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Investigating Jade Prestige Goods Production, Middle Motagua Valley, Guatemala

With contributions by co-director: Licenciada Mónica Pellecer Alecio



Research Year: 2005

Culture: Maya

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Sites: Guaytán, Magdalena, El Terrón, Vargas, Middle Motagua Valley

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Abstract

Jadeite objects were highly valued prestige goods and played a vital part in the political economies of all pre-hispanic Mesoamerican civilizations. Despite their importance, Mesoamerican archaeologists know little about how prestige goods production was organized. From October to December 2005, FAMSI-supported field research, consisting of archaeological survey and excavations, was carried out as part of the Proyecto de Investigación Sobre la Producción de Jade en el Río Lato (PJ 2005) to understand the distribution, organization, and technological process of jadeite artifact production in the Middle Motagua Valley, centering on the region around the Lower Lato River Valley. Excavations were initiated to determine if surface jadeite debitage scatters represented in situ jadeite workshops. Archaeological survey attempted to identify other potential jadeite workshops throughout the valley and make representative surface collections from these sites. Our field research indicates that jade artifact production was much more widespread than previously believed.

Resumen

Los objetos de jadeíta fueron mercancías de prestigio y una parte vital de la economía política de las civilizaciones prehispánicas de Mesoamérica. A pesar de su importancia, los arqueólogos de Mesoamérica saben poco sobre la organización de la producción de las mercancías de prestigio. De octubre a diciembre de 2005, investigaciones de campo apoyadas por FAMSI, consistentes en la prospección y excavaciones arqueológicas, fueron realizadas como parte del Proyecto de Investigación Sobre la Producción de Jade en el Río Lato (PJ 2005), para entender la distribución, la organización y los procesos tecnológicos de la producción de artefactos de jadeíta en el Valle Medio del Motagua, en la región cerca del valle más bajo del Río Lato. Las excavaciones se hicieron para determinar si los residuos de superficie de jadeíta representaban talleres de jadeíta in situ. La prospección arqueológica intentó identificar otros talleres potenciales de jadeíta a través del valle y hacer las colecciones de superficie representativas de estos sitios. Nuestra investigación de campo indica que la producción de artefactos de jade fue mucho más ampliamente distribuida de lo previamente creído.

Submitted 05/08/2006 by:

Erick T. Rochette

etr109@psu.edu

erick.rochette@gmail.com

Introduction

The Middle Motagua Valley has long been recognized as the primary jadeite source for all of Mesoamerica and previous archaeological research indicated that many sites in the region were involved in jadeite artifact production. Despite this recognition, very little published information exists documenting the organization of jadeite artifact production in the Middle Motagua Valley. The Middle Motagua Valley provides an ideal place to test models of the organization of ancient Maya prestige goods production for two reasons: (1) surface evidence of jadeite artifact production is widespread and (2) the arid conditions of the region make these remains relatively obtrusive.

This report presents preliminary results of FAMSI-funded archaeological research in the Middle Motagua Valley, Department of El Progreso, Guatemala from October to December 2005. Field research consisting of archaeological survey and excavations were carried out as part of the Proyecto de Investigación Sobre la Producción de Jade en el Río Lato (PJ 2005) to understand the distribution, organization, and technological process of jadeite artifact production in the Middle Motagua Valley, centering on the region around the Lower Lato River Valley. Excavations were initiated to determine if surface jadeite debitage scatters represented in situ jadeite workshops. Archaeological survey attempted to identify other potential jadeite workshops throughout the valley and make representative surface collections from these sites.

Field operations were very successful. While lab analyses of the lithic materials have not yet been carried out, it is anticipated that the data collected will provide important new information regarding the organization of jadeite artifact production in the Middle Motagua Valley during the Late Classic. The results of the archaeological survey and surface collections indicated that jadeite artifact production was more extensive than previously believed, with all surveyed sites yielding evidence of jade bead production. Excavations confirmed that high concentrations of surface debitage could be taken as evidence of the presence of jadeite workshops and provided some insight into the social context in which prestige goods production was taking place. Finally, the surface collected and excavated jadeite debitage provides a basis for the reconstruction of the technological processes of pre-hispanic jadeite artifact production.

Research for PJ 2005 was conducted under permits issued to Erick T. Rochette and co-director Licenciada Mónica Pellecer Alecio, by the Instituto de Antropología e Historia de Guatemala (IDAEH). Project members included three students from the Universidad de San Carlos de Guatemala, Erika Gomez, Elisa Mencos, and Selket Callejas.

Background

The Middle Motagua Valley is located in east-central Guatemala and includes the Motagua River Valley between the modern communities of Paloamontonado and Río Hondo (Smith and Kidder, 1943). The Middle Motagua Valley was first recognized as an important jadeite-bearing region when Robert Leslie documented the location of extensive jadeite sources at Manzanotal in 1952 (Foshag and Leslie, 1955). Although some scholars have argued otherwise (Coe, 1968: 100-103; Easby, 1968: 87; 1981: 138; Griffin, 1993: 203; Hauff, 1993: 93), at present the Motagua Valley is the only positively-identified jadeite source area in Mesoamerica (Harlow, 1993).

Although archaeological remains in the Middle Motagua Valley were noted in the late nineteenth century, it was not until the 1930s that Smith and Kidder (1943) carried out the first archaeological investigations in the area. Their research led them to label the archaeological remains between Paloamontonado and Río Hondo as the Middle Motagua Culture, based on the presence of a unique tomb style not found elsewhere in the Maya lowlands and the lack of carved stelae. Although their excavations focused on the ceremonial and elite residential core of the site of Guaytan, their excavations yielded some "jade-workers' material" including preformed jade beads and conical drill cores (ibid.: 165).

Archaeological research did not pick up again until the 1970s, when a number of archaeological projects focused attention on the prehispanic jadeite-processing in the region. The most extensive archaeological project in the area was carried out by Gary Rex Walters (1980; 1982), who conducted a surface survey of the San Agustín Acasaguastlán Archaeological Zone, located in the lower Lato River Valley. His research yielded a number of important insights about the chronology and general structure of settlement patterns in the region, including that of the local jadeite-processing industry. Ceramic comparisons indicated that the Middle Motagua Valley was occupied during the Late Preclassic, Middle Classic, Late Classic and Late Postclassic periods, with apparent abandonment in the intervening periods (Walters, 1982: 129). A four-level site classification (simple to complex: Classes 1, 2, 3, 4) was created for classifying sites in the valley that was based on the occurrence of combinations of mound types and height and the presence or absence of other architectural features.

Based on the surface remains, Walters was able to reconstruct the Late Classic jadeite-processing industry. He defined four types of jadeite workshops (simple to complex): Types I, II, III, and IV. Type I workshops were characterized by jadeite debitage produced by shattering (flakes > 5cm). Type II workshops consisted exclusively of flakes produced by pecking (flakes < 5cm). Type III workshops contained pecking flakes, as well as debitage shaped by abrading, drilling and polishing. Type IV workshops contained all the evidence of Type III workshops, plus evidence of sawing and incising (in the form of broken or unfinished artifacts). In general, his data indicated that the most complex jadeite workshops (Type IV) were confined to the largest sites in

the site hierarchy (Class 4). Type III workshops were found at some Class 3 sites. Type II workshops were found in all site classes. Finally, Type I workshops were only located near jadeite outcrops. Using this data, Walters proposed a tentative model for the movement of jadeite within the Middle Motagua Valley in which simpler jadeite workshops passed raw or partially worked jadeite to higher order sites and more complex workshops, which performed the final stages of artifact production. In his model, the most complex workshops were associated with the most highly ranked centers and production was done by attached specialists.

Despite the importance of these findings, we are still left with a vague description of the jadeite-processing industry in the Middle Motagua Valley. Walters' survey methodology did not include information about the contexts in which particular stages of jadeite artifact production took place. For instance, we do not know whether production was situated close to "elite" residences or compounds, or even at site centers. Walters' survey also relied on the presence/absence of jadeite production debitage and could not quantify the intensity of jadeite artifact production at sites in the valley. Further, we have very little information about the individual sites that were encountered on survey, including information about the spatial layout of mounded sites. Although collections were made at the time, these are no longer available (Walters, 2003, personal communication). Therefore, more focused and rigorous archaeological research in the Middle Motagua Valley has the potential to produce a very powerful data set regarding the structure of the local jadeite-processing industry. No other archaeological research has been conducted in the Middle Motagua Valley since Walters' work due in part to the political instability in Guatemala of the past two decades. Thus, we have an unusual opportunity to investigate a prestige goods production system in Mesoamerica and to explore the broader question of how the production of prestige goods was organized and controlled in ancient societies.

