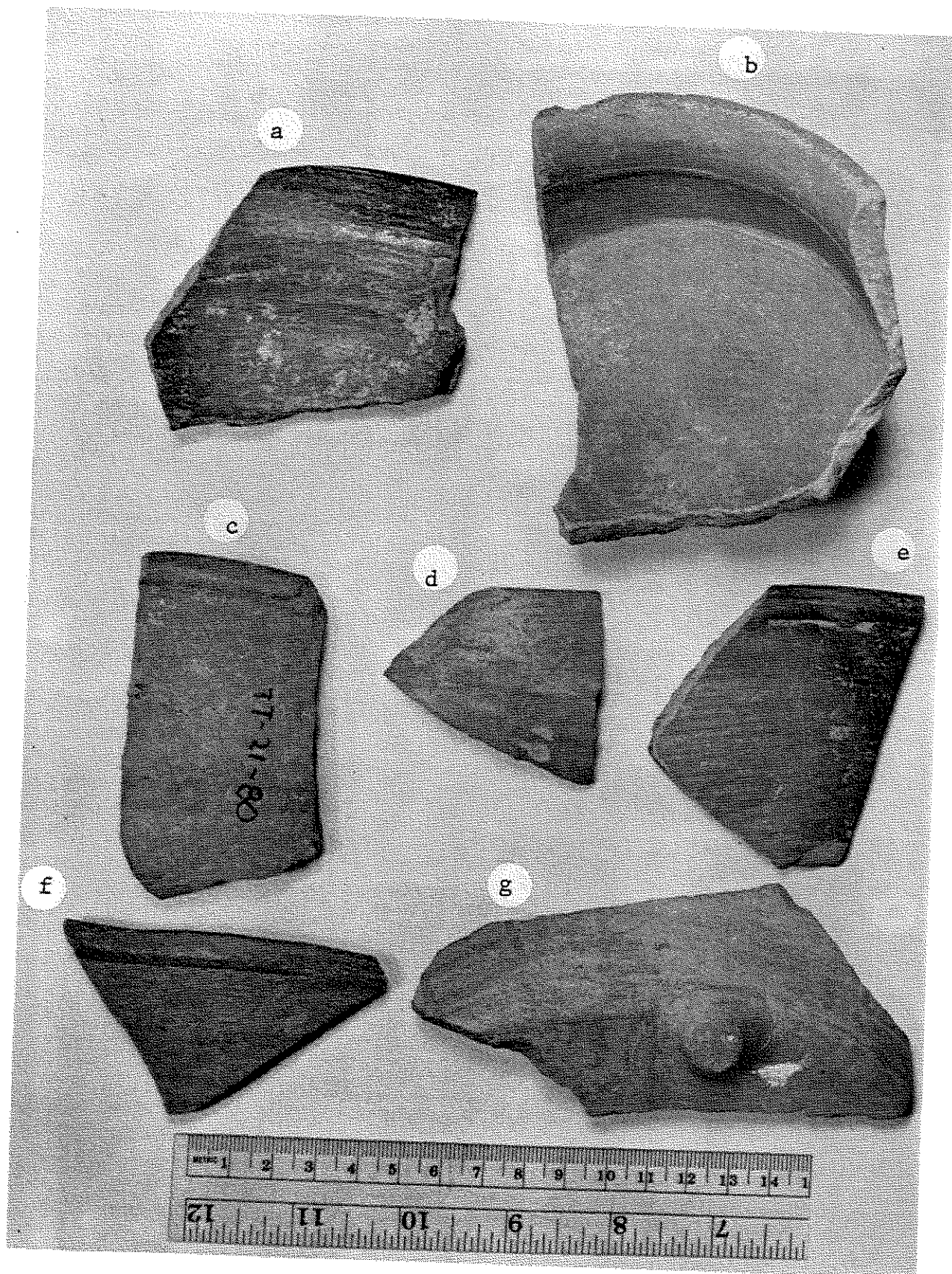


Plate 12.

