The South Plaza of Dzibilchaltún, Yucatán

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Material Analysis

This report details the data obtained through the analysis of the diverse cultural remains recovered in the excavation undertaken in the structures located in the open space of the South Plaza, including ceramic material (sherds and artifacts), lithic material (obsidian, silex, limestone, greenstone, stucco), malacological material (seashells) and other archaeological material (beads, alabaster, pyrite and metal).

The presentation of these results will be made based on the quantity or frequency of each one of the materials without taking away from the importance of each one.

The excavation, which was extensive (horizontal) as well as intensive (stratigraphic pits), lacked sealed contexts (stucco floors). Even though the stratigraphy of the plaza defined 3 levels of floors, these did not have good preservation and it is expected that there could be "filtration" of material from the upper strata to the lower strata.

In the case of the horizontal excavation, the material comes from the natural layer of accumulated sediment over the last floor level of the plaza. Because of this, the preservation of the surface finish of the floor (stucco) was nil.

Ceramic Material

The cultural material found was mostly made up of ceramic sherds, as is the case in all archaeological excavations,. The analyzed sample that came from the excavations in the South Plaza reached up to 14,078 sherds, of which 1,768 (12.56%) correspond to surface material (Table 1), 4,334 sherds (30.79%) come from stratigraphic pits (Table 2 and Table 3), and 7,976 sherds (56.65%) were obtained from the excavation of structures. 113 sherds (0.80%) were unidentified and 625 sherds (4.44%) were eroded (Table 4).

Method of Identification

All of this material was identified and classified based on the well-known and widely used type-variety system developed by Smith, Willey and Gifford (1960)[1], through which we were able to determine the chronological sequence of the general context of the plaza and the excavated structures.

The type-variety system presents two levels in the analysis of the ceramics. In the first, each sherd is taken as a minimum unit of observation distinguishing their physical characteristics (types and varieties), and in the second, the analysis is established based on types, complexes, horizons and ceramic spheres which permit a more abstract analysis and allow the generation of hypotheses and theories which

[1] For further reference and discussion about the type-variety system and its application to the study of ceramic materials, see Smith and Gifford 1966; Smith, 1971; Adams, 1971; Sabloff, 1975; Gifford, 1976; Connor, 1983; Robles, 1990; Canché, 1992; Peraza, 1993; Jiménez, 2002; Ceballos, 2003.

permit the recognition of spatial distributions and relationships between archaeological sites (Robles, 1990:25).

For this analysis, the following three basic concepts were taken into consideration for the identification of the sherds (based on Robles 1990:25-26):

- **Type**: Derived from the superficial characteristics of the sherd (color, decoration, etc.) which are recognizable in a visible and tangible manner.
- **Variety**: Established by small differences within a type, for example, the absence or presence of minor attributes.
- **Ceramic Group**: This concept functions as an analytic unit to classify diverse related types, which have the same qualities in the base color and surface finish, based on their decoration differences.

The chronological sequence of the excavated context is composed of the 7 ceramic complexes established for Dzibilchaltún by Andrews IV and Andrews V (1980), which run from the Late Preclassic until the Colonial period. The 61 ceramic groups (Table 4) identified in the ceramic material are distributed within these complexes.

As to the ceramic forms, we basically identified those that had been considered as utilitarian or domestic (pots, vessels, tripod vessels, deep dishes**,** pans**,** neckless jars, plates, cups, large cups). Forms for ritual use (censors) were also defined, as well as forms and decorations (polychrome) that are associated with sumptuous goods.

Within the ample chronological sequence, it stands out that the greatest ceramic presence is that of the Zipché Complex (Early Postclassic, 1000-1200 A.D.) making up 35.20% of the analyzed sample (4,957 sherds). This is followed percentage-wise by the Copó 2 Complex (Terminal Classic, 830-1000 A.D.) with 34.15% (4,809 sherds), and the Chechem Complex (Late Postclassic 1200-1540 A.D.) with 16.70% (2,353 sherds) (Table 4).

The complexes that had a lesser ceramic presence were the Piim (Early Classic, 250-600 A.D.) with 1.78% (249 sherds) of the sample, and the Colonial Complex (1540-1600 A.D.) with 0.40% (57 sherds). In an intermediate point with a low ceramic frequency was the Copó 1 Complex (Late Classic 600-830 A.D.) with 3.49% (491 sherds), and the Xculul Complex (Late Preclassic 350 B.C. –250 A.D.) with 3.03% (424 sherds).

This data leads us to the observation that the excavated context in the open space of the South Plaza presents an Early Postclassic temporality, marking this period as the moment of construction of the late structures of the Plaza. It should be made clear that this temporality is only for the excavated context over the plaza and not for the major structures that architecturally make up the South Plaza.

The ceramic groups with the greatest frequency were: the Chum with 2,358 sherds (16.74%) for the Copó 2 complex, the Sisal Group with 2,191 sherds (15.56%) and the Kukulá Group with 2,100 sherds (14.91%) for the Zipché Complex, the Navulá Group with 2,101 sherds (14.92%) for the Chechem Complex, and finally, the Muna Group with 1,641 sherds (11.66%) for the Copó 2 Complex (Table 4).

Other Ceramic Artifacts

Besides the samples of ceramic sherds obtained from the surface and excavation of the South Plaza, we obtained a total of 11 ceramic artifacts of which 8 were reutilized sherds, 2 were ceramic figurines and 1 was possibly a bead (cfr. Taschek, 1994:198). The chronologic association of these artifacts corresponds to the Terminal Classic (830-1000 A.D.)-Early Postclassic (1000-1200 A.D.).

Category: Fishing weights (Photo 1)

Frequency: 8 artifacts

Description: Reutilization of ceramic fragments that have a semi-rectangular or ovoid shape, with smoothed sides and having two incisions at the opposite ends.

Ceramic Types: The fishing weights were made using the following types of ceramic fragments: Sierra Red (1), Unslipped Chum (1), Kukulá Cream (1), Mama Red (1), and Olive Pitcher Medium Style (4).

Temporality: The artifacts were associated with ceramic materials from the Terminal Classic (830-1000 A.D.) and Early Postclassic (1000-1200 A.D.).

Considerations: The use of this type of artifacts shows up in contexts dated from the Middle Preclassic (Taschek, 1994:222). Nonetheless, according to Phillips (1979:13) this type of weights is not present prior to the Early Postclassic. It should be mentioned that in this small sample only one weight corresponded to material from the Late Preclassic (Sierra Red), whereas the rest corresponded to material from the Early Postclassic, Late Postclassic and Colonial Periods.

Category: Figurines (Figure 1).

Frequency: 2.

Description: An anthropomorphic figurine that represents a human face with large, oval eyes, prominent nose, smiling, thin lips, and ear spools. It apparently has a headdress around the forehead, and on the top part there is a circular perforation from side to side that could have allowed its use as a pendant.

The other figurine is zoomorphic, representing a wild hog or tapir. It could be a vessel's support. It has two ears, elongated eyes and a snout where the teeth are represented.

Temporality: The figurines are associated with ceramic materials from the Early Postclassic

Considerations: Similar anthropomorphic figurines are reported by Taschek (1994: 205-207), and as to the zoomorphic figurines, this author does not report anything similar. Nonetheless, she points out that the category of these figurines reflects an original grotesque character of the Maya figurines, and the conditions of erosion and fragmentation of the specimens from Dzibilchaltún (Taschek, 1994:208-209).

Lithic Material

A total of 470 artifacts were recovered from the lithic industry, classified in the following manner: 260 elements from the silex sub-industry (55.31%), 164 elements from the obsidian sub-industry (34.89%), 42 elements from the limestone sub-industry (8.94%), 2 elements from the greenstone sub-industry (jade -0.43%-) and 2 stucco elements (0.43%) - - these last elements, although they are not made out of stone, are included in this section solely for their description.

Each piece was identified by the author and was classified depending on the raw material the artifacts were made from, their function and their origin, as well as taking into consideration the context from which they came.

The artifacts basically come from the excavation undertaken. Only 2 of the stucco elements (0.43%) and 31 of the limestone elements (6.60% - including grinding stones and decorative stones-) come from the surface. 49 elements (10.42%) came from stratigraphic pits and 388 (82.55% - Layer I) were recovered from the excavation of the structures.

The typological classification of the artifacts was undertaken based on the concepts and attributes indicated by García Cook (1967) and by García Moll (1977) for the identification of artifacts.

For the silex and obsidian artifacts that have the proximal end, it is possible to distinguish characteristics which allow us to know the type of percussion platform that they had, and also speculate which technique was used to manufacture the artifacts.

The first concept that is used in the typological classification of the artifacts is that of the stem, which is the part of the flake or blade in which one can observe the scars of the plane of percussion on the proximal end, which indicates the zone in which the platform was found, for which the stem can be (García Cook, 1967):

- **Carved**: This is the one in which, before being detached from the nucleus (core), the percussion platform was prepared with the objective of allowing a better blow and obtaining a better flake or blade.
- **Smooth**: It is found when, upon being prepared for obtaining the artifact, only a large flake is taken off the percussion platform.
- **Flat**: It is found when the platform is prepared by taking off a series of small flakes, leaving it flattened.
- **Convex**: It is found when the removed flakes form a convex surface where the blow will take place.

- **Smoothed**: It is found when the platform was prepared by rubbing it with some abrasive material; it corresponds to the polished stems defined by García Moll (1977).

García Moll (1977) identified other types of stems, as follows:

- **Untreated**: This type has no signs of having been worked on, or still conserves part of the cortex of the raw material.

- **Faceted:** Is that which, upon preparing the platform, small flakes came off from one single plane or direction.

- **Dihedral**: The platform is prepared by taking off two large flakes, forming an angle.

- **Punctiform**: Can come from any type of platform, since the surface of the stem is very reduced and remains as one single point.

As to the final finish of the artifact and the form in which the adequate margin is obtained for its specific use, it is necessary to retouch it. This consists in taking off small flakes. The retouches, according to García Cook (1967) can be:

- **Facial**: This characterizes an artifact if it has an entire surface or face retouched.

- **Marginal Facial**: This is found when an artifact has a face or surface that is totally retouched, and the opposite face only has retouch on one of its margins.

- **Bi-marginal Facial**: This is found when an artifact has one complete face retouched, and on the opposite face there is retouch on both margins.

- **Bifacial**: This is the case if the retouch totally covers both faces of the artifact.

- **Marginal**: This is found if only one side or margin of the artifact has been retouched without covering the entire surface.

- **Simple Marginal**: This is found when the retouch is done on only one face of the artifact

- **Double Marginal**: This is found when the retouch besides being on both sides is also on both faces of the element.

- **Double-simple Bi-marginal**: This is when the retouch is done on one of the faces on only one side, while on the opposite face it is done on both sides of the element.

- **Opposite-simple Bi-marginal**: This is when one of the faces is retouched only on one side, and on the opposite face the opposite side is retouched.

For the typological classification the following were also taken into account: the bulb of percussion, in which the ventral face is found; the proximal end of the artifact near the stem which indicates the zone, direction of the blow (percussion or pressure) and its intensity, which is reflected by the size of the bulb: prominent, medium or diffused (cfr. Ramírez Bermúdez, 1987). Brokmann (2000:197) points out that a more exact term should be used: "bulb of applied force", to refer to said impact zone on the artifact, and only uses two descriptive categories of bulb: diffuse, when it is very diffused which indicates that the contact area was very wide; sharp: when it is found well defined in the section of the cone and indicates that the point of contact was reduced or circumscribed.

These concepts were used basically for the identification of the traits of the elements of both the obsidian sub-industry and the silex sub-industry. García Cook establishes them and uses them for obsidian, however, in this study some typological characteristics were found in the silex artifacts.

Sub-industry: Silex

Silex is a cryptocrystalline mineral variant of quartz, derived from calcareous sedimentary rocks, in white, gray, yellow, stone, brown or black, with translucent borders and concoidal fractures (Mirambell y Lorenzo, 1974:66).

The term silex is more used in the archaeological literature of the Mayan area. Nonetheless, one can find vocabularies in which the following synonyms can be used: hornstone, chert and flint. Generically chert and flint are distinguished based on the colors, the first presenting clear tones (grayish-white/bluish-gray) and the second for having dark tones (dark gray and black). Nonetheless, the name "flint" (the geological name, "*pedernal*" in Spanish) includes the categories chert and flint, to which it is equivalent and does not establish any distinction between colors (Torres Trejo, 1996:29-30). In this study it was preferred to continue to use the traditional term silex.

Silex has an ample geographic distribution throughout Mexican territory; it is very hard and is very breakable, and due to this when it fractures it produces sharp and homogeneous edges that allow the manufacture of quality artifacts with good aesthetics, permitting the cutting, superficial slicing, scraping and perforation of plant and animal materials (Torres Trejo, 1996:34 and 36).

In the Yucatán Peninsula, the main source of this stone is found in the zone known as the Puuc Mountain Range (being the closest to Dzibilchaltún), in the southern part of the present state of Yucatán, a region in which sites have been located with evidence of the production of silex lithic artifacts (cfr. Potter, 1993). Beds of this mineral have also been located in the Becán area of the Valley of Belize.

Next we include the description of the silex artifacts that were identified in the context of the South Plaza. A total of 260 silex elements were obtained, of which 20 elements (7.69%) came from stratigraphic pits, 147 elements (56.53%) came from the low platform, 8 elements (3.07%) came from Structure 1, 16 elements (6.15%) were from Structure 2, 32 elements (12.30%) were from Structure 3, 36 elements (13.84%) were from Structure 8, and 1 element (0.38%) was from Square 16RR (Table 5).

Table 5. Typological Classification and Origin of the Silex Elements.

Category		%		Origin		%
Small blade Fragment	22	8.46		Pits	20	7.69
Nucleus Fragments	60	23.07		Low Platform	147	56.53
Flakes	166	63.84		Structure 1	8	3.07
Scraper	1	0.38		Structure 2	16	6.15
Knives	6	2.30		Structure 3	32	12.3
Projectile Points	4	1.53		Structure 8	36	13.84
Denticulated	1	0.38		Square 16-RR	1	0.38
TOTAL	**260**	**99.96**		**TOTAL**	**260**	**99.96**

The following is the typological classification of the elements:

Table 6. Typological Classification and Origin of the Silex Flakes.

Flakes		**Bulb of Percussion**		**Stem**		**Retouch**		**Origin**	
Primary	13	diffuse	15	Flat	9	Marginal	2	Pits	9
Secondary	25	medium	3	Smooth	5	Simple Marginal	1	Low Platform	99
Tertiary	91	prominent	3	Faceted	3			Structure 1	7
From preparation	37			Concave	1			Structure 2	10
				Untreated	12			Structure 3	20
								Structure 8	21
TOTAL	**166**		**21**		**30**		**3**		**166**

Category: Flakes. (Photo 2).

Class: Carved.

Frequency: 166 (63.84%).

Description: These are relatively thin fragments that are obtained by the preparation of the stone (silex) nucleus, derived from it by percussion or pressure, or by an unintentional fracture of the core. Generally they are considered part of the "work debitage" in the elaboration of artifacts (bifacials, points, axes, etc.), and the length of the flakes is always less than their width (Mirambell and Lorenzo, 1974).

From the total of the flakes (Table 6), 13 were primary flakes (the first flake that comes off the nucleus and still contains the cortex), 25 were secondary flakes (the second flake that comes off the nucleus and retains 50% of the cortex), 91 were tertiary flakes (the last flake that comes off the nucleus, leaving it ready), and 37 were flakes obtained in the preparation de artifacts.

