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Jadeite Sources and Ancient Workshops: Archaeological Reconnaissance in the Upper Río El Tambor, Guatemala

Research Year: 2004
Culture: Maya
Chronology: Late Classic
Location: Central Motagua Valley, Guatemala
Sites: Río El Tambor Region

Table of Contents

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Introduction

Since the first documentation of jade sources by Robert Leslie at Manzanotal in 1952, it has been known that the Central Motagua Valley of Guatemala is an important jadeite-bearing region (Foshag and Leslie 1955). Today, large amounts of jadeite are being collected from a number of sources on the northern side of the Motagua River, including the lower Río La Palmilla and areas in the vicinity of Río Hondo (Figure 1, Figure 2, Figure 3, Figure 4, Figure 5; and Appendix, Figure 1, Figure 2 and Figure 3). Most of this material is transported to the city of Antigua, where it is carved into jewelry and sculpture for the tourist trade.

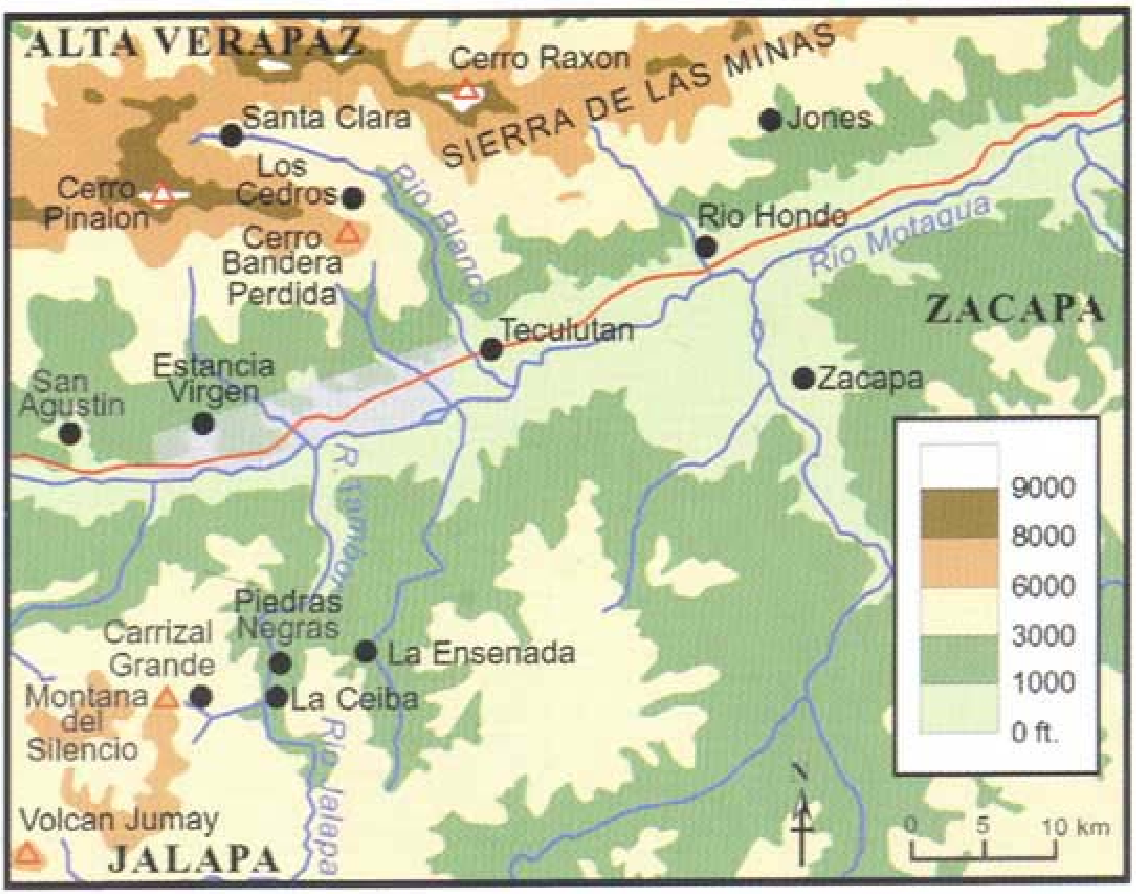

Figure 1. Map of Central Motagua Valley, including Río Blanco and Río El Tambor tributaries (from Seitz et al. 2001).

Figure 2. View of Río La Palmilla in foreground and Motagua Valley in distance.

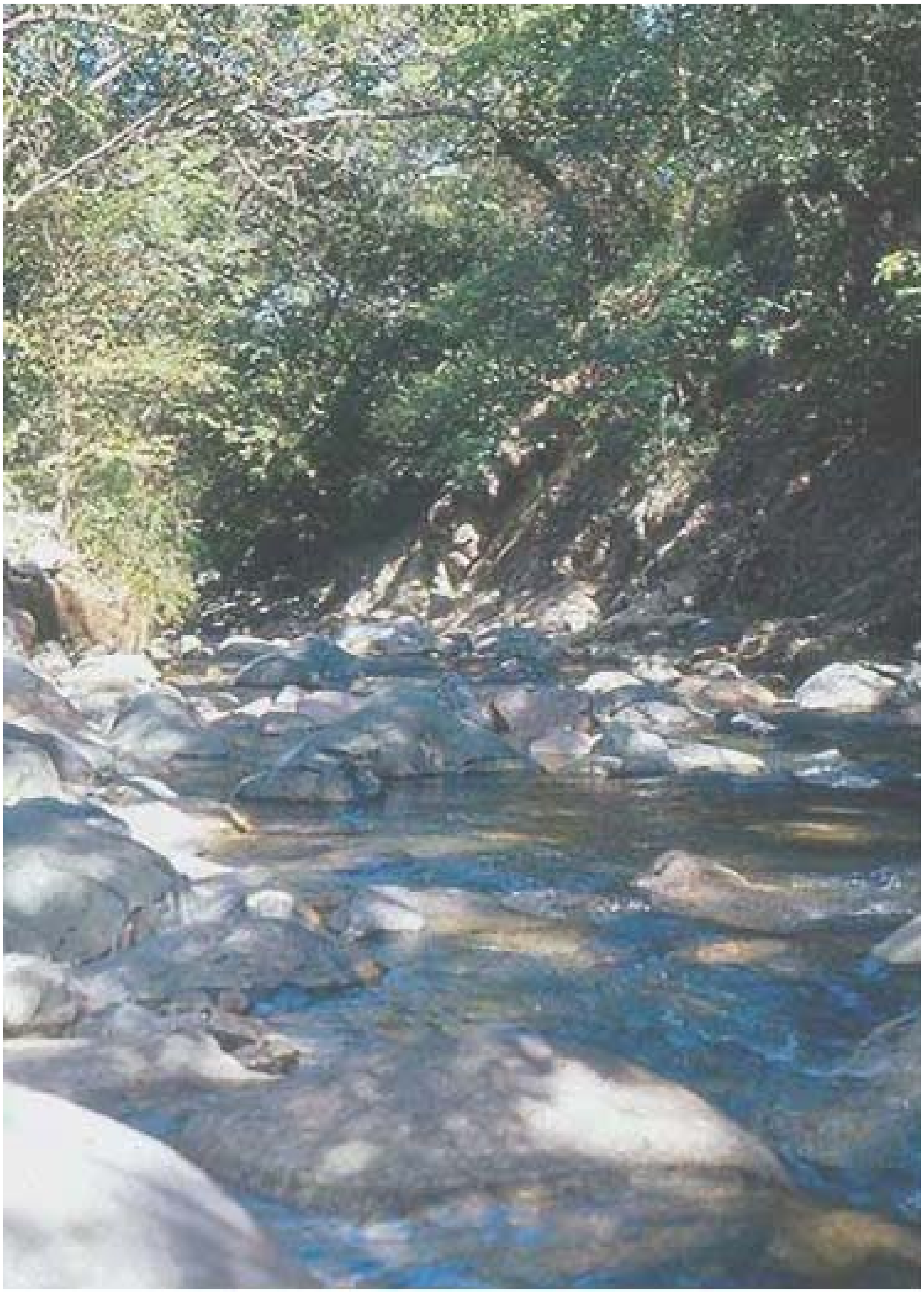

Figure 3. Lower Río La Palmilla, many of the boulders visible are of jadeite.

Figure 4. Jadeite boulder, Río La Palmilla, note heavy orange rind on boulder.

Figure 5. Jadeite recently fractured by fire for extraction by prospectors, Río Hondo region.

Although jadeite of varying quality and color is now well known for the Middle Motagua Valley, there has been considerable debate whether this region was the only ancient source of jadeite in Mesoamerica and Central America. A number of researchers have argued that the translucent blue-green jadeite known for the Formative Olmec as well as ancient cultures of Costa Rica did not derive from the Motagua River region, but from some other distant area, such as Guerrero or Costa Rica (Coe 1968:100-103; Easby 1968:87; 1981:138; Griffin 1981:219; 1993:203; Hauff 1993:93; Paradis 1981:206). In addition, Ronald Bishop and colleagues have noted that the types of jadeite analyzed from artifacts and known sources are chemically and structurally too different to derive from a single source or region (Bishop et al. 1985; Bishop *et al.* 1991; Bishop and Lange 1993). However, George Harlow (1993) has argued that due to the metamorphic process in creating jadeite, its chemical composition can vary greatly in a single region. According to Harlow (*ibid.*), the types of jade known for ancient Mesoamerica may all have derived from a single area, the Central Motagua Valley. As it turns out, both positions are probably correct, as it is becoming increasingly apparent that the jade bearing region in the Motagua area is far larger than originally thought, and that there are also many distinct sources in mountainous regions approximately 40 kilometers on either side of the Middle Motagua Valley (Figure 1; Seitz *et al.* 2001; Taube et al. 2004).

Figure 6. View of Río Blanco valley, small white spot on saddle to far right are recent tailings from jadeite mining at El Ciprés.

Figure 7. Jadeite bodies exposed from outcrop at El Ciprés.

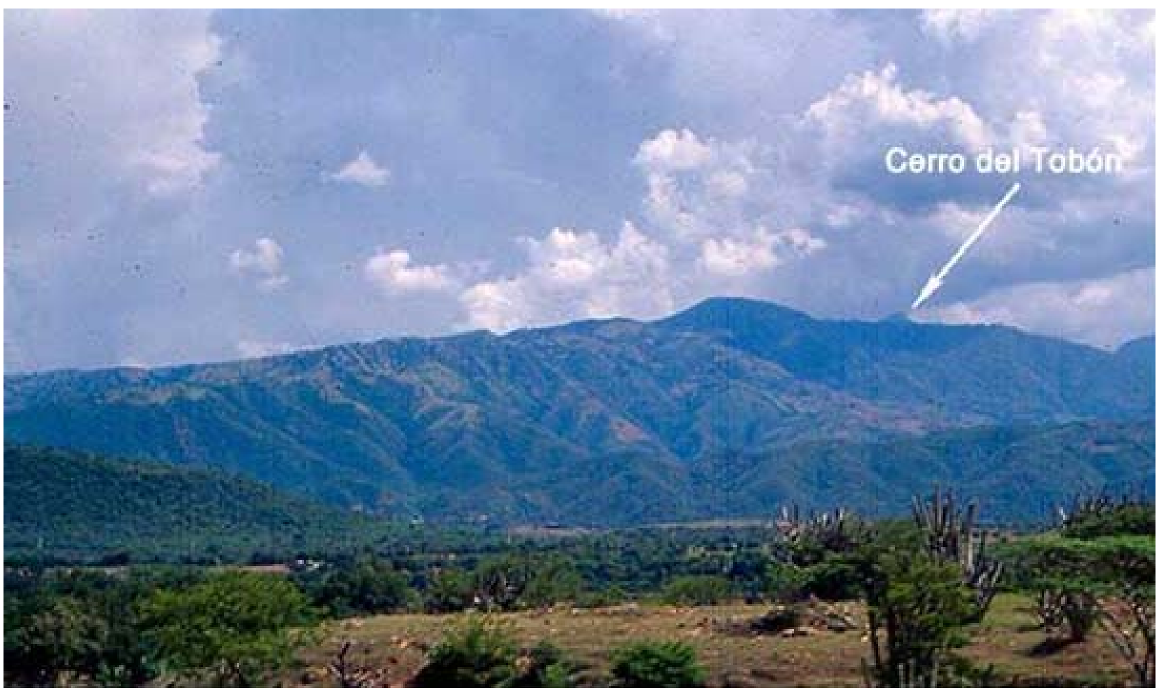

Figure 8. View of Central Motagua Valley to the south, with projecting peak of Cerro del Tobón in distance.