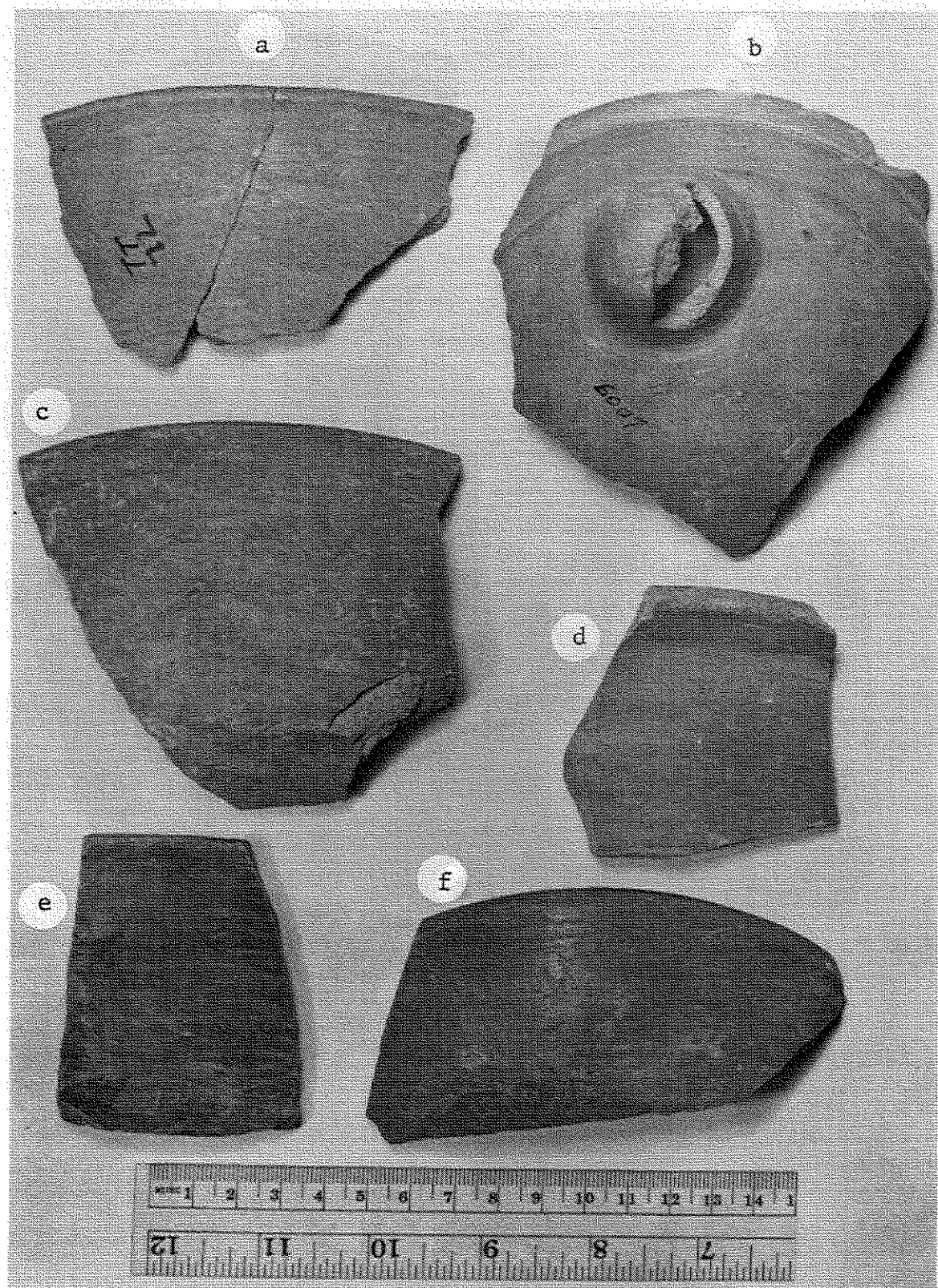


Plate 13.

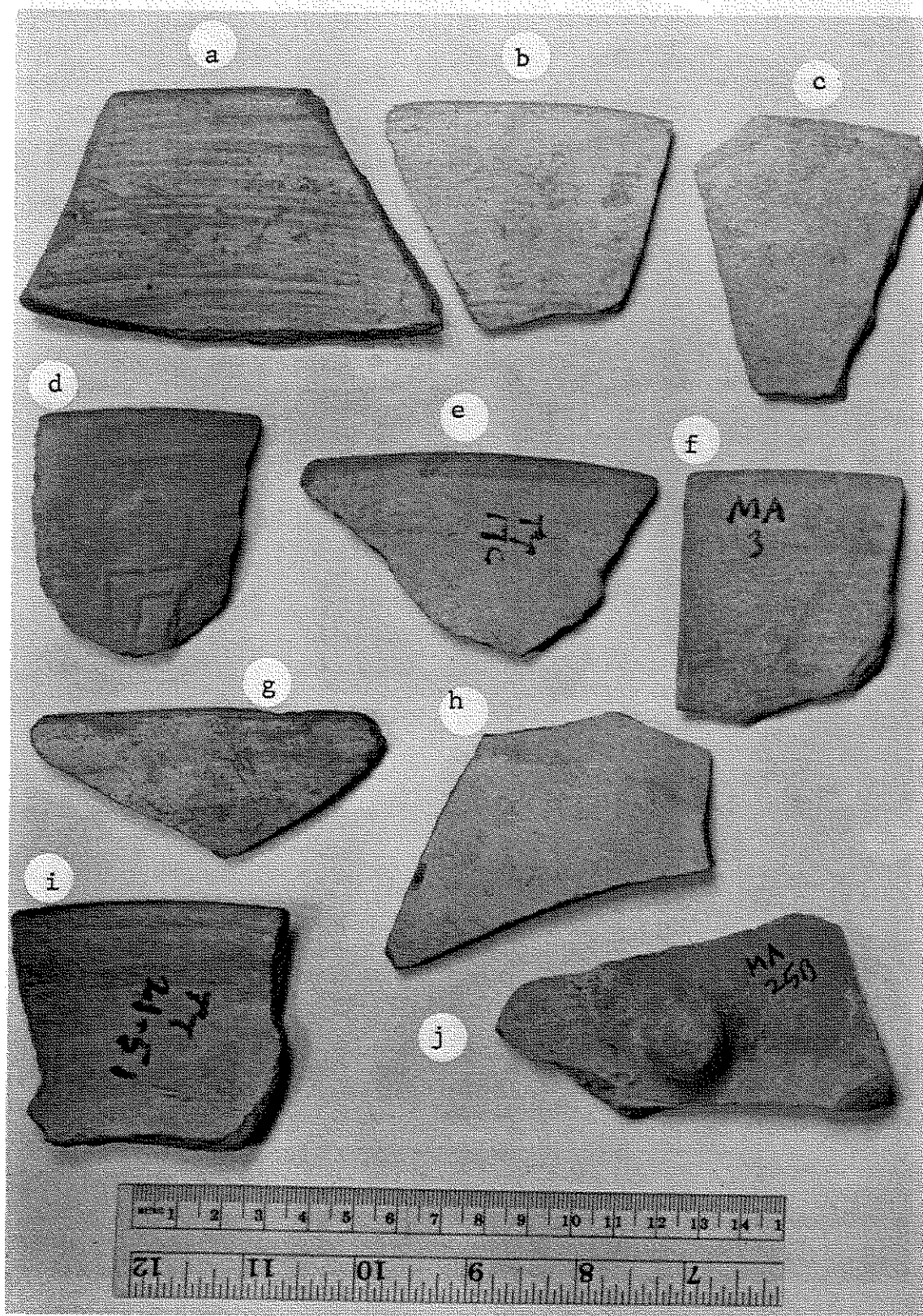


Plate 14.