Three flakes were retouched, 2 were marginally retouched and 1 one had a simple marginal retouch. Thirty flakes had some type of stem, 9 had a flat stem, 5 had a smooth stem, 3 had a faceted stem, 1 had a concave stem and 12 had untreated stems. Lastly, 21 flakes had some type of bulb of percussion, 15 were of the diffuse type, 3 were of the medium type and 3 of the prominent type.

Temporality: These are associated with ceramic materials that date to the Early Postclassic (Zipché) with exception of the material from the pits, in which material from the late Classic (Copó 2) predominates.

Table 7. Typological Classification and Origin of Silex Nuclei Fragments.

Fragments		**Stem**		**Origin**	
From nuclei	42	Smooth	1	Pits	7
From nuclei with cortex	18	Untreated	1	Low Platform	31
				Structure 1	1
				Structure 2	5
				Structure 3	6
				Structure 8	10
TOTAL	**60**		**2**		**60**

Category: Nuclei Fragments

Class: Carved

Use: Extraction.

Frequency: 60 (23.07%).

Description: Raw material as fragments of stone or mineral, from which smaller fragments were obtained (by pressure or percussion) and were given a determined form appropriate for the type of artifact desired. The nucleus fragments identified came from carving waste produced between the preparation of the nucleus itself and the preparation of the artifact.

Of these fragments, only 18 conserved part of the cortex, and only one had a smooth stem evidencing the type of percussion platform (Table 7).

Temporality: Most of these artifacts are associated with materials from the Early Postclassic (Zipché).

Table 8. Typological Classification and origin of the silex small blades.

Fragments from smal blades	
Proximal	7
Medial	1
Distal	11
Macroblade	1
Non prismatic	2
TOTAL	**22**

Proximal fragments from prismatic small blades			
Bulb of Percussion		Stem	
Diffuse	5	Faceted	1
Medial	2	Smooth	3
		Without stem	3
TOTAL	**7**		**7**

Retouch	
Marginal	1
double Marginal	2
Simple-opposite bimarginal	1
Unretouched	18
TOTAL	**22**

Origin		**%**
Pits	2	9.09
Low Platform	12	54.54
Structure 2	1	4.54
Structure 3	4	18.18
Structure 8	3	13.63
TOTAL	**22**	**99.98**

Category: Small Blades (Figure 2).

Class: Carved

Use: Cutting of soft materials.

Families: Prismatic (19). (Photo 3 and Photo 4)

Non-prismatic (2). (Photo 5).

Macro-blade (1). (Photo 6).

Frequency: 22 (8.26%).

Description: The blades or small blades are fragments of stone (silex) obtained from a nucleus prepared for this purpose, and obtained by pressure or percussion; the lengths of the blades should always be twice their width. The prismatic blades should have two parallel edges, and usually the transversal cut is trapezoidal o triangular in shape (Mirambell y Lorenzo, 1974:15). The non-prismatic blades are distinguished from the prismatic ones because they do not have parallel borders, but instead have irregular edges and sides, their length is greater than or double their width, and the transversal section can be flat (this is my personal observation), (Table 8).

The macro-blade results from a process of percussion flaking of the nodule (raw material) in the preparation of the nucleus, which depending on its shape can be utilized as a cutting artifact or as a precursor for another artifact (Braswell, sf:5).

Of the small blade fragments, 7 were proximal, 1 was medial and 11 were distal. Of the seven proximal fragments, 1 had a faceted stem, 3 had smooth stems and 3 did not have stems. Also, 5 had a diffuse bulb of percussion and 2 had a medium type. As to the type of retouch, it can be pointed out that only four had some type of retouch: 1 had marginal retouch, 1 simple opposite bi-marginal retouch and 2 double marginal retouch. The remaining 18 had no retouch.

Temporality: These small blade fragments have chronological association with ceramic material from the Early Postclassic (Zipché) except for two fragments from Pit 17-PPa, which are associated with materials from the Terminal Late Classic (Copó 1 and 2).

Observations: The macro-blade comes from the low platform; one of the non-prismatic small blades comes from the low platform and is the one that still has part of the cortex, smooth stem and simple opposite bi-marginal retouch. The other non-prismatic small blade did not have a stem, but did have marginal retouch (Table 9).

Table 9. Typological Classification and Origin of the Silex Knives.

Knives		**Carving**		**Retouch**	
Distal fragment	2	Bifacial	5	No retouch	6
Medial fragment	3	Unifacial	1		
Complete	1				
TOTAL	**6**		**6**		**6**

Family		**Type**		**Origin**	
Convex sides	5	Flat fusiform	5	Low platform	3
Conical section	1	Semi-elliptic	1	Structure 3	1
				Structure 8	1
				Square 16-RR	1

TOTAL	**6**		**6**		**6**

Category: knives. (Figure 3, Photo 7).

Class: Carved

Use: For cutting soft and/or hard materials

Families: Convex sides (5)

Conical section (1)

Types: Flat fusiform (5)

Semi-elliptic (1)

Frequency: 6 (2.30%)

Description: These artifacts can be made from flakes, blades or precursors; they have a bifacial workmanship (Mirambell and Lorenzo, 1974:34) and in the case of the analyzed artifacts, only one had unifacial carving and none had been retouched. Of the 6 knives identified, 2 were distal fragments, 3 were medial fragments and only 1 was complete (Table 9).

Temporality: They are associated with Early Postclassic (Zipché) materials, which are the prominent materials in the cited structures.

Considerations: The complete knife was recovered from the low platform, and had a fracture that was caused by a manufacturing error.

Table 10. Typological classification and origin of the silex projectile points.

Projectile Points		**Carving**		**Family**	
Stemmed	3	Unifacia	4	Without notches	4
Without stem	1				
TOTAL	4		4		4

Basal edges		**Blade edges**		**Origin**	
Convex convergen	1	Convex convergen	3	Pits	1

Parallel divergent	1	Straight divergent	1	Low Platform	2
Parallel	1			Structure 8	1
TOTAL	**3**		**4**		**4**

Category: Projectile point (Photo 8).

Class: Carved

Use: Cutting, in hunting activities.

Family: Without notches.

Frequency: 4 (1.53%).

Description: artifacts that are manufactured from flakes, blades or precursors, which are made up of two cutting edges that come together forming a point capable of perforation (Mirambell y Lorenzo, 1974:35).

The four points identified had unifacial carving and only three had a stem, since the stem of the fourth one was fractured. The edges of the three complete stems were: 1 convex convergent, 1 parallel divergent, and 1 parallel; 3 of the points' blades were convex convergent and only 1 was straight divergent (Table 10).

Temporality: the point found in the pit is associated with mixed materials from the Late Classic (Copó 1), Early Classic (Piim) and Late Preclassic (Xculul); the points that came from the structures are associated with materials from the Early Postclassic (Zipché).

Category: Scraper (Figure 3, Photo 9).

Class: Carved

Type: Elliptic

Use: Cutting-scraping of soft or easily fractured materials

Frequency: 1 (0.38%).

Description: Scrapers are artifacts made of flakes which in one or both extremes have continuous retouch that is usually rounded in shape (Mirambell y Lorenzo, 1974:46).

The identified scraper had double marginal continuous retouch and retained part of the smooth stem. The elliptic type is defined by García Cook (1967).

Temporality: Layer IV of this pit had a mix of materials with a greater presence of ceramic from the Terminal Classic (Copó 2) and Early Postclassic (Zipché).

Category: Denticulate artifact

Class: Carved

Use: Cutting of soft materials

Frequency: 1 (0.38%)

Description: Artifact made from a blade that has a series of continuous notches on one or both edges due to retouching (Mirambell y Lorenzo, 1974:57).

The denticulate artifact that was identified was made from a tertiary flake, had a flat stem and continuous marginal retouch on the dorsal face.

Temporality: Materials associated with this structure are predominantly from the Early Postclassic (Zipché).

Sub-industry: Obsidian

It is widely known that obsidian is a volcanic glass of rhyolitic or andesitic composition, from the family of igneous rocks, because it forms during the rapid cooling of volcanic lava (Mirambell and Lorenzo, 1974:66). It is easily fractured, and that fracture is concoidal which produces sharp edges/ridges. The principal Mesoamerican sources are found in the Guatemalan Highlands and in the region of Central Mexico.

It is important to point out that in spite of the existence of an important source in the Mayan area, said source is found very far from the region of the Northern Plains. Because of this, the presence of that volcanic material in particular is a clear indication of commercial relations between the Mayan cities (Braswell, nd:1).

For the typological identification of the obsidian artifacts, we took into consideration the aspects already mentioned that were previously proposed by García Cook and García Moll (vid. supra). The identification of the sources of origin of the artifacts was done by visual analysis, strictly adhering to the obsidian type collection that exists in the encampment at Dzibilchaltún, which was made by Braswell in 1995, and for which the sources were also identified by visual analysis as well as by neutron activation, reinforcing its reliability.

Table 11. Typological classification and origin of the obsidian elements.

Category		%	Source		%	Origin		%
Small blade fragments	89	54.26	El Chayal	124	75.60	Pits	26	15.86
Flakes	36	21.94	Ucareo	22	13.41	Low Platform	51	31.09
Nucleus fragments	30	18.29	Zacualtipán	13	7.92	Structure 1	6	3.65
Preparation fragments	9	5.48	Ixtepeque	5	3.04	Structure 2	25	15.24
						Structure 3	18	10.97
						Structure 8	20	12.19
						Square 16-RR	18	10.97
TOTAL	**164**	**99.97**		**164**	**99.97**		**164**	**99.97**

The samples of obsidian that were recovered and identified consisted of a total of 164 artifacts, of which 26 elements (15.86%) came from stratigraphic pits, 51 elements (31.09%) came from the low platform, 6 elements (3.65%) from Structure 1, 25 elements (15.24%) from Structure 2, 18 elements (10.97%) from Structure 3, 20 elements (12.19%) from Structure 8 and 18 elements (10.97%) from Square 16-RR (Table 11).

As for the sources from which the artifacts came, it was found that 124 pieces (75.60%) were made out of obsidian from the beds at El Chayal, 22 pieces (13.41%) were prepared with material from Ucareo, 13 pieces (7.92%) were made with obsidian from Zacualtipán, and 5 pieces (3.04%) with material from Ixtepeque (Table 11).

It is clear that the use of obsidian from the source at El Chayal near Kaminaljuyú, Guatemala, is predominant. This was the source that was most used during the Classic Period (although the use of the artifacts continued after that period). The sources at Ucareo and Zacualtipán in Central Mexico were used during the Postclassic Period, while the material from Ixtepeque was used for the Terminal Classic – Early Postclassic Periods.

According to Braswell (nd:16-17), the fact that the majority of the obsidian that has been recovered from excavations done in Dzibilchaltún came from Guatemalan sources, specifically El Chayal and to a lesser extent, the sources in Central Mexico, suggests that the date of the obsidians used are for the Late-Terminal Classic (Copó Complexes 1 and 2). It also indicates that there is a wide possibility that the artifacts found in Dzibilchaltún that come from Central Mexico may possibly have been manufactured first at Chichén Itzá, and that the polished stems in the Mayan area are a modification introduced to the Peninsula after 800 A.D. (Braswell, sf:13 and 21).

The typological classification of the obsidian artifacts is as follows:

Table 12. Typological classification and origin of the obsidian flakes.

Flakes		Bulb of percussion		Stem		Source		Origin	
Primary	1	Diffuse	4	Concave	3	El Chayal	31	Pits	6
Secondary	8	Medium	5	Smooth	4	Ucareo	4	Low Platform	9
Tertiary	21	Prominent	1	Flat	2	Zacualtipán	1	Structure 1	5
Sheets	6			Untreated	2			Structure 2	6
				Without stem	2			Structure 3	4
								Structure 8	2
								Square 16-RR	4
TOTAL	**36**		**10**		**13**		**36**		**36**

Category: Flakes (Figure 4).

Class: Carved

Frequency: 36 (21.95%)

Description: These are thin fragments that are obtained upon preparation of the stone (obsidian) nucleus by percussion, pressure, or by unintentional fracture. They are considered as part of the "waste" that is a byproduct of the making of artifacts. The lengths of the flakes is always less than their width (vid. supra silex flakes).

Of the 36 flakes recovered by excavation, 1 (2.77%) was a primary flake, 8 (22.22%) were secondary flakes, 21 (58.33%) were tertiary flakes, and 6 (16.66%) were sheets. In this report we use the term "sheet" since, due to their small, thin aspect, it is possible that they are derived from the process of thinning artifacts (Table 12).

Only 10 flakes had some type of bulb of percussion; 4 had a diffuse bulb, 5 had a medium bulb, and 1 had a prominent bulb. With regards to stems, 13 flakes had stems: 3 had concave stems, 4 had smooth stems, 2 had flat stems, 2 had unprepared stems, and only 1 showed signs of wear.

As to the sources where the material to make these flakes originated: the beds at El Chayal predominate with 31 pieces, 4 are from the beds at Ucareo, and 1 is from the beds at Zacualtipán.

Temporality: The flakes that came from the pits are associated predominantly with Terminal Classic (Copó 2) materials, and those that originated in the structures are related to materials from the Early Postclassic (Zipché).

Table 13. Typological classification and origin of the obsidian nuclei fragments.

Fragments		Source		Origin	
From nuclei	30	El Chayal	31	Low platform	14
From small blade preparation	9	Zacualtipán	7	Structure 2	9
		Ixtepeque	1	Structure 3	5
				Structure 8	9
				Square 16-RR	2
TOTAL	**39**		**39**		**39**

Category: Nuclei fragments

Class: Carved

Use: Extraction

Frequency: 39 (23.77%)

Description: In this category I include irregular nucleus fragments and fragments that showed signs of being related to the preparation of small blades, that is to say, they may be the result of mistakes in the manufacturing process of these artifacts. The nucleus fragments are raw stone material from which smaller fragments are obtained by pressure or percussion, which are shaped according to the type of artifact desired (vid. supra silex nucleus fragments).

Of the 39 fragments registered, 30 were actual fragments of nuclei, and only 9 may correspond to fragments derived from the manufacture of blades (Table 13).

The origins of the material used to make these obsidian fragments are as follows: 31 fragments from El Chayal, 7 fragments from Zacualtipán, and 1 fragment from Ixtepeque.

Temporality: The layer from which these obsidian fragments come corresponds to materials that dated to the Early Postclassic.

Table 14. Typological classification of the fragments from small blades.

Prismatic blade fragments		%			%
Proximal	10	11.23	With retouch	38	42.68
Medial	68	76.40	Without retouch	51	57.30
Distal	11	12.35			
TOTAL	**89**	**99.98**		**89**	**99.98**

The obsidian blade sample came to a total of 89 fragments (Table 14) and for a better description of the typological attributes observed in the prismatic blades, this group is divided into three sections which present the proximal, medial and distal fragments in the following manner:

Table 15. Typological classification and origin of the proximal fragments of the obsidian prismatic blades.

Bulb of percussion		**Butt**		**Retouch**		**Source**		**Origin**	
Diffuse	5	Concave	1	Simple margina	1	El Chayal	7	Pits	5
Medium	4	Smoothed	1	Simple bimarginal	1	Ucareo	2	Low Platform	1
Prominent		Smooth	2	Without retouch	8	Zacualtipán	1	Structure 8	1
Broken	1	Flat	1					Square 16-RR	3
		Unworked	4						
		Without stem	1						
TOTAL	**10**		**10**		**10**		**10**		**10**

Category: Small blades

Class: Carved

Use: Cutting of soft materials in diverse domestic activities

Family: Prismatic

Proximal fragments (Figure 5, Photo 10 and Photo 11)

Frequency: 10 (11.23%)

Description: These are stone (obsidian) fragments that were obtained from a nucleus by means of percussion. They have parallel edges or sides and can be triangular or trapezoidal in their transversal section, (vid. supra, small silex blades) which in this case, since they are proximal, the type of platform from which they were detached can be elucidated.