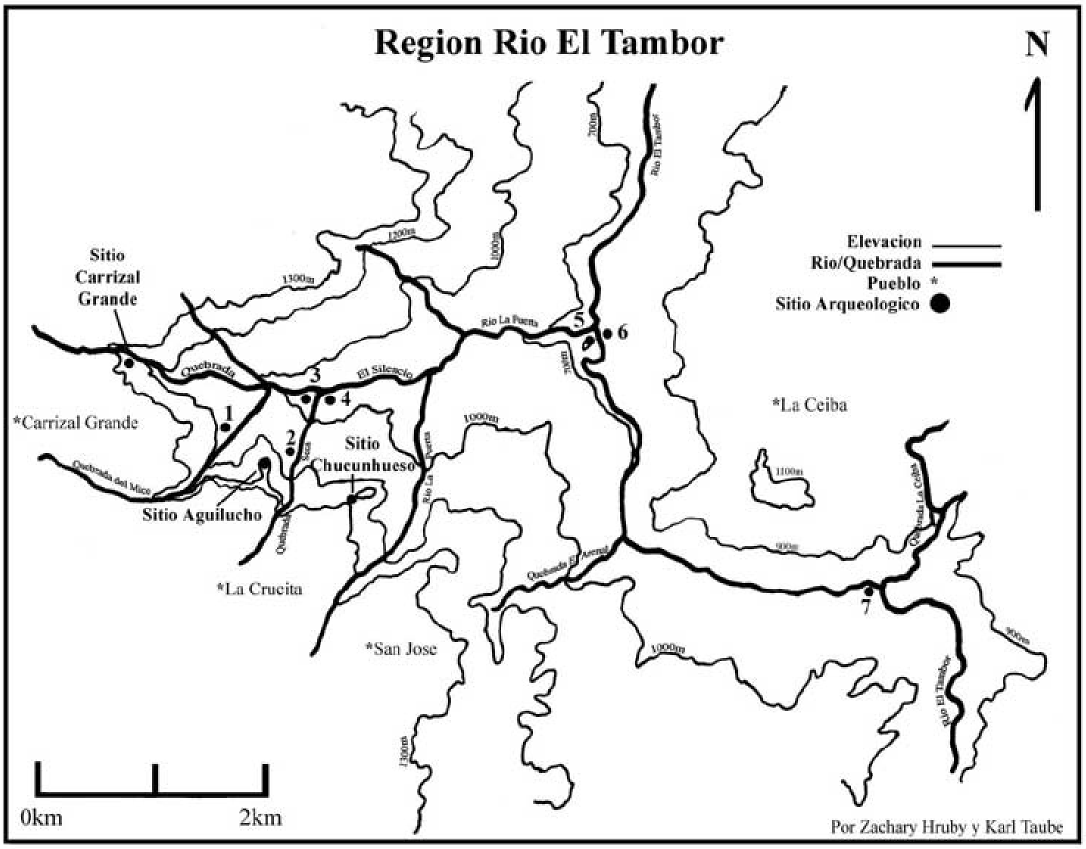

Figure 9. The Quebrada El Silencio region of the upper Río El Tambor region.

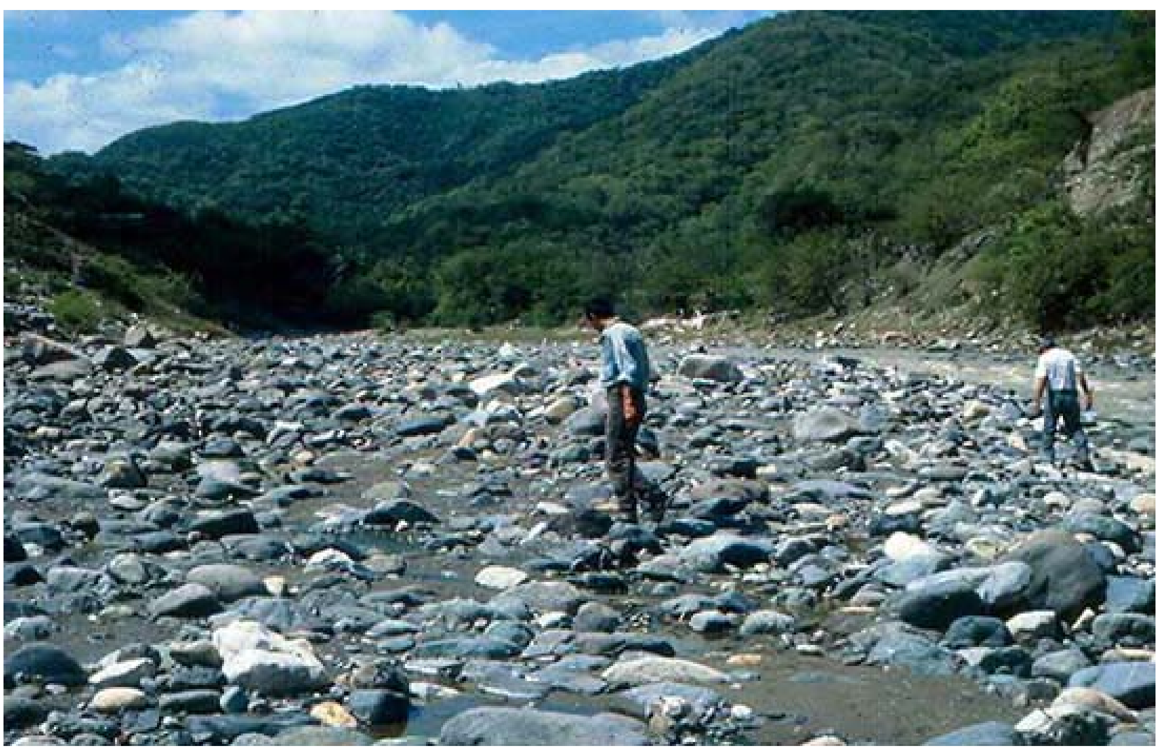

Figure 10. Lower Río El Tambor near Agua Caliente. After Hurricane Mitch, many prospectors began discovering alluvial cobbles of translucent blue jadeite in this area.

In 1998, the disastrous flooding of Hurricane Mitch exposed large amounts of jadeite alluvial cobbles, or "float," in tributaries both to the north and south of the Motagua. In terms of color and translucency, some of this material was comparable to "Olmec blue" jadeite. Local jade prospectors soon followed the jade cobbles upstream to major jadeite outcrops, that is, geological sources of the stone. In 2000, the jadeite prospector Carlos Gonzalez led Russell Seitz (Seitz *et al.* 2001) to one such outcrop, located high in the Río Blanco drainage of the Sierra de las Minas, north of the Motagua Valley (Figure 6, Figure 7, and Appendix, Figure 4). In addition, large bodies of jadeite were being discovered south of the Motagua (Figure 8). As early as 1995, archaeologist Francois Gendron (Gendron *et al.* 2002) discovered a pebble of bluish-green jadeite in the Río El Tambor, a southern tributary of the Motagua River (Figure 10 and Appendix, Figure 5). However, after Hurricane Mitch, local prospectors located major jadeite bodies further up the Río El Tambor, in canyons near the modern communities of La Ceiba, San Jose, and Carrizal Grande (Figure 9, Figures 11-20, and Appendix, Figures 6-11). One of the major sources occurs in Quebrada Seca, close to the town of San Jose (Figure 15). One of the many jadeite bodies in this ravine is of some 300 tons, among the largest jadeite boulders known (Figure 16).

Figure 11. Jadeite outcrop at La Ceiba, the large boulders in the foreground are boulders of greyish jadeite.

Figure 12. View from Carrizal Grande of Quebrada El Silencio drainage.

Figure 13. Vein of bluish jadeite in Quebrada El Silencio near Carrizal Grande. Since this photo was taken in 2002, this vein has been removed by local prospectors.

Figure 14. Ecologite boulder containing garnets from Quebrada El Silencio. Found in the same area as the jadeite bodies, ecologite may have ancient provided garnet as a material for cutting jadeite, as it is a harder stone.

Figure 15. View of Quebrada Seca in the foreground and Quebrada El Silencio in the distance.

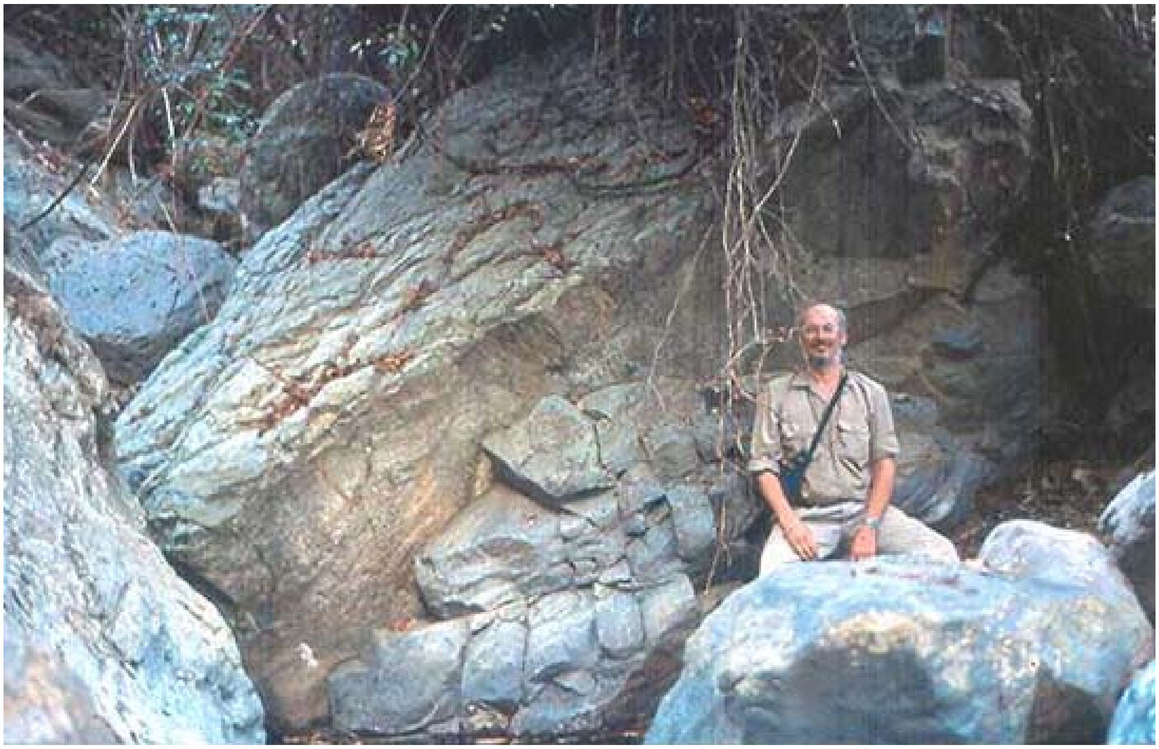

Figure 16. Jadeite boulder of roughly 300 tons in the Quebrada Seca.

Figure 17. The Classic period site of Guaytán, Central Motagua Valley.


Figure 18. Sawn jade cobble with projecting kerb in middle, Guaytán regional museum.

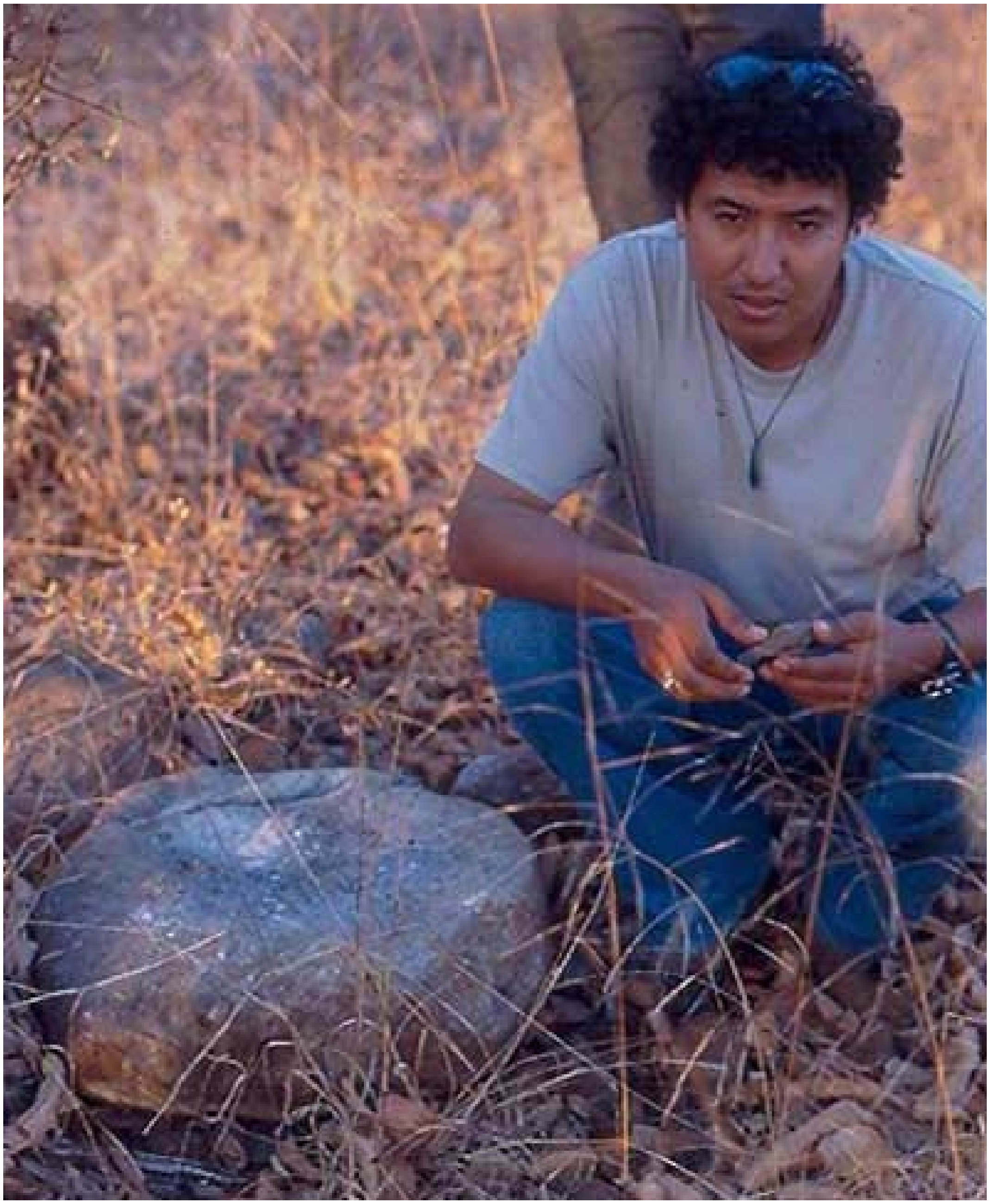

Figure 19a. Ancient jade anvil from Río Hondo region. Photo courtesy of National Geographic.


