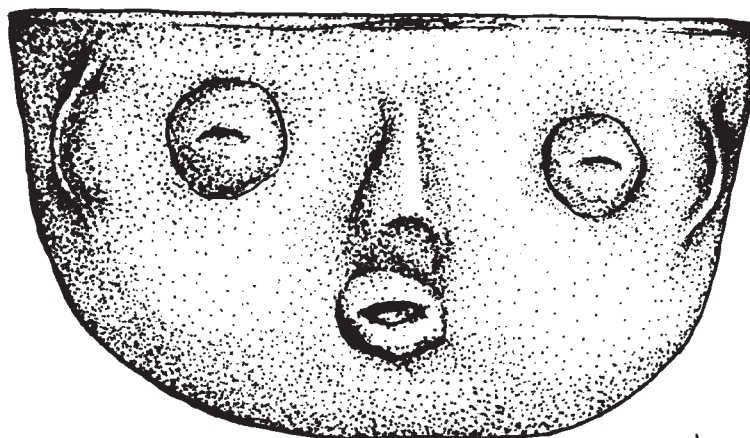


The 1998 and 1999 Seasons of the Chan Chich Archaeological Project

edited by

Brett A. Houk



EJH '99

Papers of the
Chan Chich Archaeological Project, Number 4
Mesoamerican Archaeological Research Laboratory
The University of Texas • Austin, Texas
2000

Chan Chich Archaeological Project
 **CCAP**
Chan Chich, Belize - Central America

The 1998 and 1999 Seasons of the Chan Chich Archaeological Project

Edited by Brett A. Houk

MARL 2000

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with contributions by

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Acknowledgments

The 1998 and 1999 seasons of the Chan Chich Archaeological Project and the completion of this report would not have been possible without the generous support of numerous individuals. First of all, our excavations could not have taken place without the permission of the Department of Archaeology (DOA), Government of Belize. In 1998, Mr. John Morris was the Archaeological Commissioner. His input and assistance are greatly appreciated. In 1999, Mr. Allan Moore (now Dr. Moore), was the Archaeological Commissioner. His interest in our project's research was encouraging, and we are grateful for his support. As always, the staff of the DOA, including Mr. Brian Woodye, Mr. Paul Francisco, and Ms. Carmen Blanco, checked on our progress and assisted us with the permitting process, submission of artifacts, and exportation of samples.

The landowner, Mr. Barry Bowen, granted us permission to conduct our research on his property. The senior staff at Chan Chich Lodge, including Tom and Josie Harding, and Norman Evanko, made our stay possible. The fine staff in the kitchen, led by Chap Ross in 1999, kept us fed and happy. Special thanks are due to Chap for his lecture in 1999 on Precolumbian cuisine, complete with a specially prepared feast. The rest of the staff of the lodge, as always, was supportive of our efforts. We are grateful for their friendship.

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We have always enjoyed a close relationship with the other research projects in the area, and numerous indi-

viduals from Blue Creek, Lamanai, and the Programme for Belize stopped by to see us (or was it to use the swimming pool?). Dr. Fred Valdez gave guest lectures on ceramics in 1998 and 1999, and one day I'll write it down so that he can stop doing that. Other notable guests included Jon Lohse and his parents, Jon Hageman and his harem, Paul Hughbanks and his mom, Lauren Sullivan, Hugh Robichaux's daughters and husbands, and Hugh's fiancée (now wife). I managed to convince Kevin Miller (from my real job) and his fiancée to join us for a few days in 1999. Kevin even got dirty, assisting me with the excavations at Structure A-11. Thanks go to both of them for their interest in the project. Jack and Jeanne Brush are always a pleasure to work with, and they assisted us in 1998 and 1999. Karis Koester returned to help us for one week 1998, as well, and her continued interest in the project is appreciated. In 1998, we shared the lodge with a group of biology students from Canada. Thanks to them and their directors for making our time in Belize more enjoyable. Special thanks go to Drs. Bill Eaton, Matt Hoch, and Ed Van Zinderern Bakker for their interest and comradeship. To those whom I've left out, I apologize.

I would also like to thank Kevin Miller and SWCA, Inc. for allowing me time away from Texas archaeology to live my other life in Belize in 1999. In 1998, I was on the run from my job at the Center for Archaeological Research at The University of Texas at San Antonio during the summer field season. Thanks to the staff of that institution for allowing me take a leave of absence to conduct my research.

I greatly appreciate the opportunity that Dr. John Donahue at Trinity University affording me by allowing me to teach field schools for Trinity in 1997, 1998, and 1999. I only wish I could have landed the real job there to continue the project for Trinity.

The most important people on the project were the fine staff. Dr. Hugh Robichaux has acted as mentor, supporter, enforcer, and field director since 1996. I am extremely grateful for his help. In 1998, Audra Pineda agreed to be our lab director and did a fantastic job establishing the system we have now. The 1998 field staff, always entertaining and usually professional, did the brunt of the work for me. They included Richard Meadows, Owen Ford, Jennifer Jellen, and Amy Rush. Jennifer Vander Galien, Kristen Hartnett, and Andrea Betzold returned in 1998 after getting the bug in their systems in 1997. We are glad they came back to work with us. Jennifer even brought her dad for a visit in 1998. Kristen Hartnett visited us in 1999 for a few days with the Millers. In 1999, the staff included Leanne Romanchuk as lab director. She did a great job and upheld the high standards set by Audra in 1998. Ellie Harrison, who visited briefly in 1998, joined us as an Operation Director in 1999 and did an incredible job with Structure C-6 and the students.

Various members of the Programme for Belize Archaeological Project contributed analysis, drawings, and photographs to this report. Their help is appreciated and credited in the appropriate chapters. One such contributor, Rigden Glaab, was a student on the CCAP in 1997.

Several illustrations were prepared by Ashlyn Madden and Kristi Turner. Their skills make the final product much better.

Frank and Julie Saul examined the human remains from the 1998 and 1999 seasons. We are grateful for their assistance and contribution to the effort. They work tirelessly and without compensation.

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To the contributors to this volume go my deepest thanks. The individuals who wrote chapters for this report did so on their own time and without payment. The accumulated reports represent a great deal of time and sacrifice. Thank you for your devotion to Maya archaeology and your support. This volume is dedicated to you, the authors: Richard Meadows, Kristen Hartnett, Hugh Robichaux, Jennifer Jellen, Jennifer Vander Galien, Alexandra Miller, Ellie Harrison, Owen Ford, Amy Rush, Rigden Glaab, David McDow, and Fred Valdez, Jr.

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Brett A. Houk, May 2000

An Introduction to the 1998 and 1999 Seasons

Brett A. Houk

All Good Things...

This report documents the results of the 1998 and 1999 seasons of the Chan Chich Archaeological Project (CCAP). After the 1997 season of the CCAP, we expected great things of ourselves. After all, in that short season of our first excavations at the site we encountered a truly rare find, a Protoclassic tomb located in a plaza. Additionally, we found a Middle Preclassic midden deeply buried in that same plaza, pushing our estimate of the site's settlement date back nearly 500 years. And, we also documented an atypical type of ballcourt architecture for the region. But, most impressively we managed to publish an interim report before our next field season—almost unheard of in our region of the Maya world. Well, we fell to earth in 1998. We bit off more than we could chew with two field school sessions and a larger professional staff. Personal schedules of the project staff and consultants were more complicated in the fall and spring, and our 1998 interim report was never published. We went to the field in 1999, feeling quite ordinary having no 1998 report to distribute to our colleagues. To top it off our t-shirts were lame. They lacked color and were too technical.

The 1999 season was important for a variety of reasons. First, it marked a retraction from the two field school sessions of 1998 to one. We had a smaller staff, fewer students, and less time in the field. And, the work was actually fun again. Perhaps, it was the shorter season or the smaller staff or the weather. Who knows, but the season was enjoyable. The 1999 season also marked the end of the CCAP's association with Trinity University. In the early part of 1999, Trinity hired a new archaeologist to replace the one who had departed in 1997. That new archaeologist presumably has her own field school, and the staff members of the CCAP wish Trinity the best of luck. Finally, the board of directors of the Center for Maya

Studies (CMS), the non-profit organization that sponsored the CCAP for four seasons, decided to dissolve the organization. All good things must come to an end, and our association with Trinity and CMS are no exception.

Project Staff

In 1998, the author served as the Project Director, and Dr. Hugh Robichaux performed the duties of the Field Director. Richard Meadows, a doctoral student at The University of Texas at Austin (UT), and Owen Ford, a graduate student at The University of Texas at San Antonio (UTSA), were Operations Directors. Amy Rush of San Francisco State University and Jennifer Jellen of the University of Chicago were Assistant Operations Directors. Audra Pineda was Laboratory Director for the duration of the project. Fred Valdez, Jr. of UT—and Project Director of the Programme for Belize Archaeological Project (PFBAP)—was the project ceramicist, and, Ellie Harrison, a graduate student at Boston University, was our technical illustrator.

In 1999, the Project Director and Field Director duties again fell to the author and Hugh Robichaux, respectively. Ellie Harrison rejoined the project, serving as an Operation Director and technical illustrator on the side. Leanne Romanchuk, a field school student from 1998, was the Laboratory Director. Fred Valdez served as project ceramicist.

Project Funding and Permitting

The 1998 field season was supported by field school contributions, private donations, and a grant from the Foundation for the Advancement of Mesoamerican Archaeology, Inc. (FAMSI). The re-

search was conducted under an archaeological permit issued to author, who was then associated with the Center for Archaeological Research at UTSA, by the Department of Archaeology (DOA) in Belmopan. Mr. John Morris was Archaeological Commissioner at the time the permit was issued. The 1998 season of the CCAP involved two four-week long field school sessions run by the author for Trinity University in May through July.

The 1999 field season was entirely supported by field school contributions. The research was conducted under an archaeological permit issued to the author, then associated with the Program for Interdisciplinary Archaeology at UT. During the 1999 season, Mr. Allan Moore was the Archaeological Commissioner at the DOA. The 1999 season involved one four-week long field school session run by the author for Trinity University in May and June.

Background

Location

The ruins of Chan Chich are in dense tropical forest in the Orange Walk District of northwest Belize, approximately 4 km east of the border with Guatemala (Figure 1.1). The approximate UTM coordinates of the Main Plaza are: Zone 16, N 19 40 250, E 2 75 800. The elevation of the Main Plaza is approximately 135 m above sea level. The site is located at a bend in Chan Chich Creek south of the confluence with Little Chan Chich Creek. Once the creeks join, their northward flowing course becomes known as the Río Bravo, a perennial stream which eventually meets the Río Hondo near the modern Mexican town of La Unión. Chan Chich Creek and a large *aguada* 100 m north of the Main Plaza provide surface water throughout the year.

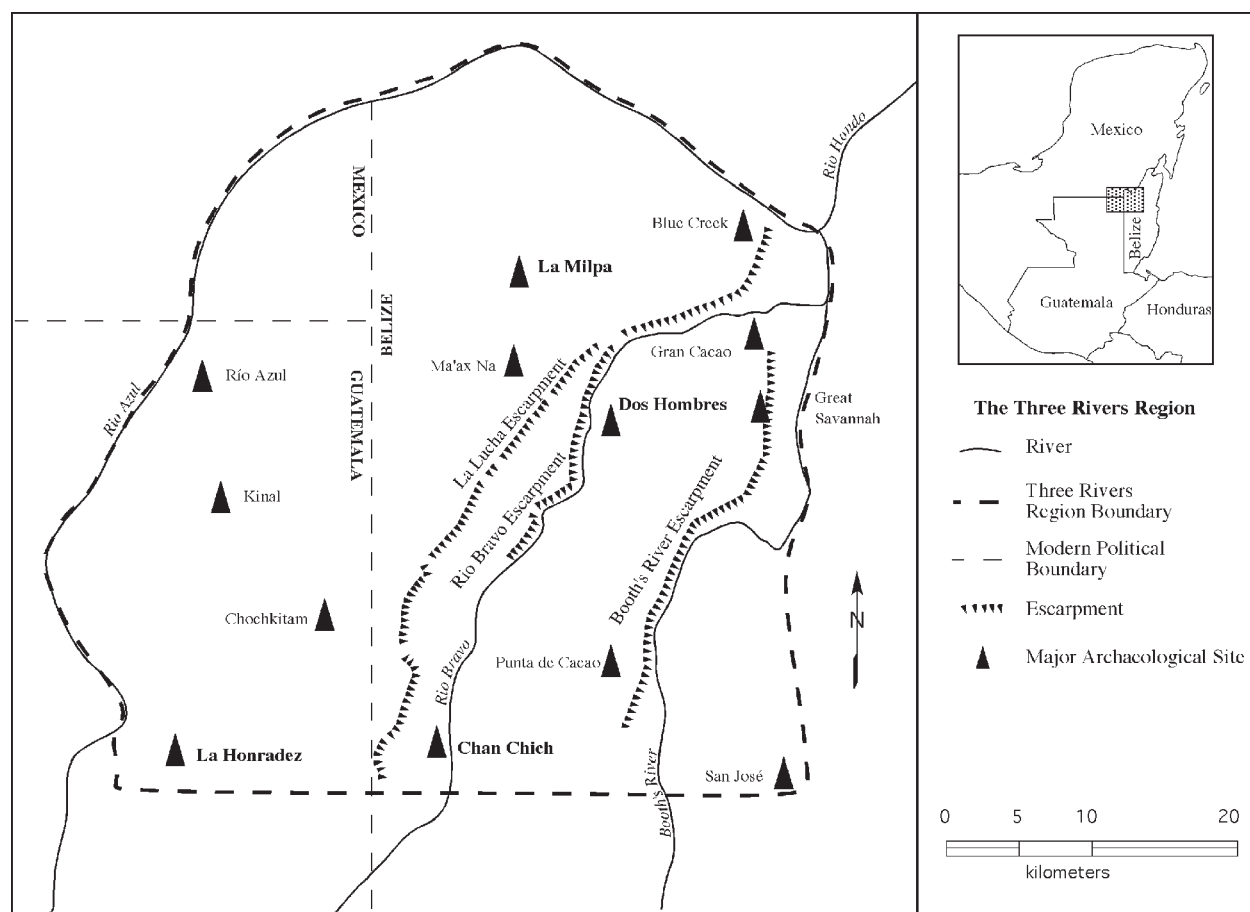


Figure 1.1. Map of the Three Rivers Region with locations of major archaeological sites.

Chan Chich is located near the southern boundary of a geographically defined study area known as the Three Rivers Region (Adams 1995; Houk 1996a, 1997). The Río Azul forms the western border of the region in Guatemala (Figure 1.1). The northern boundary is marked by the marshy expanse paralleling the Río Azul and the Río Hondo. The eastern boundary is defined by the Booth's River. The southern limit of the Three Rivers Region is somewhat arbitrarily placed south of Chan Chich (Adams 1995).

Previous Investigations

There is some confusion over the first appearance of Chan Chich in the archaeological literature. J. Eric Thompson (1939) visited the area in the 1930s prior to excavating the site of San José. Guderjan (1991a:35) believes that Thompson's site of Kaxil Uinic, which was named for a *chicle* camp operated by the Belize Estates Company, is actually Chan Chich. The major discrepancy between Thompson's (1939) description of Kaxil Uinic and Chan Chich is that Thompson noted the presence of a carved stela and an altar. Guderjan (1991:35) notes that the old Kaxil Uinic *chicle* camp is located approximately "two miles west" of Chan Chich. Confusingly, this is also the location of a site which Guderjan et al. (1991:59) recorded and named E'kenha. This site, which is somewhat smaller than Chan Chich, has "a very badly damaged carved stela and altar" (Guderjan et al. 1991:59). It seems possible then that E'kenha and not Chan Chich, which has an *uncarved* stela but no carved monuments (and no altar), is Thompson's (1939) Kaxil Uinic. Although Thompson (1939) originally planned to excavate Kaxil Uinic, the closing of the *chicle* camp prompted him to investigate San José instead.

In 1987 Barry Bowen and Tom Harding located and named the site that is now known as Chan Chich (Guderjan 1991; Houk, Valdez et al. 1996). Bowen, who had recently purchased the defunct Belize Estates Company and reopened the town of Gallon Jug, selected Chan Chich as the location of a jungle lodge. The site was named after Chan Chich Creek (Guderjan 1991).

Guderjan (1991) visited the ruins during the clearing operations in 1987 and returned the following year during the first season of the Río Bravo Archaeological Project. Guderjan's (1991) team mapped the site core and documented many of the looter's trenches in the Main and Upper Plazas. In 1990, during the second season of his regional project, Guderjan (1991a) returned to Chan Chich, expanding the site map and recording some newly discovered features.

In August, 1995, a team from the PFBAP, led by Dr. Fred Valdez, Jr., was asked by Tom and Josie Harding, the managers of Chan Chich Lodge, to map the nature trails at the site in relationship to the ruins (Houk, Valdez et al. 1996). The five day effort included two components: tape and compass mapping of the trail system and theodolite mapping of the major architectural groups at the site to refine the previous map produced by Guderjan (Houk et al. 1996).

In 1996, Houk and Robichaux (1996), assisted by Jeffrey Durst of UT, mapped 1.54 km² around the site core during the first season of the CCAP. The results of those investigations guided the plans for the 1997 season and are summarized below.

Despite its size and accessible location, no scientific excavations had been conducted at Chan Chich prior 1997. Other than some limited testing by Guderjan's teams (1991), Thompson's (1939) excavations at San José are apparently the only ones that were ever conducted within 30 km radius around Chan Chich prior to 1997.

Results of the 1996 Season of the CCAP

The 1996 mapping project recorded 253 structures, 187 of which were previously unknown (Houk, Robichaux, and Durst 1996). The majority of the newly documented structures are small housemounds. Some of these are organized around formal courtyards while many are isolated or situated in informal clusters. The settlement around the major ceremonial/civic architecture is generally dispersed across the landscape.

The major architecture at the site, composed of the largest structures and plazas, is located in the western half of the surveyed area (Figure 1.2). The most domi-

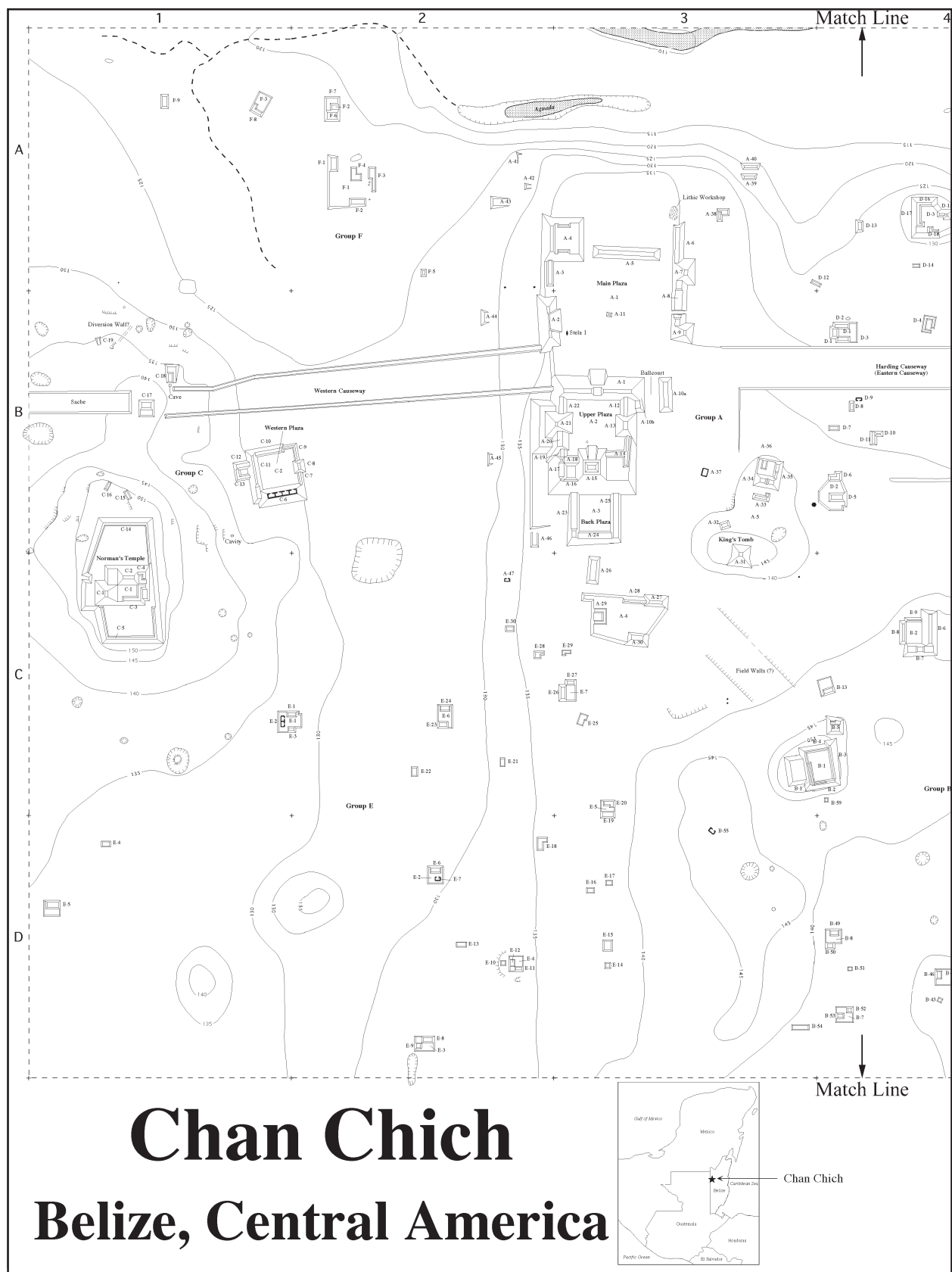
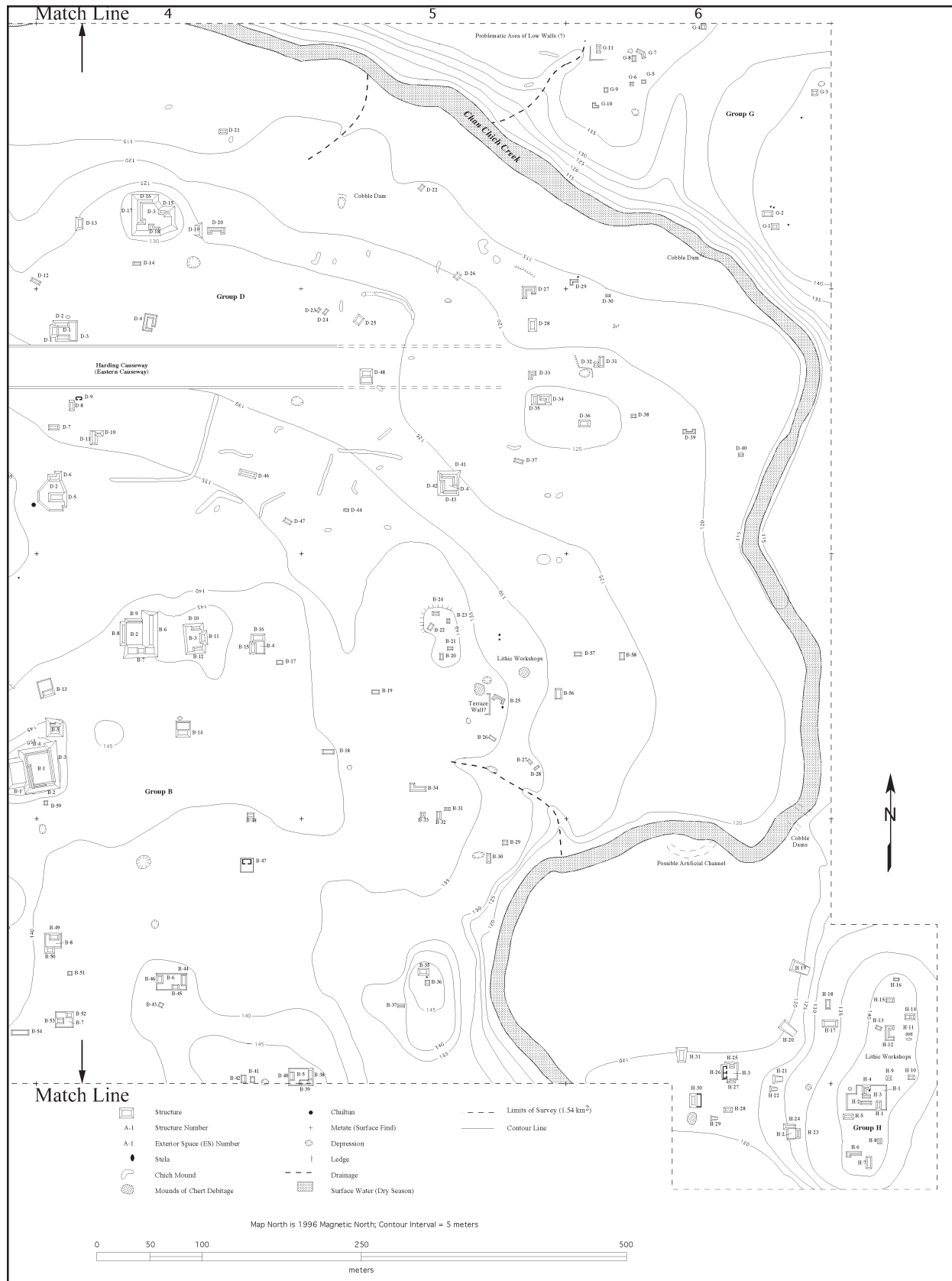


Figure 1.2. Site map of Chan Chich. The east half of the map appears on the facing page.



nant elements of the site plan are Plaza A-1 (Main Plaza) and Plaza A-2 (Upper Plaza). West of Group A is the second largest architectural group, Group C. This includes Plaza C-2 (Western Plaza) and the acropolis-like Norman's Temple compound. These architectural complexes have been described in detail previously (e.g., Guderjan 1991; Houk, Valdez et al. 1996), but the 1996 project located several major, but previously unrecognized, elements of these groups (Houk, Robichaux, and Durst 1996).

The two most important discoveries from a site planning approach are the Western Causeway and the ballcourt. Guderjan (1991) and Houk, Valdez et al. (1996) previously mapped the Harding Causeway, a 40-m wide, elevated *sacbe* extending east from the southeast corner of the Main Plaza. The 1996 project discovered a complementary causeway on the west side of the Main Plaza (Houk, Robichaux, and Durst 1996). The Western Causeway is architecturally different from the Harding Causeway in that it is composed of two parallel linear mounds defining a 40-m wide space between them. The causeway connects the Main Plaza to an isolated mound (C-17) that is located approximately 100 m north of Norman's Temple. On the west side of this mound, the another *sacbe* continues westward, but in a different form. Here it is similar to the Harding Causeway in that it is an entirely raised surface (Houk, Robichaux, and Durst 1996).

The second major discovery related to the site plan of the major architectural groups was the location of the ballcourt (Houk, Robichaux, and Durst 1996). One of the primary objectives of the mapping project was to locate the ballcourt at the site or, alternatively, confirm that the site did not have a ballcourt (Houk 1996b). Ironically, the ballcourt was "discovered" in the Main Plaza, an area which had been previously mapped twice (Guderjan 1991; Houk, Valdez et al. 1996).

The ballcourt is situated in the southeast corner of the Main Plaza. It was not previously recognized because the western structure is actually attached to the base of the large range structure (Structure A-1) that forms the south edge of the Main Plaza, and the eastern structure is covered in dense vegetation. This discovery prompted the renumbering of Structure A-10 to Structure A-10a. Structure A-10b refers to the western build-

ing in the ballcourt (Houk, Robichaux, and Durst 1996).

This location is actually consistent with ballcourt placement at most sites in the area. Houk (1996a, 1997) has demonstrated that most of the larger sites in the Three Rivers Region have their ballcourt located in an intermediary position between the northern and southern groups of architecture. La Milpa has a ballcourt in the southeast corner of the Great Plaza, although it is not attached to another structure.

Most of the settlement around the major architectural complexes at the site is probably residential in function. The vast majority of the newly discovered groups of housemounds are small and sometimes informally organized (Houk, Robichaux, and Durst 1996).

Four residential groups, Courtyards A-4, B-1, B-2, and B-3, were mapped by previous projects (Guderjan 1991; Houk, Valdez et al. 1996). In 1996, several new, presumably elite, residential groups were added to the map. The largest of these is Courtyard D-3, situated 250 m east of the Main Plaza. This group, which is built on a natural rise, is composed of four structures organized around a central courtyard. The terrain slopes steeply downward to the north of this group. The hillside here may have been intentionally terraced. This group overlooks a low-lying strip of floodplain that is today covered in cohune palm riparian forest. This area may have been very important agriculturally to the Maya inhabitants of Chan Chich (Houk, Robichaux, and Durst 1996).

Group H is an important residential area that was discovered at the end of the 1996 season (Houk, Robichaux, and Durst 1996). This dense cluster of structures is located on the east bank of the creek (see Meadows 2000 [this volume]). It is situated on a prominent hill which rises above a broad area of creek flood plain and is approximately 1.25 km southeast of the Main Plaza. Group H is unusual not only for the quantity and density of structures, but for the association of these structures with large mounds of chert debitage. Two of these mounds are approximately 1.5 m high (Houk, Robichaux, and Durst 1996). Other areas of chert debris were encountered in Group B, associated with Structure B-25. Guderjan (1991) docu-

mented a possible chert workshop north of the Main Plaza near Structure A-6, as well.

Results of the 1997 Season of the CCAP

In 1997, the CCAP investigated the ballcourt at the site, looter's trenches in the Upper Plaza, the staircase to Structure A-1, and the chronology of the site by excavating test pits in Plaza A-1, Plaza A-2, Courtyard C-1, and Plaza C-2. The most remarkable discovery was a collapsed tomb in the Upper Plaza.

The discovery of the Protoclassic tomb in the Upper Plaza at Chan Chich marked the first scientific excavation of a Protoclassic deposit in the Gallon Jug/Programme for Belize area (Robichaux 1998). An important period of transition for the Lowland Maya, the Protoclassic is still poorly understood in terms of what it represents technologically and culturally (Hammond 1985; Meskill 1992). The Chan Chich tomb contained 11 ceramic vessels, a tubular jade bead, two jade earspools, a jade bib-head pendant, the skeletal remains of an adult, and a badly preserved wooden artifact. The tomb, based on the bib-head, is apparently the resting place of one of the rulers of Chan Chich. The importance and significance of this discovery lie in its potential to address the nature of the political organization of the site and of rulership at the dawn of the Classic period, as well as technological questions plaguing ceramicists who are trying to refine the Late Preclassic/Early Classic ceramic traditions in the region (e.g., Sagebiel and Kosakowsky 1997; Sullivan and Valdez 1996). Additionally, Chan Chich's location between two clusters of Protoclassic sites—the Belize Valley and northern Belize—may prove important in understanding the regional nature of the Protoclassic (e.g., Meskill 1992).

The investigations at the ballcourt revealed an unexpected architectural style. The ballcourt is unusual from a spatial viewpoint because the western structure is attached to a larger building. More interesting, however, is the nature of the penultimate construction. Excavations on the east ballcourt structure revealed that the final form of the building possessed a sloping playing surface, typical of the region. The penultimate building, however, was a three-tiered structure. This

style has not been documented in the immediate area. The only other example we have discovered is from Lubaantun in southern Belize (Hammond 1975), although depictions of stepped-ballcourts are common in Late Classic artwork (Houk 1998).

Both corners and the center of the staircase on the north face of Structure A-1 were examined during 1997. The final construction phase was very poorly preserved and had chopped the penultimate construction. The intact sections of the penultimate building were plastered and formed of large, well-cut limestone blocks. The final construction phase showed evidence of burning and was composed of very poor quality limestone. The north end of the center-line unit was excavated through the eroded plaza floor to bedrock to recover chronological data. The ceramics included Middle to Late Prehistoric types at the deepest levels (Valdez 1998).

The test pitting program discovered two important facts about Plaza C-1: first, there is a major Late Preclassic component to the group that was not anticipated, and, second, there is evidence for Late Classic/Terminal Classic abandonment of the group. The latter is noted by the presence of a light scatter of smashed ceramics on the floor at the base of Structure C-1 and the abundance of ash in the overlying collapse debris. Other sites in the region have similar deposits in elite residential groups (Houk 1996, 2000a). It is possible that these elite residential groups were all intentionally destroyed during a pan-regional episode (see Houk 2000a [this volume]).

Results of the Upper Plaza Investigations

The following description of the Upper Plaza excavations is based on Robichaux (1998). The Upper Plaza is one of two large plaza groups in the center of Chan Chich. The other is the Main Plaza group which is located just to the north of the Upper Plaza. The Main Plaza is larger in area than the Upper Plaza, more open, and is accessible from the east, west, and north. In particular, the Harding and Western Causeways, presumably major traffic arteries, feed into the southern half of the Main Plaza indicating that there was considerable flow of people (and perhaps commodities) in and out of it. This suggests a generalized public function for the Main Plaza.

The Upper Plaza and Main Plaza share Structure A-1, a large range-type structure, as part of their composition. Examination of the Structure A-1 mound profile suggests the structure may have consisted of two back-to-back, east-west aligned rows of rooms, one row facing northward out on to the Main Plaza, and the other row facing southward onto the Upper Plaza. It appears that a stairway ascending up the center of the north side of Structure A-1, and another descending down the center of the south face of the structure onto the Upper Plaza may have served as the principal access route to the Upper Plaza.

The Upper Plaza, in contrast to the Main Plaza, is situated ca. 10 m higher in elevation, and is more tightly enclosed. The lofty position of the Upper Plaza, and the arrangement of its structures, suggests that the Upper Plaza was a more controlled environment than the Main Plaza, with access possibly being limited to political and religious elite.

