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**Craft Specialization and Elite Domestic Activities:
Microwear Analysis of Lithic Artifacts from Aguateca, Guatemala**

Research Year: 1998

Culture: Maya

Chronology: Classic

Location: Petexbatún Region, Guatemala

Site: Aguateca

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Background

The first season of the FAMSI sponsored high-power microwear analysis on lithic artifacts from Aguateca was conducted from August of 1998 to July of 1999. The principal objective of the project was to examine elite craft specialization and domestic activities in Classic Maya society. Aguateca is a fortified Classic Maya center located in the Petexbatún region, Guatemala, and was burned during an attack by enemies at the end of Late Classic period (Inomata, 1995; 1997). Recent excavations of rapidly abandoned structures at Aguateca revealed the richest floor assemblages ever found at a lowland Classic Maya center and provide unusual data set which directly reflect specialized and domestic activities that the elite conducted. Of the 587 pieces of lithic artifacts analyzed during the first season, 61.7% (N = 362) are obsidian, 36.5% (N = 214) are chert, 1.7% (N = 10) are greenstone, and 0.2% (N = 1) is jadeite, comprising approximately 10% of the total lithic collection excavated during the 1996-1998 seasons at Aguateca.

Microwear analyses of lithic artifacts, particularly those using the high-power approach as developed by Keeley (1980), can provide important information about activities performed with lithic artifacts, that is, on what materials they were used and how they were used. In 1987 I began an intensive experimental study of use-wear on obsidian and chert in order to establish a framework for interpretation of Maya stone-tool use (Aoyama, 1989; 1993; 1995; 1996). The results of 267 replication experiments conducted with a range of worked materials permitted identification of use-wear patterns

based on the high-power microscopy approach. I used the framework defined above as the basis for the use-wear studies on the lithic artifacts from Aguateca. The instrument used in the study was a metallurgical microscope of 50-500x magnification with an incident-light attachment (OLYMPUS BX60M). Magnification of 200x was the most frequently used. Use-wear patterns were documented with an Olympus photomicrographic system PM-10M attached to a camera (OLYMPUS C-35DA-2). Following Vaughan (1985:56-57), moreover, each portion of a lithic artifact with interpretable use-wear was counted as an "independent use zone" (IUZ).

Because Aguateca was attacked, probably at the beginning of the ninth century, and its epicenter was burned by enemies (Inomata, 1997), surface modifications of the lithic samples caused by fire was an important issue for the microwear analysis. A detailed observation of lithic surface through the high-power microscope permitted to establish that heat damage on the lithic artifacts was much less than I thought. Only 40 lithics were burned so severely that microwear cannot be identified on them. Very fortunately, furthermore, the amount of post-depositional surface modifications (PDSM) such as patina, soil sheen, and bright spot (Levi-Sala, 1986) on the analyzed tools was not substantial.

Of the 547 lithic artifacts which were not severely burned, microwear is identifiable on 378 pieces. At least a total of 245 obsidian artifacts (75.6%) were used, while interpretable microwear was observed on 122 chert artifacts (57.1%). Moreover, all 10 greenstone and one jadeite polished celts were used. A total of 711 IUZ's were identified on the lithic samples from Aguateca. Comparisons of the results of microwear analysis of obsidian (502) and chert (198) artifacts show clear differences between the two assemblages. The present obsidian lithic samples were used only for wood or other plants (39%), meat or hide (35.7%) and unidentified material (25.3%). Chert artifacts were, however, used for a wider range of worked materials. Meat or hide (56.6%) was the most common material worked, followed by bone or shell (11.6%), wood or other plants (10.6%), stone (4%), soil (1%), Gramineae (0.5%) and unidentified material (15.7%).

A concentration of 168 obsidian artifacts was found on the floor of the north room of Structure M7-34. The results of microwear analysis on a random sample of 75 artifacts indicate that the deposit is a mixture of used artifacts and manufacturing debris. At least 66.7% of obsidian artifacts (N = 50) were used, with error ranges of 10% at a 90% confidence level, while the percentage of artifacts without interpretable usewear is relatively high (33.3%, N = 25). Activities performed with obsidian artifacts (IUZ = 97) include: cutting and whittling wood or other plants (22.7%) and cutting meat or hide (18.6%), however, cutting and whittling unidentified material (58.8%) is dominant. Cooking or other activities may have had taken place with the analyzed obsidian artifacts. If the first was the case, the microwear data reinforce the hypothesis proposed by Inomata et al. (1998:33) that Structure 7M-34 was a Classic Maya communal building in which feasts or banquets were prepared.

In studying the variability of activities performed with the lithic artifacts from Structures M8-8 and M8-13, which were probably elite residences, wood working as well as meat

or hide processing were more common than bone, shell and stone working. The results of microwear analysis on a set of polished celts found in front of the north room and in the northern annex of Structure M8-8, however, show that these celts of different size and form were used exclusively for stone curving. Because stelae are the only stone sculptures found in Aguateca, a Maya scribe/artist or other person who resided in this structure may have worked with them for curving stelae.

In case of the lithic artifacts from Structure 8M-13, a smaller structure without prestige goods, bone or shell working was carried out with those found in front of and behind the structure. Among them, the artifacts found behind Structure 8M-13 were without doubt in situ (Inomata, personal communication, 1999). Kitty Emery (personal communication, 1999), moreover, identified bone debris as well as possible shell debris behind the structure. Thus, the space behind Structure 8M-13 appears to have been a bone and possibly shell working area. The evidence for bone/shell working is of great interest, since the extensive and careful excavation of Structure 8M-13 did not yield any finished shell ornament. There is a possibility that the residents of this structure produced shell ornaments and took them out when Structure 8M-13 was burned. It is also possible, nevertheless, that the residents of Structure M8-13 manufactured shell ornaments for another family. If this was the case, in spite of a relatively low degree of production, it may imply a socioeconomic difference related to craft specialization.

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Kazuo Aoyama

Summary

The first season of the FAMSI sponsored high-power microwear analysis on lithic artifacts from Aguateca was conducted from August of 1998 to July of 1999. The principal objective of the project was to examine elite craft specialization and domestic activities in Classic Maya society. The results of microwear analysis on obsidian artifacts from Structure 7M-34 indicate that cooking or other activities may have had taken place. If the first was the case, the microwear data reinforce the hypothesis proposed by Inomata et al. (1998:33) that Structure 7M-34 was a Classic Maya communal building in which feasts or banquets were prepared. In studying the variability of activities performed with the lithic artifacts from Structures M8-8 and M8-13, which were probably elite residences, wood working as well as meat or hide processing were more common than bone, shell and stone working. The results of microwear analysis on a set of polished celts found in front of the north room and in the northern annex of Structure M8-8, however, show that these celts of different size and form were used exclusively for stone curving. Because stelae are the only stone sculptures found in Aguateca, a Maya scribe/artist or other person who resided in this structure may have worked with them for curving stelae. The space behind Structure 8M-13 appears to

have been a bone and possibly shell working area. Because the extensive excavation of Structure 8M-13 did not yield any finished shell ornament, it is quite possible that the residents of Structure M8-13 manufactured shell ornaments for another family. If this was the case, in spite of a relatively low degree of production, it may imply a socioeconomic difference related to craft specialization.

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