Figure 19b. Ancient jade anvil from Río Hondo region.


Figure 20. Ancient jadeite reduction area, most of the lithics on the surface are jadeite debitage, Río Hondo region.

Since the first discovery of jadeite sources near Manzanotal, it has been known that ancient jade working was performed in the Middle Motagua Valley (Foshag and Leslie 1955:81). In fact, Smith and Kidder (1943:165) had previously noted "jade-worker's material" from Guaytán, one of the major sites in the Middle Motagua region, although the investigators were not aware of natural jadeite in the region. Included in this Guaytán assemblage were partially made beads, conical drill cores, and sawed items in various stages of manufacture (Figure 18, above). In subsequent years, a number of archaeological projects have focused on jade workshops in the Middle Motagua Valley (Becquelin and Bosc 1973; Feldman *et al.* 1975; Hammond et al. 1977; Walters 1982). A number of ancient jade workshops occur in the region of Río Hondo, including large areas of jadeite debitage as well as jadeite anvils (Figure 19a and Figure 19b). However, no archaeological reconnaissance had been performed in the recently discovered jade bearing regions in the upper Río El Tambor, namely Quebrada El Silencio tributary, which begins near Cerro El Tobón above Carrizal Grande, and connects downstream with the Río La Puerta and finally to the confluence of the Río El Tambor in the region known as Los Encuentros (Figure 1 and Figure 9). Although significant jadeite deposits are not known for the Río de la Puerta, they also do occur upriver in Quebrada del Mico and Quebrada Seca, tributaries of the Quebrada El Silencio (Figure 15 and Figure 29). In terms of jadeite sources in Mesoamerica, this area of Quebrada El Silencio, Quebrada del Mico and Quebrada Seca is of special importance as it contains major natural outcrops of translucent blue jadeite, the type favored by the Formative Olmec (Seitz *et al.* 2001; Taube *et al.* 2004; Hruby et al. 2005).

As part of the larger Programa de Arqueología de Motagua Medio, the Proyecto Arqueológico del Jade was initiated in February of 2004 to document archaeological sites and jadeite sources in the upper Río El Tambor drainage. The project team was composed of Luis Romero, Karl Taube and Zachary Hruby as co-directors, and with assistance and participation of two students from the Universidad de San Carlos de Guatemala, Liliana Padilla and Orlando Moreno. Two experienced jade prospectors, Carlos Gonzalez and Rolando Alvarado served as guides in the region. The main area of research focused on the jade bearing regions and associated sites between the modern communities of Carrizal Grande and La Ceiba, a distance of some 8 kilometers (Figure 9). Due to the rugged nature of the terrain, it was usually necessary to hike down trails from the modern communities of San José, La Crucita, Carrizal Grande and La Ceiba. During the 2004 field season seven sites containing architecture and jade production debris were located with the aid of GPS, with these sites then placed on the 1:50,000 San Diego map of the Instituto Geográfico Nacional (NAD 83 / WGS 84). Three of these sites were mapped, with particular emphasis paid to the largest and most complex site in the area, Sitio Aguilucho. In our reconnaissance, a major focus was on regions in, and adjacent to, ravines and canyons, as these are both natural sources of water and areas where jadeite bodies have been exposed by alluvial erosion. In addition, reconnaissance was also performed in the hilly regions above, both in search of sites and jade outcrops. Given the extremely dense nature of jadeite, initial lithic reduction tended to occur near major jadeite bodies, such as alluvial boulders or outcrops. In other words, where there are major jade bodies, there are frequently ancient workshops nearby.

Sitio Aguilucho

The principal focus of the 2004 field season was the mapping and study of the site of Aguilucho, located on a saddle roughly 1 km. west of Cerro Chucunhueso, a steep, volcanic promontory constituting one of the more striking land features in the region (Figures 21a and Figure 21b). The hills of Aguilucho and Cerro Chucunhueso are separated by the aforementioned Quebrada Seca, a steep ravine containing not only the massive jadeite boulder but also translucent jadeite of various colors, including green and light purple as well as blue (Appendix, Figures 8, 9 and 10). To the west of Sitio Aguilucho, there is the Quebrada del Mico (Figure 29). A small, tributary ravine on the western side of this *quebrada* contains extensive natural sources of jadeite, including a highly translucent, greenish blue hue, with nearby lithic workshops (Appendix, Figure 11). This jade source is also entirely visible from Sitio Aguilucho, and clearly this site was oriented towards major jadeite sources in the region.

Figure 21a. View of Cerro Chucunhueso from Sitio Aguilucho.

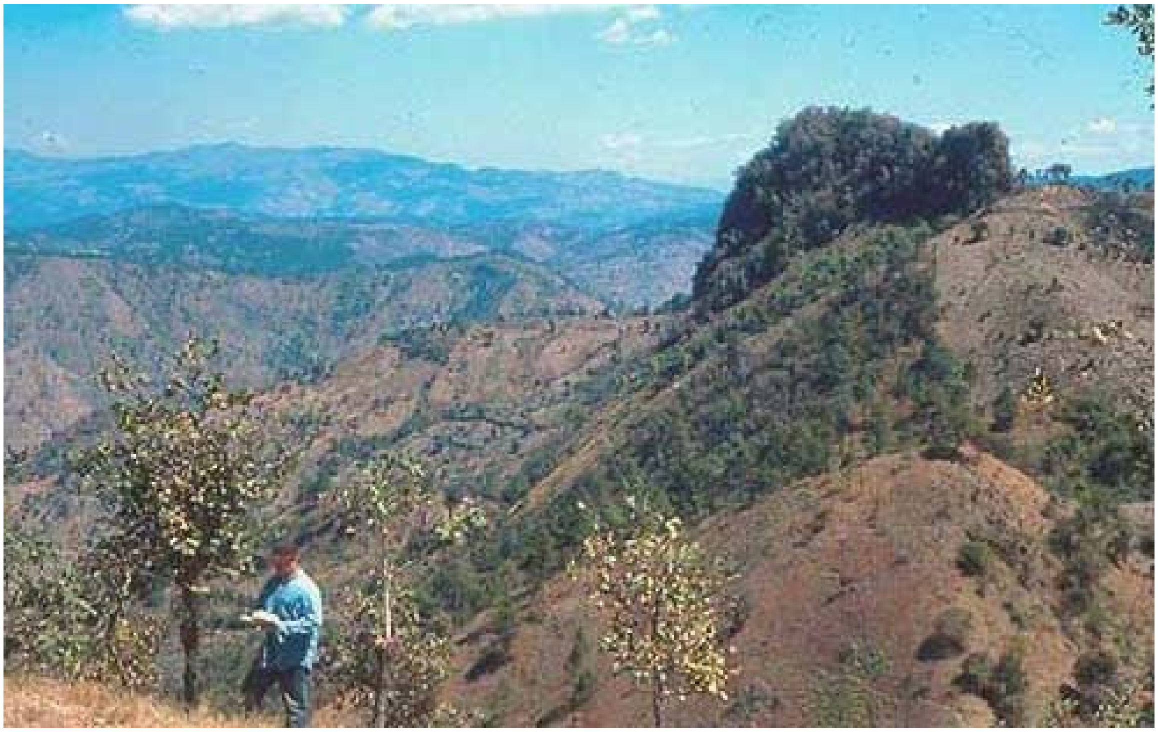
Figure 21b. View of Cerro Chucunhueso from Sitio Aguilucho. Photo courtesy of National Geographic.

Sitio Aguilucho is composed of a series of five hillside terraces supporting over forty structures, most of these apparently house platforms (Figure 22, Figure 23, Figure 24, Figure 25, Figure 26 and Figure 27). These platforms are generally small, and are generally under two meters in height. Many of the platforms are damaged by recent looting. However, the trenches and back dirt from these illicit excavations reveal little in the way of cultural material, and despite their extensive efforts, it is unlikely that the looters discovered burials or major offerings. In general, the architecture is relatively simple, being platforms lined with quadrangular schist blocks, or *laja*, on the exterior surface. Although serpentine is the predominant stone in the terrace areas, there is a schist outcrop roughly 300 meters west of Terrace 3 (Figure 23, below). In many cases, the platforms have two levels delineated by schist blocks, one marking the upper edge of the platform, and an interior, slightly higher level probably marking the edge of the superstructure. In fact, contemporary houses in Carrizal Grande and other towns in the area frequently have stones supporting the walls, with larger stones delineating the outer edges of the house platforms.

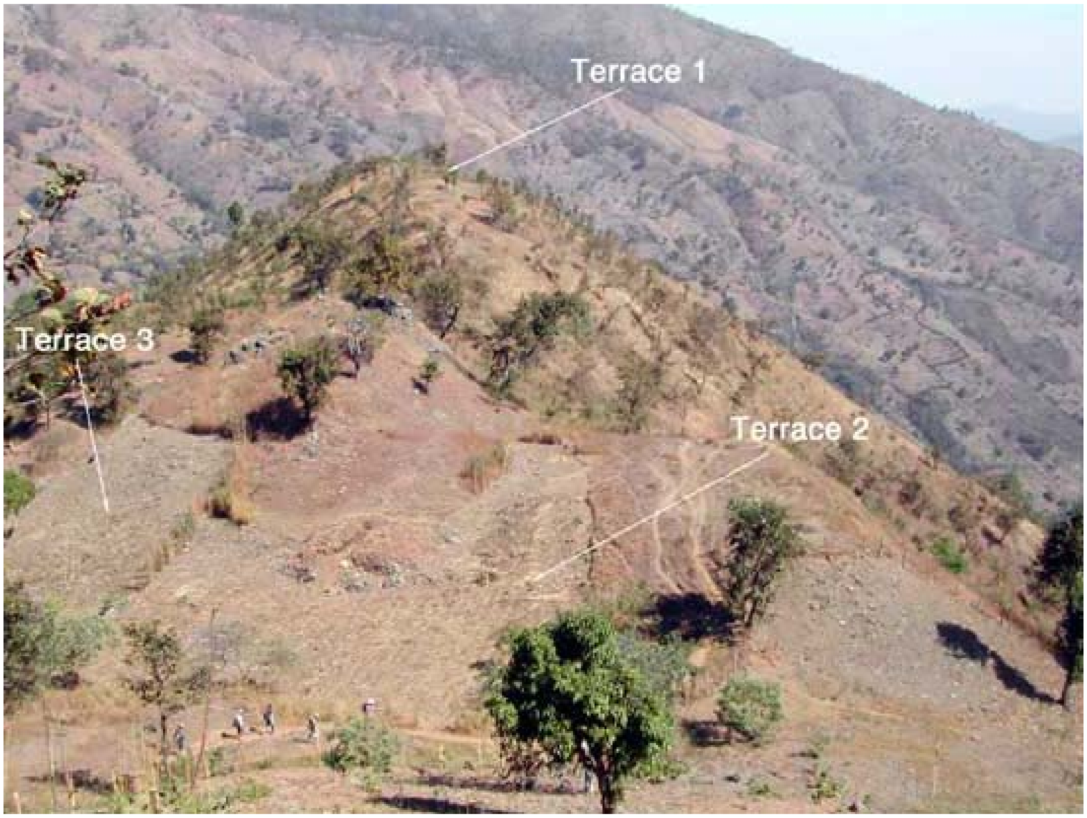

Figure 22. View of Sitio Aguilucho from south, with Terraces 1, 2 and 3 indicated by arrows.