Methodology

Pedestrian Survey and Mapping

Archaeological surface survey to locate archaeological sites, jadeite production areas and jadeite sources was initiated in October 2005 in the lower Lato River Valley, and north of the Motagua River Valley to the east and west of its confluence with the Lato River ([Figure 1](#), [Figure 2a](#), and [Figure 2b](#)). We paid special attention to re-examining areas surveyed by Walters (1982), though residential occupation, ranching and commercial properties prevented us from entering and surveying all the land in our survey area. Survey areas were identified from Walters' maps and identified on the corresponding 1:50,000 San Agustín Acasaguastlán map of the Instituto Geográfico Nacional (NAD 83/WGS 84). A two- or three-person survey team, led by myself, conducted an intensive archaeological surface survey of each survey area. Because of the rugged nature of the terrain (with many steep-sided quebradas) and information provided by local informants, we concentrated our survey on areas of level, or gently sloping terrain. At each site encountered, the team (1) took GPS readings and entered

this information directly onto the field map, (2) recorded observations regarding the number and dimensions of structures, site disturbance, current land use and abundance of surface material, (3) drew a map of the site using a compass and tape (when time permitted) and (4) made surface collection of artifacts for evaluating site function and period of occupation.



Figure 1. Map of the Maya area with Middle Motagua Valley noted by red box (from Hammond, 1977:44).

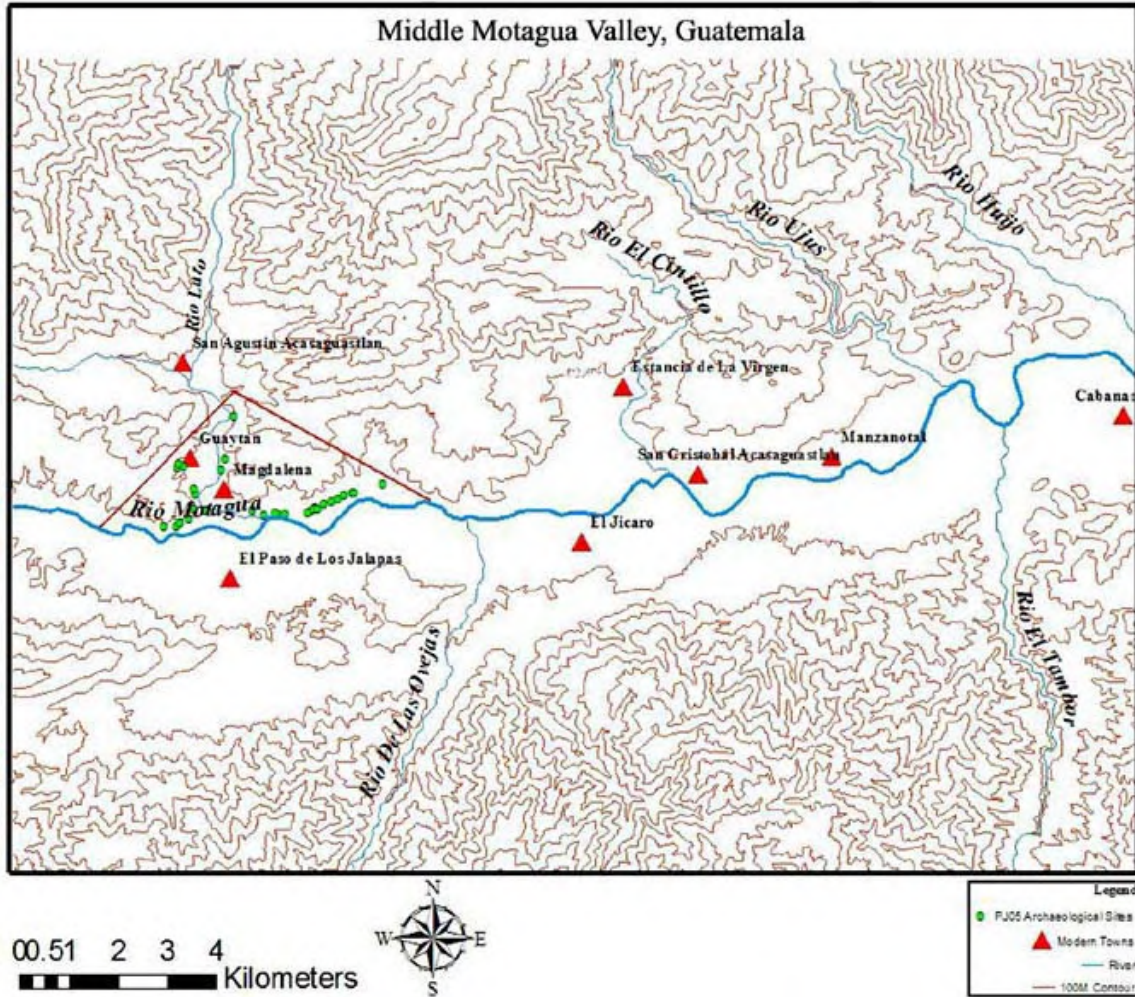


Figure 2a. Map of the Middle Motagua Valley, with bright red lines indicating extent of surveyed area.

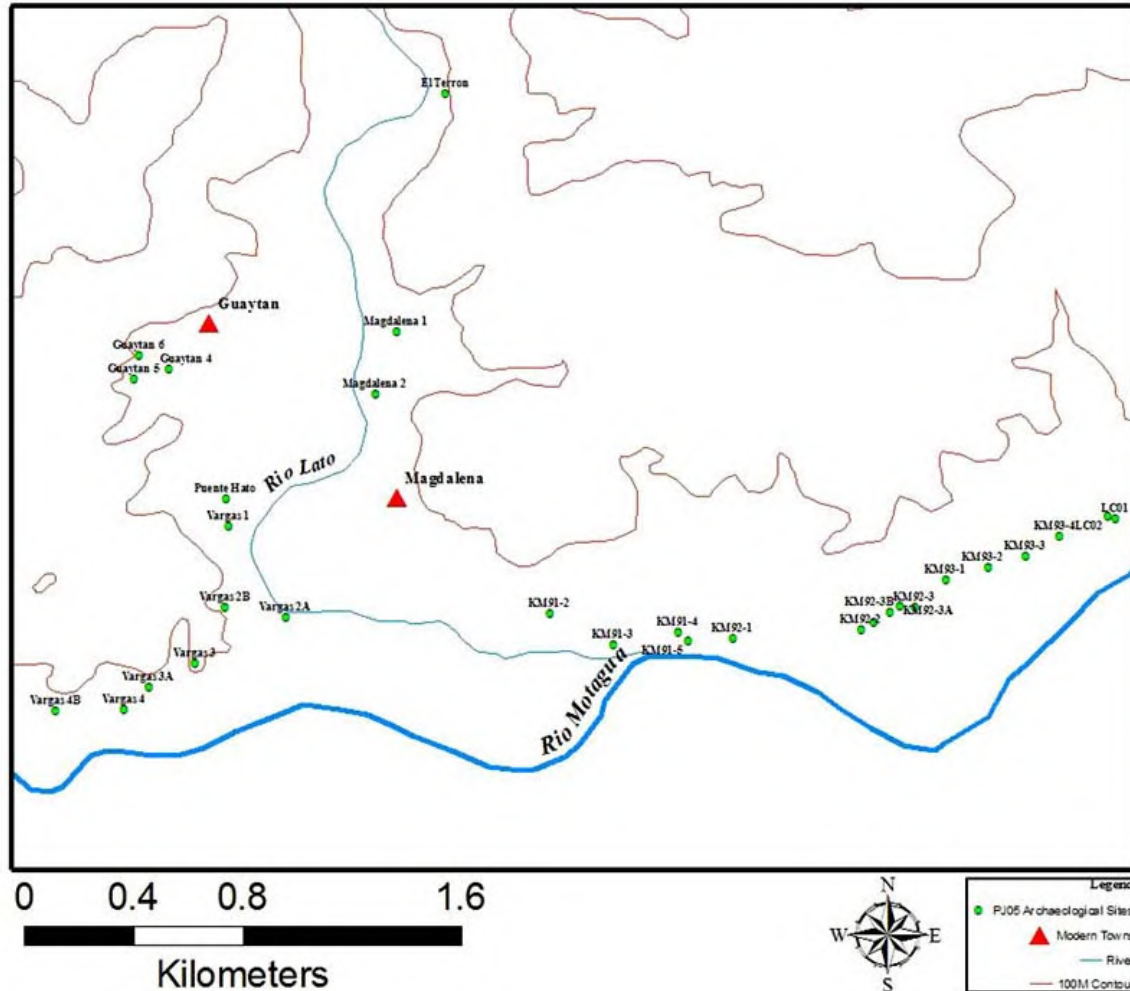


Figure 2b. Map of the surveyed area in the lower Río Lato valley.