In these fragments it is possible to distinguish that 5 have a diffuse bulb of percussion, 4 have a medium one, and only 1 had a broken bulb of percussion. Regarding the stems, 1 had a concave stem, 1 had a smoothed stem, 2 had smooth stems, 1 had a flat stem, 4 had unprepared stems and only one did not have a stem. Only two small blade fragments had been retouched, 1 had a simple marginal

retouch and 1 had a simple bimarginal retouch, while the remaining 8 had none (Table 15).

These small blades are made with material that comes from three obsidian sources: 7 are from the beds at El Chayal, 2 from the beds at Ucareo, and 1 from the beds at Zacualtipán.

Temporality: They are associated with materials from the Terminal Classic (Copó 2) and Early Postclassic (Zipché) Periods.

Table 16. Typological classification and origin of the medial fragments from obsidian small prismatic blades.

Retouch		Source		Origin	
Simple marginal	15	El Chayal	48	Pits	14
Double marginal	10	Ucareo	13	Low platform	23
Simple bimarginal	2	Zacualtipán	3	Structure 1	1
Double bimarginal	2	Ixtepeque	4	Structure 2	9
Opposite bimarginal	1			Structure 3	8
Simple-double bimarginal	2			Structure 8	7
Without retouch	20			Square 16-RR	6
Signs of wear	16				
TOTAL	**68**		**68**		**68**

Category: Small blades

Class: Carved

Use: Cutting of soft materials in diverse domestic activities

Family: Prismatic

Medial fragments (Figure 6, Photo 12, Photo 13, Photo 14 and Photo 15).

Frequency: 68 (76.40%)

Description: Central fragment of an obsidian artifact (blade) in which it is possible to observe the parallel edges and whether or not these had any type of retouch; in their transversal section they retain triangular or trapezoidal shape.

Out of the 68 fragments identified, 20 fragments had no retouch of any type, 16 fragments showed signs of wear, 15 fragments had simple marginal retouch, 10 fragments had double marginal retouch, 2 fragments had simple bimarginal retouch,

2 fragments had double bimarginal retouch, 1 fragment had opposite bimarginal retouch y 2 fragments had simple-double bimarginal retouch (Table 16).

Regarding the origin of the igneous material the blades are made from, it can be pointed out that 48 of the fragments were made with obsidian from El Chayal, 13 fragments with material from Ucareo, 4 fragments with material from Ixtepeque and 3 fragments with material from Zacualtipán.

Temporality: The small blades that were obtained from the pits as well as from the excavation of the structures are associated with materials which, for the most part, date to the Early Postclassic (Zipché).

Table 17. Typological classification and origin of the distal fragments from the obsidian small prismatic blades.

Retouch		**Source**		**Origin**	
Simple marginal	2	El Chayal	7	Pits	1
Double bimarginal	2	Ucareo	3	Low platform	5
Sin retouch	7	Zacualtipán	1	Structure 3	1
				Structure 8	1
				Square 16-RR	3
TOTAL	**11**		**11**		**11**

Category: Small blades

Class: Carved

Use: Cutting of soft materials in diverse domestic activities

Family: Prismatic

Distal fragments (Figure 7, Photo 16 and Photo 17)

Frequency: 11 (12.35%)

Description: Fragments from the distal end of an obsidian artifact (blade) in which it is possible to observe the parallel edges at the end where they meet. In some cases the fragments were so thin that it was not possible to observe their transversal section.

Of the 11 distal fragments, 7 had no retouch, only 2 had simple marginal retouch, and 2 had double bimarginal retouch. Upon recount, 7 small blade fragments were made with material from El Chayal, 3 fragments with material from Ucareo and 1 with material from Zacualtipán (Table 17).

Temporality: The ceramic material that was found with the distal fragments is predominantly from the Early Postclassic.

Observations: the distal fragments are generally scarce in the obsidian samples because these ends on the small blades are thin and curved, which makes them easy to fracture during the use of the artifact. It is for this reason that they are discarded, since the medial and proximal fragments are more useful even when fractured (Braswell, sf:8).

Sub-industry: Limestone

Limestone rock is a sedimentary stone so named because it originates throughout time with the environmental exposure that acts on pre-existing surface rocks. Their colors can vary (white, yellowish, pale pink and grays).

Due to the geological and formational surface characteristics of the Yucatán Peninsula, the access to limestone rock was highly viable and its manageability allowed that this material be the most used for construction. It also served for the manufacture of tools and artifacts (Ochoa, 1995:102).

Table 18. Typological classification and origin of the elements made from limestone.

Category		%	Origin		%
Metate	21	50.00	Surface	31	73.81
Plumb bob	1	2.38	Pits	3	7.14
Hammer	1	2.38	Low Platform	4	9.52
Smoother	2	4.76	Structure 3	3	7.14
Mano	2	4.76	Square 16-RR	1	2.39
Bark beater	1	2.38			
Hammer stone	7	16.67			
Architectural elements	7	16.67			
TOTAL	42	100.00		42	100.00

In the explored context, a total of 42 limestone elements were registered, 31 of them (73.81%) were found on the surface, 8 (19.05%) were from the excavated structures and 3 (7.14%) were obtained from the stratigraphic pits (Table 18).

The typological description of these elements is as follows:

Table 19. *Metates* identified in the South Plaza.

METATE	CONDITION	LOCATION	DIMENSIONS (in meters)			WORK ZONE		
			Length	Width	Thickness	Length	Width	Depth
M-1	Fragment	Reused in central corral	0.30	0.23	0.15	0.22	0.13	0.10
M-2	Fragment	Reused in central corral						
M-3	Fragment	Reused in central corral	0.34	0.24	0.23	0.20	0.13	0.05
M-4 (138)	Fragment	Reused in central corral	0.50	0.29	0.30	0.43	0.22	0.09
M-5	Fragment	Reused in central corral	0.46	0.29	0.23	0.40	0.11	0.18
M-6 (140)	Complete	Reused in central corral	0.80	0.56	0.38	0.53	0.25	0.25
M-7	Fragment	Reused in central corral	0.30	0.45	0.25	0.22	0.17	0.10
M-8	Fragment	Reused in central corral	0.72	0.34	0.32	0.68	0.21	0.23
M-9 (136)	Complete	Reused in dry stone wall 3	0.83	0.60	0.38	0.62	0.21	0.27
M-10 (137)	Fragment	Reused in dry stone wall 3	0.43	0.45	0.29	0.42	0.22	0.18
M-11	Fragment	North Side of *sacbé* 4	0.36	0.50	0.19	0.32	0.33	0.17
M-12 (170)	Fragment	North Side of Structure 5	0.44	0.44	0.28	0.36	0.23	0.21
M-13 (169)	Fragment	West Side of sacbé 4	0.60	0.52	0.18	0.53	0.27	0.11
M-14	Fragment	Reused in dry stone wall 1	0.30	0.23	0.15	0.22	0.13	0.10
M-15 (132)	Fragment	West Side Structure 8	0.23	0.35	0.20	0.17	0.19	0.11
M-16 (134)	Fragment	West Side Structure 8	0.52	0.58	0.14	0.33	0.30	0.11
M-17 (133)	Complete	North Corner Structure 8	0.65	0.43		0.60	0.23	0.23
M-18	Fragment	Reused in dry stone wall 3						
M-19	Fragment	Reused, North Side Structure 3						
M-20	Fragment	Platform Structure 3						
M-21	Fragment	Platform Structure 3						

Category: *metate* (Figure 8)

Class: Carved

Use: Wear-grinding

Tipo: gourndstone

Frequency: 21 total, 3 complete and 18 fragments.

Description: These are artifacts made from large, solid blocks of limestone rock, upon which a grinding back-and-forth movement would be exerted (Markus Götz, 2001:8).

All the *metates* have a deep work zone, and in the case of the three complete *metates* the work zone is closed, although it is clear that the fragments also had a closed work zone. The average measurements of these in their general dimensions are: 0.50m in length, 0.40m in width and 0.35m thick, and, in their work zone, an average of: 0.40m in length, 0.22m in width and 0.20m in depth (Table 19).

Temporality: The complex of structures and delimiting walls, where the *metates* originated, has been dated to the Early Postclassic.

Observations: In general terms it can be pointed out that the functions of the *metates* was the grinding of diverse materials and perhaps the form of the wear indentation or chemical analysis can help identify the specific material that was ground. When the indentation was deep enough, these artifacts may have been used to store seeds or water. Now, as far as the study context of the *metates* goes, with the exception of the two *metates in situ*, which could have had some domestic function, the rest had a secondary constructive function, due to this, their primary function was nullified.

The *metates* or mortars are described widely throughout the archeological literature since its use was very common throughout the diverse Mayan communities. For further reference about the use and distribution of metates, see Maldonado (1984; 1995) and Markus Götz (2001).

Category: Plumb (Photo 18)

Class: Carved

Use: Weight-counterweight

Frequency: 1

Description: Possible masonry instrument (plumb), it is fungiform and was found incomplete. The dorsal face still conserves part of the cortex and the ventral face has a semi-regular surface.

Temporality: The ceramic material from layer II of this pit, where this implement was found, is from the end of the Terminal Classic (Copó 2) and the beginning of the Early Postclassic (Zipché).

Observations: Rovner and Lewestein (1997:96) point out an artifact that is very similar to the one just described within a group of tools for building. They describe it as a smoother for stucco or a plumb. It is more likely that the artifact that came from the South Plaza served as a plumb, since it does not have a burnished surface that could have served for smoothing stucco.

Category: Hammer (Photo 19)

Class: Carved

Use: Percussion

Frequency: 1

Description: Hammer of an irregular form (semiovoidal?), which has an eroded surface, and in its middle part has a zone showing signs of wear that covers its circumference, which must have served as the spot where a handle made from perishable material (wood) would have been attached. Temporality: Dated to the Early Postclassic.

Observations: García Cook (1967:112, Plate XLI) presents, in the "miscellaneous" category, hammers similar to the one described above. They have the same types of grooves, although they have a more spherical and defined shape.

Category: Smoothing blade

Type: Quadrangular, elongated

Class: Carved

Use: Wear

Frequency: 2

Description: These are smoothing blade fragments that still have a smoothed surface in spite of the erosion they endured. They both have a quadrangular shape in their transversal section.

Temporality: The smoothing blade that came from Pit 17-NNa is associated with mixed materials from the Late Preclassic and the Late Classic. The smoothing blade from Pit 1 was found under a stucco floor, and the layer contained materials from the Terminal Classic.

Observations: These fragments could have functioned as building tools in the final smoothing and finishing stages of stuccoing.

Category: *Metate manos* (Photo 20)

Family: Short *manos*

Type: Rectangular

Class: Carved

Use: Wear-Percussion

Frequency: 2

Description: One complete *mano* was found, on some parts of the surface polished zones can still be seen, but due to having been exposed to the elements it is eroded. It is a rectangular section type. The other *mano* is a fragment of rectangular section with a regular surface due to erosion.

The *metate manos* are defined as the artifacts held to exert pressure over the stone base or *metate* in order to achieve the wearing down or grinding of grains, clay, etc. (Markus Götz, 2001:8).

Temporality: Based on the ceramic material with which it is associated, it is from the Early Postclassic.

Observations: The transversal section of the rectangular shape could be the result of the type of pushing movement of the *mano* over the work zone of the *metate* (Markus Götz, 2001:16).

Category: Compacting device (Photo 21)

Type: Rectangular

Class: Carved-polished

Use: Wear

Frequency: 1

Description: Fragment of compacting device with one of its faces displaying a polished surface; the other face has 0.02cm thick incisions; part of the handle attachment groove (where a wooden handle was attached) can still be observed in the middle part of the artifact.

Temporality: The ceramic material recovered from this structure shows a predominance of materials from the Early Postclassic (Zipché).

Observations: Rovner and Lewestein (1997:55-56) point out some of the characteristics of these implements' use: They were used for the manufacture of paper (for compacting plant fibers) fixing it to a wooden handle tied around a groove. These artifacts appear throughout the Maya Lowlands, especially in Belize and in the Central Depression of Chiapas.

Category: Hammer stone. (Photo 22)

Type: 4 semi-spherical, 2 elliptic, 1 spherical

Class: Carved

Use: Percussion

Frequency: 7

Description: Artifacts made from resistant limestone, of irregular surface and shape. They have eroded zones as well as some signs of use and fractures due to it.

Temporality: These hammer stones are found associated with materials from the Early Postclassic (Zipché).

Sub industry: Greenstone

The term "greenstone" is actually assigned to two types of rocks called nephrite and jadeite, respectively, which are chemically distinct but physically very similar. Their green color can vary due to their molecular structure; because of this, there can be jade that runs from a pale blue color to various tones of green and even yellow. It has a vitreous sheen when well polished (Reyes y Lorenzo, 1980:34).

Its origin is metamorphic because of the alterations that it suffers in its solid state caused by structural chemical changes due to variations in pressure and temperature. Because of the physical texture and color, various types of minerals exist that are generally confused and are called jade, as is the case with serpentine, nephrite, jadeite and hornfel.

According to the sources, jade beds are found only in some parts of the world like Burma, Turkistan, Italy, China and Guatemala (Río Motagua Valley), (Reyes and Lorenzo, 1980:35).

The objects of jade or imported material are abundant in times that show an increase in population and construction activity, marking times of contact with zones far from the Northern region of the Yucatán. Generally they have been found in the construction fillings of structures, in offerings and in burials (Tascheck, 1994:67).

The greenstone collection at Dzibilchaltún is small, consisting primarily of stylistically amorphic pieces which are distinguishable by the artisan work they display and the

high quality of the materials. The scarcity of the material may be due to the location of Dzibilchaltún on the periphery of the Northern Plains, very far from the sources or beds of jadeite in Guatemala (Tascheck, 1994:67). Rovner and Lewestein (1997:57) point out that frequently at Dzibilchaltún the greenstone artifacts are analyzed and cataloged as jade or imported items.

Since it was not possible to know the molecular composition of the examples recovered in the South Plaza, the term greenstone will be used for the description of these fragments, taking into consideration that they could be jadeite.

Category: Greenstone

Class: Carved-polished

Use: Undefined

Frequency: 1

Description: Greenstone fragment (jadeite) which possibly formed part of some artifact, since one of its faces has a well-polished surface. Its dimensions are: 2.00 cm in length by 0.05 cm in thickness, and its color is 5G 4/1, 5BG 4/1.

Temporality: Regarding the ceramic material, Structure 2 has been dated to the Early Postclassic.

Category: Greenstone

Class: Raw material

Use: Possible extraction

Frequency: 1

Description: Untreated greenstone fragment, raw material from which some artifact would have probably been manufactured. Its dimensions are 4.9 cm in length by 2.00 cm in thickness, and its color is 5G 4/1, 5BG 4/1.

Temporality: It is associated with ceramic materials that are predominantly from the Early Postclassic.

Malacological Material

Among the malacological material recovered in the South Plaza, we find both classes of the most common shells: the gastropods (univalves) and the pelecypods (bivalves).

In general terms, shells are made of the secretion of calcium carbonate that mollusks produce, that is to say, the calcareous covering that protects the soft body of mollusks (Ojeda, 1999:31).