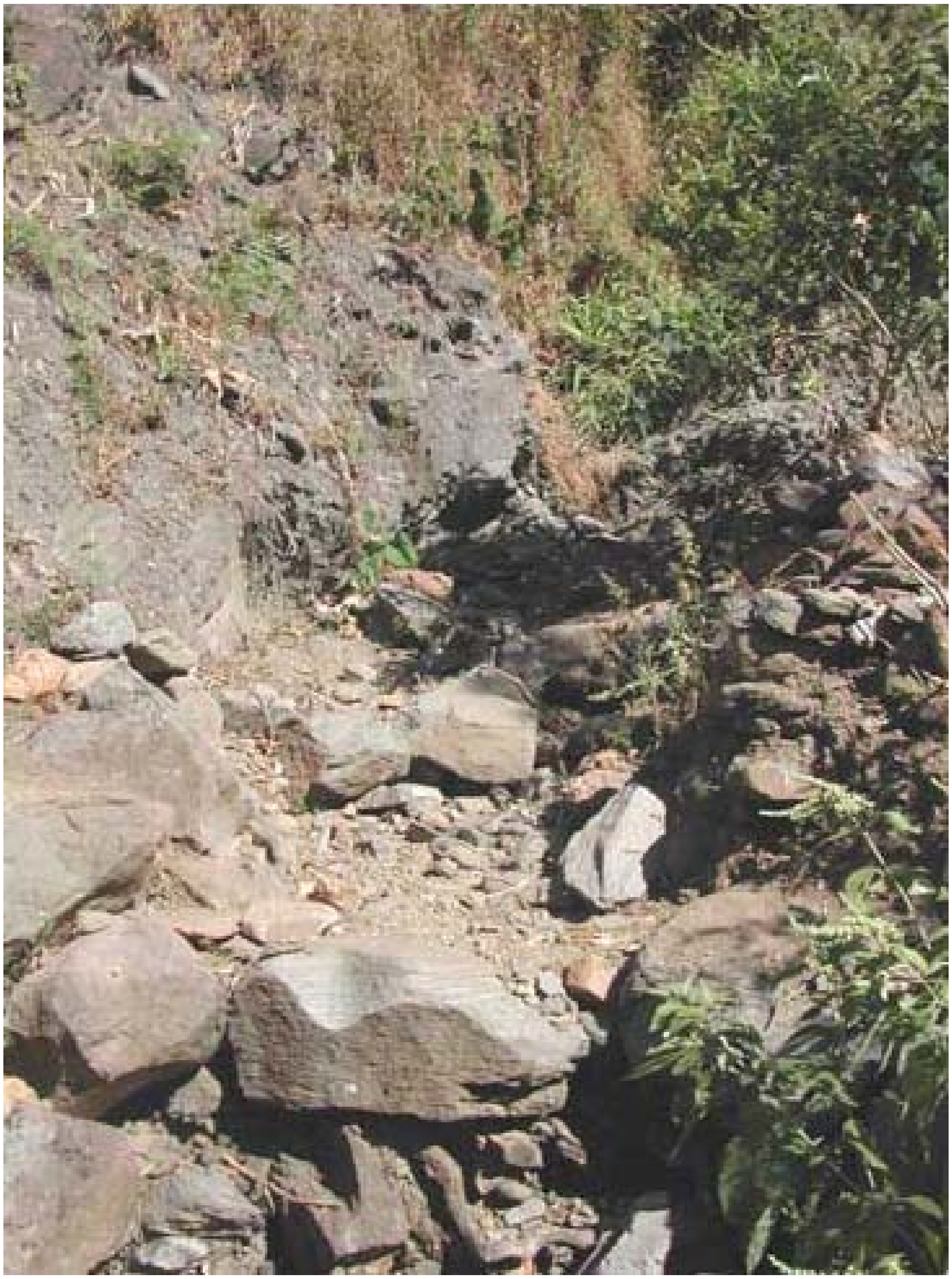

Figure 23. Schist outcrop west of Sitio Aguilucho. Many of the schist blocks covering the platforms at Sitio Aguilucho were probably obtained from this nearby source.

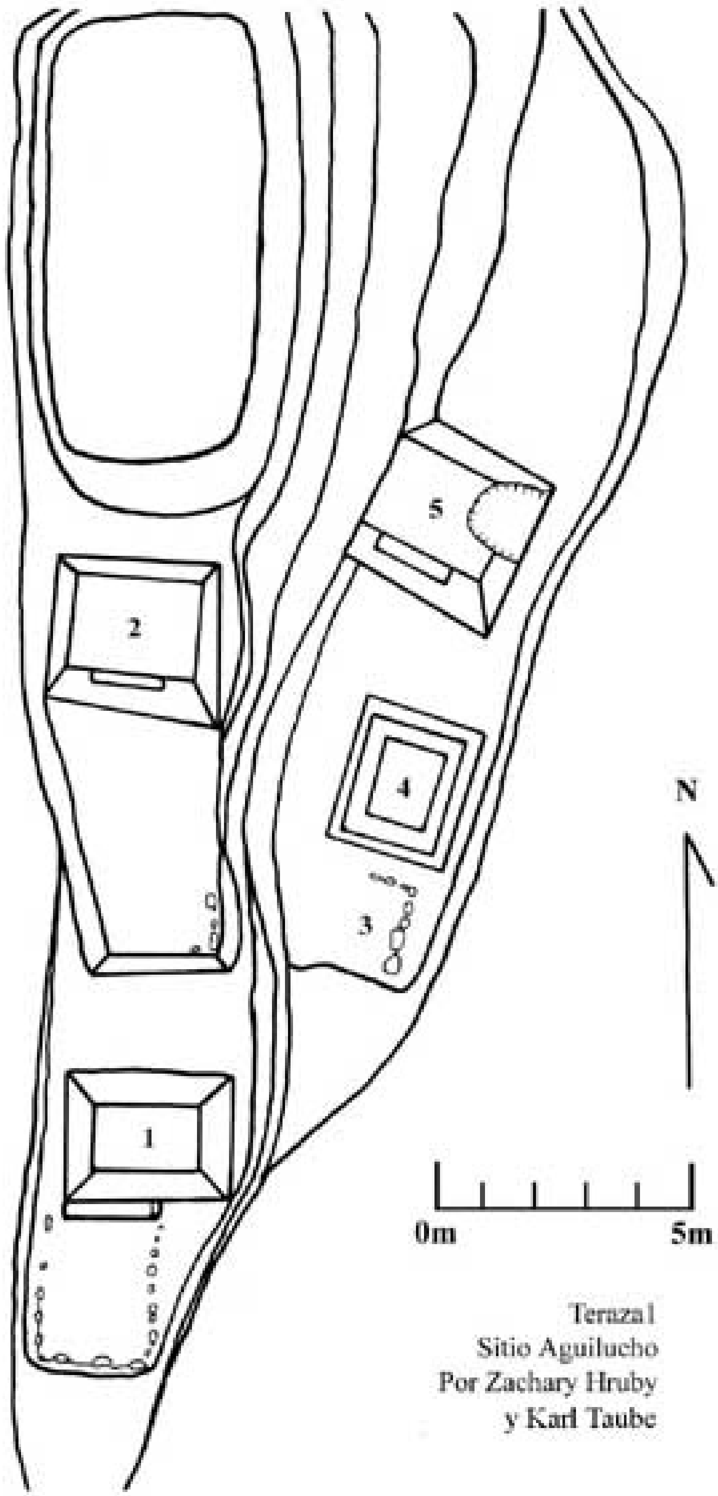

Figure 24. Map of Terrace 1.

Figure 25. Terrace 2 of Sitio Aguilucho, note recent trench made by looters in Structure 4.

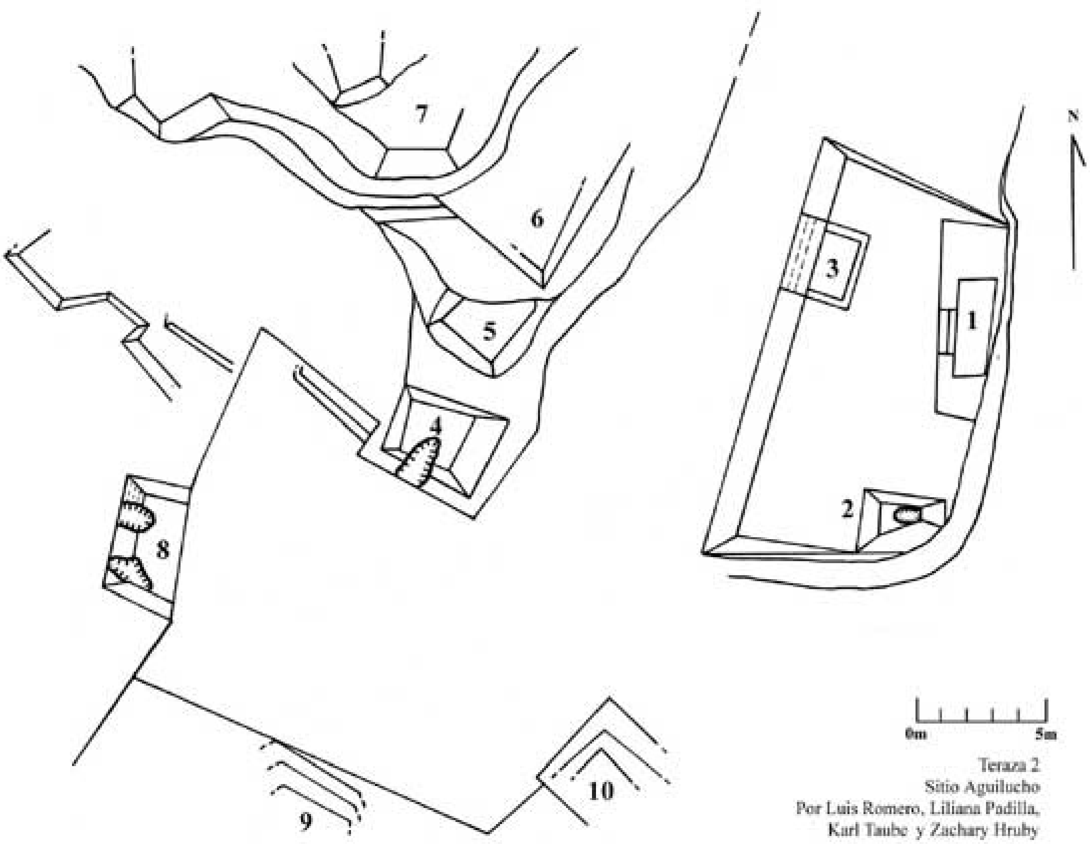

Figure 26. Map of Terrace 2.

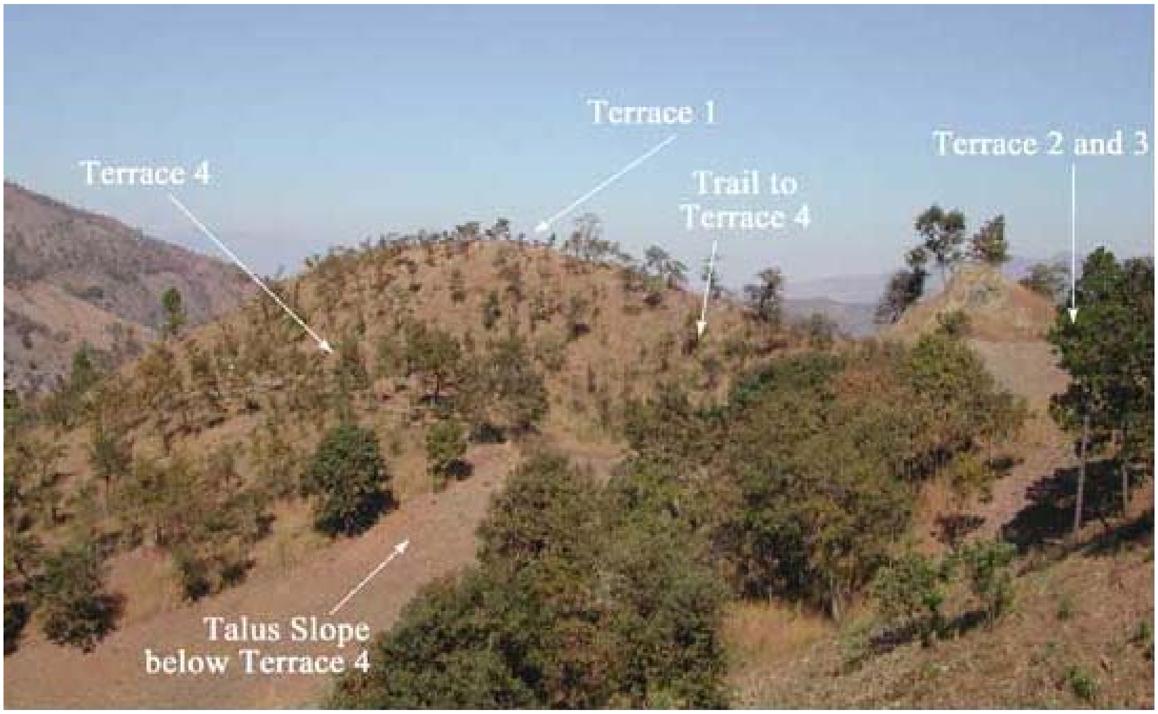

Figure 27. View of Terrace 4 of Sitio Aguilucho from schist outcrop (see fig. 23).

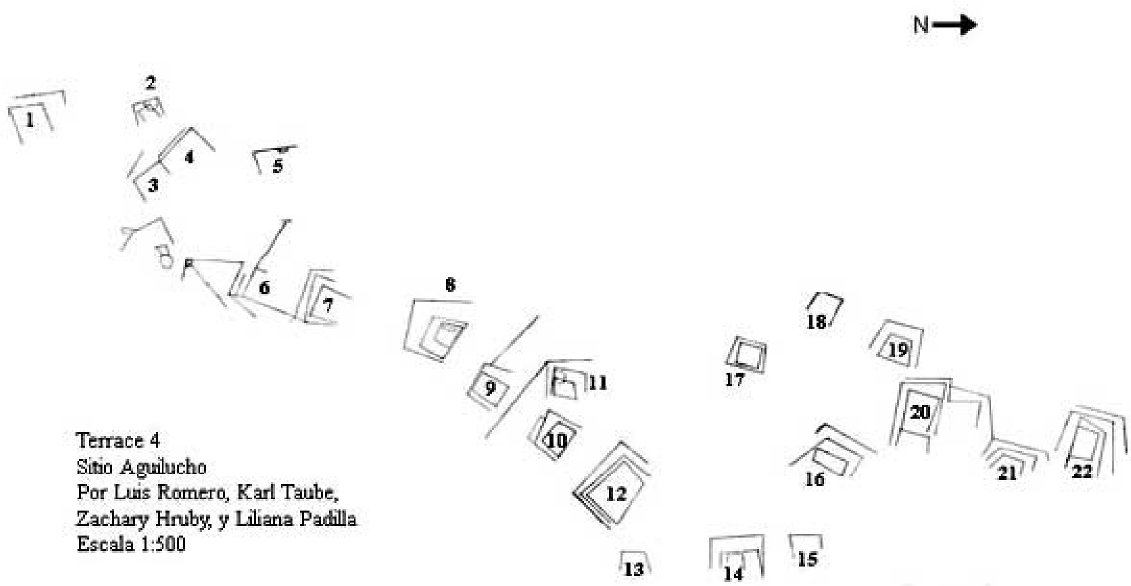

Figure 28. Map of Terrace 4.