Site designations were made as modifications of the sites names used by Walters (1982), and were modified accordingly. Sites located in the core Guaytan zone along the Río Lato were given designations that reflected the name of the site and the sector (e.g. Guaytan IV; Vargas I; Magdalena I). Sites located in the survey area along the Motagua River were given names that corresponded to the kilometer marker nearest the location of the site, as well as a site number (site number progressed west to east). For example, KM93-II is located to the east of KM93-I.

Excavation

In July 2004, archaeological reconnaissance identified surface scatters of jadeite debitage at the sites of Guaytan (Guaytan3 and Guaytan4), Vargas III and Magdalena I. Work began at Guaytan4 (Operations 1A and 1B), the largest and most dense surface

debitage scatter, where a 5-meter grid was imposed in order to provide provenience for a systematic collection of surface archaeological materials, and subsequently for excavation. The grid was oriented to magnetic north, and grid units were organized according to a coordinate system, using an arbitrary datum point located to the southeast of the debitage scatter as the origin. Using the established 5-meter grid, a series of 1m x 1m grid units were imposed over the debitage scatter and all archaeological artifacts were collected within each unit ([Figure 3](#), shown below).



Figure 3. Surface collection at Guaytan4.

After the completion of surface collections, two 1m x 1m excavation units were selected based on the density of surface remains. Excavations proceeded by arbitrary 10cm levels, unless clear depositional layers were observed. All excavated material was screened through 1/8-inch mesh screens to ensure the collection of all size grades of jadeite debitage and other archaeological material. Our collection in the screens was enhanced by spraying all materials with water prior to collection, as this removed some of the fine soil that is common in the area. A 10cm x 10cm column was left unexcavated in each unit for the collection of soil samples to be used for microscopic examination of particles of jadeite and possible abrasives used to grind and polish jadeite, such as

garnet or quartz. All charcoal observed during excavations was collected. A selection of these samples will be sent for C-14 dating.

After the excavations of these units failed to yield stratified *in situ* workshop deposits, a determination was made to change excavation strategies. A program of test pitting using 50cm x 50cm units was initiated in two other areas of the Guaytan4 site containing jadeite surface scatters (Op. 1D, 1E and 1F), as well as in the Guaytan3 site (Op. 1C). Further reconnaissance at Guaytan identified additional areas containing surface evidence of jade artifact production. We excavated 50cm x 50cm test units in each of these areas to determine the nature of these surface concentrations. Additional test excavations were made at Magdalena I, and KM93 I; we were unable to secure permission to excavate from local landowners at the Vargas III site. Where necessary because of the depth of archaeological deposits or because of the density of recovered material, excavation units were expanded to enable artifact recovery. A total 32 units were excavated to bedrock or sterile soil, which was encountered at a maximal depth of 1.8 meters below the surface. The same excavation procedures were followed as described above for Operation 1A.

Preliminary Survey Results

We located and surface collected a total of 32 sites during our survey (see Appendix 1 for site descriptions). We defined a "site" as a collection of cultural material (regardless of the presence of architectural remains) that was separated from the nearest such collection by at least 50 meters. All sites have been extensively looted, and many have been partially destroyed by modern construction or agriculture.

Sites along the Motagua River are generally located along the southern edge of the bluffs that overlook the river (about 15m above the river's flood plain) and are found on level or gently sloping terrain, often immediately adjacent to steep quebradas. Although we were not able to survey some of the more rugged foothills of the Sierra de las Minas north of the river (because of time constraints and lack of permission to access land), we encountered only one site north of the CA-9. In general, sites consisted of small groups of four to six structures, sometimes organized around plazas, though no consistent site plan was evident. Sites ranged from domestic housemound groups to larger elite ceremonial/residential groups. Structure categories included: low substructure platforms that likely supported thatch superstructures; vaulted funerary monuments; multi-roomed platforms with low walls that likely supported perishable superstructures. In addition, we located two sites that contained no structures, but consisted entirely of surface debris.

The largest sites and structures in the survey area are found in the lower Lato River Valley at Guaytan, Vargas, Magdalena, Puente Hato, and El Terron. Guaytan has been the focus of numerous archaeological projects and has been thoroughly mapped, so our goal was to locate evidence of jadeite artifact production at the site. The presence of the modern village of Guaytan over much of the ancient site limited our survey to those

areas under protection by IDAEH and the areas of the site south of the residential core of the modern village. We located four areas of jadeite artifact production (in addition to those located in July 2004): Guaytan5, Guaytan6, Guaytan7, Guaytan8. We chose three of these areas for test excavations to determine if the surface jadeite debitage reflected buried deposits; these excavations are described below under [Preliminary Excavation Results](#).



Figure 4. Large looter's trench through Str. 1 at Vargas IIA.

Portions of all of the Lato River sites show evidence of elite occupation, based on larger, more elaborate structure groups and the presence of ballcourts at Guaytan (our Guaytan6, Smith and Kidder's "Guaytan Ciudadela"), Vargas I, and El Terron¹. Although we encountered evidence of jadeite artifact production at all sites in the lower Lato River Valley, the densest concentrations were found at Vargas IIA, Vargas III, and El Terron. Jadeite production evidence at the Vargas IIA site was associated with a core of monumental architecture that has been badly destroyed by looting and construction ([Figure 4](#), shown above). Ceramics collected from looters' trenches and surface

¹ Walters (1982) noted the presence of a ballcourt at Magdalena II, but we could not confirm this report. Local informants indicated that Walters may have been referring to a part of the site that has since been destroyed by the construction of a driveway and private residential outbuilding on part of the site.

collections indicate occupation from the Late Preclassic through the Late Classic, and include imported Usulután ceramics and locally-made Usulután imitations (Craig Goralski, 2005, personal communication). Jadeite artifact production evidence included all stages of jadeite bead production, as well as sawn jadeite pieces and a stone with circular depressions that may have been used for grinding or polishing jadeite beads ([Figure 5](#), shown below). Interestingly, we also collected evidence indicating that other stone beads were being produced in the same area from jasper and other unidentified stones in addition to the manufacture of greenstone beads ([Figures 6](#) and [Figure 7](#), shown below). Unfortunately, we could not secure permission from local landowners to excavate at the site.



Figure 5. Stone possibly used for grinding or polishing jadeite beads, collected from looter's backdirt at Vargas IIA. Note the large depression on the lower part of the stone, and three smaller depressions to the upper left. Similar depressions are found on the reverse side.



Figure 6. Jadeite and greenstone bead production evidence at Vargas IIA.



Figure 7. Lapidary production of unidentified stone beads from Vargas IIA, collected from looter's backdirt.

In total, 3,670 pieces of jadeite and greenstone lithic material were collected, representing almost the entire range of jadeite artifact production². The majority of the material consisted of flakes (n=3,433), which resemble a coarse gravel ([Figure 8](#), shown below).

