

## SPECIAL ARTIFACTS FROM THE DEBITAGE AREA OF THE OBSIDIAN WORKSHOP AT EL BAÚL

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Thanks to the development of archaeological investigations in the South Coast of Guatemala, it was possible to recover and examine an amazing amount of obsidian artifacts. As it is widely known, no deposits of this volcanic glass exist in the region, so the presence of obsidian is an unequivocal sign of exchange and distribution activities. To this date, the majority of the studies accomplished have been focused on establishing where such artifacts did in fact come from, what they were used for and in what amounts, taking into consideration issues such as consumption and debitage. In this sense, learning about the technological and functional aspects of these objects has been crucial.

Most artifacts examined were recovered in household contexts, but they were also found in the form of offerings, in tombs or deposits, and in construction refills. In this way, artifacts from sites such as Tak'alik Ab'aj, La Blanca, Ujuxte, Balberta, the areas of Tecojate and Sipacate have been studied, as well as others from many different sites that offer a diachronic panorama of obsidian behaviour in the Pacific Coast. However, the angle of the local production of artifacts has been less examined. The reason for this is undoubtedly to be found in the scarce amount of workshops discovered so far.

For a long time it was presumed that objects such as the prismatic blades and the projectile points were previously elaborated in one or several workshops associated to the sources, or either to sites that exerted control over them, and that they were subsequently transferred to the places of consumption. At times, speculations existed around a limited *in situ* production, due to the discrete presence of a number of exhausted cores. Probably, that may still be the situation for many collections originated in countless coastal sites. Nevertheless, the presence of huge amounts of manufacture debitage that included exhausted prismatic cores discovered at the site of El Baúl in Santa Lucía Cotzumalguapa, are a clear evidence of an artifact-related production activity which used to unfold in certain areas of this site.

In the course of the excavations conducted by Oswaldo Chinchilla in the sector denominated EB9A, operation P-31, and in association with thousands of debitage flakes, abundant complete or fragmented artifacts were recovered, corresponding to those that were believed to be the objects that were taken to the site, that is, different type of cores, together with those that were locally produced in the workshops of El Baúl and which mainly consisted of prismatic blades and projectile points. The

paragraphs that follow will present the results obtained during the study of such artifacts.

## **SAMPLE OF SPECIAL OBJECTS**

The objects examined were 183 in total, all of them recovered in the different excavation levels of operation P-31, placed in sector EB9A in the northwest portion of the Acropolis at El Baúl, within the area showing the largest concentration of obsidian artifacts, most of which consisted of manufacture debitage and included all types of flakes. The material dates to the Late Classic period.

As a consequence of being associated with debitage, it is presumed that the artifacts examined were likewise disposed of in the dump due to flaws in the finish or because their useful life had come to an end. After being excavated, they were separated from the rest of the sample and designated as special objects, because they have a defined shape and feature some typological variation.

For the analysis of these artifacts, a similar methodology to the one used for all the artifacts of the workshop at El Baúl was applied, among which the following variables were taken into account: source, to establish the origin of the raw material; type, to establish the morphological characteristics of the artifacts and their variety; segment, to ascertain whether they are complete or fragmented pieces; use, to establish whether the objects show wear or not; retouch, which helps to find out whether there were any technological modifications; and finally, their measures of length, weight and width. In the case of the exhausted cores, the number of edges that each one of them presented was counted. Later, a database was created in the ACCESS program and a statistical analysis was conducted with the EXCEL program. With the database, statistical tests conducted involved a percentage analysis, descriptive statistics and crossed tables both among variables and among types and variables.

The results are presented after the order of the variables listed above (Table 1). In the general sample of 183 objects, it was established that the sources mostly used were El Chayal, with 68.85%, and San Martín Jilotepeque, with 29.51%. As to the technological types, 57.92% corresponded to prismatic blades of the final series, and 21.31% corresponded to exhausted prismatic cores. Then, with 6.01% comes the projectile point type followed by 5.46 % of macro blades, and finally the irregular blades, with 4.92%. In the segment variable, half exactly corresponded to complete artifacts, an interesting piece of information if we consider that in general, the pieces were fragmented or that only one of its segments was recovered.

In the variables showing the utility of artifacts, it was established that 79.23% did not show signs of wear, while only 20.77% did. Some prismatic blades have shown a remarkable wear. In the retouch, 75.41% showed no modifications, while 23.50% did present retouch. Two blades presented sawn retouches on both edges.

