Obsidian Craft Production at Cacaxtla-Xochitécatl, Tlaxcala

Research Year: 2004
Culture: Maya
Chronology: Late Classic
Location: Tlaxcala, México
Site: Xochitécatl

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Abstract

During the summer of 2004, funding by FAMSI permitted the reexamination and analysis of obsidian from these two obsidian concentrations. The purpose of this analysis was twofold. The first goal was to confirm whether these obsidian deposits represented the *in situ* remains of obsidian workshops. If they were workshops, then the second goal was to identify the social context of production. The location of these deposits within the Cerro Xochitécatl ceremonial core suggested that craft production was supervised or controlled by site elite (Blanco 1998). If they were, these deposits would represent one of the first documented examples of state-directed obsidian craft production excavated thus far in Central Mexico.

This report summarizes the results of analysis of flaked stone remains in the two possible obsidian workshops on Cerro Xochitécatl. These proposed workshops are identified here as lithic deposits LD-E1 and LD-E2 on the basis of their association with large public buildings in the Cerro Xochitécatl ceremonial core. The lithic remains from each of these areas are described and interpreted. An unanticipated outcome of this project was the identification and analysis of an additional craft production area on Terrace 5 at Nativitas, located two km southeast of Cerro Xochitécatl. Terrace 5 is a domestic residence that was incorporated in the Xochitécatl site during the Late Formative period.

Resumen

Durante el verano del 2004, los fondos de FAMSI permitieron la reexaminación y el análisis de la obsidiana de estas dos concentraciones. El propósito de este análisis era doble. La primera meta fue confirmar si estos yacimientos de obsidiana representaban los restos en sito de los talleres. Si ellos eran talleres, entonces la segunda meta era identificar el contexto social de producción. La localización de estos yacimientos dentro del centro ceremonial de Cerro Xochitécatl sugirió que la producción artesanal era supervisada o controlada por la élite del sitio (Blanco 1998). Si era así, estos yacimientos representarían uno de los primerios ejemplos documentados de la producción excavada artesanal de obsidiana de estado-dirigida lejos en México Central.

Este informe resume los resultados de análisis de piedra astillada que permanece en dos talleres de obsidiana posiblemente sobre el Cerro Xochitécatl. Estos talleres propuestos se identifican aquí como yacimientos líticos LD-E1 y LD-E2 sobre las bases de su asociación con edificios públicos grandes en el centro ceremonial de Cerro Xochitécatl. Los restos líticos de cada uno de estas áreas son descritos e interpretados. Un resultado no anticipado de este informe fue la identificación y análisis de una área de producción artesanal adicional sobre la Terraza 5 en Nativitas, localizada en dos km al sureste del Cerro Xochitécatl. La Terraza 5 es una residencia doméstica que fue incorporada en el sitio Xochitécatl durante el período Formativo Tardío.

Introduction

Between 1993-1994 large scale excavations were conducted at the important site of Xochitécatl located 18 km southwest of the modern city of Tlaxcala, Mexico (Figure 1). This site is part of the greater Cacaxtla-Xochitécatl Archaeological zone and excavations were conducted as part of the Proyecto Especial Xochitécatl under the direction of Mari Carmen Serra Puche. During these explorations archaeologists encountered two concentrations of obsidian production debris in the civic-ceremonial core on the summit of Cerro Xochitécatl that they believed were the remains from two obsidian craft workshops (Figure 2). Analysis of these deposits suggested that these workshops dated to two different periods. The earliest of these materials corresponds to the major occupation of Cerro Xochitécatl and dates Late Terminal Formative (350 B.C. - A.D. 100). The other deposits dates to the Epiclassic period (650-900 A.D.) when Cerro Xochitécatl was reoccupied and incorporated as a secondary ceremonial center within the larger urban center of Cacaxtla (Serra Puche 1998).