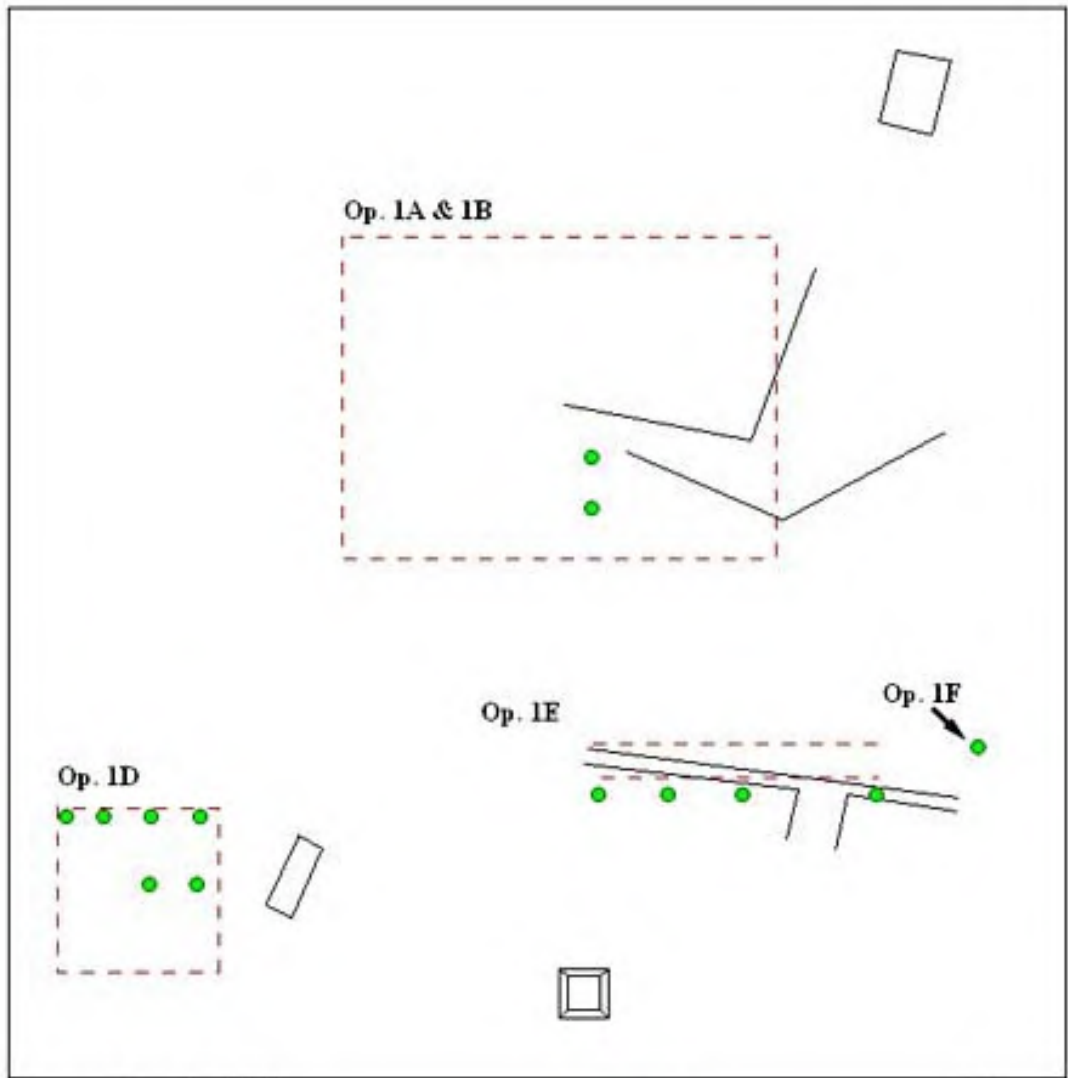


Figure 8. Example of jadeite debitage flakes. Note the lack of regular fracture.

In addition, we collected 65 unworked and worked jadeite cobbles (large pieces from which flakes used for artifact production were presumably removed). The following table provides a summary table of collected lapidary material:

² We found no evidence of incising among any of our surface collections or excavations.

Table 1. Collected Greenstone Material	
Artifact Type	Count
Jade Debitage Flakes	3,443
Jade Beads	9
Jade Bead Preforms	23
Jade Beads – Broken/Partial	66
Jade – Drilled	2
Jade – Drill Cores	14
Jade – Cut	9
Jade – Ground/Polished	39
Jade – Large Cobbles	65
Chert Drills	107



Proyecto de Jade 2005
 Map by Erick Rochette,
 Monica Pellecer & Erika Gomez

0 5 10Meters

Legend

- Excavation Units
- Structures
- - - Operations & Surface Collection Areas



Figure 9. Map of the southwestern section of Guaytan4 group.



Figure 10. Jadeite bead preform. Note the lack of grinding or polish.

Preliminary Excavation Results

A critical part of this research involved excavation in areas identified in July 2004 as possible jadeite workshops based on the presence of surface debitage. The goals of these excavations were twofold: (1) to determine whether the surface evidence was indicative of *in situ* jadeite workshops; and (2) to collect evidence regarding the social context of this jadeite artifact production (i.e. specialized vs. domestic). We began excavations on October 17, 2005, and focused on three of these areas: Guaytan3, Guaytan4 and Magdalena I. In addition, we also excavated eight test pits at Guaytan5 (three test pits), Guaytan7 (two test pits), Guaytan8 (two test pits) and KM93-I (one test pit). The results of these excavations are briefly summarized below.



Figure 11. Jadeite bead preform with dimple from abandoned drilling attempt. The bead was partially ground before drilling, but not yet fully formed. The hole was likely started with chert drills like those in Figure 28.

Guaytan4

Guaytan4 is the area of densest jadeite surface debitage identified in July 2004, and is located along the southern perimeter of the area identified by Smith and Kidder as "Guaytan Ciudadela." The southern and western perimeters of the group were the location of limited, small scale excavations by Walters (1980). The sector is located to the east of a small *quebrada*, and is bordered on the west by the modern road to Guaytan ([Figure 9](#)). The sector of the site includes a series of low residential platforms that supported small stone superstructures. All surface collected and excavated evidence of jadeite artifact production was found in the southern portion of this sector, in association with low platforms.



Figure 12. Conical jadeite bead cores made with hollow drills. Unlike the core shown in Figure 13, these cores were drilled in a single direction all the way through the bead. Some of the cores show evidence of having been ground and/or polished on one side before drilling, while being left rough on the other side (see Figure 14 for another example).

Although the variety and density of lithic material from the excavations corresponded to that observed and collected on the surface, no dense, stratified *in situ* jade workshops or workshop dumps were found at Guaytan4 during our test pitting program. Nevertheless, we did collect a significant amount of evidence of jadeite artifact production, typically as part of sub-floor fill. This evidence included jadeite flake debitage, complete and incomplete beads, sawn jade pieces, jade hammerstones, a jade polisher, and numerous chert drills ([Figures 10](#), [11](#), and [12](#), shown above, and [Figures 13](#) through [28](#), shown below).



Figure 13. Biconical jadeite bead core likely made by a hollow drill after drilling from one direction, and then from the opposite direction.



Figure 14. Conical core from lip plug(?). Note the presence of pecking scars and lack of grinding on one surface and flat opposite surface on which the core rests.



Figure 15. Jadeite bead core with large lip from removal (note polish on both ends).



Figure 16. Jadeite bead broken during drilling. Bead is partially ground on opposite side.



Figure 17. Cylindrical jadeite bead. Bead is partially polished and was drilled using a hollow drill in one direction.



Figure 18. Jadeite bead with polish. Bead was likely drilled through with a chert drill, but was not finely polished.



Figure 19. Fragments of broken jadeite artifacts. Note ground and polished surface of the artifact on the right (opposite side is rough fracture scar). Artifact on left is rough on all sides and appears to have been broken during drilling.



Figure 20. Fragment of jadeite artifact broken during drilling. Top surface is flat and polis



Figure 21. Piece of jadeite cut by string sawing on two surfaces. This piece was likely cut using cordage and abrasive, but determining the exact method awaits the results of replication studies.



Figure 22. Thin fragment of ground and sawn jadeite. Note the lip from removal after sawing at the bottom of the fragment.



Figure 23. Small fragment of jadeite with evidence of string sawing on one surface that terminates at a removal scar (towards top of photo). Small pieces such as this may have been removed from larger objects as they were prepared for grinding and polishing. The opposite side is rough, but does not show clear evidence of pecking.



Figure 24. Large fragment of jadeite with signs of pecking and percussion flaking for rough shaping.



Figure 25. Unfinished jadeite fragment that has been ground on two surfaces, possibly to create a small pendant.



Figure 26. Fragment of jadeite ground on two faces.



Figure 27. Possible jadeite polisher or early-stage jadeite ear spool. If used as a polisher, flat edge would have likely been used with fine abrasive to polish jadeite artifacts with larger surfaces, such as pendants and plaques.



Figure 28. Chalcedony drill bits used for drilling jadeite (and other materials) by using them with crushed abrasives. Chalcedony can be found in streambeds in the area.

In addition, our excavation yielded evidence of the possible production of obsidian blades and production of shell artifacts ([Figure 29](#), shown below). Especially intriguing was the discovery of a cache of unexhausted obsidian blade cores at the base of a wall bordering the north ([Figure 30](#) and [Figure 31](#), shown below). The placement of this cache along the exterior face of a platform wall is consistent with the placement of similar caches in the southern portion of this group that were excavated by Walters (1980) before they were destroyed by the construction of the school that borders the group. These lithic and shell materials await further analyses, which are described briefly below.



Figure 29. Broken shell artifact found in sub-floor fill in Guaytan4. Artifact is partially ground.



Figure 30. Upper level of cache of 245 obsidian blade cores placed to the south platform wall. Cache was well defined at edges and covered with large ceramic fragments.



Figure 31. Detail of cache of obsidian blade cores with ceramic fragments removed.



Figure 32. Looking north towards Guaytan3, indicated by red arrow.

Guaytan3

The site of Guaytan3 is located to the north of Guaytan4 on a narrow bluff at the confluence of two small quebradas; there are no structural remains in the immediate vicinity ([Figure 32](#), shown above). We excavated three small 50cm x 50cm test pits to assess the significance of the surface debitage observed in the area. All excavations terminated at 60cm in depth before reaching bedrock. Very few artifacts were found in these excavated contexts, although limited evidence of jadeite artifact production was collected ([Figure 33](#), shown below).