Examination of looters' trenches in Structures A-15 and A-21, two tall, pyramid-like structures located on the south and west sides, respectfully, of the Upper Plaza indicate that several earlier structures are buried under each of them. This is suggestive of a long occupation in the immediate area of the Upper Plaza. Looters' trenches into Structures A-2, A-7, and A-9 on the Main Plaza are now filled, but they are reported to have revealed only a single episode of construction for each of these structures (Guderjan 1991). This may indicate that the Main Plaza area became important later in the life of the site, and major construction expanded outward from the Upper Plaza area on to it as the community grew.

Excavations at three locations on the Upper Plaza during the 1997 season provided a basis for insight into the occupational history of the plaza (Robichaux 1998). Two of the excavations reached bedrock. Suboperation 2-H, a 2-x-2-m test pit placed near the south, center edge of Structure A-1 on the Upper Plaza, revealed a sequence of at least seven floors. Below them was found an apparent posthole, 27 cm thick, which had been dug into the limestone bedrock. The post which was placed in the posthole may have been part of the roof support for an early perishable structure. Due to the posthole's large size, it is possible to hypothesize

that the structure was moderately large and possibly had some public or ritual function relating to the early settlement at Chan Chich. Charcoal from a midden above the floor was radiocarbon dated to cal 770 BC.

Suboperation 2-A, augmented by Suboperations 2-C through 2-G, and 2-I through 2-J, was excavated into the Upper Plaza floor ca. 12 m in front of, and slightly west of centerline of Structure A-15. The excavation unit was also situated ca. 1 m east of a "hole" feature present on the Upper Plaza surface. This circular hole was ca. 0.8 m in diameter. Organic debris was visible at a depth of 1.2 m down into the hole. The periphery of the hole was composed of stone fragments of various sizes and shapes. The excavation unit was positioned to provide chronological evidence concerning occupation of the Upper Plaza and data concerning the nature of the hole feature. A low, north-south wall was encountered slightly below the surface in the center of the unit. Later excavation revealed the wall turned west at both the north and south ends of the unit, toward the hole feature. A sequence of at least four floors was encountered west of the wall. Excavation down into the hole feature itself eventually revealed the presence of an elite tomb with north-south alignment. The tomb floor was at a depth of ca. 2.65 m below the present plaza surface. The tomb contained 13 teeth, various bone fragments, 11 monochrome ceramic vessels, four jade objects, traces of green and pink material which were located to the west of the presumed location of the buried person's head, and what was apparently a wooden object in the shape of a snake. The vessels date the tomb to the Protoclassic period of Maya culture-history (Valdez 1998). One of the jade objects found in the tomb, a bib-and-helmet pendant, suggests that the tomb occupant was an early ruler of the community.

Research Design

The research at Chan Chich in 1998 and 1999 was the outgrowth of previous research by the author into site planning in the Three Rivers Region (Houk 1996a; 1997). The study of site planning addresses questions of political organization, culture history, cosmology, and settlement patterning. Site planning, as used in this report, refers to "the deliberate, self-conscious

aspect of settlement patterning, at scales from individual structures through regional landscapes” (Ashmore 1989:272). The long-term objectives of the project are issues that can hopefully be addressed by this approach to research at Chan Chich.

Long-Term Research Objectives

Long-term, the Chan Chich Archaeological Project has several important research objectives.

- To determine the chronological development of the architecture at the site.
- To compare artifact assemblages and architectural styles to previously published data from surrounding sites and projects to determine regional similarities and differences.
- To understand Chan Chich’s role in the political and economic structure of the region during all time periods of occupation.
- To compare non-elite domestic architecture to elite domestic architecture with the goal of determining the cultural relatedness of the elite and non-elite at the site.
- To identify likely political and cultural ties between Chan Chich and other sites in the region.
- To establish the date at which the Peten-related site planning principles (see Houk 2000b [this volume]) appeared at Chan Chich, specifically, and in the Three Rivers Region, generally.

General Excavation Goals

Chronological data from each of the major plazas at the site will address questions of contemporaneity between important site plan elements. Some researchers remain skeptical of the validity of site planning templates like that proposed by Ashmore (1991) because of the palimpsest of many Maya sites. Indeed, the early form of a site is one of the possible factors affecting

the later site plan. Establishing the chronology of the site will be necessary to understand the construction order of, and the relationship between, major structures and public spaces.

Artifact assemblages from elite or ceremonial contexts will be compared to similar deposits from the sites in the region to identify similarities and differences. Elite artifact assemblages will also be compared to non-elite assemblages. This comparison, when combined with architectural comparisons between elite and non-elite structures at Chan Chich and other sites in the region will be used to examine the question of whether the Late Classic site plan was the result of a colonizing elite’s cultural expression of their Petén origins (Houk 2000b).

1998 Research Objectives

The 1998 CCAP planned to continue some of the research that began in 1997 and to initiate several new avenues of research. Four areas of the site were targeted for excavation: the Upper Plaza, the western groups, the ballcourt, and Group H.

Research in the Upper Plaza

The 1998 excavation program was designed both to clarify issues raised by the 1997 fieldwork and pursue new avenues to understanding the culture-history and function of the Upper Plaza.

- Continued excavation into the Tomb 2 area to resolve the following issues: The wooden staff or scepter was reburied at the suggestion of a trained conservator. Based on the results of the 1997 post-season analysis, we plan to devise a conservation plan either to excavate this artifact or to preserve it *in situ*. Preliminary analysis of a small sample by Paul Francisco at the Department of Archaeology in Belmopan indicates that the object is composed of some type of hardwood. Six thread fragments (one red, one grayish green, and four blue) were found on the small sample. The north 0.5 m and sections of the east and west sides of the tomb chamber were not completely excavated in 1997.

Additional excavations were also needed to determine whether the tomb is located beneath a Protoclassic plaza floor or within a Protoclassic structure buried beneath a later plaza surface.

- Continued profiling and plan mapping of looter's trenches in the large structures of the Upper Plaza.
- Initial excavation into Structure A-13. This structure occupies the eastern flank of the Upper Plaza. It is unlooted. Its small size makes it a manageable undertaking that possibly contains the same occupational history present under the looted larger structures on the Upper Plaza. Examination of the upper surface of Structure A-13 reveals what are apparently the remains of stone walls protruding through the topsoil at the structure's north end. This suggests that there may be a reasonable state of structural preservation prevailing below the surface. Structure A-13 is thought to present the most economical medium for delineating the cultural sequence on the Upper Plaza.
- Excavation into one of the Structure A-1 south facing rooms that look out on to the Upper Plaza. These rooms may have housed key activities relating to the rulership of the community.

Research at Courtyard C-1

The 1998 excavations at Courtyard C-1 examined the Terminal Classic deposits discovered in 1997 (see Ford and Rush 2000 [this volume]). Excavations involved exposure of living surfaces within structures and the courtyard to prospect for intact deposits which may be related to the abandonment of the group or site as hypothesized by Houk (1996a).

Research at Group H

Group H is a small residential group located at the southeast corner of the mapped area at Chan Chich. This group is remarkable for the number of mounds of lithic debris associated with the residential settlement in the area. In 1998, several of the lithic mounds and associated residences were selected for testing (see Meadows 2000 [this volume]).

Research at Structure A-10a, the Ballcourt

In 1998 we planned to conduct additional testing at the ballcourt to clarify the chronology and form of Structure A-10a. Specifically, we proposed to relocate the terraced structure's walls (described above) by re-opening Operation 3, Subop C, and then follow these walls to the south and/or to the north to locate the corners of these terraces. This information is needed to determine the form of the penultimate and final construction phases of the structure. We also planned to recover a ceramic sample from within the penultimate, terraced building to securely date the building.

1999 Research Objectives

The 1999 CCAP season continued some of the research that began in 1998. There were originally two areas of the site targeted for excavation: the Upper Plaza and Plaza C-2. A third, Structure A-11, was added during the season after consultation with the DOA.

Research in the Upper Plaza

- Continued excavation at Structure A-13 (Robichaux 2000). Excavations included continued examination of the summit of the structure to clarify the nature of the final architectural form. In 1998, an eroded marl surface, presumably a very deteriorated floor, was penetrated to recover ceramics or charcoal from within the structure for dating purposes. This excavation was continued to increase the ceramic assemblage.
- Continued excavation of the south face of Structure A-1 (Robichaux 2000). To understand the final architectural form of this large structure, it was planned to expose portions of at least one of the rooms along the south side of this tandem range building. These rooms may have housed key activities relating to the rulership of the community. Excavations on this structure were to consist of contiguous units stripping the collapse debris from the summit of the building to expose floors, walls, benches, and artifacts possibly left in situ in rooms.
- Continued investigation in Tomb 2 chamber. Although Robichaux (personal communication,

1999) believed the entire chamber had been exposed in 1998, the research design plan called for investigating the north extent of the 1998 excavation unit to re-evaluate the stratigraphy and architecture (Robichaux 2000).

Research at Plaza C-2

The 1999 excavations at Plaza C-2 were designed to examine the Terminal Classic deposits discovered in 1998 (Harrison 2000). Excavations were to involve exposure of living surfaces within structures and the courtyard to prospect for intact deposits that may be related to the abandonment of the group or site. Excavations targeted Structure C-6, a range building with surface indications of the locations of walls and rooms. These excavations consisted of contiguous units stripping the collapse debris from the summit of the buildings to expose floors, walls, benches, and artifacts possibly left in situ in rooms. Excavators were looking for evidence of burning or intentional destruction of the buildings.

tion is a paper by Houk (2000a) on an interesting and significant deposit excavated at Dos Hombres in 1993 and 1994. The final paper is also by Houk (2000b) and offers some concluding and summary remarks.

The fourth section of the report comprises three appendices. All three provide data related to the the lithic studies.

Organization of this Report

This remainder of this report is loosely divided into four sections. In the first are reports based on the 1998 excavations. These include chapters on the investigations of the lithic deposits and associated structures in Group H (Meadows 2000), the excavations in the western groups (Ford and Rush 2000), and the continued exploration of the Upper Plaza (Robichaux et al. 2000).

The next section focuses primarily on data collected during the 1999 season. Include are reports on Robichaux's (2000) final investigations in the Upper Plaza, Harrison's (2000) extensive excavations of Structure C-6 at the Western Plaza, Jellen's (2000) 1997 and 1998 documentation of looter's trenches from the Upper Plaza, and Houk's (2000c) excavations of Structure A-11 in the Main Plaza.

The third section includes papers that are directed at special studies, many spanning multiple seasons. These include the lithics from outside of Group H (McDow 2000), groundstone (Glaab and Valdez 2000), and ceramics (Valdez and Houk 2000). Included in this sec-

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Archaeological Excavations at Group H: Investigating Craft Production and Domestic Architecture at Chan Chich, Belize

Richard K. Meadows, with contributions by Kristen M. Hartnett

Introduction

Excavations undertaken at Group H during the 1998 field season of the Chan Chich Archaeological Project were the first systematic investigations undertaken outside of the site center. Group H is a settlement area located some 1 km to the southeast of the Main Plaza, across Chan Chich Creek and 100 m south of an artificial stream channel. The area was documented during the 1996 season (Houk et al. 1996). During mapping, isolated structures and small patio groups were observed in direct association with 1.0- to 1.5-m high mounds of chert debitage (Houk et al. 1996; Robichaux et al. 1997). The presence of these deposits suggests that local production and (or) maintenance of stone tools was being undertaken at Group H (Houk et al. 1996).

During the 1997 season, project members again visited this settlement area and relocated structure groups and debitage deposits. Some small scale surface collection yielded several of what appeared to be thick oval shaped bifaces lying on the surface of the deposits. At that time, it was thought that systematic excavation of the debitage deposits could reveal more about what kinds of lithic implements were being worked by the occupants of the patio groups. A research design was generated, geared toward assessing building structure, the composition of the debitage deposits, and the chronology of ancient occupation in the area (Meadows 1998). It was hypothesized that oval shaped bifaces were being produced during the Late Classic, perhaps by the residents of the structure groups. However, it was unclear what other kinds of tool forms may have been produced and (or) maintained and whether associated structures had also served as domestic locales (Meadows 1998).

Structures directly associated with lithic debitage mounds are located at the base of the west slope of a large hill. This patio group was recorded as H-3 (Figure 2.1). Structure H-30 is located 5–7 m due north of a large debitage deposit (Debitage Deposit 3). Approximately 50 m to the east, a 1.5 m high debitage deposit (Debitage Deposit 1) is located midway up the slope of the hill. At the summit of the hill, some 100 m to the east, Patio Group H-1 also is associated with a 1.0+ m high debitage mound that spills off of the western edge of the platform comprising Patio Group H-1. Immediately to the south was a small structure group on a bluff looking south over Chan Chich Creek. To the north, small groups of structures are located at the summit of an adjacent hill with a series of what appear to be agricultural terraces located to the north and east of Patio Group H-1.

The Present Study

The following study is divided into two distinct parts. The initial portion describes in detail the process of excavation, focusing on artifact context and association with respect to structures and other artifacts. Also included in the excavation description, is a review of excavation and recovery of Burial 5, located at the western extent of Suboperation C. Burial 5 was located beneath a floor cut in the eastern portion of Structure H-3 in Patio Group H-1 (Figure 2.1).

The burial, a flexed male, was interred beneath numerous ceramic sherds and two well-worn oval biface tools placed at the head and the feet of the individual. Although the bone was poorly preserved,

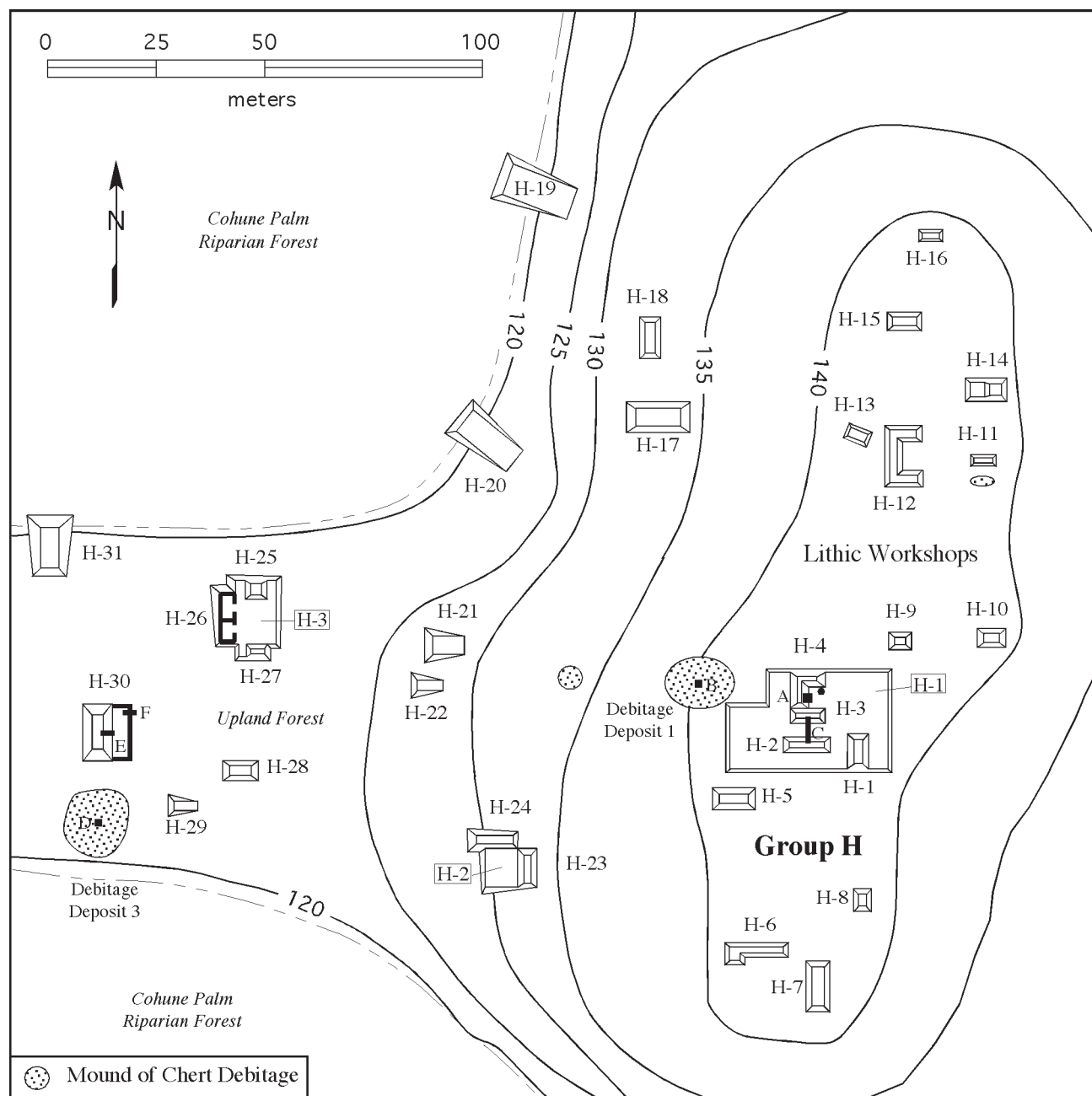


Figure 2.1. Map of excavations at Group H, Operation 6.

a total of 28 teeth were recovered from the burial. Data from a cursory analysis of the skeletal material is included in the description of the burial. It is hoped that future analysis of dentition may indicate nutritional and (or) occupational stress present during the life of the individual.

Finally, overviews of excavations undertaken at Structures H-4 and H-30 (Suboperations A, E, and F, respectively) are provided. This work allowed research-

ers to assess the integrity of what were perceived to be domestic buildings, as well as some of the activities that likely occurred in adjacent patios. Finally, excavation of the workshop deposits is described by lot/level in terms of debitage matrix and tool forms recovered from individual contexts.

The second portion of this study presents an analysis of the chipped stone material recovered from the Group H excavations. This analysis focuses on a typological

and distributional study of tool forms and tool form fragments produced on local cherts (cryptocrystalline silicate). Over 150 tool forms and tool form fragments were recovered from excavations in the Group H structures and debitage deposits. These artifacts suggest that members of the Maya community that lived here undertook both production and maintenance of chert tool forms.

Further analysis of a sample of complete flakes from each suboperation helped to refine our understanding of technology within the context of a lithic production continuum. Column samples from Debitage Deposits 1 and 3 were analyzed to determine whether these deposits were the debris from intensive production of chert tool forms or were simply domestic dumps. While the excavation of these deposits sheds light on this question, analysis of tool forms and debitage was necessary to position the production process within a broader archaeological and cultural framework. By clearly articulating the density of lithic debris present in the mounds, it is suggested that these deposits formed over time as the result of craft production.

Excavation Summary

Excavations at Patio Group H-1

Group H investigations were designated Chan Chich Archaeological Project Operation 6. Initial excavations were undertaken in Patio Group H-1, at the summit of the hill. Suboperations were excavated at the base of the west structure, H-4, and at the summit of the debitage mound, located some 16 m to the west, designated Debitage Deposit 1. The placement of Suboperation A at the base of Structure H-4 was motivated by the desire to find an interior step and associated interior floor(s), as well any indication of domestic debris associated with the floor. Suboperation B was excavated in order to determine the nature and extent of debitage deposits in terms of density and depth. An additional suboperation, Suboperation C was opened between Structures H-2 and H-3 in order to locate the exterior walls of both buildings, as well as to recover cultural material that may have been deposited between the two structures.

Suboperation A

Suboperation A was a 1-x-2-m test unit placed on the east-west axis of Structure H-4. Eventually, Suboperation A was extended to the south so that in total, a 2-x-2-m square was excavated to bedrock. The suboperation datum was placed in the northwest corner of the unit, three quarters of the way up the east slope of the structure. The ground surface in the center of the suboperation was located some 75 cm below this datum. Suboperation A was extended primarily to realign the excavation with the central axis of the building, as well as to follow a small plaster floor remnant that was observed in the southwest corner of the initial 1-x-2-m unit. A second objective of Suboperation A was to locate any ceramics that would provide a chronological starting point for the surrounding structures.

The terminal architecture of Structure H-4 had almost completely deteriorated, making it extremely difficult to discern any architectural features from the final building phase. Several of the surface cobbles appear to have been faced and may have comprised the steps of the structure, but presently could only be interpreted as fall and debris. It is hypothesized that the terminal plaza floor may have been comprised of hard packed limestone pebbles and soil, evidenced by the compact materials comprising the remaining subfloor located some 10 cm below the ground surface.

Excavations in the topsoil layer and upper lots moved rapidly, as several pieces of lithic debitage and ceramics were recovered. In the north portion of the suboperation, chunks of charcoal and bits of charred wood began to be uncovered. The charred wood that had been uncovered throughout Lot 1 appeared to have been pieces off a much larger, fairly intact charred log. This feature was quickly designated Lot 2 and dubbed "the log." The log was located approximately 51 cm below datum (cmbd), close to the north wall of the unit and was not clearly associated with any cultural material. The mass of charred chunks was recovered from a matrix of fine, ashy soil. Radiocarbon dating could indicate the precise time frame of its deposition. As in Lot 1, artifactual material such as plain ceramics and some chert flakes were present but limited in number.

Directly west of the log (Lot 2), there was an entire zone of fine ashy soil. This was a significant change from the darker soil of Lot 1 above. The soil was light in color and very fine, soft, and powdery and contained no artifactual material. Small pieces of charcoal were retrieved from this lot. The majority of the ash was concentrated in the northern portion of this zone, but there were numerous cobbles of crumbly limestone, bluish in color and most likely burned. These pieces were present throughout the entire lot.

An abrupt change in soil color and texture necessitated the opening of another lot immediately below the zone of ashy soil. The matrix of this zone can be described as darker and coarser than the lot above it. No ash was present in this matrix, but small cobbles were quite numerous. Because of the abrupt change from the overlying lot, the absence of ash and the pattern of small cobbles, this zone is suspected to be a subfloor. The subfloor zone extended over the entire suboperation.

Artifactual remains were abundant in this zone as compared to previously excavated zones. Several worked chert artifacts were uncovered in the zone, including a biconvex, oval shaped biface, a fragment of an oval biface, and a core or hammerstone associated with a large quantity of small secondary and tertiary flakes (>200). This cluster of lithic material was located along the central portion of the south wall of the suboperation and extended east to its southeast corner. The concentration of debitage in this area may indicate the remains of a reduction or maintenance episode. Several large plain ceramic sherds were also recovered from this zone, also concentrated in the southeast quadrant of the suboperation.

In the matrix of small limestone cobbles, two architectural features were encountered. First, the remnant of a plaster floor was discovered 95 cmbd, against the west wall of the suboperation, near what should have been the exterior wall of Structure H-4. However, the plaster was very desiccated, and it was difficult to determine whether it was in fact a floor. Secondly, a step-like feature was observed in the southwestern corner of the unit, approximately 91 cm long and 62 cm wide. The top of the feature was located at a depth of 85 cmbd. This feature may have been a

sub-step and did not appear to articulate with any part of the plaster remnant found along the same wall. Excavations were halted shortly after the discovery of this feature because bedrock was uncovered in the central portion of the suboperation at 103 cmbd, or 47 cm below the interior ground surface of the patio.

Excavation results of Suboperation A were mixed. Though relatively little artifactual material was uncovered within the suboperation, two small architectural features were located. The presence of the log feature may provide a radiocarbon date that could link it to later occupation in the area. The authors observed that a chicle tree growing out of Structure H-4 showed weathered tap marks, indicating that chicleros had indeed been in the area. The charred log may be the remnants of their campfire.

The presence of the debitage and lithic artifact concentration in the southwest corner of the suboperation suggests that an episode of stone tool maintenance was undertaken in the patio group. The failure to recover clearly diagnostic ceramics hindered an initial chronological interpretation for occupations at Patio Group H-1.

Suboperation B

Debitage Deposit 1 was located some 16 m due east of Structure H-4. Considerably larger than depicted on the 1996 site map, the deposit measured 12 m along the north-south axis and 16 m along the east-west axis. On the surface of the deposit, large secondary flakes, several broken biface preforms, and with some large limestone cobbles that exhibited abraded surfaces were visible. From these surface observations, it was suggested that stone tools were being produced from local cherts. A 1.5-x-1.5-m suboperation was opened at the summit of the deposit.

This unit was designated Suboperation B, and the datum was placed in the northeast corner of the test unit, with the ground surface located 4 cmbd. Utilizing similar field methodology to that implemented at the lithic production site of Colha, the deposit was excavated in 10-cm arbitrary levels, with a 1000 cm³ column sample collected from the northeast corner of every level (Hester et al. 1981; Shafer and Hester 1991, 1983).

Moreover, all tool forms and tool form fragments were collected from the matrix, as well as all ceramics and other artifacts. Finally, a selected sample of complete flakes was also recovered from each level. These were mainly secondary decortication flakes likely produced by direct hard hammer percussion (see Figure 2.2).

The close proximity of Patio Group H-1 suggests that this deposit is in some way associated with these buildings. However, it is unclear if this is indeed a primary deposit or a secondary deposit resulting from stone tool production that was undertaken in the nearby patio. At Colha, *in situ* chert workshops have been iden-

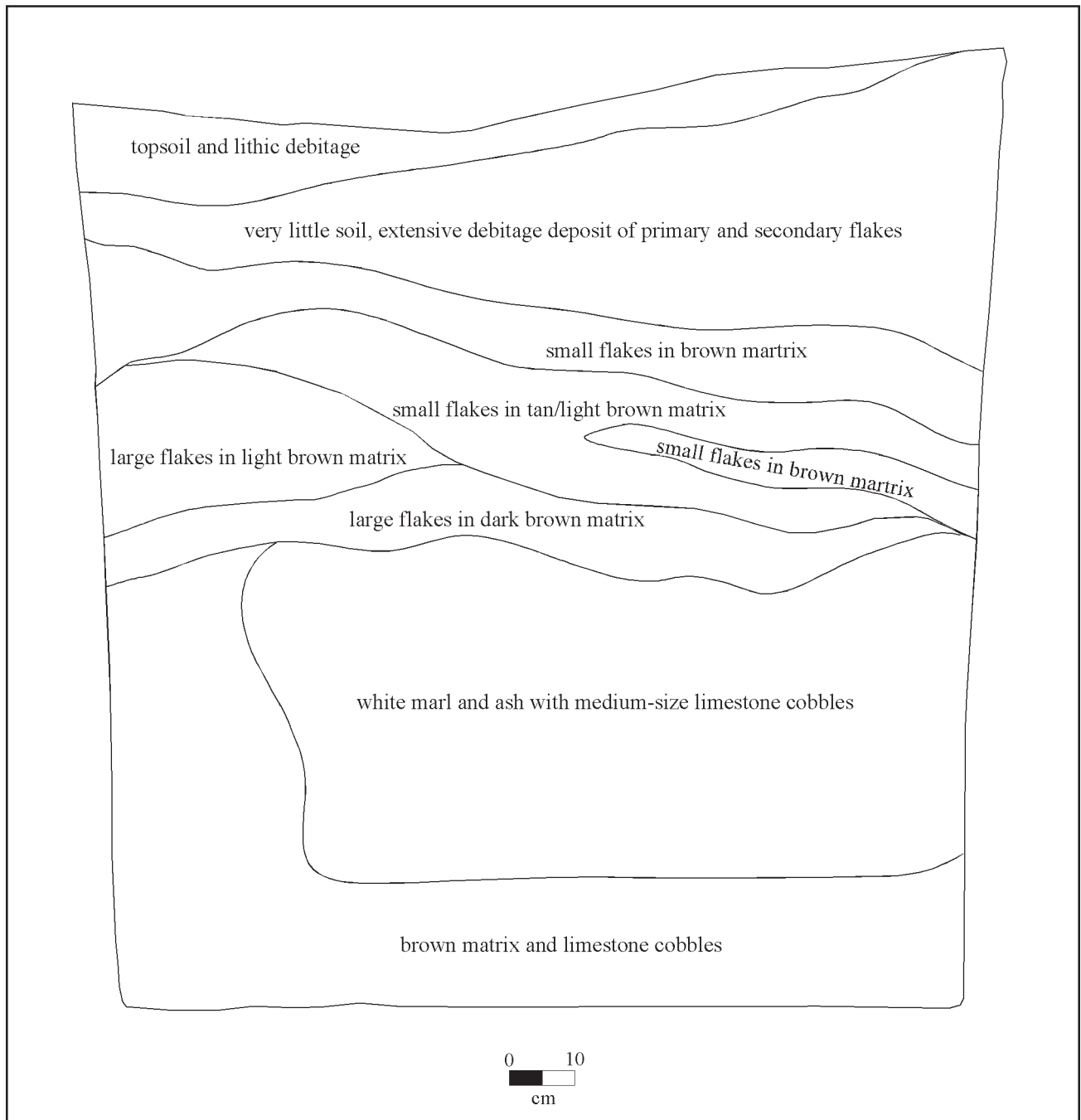


Figure 2.2. East wall profile of Suboperation B depicting changes in color and texture of debitage deposit.

tified in direct association with structures and patio groups (Shafer and Hester 1983, 1991). Indeed, Late Classic workshops are often seen overlying and spilling off of domestic platforms (Meadows and Wilson 1997; Shafer and Hester 1983, 1991).

It was clear from the inception of excavations that the deposit was indeed dominated by lithic debitage, ranging from primary decortication to tertiary flakes to biface thinning flakes and microdebitage. Level 1 (4–14 cmbd) also contained a fair amount of broken biface preforms and ceramics. Level 2 (14–24 cmbd) exhibited fewer tool forms. Below Level 2, ceramic material again increased. Red slipped ceramics and large pieces of plain utilitarian wares were recovered. Also, oval biface fragments were recovered throughout Level 3 (24–34 cmbd), as well as several large limestone cobbles that were likely used as hammerstones.

Level 4 (34–44) showed evidence that different portions of the mound were deposited at different times and at different rates. The north wall profile shows a large lens of microdebitage in a matrix of larger flakes and tool form fragments. In the southwest corner of Level 4, large sherds of plain utilitarian wares were concentrated. This deposition is isolated and appears to be a discrete deposit. What appeared to be a biconvex oval shaped biface preform was recovered along the north wall in Level 5 (44–54 cmbd). Level 6 (54–64 cmbd) continued to yield ceramics and large quantities of lithic debitage. Level 7 (64–74 cmbd) was comprised of loose brownish soils and small chert flakes, as well as several ceramic sherds. Moreover, several complete biconvex oval biface preforms were recovered from this level. One of these forms is much smaller than other oval biface preforms and was triangular in shape. A second specimen was a narrow biface that is extremely biconvex, indeed diamond shaped in cross section.

This suggests that perhaps three morphologically distinct forms were being produced, or at least maintained by the local crafters that worked this lithic material. Level 8 (74–84 cmbd) yielded large amounts of lithic debitage, localized in some cases within small concentrations of ashy, gray soils and calcium staining. This staining may indicate decomposition of organic material and was most visible in the northeast and

southeast corner of the suboperation. In addition, two large rim sherds of a red slipped bowl and what appears to be a fragment of a bark beater, incised with a pattern of cross hatching lines were recovered from this level.

Level 9 (84–94 cmbd) showed a distinct change in the matrix. Large limestone cobbles predominate, and dark brown soils are also present. Moreover, several fragments of biconvex oval bifaces were also recovered at the bottom of this level, as well a single narrow biface recovered also at the bottom of the level. Level 10 (94–104 cmbd) was full of limestone cobbles and ashy soil. A moderate amount of lithic debitage was recovered from this level. Moreover, a single human long bone fragment was also recovered. Excavations below the debitage deposit continue to Level 15 (154 cmbd). Most of the materials from these levels consisted of medium sized limestone cobbles with some soil in the matrix. At this depth, it was concluded that the suboperation had reached the bottom of the platform and excavations were halted.

Both the north and the east wall profiles of Debitage Deposit 1 were photographed and drawn (see Figure 2). An interesting pit feature appeared in the east wall profile suggesting that at one time there might have been an effort to place debitage within the platform located below it. Then, as more lithic material accumulated, it was just piled on top, perhaps in discrete depositional episodes. The east wall profile also shows differing stratigraphic layers that place the summit of an earlier mound to the south of the terminal mound. It seems clear that lithic production was being undertaken on the platform of Patio Group H-1. However, the extent of artifactual material, including some ceramics, as well as organic residues, and discrete lenses of different kinds of debitage indicate that lithic production and other domestic activities were undertaken by the ancient occupants of this area, most likely the inhabitants of the adjacent patio group.

Suboperation C

Suboperation C was a 1-x-6-m excavation unit placed between the south wall of Structure H-3 and the north wall of Structure H-2. The purpose of this excavation was to locate and document structure walls as well as

to determine the nature of the external space between the two structures. It was expected that a patio floor and associated architecture could define the extent and construction history of these two buildings as well as yield artifactual material that was deposited between the two buildings.

The datum was placed in the northwest corner of the suboperation, on the south slope of Structure H-3. After clearing the leaf litter off of the ground surface of the unit, many faced limestone cobbles were observed. These stones appeared to be surface debris and fall. Moreover, three limestone metate fragments were recovered along with what turned out to be the extent of the north wall of Structure H-2. A fourth limestone metate fragment was wedged under a limestone cobble below these artifacts.

The topsoil zone produced a fairly large quantity of cultural materials. Most of these artifactual remains were concentrated in the south half of the suboperation, also along the north wall of H-2. Large thick rim sherds were discovered, mostly of a utilitarian jar, as well as a medial and distal fragment of a biconvex oval biface. In addition, a complete drilled shell ornament was recovered from Lot 2. This flat, ridged shell was discovered on the eastern part of the north wall of Structure H-2 and may have been worn as a pendant. In the field it was observed that the two holes were drilled from the exterior of the shell through to the interior of the artifact.