Our shell classification consisted in separating the fragments that presented defined characteristics for identification based on their taxonomy, to find out their family, genus and species. The very small fragments that had no particular characteristics or that were eroded were only counted.

The basis for the taxonomic classification was the existing malacological collection at the camp in Dzibilchaltún for the material recovered from the Habitational Context and the Salvage Area, which was partially elaborated by Dr. Rafael Cobos. The classifications made by Suárez (1977) and Tascheck (1994) were taken into account to identify the artifacts made from gastropods.

Tascheck (1994:11-12) points out the possibility that the small number of artifacts made from shells (pelecypods as well as gastropods) that have been identified in Dzibilchaltún is due to them not having been assigned a great value, due to the ease or accessibility with which the material was obtained since the site is so close to the coast. This would explain why the majority of the samples were recovered from the construction fillings or debris from collapsed structures.

Shell (bivalves)

Table 20. Typological classification and origin of the shell elements.

Category		%	Origin		%
Mother-of-Pearl fragments	16	10.39	Pits	28	18.18
Unworked shell fragments	94	61.04	Low Platform	41	26.62
Unidentifiable fragments	26	16.88	Structure 2	47	30.53
Complete Shells	18	11.69	Structure 3	25	16.23
			Structure 8	9	5.84
			Square 16-RR	3	1.95
			Without location	1	0.65
TOTAL	**154**	**100.00**		**154**	**100.00**

The total of pelecypods recovered from the excavations was 154 pieces (all are ecofacts), of which 16 fragments (10.39%) were of the type commonly called mother-of-pearl, 94 fragments (61.04%) of untreated shell, 18 complete shells (11.69%) and 26 unidentifiable fragments (16.88%). Of these 154 pieces, a total of 13 species were identified which were all from the Gulf and Caribbean coasts, coasts which surround the Yucatán Peninsula.

The 154 pieces were recovered from the following structures: Low Platform (41 pieces), Structure 2 (47 pieces), Structure 3 (25 pieces), Structure 8 (9 pieces), Pits (28 pieces), Square 16-RR (3 pieces) and 1 piece from undefined location (Table 20).

It should be mentioned here that among these pieces of shell, no artifact made from this material was identified. Because of this, their classification is only taxonomic and is as follows:

Mother-of-Pearl

Total f**requency**: 16
Class: Pelecypoda
1. **Family**: Pteridae **Genus**: *Pinctada* **Species**: *imbrincata*
   Common Name: *Pinctada imbrincata*. **Source**: Gulf and Caribbean Coasts
   Frequency: 6
2. **Family**: Pinnidae **Genus**: *Atrina* **Species**: *rigida*
   Common Name: *Atrina rigida* **Source**: Gulf and Caribbean Coasts
   Frequency: 8
3. **Family**: Isognomomidae **Genus**: *Isognomon* **Species**: *alatus*
   Common Name: *Isognomon alatus* **Source**: Gulf and Caribbean Coasts
   Frequency: 2

Description: Untreated, irregularly broken fragments, the majority of which retain part of the dorsal hinge, thorax and corner plane.
Temporality: They are associated with materials from the Early Postclassic (Zipché).
Observations: These species of shell have been identified in offerings and possibly have been used in the manufacture of ornaments – beads, pendants or mosaics – because of the type of mother-of-pearl shine or iridescence that they have (Andrews IV, 1969:56; cfr. Vokes, 1983:37).

Untreated shell fragments.

Total frequency: 94
Class: Pelecypoda
1. **Family**: Cardiidae **Genus**: *Dinocardium* **Species**: *robustum vanhyningi*
   Common Name: *Dinocardium robustum vanhyningi*
   Source: Gulf and Caribbean Coasts **Frequency**: 74
2. **Family**: Cardiidae **Genus**: *Trachycardium* **Species**: *muricatum*
   Common Name: *Trachycardium muricatum*
   Source: Gulf and Caribbean Coasts **Frequency**: 2
3. **Family**: Cardiidae **Genus**: *Laevicardium* **Species**: *laevigatum*
   Common Name: *Laevicardium laevigatum*
   Source: Gulf and Caribbean Coasts **Frequency**: 2
4. **Family**: Lucinidae **Genus**: *Lucina* **Species**: *pectinata*
   Common Name: *Lucina pectinata* **Source**: Gulf and Caribbean Coasts
   Frequency: 4
5. **Family**: Lucinidae **Genus**: *Lucina* **Species**: *nassula*

Common Name: *Lucina nassula* **Source**: Gulf and Caribbean Coasts
Frequency: 7

6. **Family**: Lucinidae **Genus**: *Lucina* **Species**: *keenae*
   Common Name: *Lucina keenae* **Source**: Gulf and Caribbean Coasts
   Frequency: 1
7. **Family**: Mytilidae **Genus**: *Geukensia Demissa* **Species**: *granosisima*
   Common Name: *Geukensia Demissa granosisima*
   Source: Gulf Coasts **Frequency**: 1
8. **Family**: Spondylidae **Genus**: *Spondylus* **Species**: *americanus*
   Common Name: *Spondylus americanus*
   Source: Northern Coast of the Gulf and Caribbean **Frequency**: 1
9. **Family**: Veneridae **Genus**: *Chione* **Species**: *cancellata*
   Common Name: *Chione cancellata* **Source**: Gulf and Caribbean Coasts
   Frequency: 2

Description: Fragments of part of the body of the shell with irregular shape, untreated, some still retain the corner plane or a section of the dorsal hinge.

Temporality: They are associated in their majority with materials from the Early Postclassic (Zipché), with the exception of the fragments that come from pits that have more material from the Late – Terminal Classic (Copó 1 and 2).

Observations: Some genera of shells such as *Dinocardium*, *Trachycardium*, *Spondylus* and *Chione* could have been used in offerings as well as in ornaments (pendants), and the majority of the mollusks from these described genera were used as part of the prehispanic food diet (Andrews IV, 1969:48-61; for references about the genera and origins cfr. Vokes, 1983).

Shells (valves) complete, untreated

Total frequency: 18.
Class: Pelecypoda.

1. **Family**: Lucinidae **Genus**: *Lucina* **Species**: *pectinata*.
   Common Name: *Lucina pectinata* **Source**: Gulf and Caribbean Coasts.
   Frequency: 12.
2. **Family**: Veneridae **Genus**: *Tivela* **Species**: *mactroides*
   Common Name: *Tivela mactroides* **Source**: Gulf and Caribbean Coasts
   Frequency: 1
3. **Family**: Veneridae **Genus**: *Chione* **Species**: *cancellata*
   Common Name: *Chione cancellata* **Source**: Gulf and Caribbean Coasts
   Frequency: 2
4. **Family**: Cardiidae **Genus**: *Trachycardium* **Species**: *muricatum*
   Common Name: *Trachycardium muricatum*
   Source: Gulf and Caribbean Coasts **Frequency**: 1
5. **Family**: Cardiidae **Genus**: *Laevicardium* **Species**: *laevigatum*
   Common Name: *Laevicardium laevigatum*
   Source: Gulf and Caribbean Coasts **Frequency**: 2

Description: Complete valves of different sizes, in which the corner plane, region of the umbo, and section of the dorsal hinge, as well as the growth lines can clearly be seen.

Temporality: These valves were found in contexts in which materials from the Early Postclassic (Zipché) are associated.

Observations: As seen in the notes above, the genera that have been mentioned could have been used for the manufacture of ornaments or as part of food consumption. It is worth pointing out that the 9 *Lucinae* identified in Structure 2 are of small size, and were therefore possibly used in the manufacture of some ornament, (for a reference about the genera and species cfr. Andrews IV, 1969; y Vokes, 1983).

Univalve shells

Table 21. Typological classification and origin of the univalve elements.

Category		%	Origin		%
Unidentifiable fragments	25	22.93	Pits	18	16.51
Unworked fragments	74	67.89	Low Platform	25	22.94
Complete univalves	3	2.75	Structure 1	4	3.67
Worked univalves	7	6.42	Structure 2	27	24.77
			Structure 3	20	18.35
			Structure 4	1	0.91
			Structure 8	12	11.01
			Square 16-RR	2	1.83
TOTAL	**109**	**99.99**		**109**	**99.99**

The total number of gastropods recovered in the excavations of the South Plaza reaches a total de 109 pieces (102 are ecofacts and 7 are artifacts). Of these 109 pieces, 74 fragments (67.88%) of univalve were untreated, 3 univalves (2.15%) were complete, 7 univalves (6.42%) were modified and 25 fragments (22.93%) were unidentifiable (Table 21).

Of these 109 pieces, 18 fragments (16.51%) came from the stratigraphic pits, 25 fragments (22.94%) from the Low Platform, 4 fragments (3.66%) from Structure 1, 27 fragments (24.77%) from Structure 2, 20 fragments (18.35%) from Structure 3, 1 Fragment from Structure 4 (0.91%), 12 fragments (11.01%) from Structure 8, and 2 fragments (1.83%) from Square 16-RR.

The taxonomic and typological classification of the gastropods is as follows:

Untreated univalve fragments.

Frequency: 74
Class: Gasteropoda

1. **Family**: Conidae **Genus**: *Conus* **Species**: *sozoni*
   Common Name: *Conus sozoni* **Source**: Gulf and Caribbean Coasts
   Frequency: 1
2. **Family**: Ficidae **Genus**: *Ficus* **Species**: *communis*
   Common Name: *Ficus communis* **Source**: Gulf and Caribbean Coasts
   Frequency: 26
3. **Family**: Strombidae **Genus**: *Strombus* **Species**: *costatus*
   Common Name: *Strombus costatus* **Source**: Gulf and Caribbean Coasts
   Frequency: 35
4. **Family**: Strombidae **Genus**: *Strombus* **Species**: *gigas*
   Common Name: *Strombus gigas* **Source**: Gulf and Caribbean Coasts
   Frequency: 4
5. **Family**: Melongenidae **Genus**: *Busycon* **Species**: *spiratum*
   Common Name: *Busycon spiratum* **Source**: Gulf and Caribbean Coasts
   Frequency: 5
6. **Family**: Turbinellidae. **Genus**: *Turbinella* **Species**: *angulata*
   Common Name: *Turbinella angulata* **Source**: Gulf and Caribbean Coasts
   Frequency: 2
7. **Family**: Siliquariidae **Genus**: *Vermicularia* **Species**: *spirata*
   Common Name: *Vermicularia spirata* **Source**: Gulf and Caribbean Coasts
   Frequency: 1

Description: Irregularly cut fragments produced by intentional fracture. They are unmodified. Different parts of the shells' body can be identified, for example the columella and some fragments of the spire.

Temporality: They are found associated with materials from the Early Postclassic (Zipché).

Observations: The frequency of the *Ficus communis* shell at Dzibilchaltún suggests that they were very often used as a food, since their thin shells do not allow them to be used as material for artifacts (Andrews IV, 1969:13). All of the genera and species described up to this point have been found in offering contexts, and because they have hard shells (with the exception of *Ficus communis*) the species have been widely used in the elaboration of artifacts, as the mollusks from within the shell were used as food (cfr. Andrews IV, 1969; Vokes, 1983; Roche, 1992; Ojeda, 1999).

Complete, untreated univalve

Total frequency: 3
Class: Gastropod

1. **Family**: Melongenidae **Genus**: *Melongena* **Species**: *corona*
   Common Name: *Melongena corona* **Source**: Gulf and Caribbean Coasts
   Frequency: 1
2. **Family**: Fasciolaridae **Genus**: *Fasciolaria* **Species**: *tulipa*
   Common Name: *Fasciolaria tulipa* **Source**: Gulf and Caribbean Coasts
   Frequency: 1
3. **Family**: Conidae **Genus**: *Conus* **Species**: *sozoni*
   Common Name: *Conus sozoni* **Source**: Gulf and Caribbean Coasts
   Frequency: 1

Description: Complete, unmodified univalves which still have their body, operculum, base, columella and spire, although they have various fracture lines, only one does not retain the apex.

Temporality: The structures yielded materials from the Early Postclassic (Zipché) with which these univalves are associated.

Observations: These three genera and species were also used in offerings and the elaboration of artifacts (Andrews IV, 1969:48-56).

Table 22. Biological classification of the univalves modified to make pendants.

Species		Origin	
Busycon spiratum	2	Pits	1
Oliva sayana	3	Low Platform	1
Strombus costatus	1	Structure 1	1
Nassarius vibex	1	Structure 2	2
		Structure 8	1
		Square 16-RR	1
TOTAL	**7**		**7**

Modified univalves (pendants) (Photo 23)

Frequency total: 7 (Table 22)
Class: Gastropod
1. **Family**: Melongenidae **Genus**: *Busycon* **Species**: *spiratum*
   Common Name: *Busycon spiratum* **Source**: Gulf and Caribbean Coasts
   Frequency: 2
   Industry: bivalve **Use**: ornamental **Category**: pendant
   Family: self-shaped
   TYpE: complete **Perforation**: irregular
2. **Family**: Olividae **Genus**: *Oliva* **Species**: *sayana*

Common Name: *Oliva sayana* **Source**: West Coast of theYucatán Peninsula (Gulf)
Frequency: 3
Industry: bivalve **Use**: ornamental **Category**: pendant
Family: self-shaped
Types: longitudinal section (1), without spire (2)
Perforation: denticulate

3. **Family**: Strombidae **Genus**: *Strombus* **Species**: *costatus*
Common Name: *Strombus costatus* **Source**: Gulf and Caribbean Coasts
Frequency: 1
4. **Family**: Unspecified **Genus**: *Nassarius* **Species**: *vibex*
Common Name: *Nassarius vibex* **Source**: Gulf and Caribbean Coasts
Frequency: 1
Industry: bivalve **Use**: ornamental **Category**: pendant
Family: self-shaped **Type**: complete **Perforation**: irregular

Description: Complete and semi-complete univalves that have some type of perforation by which they could be hung from a cord and serve as personal adornment. Only the pendants made from *Oliva* shells had the columella and apex removed.

Temporality: All of the pendants were associated with materials from the Early Postclassic (Zipché).

Observations: As to the *Busycon* and *Nassarius* shell pendants that had irregular perforations, Suárez (1977:32 y 105 -Plate 21-) classifies them within the group of pendants "3", while Tascheck (1994:35-38) classifies them only as perforated gastropods.

For Suárez (1977:33-34, 108 -Plate 24-), the *Oliva* shell pendants are classified in group 10; Tascheck (1994:42-43, 146 -Figure 12-) undertakes a more complete and detailed classification of this type of pendants which he calls "tinklers".

Other Archaeological Materials

In this section, we describe archaeological materials which were found at a low frequency (beads, alabaster, pyrite and metal) or, as pointed out by Benavides and Manzanilla (1985:71), the “lost” items, meaning that in spite of being found in the study context, they are materials removed from it, or which do not have a clear function within it.

Beads (Figure 9)

Ornamental objects made from diverse materials, which can have different forms (tubular, spherical, discoid, etc.) and which have a central perforation through which a string or cord was inserted to form parts of necklaces, bracelets, headdresses,

etc., that could serve as personal ornamentation or could even be part of offerings (Suárez, 1974:23).

A total of 6 beads were found, 5 were made from limestone and one from shell. The classification of this material is as follows:

1. Industry: shell **Use**: ornamental **Category**: bead **Family**: Xenoforma.
Type: smooth circular **Perforation**: conical
Description: Due to the type of mother-of-pearl and the thinness of the shell, it is possible that it is made of a *Pinctada imbrincata* shell; it is very well worked and polished in a circular form.
Temporality: It was identified in a context which contained materials mainly from the Early Postclassic (Zipché).