Figure 33. Ground jadeite artifact found in test excavations at Guaytan3.

Magdalena I

The site of Magdalena (located around the modern village of the same name) occupies a series of river terraces to the east of the Río Lato. Walters divided the site into three survey sections, each separated from one another by natural *quebradas*; Magdalena I is the northernmost sector of the site ([Figure 34](#)). In July 2004, we found jadeite debitage scatters in the western and eastern perimeters of the elite ceremonial/residential core of Magdalena I, in direct association with elite residential architecture. As with other sites in the valley, Magdalena I has been heavily looted, making it difficult to find undisturbed locations for test-pitting. In November 2005, we excavated five test pits at Magdalena I: one test pit in the eastern perimeter, one test pit in the central plaza area, and three test pits in the western portion of the site. None of the excavations reached more than 60cm before being terminated in sterile soil. Our excavations yielded artifacts comparable to those found on the surface, including chert drills, obsidian blade fragments and flakes, fragmentary ceramic sherds, jadeite flakes, partial beads, and sawn jade pieces. The majority of the excavated ceramics date to the Late Classic period.

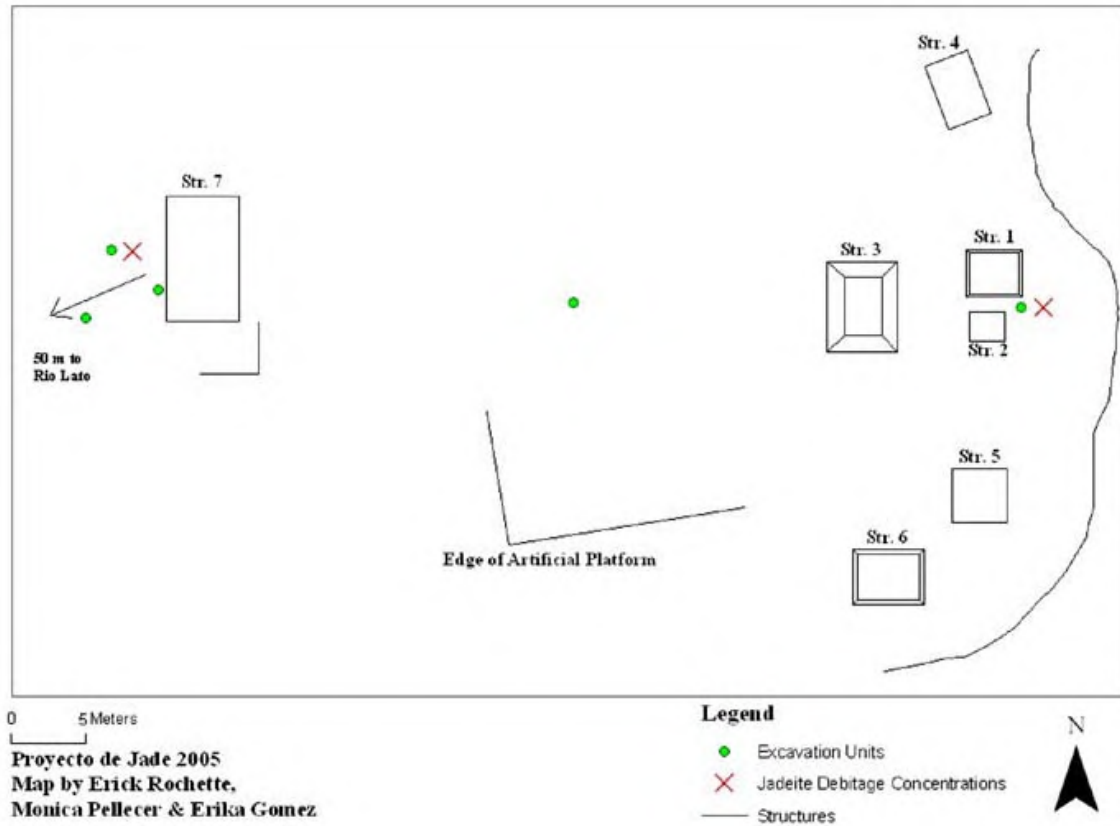


Figure 34. Sketch map of central portion of Magdalena I.



Figure 35. Fragment of stingray spine.

Other Excavations

Guaytan5

Test excavations at Guaytan5 were intended to assess the nature of surface collections of jadeite and obsidian debitage at the site which consisted of a group of three low platforms. Unfortunately, all of our excavations were terminated at a maximal depth of 20cm upon reaching bedrock. No subsurface evidence of jadeite artifact production was found.

Guaytan7

Guaytan7 is a sector of Guaytan Ciudadela that contains a core of elite residential structures that were studied and excavated by both Smith and Kidder (1943) and Walters (1980). During our survey of this sector of the site, we encountered a small collection of jadeite debitage scattered widely in a small plaza. We excavated two small 50cm x 50cm test units to rapidly assess the significance of this surface material. Only a small amount of jadeite debitage was collected from the excavated contexts.



Figure 36. Fragment of obsidian with drill hole.

Guaytan8

Guaytan8 is a sector of Guaytan Ciudadela located approximately 200 meters to the east of Guaytan4, across the road to Guaytan. Although no architectural remains are

visible on the surface of this sector, it should be noted that the sector lies directly to the south of a heavily looted area of elite residential architecture that sits on a small natural plateau above the field. During our survey, we collected 35 pieces of worked jadeite in the field, which had been used for maize cultivation as recently as three years ago. After talking with the local landowner and determining that the field had only been plowed by horse-drawn plows, we decided to excavate two small test units to assess whether any *in situ* jadeite production evidence was present below the plow zone. Unfortunately, we were unable to complete these excavations when the landowner's sons changed their minds about granting us permission and asked us to leave. Although recovered from disturbed contexts, we did collect two stingray spines ([Figure 35](#), shown above), two pieces of drilled obsidian ([Figure 36](#), shown above) and a jadeite hammerstone ([Figure 37](#), shown below) along with obsidian blades and debitage and evidence of jadeite bead manufacture.



Figure 37. Jadeite hammerstone used for percussion flaking of jadeite artifacts.

Laboratory Analysis

Laboratory analyses are scheduled to begin in May 2006 at the Pennsylvania State University. I will employ a lithic technology approach to analyze all of the greenstone and obsidian artifacts from surface and excavated contexts. This approach uses artifact attributes reflective of the technological processes of production as a first step for the sorting and classification of lithic artifacts into analytical categories. Because the

production of lithic artifacts is a recognizable and systematic reductive process, it should be possible to identify particular stages of lithic artifact production from these remains.

A critical objective of this dissertation research is the use of experimental archaeology to better understand the technological processes of jadeite artifacts production; these studies will begin in the summer of 2006. To date, no technological studies have attempted to detail the processes of jadeite artifact production used by the ancient Maya. Experimental studies and subsequent technological analyses of jadeite debitage can yield important information about the technological processes of jadeite artifact production by providing a basis for identifying debitage associated with particular stages of production. The experimental studies will also enable the calculation of gross estimates of the time required to perform particular stages of jadeite artifact production. The replication studies will test the uses of a variety of materials in flaking, pecking, sawing, grinding, polishing and incising raw jadeite collected from the Middle Motagua Valley.

In addition, I will analyze all collected greenstone artifacts to determine what percentage is jadeite, as opposed to other greenstones such as serpentine or green quartz. Simple geological tests for specific gravity and hardness will be used to make these mineralogical determinations. Hammond (1999: 58) noted that during the Late Preclassic at Cuello, jadeite and other greenstones, or "social jades," were used in different contexts, with jadeite reserved for adult male burials. Determining the mineralogy of the worked greenstone in the Middle Motagua Valley can provide important information about the degree to which jadeite artifact production was controlled by elites.

Comments

Although small in scale, the Proyecto de Investigación Sobre la Producción de Jade en el Río Lato 2005 proved successful in demonstrating the extent and social context of jadeite artifact production at sites in the Middle Motagua Valley. Contrary to the model proposed by Walters (1982), the production of jadeite artifacts was less segmented between different levels of the local site hierarchy. Instead, it appears that all sites in the Middle Motagua Valley were involved in the production of jadeite beads. This finding is important given recent models which propose a more complex view of ancient Maya prestige goods production, with non-elite craftsmen producing time-consuming but stylistically simple prestige goods, while elite artisans produced more symbolically-laden objects that incorporated esoteric knowledge with which non-elites would not have been familiar. Although the present data cannot resolve this question fully with regard to the Middle Motagua Valley, it does provide the basis for further research.

