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POLITICAL AND SOCIOECONOMIC IMPLICATIONS OF CLASSIC MAYA LITHIC ARTIFACTS FROM THE MAIN PLAZA OF AGUATECA, GUATEMALA

Kazuo AOYAMA *

This article discusses the results of an analysis of 4,076 lithic artifacts collected in and around the Main Plaza of Aguateca, Guatemala, by the Aguateca Restoration Project Second Phase with the objective of examining Classic Maya political and socioeconomic organization. First, combined with the results of analysis of 10,845 lithic artifacts collected in the Palace Group, the elite residential area along the Causeway, and other parts of the site by the Aguateca Archaeological Project First Phase, the data on obsidian artifacts indicate a skewed distribution, suggesting that the rulers of Aguateca controlled the main access to obsidian in the city while the procurement and distribution of obsidian polyhedral cores may have been administered by the royal court of the Aguateca dynasty as part of its political economy. Second, several lines of lithic evidence reinforce the argument advanced by Inomata *et al.* (2004) that Structure L8-8, a large temple building, was abandoned during its construction toward the end of the Late Classic period. Third, Ruler 3 of Aguateca carried out the royal Maya ritual of caching obsidian and chert eccentrics as well as other lithic artifacts in Structure L8-5 facing a large plaza. The theatrical performance and dedication ritual involved in the deposition of the eccentrics and other artifacts in the temple reinforced the ruler's political and economic power. Finally, the obsidian data show that the Terminal Classic Maya of the Petexbatún region were not isolated from other regions but participated in long-distance exchange networks during this period. [Key words: Classic Maya, political organization, socioeconomic organization, temple, royal court, exchange networks.]

Implicaciones políticas y socioeconómicas de artefactos líticos mayas clásicos de la Plaza Principal de Aguateca, Guatemala. El presente artículo discute los resultados del análisis de 4 076 artefactos líticos recolectados en y alrededor de la Plaza Principal de Aguateca, Guatemala, por el Proyecto de Restauración Aguateca Segunda Fase con el fin de examinar la organización socioeconómica y política del Clásico Maya. Primero, al combinarlos con los resultados del análisis de 10 845 artefactos líticos recolectados en el Grupo del Palacio, el área residencial de la élite a lo largo de la Calzada, y otras partes del sitio por el Proyecto Arqueológico Aguateca Primera Fase, los datos relativos

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a los artefactos de obsidiana indican una distribución desigual de este tipo de material, sugiriendo que los gobernantes de Aguateca tuvieron el mayor acceso a la obsidiana en la ciudad y que la obtención y distribución de núcleos poliédricos pudo haber sido administrada por la corte real encabezada por la dinastía de Aguateca como parte de su economía política. Segundo, varias líneas de evidencia lítica fuertemente apoyan al argumento de Inomata *et al.* (2004) que el templo L8-8 fue abandonado durante el proceso de construcción a finales del período Clásico Tardío. Tercero, el gobernante 3 de Aguateca llevó a cabo un ritual real de depósito de excéntricos de obsidiana y pedernal, así como de otros artefactos líticos en la Estructura L8-5 frente a una gran plaza. La presentación teatral de este acto ritual debió reforzar el poder político y económico del gobernante. Finalmente, los datos concernientes a la obsidiana demuestran que los mayas del Clásico Terminal de la región de Petexbatún no estaban aislados de otras regiones, sino que participaron en las redes de intercambio a larga distancia durante dicho período. [Palabras claves: Clásico Maya, organización política, organización socioeconómica, templo, corte real, redes de intercambio.]

Dimensions politique et socio-économique d'objets lithiques classiques provenant de la Place principale d'Aguateca, Guatemala. L'article discute les résultats de l'analyse de 4 076 objets lithiques recueillis sur la Place principale d'Aguateca et autour, par le Projet de restauration Aguateca, 2^e phase, ce dans la perspective de l'organisation socio-économique et politique maya classique. En les comparant aux résultats de l'étude des 10 845 objets lithiques récoltés dans le Groupe du Palais, dans la zone résidentielle élitaire qui s'étend le long de la Chaussée ainsi qu'ailleurs dans le site par le Projet archéologique Aguateca, 1^e phase, on observe divers aspects. Les données concernant l'obsidienne montrent une distribution inégale, laquelle suggère que les dirigeants avaient davantage accès à ce matériau et que l'obtention et la distribution des nuclei polyédriques devaient être régies par la cour avec, à sa tête, la famille royale, ce dans le cadre de ses fonctions économiques. Plusieurs lignes d'évidence renforcent par ailleurs l'hypothèse d'Inomata *et al.* (2004) selon laquelle la Structure L8-8 fut abandonnée au cours de sa construction à la fin du Classique récent. En outre, le souverain 3 réalisa un rituel royal en faisant un dépôt d'excentriques d'obsidienne et de silex sans compter quelques autres objets lithiques dans la Structure L8-5 face à une grande place. L'exécution théâtrale de ce rituel doit renforcer le pouvoir de ce gouvernant. Finalement, d'autres objets d'obsidienne révèlent que les Mayas du Classique terminal dans la région du Petexbatun n'étaient pas isolés, mais qu'ils étaient impliqués dans les réseaux commerciaux à longue distance qui existaient à cette époque [Mots clés : Classique maya, organisation politique, organisation socio-économique, temple, cour royale, réseaux d'échanges.]

This article discusses the results of the analysis of 4,076 lithic artifacts collected in and around the Main Plaza of Aguateca, Guatemala, by the Aguateca Restoration Project Second Phase in 2002 and 2003 with the objective of examining Classic Maya socioeconomic and political organization, including the construction of a large temple as well as a temple dedication ritual (Figure 1). In the following, I will first summarize the results of interdisciplinary research by the

FIG. 1 – Map of the Maya area, showing the location of Aguateca.

Aguateca Archaeological Project First Phase (1996-2003) as well as lithic analysis made during that period. Next, I will discuss the lithic artifacts from Structure L8-8 which was abandoned during the process of construction due to military conflict around A.D. 810 (Inomata *et al.* 2004). Since very few masonry tools have been reported in the Maya lowlands (Andrews IV and Rovner 1973; Rovner and Lewenstein 1997, pp. 61-64), the data on lithic artifacts from Structure L8-8 are significant. I will then document Cache 4 of the Structure L8-5 temple and the Terminal Classic obsidian artifacts recovered from the Main Plaza (Figure 2). Finally, some results of the analysis of 10,845 lithic artifacts collected in the Palace Group, the elite residential area along the Causeway, and other parts of the site by the Aguateca Archaeological Project First Phase will be presented, in addition to some of the implications of the present study for Classic Maya socioeconomic and political organization.

AGUATECA ARCHAEOLOGICAL PROJECT FIRST PHASE (1996-2003)

Aguateca was a fortified Classic Maya city in the Petexbatún region of Guatemala (Figure 1). It occupied a highly defensible location on the top of a steep, 90 m high escarpment. Archaeological, epigraphic and iconographic studies show that the Dos Pilas/Aguateca dynasty expanded its power through warfare in the eighth century (Houston 1993). Over 4 km of defensive walls were constructed in a hasty manner in Aguateca toward the end of the Late Classic period, followed by the burning of its epicenter during an attack around A.D. 810 (Inomata *et al.* 2004). Elite residents from the central part of the site fled rapidly or were taken away, while leaving most of their belongings behind (Inomata 1997; Inomata and Stiver 1998).