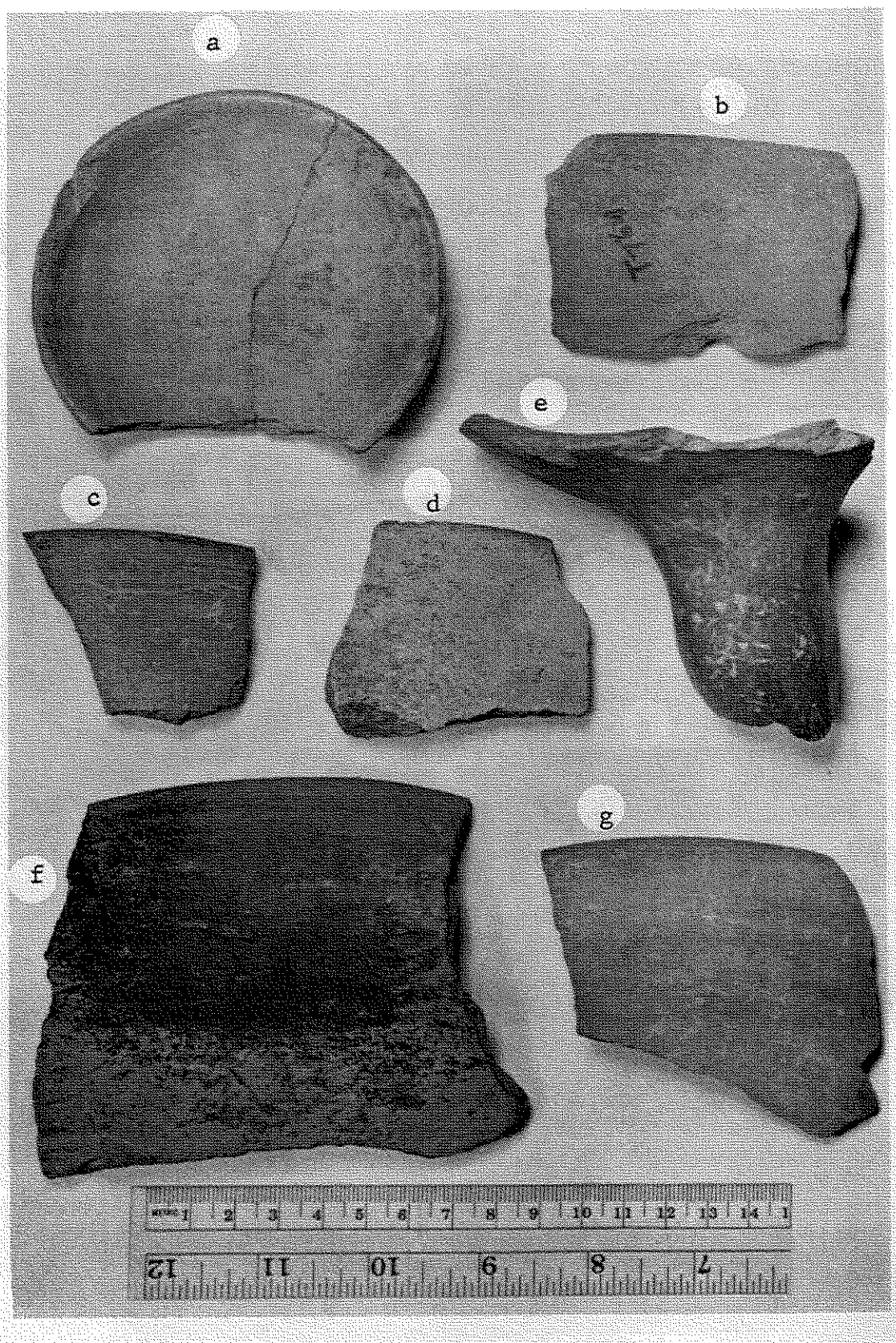


Plate 15.