Our excavations and surface collections indicated that production activities were not limited to jadeite artifacts, but may have included other lapidary production, as well as shell and obsidian artifact production. While it is likely that obsidian blade production was likely intended for the production of wooden tools used in the lapidary production

process (Feldman *et al.*, 1975), it does provide further evidence that the production of jadeite artifacts was less segmented than previously argued by Walters.

Equally important, the jadeite artifacts and the tools associated with their production that have been collected as part of this project provide a basis for the reconstruction of the technological processes of prehispanic jadeite artifact production. Jadeite debitage from surface collections and excavations indicate that jadeite was procured in a number of ways, being collected from river beads as water-worn cobbles, as well as quarried directly from sources in the surrounding mountains. Further, preliminary artifact analyses demonstrated that the sequence of jade artifact manufacture may have varied according to the type of artifact being produced as well as the quality of the jadeite being worked. For example, it appears that in some cases jadeite beads were roughed out and drilled and then polished, but in other cases, jadeite beads were first ground and polished and then drilled. This evidence, in addition to the results of the experimental replication studies, will provide crucial information for reconstructing how the production of jadeite prestige goods was organized in the Middle Motagua Valley.

In summary, this FAMSI-funded research represents a valuable initial step in understanding the organization of prestige goods production both in the Middle Motagua Valley and in the Maya area in general. Nevertheless, further archaeological and experimental work is essential to our understanding how the system of prestige goods production in the Middle Motagua Valley was organized and how it developed and changed through time.

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Appendix 1. Descriptions of Sites in PJ05 Survey

LC01 – Los Chaguites 01

This site may be the same site as Gary Rex Walters' KM93-IV. The site consists of four structures oriented around a small plaza on the edge of a terrace overlooking the Motagua River to the south. Structure 1 is a long, linear two-level structure measuring 16m x 7m, and is approximately 1m tall. A looter's trench has penetrated and cleared a tomb on the western end of the structure; there are three other looter's holes in the top of the structure, one of which may also have penetrated a tomb. Str. 1 appears to have contained two or three superstructure rooms. To the west/southwest of Str. 1 is Structure 2, another linear structure measuring 14m x 4m and approximately 1.0m in height. A looter's trench into the western end of Str. 2 also penetrated a tomb; there are two other small looter's holes in the top of the superstructure. Str. 2 appears to have been topped by two rooms. To the southeast of Str. 2 is Structure 3, a small rectangular structure (approximately 4m x 3m) about 0.50m in height. There is a large looter's hole in the structure. To the southeast of Str. 3 is Structure 4, a small rectangular structure oriented to magnetic north, measures 5m x 3m, and is approximately 1m in height. Str. 4 has three different small looter's holes, none of which exposed any superstructure.

LC02 – Los Chaguites 02

Los Chaguites 02 is a small site located to the west/southwest of LC01. The site consists of three structures on the northern end of a terrace overlooking the Motagua River. Structure 1 is approximately 1m tall and measures 5m x 5m. To the south of Structure 1, the river terrace juts out to form a large, flat area that is approximately 60m x 75m, where we surface collected a large amount of jade workshop debitage, obsidian artifacts and ceramic sherds. Approximately 10 meters to the north of Structure 1 are Structures 2 and 3, both small (height ~0.50m) platforms of 3m x 3m each. Every structure at the site has at least one looter's trench.

KM93 I (Terzuola Site)

Site KM93 I is bisected by the CA-9 highway, and contains structures to the north and south of the highway. The site was first described by Feldman et al., (1975) and named the Terzuola site. Currently, the site is under intense sábila cultivation, making surface collections and accurate mapping very difficult. Furthermore, many of the structures in the area of the site located to the south of the CA-9 were completely destroyed when the area was leveled for cultivation and when a house and pool were built on the southern edge of the site. Currently, there are only three mounds still visible on the

southern sector of the site and two mounds north of the CA-9. Two of the mounds in the southern sector are 2m tall mounds that are approximately 7m x 7m.

Despite limited ground visibility, intensive surface collections were made across the entire southern sector of the site. Materials collected included a large number of jade workshop debitage, obsidian flakes and blades, and ceramics. The majority of material was collected from the southern and western edges of the terrace on which the site is located. Although Walters (1982) mentioned the presence of a jade workshop in the northeastern part of the southern sector of the site, we found no surface evidence of this workshop during our survey. No material was collected from the northern sector of the site, because very little material was evident.

KM93 II

Site KM93 II is located to the east of KM93 I, across a small quebrada, on a narrow river terrace overlooking the Motagua. Only two small mounds of less than 0.30m in height are still in evidence at the site. The site is under the same intensive sábilá cultivation as KM93 I and it appears that many of the structures that were part of this site were destroyed in the process of preparing the field for cultivation. Small collections of jade debitage and ceramics were made at the site.

KM93 III

Site KM93 III is located to the east of KM93 II, separated by a wide quebrada. The site spreads out across a wide part of the river terrace overlooking the Motagua River and is accessed by a narrow part of the terrace from the north. KM93 III is a non-mounded site with no surface evidence of platforms or substructural architecture. Surface collections included jade workshop debitage, obsidian, ceramics and chalcedony drills.

KM93 IV

We were only able to visit site KM93 IV briefly before we were asked to leave by the landowner. KM93 IV is located between KM93 III and LC02, and is separated from both sites by quebradas. The site consists of four structures oriented around a small plaza. The site is along a terrace overlooking the Motagua River. Two structures in the northern part of the group are vaulted funerary monuments measuring two meters in height; one of the structures contains a looted tomb. The southern side of the group is bounded by a long, multi-roomed structure, about 1 meter in height. Surface collections at this site were made from the level extension of the river terrace to the south of the multi-roomed structure. The group is bounded on the eastern side by a small, 1m tall platform structure.

KM92 III

Walters (1982) described site KM92 III as the most thoroughly destroyed site that he encountered in the Middle Motagua Valley survey zone and this assessment is unfortunately correct. Located on a river terrace to the west of site KM93 I (the two are separated by a wide quebrada), the entire central sector of the site was destroyed when stone and soil from the site were removed to build the roadbed for the CA-9. Only two structures remain at the site: part of a basal platform (6m x 1m) at the southern edge of the borrow pit, and a small, low platform structure (2.5m x 4m, orientation: 185°) to the east of the borrow pit. The eastern structure may contain a looted tomb chamber, but this was covered with collapsed rubble and thick vegetation. Surface collections were made from the areas to the east, south and southeast of the borrow pit.

KM92 III-A/KM92 III-B

Sites KM92 III-A and KM92 III-B are likely part of the same site, but they are noted separately because they are separated from one another by approximately 50 meters. Site KM92 III-A is a small platform mound (height = 1m; area = 5m x 3m), with possible superstructure walls, located to the northwest of KM92 III. The structure has two large looters' trenches. Dense vegetation and disturbance made surface collection difficult, but we did collect some obsidian and jade flakes to the immediate south of the structure.

Site KM92 III-B is located to the west of KM92 III-A. Site KM92 III-B consists of a group of five structures, loosely grouped together. The site is situated close to the edge of a terrace overlooking the Motagua River to the south, 20m below. Structure 1 is a vaulted funerary monument, measuring 5.5m x 4m, with 1.5m tall standing walls. The western and southern walls of the structure have been exposed by looters' trenches. The looter's trench on the southern face structure has exposed two tomb chambers, while a looter's trench atop the center of the structure also appears to have penetrated a tomb chamber. Looters' trenches are also evident on the eastern and northern faces of the mound.

To the south/southwest of Str. 1 is Structure 2, a large structure that was so overgrown as to be impossible to fully examine. Structure 2 is approximately 10m x 10m and 2m in height, and has been penetrated by multiple looters' trenches.

To the west of Str. 2 is Structure 3, a small looted platform (less than 1m high), measuring approximately 3m x 4m.

To the southwest of Str. 3 is Structure 4, a multiple-roomed structure oriented to magnetic north. Structure 4 is approximately 8m x 6m. A looter's trench has exposed an east-facing entry to one of the rooms that measures approximately 0.90m in width.

Structure 5 is located immediately east of Str. 2. It is a long, linear multi-roomed structure measuring 10m x 5m, with its long axis oriented towards magnetic north. Multiple looters' trenches show the structure to have low walls (approximately 0.50m tall) that likely supported a perishable superstructure.

Surface collections were taken across the entire site, though the greatest concentrations of material occurred along the southern and eastern perimeters of the site.

KM92 II

Site KM92 II may correspond to Walters' (1982) KM92 II, but it is difficult to tell because of the vague description of the site in Walters' dissertation. The site is located to the west of KM92 III-B; the two sites are separated by a small quebrada. Site KM92 II consists of a group of three structures arranged around a small open area. All of the mounds are small platforms, less than 0.50m tall and all measuring less than 3m x 3m in area. Each structure had a large, shallow looter's hole in the middle. Very little cultural material was observed in association with these structures.