Excavations proceeded through the topsoil layer until the matrix changed to a darker soil with small to large cobbles. The zone below the topsoil (Lot 3 and Lot 4 from north to south) was comprised primarily of collapse debris. Again, this zone produced many artifacts of cultural importance. Several broken oval bifaces were recovered, as well as many large thick ceramic rim sherds. An obsidian blade fragment was uncovered in Lot 4 along the west wall of the suboperation at 112 cmbd, resting on bedrock.

At approximately 49 cmbd the north wall of Structure H-2 was uncovered. This wall appeared as an alignment of faced stones and probably represents the last building phase of Structure H-2. No artifactual remains were found within the wall. The wall was des-

ignated Lot 5, and the 50 cm area to the south directly on Structure H-2 was labeled Lot 6 to mark the difference between external and internal space within the structure.

Three meters north of the exterior wall of Structure H-2 was the exterior wall of Structure H-3. The wall was difficult to define since it was in a matrix of loose cobble and marl fill. However, a stone alignment resting on a shallow surface of compact limestone and marl over bedrock was eventually located. The area to the north of the wall, Lot 7, was defined as an interior space to separate it from the wall and the external space. This area was designated Lot 8.

Lot 8 was laden with artifactual materials. In a depth of only about 10 cm, approximately 50 sherds were discovered including red and orange slipped wares, as well as a plain rim sherd with finger tip sized impressions along the rim. Also, in the concentrated deposits in Lot 8, two mano fragments, a granite (non-local) metate fragment, and two broken oval bifaces were discovered. A small region of wet laid fill or a remnant plaster floor was noted in the eastern wall of the suboperation in Lot 8.

Burial 5

Excavations continued in Lot 8, yielding more ceramic sherds and lithic material. At approximately 72 cmbd human bone was encountered, slowing the excavations. These extremely desiccated appendicular human bones were outlined and then removed in sections. The skeleton and immediately associated artifacts were designated Burial 5. The skeletal remains were extremely fragile and could only be partially exposed and then extracted in chunks comprised of spatially defined groups, designated A through K. For instance, the first large long bone encountered and its associated fragments were placed into bone cluster B; the dental remains were grouped into the bone cluster G; and the cranial fragments were in cluster J. This burial appeared to be a primary interment and was placed in a flexed position along an east-west axis, with the individual's head located to the west (see Figure 2.3).

Taking into account the plaster remnant visible in the east profile, it is hypothesized that the burial was cut into the floor and behind the exterior wall of H-3, form-

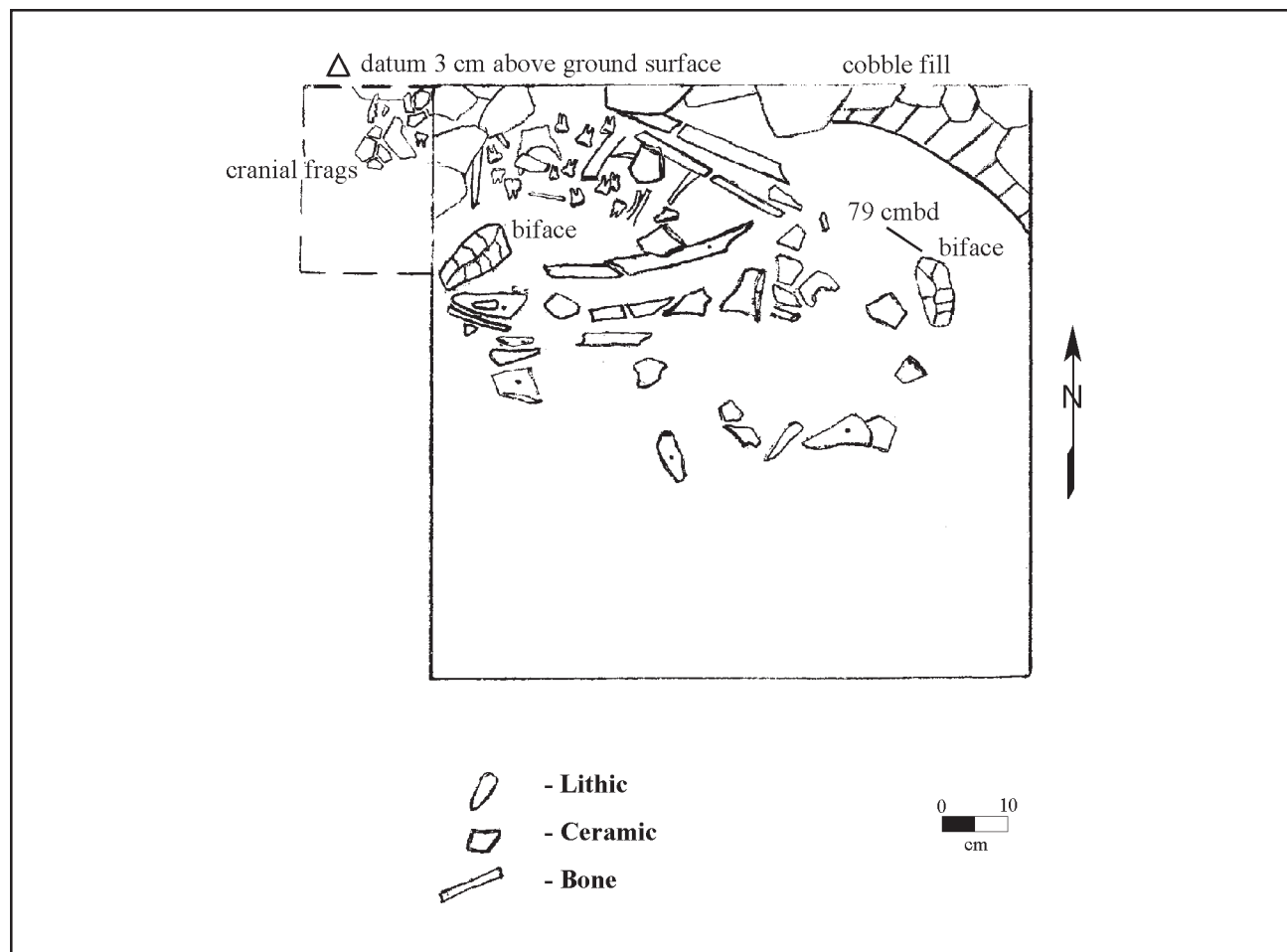


Figure 2.3. Plan map of Burial 5 excavations.

ing a small cavity in which the body interred. Sometime after burial, lithic and ceramic material along with limestone cobbles were placed over the body. Only a small area of the floor was visible in profile. The large number of ceramics and lithics discovered above the burial in Lot 8 were most likely deposited on top of the remains as fill after it was interred. In general, preservation of the skeletal remains was extremely poor, and the matrix holding the remains made it difficult to clean and extract individual bones. The skeletal remains recovered from Burial 5 were fragmented and the bone was in extremely poor condition. Despite the lack of preservation, Frank and Julie Saul conducted a preliminary analysis of the material. The Sauls were able to make some initial statements regarding sex, age, and characteristics of some individual bones (Frank and Julie Saul, personal communication 1998). The following is a description of the results of the analysis.

The individual (a flexed burial with head pointed to the west, hips to the east, with the head laid slightly north of the hips) was determined to be a male based on the presence of pelvic fragments, maximum A-P diameter of 30 mm present on the right femur, the blunt orbit rim and marked nuchal crest, and the widely bilobate chin. The individual was determined to be a young adult, between the ages of 25 and 35 years old, based on slight dental attrition and open cranial suture fragments, namely the lamboid, sagittal, and coronal. It is possible that the individual was interred on his left side.

Dental findings include a moderate calculus, no presence of LEH detected. One of the 28 recovered teeth exhibits a caries cavity. Moderate wear (LSMAT) was noted on incisors, but none was visible on the canines. No dental decoration was detected. Overall cranial modeling could not be determined. Post-cranial ma-

terial was too fragmentary and incomplete to determine either the presence or absence of pathology. However, the very platycnemic (flat) tibia with sharp interosseous and anterior crests suggests an activity such as running/ climbing on rough terrain marked by the dorsiflexion and inversion of the foot.

The burial was recovered in association with a number of artifacts that appeared to be purposely placed. This artifact inventory included red and buff slipped ceramics, two battered biconvex oval bifaces, and a number of pieces of lithic debitage. The oval bifaces were placed directly west of the cranium and directly east of where the feet of the individual may well have been. Perhaps more interesting was the placement of a complete secondary flake comprised of red-stained brown chert that was recovered in direct association with the dental remains and perpendicular to the long axis of the flexed skeleton.

In general, the excavations at Suboperation C were very successful. Architecture for both Structures H-2 and H-3 was explored. It was determined that a plaster patio between the structures was absent, but that a hard packed earthen and limestone floor most likely existed between the base of the structures and the underlying bedrock. Moreover, several artifacts discovered in the suboperation hint at the presence of some sort of long distance acquisition. The granite metate fragment, the obsidian blade, and the shell pendant are not indigenous to the La Lucha escarpment, but must have been obtained via interregional interaction.

Excavations at Structure H-30

While excavations continued on Suboperation C, work shifted to the west, at the base of the hill, to Structure H-30 and the associated debitage deposit, designated Debitage Deposit 3. Structure H-30 is a north-south oriented building, 15 m in length, 6 m in width, and 2 m in height. In addition, the structure exhibits a low wall extending off of the east side of the test unit and running the structure's entire length. This wall appears to have enclosed a small courtyard that appears lower than the surrounding ground surface. Excavations at Structure H-30 focused on the central portion of the building in hopes of exposing intact architec-

ture and revealing, to some extent, the building's function. Moreover, a portion of the low wall would also be examined to define it in relation to Structure H-30, as well as to locate an interior courtyard floor. It was also hoped that these excavations would yield artifactual material that would be temporally diagnostic.

Debitage Deposit 3 is located some 10 m to the south of Structure H-30. It is 16.4 m along the north-south axis and 15 m along the east-west axis. The deposit is 1.8 m higher than the surrounding ground surface. The proximity of the deposit to Structure H-30 suggested that lithic production activities evidenced by the deposit were associated in some way with the structure. It was thought that excavations at the summit of this deposit would show the extent and nature of both the lithic and perhaps other cultural material deposited there.

Suboperation D

Suboperation D was a 1.5-x-1.5-m test unit located in Debitage Deposit 3. The suboperation was excavated in a similar manner as Debitage Deposit 1 at Patio Group H-1. Again, the suboperation was excavated in 10-cm arbitrary levels. All tool forms and tool form fragments were collected, as well as a sample of complete flakes. All ceramic and other materials were collected in addition to a 1000 cm³ column sample taken from the northeast corner of the suboperation.

The upper levels of Suboperation D yielded a large amount of lithic debitage. This material was comprised of a range of chert, from a fine-grained purple and brown to a more coarse-grained white and blue. Four late stage oval biface preforms were recovered from Levels 1 and 2. The preforms lacked edge trimming along the lateral margins, and exhibited a snap fracture across the medial portion of the artifacts, which likely resulted in discard. In addition, a finished thin biface fragment was also recovered from Level 2. These thin bifaces have been recovered in large quantities from Late Classic deposits at Colha (Meadows and Wilson 1997). A fragment of a narrow biface, diamond in cross section, was also recovered. This assemblage shows quite a bit of diversity in tool form morphology. Whether all of these forms were produced in the area remains to be seen.

The debitage varied to some degree between lots, with primary and secondary flakes dominating upper levels. In Levels 3 and 4 (35–55 cmbd), there was a large deposit of coarse-grained sand that appears to have been lain down in a uniform fashion. Below this layer, secondary and tertiary lithic debitage again predominated. Moreover, the top three levels yielded no ceramics and no other cultural material. This suggests that the depositional sequence for this deposit differs markedly from that of Debitage Deposit 1. At this point, excavation was hindered to some extent by two large roots that grew directly through the test unit. However, persistent work by the field crew succeeded, and excavation continued around the roots, which eventually served as useful steps into the unit.

Below Lot 6, between 65–75 cmbd, over 12 biface fragments were recovered. In these levels, primary flakes are the least frequently occurring, with smaller debitage and microdebitage predominating. This pattern of smaller debitage continued into Level 10. Also in the north wall of Level 10, a complete narrow biface was recovered. The implement was fashioned from a fine-grained maroon colored chert. However, the absence of non-production related lateral flake scarring suggests that it was never utilized. In Level 10, at 98 cmbd, a hard limestone matrix was encountered. At first it was thought that the limestone may have been part of a platform, but excavation into the matrix to a depth of 155 cmbd proved this untrue. Instead, it was felt that the deposit rested on a small limestone rise that had been cleared off, perhaps serving as the location of the workshop. What was entirely clear was that lithic material recovered from the deposit was the result of production of stone tools. Unfinished preforms, manufacture failures, and debitage indicate that both oval bifaces and in smaller numbers, perhaps narrow bifaces were being worked at this location.

Suboperation E

At the same time that excavations were being undertaken in Debitage Deposit 3, work was also being undertaken at Structure H-30. It was the goal of excavations here to define architectural features such as intact walls and associated floors, as well as to recover artifactual materials associated with these features. Suboperation E was a 1-x-3-m excavation extending

from the summit of the structure to its base. The excavation was located on the east side of the building, the same side as the courtyard and low wall. The datum was placed in the northwest corner of the excavation, located at the summit of the structure.

Although many faced stones were visible on the surface as well as just below, these had either fallen or been pushed out of primary context by extensive root disturbance. Below topsoil layers, more stones appeared to be unfaced and the matrix changed from brown coarse soil to a whitish-yellow fine marl. Little artifactual material was recovered from these lots, although a ceramic spindle whorl was recovered in the marl matrix. Eventually, at approximately 137 cmbd, we encountered a hard packed marl floor at the western extent of the suboperation. This floor was divided by a small step 120 cm east of the western extent of the excavation. This step was interpreted to be a divide between a front room and a rear room. However, there was little indication of any front wall. We extended the south wall of the test unit 110 cm in an attempt to find a front wall. While we found several stones that appeared to be in a north-south alignment, we were unable to reveal any intact wall (Figure 2.4).

As crew members excavated the southern extension, more artifacts were recovered from the limestone cobble and marl matrix, including several large pieces of ceramics and the distal fragment of a finished oval biface at approximately 102 cmbd. The proximal end of an obsidian blade was recovered at 110 cmbd. As the floor in the main excavation was cleaned, another plaster floor remnant was observed in the north wall profile. This may indicate a later construction episode located above the intact floor at 137 cmbd. This may also explain the lack of architecture, as a later structure may have displaced earlier walls. Still, there is no evidence that any of the construction pre-dates the Late Classic.

At the eastern extent of the excavation, the end of the plaster surface was encountered. Excavating into this cut, a subfloor, which appears to articulate with the floor of the courtyard located in association with the low wall, was encountered at 155 cmbd. The plaster floor and the step are interpreted as being part of a structure that may have been open along the east side



Figure 2.4. *Looking west into the interior of Structure H-30.*

of the building. In this building plan, a structure with limestone and mortared back and side-walls anchored a thatch roof and an open front. This building type would provide some permanence, and in combination with the later floor, would explain the extent of limestone deposits within the structure. Further investigation in this building should include excavation beneath the lowest floor, as well as perhaps extending the length of the excavation by continuing east across the courtyard. This would solidify the articulation of the structure floor, the courtyard subfloor, and the low wall surrounding the external space.

Suboperation F

Suboperation F was a 1-x-3-m test unit exploring the northern portion of the low wall suspected to enclose a small courtyard attached to Structure H-30. The

unit was oriented east- west and was set up to span an area on the northwest corner of the wall. The datum was placed in the center of the north wall. This unit was expected to confirm or negate the presence of a true wall, as well as to see if cultural material had been deposited in the courtyard.

The topsoil and upper portion of the wall produced many ceramics, lithics, and an oval biface. In this lot, the area of the wall was clearly defined and the cobbles were clearly associated with one another, although few stones were faced. The dark soil of Lot 1 extended 78 cmbd on the west side of the low wall, while descending to only 49 cmbd on the east side. This indicates that the courtyard between the low wall and Structure H-30 was most likely deeper than the earth on the eastern side of the wall. The soil of Lot 2 is lighter in color and contained larger ceramic fragments.

On the interior of the wall, an alignment of stones was uncovered that was associated with a limestone cobble surface at the same depth as the subfloor in Suboperation E. This may link the floor of the courtyard with the earlier construction of H-30. In any event, the excavations in this test unit have strengthened the interpretation that a low wall was constructed in order to surround a small courtyard adjacent to H-30. This exterior space may have been the focus of a variety of domestic activities.

Discussion

The 1998 excavations at Group H were geared toward addressing four primary research objectives (Meadows 1998). The first was to establish a chronology for Patio Group H-1 and Structure H-30. Diagnostic ceramics were recovered from the lithic debitage deposit located on the platform, as well as from the area between Structures H-3 and H-2 (Suboperation C). These ceramic materials tentatively date the group to the Late Classic. Moreover, the presence of biconvex oval bifaces also correlates with the lithic sequence outlined for northern Belize (Hester 1985). Morphologically, these tool forms may be linked to the general utility biface type as outlined at Colha (Hester 1982, 1985).

These materials may have been produced in earlier times at other locales such as Colha, but when appearing in combination with the ceramic material at the H group, begin to clarify a Late Classic occupation, at least for H-1. The dating of H-30 seems to be more uncertain. However, the ceramics associated with the lower floor also suggest a Late Classic occupation. Similar lithic materials recovered from Debitage Deposit 3 link the deposit to the Late Classic time period.

The second objective was to excavate the large debitage mound located 35 m to the west of H-1 (Meadows 1998). This objective was altered when the large deposit located on platform H-1 was observed during the initial 1998 visit to Group H. This mound revealed both ceramics and lithic material. Stratigraphically, it seems clear that production associated with H-1 was present here (Debitage Deposit 1). This included likely production of biconvex oval bifaces, with some diversification in terms of narrow bifaces and probably some stone tool maintenance. Further debitage analysis may clarify the nature of the debitage in terms of hammer technology, and in a larger sense outline in more clear fashion a continuum for the production of these tool forms.

The third objective of the investigations was to excavate a portion of the large debitage deposit (Debitage Deposit 3) associated with Structure at H-30. This was accomplished, and during excavation it became clear the lithic production remains were present in this deposit to a depth of 1 m. The stratigraphy of this deposit contrasted with Debitage Deposit 1. Essentially, no ceramic materials were recovered from this deposit. Moreover, a well defined stratum of coarse sand overlays a portion of the mound. This may have been a resurfacing episode to facilitate further lithic production activities at the locality.

Finally, the fourth objective was to investigate Structure H-30. These excavations exposed an intact plaster floor and a profile of the low wall extending off of the east portion of the structure. These features suggest that the structure may have been open along the structure's east side facing the courtyard, facilitating activities undertaken in the courtyard. Recovered artifactual material included a spindle whorl, several fragments of chert bifaces, and a proximal fragment of an

obsidian blade. However, a clear picture for the function(s) of this building through time is still pending. Further excavation of the structure and of the courtyard may facilitate such an interpretation.

It is clear by the presence of debitage deposits, both associated directly with structures and along the hill side, that chert crafting of tool forms was being undertaken by the occupants of this area. Both the extent and the contents of the deposits suggest that crafters were producing lithic tool forms both for their own use and likely for some form exchange. It is also suggested that tool form maintenance was being undertaken. It is suggested that these materials and associated structures indicate a local community that was engaged in domestic craft production.

Analysis of Chipped Stone Artifacts from Group H, Chan Chich, Belize

Introduction

Analysis of chert tool forms and debitage was undertaken during the spring and fall of 1999. These materials were exported from Belize to the Texas Archeological Research Laboratory at the University of Texas at Austin after the 1998 season. Initial study of the lithic material focused on compiling data from the tool forms recovered from deposits and structures at Group H. This process was expedited by the fact that tool forms and tool form fragments had been processed in the field laboratory prior to export. In addition, column samples of debitage had been carefully sorted into three fractions that allowed for documentation of materials originating within the matrices of the debitage deposits (see Appendix A:Table A.1). Thus, cultural materials were positioned to facilitate analysis of both the discard from the production and maintenance process, as well as those materials that were clearly the end result of production.

This analysis to some degree parallels the Group H excavation summary. In other words, analysis of chipped stone materials is divided into distinct sections. The first focuses on description and distribution of stone tool forms and tool form fragments across

the excavations. The second focuses primarily on analysis of a sample of complete flakes recovered from the column samples from the debitage deposits. In the final section, some concluding remarks are offered to provide a more comprehensive view of the evidence for craft production at Group H. When taken in conjunction with the results presented in the excavation summary, it is thought that not only a better understanding of stone tool production is reached, but that ancient Maya craft production might be framed within a coherent socioeconomic context.

Tool Forms and Tool Form Fragments

The primary goal of the analysis of tool forms and tool form fragments was to present a typological and distributional array of the data (see Table 2.1). This process included assigning individual artifacts to specific morphological types as developed for northern Belize at Colha (Hester 1982, 1985; Hester and Shafer 1994; Shafer and Hester 1983, 1991). Although the tool forms present at Chan Chich do not represent exactly the forms present in the Colha typology, general morphological similarities with the Colha material indicate the usefulness of the Colha typology at Chan Chich. More specifically, forms such as oval shaped bifaces, small oval bifaces (celts), general utility bifaces, narrow bifaces, and thin bifaces were observed at Group H. Further analysis included recording dimensions of implements (in centimeters), raw material color, presence/absence of cortex, presence/absence of thermal alteration, presence/absence of use and (or) recycling, and the kinds of fractures present on fragments (i.e., thought to represent the primary cause of discard). Compilation of these data was undertaken to assess three critical questions. These are articulated as follows, with implications drawn from the data presented in Table 2.1.

Research Question A: Is the *production* of stone tools evidenced by the tool forms and tool form fragments recovered from structures and debitage deposits?

Implications of Research Question A: If production was being undertaken by the inhabitants of Group H, materials should include a range of tool forms and tool form fragments, from preforms to finished implements

representing materials broken and discarded during production.

Research Question B: Are the *maintenance* and *re-use* of stone tool evidenced by the tool forms and tool form fragments recovered from structures and debitage deposits?

Implications of Research Question B: If maintenance of stone tools was being undertaken by the inhabitants of Group H, materials should include a significant quantity of tool forms and tool fragments that exhibit use wear and polish, as well as distal battering and distal thinning.

Research Question C: What differences in terms of production and maintenance of stone tools are observable between Debitage Deposit 1 and Debitage Deposit 3?

Implications of Research Question C: If significant differences do exist between the debitage deposits in terms of production and maintenance activities, a clear differentiation between what forms were being produced can be observed.

These broad questions helped to guide the analysis in terms of assessing the kinds of activities represented by the materials recovered from structures and deposits. Below is a discussion of results, with reference to Table 2.1. By establishing what is represented in terms of tool forms and tool form fragments, we can begin to infer what kinds of activities led to their deposition.

Results

A total of 151 tool forms and tool form fragments were recovered from Suboperations A through F at Group H. Each of these was subjected to the analysis described above, the results of which are shown in Table 2.1. Of this number, a total of 41 artifacts, or 27.2 percent exhibited wear attributed to use and or recycling. Thirty-seven artifacts, or 21.5 percent of the total, were classified as preforms. Thirty-four of the 37 preforms, or 91.9 percent, were recovered from Debitage Deposits 1 and 3 (Suboperation B and D, respectively). This suggests that while production ac-

Table 2.1. Tool Forms Recovered from Suboperations A through F, Operation 6, Group H

Spec. #	Context	Tool Form Type	Stage	Cmp.	L	W	T	Raw Material Color	Crtx	Use/Reuse	Fracture
6-A-3/1	Plaza-side axis of H-1	small oval biface	finished	1	12.2	5.4	3.0	l. gray	0	none	n/a
6-A-4/1	Plaza-side axis of H-1	oval biface	preform	1	15.5	6.2	3.7	l. gray/ p. red/ brown	1	none	n/a
6-A-4/2	Plaza-side axis of H-1	small oval biface	finished	0	7.9	5.5	2.3	l. gray/ brown	0	none	snap
6-A-4/3	Plaza-side axis of H-1	small oval biface	finished	1	12.1	5.1	2.2	d. gray/gray brown	1	polish	n/a
6-A-4/4	Plaza-side axis of H-1	gen. utility biface	finished	1	13.1	7.6	4.1	l. gray/ p. red/ brown	1	none	n/a
6-B-0/10	Debitage Deposit 1	gen. utility biface	preform	0	10.9	7.4	4.9	d. gray/ brown	1	none	snap
6-B-0/11	Debitage Deposit 1	biface	preform	0	10.5	7.8	2.4	d. red/ brown	1	none	snap
6-B-0/12	Debitage Deposit 1	gen. utility biface	preform	0	10.7	7.7	4.3	d. gray/black	1	none	snap
6-B-0/2	Debitage Deposit 1	small oval biface	finished	1	14.3	5.4	2.4	l. gray	1	none/ dis. thin	n/a
6-B-0/3	Debitage Deposit 1	small oval biface	finished	0	7.7	6.0	2.7	l. gray/ white (chal.)	1	none	snap
6-B-0/4	Debitage Deposit 1	narrow biface	finished	0	6.2	4.7	2.6	l. red/ brown (TA)	0	none	snap
6-B-0/5	Debitage Deposit 1	biface	preform	0	10.6	8.1	5.3	gray/ black/ p. red	1	none	perv.
6-B-0/6	Debitage Deposit 1	biface	preform	0	9.6	8.3	5.3	p. brown/ p. red	1	none	perv.
6-B-0/9	Debitage Deposit 1	gen. utility biface	finished	0	10.2	8.0	3.6	l. gray	1	edge round./bat.	snap
6-B-1/10	Debitage Deposit 1	gen. utility biface	finished	1	17.5	7.9	4.0	l. gray/ p. brown	1	distal thinning	n/a
6-B-1/13	Debitage Deposit 1	biface	preform	0	8.2	8.9	3.2	gray	1	none	snap
6-B-1/14	Debitage Deposit 1	oval biface	preform	1	18.8	7.2	4.5	gray/ brown	1	none	n/a
6-B-1/15	Debitage Deposit 1	oval biface	preform	1	22.5	9.0	5.1	gray/brown (chal.)	1	none	n/a
6-B-1/16	Debitage Deposit 1	biface	preform	0	14.8	8.2	3.7	p. gray/ brown	1	none	overshot
6-B-1/17	Debitage Deposit 1	gen. utility biface	finished	0	5.5	7.6	4.1	gray/ black	1	none	snap
6-B-1/18	Debitage Deposit 1	biface	preform	0	10.0	8.5	6.0	gray/ l. gray	1	none	snap
6-B-1/19	Debitage Deposit 1	gen. utility biface	preform	0	14.2	7.4	4.3	red/ gray/ p. gray	1	none	snap
6-B-1/4	Debitage Deposit 1	oval biface	finished	0	10.7	7.6	2.5	p. gray	1	none	overshot
6-B-1/5	Debitage Deposit 1	small oval biface	finished	1	8.1	5.4	2.6	tan/ red	1	dis. thinning/ rew.	n/a
6-B-1/6	Debitage Deposit 1	biface	finished	0	9.4	6.4	2.5	d. gray/ bluish	1	none	n/a
6-B-1/7	Debitage Deposit 1	biface	preform	0	10.9	7.5	3.6	brown/ tan/ gray	1	none	perv.
6-B-1/8	Debitage Deposit 1	oval biface	finished	0	9.5	6.6	2.7	p. red/ red (TA)	1	none	snap
6-B-1/9	Debitage Deposit 1	small oval biface	finished	1	12.4	5.2	2.7	d. gray/ blue/ p. red	0	dis. round./bat.	n/a
6-B-10/1	Debitage Deposit 1	biface	finished	0	7.3	6.2	2.9	reddish gray	1	dis. round./ bas.	snap
6-B-11/1	Debitage Deposit 1	small oval biface	finished	0	6.5	5.3	2.8	p. gray	0	dis. bas./crush.	snap
6-B-2/10	Debitage Deposit 1	biface	preform	0	9.1	8.0	4.1	gray/ d. blue/ red	1	bat. margins	snap
6-B-2/11	Debitage Deposit 1	oval biface	preform	0	12.2	8.2	4.6	tan/ gray	1	none	perv.
6-B-2/12	Debitage Deposit 1	gen. utility biface	finished	0	7.5	5.6	3.2	d. gray/ blue	0	none	snap
6-B-2/16	Debitage Deposit 1	narrow biface	finished	0	6.9	4.1	2.7	tan/ brown	1	dis. grinding/thin.	snap
6-B-2/2	Debitage Deposit 1	oval biface	preform	1	20.0	8.1	4.5	p. gray	1	none	n/a
6-B-2/3	Debitage Deposit 1	narrow biface	finished	0	9.0	4.2	3.5	grayish red/ brown	1	none	snap
6-B-2/4	Debitage Deposit 1	narrow biface	finished	0	8.9	3.4	2.1	gray/ brown	1	none	snap

Table 2.1. Tool Forms Recovered from Suboperations A through F, Operation 6, Group H (continued)

Spec. #	Context	Tool Form Type	Stage	Cmp.	L	W	T	Raw Material Color	Crtx	Use/Reuse	Fracture
6-B-2/5	Debitage Deposit 1	oval biface	finished	0	8.0	6.2	2.3	p. gray/ p. red	1	none	snap
6-B-2/6	Debitage Deposit 1	small oval biface	finished	0	7.1	6.6	2.8	tan/ brown	1	none	snap
6-B-2/7	Debitage Deposit 1	narrow biface	finished	0	8.0	5.1	3.3	p. gray	1	none	snap
6-B-2/8	Debitage Deposit 1	oval biface	preform	0	9.3	6.5	2.9	gray/ red/ bluish	1	none	perv.
6-B-3/1	Debitage Deposit 1	small oval biface	preform	1	12.7	5.4	3.6	gray/ purple	1	none	n/a
6-B-3/10	Debitage Deposit 1	biface	preform	0	6.0	6.6	4.3	gray/ brown	1	none	snap
6-B-3/11	Debitage Deposit 1	biface	finished	0	6.0	4.7	2.5	p. gray/ purple	1	none	snap
6-B-3/2	Debitage Deposit 1	small oval biface	preform	0	11.5	6.5	3.7	gray/ purple	1	none	snap
6-B-3/3	Debitage Deposit 1	biface	finished	0	7.0	5.2	2.9	gray (chal.)	1	none	snap
6-B-3/4	Debitage Deposit 1	biface	finished	0	7.5	5.6	2.4	p. gray	1	none	perv.
6-B-3/5	Debitage Deposit 1	biface	preform	0	8.6	7.8	4.3	gray/ bluish (chal.)	1	none	snap
6-B-3/6	Debitage Deposit 1	small oval biface	preform	0	7.4	5.5	2.4	p. gray	1	none	snap
6-B-3/7	Debitage Deposit 1	biface	preform	0	9.7	8.2	4.5	gray/ brown	1	none	snap
6-B-3/8	Debitage Deposit 1	oval biface	preform	0	13.1	8.0	4.5	gray/ p. red (chal.)	1	none	perv.
6-B-3/9	Debitage Deposit 1	biface	preform	0	9.6	9.2	5.1	gray/ l. brown (chal.)	1	none	snap
6-B-4/1	Debitage Deposit 1	biface	preform	0	13.7	7.8	4.6	mottled tan	1	none	perv.
6-B-4/3	Debitage Deposit 1	narrow biface	finished	0	9.3	3.8	2.4	reddish/ gray (TA)	0	none	snap
6-B-4/4	Debitage Deposit 1	biface	finished	0	10.2	7.9	4.0	gray	1	none	snap
6-B-4/5	Debitage Deposit 1	small oval biface	finished	1	10.8	5.4	2.7	gray/ purple	1	none	n/a
6-B-4/6	Debitage Deposit 1	biface	finished	0	4.3	5.3	2.3	gray	0	distal thinning	snap
6-B-4/7	Debitage Deposit 1	oval biface	preform	1	19.4	7.4	5.9	p. gray/ gray (chal.)	1	dis. thinning	n/a
6-B-4/8	Debitage Deposit 1	gen. utility biface	finished	0	7.3	5.7	3.2	gray/ purple	1	none	snap
6-B-5/1	Debitage Deposit 1	oval biface	finished	1	19.2	7.5	4.2	gray/ l. gray	1	distal thinning	n/a
6-B-5/2	Debitage Deposit 1	narrow biface	finished	0	7.0	3.4	2.3	l. gray	1	none	snap
6-B-5/3	Debitage Deposit 1	narrow biface	finished	1	7.1	2.3	1.3	l. gray	1	distal thinning	n/a
6-B-5/4	Debitage Deposit 1	biface	finished	0	5.3	6.2	2.5	reddish/ brown	1	none	snap
6-B-6/1	Debitage Deposit 1	gen. utility biface	finished	1	13.2	6.8	3.4	bluish gray	1	none	n/a
6-B-6/2	Debitage Deposit 1	oval biface	finished	0	14.2	7.5	2.9	gray/ bl. gray	1	none	overshot
6-B-6/4	Debitage Deposit 1	narrow biface	finished	0	7.9	4.1	1.7	gray (chal.)	0	none	snap
6-B-6/6	Debitage Deposit 1	biface	finished	1	10.8	7.7	1.6	bluish gray/ red (TA)	1	none	snap
6-B-7/1	Debitage Deposit 1	biface	finished	0	18.0	6.4	3.2	gray (chal.)	1	none	lat. sn.
6-B-7/2	Debitage Deposit 1	biface	preform	1	17.2	8.1	4.3	gray (chal.)	1	none	n/a
6-B-7/3	Debitage Deposit 1	gen. utility biface	finished	1	13.0	6.0	3.3	gray	0	distal thinning	n/a
6-B-7/4	Debitage Deposit 1	thin biface	finished	0	9.7	7.4	1.5	reddish gray (TA)	1	none	snap
6-B-7/5	Debitage Deposit 1	gen. utility biface	finished	1	9.5	5.3	3.4	gray	0	edge bash./md.	n/a
6-B-8/1	Debitage Deposit 1	biface	finished	0	6.1	6.1	2.8	gray (chal.)	0	none	snap
6-B-9/1	Debitage Deposit 1	small oval biface	finished	1	10.7	5.9	2.8	p. gray	0	dis. crush./md.	n/a