2. Industry: lithic **Sub industry**: limestone **Class**: carved-polished
Use: ornamental **Category**: bead
Families: unspecified (1)
tubular (3)
wheels (1)
Types: unspecified (1)
elongated (2)
short (2)
Perforations: conical (1)
cylindrical (3)
biconical (1)
Description: Beads of varying forms and sizes. One that stands out the most is a bead in the shape of a six-pointed star, with two points missing.
Temporality: All of the beads are associated with materials from the Early Postclassic (Zipché).

Alabaster

Alabaster is a fine-grained plaster variety that has an opaque and sometimes semitransparent white color. It is used for the manufacture of ornaments because of the ease with which it can be modeled due to its low hardness.

Two fragments of alabaster were found in the excavation of the Low Platform and of Structure 1 (one in each structure mentioned), they were all well polished and correspond to the same piece (possibly the same vase), and are the first fragments of this material reported at the site. They are associated with materials from the Early Postclassic.

Pyrite

Pyrite is the most common sulfur that has a metallic sheen. The fragment of pyrite is very small (0.7 mm in length, 0.03 mm in width, and 0.01 mm in thickness) and may have formed part of a mirror; it has a glassy, black hue. This fragment was

recovered from the Low Platform, and so its chronological association is with the Early Postclassic.

Some fragments of pyrite mirror have been reported in Cobá, tentatively dated to the Late Classic (Ochoa, personal communication).

Metal

Because metallurgy was never practiced in the Maya Zone, the greatest occurrence of this material is for the Contact Period, although there are reports of copper bells at some sites on the Yucatán Peninsula for late periods such as the Late Postclassic in Chichén Itza, Mayapán and Cozumel (cfr. Tascheck, 1994:133-136).

In the South Plaza two fragments of metal were found that were unidentifiable both in function and type of metal. It is possible that these formed part of some instrument or tool, but unfortunately it was not defined. One was found on the surface and the other in Structure 2.

The other identifiable item is a shotgun pellet that was recovered from Structure 2, and therefore the three metal items are associated with materials that for the most part date to the Early Postclassic.

Nonetheless, it is evident that these materials are intrusive and must correspond to the occupational level of the Colonial Period in the site, or are even more contemporary materials.

Because of this, all of these materials may turn out to be intrusive in the context indicated. There is a long occupational sequence in the area, and the contexts may even suffer alterations dating to modern times.

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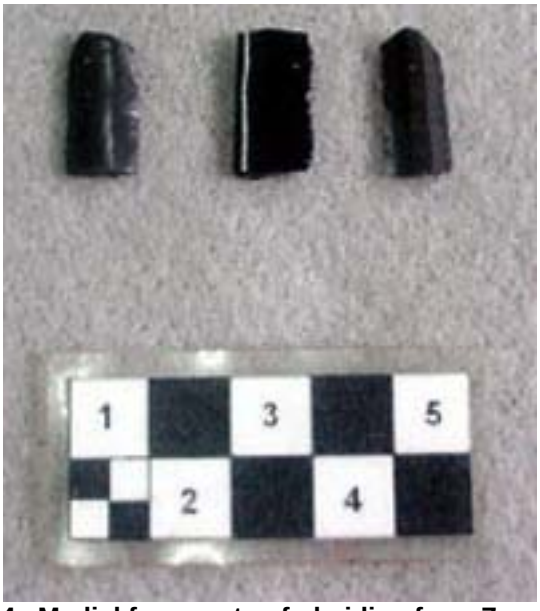

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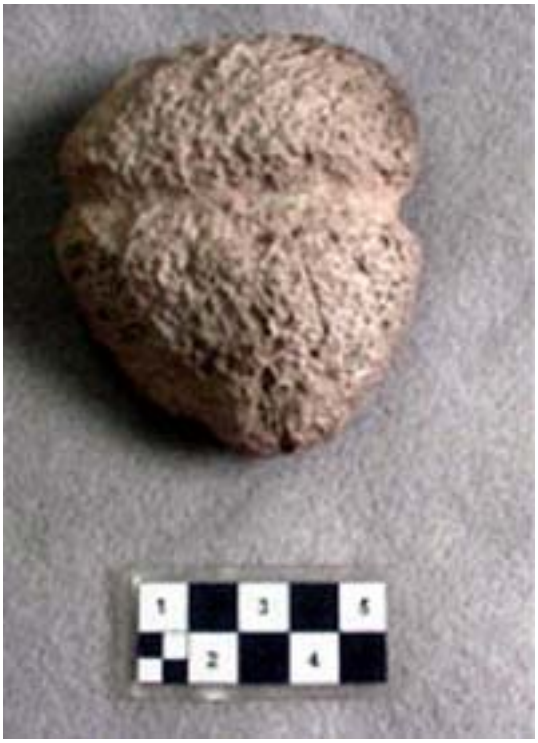

Photo 19. Limestone hammer.

Photo 20. Complete *metate mano*.

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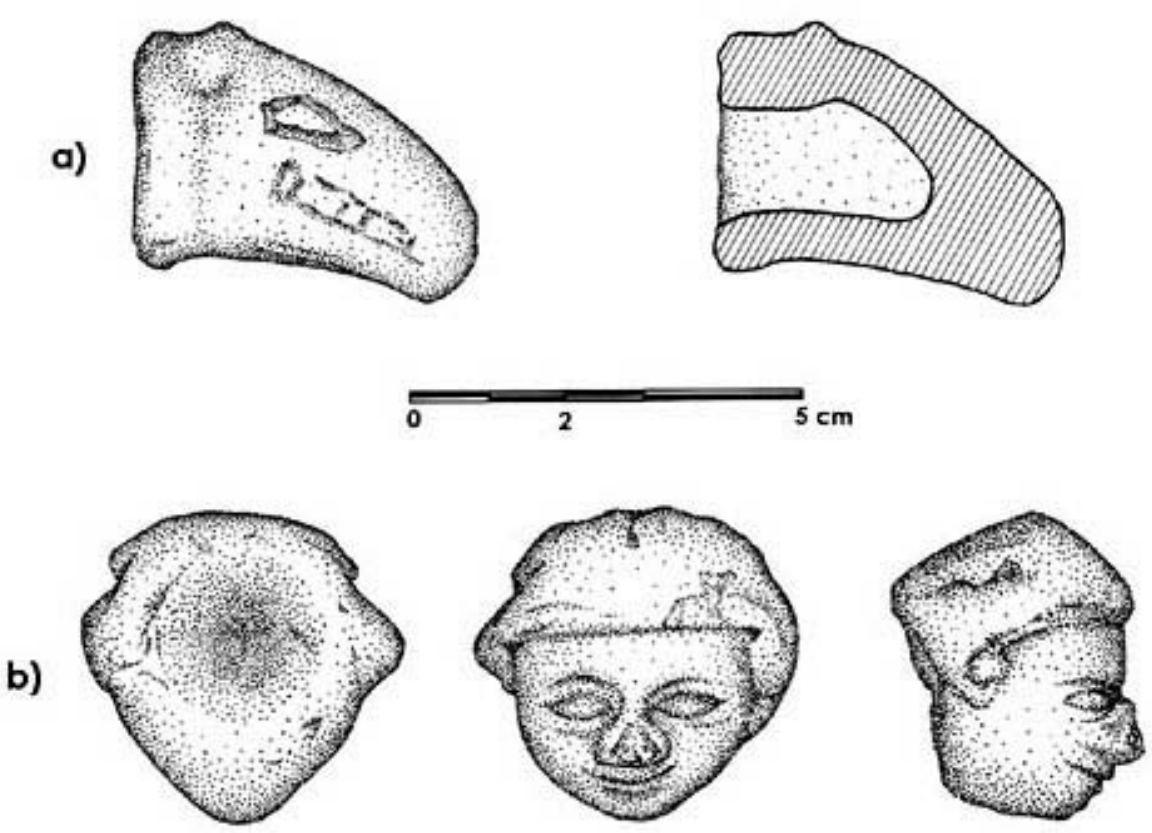

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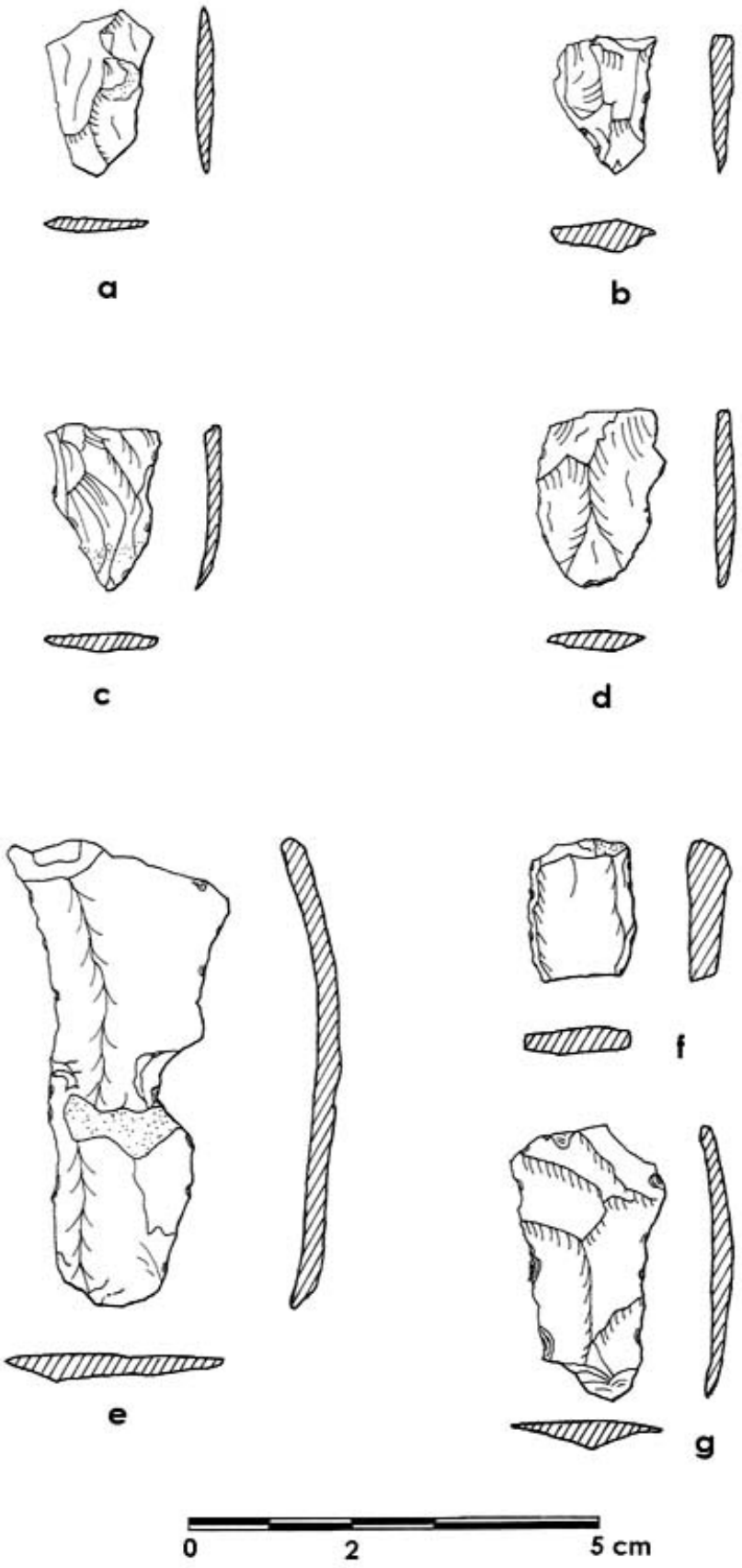

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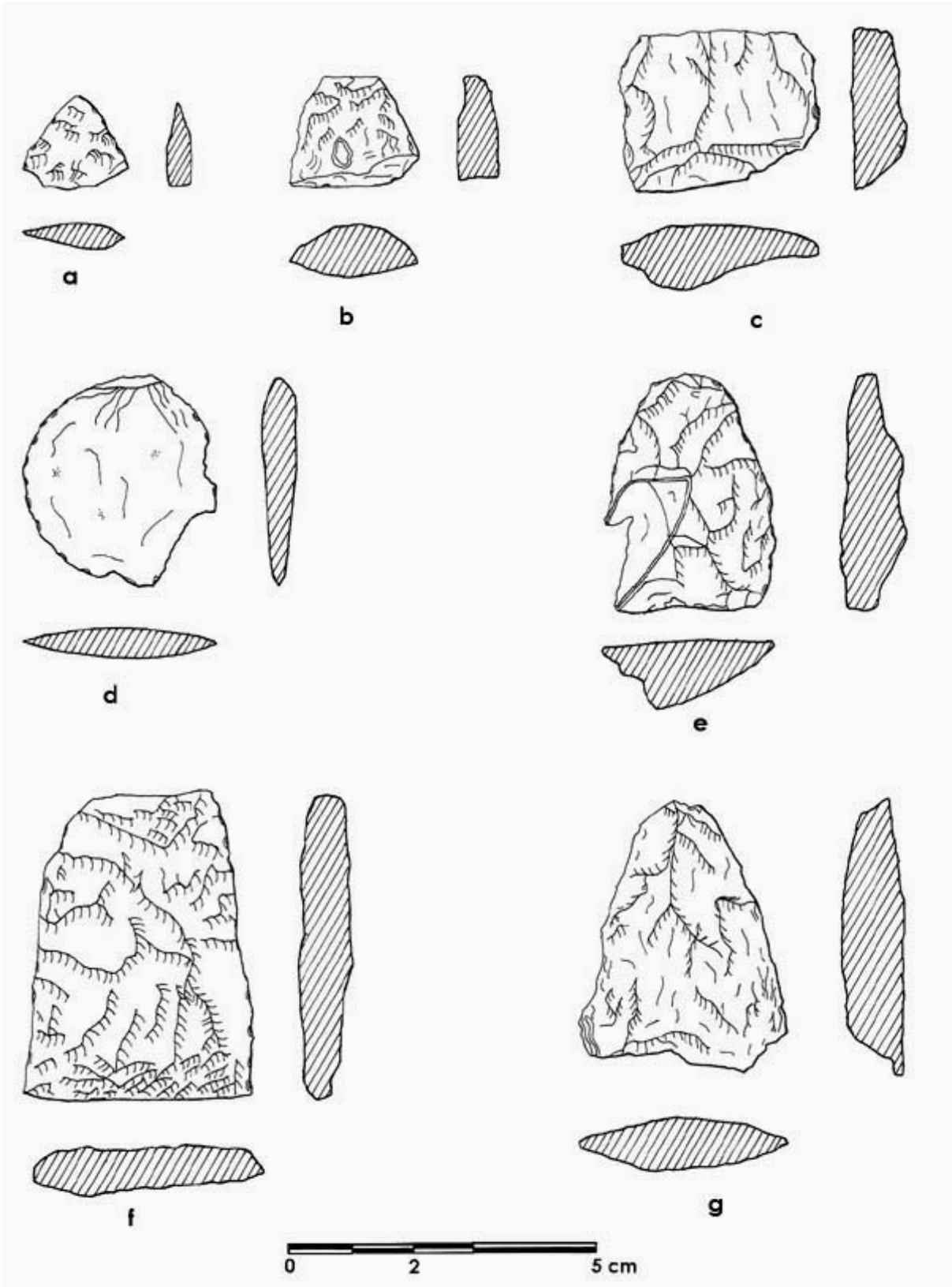