Aside from the use of schist to define the edges of walls and platforms, another common architectural trait at Sitio Aguilucho is the alignment of platforms and structures up hillsides, creating an effect resembling a series of massive steps. In the case of Terrace 1, Structures 1 and 2 are in such an alignment, with Structure 2 being at the highest elevation of the site. Terrace 2, constituting the main plaza group of the site, has a series of four platforms extending northwards up a serpentine outcrop. Similarly, it will be noted that Los Encuentros 1, at the confluence of the Río La Puerta and the Río El Tambor, has a series of platforms rising westward to a serpentine outcrop (Figure 46). The orientation of platforms to serpentine may not be simply fortuitous in this region. As part of a series of platforms on Terrace 4 of Sitio Aguilucho, Structure 6 appears to be oriented directly to a pair of large serpentine boulders located south on the downhill slope. Given the importance of jadeworking in this region, it is conceivable that serpentine, a softer but far more prevalent greenstone that appears with jade bodies, was also of considerable symbolic significance in the area.

Terrace 1

Located at almost the summit of the hill of Sitio Aguilucho, Terrace 1 is the highest and northernmost mound group at the site, and has a commanding view of the lower Quebrada El Silencio drainage to its juncture with the Río El Tambor (Figure 22, Figure 24 and Figure 27). Although in an imposing locality with a notably restricted access, the structures of Terrace 1 are fairly small and simple. Moreover, whereas most platforms at Sitio Aguilucho were faced with schist, the majority of platforms of Terrace 1 were formed of roughly faced blocks of serpentine, which constitutes the bedrock of the hill and summit. The one noteworthy exception is Structure 5 which had schist facing on all four sides. This material was probably quarried from the outcrop east of Terrace 3, and then carried through Terraces 3 and 2 to the summit ridge of Terrace 1.

The front sides of the Terrace 1 structures appear to be oriented to the south, the direction of the principal mound group at Sitio Aguilucho, Terrace 2. The Terrace 1 group begins at the southern end at the central ridge leading to the summit and then continues northward on the east side of the ridge. The lower, southern portion begins with a line of stones traversing the center of ridge, and marks the southern end of a low platform leading to Structure 1. A platform almost 2 meters high, Structure 1 is faced with large, roughly hewn blocks of serpentine. A stairway on the southern side appears to have led from the low frontal platform to the summit.

As in the case of Structure 1, Structure 2 of Terrace 1 also has a low frontal platform with a portion of its serpentine retaining wall at the southeast corner. Of the buildings at Sitio Aguilucho, Structure 2 is at the highest elevation, and occurs just below the summit of the hill. Further to the north, the hill drops precipitously into the Quebrada El Silencio. The summit, at roughly 1290 meters above sea level, occurs only some 15 meters north of Structure 2. Although it is conceivable that the summit was used as a platform, no stone alignments, retaining stones or other constructional features were discernable on the surface. The remains of a stairway on the south side of Structure 2 originally led to its low, frontal platform. The principal, northern platform of Structure 1 displays no signs of a superstructure, although a serpentine boulder occurs in the center of the platform surface.

Structures 3, 4 and 6 are on a slightly lower portion of the terrace east of Structures 1 and 2. From the eastern edge of Terrace 1, the hillside drops off in the form of a steep talus slope into Quebrada Seca. Although Structure 3 resembles the low frontal platforms on the south sides of Structure 1 and 2, there is also an alignment on the northern side, suggesting that it is a distinct building. To the north of Structure 3 there is Structure 4, a low rectangular platform rising roughly ½ of a meter above the terrace surface. In contrast, Structure 5 is a larger and more imposing platform, and is some 1.5 meters in height. As has been mentioned, this is the only Terrace 1 structure that had schist facing stones, remains of which can be discerned on all sides. Whereas the western side of the platform abuts into the hill leading to the summit, there is a passage on the east side of Structure 1 leading to a flat extension of the terrace. As in the case of the summit, no alignments or other architectural features were visible in this portion of Terrace 1.

Terrace 2

In terms of its architecture and prominent position upon the saddle of the hill, it is clear that Terrace 2 constitutes the principal mound group of Sitio Aguilucho (Figures 22 and 25, and Figure 26). The structures surround an L-shaped plaza that slopes downward from its northern extension to the south and west, with Structure 8 at the western side providing access to the still lower Terrace 3. The form of the plaza was caused in part by the contours of the natural terrain, with the broad platform supporting Structure 1, 2 and 3 and Structures 4 to 10 being built atop serpentine outcrops. To the south, Structures 9 and 19 abut the natural rise of the hillside above. The northern portion of the plaza offers access to the summit ridge and Terrace 1. In addition, a modern trail from this northern edge also leads down to the rich jade deposits of Quebrada Seca, and ultimately, Quebrada El Silencio and the Río El Tambor (Figure 22). It is quite possible that a similar path was also used in antiquity.

Grouped around a central plaza, the architecture of Terrace 2 is the most developed in formal organization and labor at Sitio Aguilucho, and probably constitutes the public, ceremonial center of the site. A large platform roughly 2 meters in height and 17 meters in width bounds much of the northeastern portion of the plaza. From the rear, eastern side of the platform, the terrain drops steeply to the Quebrada Seca, and it is likely that individuals going to or from Terrace 1 or the jade sources of the Quebrada Seca would pass through the narrow portion of the plaza west of this platform.

The platform supports three superstructures, with Structure 1 occupying the eastern side. Structure 1 is delineated by stone alignments clearly demarcating a broad rectangular platform and its interior superstructure. Structure 2, located on the southeastern portion of the platform, is built from a serpentine outcrop that still projects above the surface of the supporting platform. Much of this natural outcrop was exposed from a recent looter's pit that dug into the upper center of Structure 2. At the northwest side of the supporting platform, there is Structure 3, which faces west toward the narrow, northern portion of the plaza. At the base of the stairway, a fragmentary schist carving was found, roughly 60 centimeters in length and 50 centimeters in width, with one end rounded by bifacial knapping. It is possible that this object was a part of a simple stela, and it will be noted that a similar schist carving was found atop Structure 6 of Terrace 2. In the Motagua Valley, schist stelae and other monuments are known for Quirigua, including a cylindrical plain stela found in Group C, roughly four kilometers from the Main Group (Sharer 1990:72-77).

Structures 4 to 7 are a series of platforms that follow a serpentine outcrop, with the lowest construction being Structure 4, located near the center of the plaza. Structure 4 is the tallest platform at Sitio Aguilucho, and is roughly 2.5 meters high at its southern, frontal side (Figure 25). The stairway on the frontal side has been largely destroyed by a recent looter's trench that extends into the center of the platform. East of the looter's trench, the exterior surface of the southern side is still well-preserved, and indicates that the platform had steep, almost vertical walls faced with schist blocks. However, large serpentine blocks are also visible at the southeast and southwest corners, suggesting that the platform corners were first made by serpentine boulders that were then covered by the exterior schist surface.

Directly behind and to the north of Structure 4 are Structures 5 and 6, low and simple platforms that continue up the surface of the serpentine outcrop. Portions of the outcrop are visible on the southern edge of Structure 5, indicating that much of this platform was carved from the original bedrock. In addition, schist facing can be observed on the sides of Structure 5. A probable fragmentary stelae was found atop the surface of Structure 6. Carved with a well-rounded end, probably the top, the fragment is 46 cm long, 33 cm wide, and 13 cm thick. Above and to the east of Structure 6 is Structure 7, which is the highest platform in the Terrace 2 group. Lined with schist slabs, the platform surface is covered with serpentine pebbles, which clearly constituted the fill of this structure.

The southern portion of the Terrace 2 plaza is bounded by Structures 8, 9 and 10. Structure 8, on the western side of the plaza, will be discussed subsequently with the description of Terrace 3. Structure 9 directly abuts the hillside rising above the south side of the plaza. A series of three stone alignments can be discerned, although from the surface it is not clear whether these were part of a broad stairway or the edges of three terraces. Structure 10 is a low, poorly preserved platform with schist facing near the southeast corner of the plaza.

Terrace 3

The western side of the Terrace 2 plaza drops roughly a meter down to the plaza of Terrace 3 (Figure 22, Figure 26 and Figure 27). The boundary between the two plazas is marked by a stone wall. Although many of the stones were clearly placed by recent farming activity, Structure 8 clearly indicates that the plazas were at two distinct levels, as there is a stairway at the western side leading down into the plaza of Terrace 3. In Terrace 3 there is a considerable amount of jade debitage and partially worked jade artifacts, including celt blanks, as well as sherds. This is in contrast to Terrace 2, where surface artifacts are largely limited to ceramic material. In addition, jade debitage also appears on the slope below the west side of Terrace 3, suggesting this area was used for discarding debitage and other material. The area below Terrace 3 and Terrace 4 is rich in midden, with stream erosion indicating depths to at least 30 cm. The platforms of Terrace 3 are generally smaller and less elaborate than those of Terrace 2. The highest and northernmost of these is a simple platform cut into the side of the same hill supporting Structures 4 to 7 of Terrace 2. Below this are Structures 2 and 3 which face directly upon the north side of the Terrace 3 plaza. At the western edge of the north side, there is Structure 4, a low platform that was fronted with schist blocks. Structures 5 and 6 are located on the west edge of the plaza, close to where the terrain drops sharply down to the midden area and lower portion of Terrace 4. These two structures were not raised platforms but walled buildings, the foundations of which appear as rock alignments.

Structure 5 is the only building on the south side of the plaza, and is composed of four broad terraces lined with laja stones, the material probably deriving from a nearby outcrop southwest of Terrace 3.

Terrace 4

This terrace contains the most complex mound group at Sitio Aguilucho, and has some 22 structures (Figure 27, Figure 28, Figure 29 & Figure 30). In terms of architecture, Terrace 4 is very similar to Terrace 1, and both appear to be residential areas, with Terrace 4 being the principal residential group at Sitio Aguilucho. The eastern side of Terrace 4 abuts the hill on which Terrace 1 was constructed. This side of the hill is quite steep, and it is highly unlikely that it was a common way of access between the two terraces. Although the principal access between Terrace 1 and the lower Terrace 4 could have been from Terraces 2 and 3, a modern trail passes from the ridge just below Terrace 1 to the southern end of Terrace 4, and it is entirely possible that there was similar access in antiquity (Figure 30). As in the case of most of the architecture at the site, the platforms of Terrace 4 were typically faced with schist blocks.

Figure 30. Detailed view of Terrace 4 with structures labeled with numeral designations.

Figure 29. View of Terrace 4 in foreground with Quebrada del Mico and Sitio Carrizal Grande in distance.

It is important to note that there is evidence of jade working with a number of the structures, indicating that at least some of the individuals living in Terrace 4 were engaged in the working and probably procurement of local jadeite. In addition, a lower area off the west side of Terrace 4 is rich in jade debitage and partially worked jade celts as well as ceramic material, and it is clear that this midden was formed by residents of Terrace 4. It is possible that slabs of ecologite containing garnet, a stone harder than jadeite, may have been used as a cutting tool for jade, although no cut jade was found at the site (Figure 38). Most of the worked jade in the area is flake debitage of light green to light blue, the type often referred to as "*gema*" by modern prospectors (Figure 36a, Figure 36b, Figure 37 & Figure 39). Given the fact that jade debitage frequently has sharp, jagged edges, it was probably often removed from residential areas to avoid injury. However, yet another reason for this midden area may have been soil enrichment for farming, as serpentine soils are notoriously poor in plant nutrients. Maize is currently being cultivated is this area, and this probably was also the case for the ancient residents of Sitio Aguilucho.


Figure 31. Spherical jadeite hammerstone in situ behind Structure 10 of Terrace 4. Photo courtesy of National Geographic.

Figure 32. Profile of jadeite hammerstone discovered behind Structure 10.

Figure 33. Jade celt preform found in midden area below Terrace 4 of Sitio Aguilucho. Photo courtesy of National Geographic.

Figure 33b. Jade celt preform found in midden area below Terrace 4 of Sitio Aguilucho. Photo courtesy of National Geographic.

The lowest platform of the Terrace 4 group is Structure 1, which is close to the aforementioned midden area near Terrace 3. Interior stone alignments atop the platform indicate that it supported a superstructure. North of this platform is Structure 2, which has been badly damaged by recent looting. Structures 3 and 4 are adjoining buildings, with Structure 4 being slightly higher as it was cut into serpentine bedrock, much of which is visible in the center of the platform. Still further north is Structure 5, which had large roughly hewn serpentine blocks as retaining stones. The western side of this structure has been largely destroyed by looting.

Structure 6 is the lowest of a series of seven buildings that extends in a northwest direction towards the center of the Terrace 4 group. On the lower south side, Structure 6 is fronted by a large platform that has massive serpentine boulders at its southern edge. Most of the original fill in the platform seems to have been removed by gradual erosion. Considerable jade debitage occurs in this area and to the west of the platform (Figure 30). In addition, a fragmentary stone bowl or mortar portraying a toad or frog was found in the platform region. The form of this object recalls the Late Preclassic stone or frog mortars found in Tomb 1 of Mound E-III-3 at Kaminaljuyú (Shook and Kidder 1952:fig. 78c-e). A fragmentary schist slab with a central perforation was also found in the platform area. Structure 7 occurs further up the hillside from Structure 6, and is a rectangular platform some 1.5 meters in height. A stone alignment on the east side of the platform may be the remains of a stairway. Centered on the same axis of Structures 6 and 7, Structure 8 is of considerably higher elevation. It was supplied with a large frontal platform and supported a superstructure. Structure 9 also had a superstructure atop the platform, and is on a terrace rising some 30 cm above the platform surface behind Structure 8. Structures 10 and 11 are atop a still higher terrace shared with Structure 12, which is one of the largest and highest structures in the Terrace 4 group. The platform seems to have originally had two superimposed terraces as well as a superstructure. Between Structures 10 and 12, a spherical jadeite hammerstone was found (Figure 31 & Figure 32). Given the toughness and density of jadeite, it is appropriate that this material was worked with jadeite hammers. Similar spherical hammerstones are known for La Laguna, a large Río El Tambor site located down river near its juncture with the Río Motagua.