Immediately south of this group, the natural river terrace extends approximately 50 meters to the south. On this terrace, we made collections of jade debitage, ceramics and obsidian across the whole area. A number of looters' trenches in the southeast portion of the natural terrace revealed buried architecture not visible on the surface, including low walls (about 0.30m high).

KM92 II-A

Site KM92 II-A is located to the west of KM92 I. The two sites are separated by a small quebrada. The site includes a number of small residential terrace platforms running east-west along the slopes overlooking the Motagua River. We encountered four structures, none taller than 1.0m; all of these structures have been severely looted. Heavy disturbance by looters, thick vegetation and the use of part of the site as a local garbage dump prevented us from making adequate surface collections from this site.

KM92 I

Site KM92 I is located 150 meters south of the CA-9, along the edge of the river terrace overlooking the Motagua River and is to the west of KM92 II. The two sites are separated by a wide quebrada. The area north of the site between the site and the CA-9 has been completely leveled for tobacco cultivation and any structures have long since been destroyed.

Site KM92 I consists of nine structures arranged in two groups. The eastern group, Group 1, contains three structures: two structures on the north and one on the south. It is possible that these structures were grouped around a central plaza area, but the area between the northern and southern structures has been leveled by bulldozer for cultivation, so this cannot be said with confidence. Structure 1 is a 6m x 9m structure, about 2m in height. Looters' trenches into the core and sides of the mound reveal that Str. 1 is oriented North-South and contained low walls. Structure 2, located immediately to the west of Str. 1 is a small 6m x 5m rectangular structure, about 1m in height, which also supported low walls which appear to have divided the superstructure into two rooms. The long axis of Str. 2 is oriented East-West, and it is possible that Structures 1 and 2 both rest on a long, linear platform substructure, though the destruction from the field leveling make this possibility difficult to assess from the surface remains. Approximately 17 meters to the south of Str. 1 is Structure 3, which is a 5m x 4m multiple-roomed structure, about 2m in height. On the southern face of the structure, one of the multiple looters' trenches into the structure appears to have penetrated a tomb chamber.

To the west/southwest of Group 1 is Group 2, a group of six structures (two to the south, four to the north) oriented around what may have been a central plaza. Whether a plaza existed is difficult to determine because of the use of a bulldozer to level the central area for cultivation. Structure 4 and Structure 6 are located on the southern side of the group. Structure 4 appears to be a small, vaulted funerary monument. Str. 4 is 7m x 5m and is approximately 3m tall. The structure has been heavily looted. Tomb chambers on the southern and western faces of the structure have been penetrated by looters. Structure 6 is located to the west/southwest of Str. 4 and is a low platform mound, about 0.50m in height. To the north of Str. 4 is Structure 5, a low (0.50m) 5m x 3m rectangular platform structure. To the north/northwest of Str. 5 is Structure 7, a large, multi-roomed structure, about 1m in height. Str. 7 has been extensively looted, but portions of the low walls of the superstructure are still evident. To the west of Str. 7 is Structure 8, a low (0.50m tall) 7m x 3m rectangular platform. To the southwest of Str. 8 is Structure 9, which has been very badly looted. Str. 9 appears to have been a rectangular structure, likely 2m in height, measuring approximately 6m x 6m in area.

A number of looters' trenches into the surface of the terrace to the south of Group 2 have uncovered remnants of buried architecture that are not evident on the surface. Therefore, none of this area could be mapped other than to note the presence of buried architecture. Surface collections were made across the whole site and included jadeite debitage, ceramics, and obsidian.

KM91 IV

Site KM91 IV has been disturbed by the same leveling for tobacco cultivation that was described for KM92 I. The site is located on the southern edge of the river terrace overlooking the Motagua, to the south of the large leveled field. The eastern portion of KM91 IV consists solely of a large scatter of cultural material on the ground surface fifty

meters to the east of a group of structures at the site. This moundless part of the site is separated from the mounded portion of the site by a 5-meter-wide, 5cm-deep trench that was created when the area was leveled for cultivation. No artifacts were observed in this deeper section.

The western portion of site KM91 IV is a small group of structures that has been very extensively looted. The site consists of seven structures arranged in a linear east-west orientation. The central portion of the site has a number of deep furrows that were likely excavated by the landowners for installing water pipes. The western end of the site was destroyed to construct a feed corral for cattle. On the eastern end of the group is a low (0.50m tall) rectangular structure, measuring about 2m x 3m. A looter's trench into this structure has penetrated a tomb chamber. The largest structure in the group is the central structure on the northern side of the group. The structure is a two-meter-tall structure with walls constructed of schist slabs. One of the numerous looter's trenches in this structure penetrated a tomb chamber on the western side of the structure. The entire central portion of the structure has been destroyed by a 1m-wide looter's trench. The other four structures all appear to be low platform mounds.

KM91 III

Site KM91 III is a small group of five structures a few hundred meters to the west of KM91 IV, along the southern edge of the same leveled field. Currently, the site is being used for grazing goats and a number of small ditches have been excavated throughout the site for the installation of water pipes. All five structures have been heavily looted. Two 1m-tall vaulted funerary structures contain looter's trenches that have penetrated tomb chambers. Surface collections including jade debitage, obsidian and ceramics were made across the site.

KM91 II

Site KM91 II is located to the south of a soccer field; part of the field was destroyed to construct the soccer field. The site has been heavily looted and disturbed by trash dumping. There are a total of 15 structures in all. Almost all of the structures are platforms of less than 1m in height. There is one large mound on the southern perimeter of the site that is over 4m tall and contains a looted tomb at the base of its western side. Three tomb chambers were observed in some of the looter's trenches in the other structures. Looter's trenches in the level area of the terrace to the south of the surface architecture revealed the presence of some deeply-buried architecture that was not visible on the surface. Surface collections of jade, ceramics and obsidian were taken across the entire site.

Vargas I

The site of Vargas I consists of two structure groups and a ballcourt. The western structure group has been badly destroyed by looting and coconut cultivation; because of this destruction we could not take measurements of the structures. In all, it appears that there were three structures in the group. The eastern group is located just to the south of the road-cut for the CA-9 and much of the site was likely destroyed during the construction of the highway. Small collections of ceramics, jade debitage and obsidian were made at the site.

To the east of the western structure group is a ballcourt, oriented North-South; due to the dense vegetation in the area, no precise measurements of the ballcourt were taken.

Approximately one hundred meters to the east of the ballcourt is another structure group that is located on the flood plain of the Río Lato. The group consists of three structures, all over 2m tall. All have been heavily destroyed by looters. All three appear to have been multi-roomed structures. No surface collections were taken from this group because of poor visibility from the recent cultivation.

Vargas IIA

Vargas IIA is located on a series of river terraces over-looking the Río Lato to the east and the Río Motagua to the south/southeast. Because of the extensive looting and destruction of the site, it is hard to estimate its size or the number of structures. Nevertheless, the site appears to consist of at least two structure groups, one northern and one southern.

The northern group consists of a large structure on the southern side of the group that is built into the naturally sloping terrain, as well as a low platform mound (0.10m in height) on a possible artificial terrace to the north. The large southern structure has been almost completely destroyed by looters, who have excavated a large L-shaped trench into the structure that is approximately 12m long x 7m wide x 6m deep. Overall, the structure is approximately 17m x 10m and is oriented to magnetic north. We observed possible stepped terrace retaining walls on the eastern slope of the cerro on which the terrace behind the structure sits. Surface collections from the northern group consisted of a great deal of jade debitage (including finished and unfinished jade beads), obsidian, and ceramics.

To the south of this group is a small level area that was likely a central plaza onto which the northern structure faced. Approximately 50m south of the northern group is a 2m-tall mound which has been heavily looted and partially destroyed by river action and construction. The remainder of the southern group has been so thoroughly destroyed by looting and construction activity that structure counts and measurements were impossible to make; much of the damage appears to have been done by bulldozers and

backhoes. Nevertheless, we did observe the stratigraphic profile of a partially destroyed platform that showed at least four reconstruction episodes. Artifact collections were made from throughout the site, mainly from looters' trenches and backdirt.