Table 2.1. Tool Forms Recovered from Suboperations A through F, Operation 6, Group H (continued)

Spec. #	Context	Tool Form Type	Stage	Cmp.	L	W	T	Raw Material Color	Crtx	Use/Reuse	Fracture
6-B-9/2	Debitage Deposit 1	gen. utility biface	finished	0	8.9	6.6	4.0	mottled gray/ br.	1	dis. grinding/pol.	overshot
6-B-9/3	Debitage Deposit 1	biface	preform	0	8.0	5.9	3.2	gray (chal.)	1	none	snap
6-B-9/4	Debitage Deposit 1	small oval biface	finished	1	12.3	6.2	3.1	gray	1	none	n/a
6-B-9/5	Debitage Deposit 1	biface	preform	0	8.5	7.0	4.2	l. gray (chal.)	1	none	snap
6-B-9/7	Debitage Deposit 1	narrow biface	finished	1	14.4	3.7	2.4	gray/ brown	1	distal thinning	n/a
6-C-1/1	Between H-2 and H-3	biface	finished	0	5.2	6.5	3.3	gray/ tan	1	dis. battering	snap
6-C-1/2	Between H-2 and H-3	biface	finished	0	9.3	6.4	3.9	p. gray/ gray	1	distal thinning	overshot
6-C-10/1	Between H-2 and H-3	gen. utility biface	finished	1	7.5	7.4	3.5	p. red/ gray (chal.)	0	dis. -lat. cr./ bat.	snap
6-C-10/2	Between H-2 and H-3	gen. utility biface	finished	0	9.8	7.1	3.2	gray	1	dis. -lat. cr./ bat.	snap
6-C-3/10	Between H-2 and H-3	biface	finished	0	4.2	3.9	1.5	gray	1	none	snap
6-C-3/11	Between H-2 and H-3	biface	finished	1	11.9	9.4	5.4	gray	1	dis. -lat. bat./ cr.	n/a
6-C-3/2	Between H-2 and H-3	gen. utility biface	finished	1	12.7	6.5	4.0	p. gray	1	dis. battering	n/a
6-C-3/3	Between H-2 and H-3	small oval biface	finished	1	10.4	5.1	2.8	mottled tan/ gray	0	dis. crush./ bat.	n/a
6-C-3/4	Between H-2 and H-3	biface	finished	0	7.0	5.8	2.2	gray	1	dis. thin./ pol.	snap
6-C-3/5	Between H-2 and H-3	biface	finished	0	6.5	5.7	4.1	p. gray	0	none	snap
6-C-3/6	Between H-2 and H-3	gen. utility biface	finished	0	9.2	7.3	3.2	gray	0	pol./ dis. bat./ cr.	snap
6-C-3/7	Between H-2 and H-3	biface	finished	0	10.4	4.5	1.4	reddish gray (TA)	1	none	perv.
6-C-3/9	Between H-2 and H-3	gen. utility biface	finished	1	10.2	7.3	5.1	gray/ tan	0	crush./pol./bat/	n/a
6-C-4/1	Between H-2 and H-3	lg. oval biface	finished	0	9.7	6.9	3.2	p. red/ gray	0	distal polish/thin.	perv.
6-C-4/2	Between H-2 and H-3	biface	finished	1	8.8	7.5	4.3	gray (chal.)	1	none	snap
6-C-4/3	Between H-2 and H-3	biface	finished	0	9.2	4.6	3.1	gray (chal.)	1	none	snap
6-C-4/4	Between H-2 and H-3	small oval biface	finished	0	5.9	5.3	2.2	p. red/ gray	0	dis. -lat. bat./pol.	snap
6-C-4/5	Between H-2 and H-3	biface	finished	1	5.5	4.9	2.7	gray	0	none	snap
6-C-4/7	Between H-2 and H-3	biface	finished	0	10.8	5.8	3.6	gray (chal.)	1	none	snap
6-C-8/1	Between H-2 and H-3	gen. utility biface	finished	0	9.6	6.6	4.0	bluish gray	0	dis. -lat. bat./ cr.	snap
6-C-8/2	Between H-2 and H-3	thin biface	finished	0	9.0	5.7	2.1	p. red/ gray/ p. gray	1	none	snap
6-C-8/3	Between H-2 and H-3	biface	finished	0	7.1	5.7	2.2	gray (chal.)	1	dis. -lat. battering	snap
6-C-8/4	Between H-2 and H-3	oval biface	finished	0	7.2	6.6	2.8	tan/ gray	1	none	snap
6-C-8/5	Between H-2 and H-3	biface	finished	0	8.2	7.5	3.5	tan	1	none	snap
6-C-8/6	Between H-2 and H-3	biface	finished	0	8.2	5.3	2.1	gray/ tan (chal.)	0	none	snap
6-C-9/1	Burial 5 in H-3	gen. utility biface	finished	0	9.3	6.8	3.4	p. red/ gray (chal.)	1	dis. -lat. cr./ bat.	snap
6-C-9/2	Burial 5 in H-3	small oval biface	finished	1	11.3	6.4	2.6	p. red/ gray mottled	1	dis. -lat. battering	n/a
6-D-0/1	Debitage Deposit 3	biface	finished	0	7.1	5.9	2.3	gray/ purple	1	distal thinning	n/a
6-D-0/2	Debitage Deposit 3	narrow biface	finished	0	7.5	3.8	2.4	brown/ gray (TA)	1	distal rounding	perv.
6-D-0/3	Debitage Deposit 3	biface	finished	0	5.5	5.2	3.2	gray/ brown (chal.)	0	none	snap
6-D-0/4	Debitage Deposit 3	biface	finished	1	9.0	6.0	4.0	reddish brown	1	none	n/a
6-D-0/5	Debitage Deposit 3	biface	finished	0	7.3	5.2	1.8	p. gray	1	none	snap
6-D-1/1	Debitage Deposit 3	oval biface	preform	1	21.3	9.7	4.8	p. gray/ gray	1	none	n/a
6-D-1/2	Debitage Deposit 3	biface	finished	0	5.2	7.1	4.3	tan/ gray	1	none	snap

Table 2.1. Tool Forms Recovered from Suboperations A through F, Operation 6, Group H (continued)

Spec. #	Context	Tool Form Type	Stage	Cmp.	L	W	T	Raw Material Color	Crtx	Use/Reuse	Fracture
6-D-1/4	Debitage Deposit 3	oval biface	preform	1	15.3	8.5	4.9	d. gray/ blue	1	none	n/a
6-D-10/1	Debitage Deposit 3	small oval biface	finished	1	14.3	6.1	3.1	gray	1	distal polish/thin.	n/a
6-D-10/3	Debitage Deposit 3	biface	finished	0	4.8	4.3	2.3	gray/ brown	0	none	snap
6-D-10/4	Debitage Deposit 3	biface	finished	0	6.3	6.0	4.4	reddish brown	1	none	snap
6-D-12/1	Debitage Deposit 3	biface	finished	0	8.8	5.0	4.0	gray	0	none	snap
6-D-2/2	Debitage Deposit 3	thin biface	finished	0	7.0	6.9	2.0	p. tan	1	none	snap
6-D-2/3	Debitage Deposit 3	narrow biface	finished	0	9.7	3.5	2.6	tan/ p. gray	1	dis. thin./ pol.	snap
6-D-2/4	Debitage Deposit 3	narrow biface	finished	0	8.0	2.8	1.0	d. brown/ gray	1	none	snap
6-D-2/5	Debitage Deposit 3	biface	preform	0	11.4	6.4	3.6	p. gray (chal.)	1	none	snap
6-D-2/6	Debitage Deposit 3	small oval biface	preform	1	11.5	6.2	2.8	p. gray/ tan	1	none	n/a
6-D-3/1	Debitage Deposit 3	narrow biface	finished	0	9.5	4.2	2.9	gray/ pur./ blue	1	none	snap
6-D-3/3	Debitage Deposit 3	narrow biface	finished	0	11.7	3.9	2.8	mottled gray/ pur.	1	none	snap
6-D-3/4	Debitage Deposit 3	narrow biface	finished	0	8.1	4.7	3.2	tan/ gray (TA)	1	none	snap
6-D-4/1	Debitage Deposit 3	narrow biface	preform	0	10.4	5.6	3.6	purple/ blue/ gray	1	none	overshot
6-D-4/4	Debitage Deposit 3	thin biface	finished	0	10.4	6.7	2.0	p. gray	1	none	snap
6-D-4/5	Debitage Deposit 3	biface	finished	1	11.8	9.7	4.4	gray/ d. gray	1	none	n/a
6-D-5/2	Debitage Deposit 3	biface	finished	0	5.8	6.1	3.7	p. gray/ pur. (chal.)	0	none	snap
6-D-5/3	Debitage Deposit 3	narrow biface	finished	0	6.2	3.1	2.6	p. gray/ purple	0	none	snap
6-D-6/2	Debitage Deposit 3	narrow biface	finished	0	7.1	3.6	1.2	d. brown	0	none	snap
6-D-6/3	Debitage Deposit 3	narrow biface	finished	1	17.1	3.1	1.9	mottled pur./ gray	0	dis. pol./ grind.	n/a
6-D-6/6	Debitage Deposit 3	gen. utility biface	finished	1	15.0	8.1	3.8	p. gray/ reddish	1	dis. crush./ bat.	n/a
6-D-6/7	Debitage Deposit 3	biface	preform	0	14.5	9.6	5.0	p. gray/ tan	1	none	snap
6-D-7/1	Debitage Deposit 3	biface	finished	0	7.8	6.4	4.3	p. tan (chal.)	0	none	snap
6-D-8/1	Debitage Deposit 3	narrow biface	finished	0	11.3	5.2	2.4	p. gray/ pur. (chal.)	1	none	snap
6-D-8/3	Debitage Deposit 3	small oval biface	finished	1	9.9	4.8	2.9	tan/ d. gray	1	none	n/a
6-D-8/5	Debitage Deposit 3	small oval biface	finished	0	7.8	5.3	2.0	mottled p. gray/ tan	1	none	snap
6-D-9/1	Debitage Deposit 3	biface	finished	0	8.0	5.1	2.6	gray	0	none	snap
6-D-9/10	Debitage Deposit 3	biface	finished	0	7.2	5.4	2.6	p. gray/ gray	1	none	snap
6-D-9/2	Debitage Deposit 3	biface	finished	0	5.3	5.3	1.9	gray/ pur. (TA)	1	none	snap
6-D-9/4	Debitage Deposit 3	biface	finished	0	8.7	6.8	3.1	tan (chal.)	1	none	perv.
6-D-9/5	Debitage Deposit 3	biface	finished	0	4.5	7.2	2.3	tan/ gray	1	none	snap
6-D-9/7	Debitage Deposit 3	biface	finished	0	6.8	7.3	2.2	mottled gray (chal.)	1	none	snap
6-D-9/8	Debitage Deposit 3	small oval biface	finished	0	5.8	6.1	3.0	gray (chal.)	1	none	snap
6-D-9/9	Debitage Deposit 3	narrow biface	finished	0	10.0	4.8	2.9	p. gray/ gray	1	none	snap
6-E-4/1	Axis of H-30	gen. utility biface	finished	1	9.5	6.3	3.5	gray (chal.)	1	none	n/a
6-E-4/2	Axis of H-30	gen. utility biface	finished	0	9.2	6.4	4.1	gray	0	dis. -lat. bat.	snap
6-F-1/1	Courtyard H-30	biface	finished	0	9.7	7.6	4.2	gray	1	none	perv.
6-F-1/2	Courtyard H-30	biface	finished	1	10.3	9.0	3.6	gray	1	none	n/a

tivities were represented in the assemblage from the deposits, stone tool maintenance seems to be more prevalent on or near what are assumed to be domestic structures. However, this does not preclude maintenance activities represented in the debitage deposits.

Indeed this is supported by the fact that the majority of tool forms/fragments recovered originated from the Debitage Deposits 1 and 3. One-hundred-seventeen of the 151 tool forms/fragments, or 77.5 percent of the total, were recovered from the deposits. Of the 117 artifacts, the majority of materials (74 or 63.2 percent) were recovered from Debitage Deposit 1. A total of 28, or 37.8 percent, of these were classified as preforms. This seems to support the notion that Debitage Deposit 1 represents to some degree the remains of stone tool production activities. Of the 43 tool forms/fragments recovered from Debitage Deposit 3, only six (14.0 percent) were classified as preforms, suggesting that perhaps less production discard was pro-

duced in this locality, or other activities such as tool form maintenance are more clearly represented in the deposit.

The question of what kinds of tool forms were being produced and maintained by inhabitants of Group H must be considered. This perhaps can best be answered by looking at the distribution of tool forms/fragments from each debitage deposit. A total of six formal types of tool forms were recovered from excavations. This breaks down from the total of 151 tool forms as follows. Note this is the total number of artifacts recovered from all suboperations. A total of 23 tool forms (15.2 percent) were classified as small oval bifaces (bifacial celts). Twenty-two tool forms (14.6 percent of the total) were classified as general utility bifaces. All appeared to exhibit the classic “tear drop” shape and in some cases were thermally altered (Figure 2.5). A total of 22 (14.6 percent) tool forms/fragments was classified as narrow bifaces. These seem to be of par-

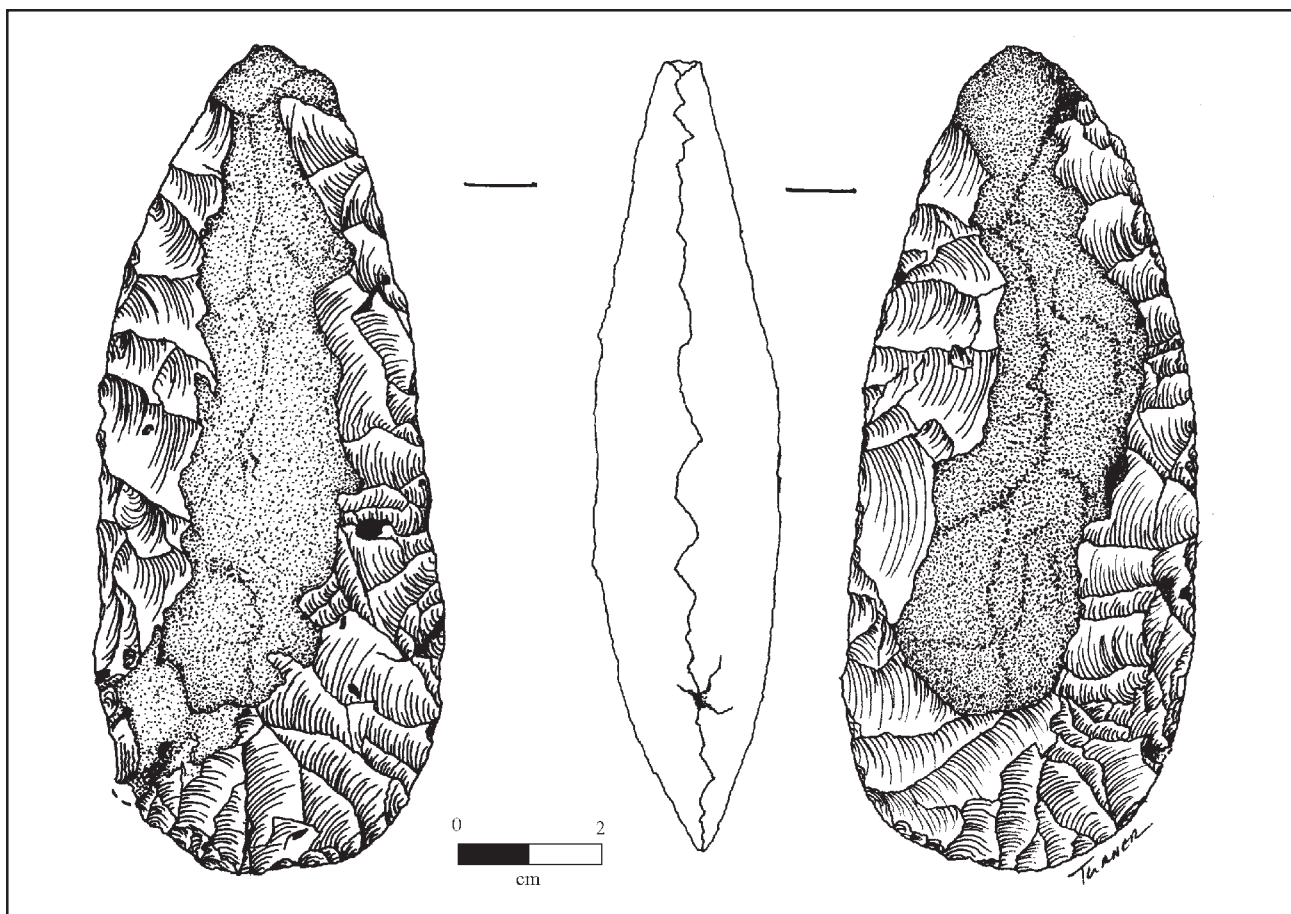


Figure 2.5. *General Utility Biface recovered from Debitage Deposit 1, Level 5. Illustration by Kristi Turner.*

ticularly high manufacture quality at Chan Chich. They appear diamond in cross section and were perhaps used as fine wood working adzes (Figure 2.6). A total of three (2.0 percent) tool forms was classified as thin bifaces. These appear to be fragments of larger, perhaps bipointed, forms. However, the small number

recovered precludes any interpretation based on their presence in the assemblage.

Finally, the last two categories of tool forms/fragments are more inclusive and often overlap with the technological classification of preform. Large oval shaped

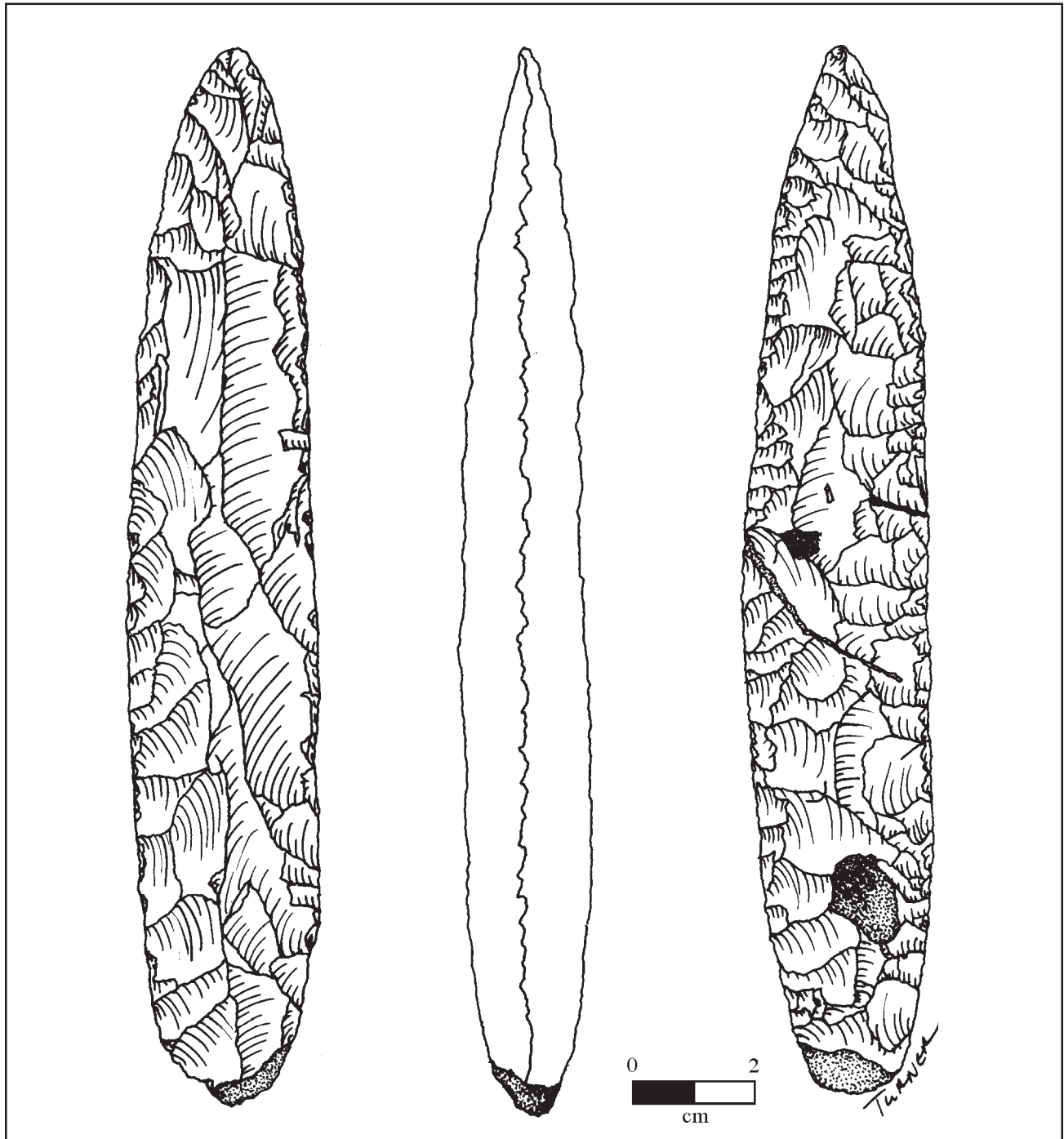


Figure 2.6. *Narrow biface from Debitage Deposit 3, Level 6. Illustration by Kristi Turner.*

bifaces totaled 17 (11.3 percent of the assemblage). These were not the finely chipped large oval bifaces so prevalent at Colha, but instead may be part of the production continuum into general utility bifaces and (or) bifacial celts. A second broad category of biface was used to classify all fragments that could not be recognized as another tool form. This category represented the largest classification, one in which preforms also were frequently grouped. A total of 62 artifacts (or 41.0 percent) of the total were classified as bifaces. It must be noted that this does not preclude the notion that fragments could have comprised other classifications. Quite simply, the biface category was used as a catch all in terms of grouping early stage preforms or unrecognizable fragments.

Prior to examining differences between the assemblages of tool forms/fragments recovered from each debitage deposits, the distribution of particular tool form categories recovered from structures must be considered. Earlier, it was stated that there were very few preforms recovered from Group H structures. However, numerous bifaces were recovered. In these contexts, forms other than the miscellaneous biface category, the general utility biface and the small oval biface predominated. A total of 10 out of 34 (29.4 percent) tool forms were classified as general utility bifaces. The third most frequently occurring artifact classification was the small oval biface. A total of 6 (or 17.6 percent) of this assemblage were classified as small oval bifaces. As shown in Table 2.1, the majority of these artifacts exhibited use wear and (or) distal battering. This suggests that activities other than lithic production were being undertaken on or near Structures H-1 and H-30.

The breakdown of tool classifications recovered from Debitage Deposit 1 and 3 differed considerably. While both exhibited large quantities of the assemblage classified as miscellaneous biface (Debitage Deposit 1 had 36.5 percent of the total; Debitage Deposit 3 had 48.8 percent of the total), the presence of the other categories of tool forms indicates that the deposits may represent different production continuums and thus different activities/priorities. Small oval bifaces totaled 12 (16.2 percent) from Debitage Deposit 1 and five (11.6 percent) from Debitage Deposit 3. General utility bifaces occurred much more frequently in Debitage

Deposit 1 (12 or 16.2 percent of the total) than in Debitage Deposit 3 (one or 2.3 percent of the total). However, narrow bifaces occurred much more frequently, relative to the number of tool forms recovered. A total of 10 narrow bifaces were recovered from Debitage Deposit 1 (13.5 percent of the total). Twelve narrow bifaces were recovered from Debitage Deposit 3 (27.9 percent of the total). The other tool forms classification in which there is significant difference between deposits is the large oval shaped biface category. A total of 12 were recovered from Debitage Deposit 1 (16.2 percent), and only two (4.7 percent) were recovered from Debitage Deposit 3.

The differences appear to be in the production of general utility bifaces, which were much more prevalent in Debitage Deposit 1 associated with Patio Group H-1, and narrow bifaces, which were more prevalent in Debitage Deposit 3 associated with Structure H-30. The other tool form classifications are relatively similar in terms of overall frequency of appearance, with the exception of large oval shaped bifaces. These tool forms also show significant difference in frequency of occurrence.

The frequency in appearance of tool forms and tool form fragments, as well as bifacial preforms indicate that both chert tool production and maintenance/use of tool forms was being undertaken by the inhabitants of the area. Use-wear patterns on small oval bifaces and general utility bifaces indicate production for use in activities undertaken in patios, perhaps in domestic contexts. Despite the indication of production, maintenance, and use of stone tools, questions remain as to what kind of production continuum is represented in the workshop deposits, as well as what other kinds of cultural material appear in the matrix of these deposits.

Debitage and Complete Flakes

Further investigation into lithic technology and craft production at Group H included the analysis of a sample of the largest single artifact category present in the deposits. Chert debitage from the production and maintenance of stone tools can render powerful insights into the forms of lithic technology utilized by

chert workers. At Group H, excavation of two large workshop deposits yielded enormous quantities of debitage that exhibited clues as to what stage of production was most prevalent there. The recovery of a 1000 cm³ column sample from each level of each deposit (Suboperations B and D) provided a rich sample from which to draw individual pieces of debitage for analysis.

Individual lots/levels were sorted using a process of three fine screens to separate larger pieces of debitage from smaller pieces, to bits of organic material, charcoal, and limestone that made up the smallest matrix of the sample. The three fractions were 1/4-inch, 1/8-inch, and 1/32-inch screen. The recovery of the columns sample also allowed us to illustrate just how clearly the remains represent deposits from stone tool production, and not more generalized domestic dumps.

Table 2.2 shows column sample weights for the heavy fraction juxtaposed with sherd count. It seems as if these deposits represented to some degree a domestic dump (see excavation section Suboperation B). However, if this were clearly the case many more potsherds

would have been recovered from the deposit matrices. As is illustrated, a total of 12 sherds were recovered from both of the debitage deposits that were excavated. Moreover, as Appendix A:Table A.1 shows, there were many other kinds of cultural remains recovered from the deposits. These remains may in fact represent what is left of the domestic trash that perhaps did not preserve over time. However, the matrix of the deposits still suggests that they formed as a direct result of the production and maintenance of stone tools.

One of the strengths of complete flake analysis is the ability to determine on individual specimens an interpretation of hammer technology as well make an assignment of relative stage of production. Individual flake analysis is useful when the researcher has a clearly defined deposit or number of deposits associated with relatively discrete occupations (Morrow 1997). Individual flake analysis is less useful in trying to determine where overlapping reduction episodes occur across larger spatial parameters (Morrow 1997).

In terms of the deposits present at Group H, it appears that we are dealing with a fairly discrete occupational episode. Though resolution of individual production “events” could not be obtained, it seemed clear that these deposits were the result of accretive formation processes resulting in the mounds currently visible. This assumption can be linked to another strong argument, that for the conservative nature of lithic technology through time. Even if the deposits at Group H represent a 200 year time period, it seems likely that the technology in use by crafters remained the same. One indicator of this was the presence of specific kinds of limestone hammers and abraders, indicating that much of the lithic reduction was produced via hard hammer, direct percussion, technology consistent with Late Preclassic workshop deposits at Colha (Roemer 1984; Shafer 1985; Shafer and Hester 1983, 1991) (see Table 2.3).

A total of 500 individual flakes was recovered from the heavy fractions the column samples. It was thought that an initial perspective of flaking debris comprising the assemblage could be obtained from this sample. This broke down to an average of 25 complete flakes per deposit level. Each sample was analyzed for specific characteristics to be defined below. Due to the

Table 2.2. Heavy Fractions from Column Samples

Subop B: Debitage Column Sample			
Level	Depth (cm)	Weight (kg)	Sherds
6-B-1	0-10	1.67	0
6-B-2	10-20	2.30	2
6-B-3	20-30	2.72	0
6-B-4	30-40	1.36	2
6-B-5	40-50	1.93	3
6-B-6	50-60	2.70	1
6-B-7	60-70	2.04	0
6-B-8	70-80	1.67	1
6-B-9	80-90	2.26	0
6-B-10	90-100	1.42	0
Subop D: Debitage Column Sample			
Level	Depth (cm)	Weight (kg)	Sherds
6-D-1	0-10	1.24	0
6-D-2	10-20	1.36	0
6-D-3	20-30	2.04	2
6-D-4	30-40	1.93	0
6-D-5	40-50	1.90	0
6-D-6	50-60	1.81	0
6-D-7	60-70	1.80	1
6-D-8	70-80	2.87	0
6-D-9	80-90	1.50	0
6-D-10	90-100	1.36	0

Table 2.3. Hammerstones Recovered from Suboperations A through D

Spec. #	Context	Tool Form Type	Shape	Raw Material Color	Diam.	Raw Material	Breakage Pattern
6-A-3/1	Plaza-side axis of H-1	worked hammerstone	ovoid	p. gray/ red	7.6	chert (chal.)	dis.- prox. pecking/ edge bashing
6-B-1/1	Debitage Deposit 1	core hammerstone	ovoid	gray/ brown	8.1	chert (chal.)	dis. pecking/ edge bashing
6-B-2/1	Debitage Deposit 1	hammerstone	ovoid	gray/ brown	8.3	limestone	end pecking
6-B-4/1	Debitage Deposit 1	hammerstone	ovoid	pale gray	7.7	limestone	end pecking
6-B-5/1	Debitage Deposit 1	hammerstone	ovoid	pale gray	7.1	limestone	end pecking
6-B-9/1	Debitage Deposit 1	hammerstone	ovoid	very pale gray	9.7	limestone	dis. battering/ pecking
6-B-9/2	Debitage Deposit 1	hammerstone	ovoid	gray	6.5	limestone	end pecking
6-C-3/1	Between H-2 and H-3	mano/ hammerstone	elong.	d. brown/ red	11.0	chert	dis.- prox. battering/ peck.
6-C-8/7	Between H-2 and H-3	hammerstone	ovoid	gray/ p. red	6.9	chert	distal/ proximal battering
6-D-10/1	Debitage Deposit 3	engraved stone	cone	gray	7.4	limestone	dis.- prox. engraved lines
6-D-2/2	Debitage Deposit 3	mano/ hammerstone	elong.	pale gray	12.7	limestone	lateral pecking/ grinding
6-D-3/1	Debitage Deposit 3	hammerstone	ovoid	gray/ tan	8.8	limestone	dis.- prox. battering
6-D-3/2	Debitage Deposit 3	hammerstone	ovoid	pale gray	5.6	limestone	distal pecking
6-D-4/1	Debitage Deposit 3	hammerstone	ovoid	pale gray	6.4	limestone	distal pecking

use of the heavy fraction only, partially related to constraints on time and money, it was thought that a rough initial perspective on characteristics flaking debris comprising the assemblage could be obtained. This sampling in no way precludes the necessity for further, perhaps more sophisticated quantitative analysis of the debitage. However, the data presented here shows continuity in production technology based on the consistency of individual flake characteristics. Also part of the complete flake analysis was an examination of individual striking platforms. It is thought that platform morphology is perhaps the greatest source of information about the technology used to produce a particular flake.

Individual flakes were measured in centimeters for maximum dimensions, the number of dorsal facets present, the presence of cortex, evidence for thermal alteration. Platform analysis focused primarily on the maximum dimensions of each platform, length, width and thickness of the specimen in centimeters, as well the presence or absence of platform preparation in the form of dorsal or ventral faceting. It is thought that this kind of faceting indicates a more conservative approach to materials, as well as perhaps a lack of availability of particular kinds of raw materials (see Appendix B:Table B.1).

Table B.1 shows in detail the results of complete flake analysis. Presented in this appendix is the entire range of data from the sample of 500 analyzed flakes. Although further quantitative analysis is necessary to assess dimensions of groups of flakes and platform morphology, some initial introductory conclusions can be drawn from the data. Perhaps most useful in terms of a broad interpretation of the data presented in Table B.1 are the number of dorsal facets present on individual flakes, as well as the presence/absence categories. These categories are coded with "1" to indicate presence and "0" indicate absence. The categories are presence or absence of cortex, the presence or absence of thermal alteration, and the presence or absence of platform preparation in terms of platform faceting.

The number of flake scars on the dorsal surface of a flake (known as dorsal faceting) has proven to be a good indicator of what stage of lithic reduction may be represented. As shown in Table B.1, there were very

few flakes from either debitage deposit that exhibited a single dorsal facet. It is inferred that larger flakes, with single faceting on the dorsal surface indicate a relatively early stage in the reduction process. For example, large numbers of macroflakes exhibiting one or two dorsal facets and the presence of cortex suggest that early stage reduction was taking place. This kind of activity could be related to quarrying and or the production of macroflakes used for the eventual production of bifaces. However, research in northern Belize indicates that production of chert implements by the Maya was undertaken in a two step process (Roemer 1984; Shafer and Hester 1983, 1991). The first was the roughing out of large macroflakes and (or) very roughly shaped biface blanks for later reduction in workshop and (or) domestic contexts. The second step was the thinning and shaping of a blanks and preforms into final form. This step seems to be apparent in debitage deposits associate with structures. The preliminary results of debitage analysis recovered at Chan Chich indicate a similar pattern, although no chert quarry has yet been securely documented at Chan Chich.