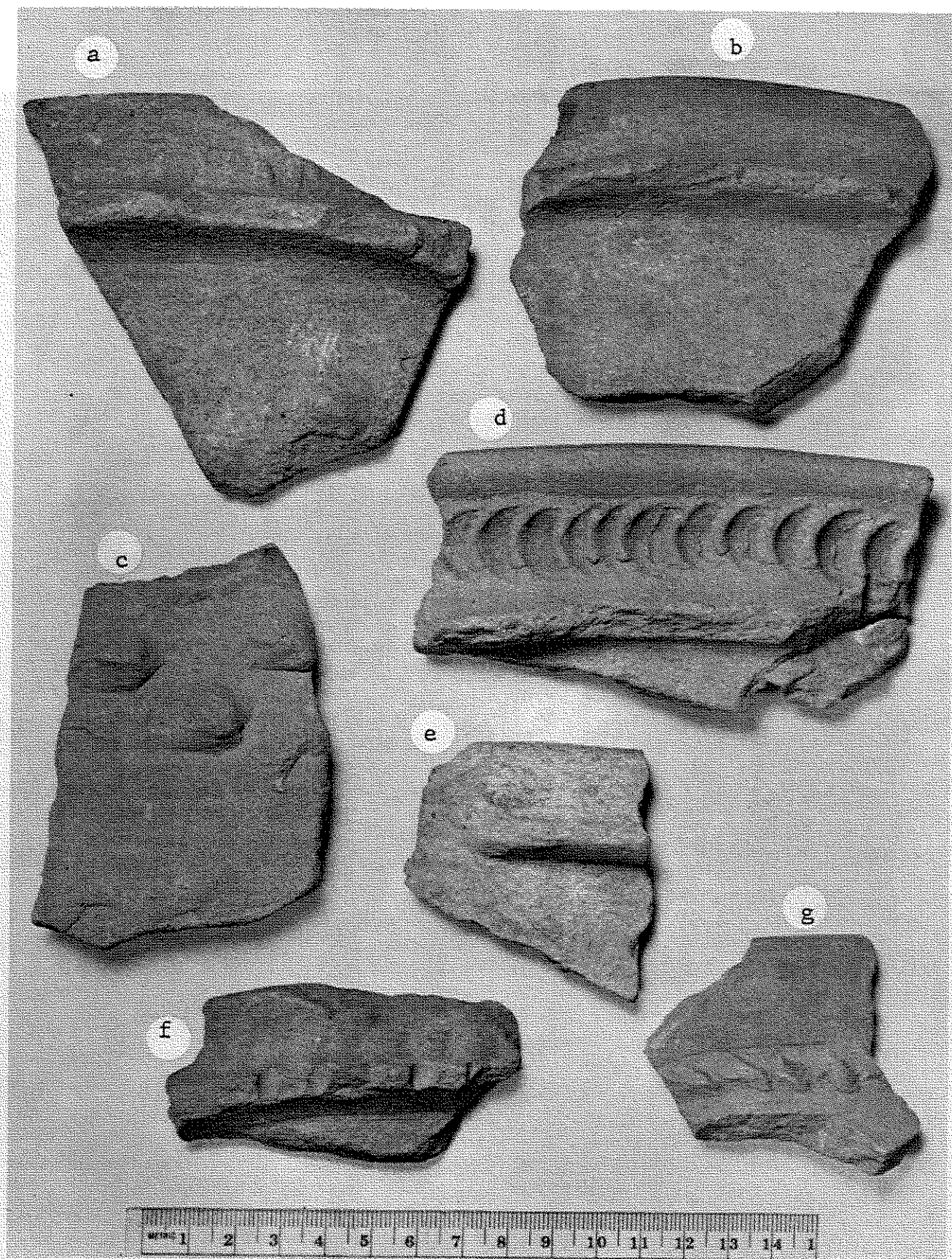


Plate 16.

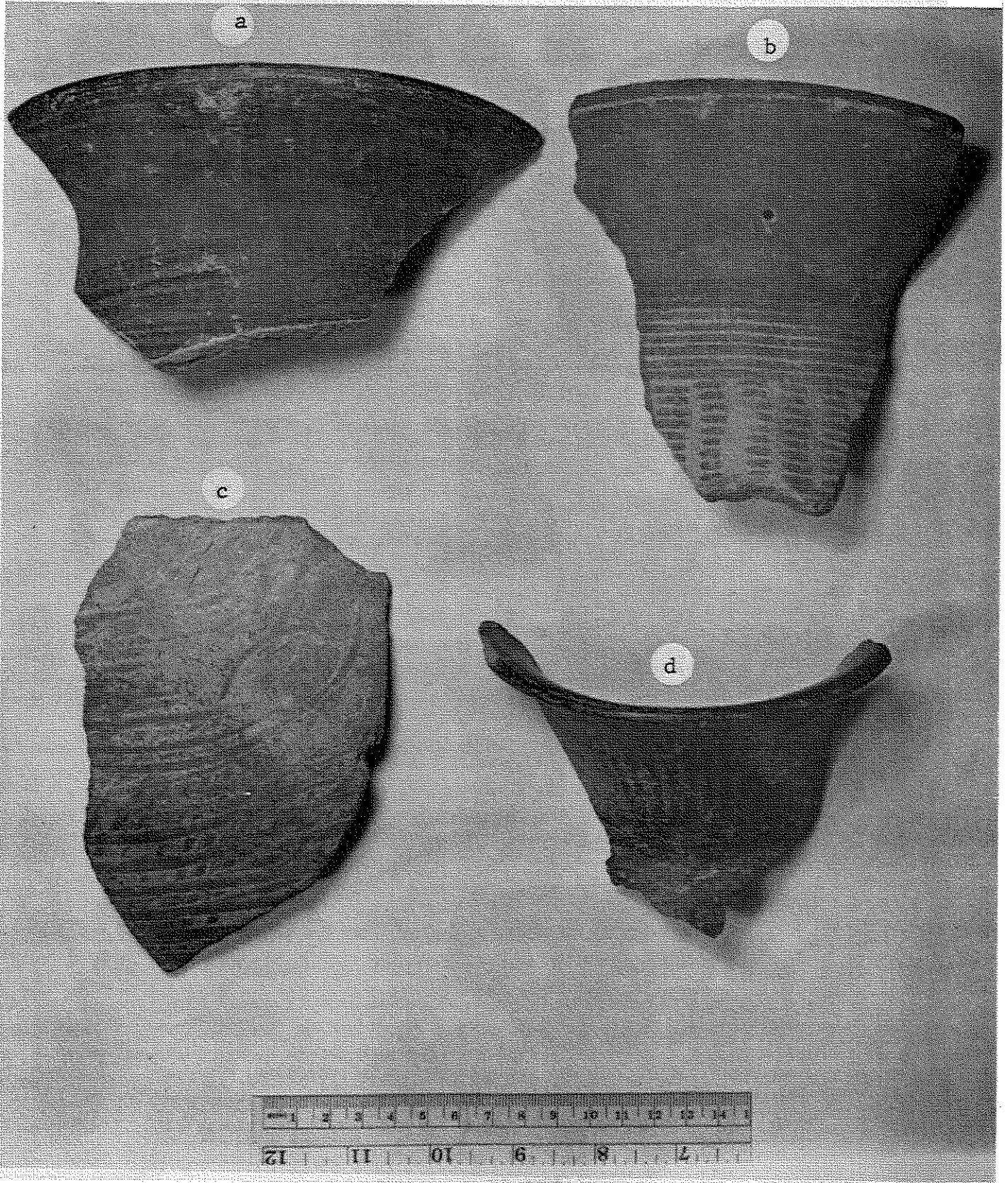


Plate 17.