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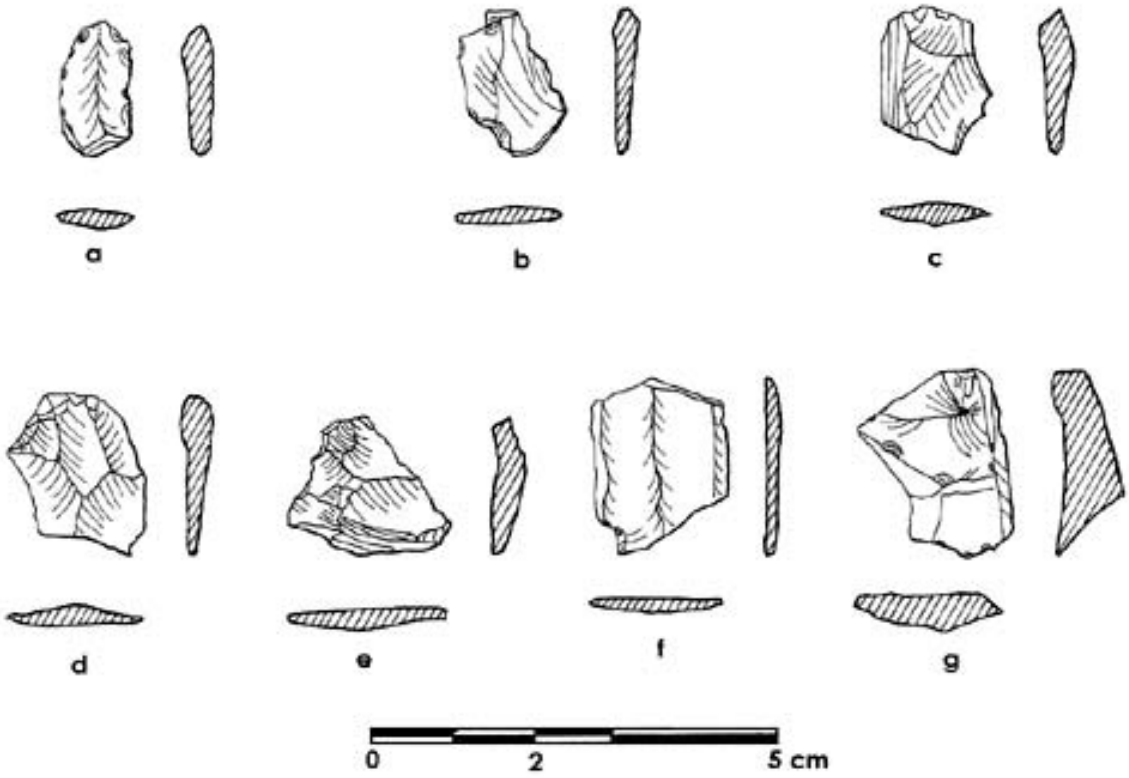

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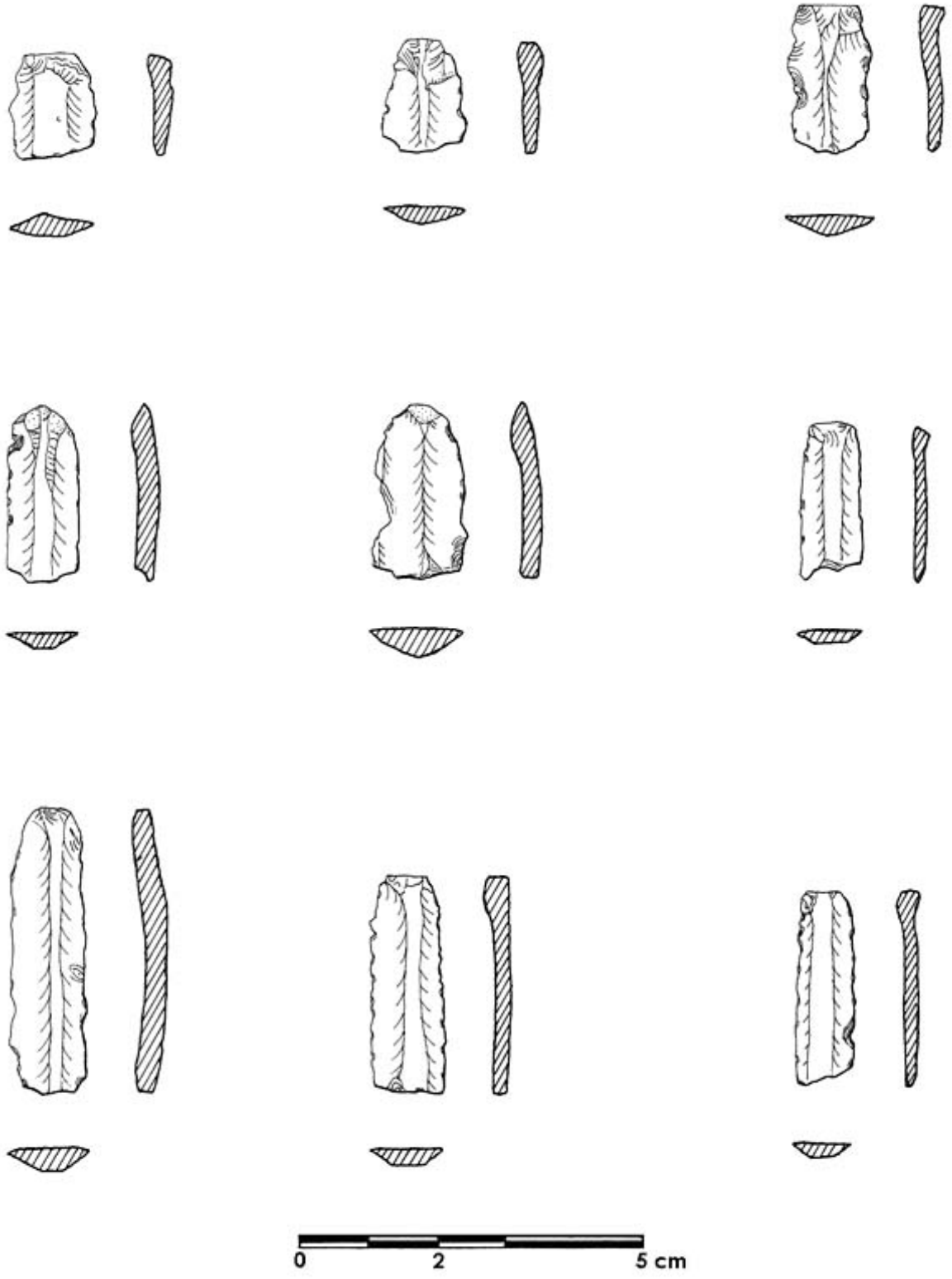


Figure 5. Examples of proximal fragments of small obsidian blades.

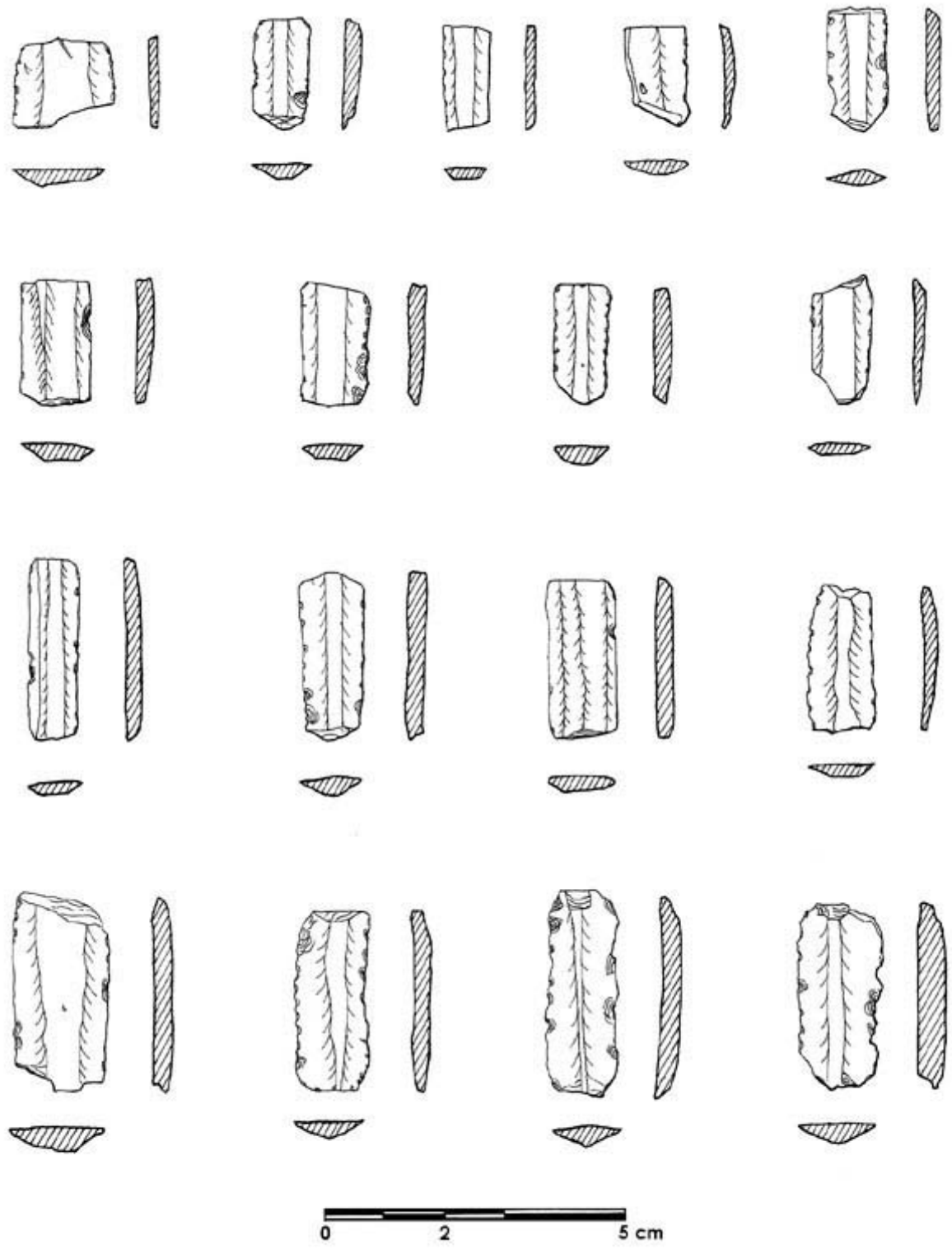


Figure 6. Examples of medial fragments of small obsidian blades.

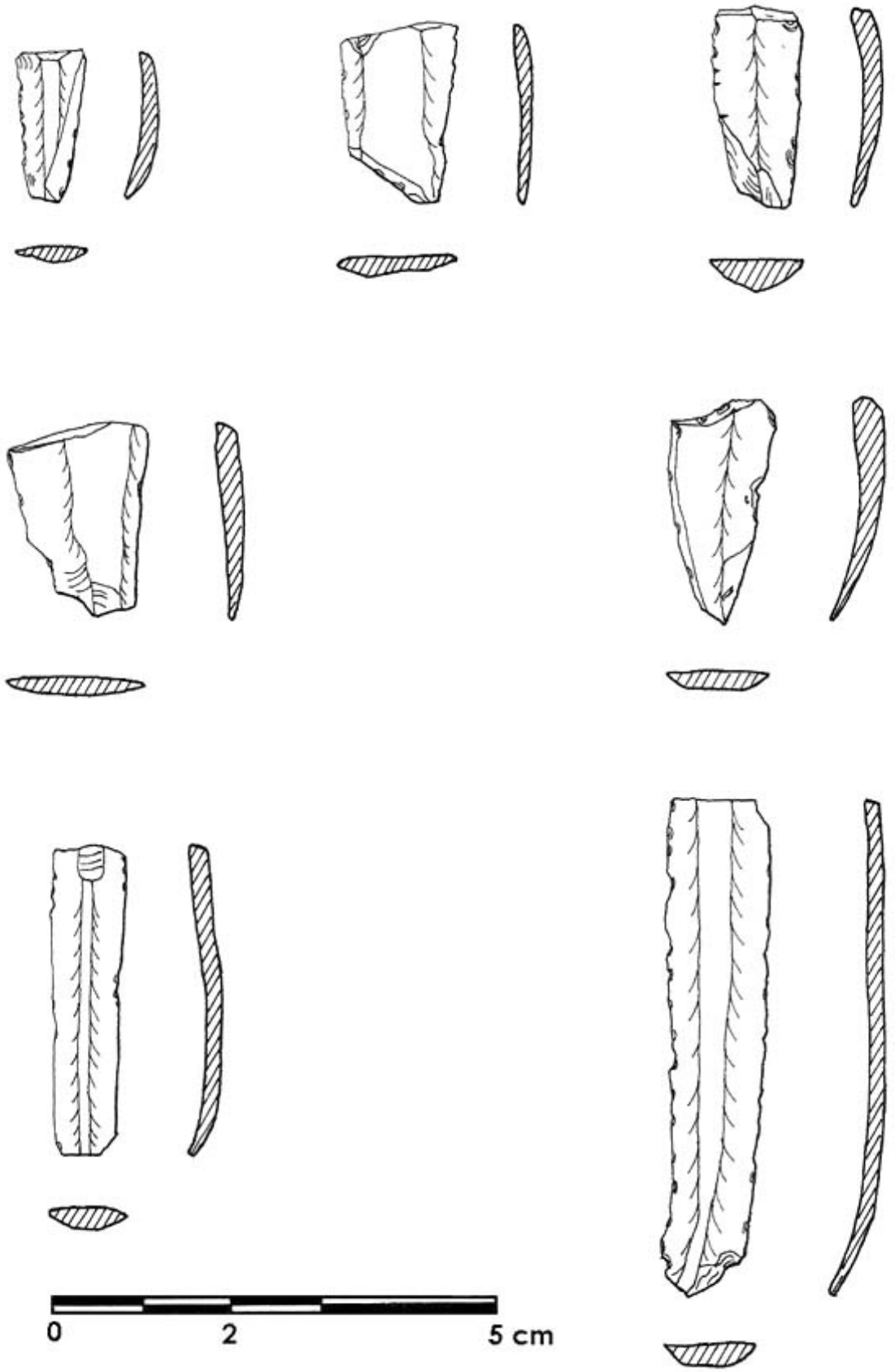


Figure 7. Examples of distal fragments of small obsidian blades.