The investigations of the Aguateca Archaeological Project First Phase directed by Takeshi Inomata and his colleagues (Inomata *et al.* 2002) focused on the extensive excavation of rapidly abandoned structures in the central part of the city from 1996 to 1999 with the objective of examining the domestic and political lives of Classic Maya elites (Figure 3). Eight structures were extensively excavated, including four long multiroom buildings (Structures M7-34, M8-4, M8-8, and M8-13) and two small, single-room buildings (Structures M8-2 and M8-3) situated in the elite residential area along the Causeway as well as two large, vaulted buildings in the Palace Group (Structures M7-22 and M7-32). The excavations revealed a large quantity of *in situ* floor assemblages of complete and reconstructible objects, including various prestige goods (such as shell ornaments and jade objects) as well as artifacts related to domestic activities (such as grinding stones, storage jars, cooking vessels, serving vessels, and various types of stone tools). Rich assemblages of objects left in burned structures at Aguateca represent a sort of parallel in the Maya lowlands to Pompeii, Italy, and provide a

FIG. 2 – Map of Aguateca with the location of Structures L8-5 and L8-8 (modified from Inomata *et al.* 2004, figure 2).

FIG. 3 – Map of the Aguateca epicenter, showing the locations of the structures that were extensively excavated by the members of the Aguateca Archaeological Project First Phase (modified from Inomata *et al.* 2002, figure 2).

unique synchronic data set which allows closer access to the specificity of individual agents and activities in higher resolution than the smaller number of remaining artifacts at gradually abandoned sites.

The project members carefully executed, documented, and analyzed these cultural materials from 1996 to 2003. The results of our interdisciplinary studies have provided clues regarding the functions of the excavated structures (Inomata *et al.* 2002). Structures M7-22 and M7-32 of the Palace Group almost assuredly represent the royal residential complex of Aguateca. Structure M7-34 probably served as a communal house, while Structure M8-13 was a residence of lower-status individuals. Structures M8-2 and M8-3 may have been manufacturing areas. It is also possible that they too were residences of lower-status individuals.

Structures M8-4 (« the House of Mirrors ») and M8-8 (« the House of Axes ») were residences of high-status scribes (Inomata *et al.* 2002). Tools related to scribal work, such as palettes, mortars and pestles, were recovered from these structures. Both Structures M8-4 and M8-8 appear to have been occupied by a nuclear family. Each residence was used for a wide range of domestic work, including the storage, preparation, and consumption of food, with a relatively clear division of male and female spaces. The north rooms of Structures M8-4 and M8-8, for example, which contained objects for food and textile production, were closely associated with females. The central rooms of these buildings seem to have served to receive visitors and to hold political meetings, among other uses. It appears that administrative functions of the royal court were spatially dispersed among various houses of high courtiers (Inomata 2001a).

LITHIC ANALYSIS OF AGUATECA (1998-2003)

From 1998 to 2003, I classified a total of 14,921 lithic artifacts recovered by the Aguateca Archaeological Project First Phase and the Aguateca Restoration Project Second Phase based on the raw material and technological analyses (Aoyama 2004). Of the 10,845 lithic artifacts collected by the Aguateca Archaeological Project First Phase, 8,322 artifacts were the product of a chipped stone industry, while the remaining 2,523 pieces were ground stone artifacts, natural tools, and manuports. A total of 6,153 chipped stone artifacts were made from chert, while 2,169 artifacts were obsidian. Only 146 lithic artifacts were collected from construction fill (levels 4 and 5). The remaining 10,699 artifacts were found in the final occupation layers (levels 1-3), which most likely corresponded to the reign of Ruler 5 of Aguateca, Tahn Te' K'inich, possibly the last king of this city.

I carried out an extensive refitting of chipped stone artifacts from the different structures to shed light on their production and distribution patterns between different residential groups. The pre-Columbian obsidian exchange system of

Aguateca was studied by combining technological and visual source analysis. All obsidian artifacts were subjected to visual analysis by comparing them with reference samples exhibiting a full range of the optical variability of pre-Columbian obsidian sources in Mexico, Guatemala, and Honduras. The accuracy of my visual analyses has been confirmed by a blind test of 100 obsidian artifacts from the region of La Entrada, Honduras through neutron-activation analysis (NAA) conducted by Michael D. Glascock at the University of Missouri. The results of the blind test indicated a 98 % accuracy rate (Aoyama 1999, p. 29). More importantly, independent scholars have demonstrated that, at least for certain collections of Maya obsidian artifacts, visual sourcing is both reproducible and accurate (Braswell *et al.* 2000). I also analyzed microwear on a total of 2,961 lithic artifacts, based on a high-power microscopic approach to study stone tool use. Of these, I randomly selected 2,919 chipped stone artifacts, i.e., obsidian ($N = 1,151$) and chert ($N = 1,768$), from different structures and contexts for microwear analysis. These samples provided the basis for a statistically controlled estimate of proportions of activities performed with chipped stone artifacts, comprising 35.1 percent of the total chipped stone collection.

The Late Classic inhabitants of Aguateca imported obsidian from at least three sources: El Chayal, Ixtepeque, and San Martín Jilotepeque in the Highlands of Guatemala (Table 1). The great majority of obsidian came from the El Chayal source (96.1 %, $N = 2,084$; 2107.6 g). Only 85 pieces of obsidian originated at Ixtepeque (2.7 %, $N = 59$; 40 g) and San Martín Jilotepeque (1.2 %, $N = 26$; 26.6 g).

El Chayal obsidian was imported to Aguateca mainly as polyhedral cores destined for prismatic blade production. Among other things, there are exhausted polyhedral core fragments ($N = 44$). Second, pressure blades, including both initial pressure blades ($N = 50$) and prismatic blades ($N = 1,750$) that constitute 86.4 % of the El Chayal obsidian artifacts. It should be noted that while prismatic blades are third-series blades, initial pressure blades include both the first- and second-series blades, because of the difficulty in consistently distinguishing second-series blades from first-series blades. Third, the number of percussion-related core-reduction products is quite small. Such artifacts include a macro-blade ($N = 1$) and small percussion blades ($N = 9$). Finally, I noted a low percentage (0.6 %, $N = 13$) of cortex-bearing El Chayal obsidian artifacts.

Although we have not yet uncovered any obsidian prismatic blade production workshop dumps at Aguateca, small concentrations of non-pressure blade artifacts and blade manufacturing debris were found in the possible terminal ritual deposits of Structures M7-22 and M7-32, on the south side of Structure M8-8, and in the north room of Structure M7-34, suggesting a blade production area nearby, either in the Palace Group or the adjacent elite residential area along the Causeway. It is possible that some elite household members manufactured prismatic blades near their residences.

Most blades were intentionally snapped into two or three segments for use. I was able to refit a total of 64 prismatic blade segments. I could refit 50 segments longitudinally, whereas 14 segments could be laterally refitted. The largest number of refitted blades were found in the elite residences of Structures M8-4 ($N = 29$) and M8-8 ($N = 22$). This pattern suggests that elite scribes/artists who resided in Structures M8-4 and M8-8 had greater access to obsidian blades than lower-status individuals.

While the great majority of refitted blade segments ($N = 58$) were found in the same structure, I was able to refit six blade segments found in different structures. One of the refitted examples was a proximal segment of a prismatic blade from the north room of Structure M8-4 and a distal segment of the same blade from the west room of Structure M8-13, which may have been a residence of lower-status individuals. While it is possible that the residents of the former structure simply discarded the distal segment and those of the latter scavenged it, I argue that the residents of Structure M8-4 allocated the distal segment and other blade segments to Structure M8-13. This implies that each household did not manufacture their own blades.