## **DESCRIPTION OF THE MAIN TYPES: PRISMATIC BLADES**

The prismatic blades analyzed corresponded to the intermediate and final series that were extracted from the core before it became completely exhausted. Those of the final series were narrow, very sharp, with a minimum thickness and a light weight. The major part corresponded to complete artifacts whose maximum length was of 7.7 cm, with a width of 2.8 cm and a weight of 4.66 grams. Given the above characteristics, it is quite likely that this type of artifact was used for special purposes, not related to domestic maintenance or specialized economic activities like large-scale food processing or the manufacture of certain serial objects. This was rather the type of blade that in the South Coastal sites and several sites in the Highlands were seen in funerary or ritual contexts, with the character of offerings. The ones of the preceding series, poorly represented among these objects, were the most usual ones in household contexts and general activity areas.

Anyway, the dimensions of the prismatic blades from El Baúl correspond to those usually found in sites of the South Coast far from the obsidian source, so that the size is significantly smaller than the size of those found in settlements close to the sources, as is the case of Kaminaljuyu.

## **EXHAUSTED CORES**

The cores examined presented a very characteristic shape that resembled that of small cucumbers. Some were long, while others were thick in their medial part. The maximum length of an exhausted core was 9.4 cm, and the maximum diameter could reach 4 cm. The complete and heaviest core weighted 101.16 grams. Usually, the portion of the remnant platform in them was very small, making it difficult to ascertain what kind of treatment they were given. The amount of edges present in these exhausted cores ranged from nine to 16, while the majority had between 11 and 12. This is an interesting piece of information, because as a consequence of the extraction techniques, pressure, in this case, a constant was appreciated, probably directly connected with the number of blades that could be extracted from certain forms of cores. At least in those from the South Coast, the number of edges remained within the parameters in cores of a similar size.

Some of the cores showed signs of having been used as flake cores through the application of the bipolar technique. Also, a few specimens were reused as scrapers or smoothing tools for other artifacts, probably ceramic objects. One of them in particular, case 34 in our sample, presented a heavy wear that reduced it to half its size, longitudinally. Due to the use it was given, its aspect changed and acquired some sort of totally plain patina of a greyish color. At the same time, it presented several depressions likely linked to the way how the specimen was being worn out. This artifact represented an exceptional case of cores being reused with the purpose of being applied on other objects, as opposed to the creation of eccentric artifacts, customary in the Lowlands.

Regarding the sources of provenience of the cores, the sample includes artifacts from the two major sources present in the coast, El Chayal and San Martín

Jilotepeque. Nonetheless, differences do exist in regard to the form each one possesses. In this respect, the cores from El Chayal are relatively smaller than those from San Martín Jilotepeque in size and weight. The treatment of the platform also differs from one source to the other.

## **PROJECTILE POINTS**

The other more frequent type was that of the projectile points. Most of these artifacts featured a triangular, long shape and presented a spike for hafting. The maximum length of a complete piece was of 9.4 cm, though the sample included two segments that corresponded to the same point, and this one reached a length of 18.4 cm and a maximum weight of 71.83 grams. The dominant techniques for their elaboration were percussion and pressure, and the objects manufactured were unifacial and bifacial. This situation generated a large amount of debitage flakes, very frequent in the analysis of the workshop; therefore, it is inferred that the production of such artifacts was very significant.

The style of points at El Baúl presents special characteristics which clearly differentiate them from the points originated elsewhere in the South Coast, particularly because of the combination of finishing techniques used, which produced remarkably delicate artifacts. In this case, the dominant source for the elaboration of points was San Martín Jilotepeque, with El Chayal in the second place.

As to the utilization of points, although they once constituted throwing weapons used in wars or hunting expeditions, they are usually found as offerings or as objects of social status in many sites excavated in the South Coast. However, given the huge amount of debitage associated with this technological type, there was a large scale production of points at El Baúl to serve a strong local demand for components of warfare artifacts. This presumption could be corroborated with additional samples from certain sectors of the site or from other sites associated with El Baúl, where camps or military garrisons once existed.

## **OTHER ARTIFACTS**

Besides, the sample includes other types of artifacts which make evident the existing variety of objects produced in the workshops of El Baúl. There are knives formed from macro blades, and also scrapers elaborated through retouching of macro flakes. It is probable that these were made out of cores with specific characteristics for the production of such artifacts, different than those employed in the manufacture of prismatic blades.

Alejandro Pastrana (personal communication 2002) has suggested that preforms of cores were elaborated in the primary workshops at the source, some destined to the production of prismatic blades through pressure techniques, and others for the manufacture of objects such as scrapers, projectile points and knives. Consequently, those cores were different in their dimensions; they were larger and most likely exhausted through percussion. All objects obtained from this type of cores needed

further retouch for their finishing, and this may be somehow related to the large amounts of debitage among which the so-called bifacial flakes were found.