The second category that should be considered here is the presence or absence of cortex on individual pieces of debitage. It is obvious that presence of cortex was exhibited by debitage recovered from both workshop deposits. However, this does not necessarily mean that debitage from large chert nodules or tabular pieces was being worked in these locales. It must be remembered that a high number of flakes exhibited two or more dorsal facets. Indeed, early stage reduction is not often geared toward removing cortex from the exterior of macroflakes or roughly shaped bifacial blanks. The removal of cortex often occurred in the later portions of the reduction process, as macroflakes were worked on both dorsal and ventral surfaces of a particular artifact in order to create the desired tool form(s).

It was clear from the analysis of tool forms and tool form fragments that local chert was likely utilized in lithic production at Group H. These are highly chalcedonous materials with numerous voids and fossil inclusions visible, considered to be of moderate quality. This suggests that basic technological processes to improve flaking quality would be useful to the chert workers. Thermal alteration is one such tech-

nique observed in numerous cultural and archaeological contexts. However, it appears from the debitage recovered from Debitage Deposits 1 and 3 that thermal alteration was not often utilized to control or improve the flaking quality of cherts. This does not mean that thermal alteration was never used. Indeed it was, as evidenced by the highly localized thermal alteration present on individual tool forms.

Moreover, platform preparation does not appear to have played an important role in the technological regimen of the chert crafters. Of interest in this regard is the presence or absence of faceting around the striking platform. Faceting was present on only 20 flakes from Debitage Deposit 1 and 16 flakes from Debitage Deposit 3 (or 7.2 percent of the 500 flakes in the sample). These results could be construed in two ways. The first is that platform faceting occurs later in the reduction process, thus perhaps the reduction that occurred in the Group H workshops may have been dominated by earlier stage reduction. However, it seems apparent with the numerous forms of complete and utilized tool forms recovered here that finishing of tool forms occurred.

Perhaps the answer to this question can be linked to the morphology of the tool forms themselves. These were often thick bifaces that were used for no doubt a variety of tasks. Thus, the technology to produce these materials was quite familiar, such as the removal of cortex and the shaping into the form needed. Indeed, platform preparation may have been more prevalent in the maintenance and recycling of the tool forms. Finally, it is possible that the debitage sample skewed originating from solely complete flakes, of which the larger secondary debris would have been analyzed and some of the smaller flakes possessing platform preparation remain in the sample.

Discussion

This debitage analysis is far from complete or comprehensive. Still to be considered are the quantitative nature of individual flake dimensions and their relationship to platform dimensions. This may give further refinement to the conclusions drawn here. The conclusions presented here are generalized and tentative, but reflect the data as observed and documented,

setting up further questions and avenues of inquiry. It is suggested that the primary activity represented in the debitage deposits is secondary and tertiary lithic reduction via a technology with which the crafters were intimately familiar.

It is inferred that large macroflake blanks were quarried locally, perhaps along the bed of what is now called Chan Chich Creek or in outcrops along the surrounding hillsides. This quarrying and transport of raw material culminated in the areas close to what were likely domestic structures, the patio groups comprising Group H. It was near these structures that production and maintenance of stone tools comprised of local cherts were undertaken. In the workshops at Group H, macroflakes were reduced via bifacial reduction into tool forms for immediate use and perhaps also for local exchange. The debitage indicates again the conservative nature of lithic technology via the standardized form of individual flakes. These debitage deposits represent a continuum of reduction evidenced by the presence of numerous larger secondary flakes through to the copious quantities of microdebitage as shown in Table A.1.

Concluding Remarks

The evidence for stone tool production visible in the deposits at Group H suggests the presence of a lithic craft economy that likely interdigitated with other agriculturally oriented economies at Chan Chich. A critical component of the lithic craft economy was the technological knowledge necessary for production. It is clear from the analysis of lithic materials presented here that a number of different tool forms were being produced and maintained by the ancient inhabitants. These forms include the small oval biface, the general utility biface, and the narrow biface. These were likely used in household tasks, agriculture, and more specifically woodworking and masonry.

In terms of lithic analysis, further work should include a more comprehensive and quantitative look at the debitage and initial analysis of use wear patterns present on the finished tool forms. Use wear analysis could provide a better understanding of consumption of stone tools in the local frame and also provide com-

parative data for analysis of use wear patterns on stone tools from other portions of the site, and indeed other sites in the region.

What is clear from the excavation of structures and debitage deposits at Group H is that the remains of stone tools provide insight to production and consumption not found in other mediums of material culture. In terms of the Group H deposits, the linkages between technology and economy are clear. These linkages can then be interpreted in human terms as the relations of production that exist within larger socioeconomic and political structures. Perhaps the crafters who lived here were interacting with surrounding households, in terms of horizontal exchange of lithic materials, something akin to householding. In addition, they may also have been supplying the elite with both tool forms and labor for the monumental construction that was undertaken in the site center during the Late Classic.

As with all archaeological investigations, the work undertaken at Group H raises more questions than answers. Future investigations at Group H should include further work at debitage deposits and structure groups in the area, to both refine chronology as well as to begin to address the nuances and intensity of the craft production that occurred there. The large deposits of lithic material raise questions regarding the presence of a cottage industry, or perhaps even some form of craft specialization. Whatever the case, the presence of lithic materials purposely placed with Burial 5 index these artifacts as possessing both utilitarian and symbolic meaning for the inhabitants of the area. Such meaning likely has complex socioeconomic correlates.

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1998 Excavations at the Western Groups

Owen Ford and Amy E. Rush

Introduction

In 1998 excavations were conducted at Norman's Temple (Courtyard C-1) and the Western Plaza (Plaza C-2) to investigate problematic deposits encountered by Meadows (1998) during test pitting in 1997. A secondary objective of the excavations at Courtyard C-1 was to determine the nature of the architecture of the tightly enclosed group. All archaeological investigations at Courtyard C-1 were designated Operation 5 and took place between May 15 and July 12, 1998. Excavations were conducted at Structures C-1, C-2, C-3, and on the southern half of the platform supporting the courtyard group (Figure 3.1). One unit was excavated in Courtyard C-2, northeast of Courtyard C-1. This unit was designated Operation 4, Suboperation D (Figure 3.1).

Courtyard C-1

Investigations on Structure C-1

A 2-x-2-m unit, Subop F, was placed adjacent to the 1997 testing unit (Op 4, Subop C) to look for deposits of Terminal Classic artifacts on the steps of Structure C-1, the small temple in the Norman's Temple Courtyard. Large amounts of collapse debris created an unstable west profile in the unit, and the excavation was terminated without clearly defining any architecture other than two poorly preserved steps of cut-limestone blocks in the east end of the unit.

Investigations on Structure C-2

Subop C (Op 5) was laid out as a 2-x-3-m unit with its long axis oriented perpendicular to the building that would expose the centerline basal-steps of Structure C-2. A well preserved courtyard floor was ex-

posed and then followed north toward the structure to expose the basal architecture. Three steps were eventually exposed (Figure 3.2). Concentrated on these steps and the courtyard floor were concentrations of smashed ceramics and other artifacts (Figures 3.3 and 3.4). Artifacts recovered from this context in Subop C included four large bifaces, a granite metate, a granite mano, numerous ceramics, and scattered human bone (designated Burial 3). The burial is described in more detail below. Subops E and H were laid out west and east of Subop C, respectively, to expose more of the staircase and deposit of smashed artifacts.

Subop E, a 2-x-2-m unit, was excavated to the west of Subop C. The steps and courtyard floor, as well as the deposit of smashed artifacts, continued into this unit. Only the first step of the staircase was exposed in Subop E. The artifacts recovered from this unit included mano and metate fragments, large bifaces, obsidian blades, incised ceramics, and additional skeletal remains (included as part of Burial 3).

Subop H, a 2-x-3-m unit to the east of Subop C, exposed the first three steps of the staircase of Structure C-2, the associated courtyard floor, and additional smashed artifacts. The concentration of artifacts in this unit and the adjacent excavations was highest on the lowest two steps.

Subop K was a 1-x-3.5-m unit excavated on the summit of the structure. The purpose of this unit was to expose the rooms on the top of the structure to determine whether similar artifact deposits occurred on the floors of the rooms as did on the steps to the building. The unit was placed with its long axis oriented north-south. The northern half of the unit, located on the north side of the mound, exposed the intersection of two walls. The well preserved walls were exposed to reveal that they were intact to a

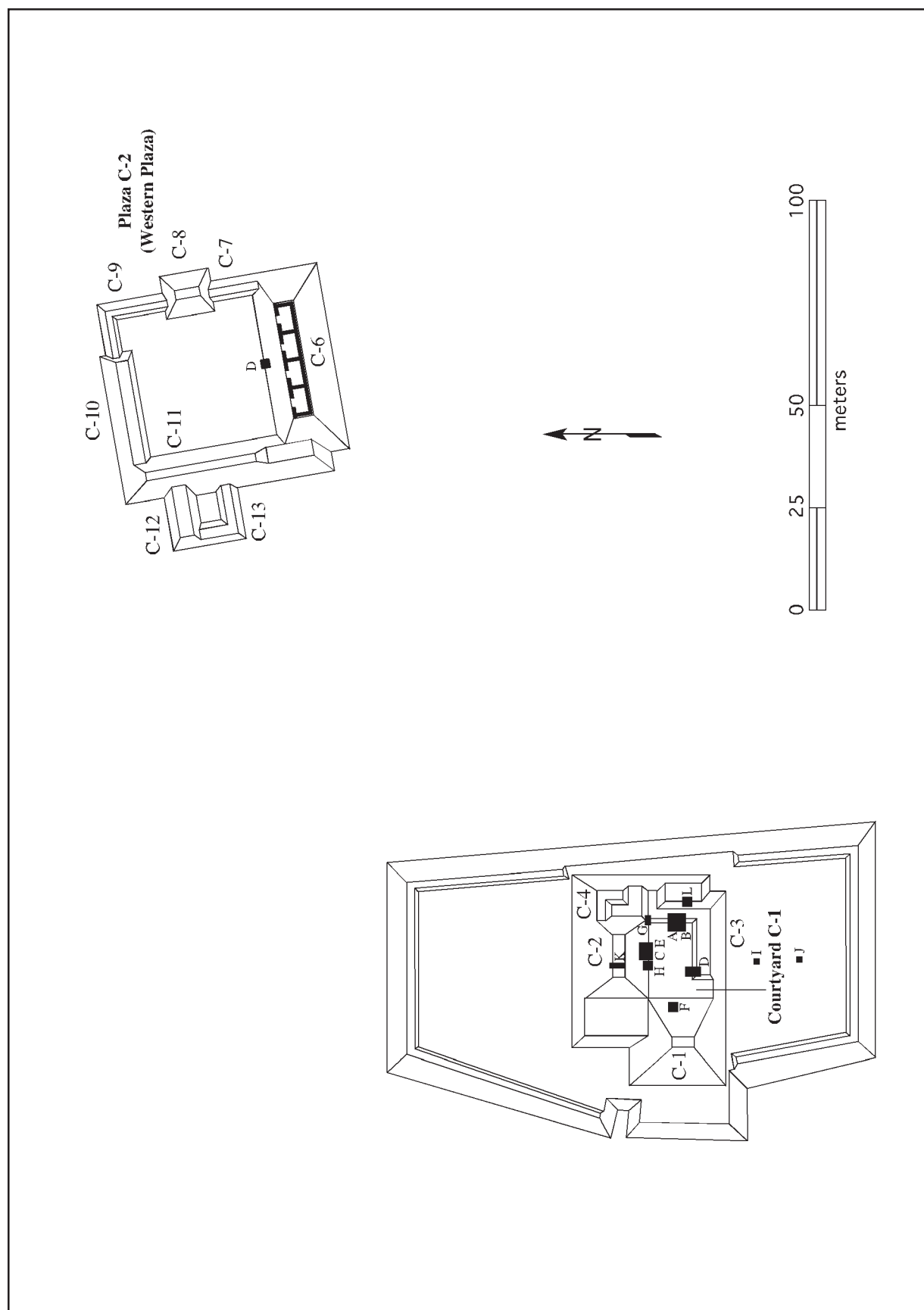


Figure 3.1. Map of 1998 excavations at the western groups, Operations 4 and 5.



Figure 3.2. *Bottom three steps of Structure C-1.*

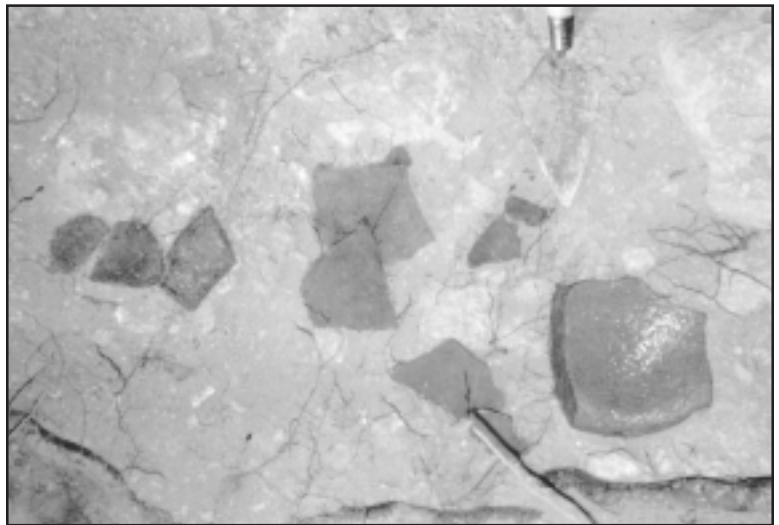


Figure 3.3. *Smashed artifacts on steps to Structure C-1.*

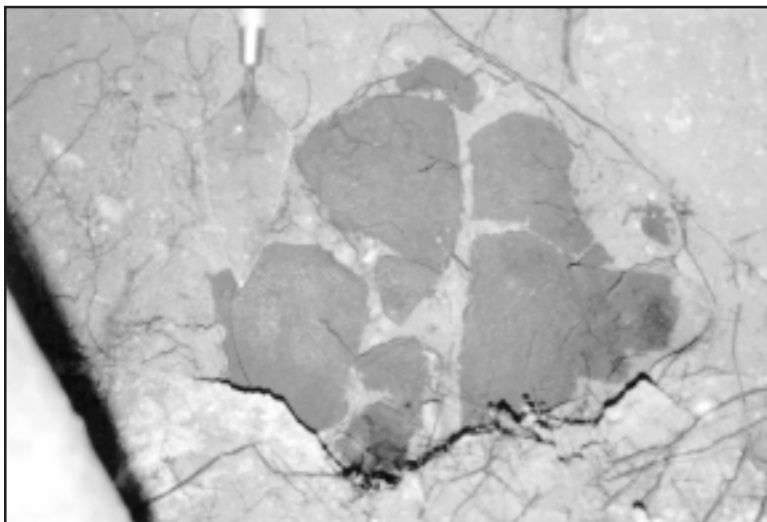


Figure 3.4. *Smashed plate on step to Structure C-1.*

height of 2.2 m (Figure 3.5). The north-south wall abutted the east-west wall and only extended 70 cm to the north. Investigations on the south side of the east-west wall did not locate the south side of the wall. Either the wall was very poorly preserved on the south side or it was actually part of a large platform, possibly with rooms on the north and south sides of the structure's summit.



Figure 3.5. *Interior corner or room on summit of Structure C-1.*

Burial 3

Fragments of human bone were recovered from Lots C-3 and H-2, scattered in the humus and collapse debris. These remains were originally classified as multiple “burials” before being combined under the designation Burial 3. The skeletal material was analyzed by Frank and Julie Saul. They concluded that the materials represent a minimum of two individuals—a female or small male and a robust young adult male. The first individual was represented by a left ulna shaft and a rib fragment that had both been gnawed by rodents. The bones from the larger individual included two left ulna fragments, a left radius shaft fragment, mandibular fragments and mandibular teeth. Based on the minimal wear and erupted third molar, the age of the second individual was estimated to be approximately 20 years. The size of the molars suggest that the individual was male. Other unidentifiable fragments of bone that were probably human were included from Lots C-3, E-4, H-2, and H-2a.

Investigations on Structure C-3 South

Subop D (Op 5) was situated on the northeast portion of the longest leg (south side of courtyard) of Structure C-3 in the Norman's Temple group. The excavation was originally a 2-x-2-m unit that was expanded north 1.5 m. Opposite Structure C-2, the unit was placed at the base of C-3 below a small divot in the crest of Structure C-3. Though the unit did not yield as great a quantity of ceramic sherds as were recovered in Subops E, C, and H, Subop D encountered somewhat atypical architecture.

Approximately 90 cm below datum, a plaster floor was encountered extending from the north end of the unit south to the base of a low wall of cut limestone blocks. It is possible that this is the same floor uncovered at the base of Temple C-1 in 1997 (Meadows 1998). The floor was a hard, compact, white limestone plaster that retained a 2-cm-thick replastering layer that was unevenly preserved across the unit. The intact portion of the wall was 60 cm high and relatively well preserved. The floor and associated wall were both covered by a fairly uniform deposit of white, powdery marl. It is this matrix that makes this unit anomalous among those excavated at Norman's Temple. The marl that filled this area was incredibly consistent in content, texture, and color, and lacking in artifacts. A few ceramic sherds and lithic pieces, one metate fragment, and the distal end of a mano were recovered from the unit, the majority of which lay close to the floor surface and exposed wall. They amount to very little in comparison to the assemblage collected from neighboring units in the same courtyard. The fill may represent an eroded plaster cap or ramp. Alternatively, the marl may be collapse debris and not architectural at all.

Three large cut limestone blocks were recovered resting haphazardly on the surface of the floor, fallen and out of original context. Another carved limestone rock was discovered at the base of the wall lying flat on the floor. Though partially eroded, this block had a U-shaped indentation in its center, similar to those supporting *tenoned* rocks. Interestingly, the soil inside

the U-shaped area of the stone was distinctly darker in color and finer in texture. Light gray and silty, the soil appeared to be of organic material. Such carved rocks have been noted to support wood beams or rods at other sites.

Investigations on Structure C-3 East

Subop A was a 2-x-4-m unit designed to expose the courtyard floor and any architecture abutting it from Structure C-3 East. A well preserved courtyard floor was exposed beneath large amounts of marly collapse debris, and continued excavations encountered an unexpected, two-tiered platform. The first tier was approximately 90 cm high with the second tier set 50 cm back (east) (Figure 3.6). The second tier was at least 50 cm high. A possible third tier is inferred, but could not be detected due to poor preservation and its proximity to the modern surface of the mound.



Figure 3.6. *Tiered wall of Structure C-3 (east).*

Subop B was subsequently excavated as a 2-x-4-m southern extension of Subop A to follow the architecture and clarify the form of the structure. One small, poorly preserved section of a third tier was encountered in this unit.

In an effort to determine precise plaza dimensions and clarify several architectural issues, Subop G, a 2-x-1-m unit, was located at the hypothesized junction of Structures C-2 and C-3, north of Subops A and B. The unit was taken down approximately 1.5 to 2.0 m below surface level at the westernmost (highest) edge. The excavated material consisted of a 10 cm thick top-soil layer covering collapse debris composed of marl, rubble, limestone blocks, and pieces of burned limestone. A poorly preserved section of the terraced wall encountered in Subops A and B was uncovered in the east end of the unit. Due to the small size of the unit, excavations were terminated before the courtyard floor was encountered, but prior to abandonment of the unit, it was decided to follow the architecture north. Unfortunately, the wall petered out within 20 cm and the unit was terminated.

Subop L was opened as a 2-x-2-m unit to expose the outer architectural face of Structure C-3 East. Approximately 1.9 m of a 1-m high, well preserved wall was exposed in the west end of the unit (Figure 3.7). The wall was composed of small cut-limestone blocks and possessed a basal molding of larger faced stones. Similar moldings have been documented in the region at Dos Hombres (Houk 1996). This wall probably represents a room that was filled to create a platform at a later date. The south edge of the wall was entirely covered with wet laid plaster fill that extended to a new corner and filled in an apparent doorway. Both episodes of construction were then covered by a plaster cap. A plaster floor extended from the base of the platform at the same level as the basal molding.

Investigations on the Southern Platform of Courtyard C-1

Subops I and J were placed on the southern half of the platform that supports Courtyard C-1. Both of the 1-x-1-m units failed to encounter any preserved floors.



Figure 3.7. *Bottom three steps of Structure C-1.*

Rubble fill, however, was present, indicating that the platform is partially or largely artificial.

The Western Plaza

Operation 4, Subop D, was situated in the Western Plaza as a 2-x-2-m unit at the base, along the center-line, of Structure C-6 in Plaza C-2. Subop D was opened to recover deposits similar to those found on the steps to Structure C-1 in Norman's Temple. A large assemblage of ceramic sherds, including some fine orange pieces, a few lithics, and scattered human bone (designated Burial 7) were exposed. Though artifacts were scattered throughout the unit, the majority were recovered below the topsoil, along the bottom step and on the heavily eroded floor.

Very close to the surface level, three steps were exposed. The plaza floor was difficult to recognize, subsequently noticeable due to the subfloor cobble fill consistent across the unit. Though relatively shallow, Subop D produced a significantly large quantity of ceramic sherds thereby confirming the presence of problematic deposits similar to those at Norman's Temple.

Conclusions

The 1998 excavations at Courtyard C-1 and Plaza C-2 located problematic deposits of artifacts concentrated on the lower steps of palace structures. Because of restrictions imposed by the conditions of the archaeological permit under which the excavations were conducted, it was not possible to penetrate the poorly preserved architecture at either group. Dating the construction events is therefore impossible, but a Late Classic (Tepeu 2-3) date is inferred from Meadows' (1998) test pit excavations in the center of the group. The deposits of artifacts and scattered human bone are attributable to the Terminal Classic (Tepeu 3) based time-sensitive ceramics found at both groups.

The transformation of Courtyard C-1 from an accessible architectural group into a tightly enclosed, walled compound is evident in the architecture exposed in Subop L. Neither the timing nor the intent of this modification are apparent from the data recovered.

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Preliminary Report on the 1998 Excavations on the Upper Plaza

Hubert R. Robichaux, Jennifer Jellen, Alexandra Miller, & Jennifer Vander Galien

Introduction

During the 1998 field season of the Chan Chich Archaeological Project 32 days of excavation effort were focused on uncovering features and structures located upon the Upper Plaza, designated Operation 2. A total of 143 student-work days were directed at this effort, which equates to approximately 4.5 students laboring per day for a total of 32 days.

The 1998 excavations built upon the data, analysis, and interpretations generated by the 1997 investigations (Robichaux 1998). The 1997 excavations had produced a tentative chronological outline of human occupation on the Upper Plaza and provided insight into cultural development during the site's life cycle. Based upon analysis of the 1997 excavations, the first human occupation of the Upper Plaza area occurred during the Middle Preclassic (ca. 900–400 BC). By ca. 800–700 BC a probable, moderately large, perishable structure with a floor of plastered bedrock had been erected at a location which later becomes the site for Structure A-1 in the center of the mature community. The 1997 excavations suggested that considerable construction activity took place in the area during the Late Preclassic period. The discovery of Tomb 2 during the 1997 field season indicated that by the Protoclassic period the political institution of "kingship" had been established at Chan Chich. Subsequently, during the Early Classic period, there appears to have been little to no construction on the Upper Plaza. Only one construction episode during the Late Classic period was detected through the 1997 data. There was no indication of occupation on the Upper Plaza during the Postclassic period.

The 1998 Excavations

The 1998 research effort was focused on three locations on the Upper Plaza (Figure 4.1). These were: Tomb 2 under the plaza surface in front of Structure A-15; Structure A-13 on the east side of the plaza; and Structure A-1, the large range-type structure which fills the entire northern side of the plaza.

A total of 13 suboperations were excavated in studying these three locations. Additionally, Jennifer Jellen clarified some aspects regarding the documentation in 1997 of architectural features visible within looters' trenches and tunnels penetrating pyramidal Structures A-15 and A-21.

Evaluation and analysis of the 1998 excavation data is currently in progress. In particular, analysis of the collected ceramics has not been completed. As the ceramic data will be relied upon for chronological assessments, there is presently no basis for temporal assignments to the excavations lots.

Chan Chich Tomb 2

At the completion of excavations in 1997 it was apparent that the Tomb 2 complex extended beyond what had been excavated up to that time. Partially visible features suggested that the tomb extended farther to the north. That area was examined in 1998 by the excavation of Suboperation K.

Suboperation K was placed on the plaza surface contiguous with the north end of the 1997 Tomb 2 excavation. Its size was 2.25 m east-west, and 1.5 m north-south. It was excavated during the period May 18–28, 1998, under the supervision of Alexandra Miller.

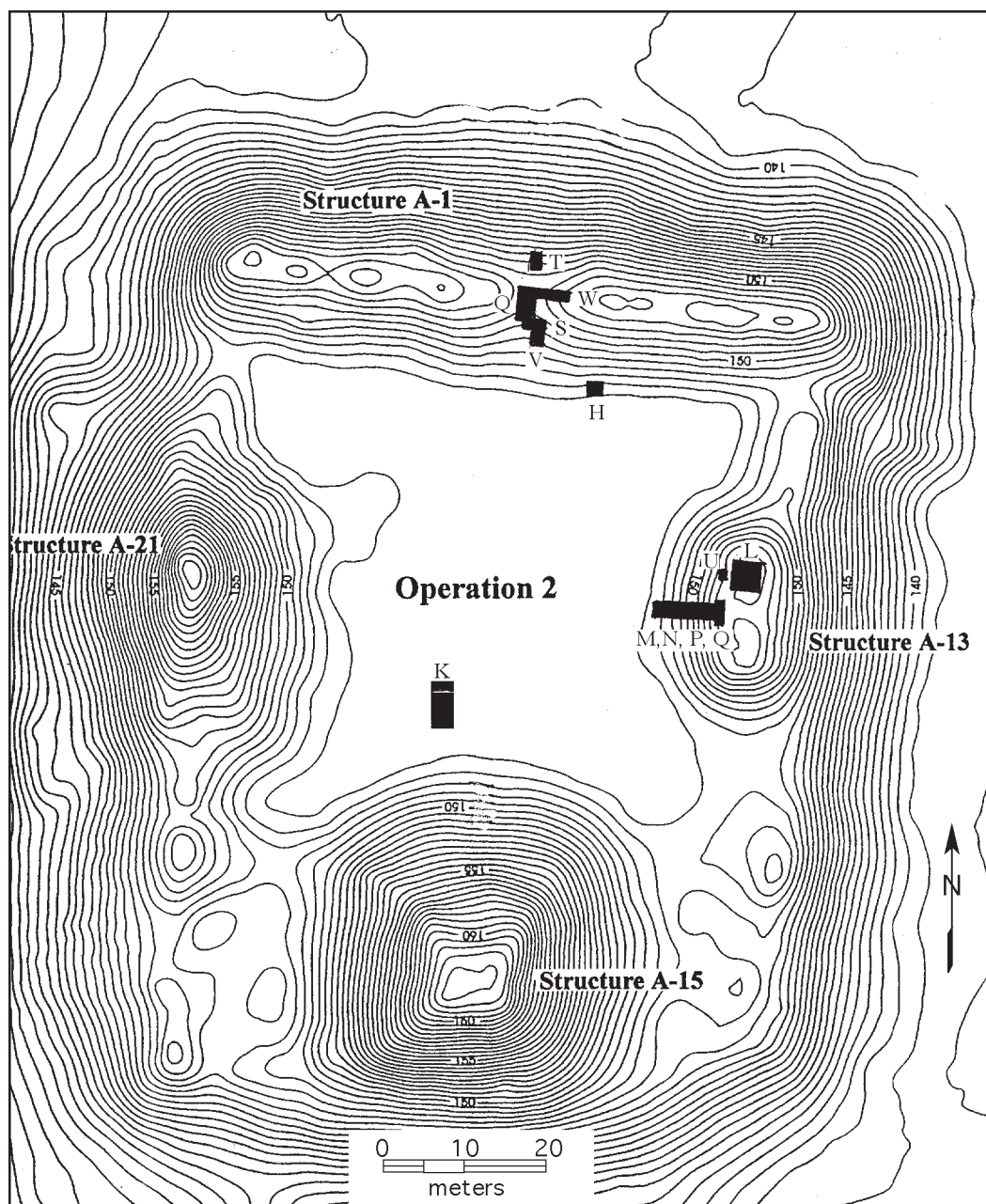


Figure 4.1. Locations of suboperations excavated in the Upper Plaza (Operation 2) in 1998.

This excavation revealed that a small antechamber was present beyond the north end of the tomb (Figure 4.2). The antechamber was apparently utilized to facilitate both the introduction of the body into the tomb and the final sealing of the tomb. After the burial goods and the body were positioned in the tomb its north end was sealed off by a wall whose upper limit consisted of Roofstone 9 (Robichaux 1998). Upon completing

the closure of the tomb, the work space of the antechamber was largely filled with a whitish sediment, and then covered over by Roofstones 10 through 12 (Figure 4.3). The roofstones covering the tomb and antechamber were then sealed with a thick coating of plaster. Following this, the space above the roofstones was filled with a large-stone fill matrix. A plastered surface (Floor 5) was then constructed over the fill.

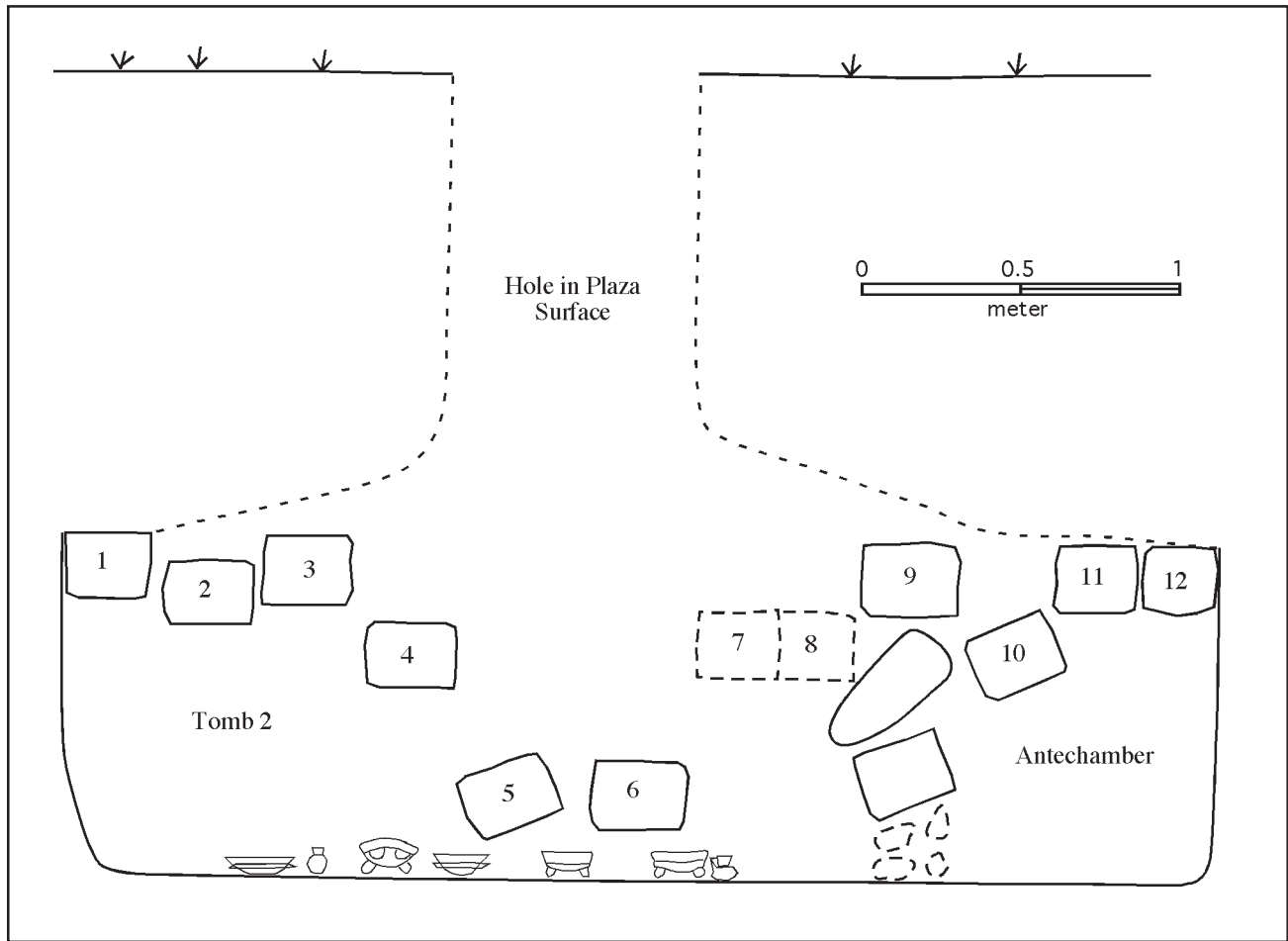


Figure 4.2. West cross-section of Tomb 2.

Of interest, and possible significance, was a low stone wall whose south face was exposed in the northern side of Suboperation K. This wall may be associated with a low structure thought to represent a small platform which was found resting upon Floor 5 during the 1997 excavations. This small structure was situated above and to the eastern side of Tomb 2. The newly exposed wall segment also sits on Floor 5 and is of the same height as the small structure's walls. As these features may represent a commemorative structure related to Tomb 2, future excavation in this area may be warranted.

Structure A-13

Structure A-13 is the smallest of the major structures situated on the Upper Plaza. It is situated on the plaza's

eastern side and is approximately 7 m tall. The upper surface of the mound is about 14 x 7 m in size. Examination of the ground surface atop the mound suggested that two rectangular, symmetrically positioned structures whose long axes ran north-south rested upon the rear (east side) of the mound's upper surface. They have been designated as Structures A-13 North, and A-13 South. Based upon rubble stone visible on the surface the size of each of these structures was estimated before excavation to be ca. 3.9 m in length, and ca. 2.3 m in width.