Both the rulers of Aguateca and the elite scribes/artists who resided in Structures M8-4 and M8-8 had wider and stronger blades, than the occupants of smaller structures, such as Structures M8-2, M8-3, and M8-13 (Table 2). For example, the blades from Structure M7-32 are much wider (*Mean* = 1.22 cm, *S.D.* = 0.22 cm) than those from Structure M8-13 (*Mean* = 1.13 cm, *S.D.* = 0.24 cm), while the blades from Structure M7-22 are much heavier (*Mean* = 1.34 g, *S.D.* = 0.95 g) than those from Structure M8-3 (*Mean* = 0.92 g, *S.D.* = 0.59 g). This pattern could have partly resulted from their greater purchasing power. I argue that this may also indicate a centralized dispersing mechanism, i.e., that the royal court of the Aguateca dynasty administered the procurement and allocation of El Chayal obsidian blade cores.

The skewed distribution of Ixtepeque and San Martín Jilotepeque obsidian prismatic blades and flakes indicates that the procurement and distribution of non-El Chayal obsidian may also have been managed by the royal court. The largest number of non-El Chayal obsidian artifacts was recovered from the royal palace of Structure M7-22 ($N = 20$), followed by the elite residences of Structures M8-4 ($N = 18$) and M8-8 ($N = 17$) along the Causeway, whereas only a blade made of San Martín Jilotepeque obsidian was recovered from Structure M8-13. It is interesting to note that all non-El Chayal obsidian flakes except two were collected from the Palace Group. Ixtepeque obsidian flakes were recovered from Structures M7-22 ($N = 7$) and M7-32 ($N = 1$) of the Palace Group as well as the elite residence of M8-8 ($N = 2$), while all three flakes of San Martín Jilotepeque obsidian were collected from Structure M7-22.

Table 3 summarizes 6,153 chert chipped stone artifacts collected by the Aguateca Archaeological Project First Phase. There were no chert sources at the

site of Aguateca but chert was available nearby. I personally observed chert nodules in the town of Sayaxche, some 10 km from Aguateca. The ancient inhabitants of Aguateca brought in chert nodules as large as 15-30 cm in diameter. Based on the color, texture and translucency of the chert artifacts of Aguateca, I endeavored to classify them according to the raw material analysis. I found that at least 93 different raw materials were shaped into more than two chert artifacts. Among them, artifacts made of 38 different raw materials were found in different structures.

In the case of chert chipped stone production, the production of expedient flake tools was dominant at Aguateca. Several flakes could be refitted to other flakes or flake cores recovered from the same structures. Moreover, various kinds of hammerstones (hammerstones, pebble smoothers/hammerstones, recycled flake cores used as hammerstones, and recycled oval bifaces used as hammerstones) were recovered from all eight extensively excavated structures in the epicenter of Aguateca. The production of chert oval bifaces and bifacial points took place intensively at Aguateca. The percentage (24.2 %: 924/3,821) of bifacial thinning flakes among chert artifacts recovered from the eight extensively excavated structures in the epicenter of Aguateca is greatly higher than that of the Copan Valley during the Late Classic period (4.1 %: 109/2,652), where although chert bifacial points were produced, oval bifaces were not (Aoyama 1999, Table 8.1), thus indicating the diversity of Maya lithic tool production. In sum, it is safe to deduce that at least some nobles, including scribes/artists at Aguateca, were stone knappers who manufactured mainly utilitarian tools on a part-time basis.

The results of lithic and other studies suggest that, although under the pressure of external threat, a significant portion of Maya elites, both men and women, engaged in artistic creation and craft production in the Classic Maya city of Aguateca and that they were often involved in independent and attached production (Aoyama 2004; Inomata 2001b). Artistic and craft production appears to have been a common pursuit among Classic Maya elites at Aguateca, including courtiers of the highest rank and even members of the royal family. Both the royal family and elite households produced many artistic and craft items, including wood carving and hide or leather goods, and engaged in food preparation. Consequently, several kinds of craft production overlapped various households. At the same time, particular households and individuals placed emphasis on specific artistic creation and craft activities. For example, the scribe of Structure M8-8 carved stelae for the ruler. In addition on a part-time basis, the high-status courtier/scribe of Structure M8-4 was specialized in the production of shell and bone objects of high symbolic value and other royal regalia in a courtly setting. There may also have been producers who helped the scribes/artists, such as their wives, other household members, and young apprentices.

The lithic data of Aguateca strongly support Inomata's (2001b, p. 330) assertion that elite scribes/artists possessed multiple social identities and roles.

Some elite scribes/artists were also warriors (Aoyama 2005). At the same time, an elite Maya man may have carried out various activities, such as stone knapping and carving wood, shell, bone or stone, in addition to administrative, diplomatic, and ritual duties in and outside the residence. As in many other preindustrial cities in other parts of the world, the Classic Maya city of Aguateca lacked true full-time production. This, in turn, implies a more flexible and integrated system among the Classic Maya elite participating in attached and independent craft production than is usually proposed in the literature.

LITHIC ARTIFACTS FROM STRUCTURE L8-8

Structure L8-8, located on the western side of the Main Plaza, represents the largest temple structure at Aguateca in terms of its horizontal dimensions (50 m in length and 35 m in width). Based on architectural data and the presence of an unfinished altar associated with the temple, Inomata *et al.* (2004) have convincingly demonstrated that the building was abandoned during its construction due to military conflict around A.D. 810. Extensive excavation of the building revealed a clear contrast between finished and unfinished sections of the structure (Figure 4). The first and second terraces of the two sides and adjacent parts of the front and rear had been completed, and had facings with cut stones cemented with mortar. However, the building core of rough stones for the central front section and for the third terrace as well as a construction stairway remained to be filled with another layer of construction. In addition, Maya builders left a construction ramp that had facilitated access to the top of the building leading to a possible royal tomb. Also suggestive is Altar M, an unfinished monument associated with Structure L8-8, which records the latest calendar data known for Aguateca (9 Ajaw, which may correspond to 9.19.0.0.0 in the Maya Long Count, i.e., A.D. 810). The lithic analysis of Structure L8-8 will be used to provide a line of empirical evidence to evaluate Inomata *et al.*'s argument regarding the unfinished construction of the temple.

A total of 4,076 lithic artifacts collected by the Aguateca Restoration Project Second Phase include 4,009 lithic artifacts recovered from the unfinished Structure L8-8, a cache of 57 obsidian and chert chipped stone artifacts dedicated to Structure L8-5, and 10 fragments of Terminal Classic obsidian artifacts found in the Main Plaza of Aguateca (Figure 2). All of the 4,009 lithic artifacts (30,370.7 g) from Structure L8-8 were analyzed (Table 4). Of these, 2,181 were chipped stone artifacts, while the remaining 1,828 were polished stone and other kinds of stone artifacts. The percentage of obsidian among all chipped stone artifacts from Structure L8-8 is 7.3 % ($N = 159$) which is considerably lower than the mean of that percentage of the eight extensively excavated structures in the Palace Group and elite residential area along the Causeway (33.5 %,

FIG. 4 – View of finished and unfinished sections of Structure L8-8, Aguateca (photo Aoyama).

S.D. = 8.6 %). The data above strongly indicates that heavier works such as the construction of the building and other associated activities were carried out principally by chert tools in and around Structure L8-8.