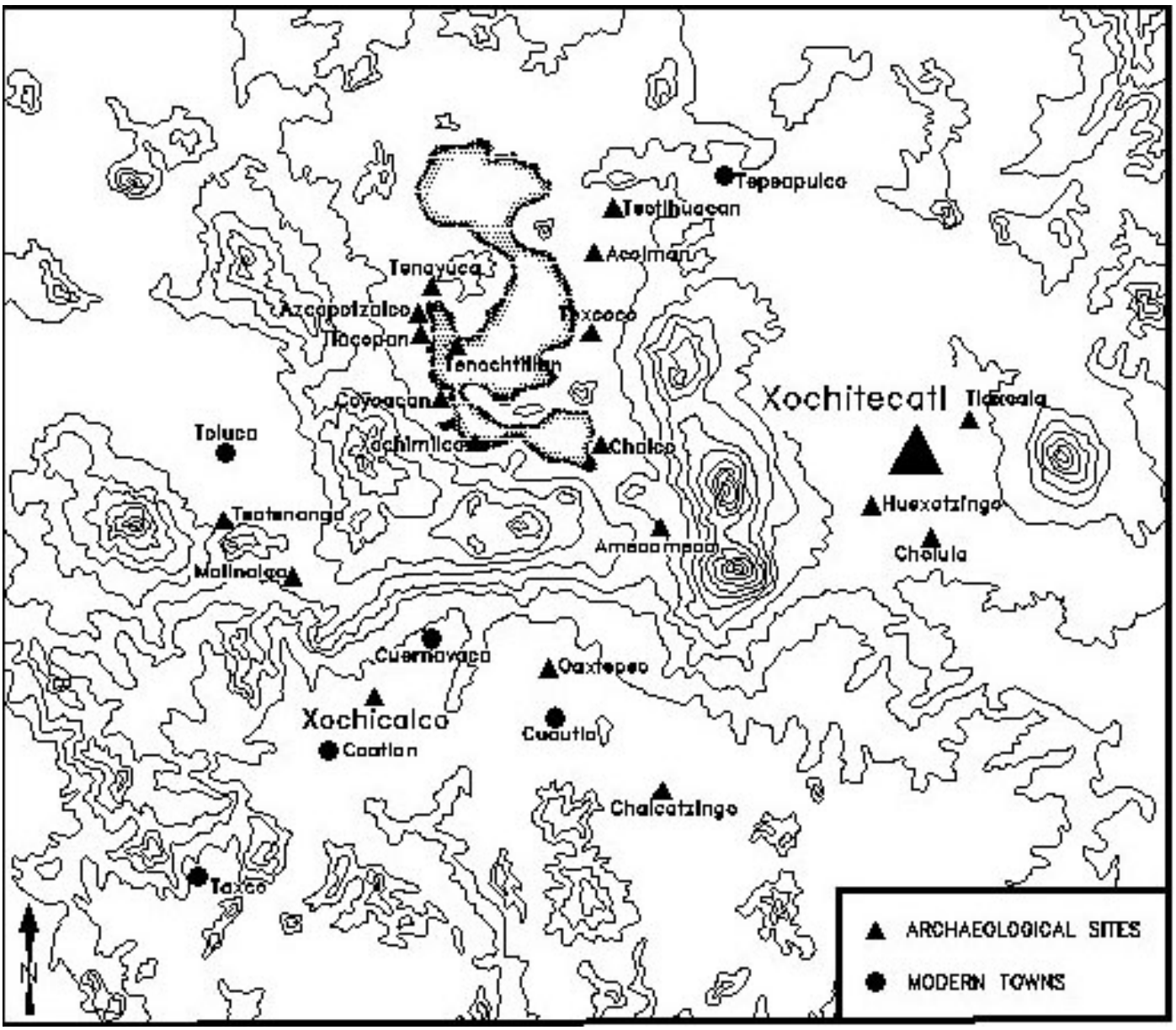

Figure 1. The location of Cacaxtla-Xochitécatl in Central Mexico.

Figure 2. The location of lithic distributions LD-E1 and LD-E2 at the site of Cerro Xochitécatl.

Several scholars have contended that obsidian utilization increased and spread throughout Mesoamerica during the Early and Middle Formative periods as a result of elite control and sponsorship of trade (Awe and Healy 1994; Bosenbaum et al. 1987; Clark 1987; Cobean et al. 1991). Within this context, John Clark (1987) has argued that obsidian core-blade technology spread throughout Mesoamerica through administered trade, patronage of production specialists by chiefs, and elite control and distribution of finished goods. Although obsidian craft production provides a highly visible means of identifying elite involvement in economic activities, few obsidian manufacturing locales have been systematically explored to reconstruct how prehispanic craft production was organized. The obsidian production locales that have been investigated *generally* do not indicate direct elite control of large scale manufacturing. Instead all the obsidian craft areas for which there is good stratigraphic control indicate that production took place in non-elite domestic contexts (Table 1). Although this may reflect a bias in the number and type of workshops excavated, it raises the question of whether elite supervised production systems ever existed in Mesoamerica, and if so, in what form.