The Structure A-13 mound as just described also has an extension on its north side (Structure A-12). Whether this extension represents part of a collapsed privacy wall for the Upper Plaza, or additional rooms, is not clear.

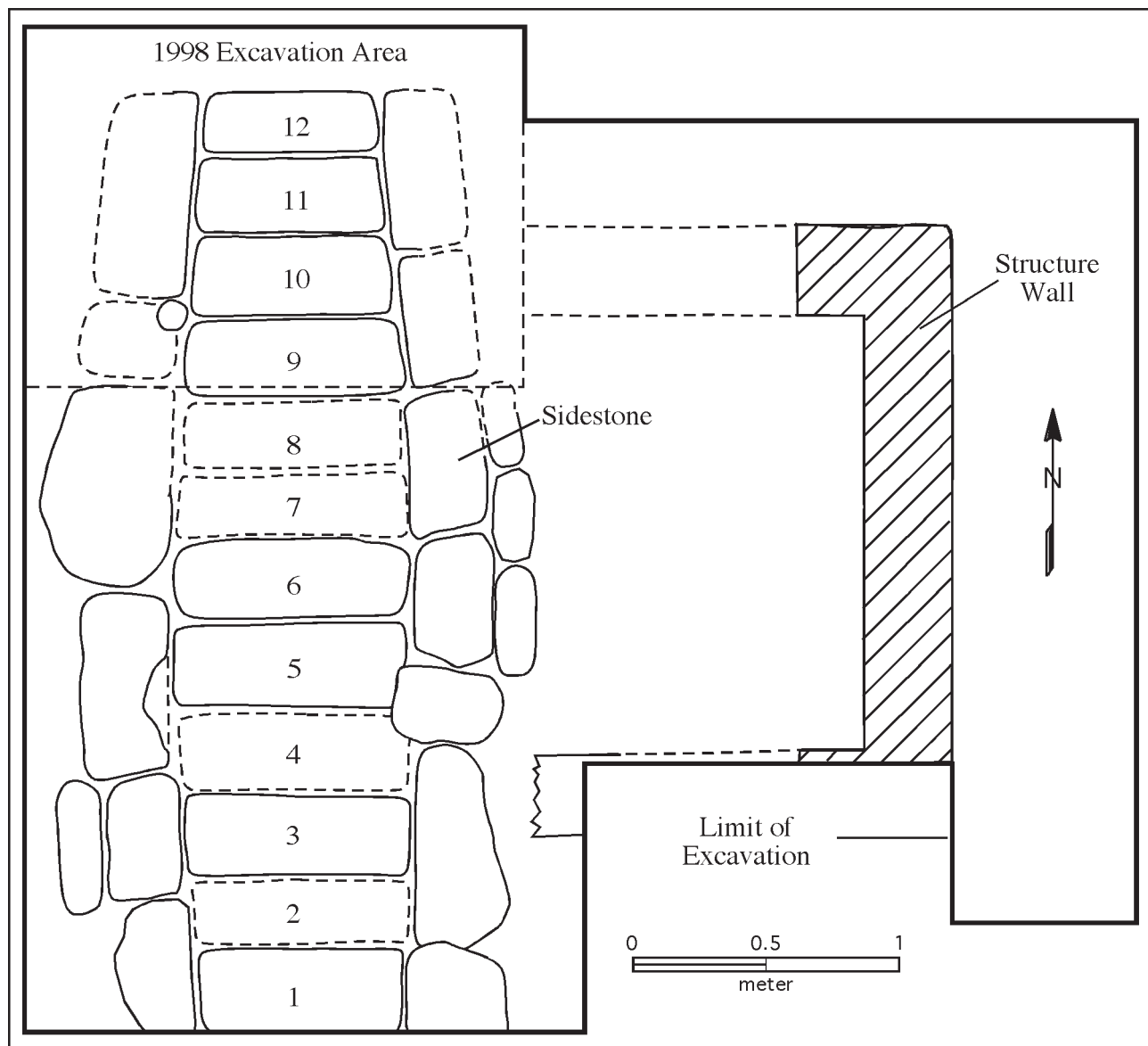


Figure 4.3. Plan map of top of Tomb 2.

Excavations on Structure A-13 were focused in two areas. Suboperation L was placed over Structure A-13 North and the presumed platform surface in front (west) of it. Suboperations N, P, Q, and R, were positioned on the western, center slope of the Structure A-13 mound where it was postulated that a centerline stairway ascended the mound from the Upper Plaza surface. Suboperations M and U were placed at the western edge of the mound's upper surface to help define that area.

Suboperation L defined the nature of Structure A-13 North, and also the platform surface in front of it. Based

upon the excavation, Structure A-13 North (and also, presumably, symmetrically positioned Structure A-13 South) contained a single, narrow room framed by low stone walls. The upper walls and the roof were of perishable material. The dilapidated condition of the stone wall did not allow certain identification of the doorway position, but it is assumed to have been near the center of the structure's west face. The external dimensions of the structure were approximately 3.7 x 1.87 m. The floor of the structure consisted of a plastered surface of 2–3 cm thickness. This interior floor was found in a highly fractured condition. Evidently a long tree root passing below the floor had raised a cur-

vilinear section of the floor along its north-south axis. The interior width of the structure's single room was quite narrow, ca. 1.2 m. The north, and south walls of the room were in disarray, and their positions were estimated based upon terminations of the plastered floor.

A small, shallow excavation through the damaged south end of the Structure A-13 North floor at the end of the field season uncovered a large, rectangular, slab-like stone object which was oriented north-south. The top of this object was ca. 10 cm below the floor surface. It had a length of 1.26 m and a width of 45 cm. The object was not fully exposed as the season ended but it appeared to be at least 35 cm deep. The object appeared to contain a number of smaller, well-shaped stones in it which were enveloped in a hard plaster or stucco.

The floor of Structure A-13 North was situated ca. 20 cm higher than the platform surface in front of it. The platform surface was plastered but it was found badly damaged and the plastering was visible only in the northwest and southwest corners of Suboperation L.

Excavation through the deteriorated floor of the platform surface in front of Structure A-13 North down to a depth of ca. 2.5 m below the surface encountered a deep construction fill containing cobble through boulder-sized stones. Several possible floors were encountered in this part of the excavation. All of them involved some plastering, but most were very uneven and discontinuous across a horizontal plane. It is possible that most or all of them were simply a corraling feature designed to minimize shifting of the construction fill, rather than actual occupational surfaces. These features or floors, and the fills between them, were assigned separate lot numbers. When the ceramic analysis is completed these lots will be examined to determine if a diachronic patterning is present.

Considering its prestigious position on the Upper Plaza, Structure A-13 North was surprisingly of modest size and construction quality. It is possible that it dates to a late period near the end of Chan Chich's life cycle and reflects a deteriorating situation at the site.

The several excavation units directed at finding a centerline stairway did not do so. The patterning which was encountered revealed some terracing but no clear evidence that a stairway existed there. Figure 4.4 presents a profile view of the northern face of that excavation effort. Alexandra Miller and Jennifer Jellen, sequentially, oversaw these excavations. It is possible that there were two stairways, one on either side of the platform's centerline, with one ascending to Structure A-13 North, and the other to A-13 South.

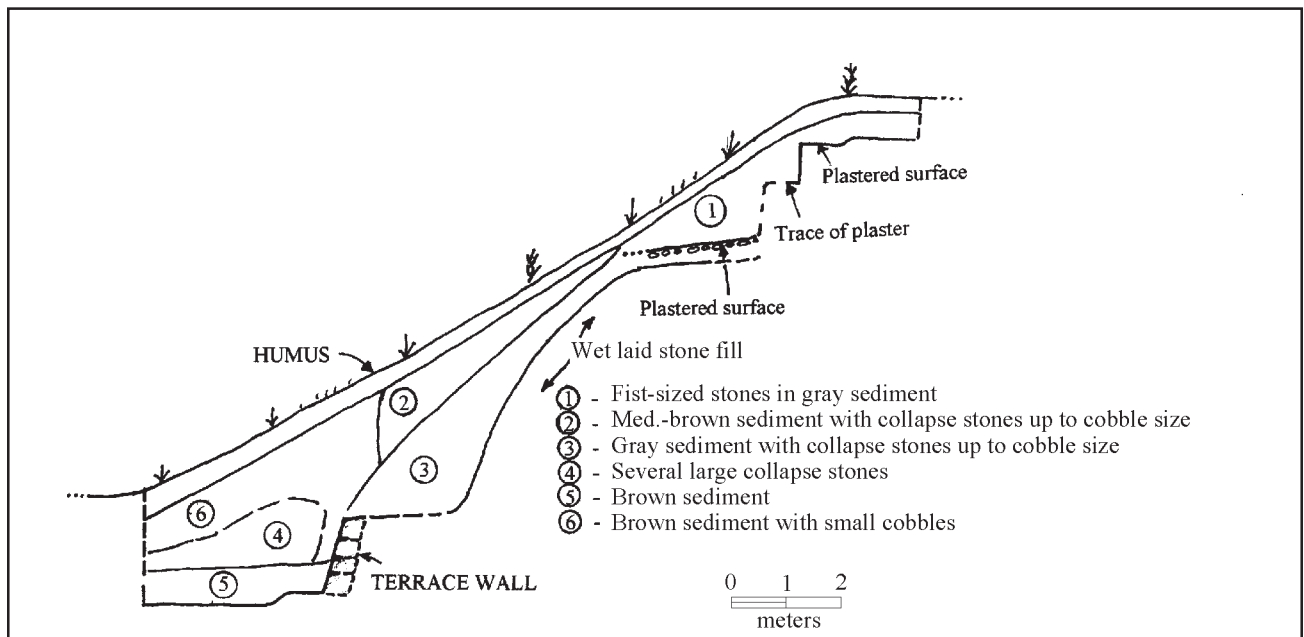


Figure 4.4. North profile of Subops M, N, P, Q, and R on the center of the west face of Structure A-13.

Structure A-1

This is the most massive structure at Chan Chich. It is a component of both the Upper and Main Plazas. The mound's configuration suggests that two identical large structures were positioned atop the massive platform, one on the western half of the supporting platform (Structure A-1 West) and the other on the eastern half (Structure A-1 East). Each of the structures appears to have had tandem rows of rooms, one row facing northward out onto the Main Plaza, and the other facing southward toward the Upper Plaza. During the 1997 field season a large stairway which ascended Structure A-1 from the Main Plaza side was detected at the northern center base of the mound (Houk 1998). Suboperation O, which was initiated by Jennifer Vander Galien during the 1998 field season, revealed that the stairway ascended up to an unroofed plastered surface, or landing, atop the center of Structure A-1 (Figure 4.5). Structures A-1 East and A-1 West were positioned on either side of this landing. It is postulated that a stairway descended from the landing down the south side of Structure A-1 onto the Upper Plaza. This is thought to have been the principal access route to the lofty Upper Plaza. Suboperations S and V were positioned to detect the upper part of the southern stairway but it was not clearly revealed. The landing floor, generally in excellent condition, had broken up prior to the beginning of the south stairway, and the stairway was not located with certainty (Figures 4.6 and 4.7). Suboperation T was positioned at the estimated



Figure 4.6. *Photograph of landing on summit of Structure A-1, facing east.*

position at which the north stairway would have reached the landing, the stairway was not discernable within the 2-x-1-m bounds of the unit. A high step or

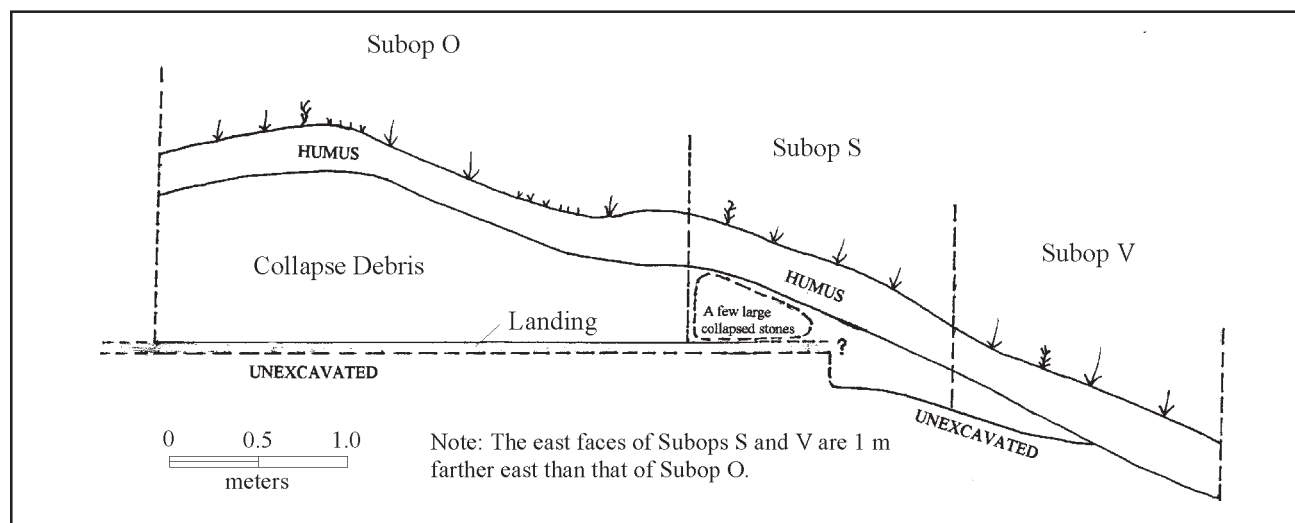


Figure 4.5. *Profile of eastern faces of Subops O, S, and V on the center of the summit of Structure A-1.*



Figure 4.7. *Close-up view of landing facing north.*

low platform was uncovered in Suboperation W which extended eastward from the east side of Suboperation O. A considerable amount of collapsed stone from Structure A-1 East was detected in Suboperation W, but the structure itself did not appear to begin within the bounds of Suboperation W.

Conclusions

The 1998 excavations have added a considerable amount of data which informs generally on the culture of the ancient inhabitants of Chan Chich, and particularly on the function and evolution of the Upper Plaza. This report is, again, preliminary in nature. The final report will provide more detail on the excavations, incorporate a chronological framework for the revealed architectural features, and offer our interpretation of the data.

Acknowledgments

We would like to express our gratitude to the many students who performed most of the work on the Upper Plaza described above. They include Matt Behrend, William Burdick, Jennifer Carey, Emily Chargin, Erin Conley, Eric Dethmann, Sarah Feltus, Rachel Giraudo, Rigden Glaab, Emily Hilley, Andrea Hogeboom, Amy Holmes, Tara Horn, Josh Houlgate, and Jessica West. Volunteers Jack and Jean Brush, Jean Kirkwood, Karis Koester, and Wendell Vander Galien also contributed

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The senior author would like to thank staff members Jennifer Jellen, Alexandra Miller, and Jennifer Vander Galien for their professional efforts.

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Looking Down on the Public: The 1999 Excavations on the Upper Plaza

Hubert R. Robichaux

Introduction

This chapter provides a preliminary report on the archaeological excavations conducted on the Upper Plaza area of the Chan Chich ruins during the 1999 field season of the Chan Chich Archaeological Project. Excavations began on Monday, May 17, 1999, and ended on Tuesday morning, June 8, 1999. The excavations were accomplished by the author and five students over a short period of 16 work-days. The 1999 work on the Upper Plaza was planned based upon data retrieved during the excavations of the 1997 and 1998 project field seasons (Robichaux 1998; Robichaux et al. 2000 [this volume]).

The 1999 excavations were directed at three separate areas, each of which was the subject of earlier investigation. Specifically, excavations were directed at the Tomb 2 area under the plaza surface in front of Structure A-15; at Structure A-13 on the eastern side of the plaza; and at Structure A-1 on the plaza's north side. These areas will be discussed separately below. Field methods utilized in the 1999 season were consistent with those reported in Robichaux (1998) with the exception that screening of the excavated matrices from Subops AE, AF, AG, AH, AI, AJ, and AK was not performed. These were mostly shallow test pits dug to determine the location of crosswalls in Structure A-1. The excavations conducted at the Upper Plaza in 1999 were designated Operation 2, as they were in 1997 and 1998. The locations of all suboperations (Subops) excavated during the 1999 field season are shown in Figure 5.1.

Ceramic data were not available at the time the report on the 1998 field season was written (see Robichaux et al. 2000). This chapter incorporates

ceramic data relevant to both the 1998 and 1999 field seasons.

Excavation Results

The Tomb 2 Area

During the 1997 field season a Protoclassic period elite tomb containing the remains of a male individual was discovered below the Upper Plaza's surface in front of Structure A-15, a pyramidal shaped structure that is the tallest building at the site (Robichaux 1998). Some of the tomb's contents suggested a royal status for the deceased. The tomb had been constructed by cutting through extant floors down to the surface of bedrock, and then carving into bedrock to form the rectangular tomb chamber. The floor of the tomb is ca. 2.7 m below the present plaza surface. After the introduction of the body and grave goods, the tomb was covered at the level of the surface of bedrock by a number of large rectangular stone slabs.

During the 1998 field season Subop K was excavated just beyond the north end of the tomb. This excavation unit revealed a small antechamber at the tomb's north end. The antechamber was separated from the tomb by a stone wall. A total of 12 consecutive stone slabs arranged side-to-side covered the tomb and the antechamber. The top of the slabs was plastered over and large-stone fill was placed above the tomb. Finally, a plastered floor (Floor 5) was constructed over the fill matrix, sealing off the tomb area below. A low, east-west aligned stone wall that was resting upon Floor 5 was noted in the northern profile of the Subop K unit during the 1998 season. This wall appeared possibly to represent a continuation of a low wall visible a short distance to the

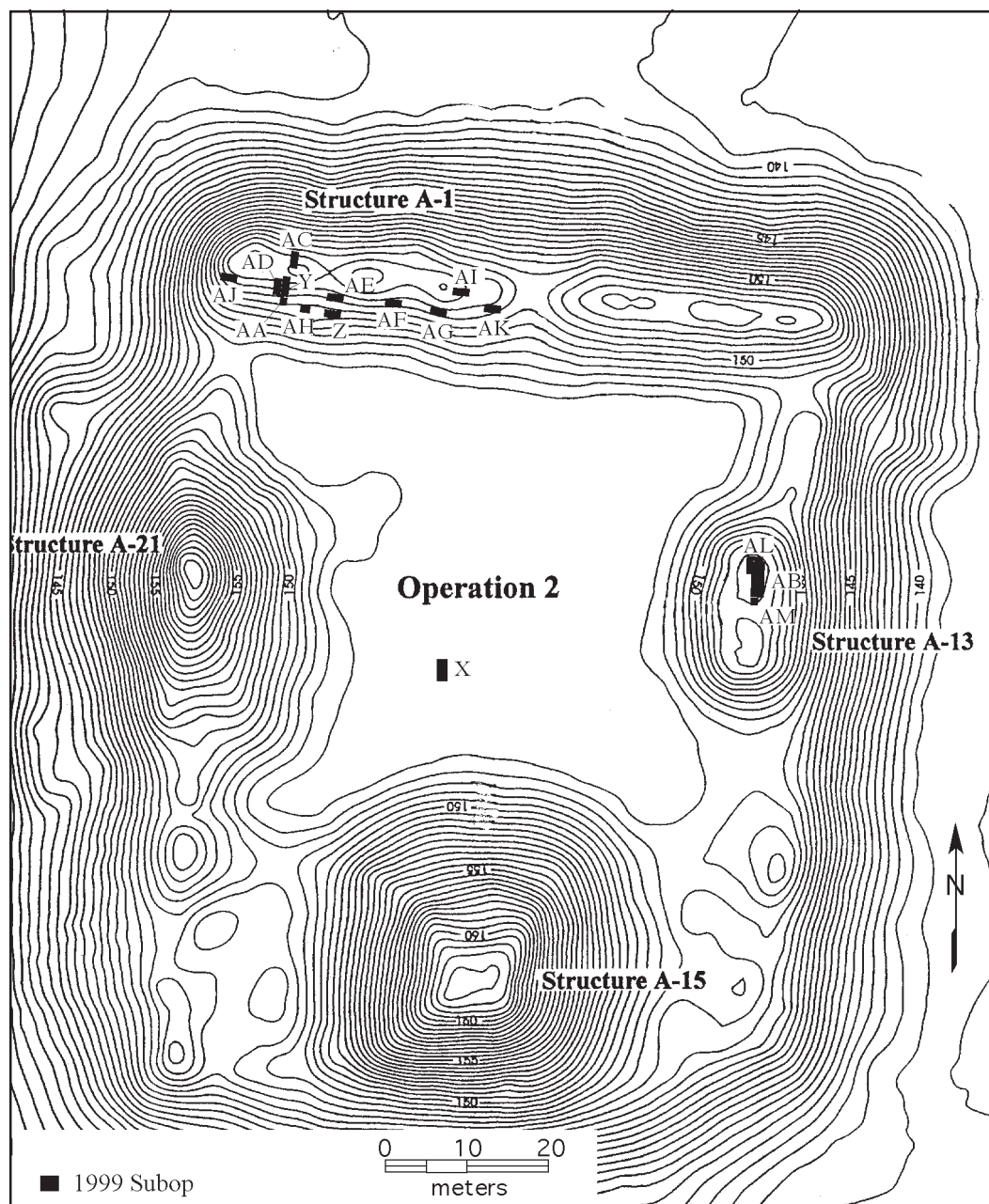


Figure 5.1. Location of 1999 subops at Operation 2, the Upper Plaza.

east of the tomb (Robichaux 1998:29, Figure 5.9). That wall was hypothesized to represent the exterior wall of a low platform that may have in some way commemorated the tomb below.

During the 1999 season, Subop X, a 2.2-x-1.0-m unit with a north-south long axis, was positioned contiguously with the north end of the Subop K excavation unit of the 1998 season. The purpose of this unit was to examine the nature of the low wall and its interface

with the plaza area to its northern side. Figure 5.2 presents a composite profile drawing of the western face of the 1997, 1998, and 1999 excavations in the area of Tomb 2. Floor 3 was the occupational surface here prior to the construction of the tomb. Floors 3, 2, and 1 were penetrated during the construction of the tomb (see Robichaux 1998:39, Figure 5.10). As can be seen in Figure 5.2, the low wall just north of the antechamber is resting on Floor 5. It consisted of two courses of individual rectangular stones, each hav-

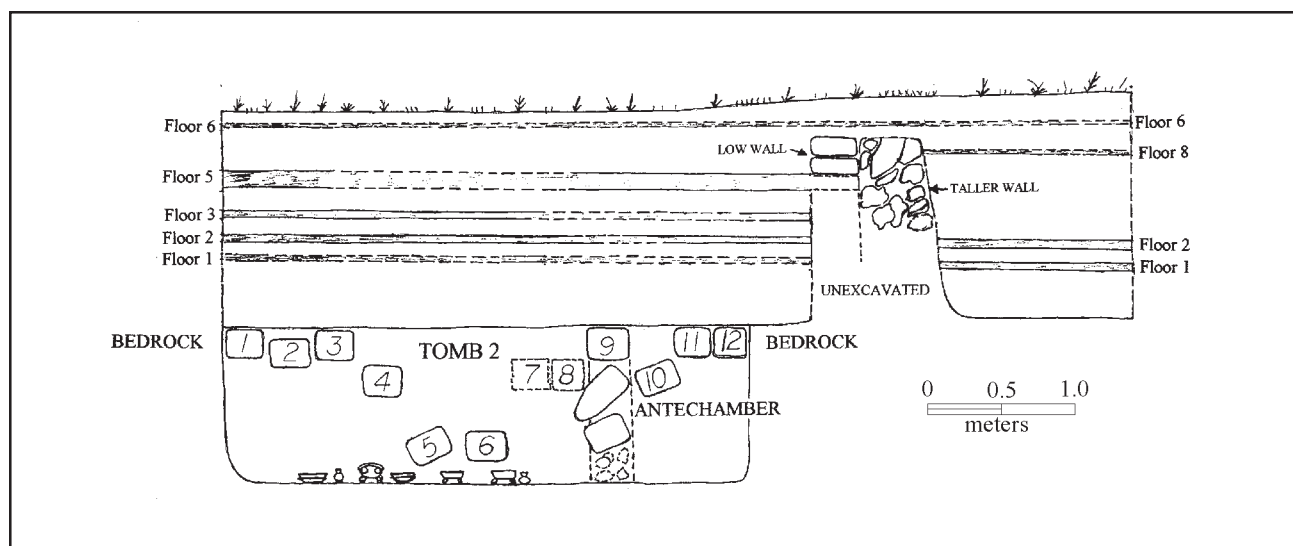


Figure 5.2. West cross-section of Tomb 2 based on 1997–1999 excavation data.

ing a width of ca. 35 cm. The wall extended east-west across the full 2.2 m width of the northern face of Subop K and continued an unknown distance beyond the confines of the unit. Excavation to the north of this low wall revealed that it abutted against the upper part of a taller wall. A total of four floors were detected to the north of the walls. Of these, Floors 6, 2, and 1 are possibly former plaza surfaces since they extend across the entire excavated area on all sides of the constructions. Floor 5, the floor that capped the tomb construction south of the walls, did not extend north of the walls. That the low, two-course stone wall is sitting at the outer limit of Floor 5 apparently indicates that it marked the outer boundary of the tomb area. The taller, abutting wall, which is resting upon Floor 1, is earlier than the low wall on Floor 5. Floor 3 was present only on the tomb side of the walls and thus was not a plaza surface. It is probable that Floor 3 extends northward up to the taller wall, but we did not dismantle the low wall to firmly establish this. The taller wall is a part of the remains of a structure that existed in this area prior to the construction of Tomb 2.

Ceramic and stratigraphic analysis based upon the totality of the 1997, 1998, and 1999 data has modified the interpretation of the chronological sequence in the area of Tomb 2 from that originally reported based solely upon the 1997 data (Robichaux 1998). Floor 6, the uppermost plaza surface, dates to the Late Classic period. Tzakol-style pottery found below Floor 5

in Subop 2-K in 1998 now indicates that Floor 5 was constructed during Early Classic times rather than during the Protoclassic period as previously thought. Floors 3 and 2, which were penetrated for the construction of Tomb 2, date to the Protoclassic period since Tomb 2, itself, has been dated to the Protoclassic by the presence within it of 11 monochrome vessels having characteristics of pottery from that period such as mammiform feet, spouts, etc. Floor 8, on the north side of the east-west running walls, dates to the Early Classic, and Floor 1, below it, dates to the Late Preclassic.

The above chronological reconstruction is somewhat problematic since it had previously been concluded that Floor 5 was constructed as the last stage in sealing Tomb 2. Now it appears that Floor 5 was laid down during a somewhat later construction episode.

Subop X, in summary, has expanded our knowledge of the Upper Plaza's earlier constructions and its occupational sequence. The exposure of a structural wall in this small excavation unit suggests that many more structures are buried beneath the Upper Plaza's floors, and that the natural hill upon which the plaza was built was an early residential area before it became a specialized elite zone in the center of the mature community. This view is further supported by the presence of the Middle Preclassic and Late Preclassic floors and structural remains encountered in Subop H at the north,

center end of the plaza during the 1997 field season (Robichaux 1998).

Structure A-13

Investigations continued on Structure A-13 on the eastern side of the Upper Plaza during the 1999 season. Subop L, which was opened in the preceding season, was further excavated, and new Subops AB, AL, and AM were opened.

During the 1998 season a small, unpretentious structure designated Structure A-13N had been revealed in Subop L on the northern half of the top of the Structure A-13 mound. Near the end of the 1998 season, the highly fractured interior floor of Structure A-13N was penetrated in a small area near the structure's postulated south end. A segment of a masonry construction resembling a rectangular slab was revealed about 10 cm below the floor.

During the 1999 season excavation to determine the nature of this feature continued. Rather than being a "slab" as it first appeared, the feature was revealed to be part of the front wall of a substantial, well-constructed stone building, designated Structure A-13 Sub-1, that had been deliberately buried in preparation for the construction of the later, smaller, and more modest Structure A-13N above it. A cross-section showing the relative positions of these structures on

the A-13 mound is shown in Figure 5.3. The 4.85-m long portion of the wall that was uncovered extended from the structure's northwest exterior corner up to what is thought to be the center of a doorway on the structure's front side. The ca. 85-cm thick front wall of Structure A-13 Sub 1 had large and smaller rectangular facing stones (Figure 5.4). Remnants of plaster indicated that both the outer and inner surfaces of the front wall had been fully plastered. There was no indication that the plaster had been painted.

The wall, as uncovered, was still standing to a height of ca. 1.4 m above the basal floor upon which the structure rested. A decorative molding which protruded outward 8 cm from the vertical alignment of the of the upper part of the wall was present on the lowest 25 cm of the wall. The floor supporting Structure A-13 Sub-1 was plastered and ca. 12 cm thick. Below it was a large-stone fill matrix of unknown depth. That floor, at ca. 2.35 m below datum, was also detected farther to the west during the 1998 excavation in Subop L and it appeared to extend up to the platform's western wall. A small area of the construction fill below the floor near the doorway of Structure A13 Sub 1 was excavated down to a depth of ca. 3.29 m below datum. Unfortunately, few sherds were found in the fill, however, some charcoal was discovered and collected. That sample has not yet been analyzed.

Subop AB, a unit that eventually reached 5 x 2.4 m in size, was situated to the east of Subop L over a portion of the interior of Structure A-13 Sub 1. Due to time

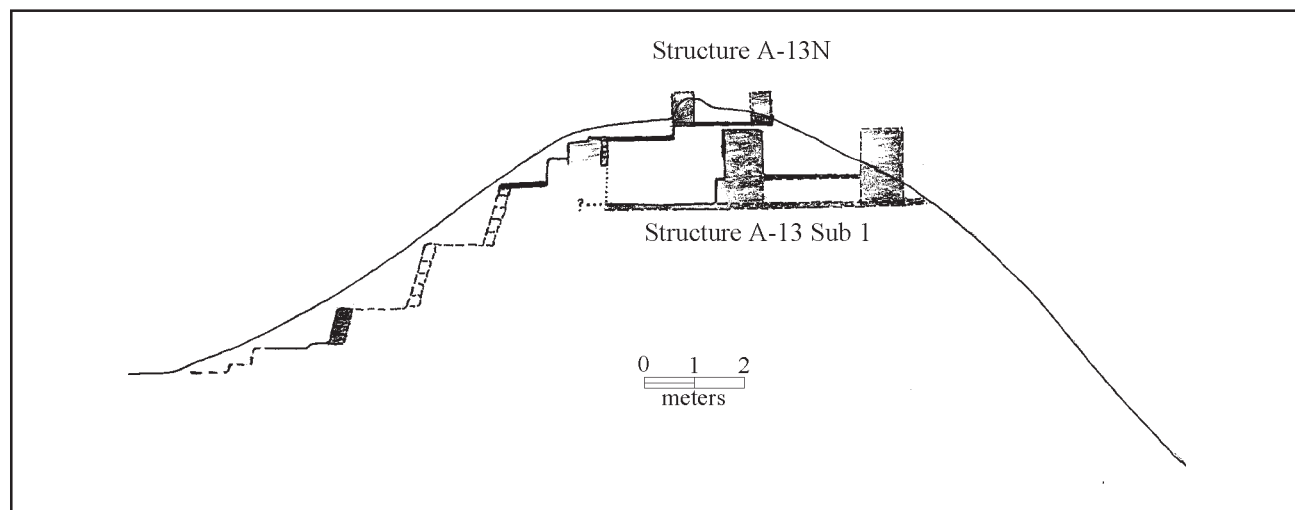


Figure 5.3. *North cross-section of Structure A-13.*



Figure 5.4. *Photograph of west wall of Structure A-13 Sub 1. Note doorway at right.*

constraints excavation into the interior of the structure was limited to a ca. 2-x-1.5-m area near the postulated doorway. The rest of Subop AB was excavated only down to the surface of rubble stone that lay below the humus and filled the structure's interior, as well as the area in front of the structure.

A deteriorated, plaster floor, was encountered in the structure's interior at a depth of ca. 1.75 m below datum. A flat stone embedded in the floor surface seemed to have an empty space below it, but the stone was not lifted due to the lateness of the season when it was noted. It possibly represents an offertory cache. What appeared to be a partition wall in the structure's interior was present 83 cm to the north of the postulated doorway's northern jamb. It extended out ca. 47 cm into the room interior. The east (rear) wall of the structure was not located within the confines of Subop AB but the presence of some collapsed shaped-stones suggested it was not far to the east of Subop AB. The ending of the field season precluded further excavation to locate it. The shape and elevation of the mound at its east upper (rear) end suggests that most of the rear wall of Structure A-13 Sub 1 has fallen away down the steep eastern side of the Upper Plaza platform.

Subop AM was a small excavation unit that sought to locate the southern doorjamb of the postulated doorway of Structure A-13 Sub 1. Regrettably, a number of tree roots were encountered in this unit and the south side of the doorway was not discerned, although some displaced shaped-stones were found near its expected position.