Obsidian Chipped Stone Artifacts

Of the 159 obsidian artifacts (143.9 g), a major concentration was in the excavation unit 125 ($N = 56$) on the east side of Structure L8-8, followed by the artifacts found in the excavation units 191 ($N = 25$) and 190 ($N = 15$) behind it. Virtually all obsidian artifacts were manufactured from El Chayal obsidian ($N = 158$, 99.4 %). Only one medial segment of a prismatic blade was of San Martín Jilotepeque obsidian (Table 5). The data on the obsidian artifacts from Structure L8-8 also indicate that El Chayal obsidian was imported to Aguateca mainly as polyhedral cores destined for pressure blade production. Among other findings, the percentage of cortex-bearing El Chayal obsidian artifacts from the building is only 1.9 % ($N = 3$). Second, pressure blades, including both initial pressure blades ($N = 16$) and prismatic blades ($N = 102$) constitute 74.2 % of the El Chayal obsidian artifacts. Nevertheless, it is important to note that the percentage of non-pressure blade artifacts (25.8 %) is much higher than the mean of the percentage of the eight extensively excavated structures in the epicenter of Aguateca (14.7 %, *S.D.* = 9.2 %). Such artifacts include small percussion blades,

fragments of polyhedral core, a drill on flake, flakes, hinge removal flakes, and bifacial thinning flakes (Table 6). Especially, I noted a relatively large number of small percussion blades ($N = 9$). In contrast, only three small percussion blades were recovered in total by the extensive excavation of the eight structures in the Aguateca epicenter. Some thicker percussion obsidian artifacts from Structure L8-8 may have been intended for heavier labor associated with building construction than for pressure blades were suited for. There is no direct evidence for the production of prismatic blades in and around Structure L8-8, suggesting that the obsidian artifacts, including flake tools and fragments of polyhedral cores, were manufactured elsewhere and brought to the structure as finished objects to perform activities related to building construction.

Chert Chipped Stone Artifacts

Table 7 shows the results of the technological analysis of 2,022 chert chipped stone artifacts (18,181.9 g) from Structure L8-8. A major concentration of chert artifacts was located behind the structure within the excavation units 191 ($N = 302$) and 189 ($N = 227$), followed by the artifacts in the excavation unit 125 ($N = 255$) on the east side of the building. The chipped stone assemblage of Structure L8-8 is quite different from the eight structures excavated by the Aguateca Archaeological Project First Phase.

First, there is no evidence for the production of bifacial tools in and around Structure L8-8. Rather the edges of some oval bifaces seem to have been rejuvenated at or near the building. Only 56 bifacial thinning flakes were recovered in total. The percentage of the bifacial thinning flakes among all chert chipped stone artifacts from Structure L8-8 (2.8 %) is much lower than the mean of the eight extensively excavated structures in the epicenter of Aguateca (20.7 %, $S.D. = 9$ %, $N = 924$). Accordingly, a small number of bifacial thinning flakes from Structure L8-8 can be classified as bifacial refurbishing flakes.

Second, the percentage of chert oval bifaces from Structure L8-8 (2.3 %, $N = 46$) is much lower than the mean of the eight extensively excavated structures in the epicenter (7.6 %, $S.D. = 1.9$ %, $N = 248$).

Third, only two complete bifacial points and three fragments of bifacial points were found in and around Structure L8-8. They constitute no more than 0.2 % of the chert artifacts. In contrast, I noted a very high percentage of bifacial points (5.4 %, $N = 208$) in the chert chipped stone artifacts from the eight extensively excavated structures in the Palace Group as well as the elite residential area along the Causeway. Moreover, only one obsidian prismatic blade point was recovered from Structure L8-8. Some 30 to 40 pointed tools were in both the royal palace and the elite residences of the scribes/artists of Aguateca (Aoyama 2005). Based on the presence of microscopic traces in association with projectile impact damage, most of them were used as darts or spears. The low frequency of bifacial

points in Structure L8-8 can be taken as another line of evidence that the building was abandoned before being occupied. In fact, this low frequency contrasts with the great quantities of projectile points found in the elite residences. In other words, there was not much need for the inhabitants of Aguateca to protect the unfinished temple, whereas those who inhabited the elite residential area along the Causeway tried to defend their homes when under the threat of the enemy. Alternatively, some or all bifacial points from Structure L8-8 may have been part of a mason's tool kit, including stucco smoothers, as suggested for the two masonry tool kits from Muna and Dzibilchaltún by Andrews IV and Rovner (1973).

Fourth, the chert chipped stone artifacts from Structure L8-8 are characterized by the intensive production and use of casual percussion flakes or « informal tools. » Casual flakes dominate 82.3 % of the total chert artifacts from this building, while the mean of the eight extensively excavated structures in the epicenter is much lower (55.7 %, *S.D.* = 6.4 %). Moreover, I noted a high percentage of flake cores for Structure L8-8 (4.1 %, *N* = 82), compared with 2.7 % (*S.D.* = 0.8 %, *N* = 91) for the eight extensively excavated structures as well as a high percentage of primary and secondary flakes (cortex present more than and less than 50 % on dorsal surface, respectively) for Structure L8-8 (46.1 %) in comparison to 38.7 % (*S.D.* = 6.3 %) for the eight extensively excavated structures (Table 7). The data above could indicate that some knappers were manufacturing percussion flakes associated with building construction activities as the need arose.

Finally, the great majority of unifacial and bifacial artifacts from Structure L8-8 are fragmented. For example, there I registered a total of 44 fragments of oval bifaces versus just one complete specimen (Table 7). While the virtual absence of complete formal tools may have been partly due to the more gradual abandonment pattern of the unfinished Structure L8-8 than the rapidly abandoned structures along the Causeway, I argue that this represents additional evidence of heavier labor such as building construction and other related activities in and around Structure L8-8. Many thicker artifacts, including oval bifaces, flakes, and recycled flake cores reused as hammerstones, also seem to have been associated with building construction.

Ground Stone Artifacts, Natural Tools, and Manuports

Table 8 summarizes a total of 1,828 fragments of ground stone artifacts, natural tools, and manuports from Structure L8-8 (12,044.9 g). Pebble smoothers and hammerstones (*N* = 1,789) dominate 97.9 % of the assemblage (Figure 5: 1). The great majority of the artifacts in question were found behind the structure, particularly in the excavation units 177-179, 189-191 and 193 where a total of 1,339 pebble smoothers were recovered, comprising 74.8 % of the total collection.

FIG. 5 – Stucco smoothers and a pebble smoother/hammerstone from Structure L8-8. 1: quartzite pebble smoother/hammerstone; 2-3: stucco smoothers made of limestone (photo Aoyama).

Since a large number of pebble smoothers were shattered ($N = 1,743$, 8,786.7 g) and the mean weight of complete specimens measuring 2.21 cm ($S.D. = 1.35$ cm) $\times$ 1.60 cm ($S.D. = 1.02$ cm) $\times$ 1.19 cm ($S.D. = 0.77$ cm) is 12.26 g, the estimated total number of pebble smoothers represented in the collection would be 717. When 19 complete specimens and 27 nearly complete artifacts are added up, it can be estimated that some 763 whole pebble smoothers could have been brought to Structure L8-8 for activities related to building construction. Although we do not know the functions of the pebble smoothers, they may have been used as stucco smoothers. While some pebble smoothers show flat worn facets, other smoothers evidence either no usewear or have been worn smooth over their entire surface. Alternatively, the presence of a large number of shattered pebbles suggests that some may have been used to prepare gravel for the construction ramp leading to a possible royal tomb. Stucco smoothers, as well as quartzite, chert and basalt faceted smoothers, show clear polishing patterns, suggesting that they may have been used for smoothing stucco. Moreover, 21 pieces of faceted smoothers and five quartzite pebble smoothers were also used as hammerstones, suggesting multiple use artifacts (Figure 5: 1).

FIG. 6 – View of west facade of Structure L8-5, Aguateca (photo Aoyama).