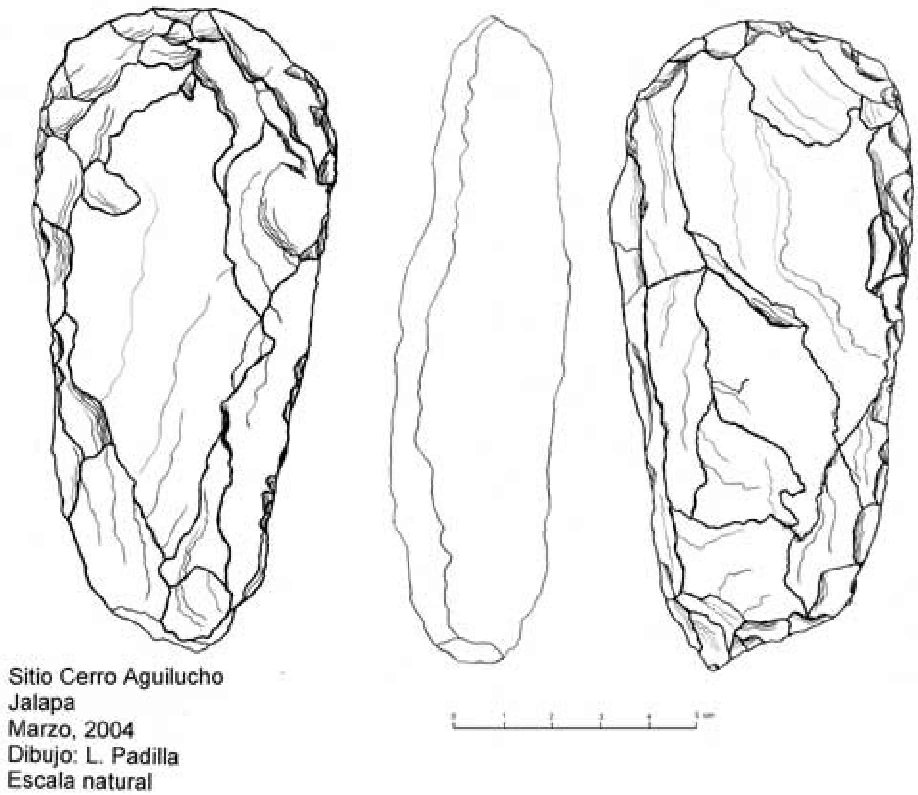

Figure 34. Drawing of celt preform (see fig. 33).

Figure 35. Partially pecked jadeite celt preform from Cerro Chucunhueso.

Figure 36a. View of jadeite celt blank, Sitio Aguilucho.

Figure 36b. View of jadeite celt blank, Sitio Aguilucho.

Figure 37. Jade celt-preform fragment reused as a hammerstone accompanied by an assortment of jade reduction flakes, from midden below Terrace 4.

Figure 38. Ecologite slab with garnet possibly used as saw for cutting jadeite, Terrace 4 midden.

Figure 39. Jade reduction debitage, Terrace 4 midden.

Figure 40. Bifacial reduction flake and partially pecked jade celt fragment, Terrace 4 midden.

Structures 13 to 15 are located on the eastern edge of Terrace 4, close to where the hill rises sharply to the summit. Structure 14, the highest platform on Terrace 4, appears to have supported two superstructures. Located at a lower elevation, Structure 16 is part of a plaza group including four other platforms, Structures 17 to 20. Of this plaza group, Structure 16 is the principal building, and steeply rises some 2.5 m from the plaza floor. Most of the structures of this group, including Structures 17, 18 and 19 have been damaged by recent looter's excavations with Structure 18 having a central pit almost 2 meters in depth. The other four buildings of this group all show evidence of having superstructures atop the platform. Two more platforms occur behind Structure 20, and mark the northernmost extension of Terrace 4. Further north and downhill from Terrace 4, there is Terrace 5, a small group of several platforms.

Several sites were found below Sitio Aguilucho adjacent to the stream of Quebrada Seca (Figure 9). One site, located on the west side of the stream just above the massive jadeite boulder (Figure 16) is a lithic reduction area with jadeite of various colors, including highly translucent material. The primary activity appears to have been the rough processing of jadeite, and no structures or ceramics were visible in the area. Further downstream, where the Quebrada Seca joins the Quebrada El Silencio, two sites were found on the south side of the Quebrada El Silencio, east and west of the mouth of the Quebrada Seca. To the east, sparse amounts of pottery and a fragmentary metate were encountered in a flat region adjacent to the river. However, much more archaeological material was discerned for the site on the west side of Quebrada Seca, which has several platforms with ceramics and abundant jade debitage on the surface. Among the sherds encountered was a piece of plumbate ware, indicating a Late Classic or Early Postclassic date. Much of the jade is of the white, semi-translucent material often termed *luna* by contemporary prospectors.

On the opposite west side of Sitio Aguilucho, there is the Quebrada del Mico, which also drains into the Quebrada El Silencio. On a hilly flank on the north side of the Quebrada del Mico there is an arroyo containing large jadeite boulders approaching five tons in weight. As has been mentioned, this region also contains light, translucent blue jadeite (Appendix, Figure 11). Just to the east of this arroyo there are a series of terraces with ceramics and jade debitage, although no house platforms were discerned.

Sitio Cerro Chucunhueso

Roughly half a kilometer east of Sitio Aguilucho, there is Sitio Cerro Chucunhueso, which is situated in the saddle of the ridge immediately southwest of the peak of Cerro Chucunhueso, the most dramatic land feature in the Quebrada El Silencio drainage (Figure 21a and Figure 21b). Sitio Chucunhueso is virtually at the same altitude as Terrace 2, the principal mound group at Sitio Aguilucho. However, whereas the principal building stones at Sitio Aguilucho were serpentine and schist, Sitio Chucunhueso is composed solely of igneous rock local to the Chucunhueso ridge. In addition, the architecture is notably different, and is composed of a complex series of stone-lined terraces and walled enclosures (Figure 41). In addition, although there is abundant cultural material on the surface of Sitio Aguilucho, including ceramics and jade working tools and debitage, very little surface material was encountered at Sitio Chucunhueso. One noteworthy exception was a large celt preform of bluish jadeite (Figure 35). Although there were local reports of archaeological remains atop the peak of Cerro Chucunhueso, no material was encountered during our project.

Sitio Carrizal Grande

This site is located on the southern side of the Quebrada El Silencio close to the town of Carrizal Grande (Figure 9). This portion of the Quebrada El Silencio is filled with alluvial jadeite of many colors, including translucent material of strongly blue hue (Figure 12 & Figure 13, and Appendix, Figure 7). The site is a poorly preserved plaza group with several platforms, with several structures on the northern side largely destroyed by erosion into the quebrada (Figure 42). On the site, surface ceramics, jade debitage, and partially worked jade celts are encountered. Recent ground perturbation by rodents in the eastern portion of the site suggests that some of the cultural deposits, including jade debitage, may be fairly deep and substantial. Along with jade, a considerable number of obsidian artifacts occur on the surface. Although most of the ceramics appear to be Late Classic in date, one sherd appears to be early, and may well date to near the beginning of the Middle Formative period (Figure 32). With its broad rim marked by a U-shaped incision, this sherd is notably similar to ceramics from Tlapacoya, Mexico, dating to roughly 900 B.C. (see Niederberger 1987:figs. 391, 395, 396).

Slightly upstream from Sitio Carrizal Grande there is a lithic reduction area with considerable jade debitage and partially worked celts. Most of the surface jade is of light bluish *gema* material that was probably mined locally from the hillside. Directly above this reduction area, a local resident of Carrizal Grande currently is quarrying jadeite from the field below his house.

Los Encuentros 1 & 2

At the confluence of the Quebrada El Silencio and the Río El Tambor there are two sites on opposite sites of the Río El Tambor in an area locally known as Los Encuentros (Figure 9, Figure 44 and Figure 45). The first site encountered, Los Encuentros 1, is situated on the west side of the Río El Tambor river (Figure 45). The principal construction is a series of platforms and two mounds directly oriented to a serpentine outcrop at the west side (Figure 46). Both mounds are damaged by looter excavations. Although few ceramic sherds were found on the surface, a large obsidian point was discovered (Figure 47). The point does resemble Classic Maya examples from the Petén, although these tend to be of flint rather than obsidian.

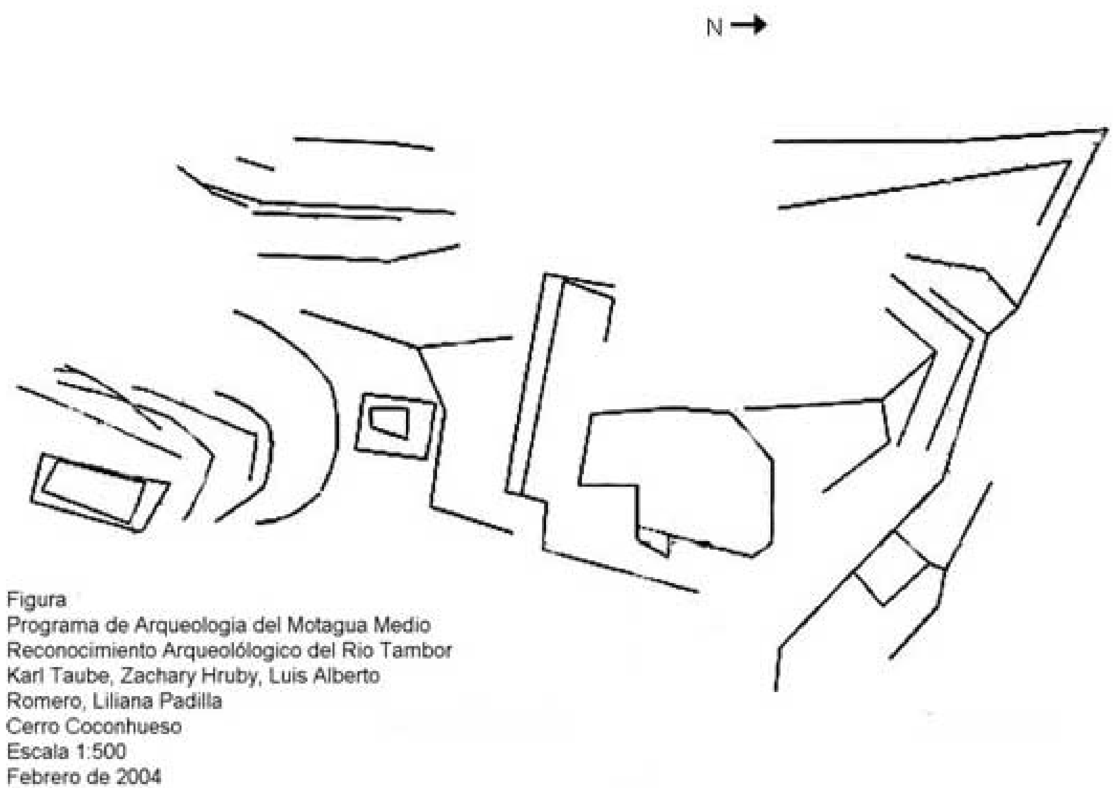

Figure 41. Map of Sitio Chucunhueso.