No vault stones were noted in the small area of the structure's interior that was excavated but the high quality and thickness of the wall construction, as well as the structure's prestigious location of the Upper Plaza, are all compatible with Structure A-13 Sub-1 having been a masonry vaulted structure. The top of Structure A-13 Sub-1's still standing front wall was generally quite flat. No sign of post-holes was found along the top of the wall. If there was a vault it was razed in preparation for the construction of Structure A-13N. The interior of Structure A-13 Sub 1 had been filled with rubble stone. The entire area in front of Structure A-13 Sub 1, down to the floor level at ca. 2.35 m below datum consisted of a stone construction fill. The data from this latter area that was excavated in 1998, when combined with the data from the 1999 excavation, tend to support a conclusion that the ma-

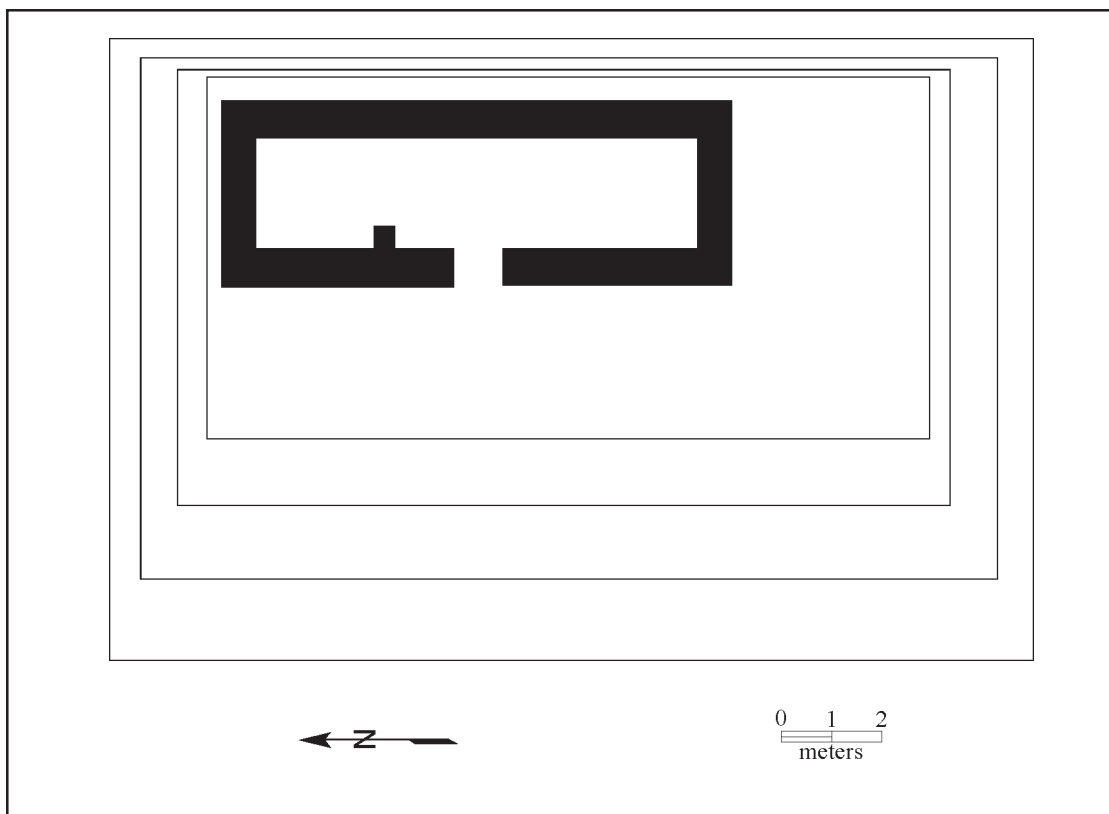


Figure 5.5. *Plan view of hypothesized location of Structure A-13 Sub 1 in relation to the later platform that supported Structures A-13N and A-13S.*

jority of the several “possible floors” that had been encountered in the 1998 excavation in front of Structure A-13 Sub-1 were simply corraling layers of mortar placed to prevent the construction fill from shifting, rather than actual floor surfaces.

Figure 5.5 is a plan view showing a hypothesized floor plan for Structure A-13 Sub 1 in relation to the platform that supported Structure A-13N and A-13S. It assumes Structure A13 Sub 1 had a single doorway centered on its front wall. This assumption implies that Structure A-13 Sub 1 rested upon a platform that was smaller than the one subsequently constructed to accommodate the placement of Structures A-13N and A-13S on it.

That a well constructed substantial building such as Structure A-13 Sub 1 would be partially razed, filled with rubble stone, and buried to prepare for the construction of another building above it was not uncommon within the culture of the ancient Maya. It hap-

pened frequently, and evidence in the looters’ trenches on Chan Chich’s Upper Plaza clearly shows it happened here. What is unusual in this case, however, is the apparent marginal character of Structure A-13N (and presumably Structure A-13S), when compared to the buried Structure A-13 Sub 1. The motivation for razing a superior structure, and replacing it with an inferior one is not apparent.

The dating of the exposed Structure A-13 construction episodes is not fully known at this time. The oldest known surface in the mound, that upon which Structure A-13N Sub 1 rests, was not datable because the few sherds recovered beneath it were highly eroded and not identifiable, and an associated charcoal sample has not yet undergone radiocarbon dating. The stone fill found within the interior of Structure A-13N Sub 1 was evidently placed there when Structure A-13N was constructed above Structure A-13N Sub 1. The presence of Tepeu (Late Classic period) sherds within that fill dates the construction of Structure A-13N to the Late Classic. The pervasive presence of Mamom

sherds, together with a consistent trace of Swasey sherds, in the construction fill below Structure A-13N directly in front of Structure A-13N Sub 1, points to a very early and long lasting human occupation in this area of the Upper Plaza.

Structure A-1

Investigation of Structure A-1, the largest structure at Chan Chich, began in 1997 with the excavation of Operation 1, Subops A–C near the structure's north, central base (Houk 1998) and Subop H near its center, south base (Robichaux 1998).

Operation 1, Subops A–C exposed portions of the northside bottom of a ca. 15-m wide centerline stairway that ascends Structure A-1 from the Main Plaza side. Three flooring episodes were noted in these units with the earliest being from the Late Preclassic and two from the Late Classic period.

Subop H revealed the presence of a Middle Preclassic plastered bedrock floor below the center, south edge of the Structure A-1 mound. A large posthole found in this floor suggested the presence of a rather large structure of possible public function at this location. Two additional floors dating to the Middle Preclassic were found, and these were followed by four surfaces dating to the Late Preclassic. The uppermost floor found in this unit dated to the Late Classic. As in Houk's excavation on the north side of Structure A-1, no construction dating to the Early Classic period was noted. Subop H also revealed what appears to be one of Structure A-1's platform terracing walls that was visible in the unit's northern profile. This wall is thought to date to the Late Preclassic period based upon stratigraphic considerations. The 1997 data indicate that Structure A-1 was already a prominent edifice during the Late Preclassic period (Robichaux 1998).

During the 1998 field season, Subops O, S, T, V, and W were excavated on top of the Structure A-1 mound, at and near its center (Robichaux et al. 2000). Observations of the Structure A-1 mound's physical configuration had already suggested that the structure's platform was actually surmounted by two large super-

structures, designated Structures A-1W, on the western half of the platform, and A-1E, on the eastern half. The mound's shape further suggested that there existed a landing, or unroofed passage, at the center of the top of the mound between Structures A-1W and A-1E. The stairway discovered by Houk (1998) on the Main Plaza side of the Structure A-1 platform presumably ascended to this postulated landing, and it was thought that a shorter stairway would have descended down from the landing to the Upper Plaza on A-1's south side. The expectation of a landing was confirmed in the Subops O and V excavation units that revealed a plastered surface which had no indication of having been roofed. No clear trace of the stairway descending to the Upper Plaza on the center, south side of the Structure A-1 platform was found in Subop V, but the stairway's presence on the south side is almost certain. In fact, the lowest portion of it was encountered in 1997 in the Subop H excavation.

Given Structure A-1's preeminent large size, central location, association with both the prestigious Upper and Main Plazas, and its evident long standing important role in the functioning of the community, the 1999 excavations on Structure A-1 focused primarily upon determining the structure's floor plan. The number and size of rooms in Structures A-1W and A-1E, together with their spatial arrangement, provide quantifying and qualifying details that are essential in the effort to understand the nature and scope of activities that occurred within Structure A-1. Because of the short field season and the small excavation crew available, an attempt was made to position test pits in a way that would delineate as much of the structure's layout as possible in the shortest time.

We had observed as early as the 1997 field season that the Structure A-1 mound's physical configuration suggested that both Structures A-1W and A-1E contained two rows of rooms, with one row facing northward to the Main Plaza, and the other facing southward to the Upper Plaza. These room rows would have been separated by an east-west aligned medial (or spine) wall in the center of each structure. The existence of the medial wall was confirmed during the 1999 excavations. The additional fact that the remains of the medial walls of Structures A-1W and A-1E do not have any slumped areas along their lengths indicates that the two rows of

rooms within each structure did not have interconnecting doorways.

Ancient Maya structures having this tandem configuration were very commonly symmetrical in the sense that whatever room patterning was present on one side of the medial wall was also present as a mirror image on the opposite side (see Andrews 1975 for several examples). Using this assumption, along with the reasonable additional assumption that symmetrically positioned Structures A-1W and A-1E were identical in floor plan reduced the required investigative effort to determining the room patterning of a single side of either Structure A-1W or A-1E. Because it had some suggestive contours here and there, the south side of Structure A-1W was selected for investigation. The floor plan found there would be generalized to the other half of Structure A-1W, and the resulting floor plan for Structure A-1W would then be applied to determine the floor plan of Structure A-1E.

Our first test pit on the southern half of Structure A-1W, Subop Y, encountered the northwest interior corner of a room (Figure 5.6). The floor and the two walls forming the corner were heavily plastered. The walls had a rounded interface with the floor surface. The room's southern (front) wall apparently fell away in antiquity at this location, and the only possible indicator of it was a rough, disturbed area on the floor. Subop AE was positioned several meters to the east of Y at a location suggested by the mound's contour, and it successfully revealed the northeast interior corner of the same room whose northwest corner had been detected in Subop Y (Figure 5.7). These two test pits indicated that the encountered room was ca. 5.4 m in length. Its width was thought to be between 1.55 m and 1.7 m based upon the rough area on the floor.

Subop AD was positioned to find the opposite side of the north-south, room-divider wall whose eastern face was discovered in Subop Y. It did discover the northeast corner of the adjacent room to the west of the first room, and also revealed the width of the north-south room divider wall to be ca. 1.08 m (Figure 5.8). Fortunately, a trace of this room's southern (front) wall was still in place, indicating that the room's actual interior width was ca. 1.7 m. We were unable to ascertain, however, the precise thickness of the front wall.



Figure 5.6. *Photograph of the northwest corner of the room revealed in Subop Y.*

Using the discovered room's length of 5.4 m and the room divider wall thickness of 1.08 m as a guide, we positioned Subops AF, AG, and AK sequentially to the east of Subop AE at positions where additional north-south room divider walls would be present if the same spacing pattern prevailed throughout. This strategy fortuitously resulted in the discovery at the projected locations of the room divider walls for two additional rooms to the east of the first revealed room, indicating they were of the same size. No wall was found, however, in Subop AK, the easternmost unit.

Subop AJ was positioned to find the westernmost north-south wall on the south side of Structure A-1W. A maze of large roots in this unit precluded discovery of the wall, however, its presence there was almost assured since the platform's western wall, present as a vertical section of wall hearting, was visible slightly



Figure 5.7. *Photograph of the northeast corner of the room revealed in Subop AE.*

beyond and below where the anticipated wall was projected to be located. Also, the western end of the Structure A-1 mound is consistent with a room length of 5.4 m. Thus, we have high confidence that there were four in-line rectangular rooms of 5.4-x-1.7-m size on the south side of Structure A-1W that were separated by room-divider walls of ca. 1.08 m thickness.

The mound topography suggested that there was one additional room to the east of the four previously encountered. Subop AK, mentioned above, had sought to find the east wall of the easternmost room on the south side of Structure A-1W, but did not. My hypothesis now is that the easternmost room of Structure A-1W faced eastward on to the landing and perhaps functioned to control the flow of people from the Main Plaza into the Upper Plaza. This north-south aligned



Figure 5.8. *Photograph of rooms during excavation. Trinity student Cody Johns is standing in the northeast corner of one room with northwest corner of adjacent room visible to right.*

room would not have extended as far to the east as an additional one of the 5.4-m long east-west oriented rooms would have and it was consequently missed due to Subop AK being positioned too far to the east. There was insufficient time to test this hypothesis by extending AK westward.

Subop H was an attempt to find the doorway of the first discovered room. Unfortunately, the entire front wall of the structure appeared to have fallen away at the selected spot and the door position was not confirmed. It seems reasonable to assume, however, that the doorway of each of the four south facing rooms was centered on the front wall of each room.

The final excavation unit on Structure A-1W to be discussed is Subop AC that was placed to the north of Subop Y, straddling the top of the mound plus an area on the downslope north of the mound's top. The purpose of this unit was to find the opposite face of the medial wall of Structure A-1W whose south face had been found in Subop Y, and thereby enable us to determine the medial wall's width. An 84-cm high section of the north face of the medial wall was exposed within the unit. The shaped facing stones had fallen away from this section but the hearting stones retained a vertical face. The mortared hearting stones were small, generally fist-sized, and had an appearance similar to some of the wall heartings exposed in the 1999 Western Plaza excavations at Chan Chich (Harrison 2000 [this volume]). The excavation results indicated that the medial wall was quite thick, ca. 2.85 m, providing a strong central support for the rows of rooms on either side of it.

The rooms in Structure A-1W clearly possessed masonry vaults. The vault spring on the medial wall was still present, in part, within Subop AE, and several vault stones were noted in the excavated rubble. One vault stone was found lying on the room's plastered floor, and another was resting upon sediment ca. 4 cm above the floor. It thus appeared that the vault in this room collapsed before much debris had accumulated within the building after its abandonment.

Floor surfaces were detected at two different elevations in the upper area of Structure A-1W (i.e., excluding the floors discovered in Subop H). The lowest of these was the floor of the landing that was present in the center of the platform between Structures A-1W and A-1E at a depth of ca. 3.3 m below datum. The floor surfaces found in the room interiors by Subops Y, AD, and AE were all at a depth of ca. 2.6 m below datum, or ca. 70 cm above the elevation of the landing. In all three cases in which room floors were discovered, it was in the far interior corners of the rooms and along the side walls of the rooms. There seems a reasonable possibility that the "floor" surfaces exposed within the rooms actually were the top surfaces of benches rather than the floors of the rooms. A bench revealed by looters in the interior of one of the substructures of Structure A-21 on the Upper Plaza's western side is approximately 40 cm high. Assuming such

a height for benches in Structure A-1W would predict a room floor height within Structure A-1W of ca. 30 cm above that of the landing, or ca. 3.0 m below datum. This suggests the not surprising conclusion that the landing floor actually represents the base surface for the Structures A-1W and A-1E superstructures, and that a walkway extending in front of the room doorways was at the landing height. To enter a room, one would have stepped up ca. 30 cm. The ca. 40-cm high bench would have been present along the rear and side walls of a room, judging from what was observed Subops Y and AD.

The plan view of Structures A-1W and A-1E presented in Figure 5.9 is based upon the following: the 1997, 1998 and 1999 excavation data; the assumption made that the north side of Structure A-1W is the mirror image of the structure's investigated south side; the assumption that the floor plan of Structure A-1E is symmetrical with Structure A-1W; and the assumption that the rooms in Structures A-1W and A-1E that are closest to the central landing space face toward the landing. The configuration of the Structure A-1 platform and stairways has been hypothesized based upon the mound's shape and the relevant data retrieved from Subops 1-A, 1-B, 1-C, and 2-H. Figure 5.10 presents a cross-sectional view to the east showing the respective positions of the various architectural features discovered in Structure A-1.

The above data and analysis indicates that Structures A-1W and A-1E each contained a total of nine rooms, with four of them facing the Main Plaza, four facing the Upper Plaza, and one facing the landing. Altogether, eight rooms on the A-1 platform faced the Main Plaza, eight faced the Upper Plaza, and two faced the landing passageway.

The portions of Structure A-1 that were exposed during the 1998 and 1999 excavations are those of the structure's last construction phase. Analysis of the ceramics recovered from the excavated rooms within Structure A-1 indicates the rooms were occupied during the Late Classic period. The actual time of construction of the final phase of Structure A-1 is uncertain since we did not penetrate the room floors.

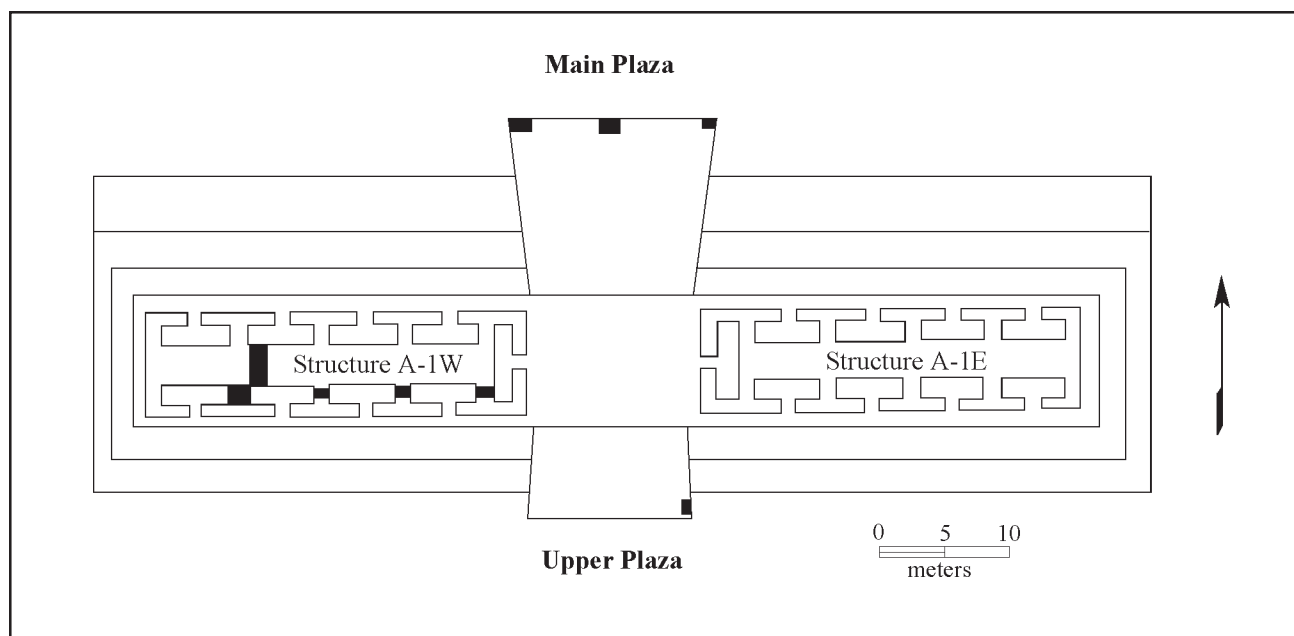


Figure 5.9. Hypothesized plan view of Structure A-1. Black areas indicate architecture exposed during excavations.

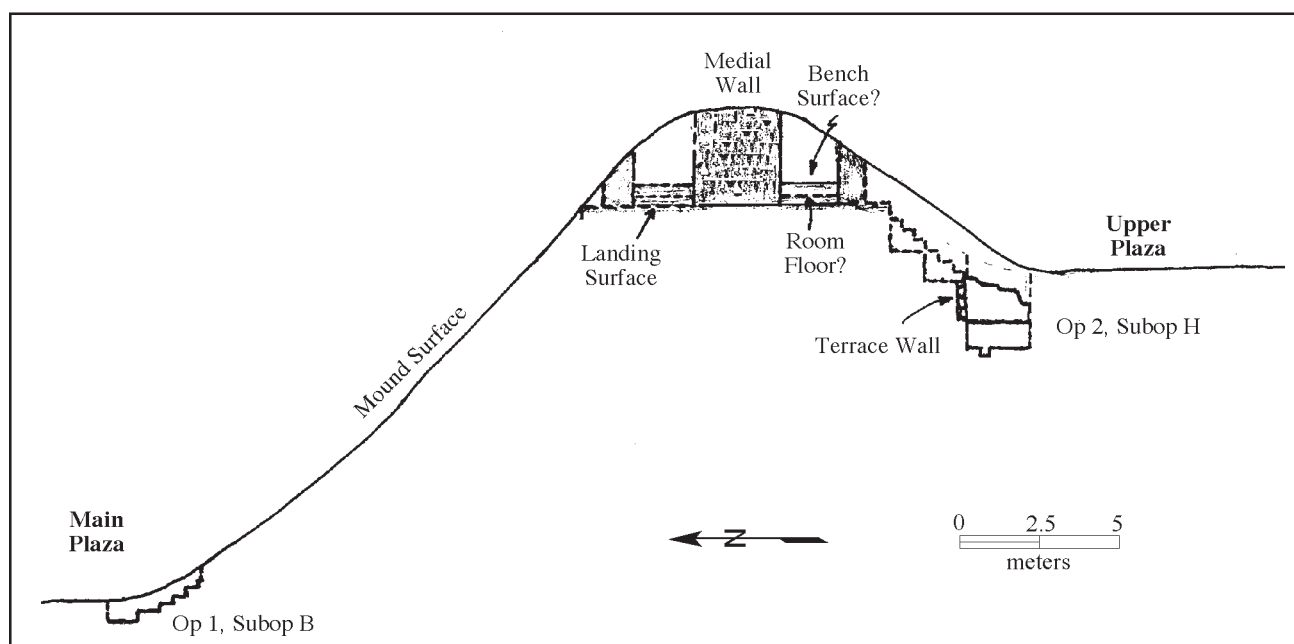


Figure 5.10. East cross-section of Structure A-1 based on 1997–1999 excavation data.

Discussion and Interpretations

Inspection of a map of Chan Chich indicates immediately that the juxtapositioned Upper and Main Plazas were the largest architectural complexes in this moderate-sized community. It also shows they were lo-

cated at the apparent spatial center of the site, implying that the two plazas constituted the political, economic, and religious heart of the ancient community.

Inspection of the two plazas themselves shows that they differ strikingly in their physical characteris-

tics. The quite large Main Plaza is open and accessible in its physical arrangement. It is situated at an elevation that is generally only slightly higher than the surrounding community on its eastern and western sides. It has two large *sacbeob*, or causeways, entering it from the east and the west that apparently served to facilitate the movement of people and material in and out of the plaza. Long multi-roomed range structures suitable for administrative activities occupy the Main Plaza's northern and southern edges. These characteristics point to the Main Plaza having served a public role in the operation of the community. The populace of the area would have periodically gathered there to conduct the various activities that would be expected in a community of this size within a state-level society such as that of the Classic Maya. These activities may have included market transactions involving exchange of goods and services (see Houk 2000 [this volume]), tax payments, dispute resolution, political speeches, and community level religious ceremonies. In the Main Plaza one would expect to have encountered people from many social classes and occupational specialties.

In contrast, the Upper Plaza was smaller in size and much less accessible, with the only obvious access route being from the Main Plaza through the landing passageway on Structure A-1. Situated ca. 7 m higher the Main Plaza, the Upper Plaza was dramatically higher, ca. 20 m, than the surrounding community areas to the east and west. With the forest largely cleared, as seems to have been the case during Classic times, the Upper Plaza would have been conspicuously visible from across the entire community. Even more prominent would have been Structure A-15, the tallest structure at Chan Chich, which rises precipitously from the south edge of the Upper Plaza. Ceremonies conducted on top of it would have been strikingly impressive and widely seen.

The above traits make it likely that the Upper Plaza was a restricted access area that served as the seat of political, religious, economic, and military leadership for the community, or possibly a larger polity. Did the ruler or other important elite people live on the Upper Plaza, or was it strictly a non-residential area where the elite conducted their affairs? A consideration of

what is now known about the structures on the Upper Plaza suggests an answer to this question.

Low, small remains on the Upper Plaza such as those designated Structures A-12, A-20, and A-22 may represent small structures, but they seem unlikely to represent elite living quarters. The two pyramids on the Upper Plaza are clearly not residential in function in their final configurations, and they probably served a combination of religious, commemorative, and funereal functions. Structure A-13 on the east side of the plaza does not seem large enough in either its ultimate (A-13N and A-13S), or penultimate (Structure A-13 Sub 1) configurations to have served as a significant elite, or royal residence, and it apparently had some other role. Structure A-1, the remaining significant structure on the Upper Plaza, is very large and has been demonstrated by the 1999 field work to have contained a substantial number of vaulted rooms that might constitute elite residential quarters. Half of the rooms there, however, face northward to the Main Plaza that, the evidence indicates, served a public function. It seems improbable that elite people would have lived in these rooms with so little privacy. Furthermore, general efficiency considerations suggest these rooms supported activities relating to the Main Plaza's public function. The greater probability is that these rooms served as interior space, or "offices", for bureaucrats of various sorts who interacted with the populace in the Main Plaza below and daily administered the "business" of the Chan Chich polity. Two of the remaining rooms in Structure A-1 (those at the center that are shown facing the landing in Figure 5-9) are hypothesized to have served functions relating to the comings and goings between the two plazas and would not be appropriate for residences. The remaining eight rooms in Structure A-1 face southward onto the Upper Plaza. If the Upper Plaza was indeed the place where the leadership of the community conducted its affairs, we would have to expect that some interior space on the Upper Plaza would have been dedicated to their specialized and critical activities, as well as to storage of royal and ritual paraphernalia, and possibly codices on a variety of subjects. The only apparent space available for these elite activities, and materials, would be in the south facing rooms of Structure A-1.

This analysis suggests that the entire Upper Plaza during the final stages of the community was non-residential in nature, implying that the rulership and elite of Chan Chich lived elsewhere. The Norman's Temple courtyard group (a good candidate for the royal residence), the Western Plaza, and the King's Tomb complex, and the B-3 and D-3 complexes, all appear to be, or contain elite residential facilities. Norman's Temple and the Western Plaza are both situated near an apparent opening or entrance to the Western Causeway and would have had easy access to the Main and Upper Plazas.

In summary, the archaeological data indicate that humans first occupied the Upper Plaza "hill" during the early part of the Middle Preclassic period and that these early pioneers were settled near the later locations of Structures A-1, A-13, and A-15, on the north, east and south sides of the hill. It is clear that subsequently the population grew, the site expanded outward, the society became more complex, and the Upper Plaza area grew in importance. A moderately large perishable structure of possible public function may have been present near the location of Structure A-1 as early as ca. 770 BC. By Late Preclassic times, Structure A-1 had a significant architectural presence. The evidence from Tomb 2 indicates the development of centralized leadership in the form of a male who wore an emblem implying his association with, and perhaps descent from, the sun deity. A small paper fragment with black and blue brush strokes on it found in the tomb suggests that some form of codex with writing or pictorial elements may have already been in use at Chan Chich by this early date. Whereas the 1997 field season data had suggested that there was little or no Early Classic period construction activity on the Upper Plaza, the data from the 1998 and 1999 seasons show that there indeed was some in the vicinity of Tomb 2. It seems clear that Structure A-1, the largest, and most centrally located structure at Chan Chich, took on its final form during the Late Classic, and that it was an exceedingly important structure in the functioning of the community at that time. Structure A-13N (and presumably A-13S) was constructed during the Late Classic to serve an undetermined function.

The lack of Postclassic period ceramics on the Upper Plaza signals the cessation of human activity on the

plaza, and the onset of the Maya Collapse in this area. While much has been learned about the Upper Plaza through three seasons of excavations, much remains to be discovered. The two large pyramidal structures on the plaza, A-15 and A-21, perhaps the most intriguing buildings at the site, are known only through inspection of looters' tunnels and trenches that penetrate them (Jellen 2000 [this volume]). It is apparent that several episodes of well-preserved earlier construction are buried under their outermost construction phases. Their histories, and what they inform about the Upper Plaza, remain for future work.

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Structure C-6: Excavation of an Elite Compound

Ellie Harrison

Setting

Plaza C-2, otherwise known as the Western Plaza, is located in Group C, west of the Chan Chich site center (Figure 6.1). The Western Plaza group is approximately 30 m south of the Western Causeway, one of two main sacbeob, or roads, that branch out to the east and west of the site core. A large depression, possibly a fresh water reservoir, is located about 70 m to the southeast of Plaza C-2. Its size, one of the largest in the site center, and location, proximate to Group C, suggest that this feature could have been used for fresh water collection by these nearby residents.

The Western Plaza is placed precisely at the interface between two different forest types: cohune palm forest and upland forest. These two forest types, noted in Figure 6.1, correspond with specific topographic changes. The plaza group is built up along the northeast side of a natural slope. The upland forest is located to the southwest of the plaza group where the hill ascends fairly steeply toward Norman's Temple Complex. The topography flattens out significantly to the north and east of the Western Plaza, where cohune palm forest occupies low-lying ground. The topography is nearly level for about 300 m to the north of the Western Plaza and then descends about 5 m in the direction of Group F. The low-lying environment runs fairly level to the east for approximately 175 m and then rises about 5 m to form the basal platform of Group A, which holds the royal elite buildings in the Main and Upper Plaza groups of Chan Chich.

Previous Excavation of Plaza C-2

Unfortunately, the first large-scale excavation to take place in Plaza C-2 was the looter's trench that effectively gutted Structure C-8, the east building within

the plaza group. Fortunately, no further looting has taken place within all of Group C, including Norman's Temple Complex about 125 m to the southwest.

In 1997, Richard Meadows (1998) led the first formal excavation in this area, a test-pitting program that included the placement of a 2-x-2-m unit (known as Operation 4 Suboperation C) in the western half of Plaza C-2 along its central axis (Figure 6.2). The Group C test-pitting program held two primary goals that were achieved, for the most part, during the 1997 season.

The first goal was to gather information that aided in establishing a preliminary, overall chronology of the site of Chan Chich. Test pitting determined that, while portions of the site's center were occupied from the Middle Preclassic to Late Classic period, Plaza C-2 appeared limited to only the Late Classic period (Meadows 1998). The excavation of Subop C revealed only a single plaza floor containing the associated remains of ballast and cobble fill layers. Bedrock lay directly beneath this floor construction approximately 100 cm below ground surface. Meadows (1998:65) argues:

The results of the excavation of Suboperation C support the contention that the chronology of occupation of the Western Plaza was of a limited duration. The discovery of bedrock at such a shallow depth also support a tentative conclusion that the courtyard group was built in a single construction episode, perhaps at the political apogee of the center itself.

Indeed, the ceramic material recovered in Subop C from Lot 2 appears to date the construction of the plaza floor firmly to the Late Classic period (Valdez 1998:83). However, Valdez (1998) notes that Tepeu 2-3 ceramic material was also found in Subop C in

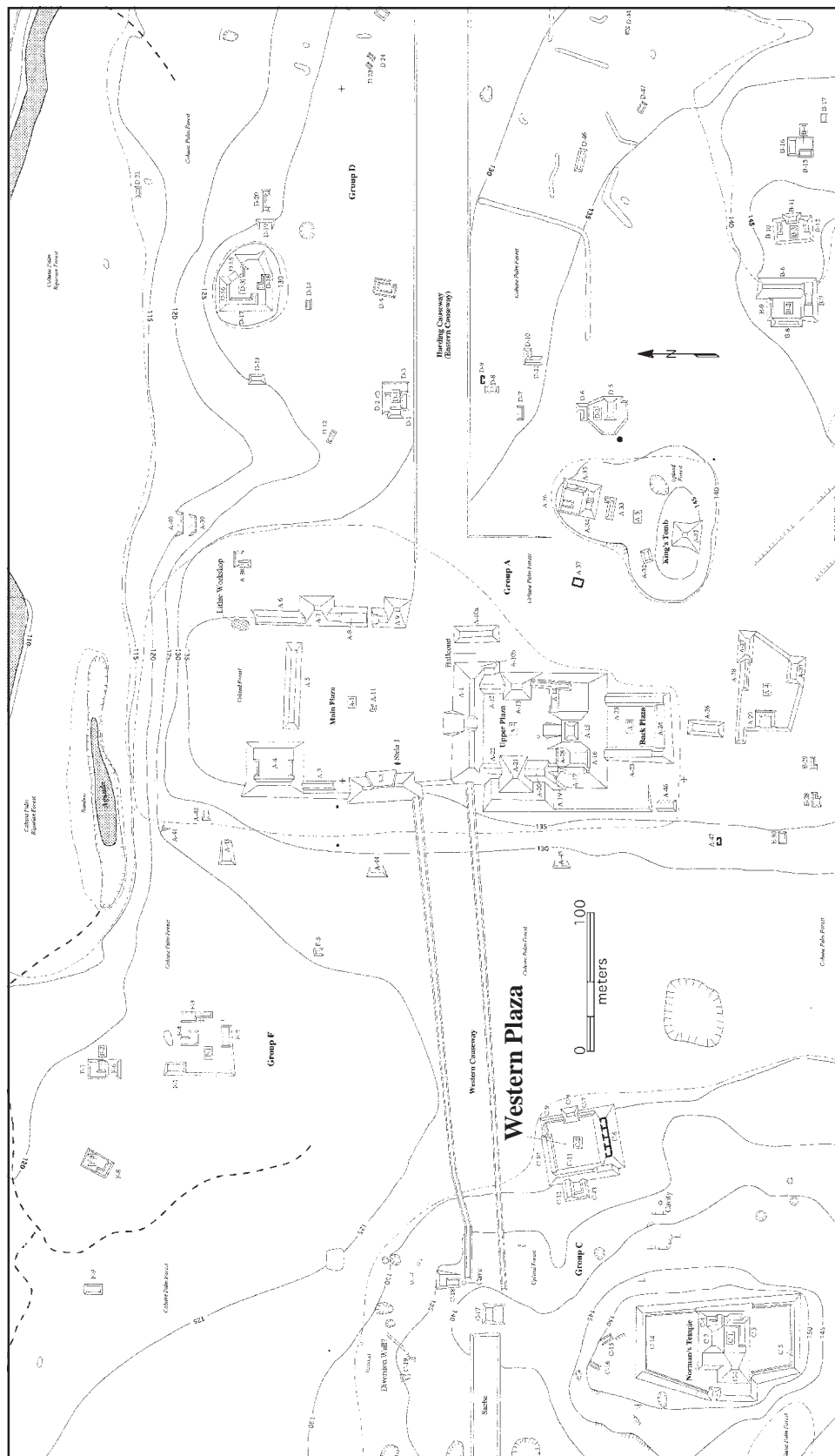


Figure 6.1. Map of Chan Chich site center showing location of the Western Plaza.