Methodology

This study employs a lithic technology approach to analyze flaked stone remains. This approach uses manufacturing and tool maintenance behaviors as a starting point for sorting and

classifying flaked stone tools into analytical categories. Its goal is to identify technological categories that reflect the stages of stone tool production and use. Analysis is based on the fact that flaked stone production is a reductive technology. When a flake is removed from a core, its form and shape are irrevocably altered. The reductive nature of lithic technology means that the sequence of flake removals can be reconstructed and used to derive an analytical classification that recreates the steps of artifact production.

The Proyecto Especial Xochitécatl was organized to explore the main architectural structures in the main site core. The investigation of craft production workshops was not a stated goal of this research (Serra Puche 1998). Excavations employed large scale horizontal clearing and artifacts were collected by hand without screening. The flaked stone remains recovered consisted primarily of obsidian in all excavations.

Lithic Deposit LD-E2

This excavation identified a high concentration of obsidian debitage on the floor and inside a small room annex on the west side of Structure E2 (Photo 1, shown below). This room was constructed at the level of the plaza and attached to the base of the Structure E2 platform mound (Photo 2, shown below). The quantity and type of lithic remains recovered led archaeologist's to suggest that obsidian craft production was practiced in this room (Serra Puche 1998:57). Ceramic remains date this building and its associated obsidian refuse to the Late Formative period (350 B.C. - A.D. 100) when Cerro Xochitécatl was the center of a powerful chiefdom society that controlled a large segment of western Tlaxcala (Serra Puche 1998). All of the flaked stone remains recovered from Structure E2 were analyzed with the intent of determining the scale and context of production in this locale.

Photo 1. Edificio 2 on Cerro Xochitécatl.

Photo 2. Room Annex on the west side of Edificio 2 where LD-E2 was recovered.

The results of the technological analysis for the Late Formative assemblage from Edificio 2 are summarized in Table 2 and provide a good profile of the technology used during this period. Obsidian pressure blade technology dominates the assemblage with a clear preference for grey over green obsidian. Both percussion and pressure debitage is found. Obsidian reached the site primarily in the form of blocky cores and macrocores. Macroblades and narrow macroblades were removed from cores by percussion to finish shaping polyhedral cores before pressure blades were removed. Cores were prepared as both half-conical and fully conical cores with the former predominating over the later. Half conical cores leave one side flat, or are specially prepared to only remove blades from one face of the core (Photo 3, shown below). The preference for this form of core may lie in its ability to be stabilized during blade removal. The half-conical core profile was maintained throughout the sequence of pressure blade removals. In the process, highly diagnostic corner blades were produced where pressure blades were removed at the sides of the cores where they intersected its flat back surface (Photo 4, shown below). The half-conical core technology is common in Central Mexico during the Late Postclassic (Parry 2002). It has been reported during the Late Middle Formative (Cantera) phase occupation at Chalcatzingo (Burton 1987) where it was associated with the utilization of obsidian from the Paredon source.

Photo 3. Front and back views of half-concical blade cores.

Photo 4. Corner blades from pressure cores.

A total of 392 obsidian artifacts were recovered from the floor of the LD-E2 room annex. Ninety-four percent of the artifacts were manufactured of grey obsidian. The majority of the obsidian recovered was debitage created by shaping polyhedral cores using percussion, preparing pressure cores with pressure, and producing prismatic pressure blades. Little evidence was found for either the manufacture of blade artifacts or core rejuvenation. One finished biface was found in the room, but there was no biface reduction debitage found in the room. While production was carried out in this room, it was small in scale. I do not believe production was

intended to produce prismatic blades for export. Instead, the items produced were intended to meet consumption needs within the civic-ceremonial zone.

Lithic Deposit LD-E1

Excavation on the west side of Edificio E1 also recovered a small but dense concentration of small production debitage on its main lower terrace. Edificio E1 is the largest ceremonial structure on Cerro Xochitécatl (Photo 5, shown below). It is 165 m long (E-W), 120 m wide (N-S) and rises to a height of 30 m above the plaza surface (Figure 2). The main body of this structure was constructed during the Late Formative period, and was subsequently reoccupied during the Epiclassic period (A.D. 650-900). Archaeological materials date this lithic concentration to the Epiclassic period when Cerro Xochitécatl was a secondary civic-ceremonial zone within the greater site of Cacaxtla-Xochitécatl. It was during this period that Cacaxtla-Xochitécatl was an important military center (García Cook 1981), its well known murals were painted (Foncerada de Molina 1993), and the site is reputed to have been the capital of Olmeca-Xicalanca groups who entered Central Mexico at this time (Armillas 1946; Muñoz Camargo 1984).