A nearly whole chert polished celt ($5.4 \times 3.3 \times 2.6$ cm, 72.4 g) and 11 stucco smoothers (seven made of limestone, three of chert, and one of basalt) appear to have been used during the construction processes of Structure L8-8 (Figure 5: 2, 3). On the other hand, the presence of a fragment of a thick andesite pestle, a fragment of a polished basalt palette, and seven pieces of a black pigment stone suggests that pigment was being prepared at the building. The occurrence of the artifacts related to scribal works suggests that scribe/artists may have supervised or played a role in the construction of Structure L8-8. In other words, scribe/artists may have been elite architects who also may have coordinated construction activities. Alternatively, such limited data may have no significance other than the casual re-use of broken tools by construction workers.

A CACHE OF OBSIDIAN AND CHERT CHIPPED STONE DEDICATED TO STRUCTURE L8-5

Structure L8-5 is located on the eastern side of the Main Plaza (Figure 6). Based on the inscribed stelae associated with the building, it seems to have been a royal temple commissioned by Ruler 3 of Aguateca (Houston 1993). Extensive excavation during the Aguateca Restoration Project Second Phase located Cache 4

beneath the stucco floor in the southern area of the Structure L8-5 temple in 2003 (Figures 7-10). Cache 3 had earlier been found in the northern part of the same temple during the investigations of the Aguateca Restoration Project First Phase. Several obsidian and chert eccentrics were recovered from Cache 3 (Erick Ponciano, personal communication, 2003). Ruler 3 of Aguateca and his followers appear to have carried out a temple dedication rite, depositing the caches along the north-south axis of Structure L8-5 toward the end of the Late Classic period. A total of 57 pieces (498.2 g) of chipped stone artifacts were recovered from Cache 4: 49 artifacts (221.2 g) were of obsidian, while eight eccentrics (277 g) were manufactured from chert (Table 4).

Obsidian Artifacts

All of the above obsidian artifacts were manufactured from El Chayal obsidian (Table 5). There was no cortex present. The obsidian artifacts include a single complete blade, 11 nearly complete blades, 16 prismatic blade segments, 19 eccentrics, and two large flake scrapers (Tables 9 and 10 summarize metric data). It is worth noting that five (three notched macroblades, an incised macroblade, and a reptile on macroblade) of the 19 eccentrics were made from a macroblade. Moreover, two large flakes were unifacially retouched into scrapers (Figures 7: 2, 8: 1). Interesting enough, their dimensions and weight are almost the same ($3.7 \times 3 \times 0.8$ cm, 10.4 g; and $3.8 \times 2.9 \times 0.9$ cm, 10.2 g, respectively), suggesting that a knapper deliberately manufactured a pair of identical scrapers for the temple dedication. In other words, thick, wide percussion blades and flakes were removed to regularize the surfaces of newly imported polyhedral cores used for manufacturing these eccentrics. It should be noted that no eccentrics and only one macroblade were among a total of 2,169 obsidian artifacts collected by the Aguateca Archaeological Project First Phase. Moreover, Cache 4 of Structure L8-5 contained a considerably larger number of complete or nearly complete blades ($N = 12$) than any of the eight extensively excavated structures in the epicenter of Aguateca ($Mean = 2.1$, $S.D. = 2.2$). These data suggest that the Aguateca ruler controlled the main access to obsidian in the city and that the royal court of the Aguateca dynasty may have administered the procurement and allocation of El Chayal obsidian blade cores.

Obsidian eccentrics ($N = 19$) were classified into the following types :

a. Notched prismatic blades ($N = 12$)

Notched prismatic blades appear to symbolize serpents (Figure 9). Four prismatic blades retouched by a total of six notches on both lateral edges are longer than the other prismatic blades retouched by a smaller number of notches. These longer notched blades include two nearly complete blades ($8.2 \times 1.3 \times 0.3$ cm and $7.1 \times 1.3 \times 0.4$ cm respectively), a distal segment ($7.2 \times 1.3 \times 0.3$ cm), and a proximal segment ($6.4 \times 1.3 \times 0.3$ cm). The remaining eight shorter

FIG. 7 – Obsidian eccentrics from Cache 4 of Structure L8-5 (dorsal surface). 1, 4, 7: notched macroblades; 2: scraper on large flake; 3: notched small percussion blade; 5: incised macroblade; 6: reptile on macroblade (photo Aoyama).

FIG. 8 – Obsidian eccentrics from Cache 4 of Structure L8-5 (ventral surface). 1: scraper on large flake; 2: incised macroblade; 3: notched small percussion blade; 4: reptile on macroblade; 5: notched macroblade (photo Aoyama).

FIG. 9 – Obsidian notched prismatic blades from Cache 4 of Structure L8-5 (photo Aoyama).

notched blades (*Mean* = 4.2 cm, *S.D.* = 0.8 cm, *Range* = 3.5-6 cm in length) consist of a medial segment retouched by five notches, four medial segments and two proximal segments retouched by four notches, as well as a distal segment retouched by three notches.

b. Notched initial pressure blade (*N* = 1)

A distal segment of an initial pressure blade was retouched by six notches. I believe that this formed one of the « 13 serpents » represented by the 12 notched prismatic blades discussed above. For the ancient Maya, the Waterlily Serpent, which symbolized a water surface, was a supernatural patron of the number 13. Some Classic Maya rulers used the head of the Waterlily Serpent as a crown (Miller and Taube 1993, p. 184). Accordingly, the « 13 serpents » symbolized by 13 pieces of notched pressure blades in Cache 4 dedicated to Structure L8-5 were loaded with ideological meaning.

c. Notched macroblades (*N* = 3)

Three notched macroblades may have represented « large serpents ». A medial segment of macroblade was modified by a total of six notches on both lateral edges (8.2 × 3.3 × 1.1 cm; Figure 7: 7). A distal segment of macroblade was retouched by four notches (8.6 × 3.3 × 1.1 cm). Its distal end was modified by unifacial linear retouches (Figures 7: 4, 8: 5). Similarly, the upper longitudinal end

FIG. 10 – Chert eccentrics from Cache 4 of Structure L8-5. 1, 2: scorpions; 3: standing human; 4: reptile; 5: crescent; 6: trident crescent; 7: serrated bifacial point (photo Aoyama).

of a medial segment of macroblade was retouched unifacially by two notches ($4.1 \times 2.7 \times 0.5$ cm) (Figure 7: 1).

d. Notched small percussion blade ($N = 1$)

A complete small percussion blade was retouched by a total of five notches on both lateral edges. This piece also may have symbolized a « medium sized serpent » (Figures 7: 3, 8: 3).

e. Reptile on macroblade ($N = 1$)

A complete macroblade was shaped into the form of a reptile (Figures 7: 6, 8: 4). This artifact shows a large notch near the proximal end on both lateral edges. Both sides were modified by a unifacial retouch in the form of a reptile tail toward the distal end. The macroblade platform measuring 1.6×0.6 cm shows that a blade core platform was prepared by a striating technique and that the platform overhang was removed prior to the detachment of the macroblade.

f. Incised macroblade ($N = 1$)

The ventral surface of a complete macroblade was engraved in the form of a doughnut (Figures 7: 5, 8: 2). This piece shows a striated platform (0.8×0.7 cm). The platform overhang was not removed in this case.