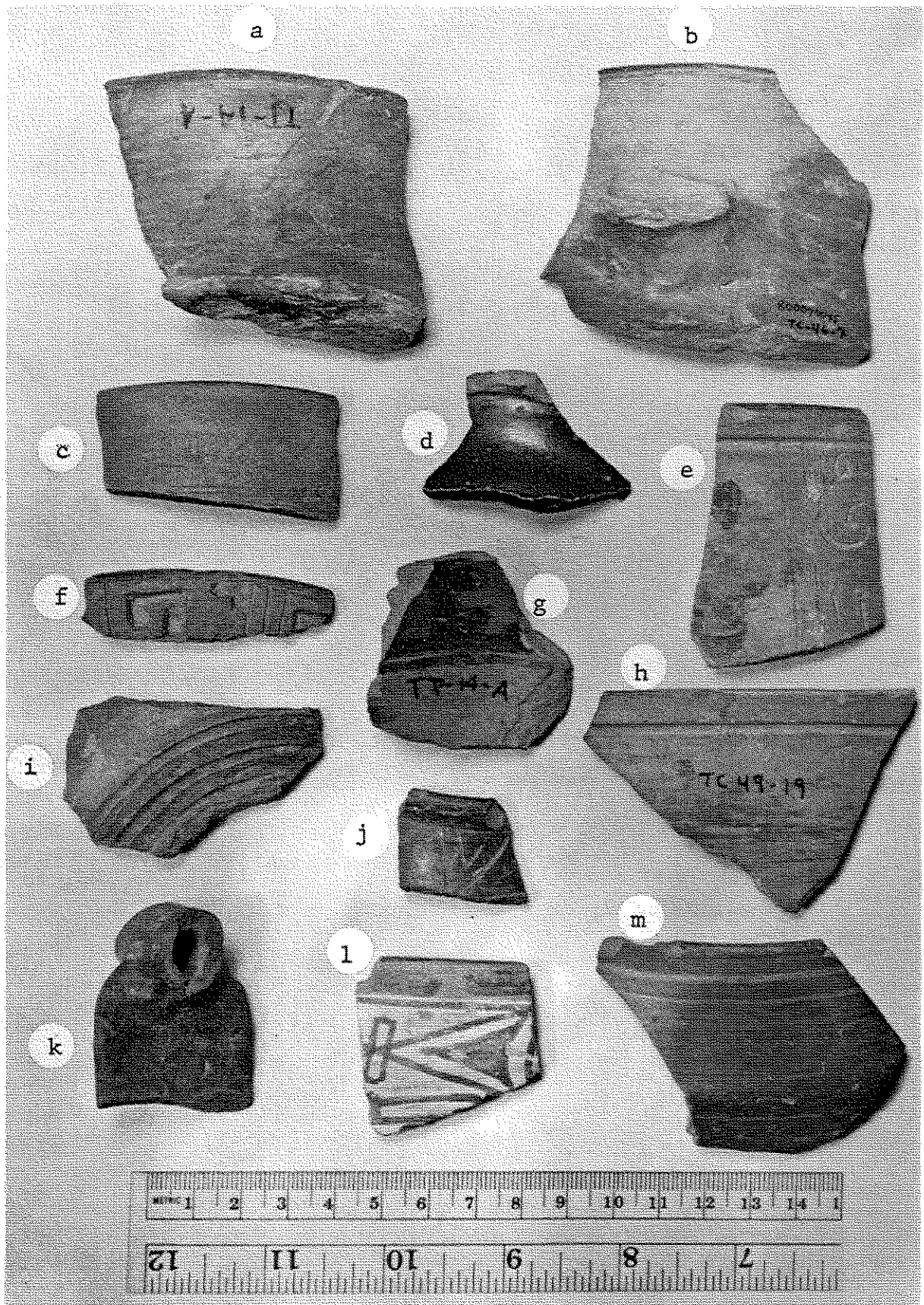


Plate 18.



Chapter 6. CERAMIC CHRONOLOGY

by

William T. Sanders

In this chapter we will first compare the samples from Oxtotipac, Xometla, Cuanalan East, Maquixco Bajo, and the surface samples, in terms of the varying degrees of similarities and differences. We will then assess the significance of these similarities and differences in terms of chronological phasing.

First, the excavated sample from Oxtotipac, Xometla, and Cuanalan East, form a well-defined group, contrast strikingly with the excavated samples from Maquixco Bajo, and the surface samples from the Cerro Gordo north slope area. Most of the surface samples from the Teotihuacan Valley proper included sherds of both groups. As we have indicated these two groups clearly relate to chronology, with the first group being earlier than the second. We have named the phases to which they pertain as Early and Late Toltec.

Shared elements of both groups include Red/Buff decorated hemispherical bowls without supports; monochrome, tan basal break bowls with flat bases; monochrome tan hemispherical bowls; occasional stamped and incised design on the tan bowls; cream slipped hemispherical bowls; large thick walled basins; *comales*; jars with medium high necks and light to pronounced neck flare; occasional Red/Buff jars; nubbin or solid conical supports; and an overall tendency to soft paste wares, with only lightly burnished surfaces. Comparison of one sample to another is facilitated by the fact that all share virtually the same basic forms, i.e., basal break bowls with flat bases, hemispherical bowls, jars with well developed necks, basins, and *comales*. The only exception is the limitation of trough handled ladles to the Oxtotipac-Xometla-Cuanalan East or Early Toltec complex and of the *molcajete* (chile grinder) to the Maquixco Bajo-Cerro Gordo, Late Toltec complex.

The two groups contrast, however, in a number of more specific ways. The type which shows the greatest continuity throughout the samples is the monochrome tan. The two predominant vessel forms, the basal break and the hemispherical bowl, occur in all the samples. One difference is that in the samples from Xometla and Oxtotipac, the two forms are equal in percentage whereas at Maquixco Bajo hemispherical bowls outnumber basal break bowls by a 3:1 ratio. The sherds from the Maquixco Bajo sample also tends to have thicker walls and less surface burnishing. A minor form, found only in the Oxtotipac-Xometla sample, is the basal angle bowl.