Photo 5. Edificio 1 on Cerro Xochitécatl.

Photo 6. Platform removal flake from a core with a pecked and ground platform.

While this lithic concentration was correctly identified as obsidian production debitage (Blanco 1998), it was not a primary production locale. Reanalysis of field notes and the excavation catalog indicate that all of the production debitage was recovered from a single plain ceramic vessel (catalog No. 3133) that was 22 cm in diameter. The vessel was removed with its dirt contents and 15 associated *canto rodados* (probably hammerstones) to the laboratory. Here the dirt contents were removed and the obsidian debitage recovered. There was no indication that any production debitage was seen in the field; all debitage was confined to the vessel.

Table 3 summarizes the materials recovered within the vessel interior. All lithic debris was small, the vast majority of which was 1/8-1/4 inch in diameter. A total of 87.8% of the obsidian debris was grey obsidian; the remainder (12.2%) was green obsidian from the Pachuca obsidian source. A small amount of evidence was found for core shaping using percussion techniques, primarily decortication of blocky obsidian and shaping polyhedral cores with narrow macroblades. Polyhedral cores were transformed into pressure cores resulting in the production of large numbers of initial series (1s, 2s) and triangular pressure blades. Over one-half of the debitage (52.9%) was waste from the production of prismatic blades, most of which (76.9%) were produced from cores with pecked and ground platforms (Photo 6, shown above). A large

quantity of waste from blade sectioning activities (9.9%) was recovered although the number of blade artifacts produced was small. I suspect that most of this waste was produced from processing snapped blade segments from prismatic blades. Core rejuvenation was not practiced and the presence of corner blade segments in the collection indicate that half-conical cores continued to be used during the Epiclassic period. No evidence for biface production was found in these deposits.

Interpretations of Obsidian Craft Production on Cerro Xochitécatl

The questions examined by this research were: (1) whether lithic deposits LD-E1 and LD-E2 represented *in situ* obsidian workshops, and if they did, (2) what was their social context of production.

Lithic deposit LD-E1 appears to be debitage from an Epiclassic production workshop somewhere in the vicinity of Cerro Xochitécatl. It was not, however, produced on Edificio 1. Instead, the obsidian refuse was buried under the western terrace surface on Edificio 1 as a cache deposit. Its location near burials on this terrace is reminiscent of the practice of depositing obsidian waste near or over tomb burials in the Maya region. Obsidian waste has been recovered in deposits overlying tombs at the sites of Dos Hombres (Trachman 2002), Lamanai (Pendergast 1981), and Tikal (Moholy-Nagy 1997). Nothing is implied here about ethnicity of groups at Cerro Xochitécatl or direct contact with the Maya. Instead, it is more likely that the LD-E1 cache deposit represents a shared symbolic ideology about obsidian, the underworld, and death (Taube 1991). Lithic deposit LD-E1 does not provide evidence for a lithic workshop in the civic-ceremonial zone during the Epiclassic period.

Lithic deposit LD-E2 appears to be *in situ* debitage produced during the Late Formative period within the confines of the room annex attached to the west side of Edificio 2. Production was small in scale and was not oriented toward the production of obsidian blades for general sale or distribution to the broader population. Instead, production is at a scale consistent with the use and consumption of obsidian tools within the civic-ceremonial zone (Photo 7, shown below). The analysis of obsidian across the surface of Edificio 2 reveals that it was used in a range of construction and work-related activities.

If LD-E2 is a production area, then what was the social context in which it was produced? Animal bones and other food refuse also was recovered from the floor of this structure which probably were consumed by the artisans who worked there. This suggested that production at LD-E2 was organized in one of two alternative ways: either as a workshop used by specialists attached to civic-ceremonial institutions or as a form of rotational or corveé production by independent craftsmen fulfilling their normal *tequitl* obligations. The size, contexts, and organization of the annex room where production took place does not suggest that craftsmen resided at, or were permanently attached to Edificio 2. Instead, the room annex seems to be a general purpose work area that was used periodically by individuals working within the site core. Since corveé labor was fed during public work projects the most likely explanation for the LD-E2 lithic deposit was that it was produced by craftsmen producing obsidian goods as part of their normal *tequitl* work requirements as was common throughout Central Mexico at the time of the Conquest (Zavala 1984-89).