Chert Eccentrics

Eight chert eccentrics from Cache 4 appear to have been manufactured from local raw materials (Figure 10). Based on the color, texture and translucency of the chert eccentrics, I classified them into six chert types (see below). Chert eccentrics were modified by bifacial retouches, while obsidian eccentrics were unifacially retouched. There was no cortex visible. Table 10 summarizes the metric data. It is important to note that chert eccentrics were associated with the royal palace and public buildings but not elite residences nor the residences of lower-status individuals at Aguateca. This restricted distribution strongly suggests that eccentrics were considered as royal ritual objects at Aguateca. Chert eccentrics were classified into the following types as can be seen in Table 7.

a. Scorpions ($N = 2$)

Two eccentrics in the form of scorpions were manufactured from dark bluish gray chert with white spots, identical to the bifacial thinning flakes found in Structure M8-4 in the elite residential area along the Causeway. Consequently, there is a possibility that a knapper from the elite residential area, such as the elite scribe/artist of Structure M8-4, made these eccentrics as an attached specialist serving the ruler. Alternatively, a member of the royal family or another knapper may have manufactured them. If an elite knapper had made them, the ideologically loaded production of royal ritual objects as well as the garnering of ideological, religious, and esoteric production knowledge were important in exclusionary tactics and elite identity during the Late Classic period at Aguateca (see Inomata 2001b). A complete scorpion eccentric (Figure 10: 2) and a nearly complete specimen (Figure 10: 1) showed an almost identical width (5.3 cm and 5.4 cm, respectively) and thickness (1 cm and 1.2 cm, correspondingly), indicating that the same artisan manufactured them and possibly the other eccentrics from Cache 4. Similar artifacts have been found at Altar de Sacrificios (Willey 1972, figure 172) and Piedras Negras (Coe 1959).

b. Standing human ($N = 1$)

An eccentric in the form of a standing human was of bluish gray chert with white and yellow spots (Figure 10: 3). A similar chert artifact has been documented at Piedras Negras (Coe 1959, figure 16a). Chert eccentrics in the form of standing humans are extremely rare in the Maya lowlands. The Aguateca example is not as realistic as the standing human eccentrics made of green obsidian

found in Teotihuacán (Pasztory 1997, figure 3.3) and those in an Early Classic cache at Altun Ha, Belize (Pendergast 1971).

c. Trident crescent ($N = 1$)

The trident crescent (Figure 10: 6) was manufactured from the same raw material as the standing human eccentric described above. The form of this eccentric is similar to trident crescents from Altar de Sacrificios (Willey 1972, figure 168). However, the Aguateca example does not show notches on the sides.

d. Crescent ($N = 1$)

The crescent eccentric was of whitish blue chert with white spots (Figure 10: 5). Again, this chert is identical to the raw material of the bifacial thinning flakes in Structure M8-4 in the elite residential area along the Causeway. Consequently, the same knapper of the elite residential area may have manufactured it, although I do not deny the possibility that a member of the royal family or another knapper may have made it. Similar eccentrics have been found, for example, at Altar de Sacrificios (Willey 1972, figure 167), Piedras Negras (Coe 1959), and Uaxactún (Kidder 1947).

e. Serrated bifacial point ($N = 1$)

The serrated bifacial point was manufactured from light bluish gray chert (Figure 10: 7). The laurel leaf point was modified by a series of notches.

f. Reptile ($N = 1$)

The reptile shaped eccentric was made of dark gray chert with whitish red spots (Figure 10: 4). This piece shows a total of four notches near the proximal end. Below the notches, both sides were modified by bifacial retouches in the form of a reptile tail toward the pointed distal end.

g. Fragment of unclassified eccentric ($N = 1$)

The medial fragment of unclassified eccentric was manufactured from light gray chert.

TERMINAL CLASSIC OBSIDIAN ARTIFACTS FROM THE MAIN PLAZA

Erick Ponciano (personal communication, 2003) located a deposit near Structure L8-8 in the Main Plaza of Aguateca (Operation 100C-3-1-1). A total of 10 obsidian chipped stone artifacts (10.6 g) were collected in the deposit (Table 4). There was no cortex present.

According to the results of visual analysis, 70 % ($N = 7$) of the obsidian artifacts pertaining to the Terminal Classic were derived from El Chayal, Guatemala, 20 % ($N = 2$) from Pachuca, Hidalgo, Mexico, and 10 % ($N = 1$) from Zaragoza, Puebla, Mexico (Table 5). In contrast, as mentioned above, it is worth

mentioning that all obsidian artifacts recovered by the Aguateca Archaeological Project First Phase came from the Highlands of Guatemala. Mexican obsidian pieces are believed to be imported to the Maya lowlands during the Terminal Classic period. Apparently, the Terminal Classic residents of the nearby site of Punta de Chimino brought the obsidian artifacts as finished tools to carry out some activities in the Main Plaza of the now abandoned Aguateca. My visual sourcing indicates a high percentage (15.6 %, $N = 10$) of Mexican obsidian artifacts (*all* are prismatic blades) among a total of 64 obsidian artifacts recovered from the Terminal Classic contexts at Punta de Chimino by the Aguateca Archaeological Project Second Phase. While 81.3 % ($N = 52$) of the obsidian were from El Chayal, Guatemala, 3.1 % ($N = 2$) from Ixtepeque in the Highlands of Guatemala, 10.9 % ($N = 7$) were from Pachuca, Hidalgo, Mexico, 1.6 % ($N = 1$) from Zaragoza, Puebla, Mexico, and 3.1 % ($N = 2$) from Ucareo, Michoacan in the Highlands of Mexico.

The Terminal Classic Mexican obsidian artifacts recovered in the Main Plaza consist of a proximal segment and a medial segment of prismatic blades made of green obsidian from Pachuca and a medial segment of a Zaragoza obsidian prismatic blade. The proximal segment of green obsidian prismatic blade presents a ground platform, consistent with the platform preparation technique of Central Mexico during this period (Healan 1986, pp. 142, 146). El Chayal obsidian artifacts include a proximal segment and three medial segments of prismatic blades, two proximal segments of initial pressure blades and a complete percussion flake (Table 6). Significantly, the proximal segment of the prismatic blade shows a ground platform. Therefore, certain characteristic technological traits and source procurement patterns are diagnostic of the Terminal Classic period (see Braswell 2003).

SUMMARY AND CONCLUSIONS

The data on obsidian artifacts indicate a skewed distribution, suggesting that the rulers of Aguateca controlled the main access to obsidian in the city while the procurement and distribution of obsidian polyhedral cores may have been administered by the royal court of the Aguateca dynasty as part of its political economy. Significant data include: 1) the remarkable presence of eccentrics and other obsidian artifacts made from macroblades and large flakes as well as the large number of complete or nearly complete blades from the royal temple of Structure L8-5, 2) both the rulers of Aguateca and the elite scribes/artists who resided in Structures M8-4 and M8-8 had a larger number of wider and stronger blades than the occupants of smaller structures, 3) the largest number of refitted blades was found in the elite residences of Structures M8-4 and M8-8, and 4) the skewed distribution of Ixtepeque and San Martín Jilotepeque obsidian prismatic

blades and flakes. In any event, the obsidian data from Aguateca are consonant with the interpretation that the procurement and allocation of Mesoamerican obsidian blade cores were under elite control (e.g., Aoyama 1994, 2001; Clark 1987; Sheets 1983; Spence 1984).

Several lines of lithic evidence reinforce the argument advanced by Inomata *et al.* (2004) that Structure L8-8 was abandoned during its construction. Relevant lithic data include: 1) the low percentage of obsidian artifacts in the chipped stone assemblage in comparison to the eight extensively excavated structures in the Palace Group and elite residential area along the Causeway, 2) the notable presence of thicker obsidian percussion artifacts, 3) the intensive production and use of chert casual flakes or « informal tools », 4) the lack of evidence for the production of bifacial tools in and around Structure L8-8, 5) the very small number of chert bifacial points, 6) the noteworthy occurrence of fragmented chert unifacial and bifacial artifacts, and 7) lithic artifacts possibly used for construction activities, including oval bifaces, flakes, recycled flake cores used as hammerstones, a polished chert celt, and stucco smoothers. The presence of some artifacts related to scribal works in and around Structure L8-8 suggests that the scribe/artists may have been elite architects or supervisors who likely coordinated construction activities.