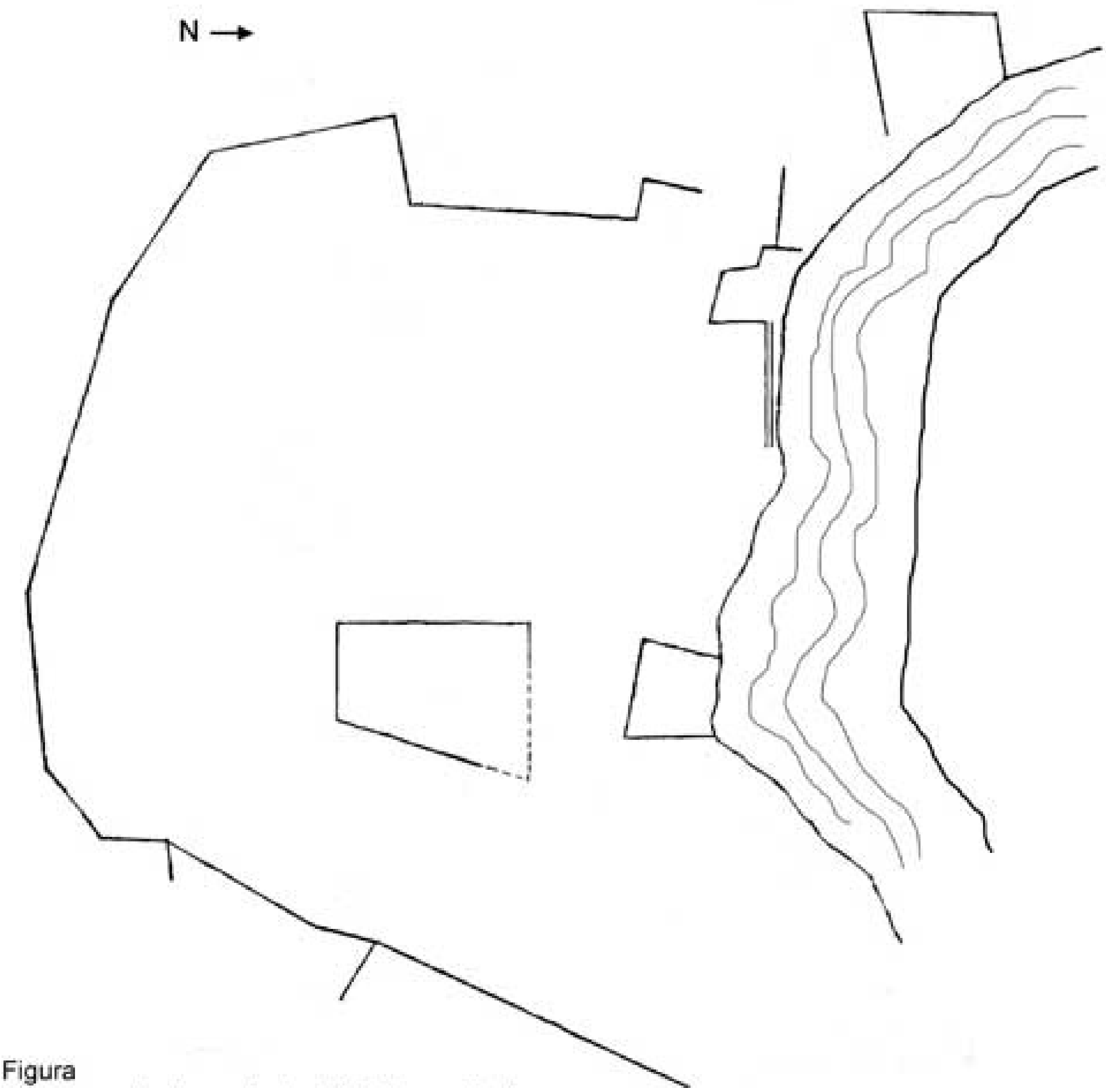

Figura
Programa de Arqueologia del Motagua Medio
Reconocimiento Arqueológico del Rio Tambor
Karl Taube, Zachary Hruby, Luis Alberto
Romero, Liliana Padilla
Sitio Carrizal Grande
Escala 1: 500
Febrero de 2004

Figure 42. Map of Sitio Carrizal Grande.

Figure 43a. View of possible Middle Formative ceramic sherd found at Sitio Carrizal Grande.

Figure 43b. View of possible Middle Formative ceramic sherd found at Sitio Carrizal Grande.

Figure 44. View of the Los Encuentros area from Cerro Gavilán.

Figure 45. View of the Los Encuentros area featuring the confluence of the Río La Puerta with the larger Río El Tambor.

Directly across the river to the east, there is Los Encuentros 2, clearly the larger of the two sites (Figure 48). However, much of the construction is covered by vegetation. One platform close to the shore is roughly 4 meters high, and is faced with alluvial cobbles. A large looter's trench cuts through the entire mound. In contrast to Sitio Aguilucho, Carrizal Grande and other sites in the Quebrada El Silencio drainage, there is little evidence of jade debitage and jade working at either of the Los Encuentros sites.

Sitio La Ceiba

The modern community of La Ceiba is situated in the mountains east of Los Encuentros on the opposite side of the Río El Tambor from the Quebrada El Silencio and Río La Puerta drainage (Figure 9). Near the town of La Ceiba, there is a jadeite outcrop containing shades from purple, white to brilliant green (Figure 11, and Appendix, Figure 6). However, much of the material is extensively fractured, and there is no evidence that this source was worked in antiquity. Roughly two kilometers south of the modern community, there is the site of Sitio La Ceiba, which is at the confluence of the Quebrada La Ceiba and the Río El Tambor, some 4 kilometers upstream from the aforementioned sites at Los Encuentros. Unfortunately, the site has been heavily damaged recently by farming activity and the construction of dry stone walls. The outlines of several mounds could be observed and it is likely that they were faced with alluvial cobbles similar to the mound at Sitio Los Encuentros 2. The surface sherds appear to mainly Late Classic in date. As in the case of the Los Encuentros sites on the Río El Tambor, there is little evidence of jade working, although a cobble of black jadeite was encountered on the surface.

Site Composition and Distribution

The range of lithic reduction techniques indicated by surface artifacts appears to be quite varied, but nevertheless, one directed toward the production of a singular product: celtiform axes. The stages of axe production can be broken down into four basic processes from the quarrying of raw jade from its various sources, to the preparation of chunks and macroflakes into blanks, to the bifacial reduction of blanks into preforms, and finally the pecking of axe preforms for export and polishing in other locales. This description of jade reduction in the upper Río El Tambor study area remains at best a preliminary exercise based on observations of jade artifacts witnessed in the field. Furthermore, the length of time during which production took place at these sites is also not well known, since no excavations have taken place. The widespread presence of Late Classic ceramics with jade debitage suggests that these activities were important at a later date than previously suspected.

Jade sources at the upper Río El Tambor sites took three different forms, which may have implications for understanding ancient exploitation. River and creek cobbles were removed from alluvial drainages and perhaps the waterways themselves, but the occurrence of decortication flakes from river-worn pieces does not appear to be a common debitage type in this mountainous region. Instead, most of the large chunks were angular and were probably quarried from blocks of raw material. Large blocks and boulders of jade were procured from at least two different kinds of geologic outcrops, either from large outcrops directly associated with the jade vein, or from eroded hillsides where blocks were exposed from loose soil. The cortex on exposed blocks of jade is much thicker than that of jade removed directly from a vein, which has implications for later reduction techniques.

According to the large debitage at quarry sites and early stage reduction sites, large flakes and chunks were removed from the source in at least three different ways. Natural faults and fissures in jade outcrops were likely used as a means to pry out sizeable chunks of jade. These chunks could be used for further reduction into axe preforms. Sources that feature faults such as these, however, tend to produce jades with incipient fractures that might foul later reduction attempts. In fact, the internal integrity of the jade was probably the most important factor in selecting a piece of jade for celt production. The reason for this is that given the toughness and hardness of jadeite, jade celt production was arguably the most violent and rigorous of Mesoamerican lithic traditions. Heat spalling, percussion with large hammerstones, bifacial reduction, pecking and finally grinding and polishing all require a very homogenous piece of raw material that will not fail at any of these stages. Thus, choosing a solid blank is extremely important in terms of time investment because a failure at any of these stages would mean the loss of many hours of physically punishing and grueling work. Pieces of jade without fault lines were desirable for this reason, and one of the first sources of such material would be alluvial float, since through the natural process of tumbling, fractured and flawed portions are frequently removed. However, large boulders of seamless jade also presented great difficulties to ancient jade workers (e.g. see Figure 4). Such boulders would require the appropriate platform angles to remove sizeable flakes and chunks of workable jade, and also a huge amount of force probably aided by a massive jade hammerstone. According to the curving breaks in some larger chunks of jade, intensive heat spalling may have been an alternate method of removing large pieces of jadeite from either large angular blocks or river-worn boulders and cobbles (see Figure 5, for a modern example).

Once the flake or chunk was attained, it was further reduced with a jade hammerstone. The flake or blank was trimmed at the edges and roughly shaped using the removal of small edge preparation flakes. At this stage knappers could check for impurities or faults in the stone. Midsize chunks of jade, too small to manufacture a celtiform axe, are common at quarry sites. It is likely that these chunks are not only produced through the reduction of jade boulders and cobbles, but also during the preliminary testing and preparation of blanks.

After a blank was manufactured, a bifacial margin was prepared from which to remove bifacial reduction flakes. The goal was not necessarily to thin the piece, but rather to produce an extremely regular lenticular cross-section. If a preform did not have a regular face, usually through the removal of a flake that thinned the piece too much, then the following step of pecking the axe into a smooth, rounded surface would be more arduous and even pointless. Thus, many of the preforms found on the surface of production areas were thrown away because the amount of time pecking the axe would probably exceed the amount of time to produce another, more viable, axe preform. According to a brief replicate study carried out by Hruby, it is likely that bifacial reduction could have been carried out with the use of a mid-size or hand-size jade hammerstone. It is possible that an anvil was used to remove particularly difficult square edges, but further experimentation is required.

Since only one example of an partially pecked celt was found in the upper Río El Tambor, it is likely that these mountainous sites were largely responsible for only these first stages of celt production. The next stage of reduction can be described as a hard hammer pecking technique, which required a jadeite anvil to stabilize the celt. The axe was first laid on the anvil, and then residual surface deformities from bifacial reduction were pecked or hammered into a smooth lenticular surface at the proximal end and an almost circular cross-section at the distal end of the axe. This celt form is extremely reminiscent of the Formative jade axes used by the Olmecs. Although jadeite anvils resembling thick *metates* are known for lithic reduction sites in the Río Hondo area of the Middle Motagua Valley, these have yet to be documented in the upper Río El Tambor region (Figure 19a and Figure 19b, shown above). The existence of jadeite anvils in the Motagua River Valley and the apparently higher numbers of partially pecked and polished celts indicate that the percussion prepared axe preforms were the likely product of export for the mountain sites. Pecking and polishing seems to be an activity carried out by jade workers further down the chain of exchange. It is also important to note that there was no evidence of polishing, string sawing, or bead making at the sites in the upper Río El Tambor region, in striking contrast to the numerous examples known for Guaytán, Vega de Coban and other sites in the Middle Motagua Valley. Flakes and cobbles may have been exchanged out of the mountains, but later stages of craft production do not seem to be present there according to present data.

Obsidian

Aside from the main form of specialized craft production that occurred in the mountains of the upper Río El Tambor (i.e., jadeite production), the inhabitants of the small sites described in this report also practiced various forms of obsidian technology. They relied on obsidian for cutting and scraping tools, as well as a basic material for arms. The chipped obsidian from the Río El Tambor sites does not fit the normal Mesoamerican lithic traditions known for either the Guatemalan highlands or the Maya lowlands. As far as the surface finds encountered by project members, there appear to be two different tool systems in effect, at least during the Late Classic and Post Classic occupations of the area. The first is a multidirectional flake-core system, and the other is a highly advanced pressure flaking system that produced bifacial projectile points (Figure 47). The form and quality of these obsidian points rivals those from the Maya lowlands fashioned of tougher flint or chert. Flake cores and bifaces may or may not have been imported to the region. Nevertheless, if bifaces were imported to the Río El Tambor region, then it is clear that they were retouched or resharpened with as much skill as was required to produce them.

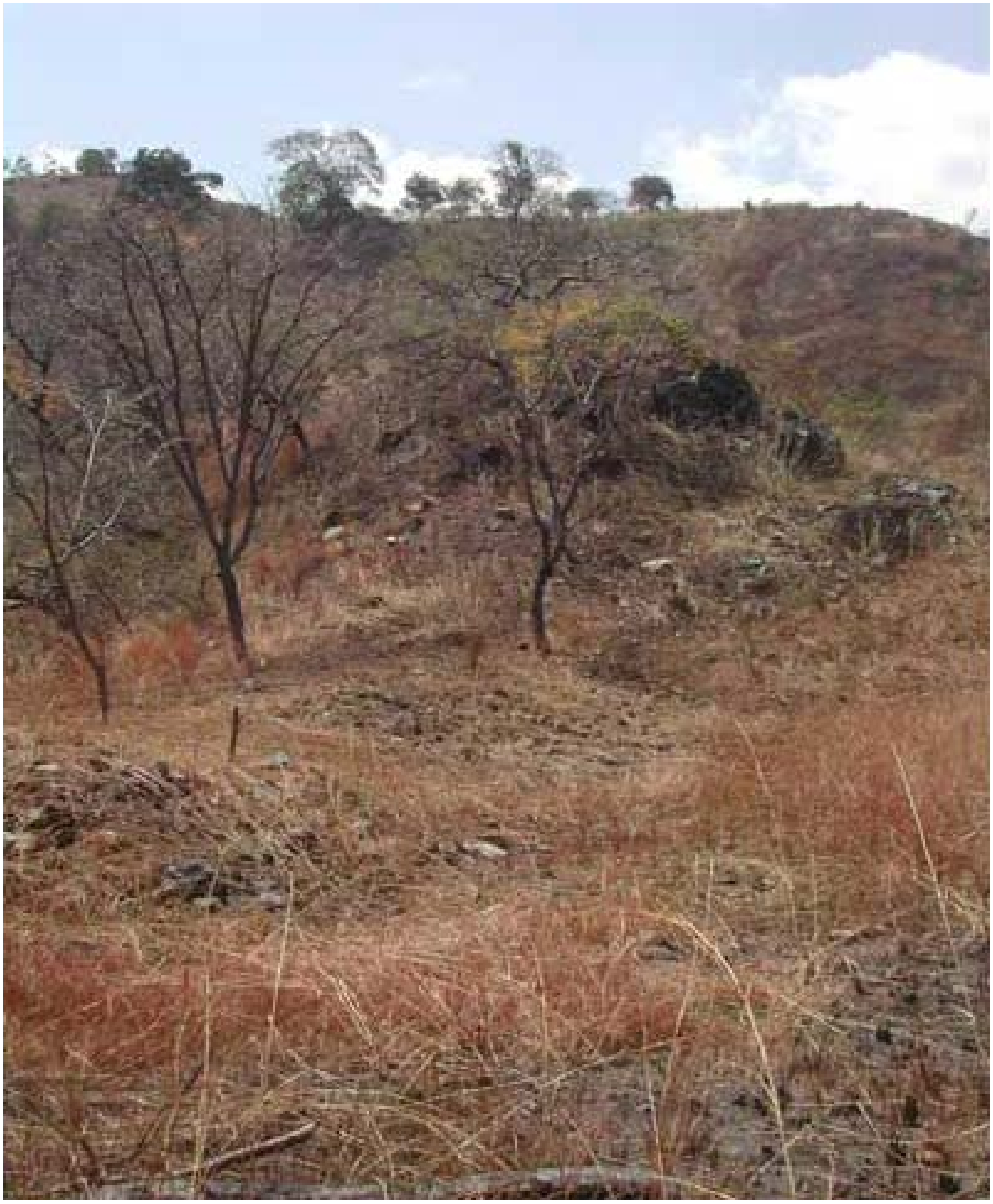

Figure 46. Los Encuentros Site 1 with low-lying mounds oriented to serpentine outcrop.