Photo 7. End scrapers made from macroblades.

Craft Production on Terrace 5, Nativitas

The urban site boundaries of Xochitécatl and its supporting residential population have not been precisely defined for the Late Formative period. The main civic-ceremonial complex during this time period was located on the summit of Cerro Xochitécatl, and residential population was distributed across the adjacent hillslopes and valley floor. What the density and distribution of its residential population was remains unclear. One important residential cluster within the greater Xochitécatl site zone was the Nativitas area located on the hillslopes 2 km southeast of Cerro Xochitécatl.

Excavations at Nativitas between 1998-2001 identified several Late Formative households. Although I did not anticipate having access to these collections at the start of the project, I was allowed to analyze the obsidian from them and did so as part of this project. I felt the analysis of the flaked stone assemblages from domestic contexts at Nativitas would provide important information on the consumption of obsidian in domestic contexts that complimented production data from the site core. In the process, I discovered and analyzed a separate and unique Late Formative lapidary assemblage associated with jade bead production. A preliminary analysis of this assemblage is included here.

Photo 8. Jade fragments from Terrace 5 at Nativitas.

Photo 9. Four jade bead preforms.

The Terrace 5 excavations uncovered Late Formative residential group consisting of several house structures located around a central patio. Excavations uncovered two work areas in the central patio defined by concentrations of lapidary debris and associated tools used in the production of jade beads. The lapidary debris in these areas consist of 4,657 small pieces or fragments of green jade that ranged from 3.0-25.0 mm in size. These fragments appear to have been produced by intentionally breaking nodules and laminar pieces of jade into small pieces as a prelude to use rather than cutting pieces from larger jade nodules (Photo 8, shown above). In many respects these pieces resemble a very coarse gravel. Rather than waste, much of this gravel represents unprocessed raw material. Although no formal sourcing has been conducted, the apple green color and the fine texture of this jade suggests that it may be from the Motagua Valley.

Photo 10. Three partially drilled jade beads.

Photo 11. Chert prismatic blades used as drill preforms.

The process of manufacture appears to have been a simple three-step process. First, a small jade fragment was selected from the stock of raw material and shaped into a rough preform by grinding (Photo 9, above). This was followed by drilling a hole through the bead preform. Bead preforms sometimes broke or were abandoned during drilling, examples of both were recovered in the deposits (Photo 10, shown above). After drilling was completed, beads were finished with final shaping and grinding. Final finishing of beads after drilling is a common practice in among contemporary bead makers in India (Kenoyer et al. 1991:53).

Concentrations of small drill bits used to the drill beads were associated with these concentrations of jade gravel, broken beads, and manufacturing defects. These drills were manufactured from small flakes and blades of quartzite (Photo 11, shown above). Drills were made within the house compound. Small laminar flakes and blades were produced from cores and then shaped into drills with long thin tapering tips needed to drill through the beads. All stages of drill manufacture were identified in the deposits including raw material, flake cores, drill preforms, and broken and exhausted drills. Unbroken drill bits ranged from 10.0-18.9 mm long and 2.7-12.0 mm wide, with tips only 0.8-2.0 mm wide (Photos 12 and 13, shown below). The shape of the drill bits suggest they were end hafted into a thin shaft that was rotated with the help of a hand-held bow drill.

Photo 12. Fine tipped chert drills.

Photo 13. Large chert drills.

Although the evidence suggests that jade bead production was small in scale, it is important because of its location in a non-elite residential household on the periphery of Xochitécatl. It suggests that jade was not a tightly controlled resource largely in the hands of elite members of society. If the jade is indeed from the Motagua valley, as I believe it is, then we have a situation where a range of high value goods, important to reinforcing positions of social rank, are not under the direct control of the elite themselves. Instead, at least some high value goods were produced by independent craftsmen working in domestic contexts that were subsequently mobilized by the elite through both social and/or distributed through commercial networks.

Table 1. Major Obsidian Workshop Excavations in Mesoamerica (from Hirth n.d.)