Vargas IIB

Vargas IIB consists of a twelve structures loosely organized into two groups along the eastern slopes of a cerro overlooking the Motagua River to the south and the Río Lato to the east. Group 1 consists of six structures located on a natural terrace that juts out 40° east and is bounded by steep slopes to the north and to the southeast. Structures 1 thru 4 are low (less than 0.50m tall), small square platform structures organized around a small central patio. All of the structures are of approximately equal size (5m x 5m) and have been badly disturbed by multiple looters' pits. Structure 1 is on the west side of group, Structure 2 is on the north, Structure 3 is on the east and Structure 4 is on the south. Only Str. 2 shows any evidence in the looters' trenches of having contained low walls. Approximately ten meters to the south of Str. 4 is Structure 5, a 0.50m-high square (5m x 5m) platform structure with a large looter's hole. Structure 6 is located twenty meters to the south of Str. 5 and appears to be a rectangular (10m x 5m) structure. Str. 6 has been heavily looted and is currently covered by a large tree which has fallen directly over the structure. Collections of jade debitage, obsidian and ceramics were made from across the group and down the eastern slopes of Group 1.

Group II consists of a series of 6 platform structures along a roughly north-south line, all built into the eastern slopes of the cerro. All of the structures have been looted and thoroughly destroyed. All of the structures except one appear to have contained tomb chambers that were looted. The two southernmost structures contain tombs that appear to have been looted within the last year.

Vargas III

Vargas III is located to the west of Vargas IIA; the two sites are separated by a large quebrada. The site consists of 12 structures in the northeastern area of the site arranged along the southern slopes of a cerro to the north of the Motagua River. Another series of two to three groups of low platform structures (two to three structures per group) is located in the southwestern portion of the site. The majority of the structures in the northeastern sector are 1m-tall platform terraces built into the slopes of the cerro; there are also two vaulted funerary monuments less than 2m tall. All structures at the site have been heavily looted. Concentrations of jade debitage were encountered on the western and southwestern areas of the site. Jade debitage, obsidian and ceramics were collected from across the site.

Vargas IIIA

Vargas IIIA is located to the southwest of Vargas III; the two sites are separated by a small quebrada. The site consists of three small, low (less than 0.50m tall) square platform structures. Small amounts of jade, obsidian and ceramics were collected at the site.

Vargas IV (Este)

Vargas IV (Este) is located to the south of Vargas IIIA; the sites are separated by a small quebrada. Vargas IV (Este) consists of a group of four structures organized around a small patio, situated on a small bluff between two small quebradas. All four structures in the group have been looted. The eastern structure in the group, a small (less than 1m tall) square structure contains a looted tomb chamber. The remaining three structures are small square platform mounds. Some jade debitage, obsidian and ceramics were collected from the site.

Vargas IV-B

Vargas IV-B extends west/southwest from just west of Vargas IV (Este). The site consists of a linear series of about 20 structures organized into four to five groups. The majority of the mounds at the site are low mounds, but there are at least four larger, 2m-tall mounds. Very little cultural material was evident across the site, and the majority of jade debitage was collected from areas that were not in direct association with mounds, especially along the western edge of the site. Nevertheless, a few pieces of jade debitage were collected near a 2m-tall mound in one of the central groups of the site.

Magdalena I

The site of Magdalena I is the northernmost group of elite structures that form part of the site of Magdalena. Walters (1982) described three portions of the Magdalena site: Magdalena III (south), Magdalena II (central) and Magdalena I (north). Magdalena III has been destroyed as the town of Magdalena has expanded; the other two sites are still relatively intact.

Magdalena I is located to the west of the Magdalena-San Agustín Acasaguastlán road, on a natural bluff 10 meters above the road surface. Overall, the site consists of more than 25 structures situated between the road and the Río Lato, bounded to the south by a small quebrada. All of the structures have been heavily looted, some as recently as the last two years according to local residents and land owners. We were unable to

explore the entire site in depth because it is located on the property of more than one landowner.

The eastern portion of the site consists of eight structures, some of which are situated on a large artificial platform built into the naturally sloping terrain. Structure 1 is a low platform structure, measuring 5m x 4m, oriented E-W. Structure 2, to the south of Str. 1 is another low, small (3m x 3m) platform structure. A looter's trench into the center of Str. 2 revealed what appears to be a narrow, cut-stone lined chultún. Directly behind and to the west of Str. 2 is Structure 3, the largest structure in the eastern group, is a 2m-tall, rectangular (8m x 6m) multi-roomed structure with 1.5m-tall standing walls revealed by looters' trenches. To the northeast of Str. 3 is Structure 4, a heavily-looted rectangular structure, approximately 4m x 6m. Structure 5 is located 11m to the south and down-slope of Str. 2. Structure 5 is a low (less than 1m tall) square (5m x 5m) structure which a looter's trench has revealed contained a slab-lined tomb chamber. Immediately to the southwest of Str. 5 is Structure 6, a rectangular (5m x 7m) structure which a looter's trench has revealed to contain curving interior walls. Concentrations of jade debitage were found in association with Structures 1, 2 and 3.

To the northwest of Structure 4 is a series of low platform structures organized into small two-to-three structure groups. The largest structure in this area of the site is a two-meter-tall vaulted funerary monument, measuring 9m x 8m. The mound has been very badly looted. As part of Operation 5D, we screened ten buckets of backdirt from the looters' trenches; the material included human teeth exhibiting dental mutilation and jade inlays, indicating that the looters had likely penetrated a tomb within the structure.

To the west of the eastern area of the site is an open plaza bounded to the west and east by two long multi-roomed structures. Further to the west of these structures is a small group of two to three structures, all heavily looted. The westernmost structure in this group, which is situated at the edge of the natural river terrace, contains a looter's trench which revealed that it is constructed of cut stone blocks, with approximately 0.90m-tall walls. Heavy concentrations of jade debitage and associated tools were found associated with the western portion of this group and further down slope.

A number of other structure groups were observed during a brief spot-check around the rest of the site, including two groups that contained 2m-tall vaulted funerary monuments.

Magdalena II

Magdalena II is located to the south of Magdalena I; the two sites are separated by a quebrada. Like Magdalena I, Magdalena II is situated between the Magdalena-San Agustín Acasaguastlán road on the east and the Río Lato to the west. The southernmost portion of the site has been destroyed by recent construction.

Magdalena II consists of elite residential and ceremonial architecture, including low, multi-roomed structures, vaulted funerary monuments and a number of 1m-tall mounds. In all, there are approximately 15 structures at Magdalena II, although this could not be confirmed because we were not allowed onto the land that contains the southernmost part of the site. The structures are arranged in small formal groups, though looting throughout the site makes it difficult to determine the dimensions and orientations of many of the structures.

Walters (1982) noted the presence of a jade workshop on the western perimeter of the site. A thorough examination of this area yielded very little jade production debitage; it is likely that this evidence was either located in a since-destroyed part of the site or was not as abundant as Walters noted.

El Terron (Sur)

The site of El Terron is effectively divided into northern and southern sectors by a deep quebrada that separates them. El Terron (Sur) is situated on both the eastern and western sides of the Magdalena-San Agustín Acasaguastlán road. To the east of the road are approximately ten low platform structures that stretch from the road to the base of a tall, steep-sloped cerro to the east. All of the structures in this area appear to have been low residential mounds and have been thoroughly looted. The modern village of Las Vueltas covers much of the western portion of El Terron (Sur). All of the structures, scattered throughout the village, have been thoroughly looted. Structure types include vaulted funerary monuments, multi-roomed structures, and low platform structures. Surface collections from the western portion of the site included jade debitage, obsidian and ceramics.

El Terron (Norte)

El Terron (Norte) is a very large elite residential and ceremonial site that is situated on a series of river terraces overlooking the Río Lato, to the west of the Magdalena-San Agustín Acasaguastlán road. The site stretches out for almost a half kilometer from south to north and consists of over 60 mounds. Many of the structures are organized into small, tight plaza groups. Structure types at the site include vaulted funerary monuments (some as tall as four meters), a ballcourt, multi-roomed structures, low platform structures, terrace platforms and platforms supporting thin superstructure walls.

Surface collection was made difficult across the site because of sábila cultivation in some areas and thick foliage throughout the rest of the site. Nevertheless, we did locate two areas with concentrations of jade debitage. One concentration was located in an open space between two small structure groups and consisted almost entirely of small jade flakes. A piece of cut jade and some small flakes were also found in association

with a small structure that bounds the southern end of the ballcourt. All structures at the site appear to have been looted; some of these looters' trenches have penetrated tomb chambers.

Puente Hato

Puente Hato is located to the northwest of the intersection of the Río Lato and the CA-9 on the river terraces overlooking the Río Lato. The site is heavily damaged by cultivation and construction and much of the site is under dense vegetation. Overall, there are over 20 structures, some grouped into small plaza groups. Some of the structures appear to be small vaulted funerary monuments; other structure types include multi-roomed platform structures, low platforms and mounds less than 2m tall. The only surface collections we were able to make at the site were from a barranca to the north of the site.