The differences between the samples are more striking in the Painted and Slipped sherds. Diagnostic of the Oxtotipac-Xometla sample is Coyotlatelco Red/Buff with its distinctive design layout. In contrast, in the Maquixco Bajo sample, the distinctive Red/Buff ceramics are the Toltec Red/Buff, the Mazapan Wavy Line Red/Buff and the Wide Band Red/Buff. An additional distinctive feature is that the Wide Band Red/Buff is found primarily on molcajetes, a form absent from the other two samples. The groups of Red/Buff decorated ceramics are mutually exclusive; we found no Coyotlatelco Red/Buff at Maquixco Bajo, for example; numerous surface samples had only the Late Toltec Red/Buff and the latter type is virtually absent at Oxtotipac and Xometla. Very few surface samples, however, have exclusively Coyotlatelco Red/Buff, and this is related to the fact that there was a population dispersion, and probably growth, between the Early and Late Toltec phases so that nearly all Early Toltec sites have some evidence of late occupation on them. Another difference between the two complexes is the presence of the various kinds of orange surfaced ceramics in the Late Toltec complex and their absence in the Early Toltec complex. Cream slipped hemispherical bowls were found in both complexes, but those in the Late Toltec complex have an orange or red lip band, a feature absent in the Early Toltec. Furthermore, the cream slip is also found on basal break bowls of the Late Toltec phase and the slip tends to be thicker.

Basins are found in both groups, however those from the late phase generally have simple rounded lips whereas those from the early phase have a great variety of beveled or everted lips.

Comales from the late phase have a well defined break between the vertical wall and the base, whereas the earlier phase comales are more similar to Aztec comales in the near absence of a well defined angle break between the wall and the base. They also have a flatter appearance in profile.

Jars also contrast between the two groups. Virtually all Late Toltec jars have a medium high, sharply flaring neck, with tapered walls, and a squared off lip; this is one of the best time markers for the phase. In the Early Toltec phase there are two basic jar forms; a low, almost neckless jar; and a medium high necked jar with a light to moderate flare, commonly associated with an everted lip. A very distinctive variety of jar, and completely limited to the Late Toltec phase, is the type that Tolstoy calls Tula Watercolored.

We will now compare the specific samples from the four sites and the surface samples to further refine our chronological scheme.

We see virtually no significant differences between our Cuanalan East and Xometla samples that could not be explained by the small size of the first sample and possible functional differences relating to the context of the two samples. Between Oxtotipac and Xometla, however, there are a number of minor but significant differences that are summarized below.

The undecorated bowls are virtually identical in the two sites. The Oxtotipac examples tend to be generally darker in color but this could be the product of a slight difference in local clays, firing procedures, or even post-breakage circumstances affecting the sample. One minor difference is the greater prevalence of everted lips on the basal break bowls from Xometla (87%) vs Oxtotipac (60%). This could be significant since the Late Teotihuacan equivalents of this form also lack this eversion. Basal ridge bowls may be limited to the Oxtotipac complex although several sherds were found at Xometla. The lesser abundance at Xometla, however, could be the product of the condition of the sample. The sherds from the platform fill at Xometla are in much more fragmentary condition and many more small rims could have come from this form. Even at Oxtotipac the form is rare. A potentially significant difference between the monochrome tan vessels at the two sites is the form affiliation and design motifs of the stamped variety. At Oxtotipac, all examples are on hemispherical bowls and the stamped designs are crude and bold in appearance. At Xometla, stamping occurs on both the hemispherical bowls and the basal break bowls and is more complex in motif, finer in line, and tends to occur in well-defined panels. Filleted and applique decoration of monochrome tan vessels is present in small numbers at Oxtotipac but not at Xometla.

A major difference between the Oxtotipac and Xometla samples occurs in the Red/Buff ceramics. Approximately 83% of the Painted and Slipped ceramics of Oxtotipac are Early Toltec Red/Buff, 2% are Late Toltec Red/Buff, and the balance pertain to various minor Painted and Slipped types. At Xometla, the Early Toltec Red/Buff makes up 96% of the sample and the Late Toltec, 2%. Of the 83% Red/Buff at Oxtotipac, 90% of these consist of vessels with decoration restricted to simple red lip banding, interior red slipping or medial red banding. We have called this Red/Buff variety Red/Buff Residual on our code sheets. Only 10% of the Red/Buff has the classic Coyotlatelco design layout and even when present, it is executed in a sloppy manner with much spilling over of paint. In the case of the Xometla sample, the ratio of Coyotlatelco to Red/Buff Residual is 1:1. This contrast is all the more striking when one notes the very fragmentary condition of the Xometla sample; many of the rims we classified as Red/Buff Residual, for example, could have come from vessels with a typical Coyotlatelco design since the latter occurs on a medial position on the vessel. The Oxtotipac sample, on the other hand, came from a protective setting, and large sherds are numerous. Even a comparison of the Red/Buff Residual from the two sites reveals differences. For example, 40% of the Red/Buff Residual sample from Oxtotipac has an interior red slip,

exterior tan surface; a variant that occurs in only 10% of the Xometla sample. In contrast, 17% of the Xometla sample have an exterior red slip, interior tan surface which comprises less than 2% of the Oxtotipac sample. Overall red slip occurs in 21% of the Xometla rims, but only 4% of the Oxtotipac sample. An interior red slip combined with an exterior red lip band occurs in 13% of the Oxtotipac sample but in less than 3% of the Xometla sample. Simple red lip banding is about equal to the two samples. Another consistent difference is that the Red/Buff is found primarily on hemispherical bowls at Oxtotipac whereas a consistent small sample of Red/Buff at Xometla are found on the basal break bowls, primarily the vessels with the Coyotlatelco design.

Other differences occur in the Painted and Slipped varieties other than the Red/Buff. No negative painting appeared in our Xometla sample whereas it amounted to 3.64% of the Oxtotipac Painted and Slipped wares. A White/Red decorated pottery occurs at Oxtotipac and is absent at Xometla. Both Red/Cream pottery and overall cream slipping is more common at Oxtotipac than Xometla.