The study of obsidian and chert artifacts from Cache 4 of Structure L8-5 allows us to document finely flaked eccentrics and other artifacts, deposited by Ruler 3 of Aguateca and his followers during the temple dedication ritual toward the end of the Late Classic period. Chert eccentrics were found exclusively in royal contexts, indicating that they were considered as royal ritual objects at Aguateca. The ruler of Aguateca carried out the royal Maya ritual of caching obsidian and chert eccentrics as well as other artifacts in the temple facing the large plaza. The Main Plaza of Aguateca contained numerous stone monuments and provided an adequate environment for theatrical performance. The theatrical performance and dedication ritual involved in the deposition of the eccentrics and other artifacts in Structure L8-5 reinforced the ruler's political and economic power.

Finally, central Mexican obsidian artifacts can serve as a sensitive chronological marker at Aguateca and the nearby center of Punta de Chimino. Central Mexican obsidian from Pachuca and Zaragoza was imported as finished prismatic blades into the Petexbatún region during the Terminal Classic period. The Terminal Classic visitors brought such blades made of Pachuca and Zaragoza obsidian as well as El Chayal obsidian artifacts and used them to perform certain activities in the Main Plaza of Aguateca. The obsidian data indicate that the Terminal Classic Maya of the Petexbatún region were not isolated from other regions but participated in long-distance exchange networks during this period. *

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ANNEXES

TABLE 1. – Technological and visual analyses of obsidian artifacts collected by the Aguateca Archaeological Project First Phase.

	El Chayal	Ixtepeque	San Martín Jilotepeque	Total
Macroblades	1	0	0	1
Small percussion blades	9	0	0	9
Initial pressure blades				
complete blades	2	0	0	2
proximal segments	34	0	0	34
medial segments	8	1	0	9
distal segments	6	0	0	6
Prismatic blades				
Complete blades	9	0	0	9
Nearly complete blades	10	0	0	10
Proximal segments	548	8	6	562
Medial segments	972	29	16	1017
Distal segments	211	6	1	218
Prismatic blade points	18	0	0	18
Polished discs	10	0	0	10
Polyhedral core fragments				
Proximal fragments	3	0	0	3
Medial fragments	36	0	0	36
Distal fragments	5	0	0	5
Hinge removal flakes	8	0	0	8
Flakes from polyhedral cores	27	0	0	27
Bifacial points	2	0	0	2
Bifacial thinning flakes	0	5	0	5
Scrapers	1	0	0	1
Polishing flakes	2	0	0	2
Large percussion flakes	9	0	0	9
Small percussion flakes	142	10	3	155
Flake cores	1	0	0	1
Chunks	10	0	0	10
Total	2084	59	26	2169

TABLE 2. – Size of El Chayal obsidian prismatic blades of Aguateca, Late Classic period.

	Length <i>Mean</i>	<i>S.D.</i>	Width <i>Mean</i>	<i>S.D.</i>	Weight <i>Mean</i>	<i>S.D.</i>	N
Structure M7-22	3.39	1.82	1.20	0.21	1.34	0.95	160
Structure M8-8	3.41	1.90	1.18	0.21	1.24	0.92	161
Structure M8-4	3.10	1.46	1.19	0.20	1.17	0.72	298
Structure M7-32	3.06	1.26	1.22	0.22	1.16	0.82	42
Structure M8-2	2.97	1.17	1.18	0.22	1.14	0.67	92
Structure M8-13	2.85	1.35	1.13	0.24	1.07	0.80	96
Structure M8-3	2.72	1.10	1.15	0.27	0.92	0.59	53
Structure M7-34	2.04	1.22	1.04	0.29	0.55	0.65	203

TABLE 3. – Chert chipped stone artifacts collected by the Aguateca Archaeological Project First Phase.

Artifact Types	Cortex #	% of Cortex	Total #	Total grams	% of Total #
Oval bifaces	58	19.9	292	21085.1	4.7
Partially polished oval bifaces	1	5.3	19	2971.1	0.3
Recycled oval bifaces	4	44.4	9	1364.2	0.1
Unfinished oval bifaces	4	50.0	8	2074.8	0.1
Bifacial points	6	2.6	234	2508.3	3.8
Unfinished bifacial points	0	0	1	10.3	0.02
Bifacial point manufacturing failures	0	0	1	1.3	0.02
Bifacial picks	0	0	14	417.2	0.2
Eccentrics	0	0	4	16.5	0.07
Triangle bifaces	0	0	1	41.3	0.02
Bifacial thinning flakes	207	18.8	1099	2917.4	17.9
Scrapers	36	52.2	69	2616.6	1.1
Notched flakes	2	40.0	5	41.8	0.08
Denticulates	5	27.8	18	238.9	0.3
Drills	2	7.7	26	73.2	0.4
Small points	0	0	4	2.6	0.07
Primary flakes	495	100.0	495	6391.8	8.0
Secondary flakes	1151	100.0	1151	7072.4	18.7
Tertiary flakes	0	0	2389	8513.4	38.8
Chunks	44	25.9	170	1151.6	2.8
Flake cores	90	71.4	126	18443.3	2.0
Recycled flake cores	17	94.4	18	9358.8	0.3
Total	2122	34.5	6153	87311.9	100.0

TABLE 4. – Lithic artifacts collected by the Aguateca Restoration Project Second Phase.

Operation	Obsidian	Chert	Ground and Natural	Total
100A (Structure L8-8)	159	2022	1828	4009
	143.9 g	18181.9 g	12044.9 g	30370.7 g
101A (Structure L8-5)	49	8	0	57
	221.2 g	277 g	0 g	498.2 g
100C (Terminal Classic)	10	0	0	10
	10.6 g	0 g	0 g	10.6 g
Total	218	2030	1828	4076
	375.7 g	18458.9 g	12044.9 g	30879.5 g

TABLE 5. – Visual analysis of obsidian artifacts collected by the Aguateca Restoration Project Second Phase.

Operation	El Chayal	San Martín Jilotepeque	Pachuca	Zaragoza	Total
100A (Structure L8-8)	158	1	0	0	159
101A (Structure L8-5)	49	0	0	0	49
100C (Terminal Classic)	7	0	2	1	10
Total	214	1	2	1	218

TABLE 6. – Technological analysis of obsidian artifacts collected by the Aguateca Restoration Project Second Phase.

Artifact Type	100A Structure L8-8	101A Structure L8-5	100C	Total
Small percussion blades	9	0	0	9
Initial pressure blades				
complete blades	1	0	0	1
proximal segments	8	0	2	10
medial segments	2	0	0	2
distal segments	5	0	0	5
Prismatic blades				
complete blades	0	1	0	1
nearly complete blades	0	11	0	11
proximal segments	31	7	2	40
medial segments	53	8	5	66
distal segments	19	1	0	20
Prismatic blade points	1	0	0	1
Polyhedral core fragments				
proximal fragments	1	0	0	1
medial fragments	4	0	0	4
distal fragments	1	0	0	1
Scrapers on large flake	1	2	0	2
Drills	1	0	0	1
Eccentrics				
notched prismatic blades	0	12	0	12
notched initial pressure blades	0	1	0	1
notched macroblades	0	3	0	3
notched small percussion blades	0	1	0	1
incised macroblades	0	1	0	1
reptile on macroblades	0	1	0	1
Bifacial thinning flakes	2	0	0	2
Hinge removal flakes	4	0	0	4
Flakes	17	0	1	18
Total	159	49	10	218

TABLE 7. – Technological analysis of chert chipped stone artifacts collected by the Aguateca Restoration Project Second Phase.