Quarry Workshops					
Site	**Location**	**Age**	**Workshop Type**	**Context**	**Reference**
Sierra de las Navajas	Central Mexico	700 B.C. - A.D. 1600	Blade	Non-Domestic	Pastrana 1998, Pastrana 2002
Ucareo	West Mexico	400-1521 A.D.	Blade	Non-Domestic	Healan 1997
Zináparo-Prieto	West Mexico	700-1200 A.D.	Percussion Blade	Non-Domestic	Darras 1999
Oyameles/Zaragoza	Central Mexico	400-1521 A.D.	Blade	Non-Domestic	Garcia Cook, personal com.
Finishing Workshops					
Chalcatzingo	Central Mexico	500-700 B.C.	Blade	Domestic Workshop refuse	Burton 1987c
Bustamonte	El Salvador	300 B.C. - A.D. 200	Blade	Domestic Workshop refuse	Sheets 1972
Kaminaljuyu	Highland Guatemala	200-400 A.D.	Blade	3 Domestic Workshops	Hay 1978, Hirth 2003
Ojo de Agua	Chiapas, Mexico	Early Classic	Blade	Domestic Workshop refuse	Clark 1997, Clark and Bryant 1997
Guachimonton	West Mexico	400-700 A.D.	Blade	Unclear	Soto 1990
Xochicalco	Central Mexico	650-900 A.D.	Blade	4 Domestic, 1 Market	Hirth 2002
Teotihuacan	Central Mexico	750-900 A.D.	Biface	Probably Domestic	Rattray 1987, Nelson 2000
Tula	Central Mexico	700-900 A.D.	Blade	Domestic	Healan 2002
Huapalcalco	Central Mexico	Epiclassic	Biface	Domestic	Gaxiola and Guevara 1989
Tenochtitlan	Central Mexico	Late Postclassic	Blade	Domestic Workshop refuse	Garcia and Cassiano 1990, Cassiano 1991

Table 2. Obsidian Debitage in Lithic Deposit LD-E2 and non-production areas in Edificio 2

Prismatic Blade Production						
	LD-E2 Annex		**Edificio 2**		**Total Obsidian**	
Percussion Core Shaping	**Grey**	**Green**	**Grey**	**Green**	**Number**	**Percent**
Decortication Flakes	10	1	173	24	208	4.3
Decortication Blades	15	1	83	13	112	2.3
Macroflakes	13	0	96	6	115	2.4
Narrow Macroflakes	29	1	85	7	122	2.5
Crested Blades	15	0	147	12	174	3.6
Macroblades	39	4	301	25	369	7.6
Narrow Macroblades	60	2	549	41	652	13.4
Lateral Faceting Flakes	3	0	9	0	12	.3
Distal Shaping Flakes	0	0	3	2	5	.1
Platform Overhang Flakes	0	0	16	3	19	.4
Core Shaping Errors	0	0	17	1	18	.4
Core Error Corrections	1	0	4	0	5	.1
Used Macroblades and Flakes	1	1	10	2	14	.3
Artifacts from Percussion Debitage						
Macroflake Scrapers	0	1	7	1	9	.2
Macroblade Scrapers	4	1	77	0	82	1.7
Snapped Segment Debitage	19	0	218	6	243	5.0
Pressure Blade Production						
Initial Series 1s/2s Blades	12	2	67	13	94	1.9
Triangular Blades	18	0	220	35	273	5.6
3s Blades: Proximal sections	14	3	204	14	235	4.8
3s Blades: Medial Sections	34	2	800	28	864	17.7
3s Blades: Distal Sections	12	0	150	7	169	3.5
3s Blades: Plunging Blades	1	0	12	0	13	.3
Half Conical Corner Blades	7	0	95	4	106	2.2
RC-1st Blades	0	0	2	0	2	>0.1
Blade Production Errors	0	0	4	0	4	>0.1
Blade Error Corrections	1	0	21	2	24	.5
Used Blades	4	2	10	1	17	.4
Blade Artifact Production						
End Modified Blades	0	0	2	0	2	>0.1
Hafted Blade Points	1	0	17	0	18	.4