Differences also occur in the Utility Wares. The ratio of basins to jars within the overall type is comparable in the two sites, but comales are much more common at Xometla. Oxtotipac basins tend to be larger and shallower with much thicker walls and less well burnished surfaces. Red lip banding is a very distinctive feature of the Xometla sample (47% of the basins) and is usually associated with an everted lip. This latter feature is virtually absent at Oxtotipac. Forty percent of the basins at Oxtotipac, on the other hand, had an interior red slip; this feature is found in only 9.5% of the Xometla rims. At Oxtotipac, the form has a great variety of lip variation including direct rounded, square, wedge, and interior and exterior bevelling. At Xometla, 60% of the lips were the everted or the exterior beveled type.

A major difference between the two samples occurs in the jars. A distinctive feature of the Oxtotipac ceramic complex are the low neck jars which make up nearly 37% of the utility rim sample, whereas they occur in only 5% of the Xometla rims. In contrast, medium to high neck jars occur in 25% of the Oxtotipac utility sample and 53% of the Xometla sample. The ratio of low neck to medium and high jars is 7:5 at Oxtotipac and 1:10 at Xometla. Among the high neck jars, is a distinctive form: a vertical or nearly vertical neck, slightly rounded bolstered lips, and thick red slip. Red slip also occurs on other varieties. In all, red slipping on jars is much more common at Oxtotipac (25%) than at Xometla (10%) and approximately 70% of Xometla jars have strong lip eversion whereas the most common lip forms at Oxtotipac is the direct rounded lip.

As noted above, comales are more common at Xometla. The Oxtotipac comales tend to be flatter in profile and the rim sherds from Xometla have a slight upward curve of the wall.

Finally, although both complexes have trough handled ladles, 68% of those from Oxtotipac have an orange surface (comparable in color and finish to Aztec plain orange wares) whereas 77% of those from Xometla have a light burnished tan surface similar to the monochrome tan. Another distinctive feature is the presence of a red lip band on the bowls of 64% of the Xometla ladles whereas only 3 rims out of 363 at Oxtotipac had this feature.

In summary, there seem to be enough differences between the two samples to warrant the definition of separate ceramic complexes. A major problem is the explanation of these differences. Conceivably the differences could be chronological, spatial or social. The Oxtotipac complex has been physically isolated only at Oxtotipac, although many of the surface samples from the upper valley have small quantities of what look like our Oxtotipac complex material. Xometla, on the other hand, seems to be limited to Teotihuacan itself as well as sites down the valley from Teotihuacan. This suggests space as the factor in

promoting the differences. On the other hand, both complexes have been reported at Teotihuacan itself which would suggest a chronological explanation. If we accept the chronological factor, a reconstruction of events might be as follows. Assuming that Oxtotipac is earlier (because of the closer resemblance of its types to later phases of the Teotihuacan ceramic sequence), most of the population of the valley would be at Teotihuacan with only scattered a occupation up valley, where it is isolated from Xometla and down valley where we seem to have traces of Oxtotipac occurring on some Xometla sites. During the Xometla phase, there was a drastic reduction in population at Teotihuacan and small settlements along the edge of the irrigated lower valley blossomed into large villages and towns.

The social factor is a possible alternate explanation since the Xometla sample is generally characterized by more elaborate vessel decoration. However, a number of attractive, well made decorated types from Oxtotipac are absent from Xometla (e.g., negative painting, White/Red, Red/White, applique, and modelled) and it would be difficult to explain the differences in the utility types of the two sites as social in cause.

We suggest that the differences are, in fact, primarily chronological with Oxtotipac as the earlier and Xometla the later subphase. This placement is based on the presence, in Oxtotipac, of features closer to Metepec and late Xolalpan (the final phases of the Teotihuacan ceramic sequence). These features include the high occurrence of low neck jars (virtually the only jar form during the Teotihuacan late phases), and a close similarity of the monochrome brown basal break bowls to those from the final phase of Teotihuacan (i.e., the degree of wall flare, the presence of well defined basal angles, lack of supports, the rounded lips). Xometla examples of the monochrome brown basal break bowls tend to have rounder basal angles and everted lips. The Red/Buf from Oxtotipac is quite different in design and form of vessel from late Teotihuacan Red/Buf, but Oxtotipac is more like Teotihuacan in the use of simple red banding as a design motif. The differences in vessel form, however, are striking and it would be difficult to derive the Oxtotipac Red/Buf directly from the Metepec Red/Buf. The monochrome tan hemispherical bowls are uncommon in the middle phases of Teotihuacan (i.e., Miccaotli-late Tlaminilopa) but are much more common in the Xolalpan and Metepec phases and therefore carry over into Oxtotipac. Other features which carry over are stamping, incising, and negative painting, all minor decorative techniques in both late Teotihuacan and at Oxtotipac. Of course, stamping and incising also occur in the Xometla complex; however they are somewhat more common in Oxtotipac and, again, this would confirm our suggested chronological position of the Oxtotipac complex between the end of Teotihuacan and Xometla.

Teotihuacan features that do not carry over into Oxtotipac are the tripod vases, the *candeleros*, and the matte ware saucer-comal-cover complex. New forms that appear in Oxtotipac, that are not found in the late phases of Teotihuacan, would be the roughened base comal and the trough handled ladle.

In summary, we suggest that the Early Toltec phase in the Teotihuacan Valley can be divided into two subphases, an early Oxtotipac subphase and a late Xometla subphase. The differences between the two may be even greater than our data suggest since some of the overlap may be due to the presence of both complexes on both of our sites. For example, it is possible that the few sherds of Coyotlatelco Red/Buf that we found in our Oxtotipac sample really are Xometla subphase in date and the few examples of low neck jars and bevelled lip basins at Xometla are the remains of Oxtotipac subphase occupations at that site.