Figure 47. Bifacial obsidian point found at Los Encuentros Site 1.

Obsidian in this region may have arrived from a number of different geological sources. A short reconnaissance by Hruby of the local Jalapa obsidian source, Cerro de Joyas, showed that it was indeed exploited in antiquity. The volcanic clasts were too small for the production of large prismatic blade-cores, but they were one of the most available tool stones in the region. One disconcerting fact is that the visual characteristics of the Cerro de Joyas source are virtually identical to those from the much better known El Chayal source. Understanding the source distribution and economic exchange of this part of the Maya world will require X-ray fluorescence testing.

Luis Romero (pers. comm. 2004) has described obsidians from Vega del Coban that do not fall under the visual variability of the El Chayal source. However, the technology of the Vega del Coban obsidian artifacts appears to be similar to that found in the Río El Tambor region.

Thus, the technologies used in the upper Río El Tambor region are likely related to those from downstream, but obsidian workers exploited a variety of unknown or unrecorded obsidian sources. The extent of the distribution of the obsidian materials from Cerro de Joyas is not known at this point, but it is clear that a variety of volcanic sources eroded by nearby streams likely provided tool-stone for Motagua sites, such as Vega del Coban. Aside from the Jalapa obsidians that appear to be visually identical to the El Chayal obsidians, those found in the Motagua have characteristics that do not equate with either the El Chayal or the Jalapa source.

As mentioned previously, the main technology in this region appears to be a multidirectional flake-core reduction technique. The main indicator of this is that obsidian flake artifacts from the upper Río El Tambor tend to feature a cortical platform. Although some flakes appear to be very formal according to their morphology, there is no evidence of blade-core or unidirectional flake-core reduction activities occurring in the region. Since many of these obsidian flakes have river-worn cortex on their platforms, similar to the small clasts from the Jalapa source, we may be witnessing a regional flake-core system that is unrelated to other chipped stone traditions from the Maya area. This hypothesis is supported by the obsidian artifacts found at Sitio Aguilucho and other upper Río El Tambor sites that have river worn cortex on their platforms.

At all of the sites recorded on the expedition prismatic blades were a common artifact type. Although they appeared to be from the El Chayal source, the sourcing difficulties related to the local Jalapa source, and undoubtedly other unrecorded obsidian sources, make it impossible to determine if all of the blades present at the jade-producing locales were made from El Chayal blade-cores. Nevertheless, it can be said with certainty that there were no Ixtepeque or San Martín Jilotepeque blades thus far recovered. Since there were no blade-cores or blade-core debitage found on the surface or in looter's pits, it is likely that blade production did not occur in the investigated sites.

Finally, the biface tradition in the mountains of eastern Guatemala appears to have a technological relationship with the biface chert traditions of the Maya Lowlands. Although the projectile point tradition from the Pacific Coast (i.e., unifacially-worked spear and dart points) is quite similar in basic outline to those in our sample, the bifacial tradition of Eastern Guatemala may be unique. At least one point is technologically similar to archaic lithic technology, but without a larger collection from dated contexts, it is impossible to distinguish between later and earlier points. Further excavation and lithic analysis are necessary to determine the origin of the upper Río El Tambor obsidian traditions.

Figure 48. Los Encuentros Site 2.

Conclusions

The preliminary finds of the Proyecto Arqueologico del Jade reveal intriguing patterns that require further investigation. First, ceramics indicate that the exploitation of the blue green jadeite of the Quebrada El Silencio drainage did not occur only, or even primarily, during the Middle Formative Period originally hypothesized by the project members. Indeed, only one probable example of Middle Formative ceramics was discovered in the region, this being a rim sherd from Sitio Carrizal Grande (Figure 43a and Figure 43b). The remaining ceramic evidence suggests that there was a major Late Classic presence at all the sites discovered during the survey. Plumbate pottery, a marker for the Late Classic and Early Postclassic, was also found at the Sitio Aguilucho and Chucunhueso sites, as well as at the small site west of the juncture of the Quebrada Seca and the Quebrada El Silencio. The appearance of plumbate pottery at jade working areas puts a much later date of jade exploitation than initially believed. However, considering the importance of jade to the local Pokomchi Maya who lived in this area during the contact and colonial periods, some continuity in jade procurement is to be expected.

The apparently short occupation of many of upper Río El Tambor sites also suggests that the jadeite celt production during the Late Classic may have been due to some external demand for types of jade that were not available further down stream closer to the Río El Tambor confluence with the Río Motagua. Future excavations in the area will have to address these two temporal patterns: brief settlement of the area during the Middle Formative and Late Classic periods that were directed toward the production of celtiform axe preforms. In addition, the large site of La Laguna, located on the lower Río El Tambor, close to the Motagua, displays evidence of jade celt preparation, and may have important implications for the ancient procurement of jade in the Quebrada El Silencio drainage.

Another important pattern is the production of jade celts and jade quarrying in the region. The future excavation of celt production and quarrying locales may confirm or deny the preliminary analysis presented in this paper. Flake quantities and error frequencies may be able to determine the output of jadeite celts for various time periods in the Upper Río El Tambor. However, beyond technological issues, the question remains: who was consuming blue-green jadeite axes during the Late Classic period? This color and technological form are not common during the Late Classic period in the Maya lowlands. Nonetheless, large amounts of jade have been discovered over the years at the major site of Copán in nearby, western Honduras, and is quite possible that some of these jades will correspond to jadeite known for the Río El Tambor region.

Figure 49. Probable sculpture of the old fire god, or Huehueteotl, reportedly from site near modern town of Potrero Carrillo.

Figure 50. Skull sculpture reportedly from same site near Potrero Carrillo.

Although virtually all of the surface ceramics encountered during the 2004 field season in the Quebrada El Silencio drainage date to the Late Classic period, the 2004 field season was limited to surface reconnaissance, and it is entirely possible that there are buried earlier deposits not visible on the surface. In addition, given the rugged nature of the terrain, other sites may well be encountered in the future. Two stone monuments resembling the Cotzumalhuapan style currently in Jalapa are reportedly from a site near the town of Potrero Carrillo, roughly seven kilometers west of the Quebrada El Silencio jadeite sources (Figure 49 and Figure 50). The size and quality of these tenoned sculptures suggest that they derive from a fairly substantial site, surely on a larger scale than Sitio Aguilucho. In addition, new jadeite sources continue to be discovered in the Motagua region. In the last several years, bright green jadeite similar to that used by the Classic Maya has been found far upstream in the Motagua in the general vicinity of the Postclassic site of Mixco Viejo, roughly 80 kilometers west of Guaytán and the major jadeite sources of the Middle Motagua (Figure 51a, Figure 51b, & Figure 52, and Appendix, Figure 12). Given the extensive area in which jadeite occurs in eastern Guatemala, it is clear that a great deal of reconnaissance and research still needs to be performed.

Figure 51a. View of Motagua River near Mixco Viejo. Photo courtesy of National Geographic.

Figure 51b. View of Motagua River near Mixco Viejo.

Figure 52. Jadeite boulder from the Upper Motagua area featuring a vein of "imperial", width of boulder ca. 35 cm.

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List of Figures

Figure 10. Lower Río El Tambor near Agua Caliente. After Hurricane Mitch, many prospectors began discovering alluvial cobbles of translucent blue jadeite in this area.

Figure 11. Jadeite outcrop at La Ceiba, the large boulders in the foreground are boulders of greyish jadeite.

Figure 12. View from Carrizal Grande of Quebrada El Silencio drainage.

Figure 13. Vein of bluish jadeite in Quebrada El Silencio near Carrizal Grande. Since this photo was taken in 2002, this vein has been removed by local prospectors.

Figure 14. Ecologite boulder containing garnets from Quebrada El Silencio. Found in the same area as the jadeite bodies, ecologite may have ancient provided garnet as a material for cutting jadeite, as it is a harder stone.

Figure 15. View of Quebrada Seca in the foreground and Quebrada El Silencio in the distance.

Figure 16. Jadeite boulder of roughly 300 tons in the Quebrada Seca.

Figure 17. The Classic period site of Guaytán, Central Motagua Valley.

Figure 18. Sawn jade cobble with projecting kerb in middle, Guaytán regional museum.

Figure 19a. Ancient jade anvil from Río Hondo region. Photo courtesy of National Geographic.

Figure 19b. Ancient jade anvil from Río Hondo region.

Figure 20. Ancient jadeite reduction area, most of the lithics on the surface are jadeite debitage, Río Hondo region.

Figure 21a. View of Cerro Chucunhueso from Sitio Aguilucho.

Figure 21b. View of Cerro Chucunhueso from Sitio Aguilucho. Photo courtesy of National Geographic.

Figure 22. View of Sitio Aguilucho from south, with Terraces 1, 2 and 3 indicated by arrows.

Figure 23. Schist outcrop west of Sitio Aguilucho. Many of the schist blocks covering the platforms at Sitio Aguilucho were probably obtained from this nearby source.

Figure 24. Map of Terrace 1.

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Appendix: Jade Samples from the Motagua Region

Figure 1. Boulder of translucent, light blue jadeite from Río Hondo region, polished plaque placed where it was removed from boulder.

Figure 2. Celt carved by Karl Taube from Río Hondo area boulder illustrated in previous figure (length of celt, 13 cm.).

Figure 3. Purple jadeite from Río Hondo area (length of slab, 22 cm.).

Figure 4. Polished jadeite from El Ciprés, Río Blanco region (length of larger piece at top, 12 cm.).

Figure 5. Jadeite alluvial cobbles from lower Río el Tambor (length of middle piece 8.5 cm.).

Figure 6. Polished jadeite samples from La Ceiba (length of upper piece, 9 cm.).

Figure 7. Jadeite nodule from Carrizal Grande region of Quebrada El Silencio (length, 13 cm.).

Figure 8. Blue jadeite from Quebrada Seca (length, 15 cm.).

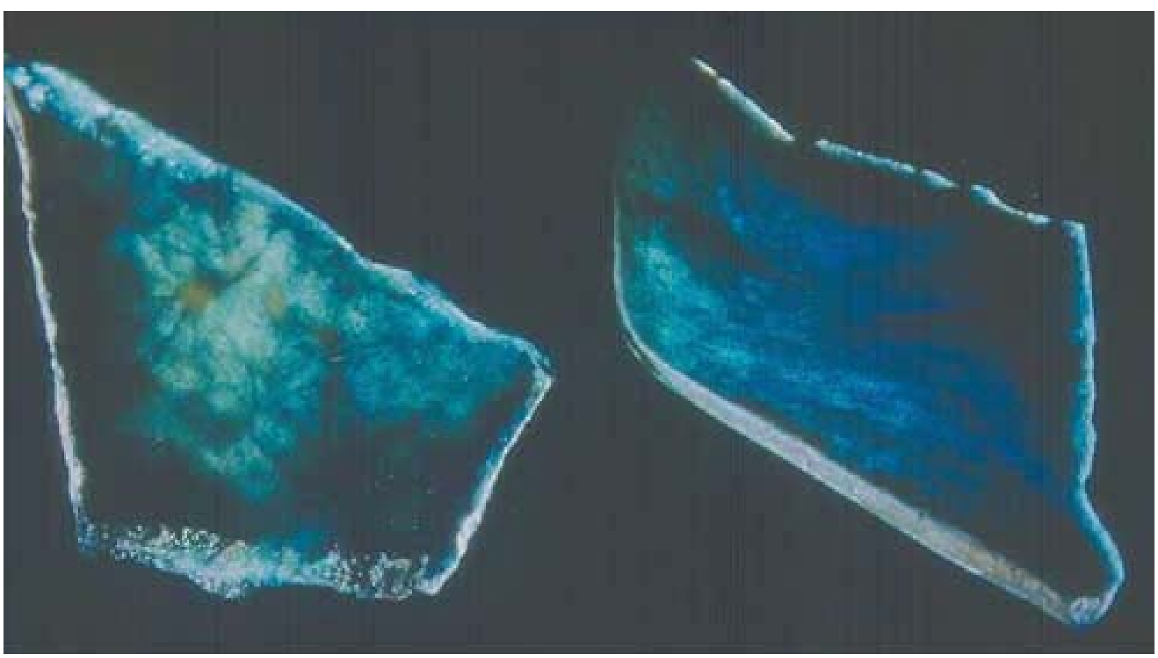

Figure 9. Blue jadeite slabs from Quebrada Seca (length of slab to right, 9.5 cm.).

Figure 10. Light purple jadeite with mica inclusions, Quebrada Seca (length of slab, 8 cm.).

Figure 11. Polished jadeite from Quebrada del Mico (length of slab, 10 cm.).

Figure 12. Alluvial jade boulder from Motagua River between Mixco Viejo and modern town of El Chol (length, 35 cm.).