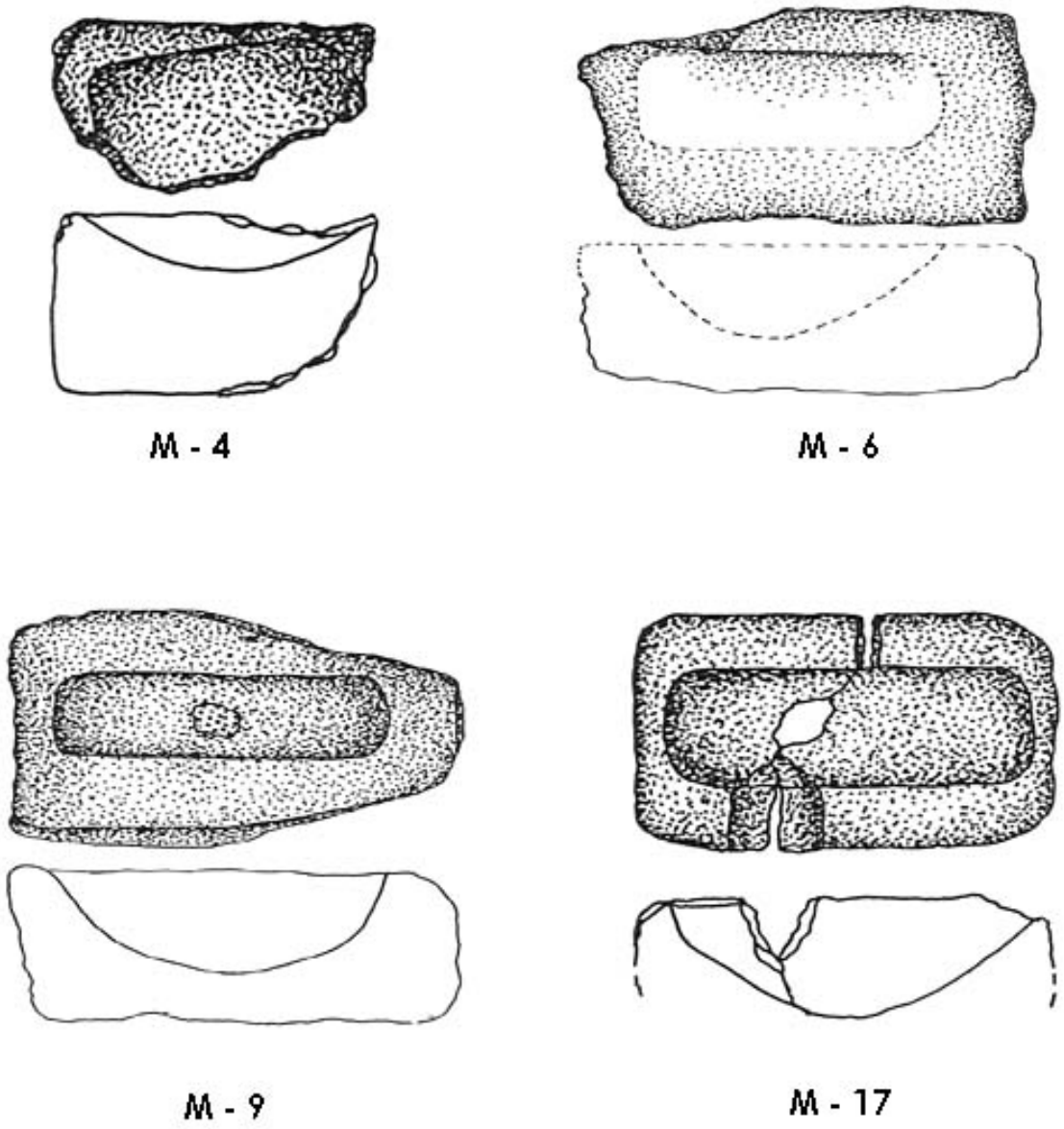
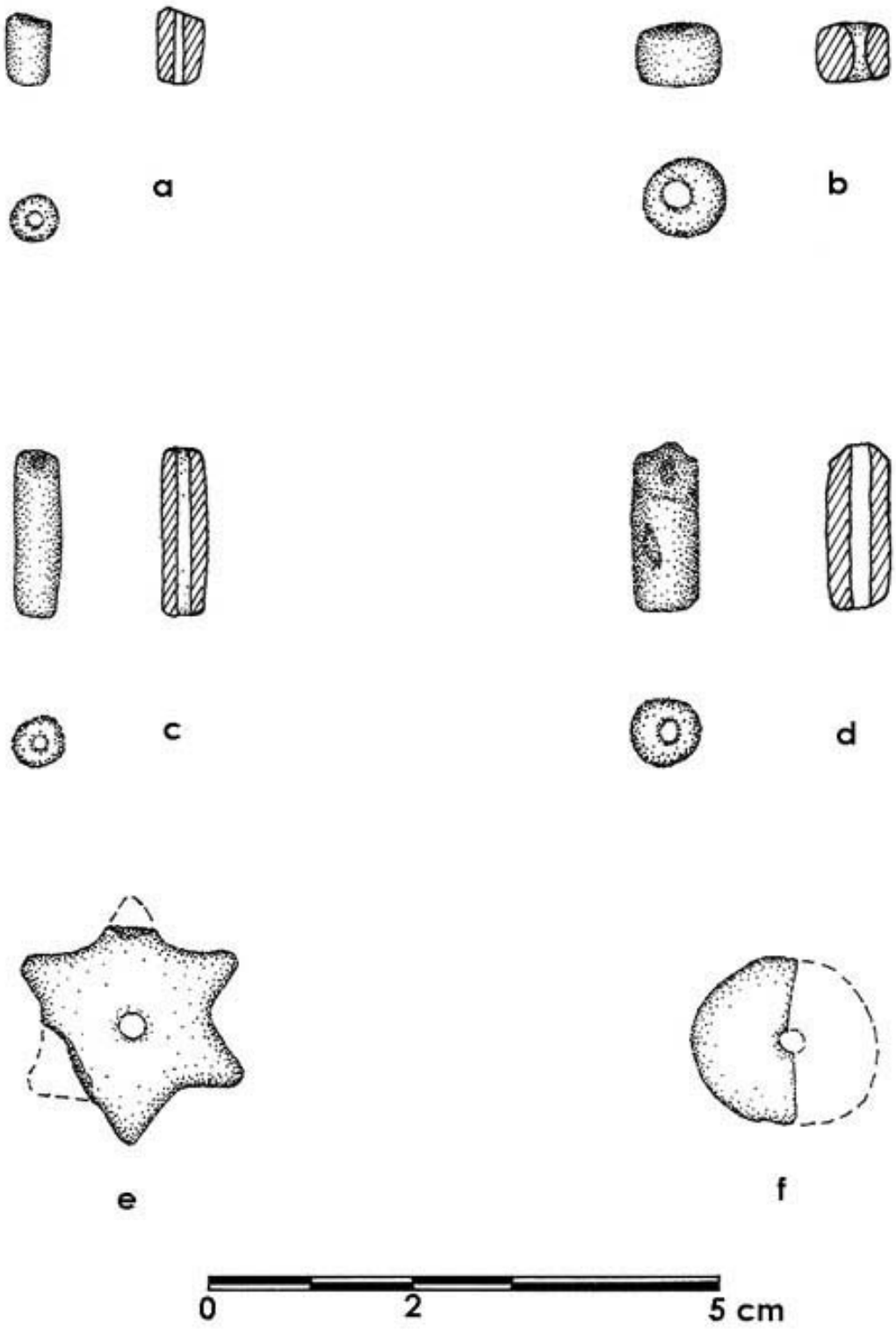


Figure 8. Examples of metates made in limestone.



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1983 México." *Middle American Research Institute*, Pub. 54. Tulane University, New Orleans.

Table 1. Chronology for Surface Ceramic Material

CHRONOLOGY	COMPLEX	GROUP	TYPE	VARIETY	TOTAL	PERCENTAGE	% PER COMPLEX
COLONIAL	COLONIAL 1540 - 1600 A.D.	Not decorated	Olive pitcher, middle style	White yellowish slip on the exterior. Unslipped on the interior.	3	0.17%	
			Olive pitcher, middle style	Pale yellow slip on the outside and green glaze on the inside.	1	0.05%	0.22%
LATE POSTCLASSIC	CHECHEM 1200 - 1540 A.D.	Navulá	Yacman striated	Yacman	17	0.96%	
			Navula unslipped	Navulá	251	14.19%	
		Matillas	Matillas fine orange	Matillas	4	0.05%	
		Sulché	Sulché black	Sulché	8	0.45%	
		Mama	Dzonot with appliqué	Dzonot	1	0.45%	
			Mama red	Mama	8	0.22%	16.32%
EARLY POSTCLASSIC	ZIPCHÉ 1000 - 1200 A.D.	Dzibiac	Xucú incised	Xucú	2	0.11%	
			Dzibiac red	Dzibiac	24	1.35%	
		Sisal	Pisté striated	Pisté	42	2.37%	
			Sisal unslipped	Sisal	37	2.09%	
		Silhó	Pocboc notched incised	Pocboc	1	0.05%	
			Silhó fine orange	Silhó	8	1.30%	
		Dzitás	Chacmay incised	Chacmay	1	3.00%	

			Balantún black on slate	Balantún	23	0.17%	
			Slate dzitás	Dzitás	53	4.81%	
		Kukulá	Xcanchacár black on cream	Reddish slip	3	6.11%	
			Xcanchacár black on cream	Xcanchacár	85	0.05%	
			Kukulá cream	Kukulá	108	0.05%	
		Zumpulché	Zumpulché thin slate	Zumpulché	1	0.45%	
TERMINAL CLASSIC	COPÓ 2 A.D. 830 - 1000	Ticul	Ticul thin slate	Xelhá	10	0.05%	21.96%
			Ticul thin slate	Ticul	8	0.56%	
		Teabo	Teabo red	Printed	1	0.45%	
			Teabo red	Teabo	46	0.05%	
		Muna	Tekit incised	Tekit	2	2.60%	
			Chumayel red on slate	Chumayel	6	0.11%	
			Sacalum black on slate	Sacalum	11	0.33%	
			Muna slate	Brownish slip	258	0.62%	
			Muna slate	Muna	85	14.59%	
		Chum	Yokat striated	Yokat	243	4.81%	
			Chum unslipped	Chum	220	13.74%	
		Chuburná	Chuburná brown	Chuburná	19	12.44%	
		Dzilam	Dzibikal black on orange	Dzibikal	1	1.07%	
			Dzilam orange	Fluted	1	0.05%	

			Dzilam orange	Dzilam	1	0.05%	
		Holactún	Holactún black on cream	Holactún	1	0.05%	
		Vista Alegre	Vista alegre striated	Vista alegre	1	0.05%	
		Chablekal	Cholul fluted	Cholul	2	0.05%	
			Chablekal fine gray	Chablekal	3	0.05%	
		Balancán	Provincia low relief	Provincia	1	0.62%	
			Balancán fine orange	Balancán	11	0.11%	
LATE CLASSIC	COPÓ 1 A.D. 600 - 830	Conkal	Conkal red	Conkal	12	0.67%	
		Baca	Baca red	Baca	15	0.22%	
		Ichcansihó	Ichcansihó striated	Ichcansihó	1	0.84%	
		Nimún	Nimún brown	Nimún	4	0.05%	
		Altar	Altar orange	Altar	1	0.17%	
		Sat	Chemax black on slate	Chemax	3	0.17%	52.57%
		Hool	Hool orange polychrome	Hool	1	0.05%	
		Cui	Cui orange polychrome	Cui	1	0.05%	
		Unspecified	Egoísta negative	Egoísta	1	0.05%	2.10%
EARLY CLASSIC	PIIM A.D. 250 - 600	Hunabchén	Hunabchén orange	Hunabchén	1	0.05%	
		Maxcanú	Tacopate brown	Tacopate	1	0.05%	
			Maxcanú ante	Maxcanú	1	0.05%	
		Oxil	Elote striated	Elote	1	0.05%	
		Triunfo	Triunfo striated	Triunfo	1	0.05%	

		Sabán	Chancenote striated	Chiquilá	7	0.39%	
			Sabán coarse	Sabán	6	0.33%	
		Dos Arroyos	Dos arroyos orange polychrome	Dos arroyos	1	0.05%	1.02%
LATE PRECLASSIC	XCULUL 350 B.C. - A.D. 250	Xanabá	Xanabá red	Xanabá	7	0.39%	
		Tipikal	Unto black striated pre-slip	Unto	5	0.28%	
			Tipikal red pre-slip striated	Tipikal	1	0.05%	
		Sierra	Sierra red	Sierra	7	0.39%	
		Chunhinta	Chunhinta black	Ucú	3	0.17%	
		Achiote	Chancenote striated	Chancenote	9	0.50%	
			Achiote unslipped	Sabán	6	0.33%	
		Joventud	Joventud red	Nolo	1	0.05%	2.16%
				Unidentified	7	0.39%	0.39%
				Eroded	52	2.94%	2.94%
				TOTAL	**176**	**99.68%**	**99.68%**

Table 2.
Chronolgy of the ceramic materials from the stratigraphic pits.

CHRONOLOGY	COMPLEX	GROUP	TYPE	PIT VARIETY	17-RRa						17-PPa						17-NNa					17-LLa				17-JJa		17-HHa			18-MMb				10-QQd				TOTAL	%	% PER COMPLEX
					SUP	I	II	III	IV	V	SUP	I	II	III	IV	V	I	II	III	IV	V	I	II	III	IV	I	II	SUP	I	II	I	II	III	IV	I	II	III	IV			
	COLONIAL	Not decorated	Olive Pitcher middle style	White yellowish slip on the outside, unslipped on the inside																		1																	1	0.02%	
COLONIAL	1540 - 1600 A.D.	Not decorated	Columbia smooth	Unspecified										1		5										1													7	0.17%	0.19%
LATE	CHECHEM		Cehac Hunacti composite	Cehac		3							2																						2				7	0.17%	
POST -CLASSIC	1200 - 1540 A.D.		Chen Mul modeled	Chen Mul									1																										1	0.02%	
			Yacman striated	Yacman		40	3					9	7				2									1			3	1					2	4			72	1.76%	
		Navulá	Navulá unslipped	Navulá	1	263	12				4	122	36		3		61	13	7	2		4	5	4			3		1	3	36	28	6		11	6		2	633	15.50%	
		Matillas	Matillas fine orange	Matillas								3						4		1																		8	0.19%	
		Sulché	Sulché Black	Sulché		12	3					1						1	11				1	5											1	1			36	0.88%	
		Mama	Mama red	Cancún											1		7					3	4	3			1												19	0.46%	
			Mama red	Mama		8									1		2	1				2	3				2			2	1	1	3						26	0.64%	19.62%
EARLY	ZIPCHÉ		Xukú incised	Fluted incised																											1							1	0.02%	
POST -CLASSIC	1000 - 1200 A.D.		Xukú Incised	Xukú		1																																1	0.02%	
		Dzibiac	Dzibiac red	Dzibiac		14	1	1				5	5		1				2				1	3					4		1							38	0.93%	
		Sisal	Pisté striated	Pisté		16	5	2				10	3						4					1			1		5			12			1			60	1.46%	
			Sisal unslipped	Sisal			9						5						11										1			10		1			3	40	0.98%	
		Silhó	Cumpich incised	Cumpich																		1														1			2	0.04%	
			Silhó fine orange	Silhó		13							3				3		2												3	1							25	0.61%	
		Dzitás	Balantún black on slate	Balantún		16					1	6	4	1				1																		1			30	0.73%	
			Dzitás slate	Dzitás		12	2					22	10		1		2	1		3			3	6	6		1		3	4	4					2	1		83	2.03%	
		Kukulá	Pencuyut incised	Pencuyut		3																																3	0.07%	
			Xcanchakán black on cream	unspecified																															1			1	0.02%	
			Xcanchakán black on cream	Deep incision		1																																1	0.02%	
			Xcanchakán black on cream	Reddish		3																1								1						1			6	0.14%	
			Xcanchakán black on cream	Xcanchakán		27	3	1	1			8	5				1						1	1											8	2	1		59	1.44%	
		Kukulá	Kukulá cream	Kukulá		52	11				4	10	9				3	6	17	1		5	6	12			3		3	3	2				1			148	3.62%	12.13%
TERMINAL	COPÓ 2		Tabi notched incised	Tabi		1																																1	0.02%	
CLASSIC	830 - 1000 A.D.		Xul incised	Xul		1									1									2					1									5	0.12%	
			Ticul thin slate	Xelhá		18						1	1		10	8				1									3		3	4			1			50	1.22%	
		Ticul	Ticul thin slate	Ticul														2	2				1	3					6									14	0.34%	
		Teabo	Teabo red	Teabo		4	6		13					1	4	2	7	1	4			1	4	4					10			2	1	2		4		70	1.71%	
			Chumayel red on slate	Chumayel		1						1			2	6																	1					11	0.26%	
			Sacalum black on slate	Sacalum			5	1					1		5			1									3			1			1			1	2	21	0.51%	
			Tekit incised	Tekit		1						3		1	1									3					8									17	0.42%	
			Muna slate	Brownish slip	2	84	4	8	9		2	18	17	3	29	18	7	9	27	9		3	13	15		4	10	1	3	17	2	6	43	3	15	7		7	395	9.67%	
		Muna	Muna slate	Muna																					1													1	0.02%	
			Tepakan composite	Tepakan																1																		1	0.02%	
			Halacho imprinted	Halacho		1																																1	0.02%	
			Yokat striated	Yokat	1	46	16	25	12		2	8	9	4	126	102	9	9	86	35	3	2	8	70	17		7			82	1	3	68	19	10	9	3	10	802	19.63%	
		Chum	Chum unslipped	Chum		50	13	17	18			38	15	6	32	17	16	12	13	10			8	8	1		3			18	1	1	29	8	13	4		2	353	8.64%	
			Chuburná brown	Red and Black											1																							1	0.02%	
			Chuburná brown	Black Slip												1																							1	0.02%	
		Chuburná	Chuburná brown	Chuburná		9		9			1	2	1	3	12	20	2		13	9	3			8			2			13			14	1	3	1		1	127	3.11%	