Artifact Type	100A (L8-8) Structure L8-8	101A (L8-5) Structure L8-5	Total
Oval bifaces			
complete	1	0	1
nearly complete	1	0	1
fragments	44	0	44
Recycled oval bifaces	4	0	4
Bifacial points			
complete	2	0	2
fragments	3	0	3
Eccentrics			
Scorpions	0	2	2
Reptile	0	1	1
Crescent	0	1	1
Trident crescent	0	1	1
Standing human	0	1	1
Serrated bifacial point	0	1	1
Frag. of unclassified eccentric	0	1	1
Bifacial thinning flakes	56	0	56
Scrapers			
complete	4	0	4
fragments	8	0	8
Notched flakes	1	0	1
Denticulates			
complete	10	0	10
fragments	11	0	11
Drills	1	0	1
Primary flakes	290	0	290
Secondary flakes	533	0	533
Tertiary flakes	841	0	841
Chunks	130	0	130
Flake cores	70	0	70
Recycled flake cores	12	0	12
Total	2022	8	2030

TABLE 8. — Ground stone artifacts, natural tools, and manuports recovered from Structure L8-8, Aguateca, Late Classic period.

<i>Artifact type</i>	<i>Raw Material</i>						Total
	chert	quartzite	limestone	hematite	volcanic	cave stone	
Ground Stone							
Polished celts	1	0	0	0	0	0	1
Stucco smoothers	2	0	7	0	1	0	10
Stucco smoothers/hammerstones	1	0	0	0	0	0	1
Palettes	0	0	0	0	1	0	1
Thick pestles	0	0	0	0	1	0	1
Natural Tools							
Hammerstones							
complete	0	2	0	0	0	0	2
fragments	0	3	0	0	0	0	3
Pebble smoothers/Hammerstones							
complete	0	2	0	0	0	0	2
nearly complete	0	6	0	0	0	0	6
fragments	0	15	0	0	0	0	15
Pebble smoothers							
complete	0	15	0	0	0	0	15
nearly complete	0	21	0	0	0	0	21
fragments	0	1725	0	0	0	0	1725
Faceted smoothers	2	0	0	0	2	0	4
Manuports							
Cave formation	0	0	0	0	0	10	10
Pigment stone	0	0	0	7	0	0	7
Chert pebbles	4	0	0	0	0	0	4
Total	10	1789	7	7	5	10	1828

TABLE 9. – Obsidian prismatic blades dedicated to Structure L8-5.

Artifact Type	Length × Width × Thickness (cm)	Weight (g)
Prismatic blade, complete	6.8 × 1.2 × 0.3	1.7
Prismatic blades, nearly complete	9.8 × 1 × 0.3	2.5
Prismatic blades, nearly complete	8.4 × 0.9 × 0.3	1.8
Prismatic blades, nearly complete	8 × 1.2 × 0.3	2.7
Prismatic blades, nearly complete	8 × 1.2 × 0.3	2
Prismatic blades, nearly complete	7.9 × 1.3 × 0.3	2.5
Prismatic blades, nearly complete	7.9 × 1 × 0.2	1.4
Prismatic blades, nearly complete	7.8 × 1.2 × 0.3	1.9
Prismatic blades, nearly complete	7.3 × 1.1 × 0.2	1.5
Prismatic blades, nearly complete	7.3 × 1 × 0.2	1.6
Prismatic blades, nearly complete	6.5 × 1.3 × 0.3	1.7
Prismatic blades, nearly complete	5.7 × 1 × 0.2	1.3
Prismatic blades, proximal	8.2 × 1.3 × 0.3	2.8
Prismatic blades, proximal	6.9 × 1.2 × 0.3	2.5
Prismatic blades, medial	6.1 × 1.3 × 0.3	2.1
Prismatic blades, medial	5.8 × 1.1 × 0.3	1.6
Prismatic blades, medial	5.5 × 1.1 × 0.3	1.3
Prismatic blades, proximal	5.1 × 1.3 × 0.3	1.8
Prismatic blades, distal	4.8 × 0.8 × 0.2	0.5
Prismatic blades, proximal	4.2 × 1 × 0.2	0.8
Prismatic blades, proximal	4 × 1 × 0.2	0.9
Prismatic blades, medial	3.9 × 1.1 × 0.3	1.4
Prismatic blades, medial	3.8 × 0.8 × 0.2	0.7
Prismatic blades, proximal	3.4 × 1 × 0.3	0.9
Prismatic blades, proximal	3.2 × 1.3 × 0.3	1.5
Prismatic blades, medial	3.2 × 0.9 × 0.2	0.6
Prismatic blades, medial	3 × 1.1 × 0.3	0.8
Prismatic blades, medial	2.3 × 0.9 × 0.2	0.4

TABLE 10. – Obsidian and chert eccentrics dedicated to Structure L8-5.

Artifact Type	Dimensions (cm)	Weight (g)	Figure
Obsidian eccentrics			
Scraper on large flake	3.7 × 3 × 0.8	10.4	7:2, 8:1
Scraper on large flake	3.8 × 2.9 × 0.9	10.2	
Reptile on macroblade, complete	9.4 × 3.5 × 0.9	23.2	7:6, 8:4
Incised macroblade	7.3 × 3.7 × 1.2	26.9	7:5, 8:2
Notched macroblade, medial	8.2 × 3.3 × 1.1	29.9	7:7
Notched macroblade, distal	8.6 × 3.3 × 1.1	27.9	7:4, 8:5
Notched macroblade, medial	4.1 × 2.7 × 0.5	7	7:1
Notched small percussion blade	8.4 × 2.1 × 0.8	14.1	7:3, 8:3
Notched initial pressure blade, distal	6.4 × 1.4 × 0.4	3.3	
Notched prismatic blade, nearly complete	8.2 × 1.3 × 0.3	2.7	
Notched prismatic blade, nearly complete	7.1 × 1.3 × 0.4	2.6	
Notched prismatic blade, distal	7.2 × 1.3 × 0.3	2.8	
Notched prismatic blade, proximal	6.4 × 1.3 × 0.3	2.5	
Notched prismatic blade, proximal	6 × 1.5 × 0.3	3	
Notched prismatic blade, medial	5.1 × 1.4 × 0.3	2.5	
Notched prismatic blade, medial	4 × 1.5 × 0.2	1.6	
Notched prismatic blade, medial	3.9 × 1.3 × 0.3	1.5	
Notched prismatic blade, medial	3.7 × 1.3 × 0.3	1.8	
Notched prismatic blade, distal	3.6 × 1.1 × 0.3	1	
Notched prismatic blade, medial	3.5 × 1.4 × 0.3	1.6	
Notched prismatic blade, proximal	3.5 × 1.3 × 0.4	1.6	
Chert eccentrics			
Scorpion, complete	9.5 × 5.3 × 1	44.7	10:2
Scorpion, nearly complete	8.6 × 5.4 × 1.2	36.2	10:1
Standing human	9.9 × 4.5 × 1	30.5	10:3
Trident crescent	8.9 × 5.2 × 1.2	31.8	10:6
Crescent	9.7 × 7.4 × 1.3	76.3	10:5
Serrated bifacial point	11.3 × 5 × 0.7	32.9	10:7
Reptile	10.3 × 3.5 × 1	22	10:4
Fragment of unclassified eccentric	2.9 × 1.7 × 0.5	2.6	