Snapped Blade Segments	2	0	22	6	30	.6
Core Rejuvenation Debitage						
Faceted Platform Flakes	1	0	6	0	7	.1
Faceted Coretop Fragments	0	0	1	0	1	>0.1
Platform Preparation Debitage	0	1	2	0	3	>0.1
Distal Orientation Flakes	3	0	5	0	8	.2
Blade Cores and Fragments						
Exhausted Blade Cores	0	0	0	0	0	0.0
Conical Blade Core Fragments	1	0	28	1	30	.6
Half-Conical Core Fragments	0	0	2	0	2	>0.1
Undiagnostic Percussion Debitage						
Small Flake Fragments	16	0	254	36	306	6.3
Shatter	32	1	330	28	391	8.0
Eraillure Flakes	0	0	1	0	1	>0.1
Non-Bladecore Materials						
Raw Material	0	0	3	1	4	>0.1
Flake Cores	0	0	4	0	4	>0.1
Percussion Debitage						
Interior Flakes	0	0	16	12	28	.6
Biface Reduction Flakes	0	0	0	0	0	0
Bipolar Flakes	0	0	14	8	22	.5
Shaped Artifacts						
Bifacial Preforms	0	0	1	0	1	>0.1
Bifaces and Biface Fragments	1	0	5	1	7	.1
Unifaces	0	0	6	1	7	.1
Worked Flakes	0	0	32	3	35	.7
Pressure Debitage						
Pressure Flakes	0	0	8	0	8	.2
Total Obsidian	369	23	4,139	344	4,875	100.0

Table 3. Obsidian Debitage in Lithic Deposit LD-E1 in Edificio 1

Prismatic Blade Production				
	Lithic Deposit LD-E1		**Total Obsidian**	
Percussion Core Shaping	**Grey**	**Green**	**Number**	**Percent**
Decortication Flakes	20	2	22	.6
Decortication Blades	23	1	24	.7
Macroflakes	0	0	0	0
Narrow Macroflakes	0	0	0	0
Crested Blades	6	0	6	.2
Macroblades	4	0	4	.1
Narrow Macroblades	15	3	18	.5
Lateral Faceting Flakes	0	0	0	0
Distal Shaping Flakes	0	0	0	0
Platform Overhang Flakes	0	0	0	0
Core Shaping Errors	0	0	0	0
Core Error Corrections	0	0	0	0
Used Macroblades and Flakes	0	0	0	0
Artifacts from Percussion Debitage				
Macroflake Scrapers	2	0	2	.1
Snapped Segment Debitage	6	0	6	.2
Pressure Blade Production				
Initial Series 1s/2s Blades	57	3	60	1.8
Triangular Blades: Faceted Proximal Sections	28	10	38	1.1
Triangular Blades: Pecked & Ground Proximal Sections	12	2	14	.4
Triangular Blades: Medial & Distal Sections	225	40	265	7.8
3s Blades: Faceted Proximal Sections	46	15	61	1.8
3s Blades: Pecked & Ground Proximal Sections	180	23	203	6.0
3s Blades: Medial Sections	1,039	168	1.207	35.8
3s Blades: Distal Sections	278	30	308	9.1
3s Blades: Plunging Blades	3	4	7	.2
Corner Blades: Faceted Proximal Sections	2	0	2	.1
Corner Blades: Pecked & Ground Proximal Sections	12	0	12	.4
Corner Blades: Medial & Distal Sections	10	5	15	.4
Nacelle Flakes	1	0	1	<.1
Blade Production Errors	0	0	0	0

Blade Error Corrections	1	0	1	<.1
Used Blades	3	1	4	.1
Blade Artifact Production				
Needle Tipped Blades	1	0	1	<.1
End Modified Blades	2	0	2	.1
Snapped Blade Segments	294	43	337	9.9
Pressure and Notch Flakes	4	0	4	.1
Core Rejuvenation Debitage				
Faceted Platform Flakes	0	0	0	0
Faceted Coretop Fragments	0	0	0	0
Platform Preparation Debitage	0	0	0	0
Blade Cores and Fragments				
Exhausted Blade Cores	0	0	0	0
Conical Blade Core Fragments	2	0	2	.1
Undiagnostic Percussion Debitage				
Small Flake Fragments	90	12	102	3.0
Small Flake Fragments: Pecked and Ground Platforms	4	0	4	.1
Shatter	600	51	651	19.2
Non-Bladecore Materials				
Raw Material	1	0	1	<.1
Bipolar Percussion Debitage	1	0	1	<.1
Shaped Artifacts				
Bifaces and Biface Fragments	1	0	1	<.1
Worked Flakes	1	0	1	<.1
Total Obsidian	2,974	413	3,387	100.0

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