			Dzibikal black on orange	Dzibikal																1																			1	0.02%	
		Dzilam	Dzilam orange	Dzilam		1			2								2	1	4	4																2			16	0.39%	
		Holactún	Holactún black on cream	Holactún		1																																	1	0.02%	
		Dzitbalché	El remate red on bay	El remate					1																														1	0.02%	
		Vista Alegre	Vista alegre striated	Vista alegre											3	3																							6	0.14%	
			Cholul fluted	Cholul											1				2																				3	0.07%	
		Chablekal	Chablekal fine gray	Chablekal		2	1								1			2		2													3		1				12	0.29%	
		Balancán	Balancán fine orange	Balancán					1			3			1	3			1											1			1			1		1	13	0.31%	47.01%
LATE	COPÓ 1	Muna	Muna slate	Chemax												1																							1	0.02%	
CLASSIC	600 - 830 A.D.	Dzityá	Dzityá Black	Dzityá											3																								3	0.07%	
		Conkal	Conkal red	Conkal		5	4	17	1					1	27	6				13	1			3						1						1	2		82	2.00%	
			Baca red	Unspecified		1																																	1	0.02%	
		Baca	Baca red	Baca		6	1		1						10	5			18	3	2			7	2		1			1		1	2					1	61	1.49%	
		Ichcansihó	Ichcansihó striated	Ichcansihó		5	2	1	2						5	14								5			2			5				4					45	1.10%	
			Tancuché with appliqué	Tancuché		1																																	1	0.02%	
		Nimún	Nimún brown	Nimún		1									3	1			1	2							2						2						12	0.29%	
			Chemax black/pre-slate	Chemax					5					1																									6	0.14%	
		Sat	Sat pre-slate	Sat					1	3																													4	0.09%	
		Hool	Hool orange polychrome	Hool				1	6	1					3	12			3	2				5						2				1					36	0.88%	
			Chimbote cream polychrome	Chimbote											4	7			1	2										2									16	0.39%	
		Chimbote	Moro orange polychrome	Moro															2					1										1					4	0.09%	
		Cui	Cui orange polychrome	Cui					2							3			1	2										1				2					11	0.26%	
		Saxché	Saxché orange polychrome	Saxché											3					1				2															6	0.14%	
		Sayán	Sayán red on cream	Sayán											1	1														1									3	0.07%	
		No especificado	Egoísta negative	Egoísta																	6																		6	0.14%	7.21%
EARLY	PIIM		Ola black on orange	Ola																														1					1	0.02%	
CLASSIC	250 - 600 A.D.	Hunabchén	Hunabchén orange	Hunabchén					2						1	1											1							2					7	0.17%	
			Tacopate trickled on brown	Tacopate					1																														1	0.02%	
			Maxcanú ante	Striated exterior															4	1	1																		6	0.14%	
		Maxcanú	Maxcanú ante	Maxcanú				1	5	4									6	5	2													1					24	0.59%	
			Yalchak striated	Compounded												1																							1	0.02%	
			Elote striated	Elote						7									7	5										2									21	0.51%	
		Oxil	Oxil unslipped	Oxil					5																														5	0.12%	
		Triunfo	Triunfo striated	Triunfo															12																			1	13	0.31%	
		Aguila	Aguila orange	Aguila												4																							4	0.09%	
		Encanto	Encanto striated	Encanto				13	9	5					6	2																							35	0.85%	
			Sabán coarse	Becoob						2																													2	0.04%	
		Sabán	Sabán coarse	Sabán					2	2																													4	0.09%	
			Oxkintok composite applied	Oxkintok																																		1	1	0.02%	
		Batres	Batres red	Batres											1	7																							8	0.22%	
			Paradero fluted	Oak burn																1																			1	0.02%	
		Balanza	Paradero fluted	Paradero												1																							1	0.02%	3.25%
LATE	XCULUL		Caucel black/red	Caucel					1																									1					2	0.04%	
PRE- CLASSIC	350 B.C. - 250 A.D.		Dzalpach composite	Dzalpach												2																		1					3	0.07%	
			Xanabá red	Incised					1	1																													2	0.04%	
		Xanabá	Xanabá red	Xanabá					11	8					2	5																							25	0.64%	

		Percebes	Percebes Black	Percebes																1	1						1												3	0.07%	
		Polvero	Polvero Black	Polvero				1	8	4					1	5				3										1				1					24	0.58%	
			Unto black striated pre-slip	Unto						5																1													6	0.14%	
		Tipikal	Tipikal red striated pre-slip	Tipikal															1	2							1											1	5	0.12%	
		Sapote	Sapote striated	Sapote															14		1																		15	0.36%	
			Sierra red	Flaky					2							1																							3	0.07%	
			Laguna Verde incised	Laguna Verde					1									1																					2	0.04%	
			Repasto black/red	Repasto					2	1																													3	0.07%	
			Unión with appliqué	Unión with appliqué								1																											1	0.02%	
		Sierra	Sierra red	Sierra						4					1												1			1				3			1		11	0.26%	
		Shangurro	Shangurro red on orange	Shangurro															2	1	2					1													6	0.14%	
		Kin	Kin orange on red	Kin		1																																	1	0.02%	
		Flor	Flor cream	Flor					1																								1						2	0.04%	
			Nacolal incised	Nacolal			1																																1	0.02%	
		Chunhinta	Chunhinta black	Ucú																				1	1														2	0.04%	
			Chancenote striated	Chancenote				1	31	14					2	8				6	5													8			2	1	78	1.90%	
		Achiote	Achiote unslipped	Sabán					41	12						2				3																			58	1.42%	
		Joventud	Joventud red	Nolo								1																											1	0.02%	
			Kuche incised	Kuche																																	1		1	0.02%	
		Dzudzuquil	Dzudzuquil cream	Dzudzuquil				1	1																														2	0.04%	6.18%
				Unidentified																																			74	1.81%	1.81%
				Eroded																																			88	2.15%	2.15%
				TOTAL	4	732	105	106	212	80	14	274	134	21	325	285	133	67	280	145	34	27	58	175	30	4	63	1	15	223	52	47	211	62	71	45	16	34	4085	99.55%	99.55%

Table 3.
Chronology of the ceramic materials from pit 1 of Structure 8.

CHRON-OLOGY	COMPLEX	GROUP	TYPE	VARIETY	FORM	PIT 1					TOTAL	%	% PER COMPLEX
						SUP	LAYER I	LAYER II	LAYER III	LAYER IV			
LATE	CHECHEM		Yacman striated	Yacman	Pot		1		1	1	3	1.20%	
POST-CLASSIC	1200 - 1540 A.D.	Navulá	Navulá unslipped	Navulá	Pot	1	3	2	16	1	23	9.23%	
		Mama	Mama red	Mama	Pot		1			2	3	1.20%	11.63%
EARLY	ZIPCHÉ		Pisté striated	Pisté	Pot		8	4	5		17	6.82%	
POST-CLASSIC	1000 - 1200 A.D.	Sisal	Sisal unslipped	Sisal	Pot		10	12	1		23	9.23%	
		Dzitás	Dzitás slate	Dzitás	Bowl		2				2	0.80%	
		Kukulá	Xcanchacán black on cream	Xcanchacán	calabash type bowl			1			1	0.40%	
			Xcanchacán black on cream	Xcanchacán	deep dish			1			1	0.40%	
			Xcanchacán black on cream	Xcanchacán	Pot		3	1	1		5	2.00%	
			Kukulá cream	Kukulá	mortar			1			1	0.40%	
			Kukulá cream	Kukulá	Bowl		6	1			7	2.81%	
			Kukulá cream	Kukulá	Pot		7	7			14	5.62%	28.48%
TERMINAL	COPÓ 2	Teabo	Teabo red	Teabo	deep dish				4		4	1.60%	
CLASSIC	830 - 1000 A.D.	Muna	Tekit incised	Tekit	Pot				1		1	0.40%	
			Sacalum black on slate	Sacalum	Bowl		1			2	3	1.20%	
			slate muna	Brownish slip	deep, large bowl	1			1		2	0.80%	
			Muna slate	Brownish slip	Bowl		11	4	6	3	24	9.63%	
			slate muna	Brownish slip	Pot				2	2	4	1.60%	
		Chum	Yokat striated	Yokat	Pot	1	1	2	10	5	19	7.63%	
			Chum unslipped	Chum	Pot	1	5		1	1	8	3.21%	
		Chuburná	Chuburná brown	Chuburná	Pot				3		3	1.20%	
		Dzilam	Dzibikal black on orange	Dzibikal	deep dish				1		1	0.40%	

		Chablekal	Chablekal fine gray	Chablekal	Bowl				1		1	0.40%	
		Balancán	Balancán fine orange	Balancán	Bowl				2		2	0.80%	
			Balancán fine orange	Balancán	Pot					1	1	0.40%	29.27%
LATE CLASSIC	COPÓ 1 600 - 830 A.D.	Muna	Muna slate	Chemax	Bowl					2	2	0.80%	
		Conkal	Conkal red	Conkal	Pot			2			2	0.80%	
		Baca	Baca red	Baca	Bowl				2		2	0.80%	
		Ichcansihó	Ichcansihó st riated	Ichcansihó	Pot					1	1	0.40%	
		Sat	Sat preslate	Sat	Bowl				1		1	0.40%	3.20%
EARLY CLASSIC	PIIM 250 - 600 A.D.	Hunabchén	Hunabchén orange	Hunabchén	Bowl				1		1	0.40%	
		Maxcanú	Maxcanú ante	striated exterior	Pot					1	1	0.40%	
			Maxcanú ante	Maxcanú	Bowl				1		1	0.40%	
			Maxcanú ante	Maxcanú	Pot				3		3	1.20%	
		Oxil	Elote striated	Elote	Pot				1		1	0.40%	
		Triunfo	Triunfo striated	Triunfo	Pot				5		5	2.00%	
		Aguila	Aguila orange	Aguila	glass					1	1	0.40%	5.20%
LATE PRECLASSIC	XCULUL 350 B.C. - 250 A.D.	Xanabá	Xanabá red	Xanabá	Pot				1		1	0.40%	
		Tipikal	Unto black striated pre-slip	Unto	Pot					1	1	0.40%	
			Tipikal red striated pre-slip	Tipikal	Pot					1	1	0.40%	
		Sapote	Sapote striated	Sapote	Pot				3		3	1.20%	
		Sierra	Sierra red	Sierra	Bowl				3	1	4	1.60%	
			Sierra red	Sierra	Pot				5		5	2.00%	
		Achiote	Chancenote striated	Chancenote	Pot				2		2	0.80%	
			Achiote unslipped	Sabán	Pot				8		8	3.21%	
		Dzudzuquil	Bacxoc black on cream to bay	Bacxoc	Bowl				1		1	0.40%	10.41%
				Unidentified			2				2	0.80%	0.80%
				Eroded			6	1	20		27	10.84%	10.84%
				TOTAL		4	67	39	113	26	249	99.83%	99.83%

Table 4. Chronology of general ceramic material from the excavated context.

CHRONOLOGY	COMPLEX	GROUP	TOTAL	PERCENTAGE	% PER COMPLEX
COLONIAL	COLONIAL 1540 - 1600 A.D.	Not decorated	30	0.21%	0.40%
		Not decorated	27	0.19%	
LATE POSTCLASSIC	CHECHEM 1200 - 1540 A.D.	Navulá	2101	14.92%	16.70%
		Matillas	13	0.09%	
		Sulché	89	0.63%	
		Mama	150	1.06%	
EARLY POSTCLASSIC	ZIPCHÉ 1000 - 1200 A.D.	Dzibiac	110	0.78%	35.20%
		Sisal	2191	15.56%	
		Silhó	125	0.89%	
		Dzitás	429	3.04%	
		Kukulá	2100	14.91%	
		Zumpulché	2	0.02%	
TERMINAL CLASSIC	COPÓ 2 830 - 1000 A.D.	Ticul	152	1.08%	34.15%
		Teabo	254	1.80%	
		Muna	1641	11.66%	
		Chum	2358	16.74%	
		Chuburná	201	1.43%	
		Dzilam	48	0.34%	
		Holactún	55	0.39%	
		Dzibalché	1	0.01%	
		Vista Alegre	7	0.05%	
		Chablekal	48	0.34%	
		Balancán	44	0.31%	
LATE CLASSIC	COPÓ 1 600 - 830 A.D.	Muna	4	0.03%	3.49%
		Yalcox	1	0.01%	
		Dzitya	9	0.06%	

		Conkal	139	0.98%	
		Baca	125	0.89%	
		Ichcansihó	56	0.40%	
		Nimún	53	0.38%	
		Sat	13	0.09%	
		Altar	2	0.02%	
		Chimbote	22	0.16%	
		Hool	38	0.27%	
		Cui	13	0.09%	
		Saxché	6	0.04%	
		Sayan	3	0.02%	
		Unspecified	7	0.05%	
EARLY CLASSIC	PIIM 250 - 600 A.D.	Hunabchén	17	0.12%	1.78%
		Maxcanú	93	0.66%	
		Oxil	31	0.22%	
		Triunfo	20	0.14%	
		Aguila	5	0.04%	
		Encanto	36	0.25%	
		Sabán	29	0.21%	
		Batres	15	0.11%	
		Balanza	2	0.02%	
		Dos Arroyos	1	0.01%	
LATE PRECLASSIC	XCULUL 350 B.C. - 250 A.D	Xanabá	55	0.39%	3.03%
		Percebes	11	0.08%	
		Polvero	29	0.21%	
		Tipikal	49	0.34%	
		Sapote	18	0.13%	
		Sierra	62	0.44%	
		Shangurro	8	0.06%	
		Kin	2	0.02%	

		Flor	2	0.02%	
		Chunhinta	21	0.15%	
		Achiote	161	1.14%	
		Joventud	2	0.02%	
		Dzudzuquil	4	0.03%	
		Unidentified	113	0.80%	0.80%
		Eroded	625	4.44%	4.44%
		TOTAL	**14078**	**99.99%**	**99.99%**