With respect to possible division of the Late Toltec phases, the problem is more complex. Koehler's analysis of the Maquixco Bajo sample, as we indicated in the preface, was conducted prior to our rim code design and he used a more traditional type variety system of classification. Because of the poor quality of his sample, in terms of total number of sherds and sherd size, he used both rims and body sherds in his analysis. His tabulations, therefore,

cannot easily be compared to those frequencies derived from the rim samples of the Early Toltec sites. The surface sample is also difficult to compare directly with excavation samples because of the inherent bias of our sampling method. A direct comparison of the excavated samples with those from the surface sample shows a definite bias in favor of utility rims because of their large size and decorated pottery as compared to the small monochrome bowls. Even considering this problem, we feel that a case can be made for subdividing the phase into subphases, an earlier subphase which we will refer to as Mazapan and a late subphase which we will call Atlatongo.

The only difference between the two subphases, in our samples of Utility Wares, is the tendency for a pronounced shoulder break in the Atlatongo basins; a feature which gives the vessel a strong resemblance to the Late Formative basal break bowls with round base. They also tend to be orange in color rather than tan. The jar form seems to be identical for the two complexes. With respect to the various Red/Buff varieties, there is a definite reduction in popularity from the Mazapan to the Atlatongo subphases. A number of specific changes can also be noted in this category. Mazapan Red/Buff in the Atlatongo subphase was more poorly executed and had wider and less regular lines, than the neat, precise ordering of the earlier subphase. Wide Band Red/Buff is the only one of the three Late Toltec types which maintains its popularity in the Atlatongo phase. An added attribute to this variety is rim scalloping. The reason why this type survives into the later phase is probably because of its unique functional form: the molcajete. Toltec Red/Buff generally shifts to a Red/Orange.

A major feature which characterizes the Atlatongo complex is the appearance, or at least great increase in popularity, of orange ware. (We noted that even in the Red/Buff, the sherds tended to take on an orange color in the later phase). Possibly this Late Toltec orange ware provided the prototype for the later Aztec orange wares.

Included in the orange ware complex are the *bañada* wares described by Acosta from his work in Tula. The paste varies from coarse in the *bañada* types to very fine in the finely burnished types. All pastes are orange in firing with a lighter colored core, which may be light yellow, with shades of green in the better fired pieces. Surface treatment varies considerably; the *bañada* types have a thick slip and there is no attempt to burnish these vessels. Other vessels have a light coat of red paint or slip applied to the majority of the surface; these vessels are invariably burnished after the application of the red material. Still other vessels are only burnished, with no apparent material applied to the surface. Colors vary from cream and orange (or some intermediate color) in the *bañada* types to red and orange in the well burnished types. The predominant vessel forms are straight sided bowls with flat bases (in the *bañada* cases with tripod nubbin supports), hemispherical bowls with fine paste and incising, and fine paste jars. The fine paste varieties often have a spotted green/orange firing, perhaps simulating a plumbate finish and many of the forms of this variety are very similar to the plumbate form. We have nicknamed these false or imitation plumbate. It is significant that the few pieces of true plumbate located by us from the rural sites are always associated with Atlatongo phase wares. We think it is important to emphasize that the Atlatongo wares are very different than any earlier pottery in the Teotihuacan Valley and form no part of the preceding Red/Buff tradition. These wares are certainly very numerous in Tula, both in the excavated central zone and near El Corral. Again, at Tula they are associated with true plumbate and seem to stem from no local tradition.

One problem with our subphasing is in terms of its practical application. What seems to have occurred is a persistence of many of the Mazapan varieties into the Atlatongo phase. The Atlatongo phase, however, involves the appearance of a number of innovations, presumably the result of increased contact with Tula, where the Orange/Cream ware complex is very abundant. What this means is that we can easily identify a pure Mazapan phase site and an Atlatongo component in a late Mazapan phase site, although we cannot really isolate

Mazapan from Atlatongo when they occur mixed on the same site, since there are few or no Mazapan traits that do not carry over into Atlatongo.

A major spatial factor may also be involved in the explanation of the differences between the Mazapan and Atlatongo complexes. Recent research at Tula, near El Corral, by Richard Diehl, indicates that the climax of the growth of the city is closely associated with a ceramic complex that is even more Atlatongo-like than our defined Atlatongo complex. By this, we mean that the Red/Buff (other than the Wide Band Red/Buff) occurs in extremely small frequencies and the bowls are predominately of the orange ware complex. In 1963, we surface sampled a large Late Toltec site near Meyahualco, north of the Teotihuacan Valley. Our surface samples from that site were much more dominated by the Atlatongo orange ware complex than any samples from the Teotihuacan Valley proper. What these data suggest is that differences between the two components do have chronological value in the Teotihuacan Valley but that there is a spatial gradient as well.

The Mazapan phase in the Teotihuacan Valley probably completely lacked the orange ware complex, and was characterized by a high percentage of the three Red/Buff varieties. At Tula, during this phase, the orange ware complex was probably already in use and, with the exception of the Wide Band Red/Buff, the Red/Buff complex was undoubtedly very poorly represented. During the Atlatongo phase, the Mazapan Red/Buff and the Toltec Red/Buff may have virtually disappeared at Tula but continued in use in the Teotihuacan Valley. The implication here, is that the orange ware complex originated in Tula and that the Mazapan Wavy Line and Toltec Red/Buff originated in the Teotihuacan Valley. What is clearly needed is a series of new samples from known Toltec sites using a more statistically rigorous collecting technique in order to better establish this chronological/spatial gradient.

We also noted some functional aspects of the type ratios from our samples. For example, our sample from the Xometla phase house at Cuanalan East has a much higher percentage of decorated sherds than our sample from the platform fill at Xometla. This might suggest an elite or middle class status for the Cuanalan house and that the fill used for the construction of the Xometla platform was obtained primarily from a lower class residential zone. A number of the surface samples from the Maquixco Alto area have an unusual percentage of jars, in some cases over 70% of the sample. The area today is a specialized zone of barley and maguey cultivation and pulque is exported to villages at the delta of the Teotihuacan Valley; conceivably this last product might have been a specialty in Late Toltec times as well.