## **FINAL COMMENTS**

As of the information obtained, we may advance several comments with the character of preliminary conclusions about what is it that the presence of these special artifacts means at El Baúl.

In the first place, the huge amount of obsidian debitage points to a heavy economic interaction with the Highlands, for procuring this crucial raw material. In this sense, two were the major sources wherefrom the workshops were supplied: El Chayal and San Martín Jilotepeque. The presence of materials from the source of San Bartolomé Milpas Altas detected in flakes in the laboratory tests carried out by Fred Nelson is to be noted. There is also a light presence of Ixtepeque materials.

In the second place, the main technological types arrived to the workshops of El Baúl are the cores, both prismatic and macro cores, probably transported by caravans of merchants who carried them straight to the local workshops, where craftsmen were ready to transform them into the desired products.

Third, once the cores arrived to the workshops, the macro cores were reduced and transformed into macro blades, and these in turn were transformed into knives and projectile points. On the other hand, fine blades were obtained from the prismatic cores through the pressure technique. These cores were exhausted to the extreme, and subsequently used as a different type of tool, like scrapers, for example. Meanwhile, others were reduced through the bipolar percussion technique to obtain flakes, and something similar likely happened with the macro blade cores.

Thus, the production of artifacts was aimed at manufacturing two major products: prismatic blades and projectile points. Both technological types required specialized skills and a centralized productive organization. The major purpose of this production was serving the local and probably the regional demand of cutting tools, throwing weapons with a cutting point, and instruments for scraping, polishing and perforating, all of which could be a part of household maintenance activities or else, in large quantities, of productive or non-productive activities of a specialized nature.

The area where the debitage of the workshop is found is associated with a small habitational group which probably was the quarters of the craftsmen and the workshop itself. It could be suggested that the production activity of obsidian artifacts was carried out by a family group of specialists devoted exclusively to this activity, one that demanded the participation of several craftsmen. To this day, there are more than 40.000 artifacts recovered and analyzed in this sector of El Baúl. To this, we must add a sample of several thousand obsidian artifacts from a pit in the same sector, excavated by Sonia Medrano at the beginning of the 1990's. That sample was initially examined and classified by Elisa Jiménez. A revision of that sample revealed the presence of the same technological types described above in relation to the production of prismatic blades and projectile points. The field notes refer that

between 0.0166 m and 0.018 m a deposit was found, containing abundant obsidian consisting of all types of blades, exhausted cores and fragments of projectile points.

Finally, I must add that the obsidian study at El Baúl has raised new questions regarding what kind of economical, political and social events may have taken place during the Late Classic period at the sites. These questions will be answered once the precise estimates of the amount of artifacts produced are concluded, once it is established which were the mechanisms of distribution, and upon completion of other valid comparisons with samples already examined from other workshops such as Ojo de Agua in Chiapas (Clark 1997a, 1997b) or the Teotihuacan workshops (Nelson 2000).

## REFERENCES

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<b>SOURCE</b>	<b>Count of SOURCE</b>	<b>Count of SOURCE 2</b>
El Chayal	126	68.85 %
Ixtepeque	1	0.55 %
Other	1	0.55 %
San Martín J	54	29.51 %
Tajumulco	1	0.55 %
<b>Grand Total</b>	<b>183</b>	<b>100.00 %</b>

<b>TYPE</b>	<b>Count of TYPE</b>	<b>Count of TYPE 2</b>
Platform flake	1	0.55 %
Large flake	5	2.73 %
Macro flake	2	1.09 %
Macro blade	10	5.46 %
Irregular blade	9	4.92 %
Prismatic blade	106	57.92 %
Exhausted core	39	21.31 %
Projectile point	11	6.01 %
<b>Grand Total</b>	<b>183</b>	<b>100.00 %</b>

<b>SEGMENT</b>	<b>Count of SEGMENT</b>	<b>Count of SEGMENT 2</b>
Complete	93	50.82 %
Incomplete	90	49.18 %
<b>Grand Total</b>	<b>183</b>	<b>100.00 %</b>

<b>USE</b>	<b>Count of USE</b>	<b>Count of USE 2</b>
False	143	79.23 %
True	38	20.77 %
<b>Grand Total</b>	<b>183</b>	<b>100.00 %</b>

<b>RETOUCH</b>	<b>Count of Retouch</b>	<b>Count of RETOUCH 2</b>
Bifacial	1	0.55 %
Not retouched	138	75.41 %
Retouched	43	23.50 %
Unifacial	1	0.55 %
<b>Grand Total</b>	<b>183</b>	<b>100.00 %</b>

Table 1. Frequency of categories analyzed.