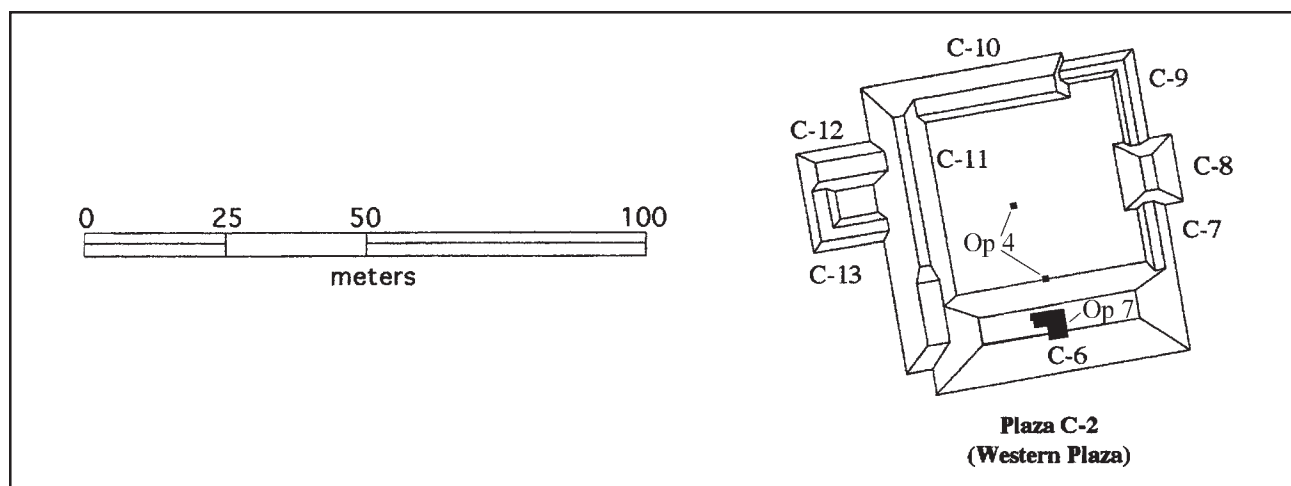


Figure 6.2. Placement of excavation units (Ops 4 and 7) in the Western Plaza.

Lot 1. He identifies two facets for the Late Classic ceramic complex and indicates that the later facet overlaps Tepeu 2 with types/attributes associated with Tepeu 3 (Valdez 1998:81). Although the overlapping attributes may indicate a subtle transitional phase at Chan Chich at the end of the Late Classic and beginning of the Terminal Classic period, Tepeu 3 is traditionally linked with the Terminal Classic period (Sabloff 1975:4). This evidence suggests the presence of a Terminal Classic occupation in the Western Plaza, that perhaps utilized the floor construction of the Late Classic period. Excavations from the 1999 season seemingly confirm this Terminal Classic occupation existing in the Western Plaza, possibly extending the length of occupation in this plaza group beyond what Meadows (1998) and Valdez (1998) postulate in the 1997 report.

The plaza floor surface in the Western Plaza was severely eroded, perhaps exposed to “dynamic hydrological processes” (Meadows 1998:6), and therefore bared little artifactual material *in situ*. This impacted the second research goal expressed by Meadows (1998), which included an examination of the extent and depth of cultural material located directly on top of ancient plaza floors in an attempt to better understand plaza floor activity at or just prior to abandonment. Subop C offered a disturbed context and, thus, a minimal interpretation of plaza floor activity in the Western plaza. This particular goal was more effectively reached with the Group C test-pitting excava-

tions in Norman’s Temple Complex (see Meadows 1998:60–64).

Additional excavation of the Western Plaza continued during the 1998 field season with a similar goal in mind: to clarify plaza activity at or just prior to abandonment. Amy Rush led the excavation of a 2-x-2-m unit (known as Operation 4, Suboperation D) placed at the base of Structure C-6 along the northern edge of the building, the side that faces into the plaza. The unit, located on the building’s central axis, aimed to expose a plaza floor and central staircase leading up to the rooms of Structure C-6. Subop D recovered a high density of ceramics, the majority of which were found on the bottom step and eroded plaza surface (see Ford and Rush, this volume). Somewhat similar deposits consisting of large ceramic scatters were found deposited along the steps of Structures C-1 and C-2 in Norman’s Temple Complex (Meadows 1998; Ford and Rush, this volume).

Houk (personal communication 1999) suggests that these deposits covering the buildings of Group C may be the results of an aggressive act on the part of non-elites in an effort to overthrow or drive out the ruling elites at Chan Chich during this time. He argues that evidence of burning in plaza groups at the time of abandonment would further support this theory of purposeful defacement on the part of non-elites. Alternatively, it is possible that these midden-like deposits are the remains of termination rituals performed by the elite inhabitants of Group C to demarcate and ritually de-

activate a space at the end of its use (see Freidel and Schele 1989; Mock 1998). A third possibility is that these concentrations of artifacts were part of a clean-up effort taking place in antiquity, perhaps during a later re-occupation of the area. These theories are discussed below with regard to the finds of the 1999 excavations in the Western Plaza group.

The 1999 Excavations

Field work in the Western Plaza during the 1999 season entailed the partial clearing and excavation of Structure C-6 (Figure 6.3), a range structure positioned on the south side of the plaza courtyard. Plaza C-2 is not aligned in exact cardinal direction, rather, the north-south axis runs roughly 40 degrees west of north. Plaza C-2 is an enclosed courtyard space circumscribed by four long platforms that support several buildings. The elite residential space is effectively restricted and made private by this enclosed platform configuration, typical of Late Classic architecture. A significantly smaller courtyard is located adjacent to the western side of Structure C-11 and is clearly associated with the building, yet may be evidence of later modification and occupation within the plaza. This evidently important structure, comparable in size to Structure C-6, and adjunct courtyard remain unexcavated and will perhaps be the focus of future investigations.

The excavations of Structure C-6 performed during the 1999 field season were designated Operation 7 (see Figure 6.2). Suboperations A through E were completed during this season and are described in greater detail below. The original map of Plaza C-2 indicates that Structure C-6 is a range structure that contains four rooms. The structure is approximately 20 m wide (north-south) and 50 m long (east-west), extending the length of the plaza. Excavations this season revealed that the elongated platform may actually consist of only one large central room, flanked on either side by elevated, exterior platform or patio space (refer to Figure 6.3). Further investigation in future seasons should confirm the proposed layout of this particularly important elite structure.

The excavations performed on Structure C-6 in the Western Plaza during the 1999 field season held three main objectives:

- 1) To understand better the length of occupation in the Western Plaza by investigating the construction phases and associated deposits of one of its largest buildings, Structure C-6.
- 2) To uncover *in situ* deposits and architectural elements within Structure C-6 that offer insight into the building's function

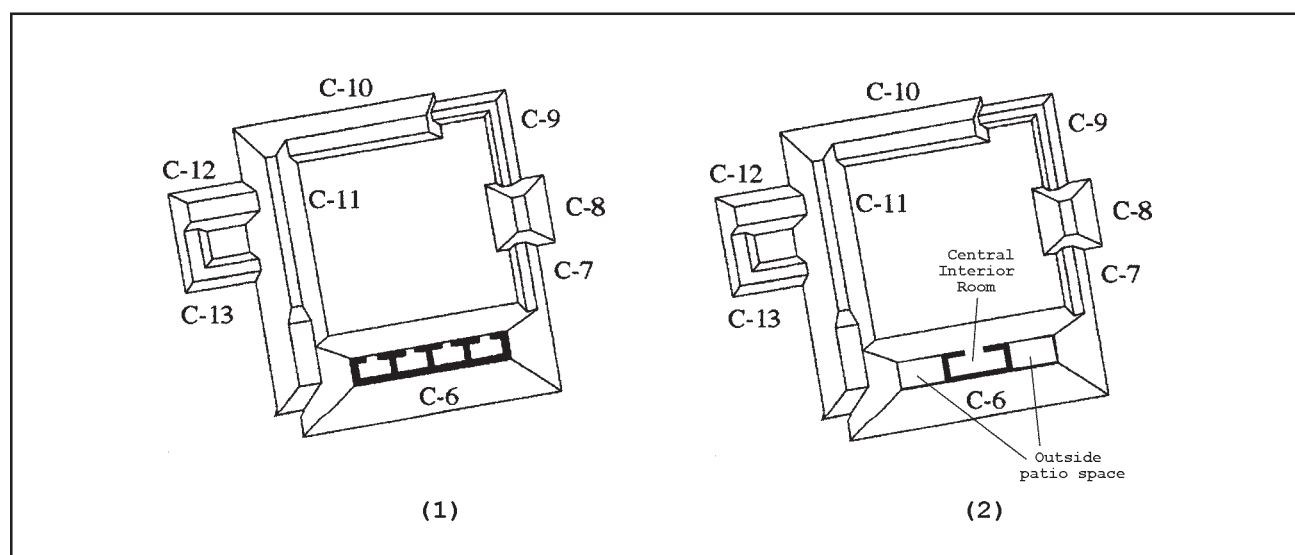


Figure 6.3. Structure C-6, Western Plaza. 1: map based on 1996 survey; 2: reconstruction based on 1999 excavation data.

or functions and to identify any change in function(s) over time.

- 3) To define spatial, temporal, and functional inter-relationships between the Western Plaza and other areas of the site core, including the Upper Plaza and Norman's Temple Complex, and identify how they may correspond to the potential impacts of larger inter-site relationships.

Methods

Excavations in the Western Plaza were executed over a month-long season and involved intensive investigation of the center and western half of Structure C-6. Large, horizontal exposure was critical for meeting the three aforementioned objectives, especially the first two. Operation 7 consisted of five suboperations (A–E) that covered an area roughly 5 x 4.5 m (see Figure 6.2). Fifty percent of all soil excavated was screened through 1/4-inch screen, with the exception of 5–10 cm of matrix lying directly above plaster floors. In these cases, 100 percent screening was undertaken to recover all artifacts associated with floor surfaces. Picks and shovels were used in the excavation of collapse debris (which was over 2 m deep on average) that overlay the architecture. Trowels (and dental tools when necessary) were utilized to define the surface of architecture and *in situ* deposits.

With these methods and objectives in mind, the following presents an overview of the excavation of Operation 7 (Figure 6.4) and an interpretation of the data retrieved. A detailed description of each suboperation is included, along with an explanation of how these units of excavation relate to one another.

Suboperation A

Suboperation A was a 2.5-x-2.5-m unit on the top of Structure C-6, positioned just west of building's central axis (see Figure 6.2). A hump in the surface topography along the eastern side of the unit was indicative of a wall, and it was assumed that rooms would be found to the east and west of this wall. The pur-

pose of Suboperation A was to determine the layout, size, and function of the space to the west of this wall.

Suboperation A contained a humic layer about 5 to 10 cm in depth (Lot A-1). Below it was a thick deposit of collapse debris ca. 2 m deep (Lots A-2 through Lots A-6). At approximately 100 cm below ground surface, the collapse debris contained significantly larger, cut limestone blocks. This logically indicated that larger, plastered facing stones of a retaining wall collapsed first, followed by smaller limestone cobbles that formed the interior construction fill of the wall.

At the base of Lot A-2, a retaining wall (referred to here as Lot A-7/11) running roughly north-south was identified. The retaining wall bisected the unit and interfaced a perpendicular east-west wall (Lot A-8) running along the southern edge of the unit (Figure 6.5). Both walls were preserved to about 180 cm in height with patches of plaster facing covering less than half of each wall surface. An area designated "Room 1" stood to the west of the Lot A-7/11 wall and to the east of it was "Room 2" (Figure 6.6). A rectilinear enigmatic architectural feature was found in the southeast corner of the unit adjacent to the east side of the Lot A-7/11 wall located inside Room 2 (Figure 6.7). Only a small portion of the interior of Room 2 was exposed in the northeast corner of Subop A. A greater portion of Room 2 was exposed in Subop B (described in greater detail below).

The rectilinear architectural feature (Figure 6.7) remains somewhat of an elusive construction, however it is theorized that the feature was a construction that served as the foundation wall for a vaulted roof that covered Room 2. Lots A-12 through 18 consisted of excavations focused in the southwestern corner of the architectural feature. The sole purpose of this 130-x-120-cm test unit was to understand better the construction and function of this architectural feature that appeared to be a later building modification. The rectangular feature is approximately 160 cm wide (north-south) and 240 cm long (east-west), and extends east into Subop B. Excavations in Suboperations A and B exposed three faced walls (Figures 6.8 and 6.9), with a fourth wall that was not faced, but contained construction fill neatly stacked against the eastern side of the aforementioned Lot A-7/11 retaining wall. This

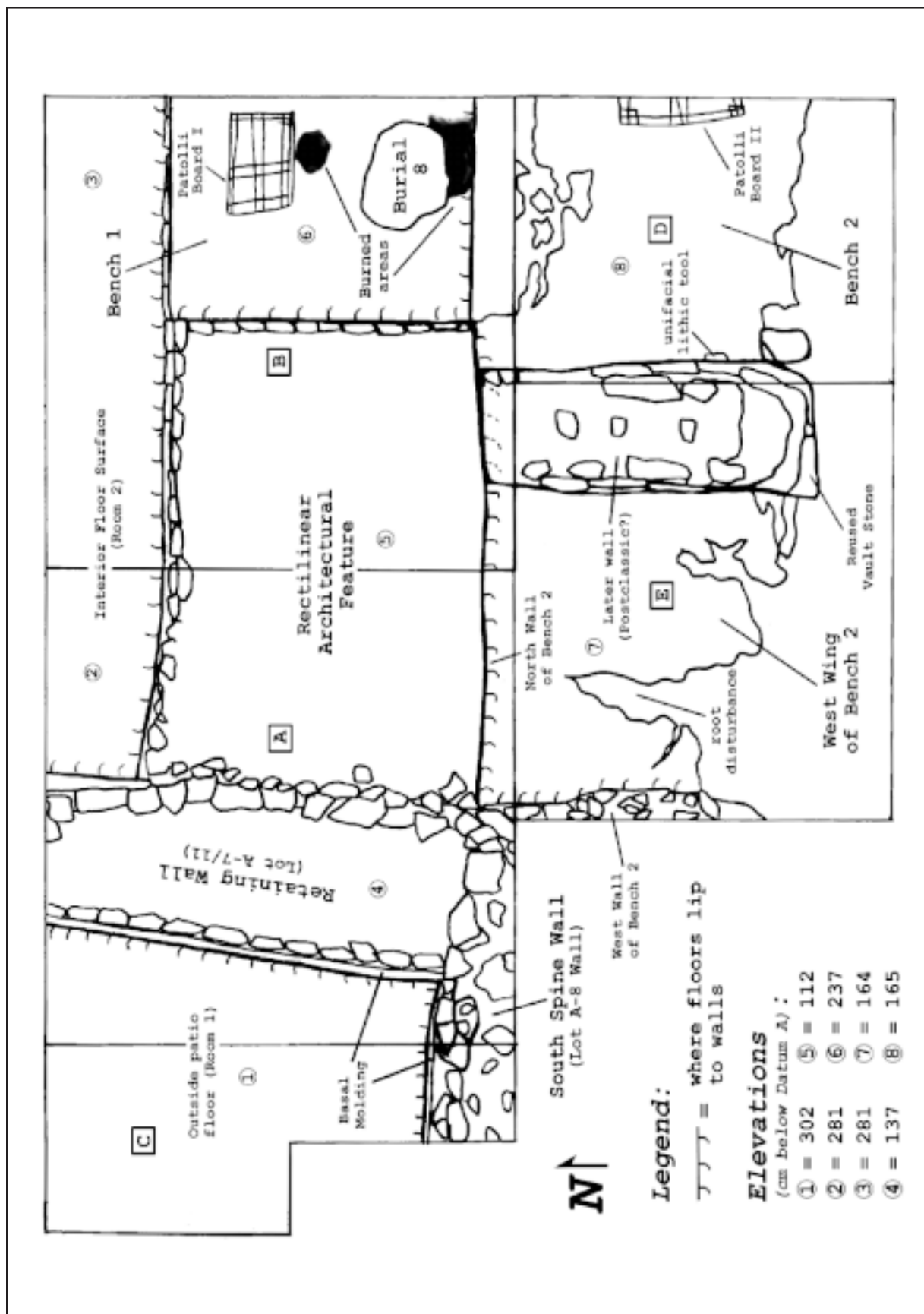


Figure 6.4. Planview of excavations at Operation 7, Subops A-E.



Figure 6.5. *Photograph of walls encountered in Subop A, facing east. The north-south wall is Lot A-7/11, and the east-west wall is Lot A-8.*

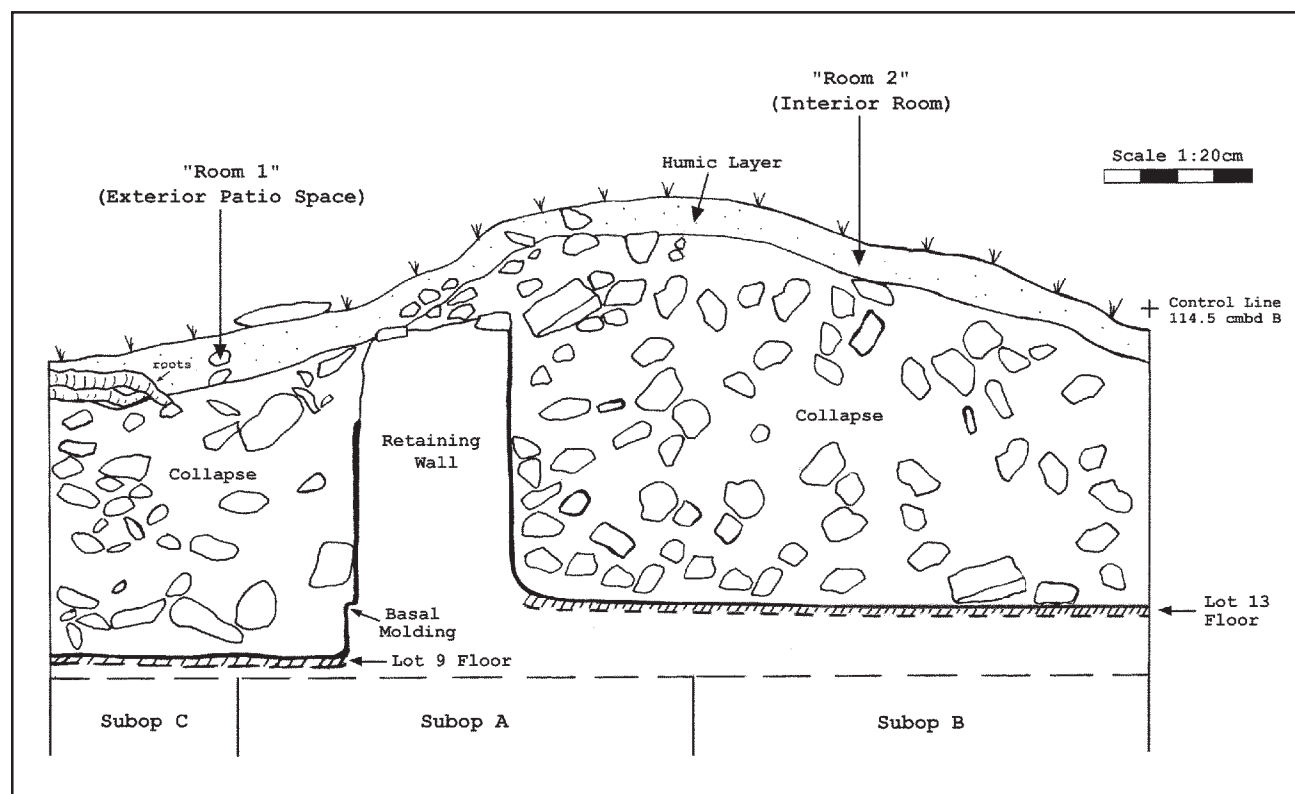


Figure 6.6. *North cross-section of Op 7, Subops C, A, and B. Note exterior and interior floor surfaces lipping up to each side of the retaining wall.*

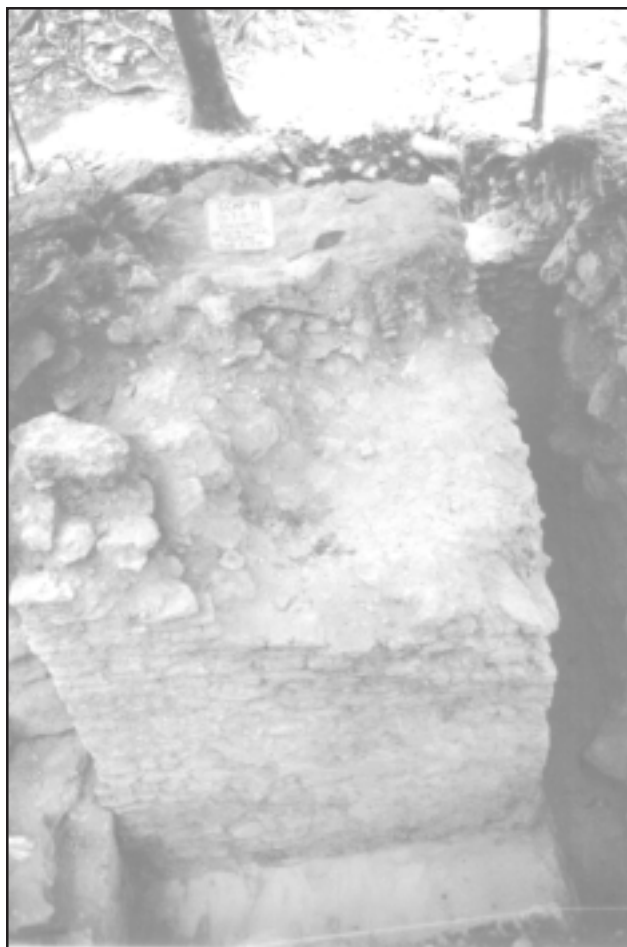
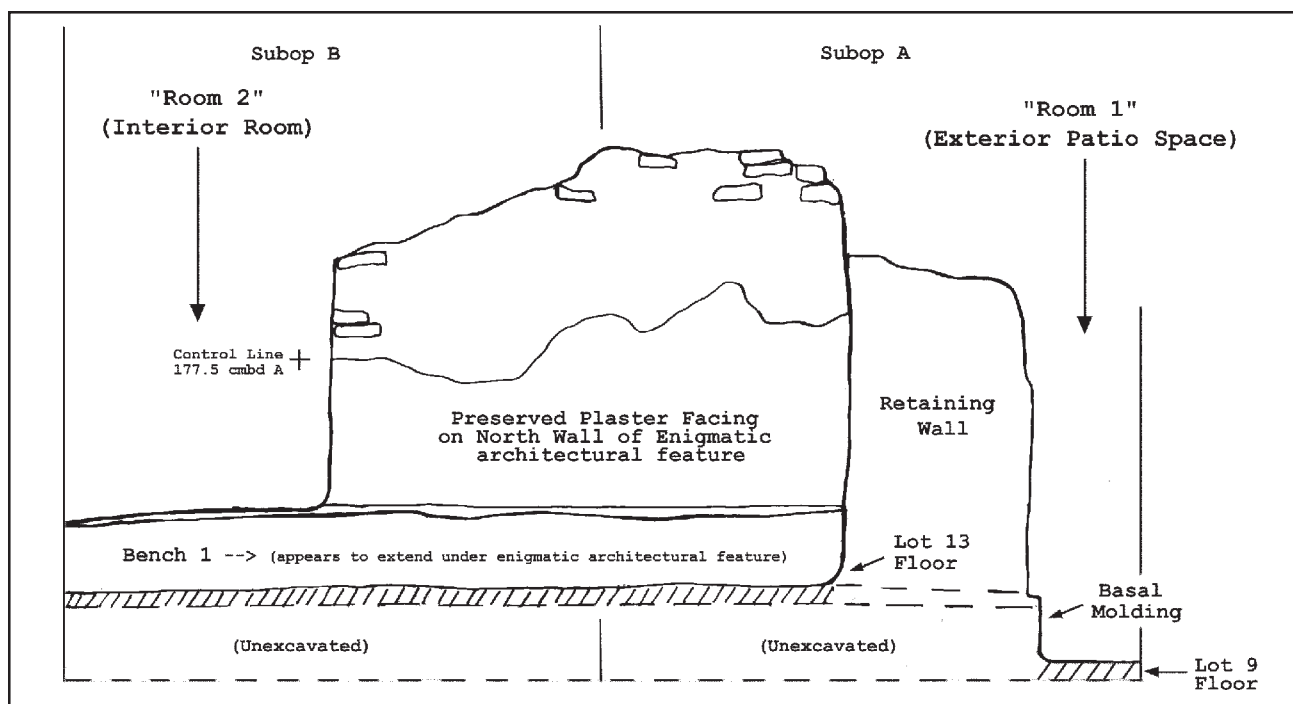


Figure 6.7. *Photograph of enigmatic architectural feature in Room 2.*

Figure 6.8. *Cross-section of north wall of enigmatic architectural feature and retaining wall. Note Bench 1 and floors in Room 1 and Room 2 in Op 7, Subops A and B.*



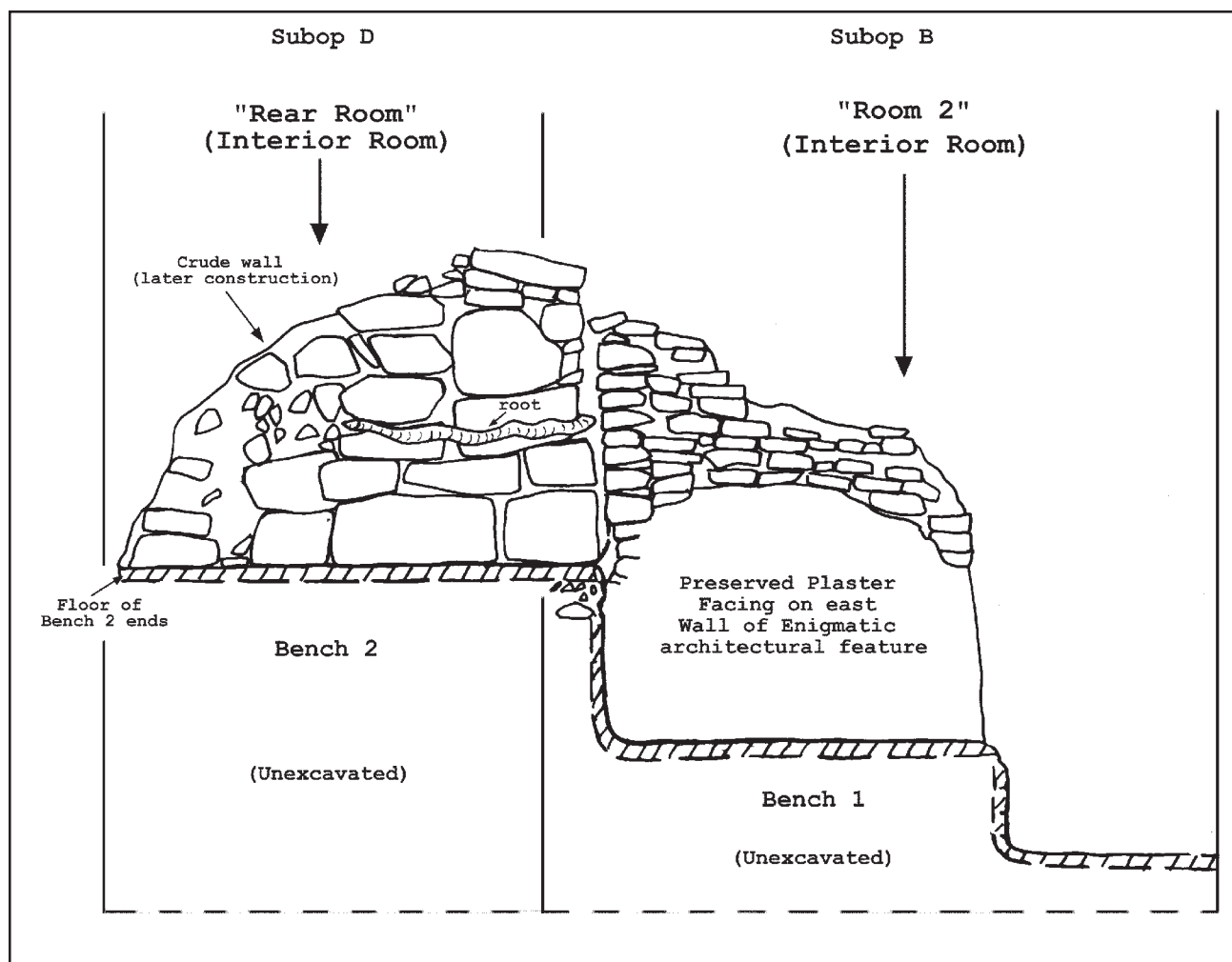


Figure 6.9. Cross-section of east wall of enigmatic architectural feature. Note crude wall of later construction episode (Early Postclassic?) and Benches 1 and 2 in Op 7, Subops D and B.

appears to confirm that the feature post-dates the original construction of Structure C-6. Collapsed vault stones indicate that Room 2 was vaulted prior to the collapse of the building. Although the entirety of Room 2 was not exposed during this season, excavations revealed that the width of the original room size may have exceeded the necessary width for creating a corbel vault (2.5 to 3 m is the maximum width allowed). The construction of this large rectilinear block, consisting of small faced stones retaining stacked cobble and wet-laid plaster fill, effectively reduced the size of interior space perhaps in an effort to create the necessary width for a corbel vault.

While collapsed vault stones were identified inside Room 2 within the northeast corner of Subop A, they were not found in Room 1. Additionally, a basal mold-

ing about 20 cm in height, that is a typical decorative accoutrement of an exterior or outside wall, was only encountered in Room 1 at the base of the walls (see Figure 6.5). Furthermore, fragments of red painted plaster indicative of an interior space were observed exclusively in the collapse debris of Room 2. Arguably, the presence of a basal molding and lack of vault stones and painted plaster suggest that Room 1 was not an interior room, but was rather an outside patio space adjacent to Room 2. The evidence presented thus far begins a painting of a very different picture of Structure C-6 than appears on the original site map of the Western Plaza (see Figure 6.3).

Interestingly, the highest concentration of artifacts was recovered in the exterior patio space, directly above the plaster floor in Room 1 (Figure 6.10). The artifact



Figure 6.10. *Photograph of artifact concentration above plaster floor in Room 1.*

assemblage, including debitage, chipped stone tools, several fragments of worked marine shell, and at least two partially reconstructable vessels, rested above the plaster floor on less than 5 cm of fine collapse debris. The concentration of artifacts (see Figure 6.16), primarily elite items, may indicate violent abandonment or ceremonial smashing in an effort to ritually deactivate the space prior to abandonment. If either was the case, one would assume to find a similar concentration in the interior space of Room 2. On the contrary, Room 2 was relatively devoid of artifacts right above the floor surface. Therefore, it seems more likely that the concentration of artifacts found in Room 1 were the result of a later clean-up activity taking place some time after abandonment when an initial humic layer had accumulated on the plaster floor. Further supporting evidence for a later re-occupation in Structure C-6 is presented below.

Suboperation B

While excavations in Subop A seemingly confirm that Room 1 was an outside patio space, excavations in Subop B indicate Room 2 was an interior space with painted red walls and a low bench and floor surface that was perhaps vaulted during a later construction episode. The purpose of Subop B was to focus east of the Lot A-7/11 retaining wall and determine the origi-

nal layout, size, and function of Room 2, as well as record any later modification(s) that may have occurred.

Subop B was a 2.5-x-2.5-m unit positioned roughly on the building's central axis, directly east of Subop A (see Figure 6.2). As noted above, a hump in the surface topography was indicative of a wall that separated two so-called rooms, as well as a large rectilinear architectural feature to the east of the wall whose north and south sides were exposed in Subop B (see Figures 6.8 and 6.9). The two faced walls of the rectilinear architectural feature were preserved roughly 190 cm in height with patches of plaster facing intact about 100 cm up from the floor surface. Red painted plaster found in the surrounding collapse indicates that

these walls were once painted. The rectilinear architectural construction was built over the western portion of a large bench that appears to have originally extended the length of Room 2 (refer to Figure 6.8). This construction sequence substantiates that the rectilinear feature was a later architectural modification to Room 2.

Subop B contained a humic layer about 5 to 10 cm in depth (Lot B-1), and below it was a thick deposit of collapse debris ca. 2 m deep (Lots B-2 through Lots B-5). Collapse debris contained a similar stratified matrix found in Lots A-1 through A-6, with smaller limestone cobbles in the first 100 cm followed by larger, cut stones. Artifacts were found throughout the collapse debris, but a concentration of cultural material like the one found in Suboperation A was not identified directly above the floor and bench floor surface.

One of the most significant architectural features found in Room 2 was a low bench 1.60 m in width and 20 cm higher than the floor level (Figure 6.11). Although the bench surface contained little to no *in situ* cultural material on its surface, it held several notable features, including a *patolli* board and a single burial with an associated burned area (see Figure 6.4). These features help to define not only the function, but also the layout and size of this important elite interior space.



Figure 6.11. *Photograph of Bench 1 in Room 2, Op 7, Subop B.*

Although the full length of Room 2 was not exposed during the 1999 season, all three features were positioned on roughly the same east-west alignment and, arguably, were placed along the room's central axis, just centimeters from where the east wall of the excavation unit ended. Additionally, these features in relation to the topography of the mound, which appears perfectly symmetrical in its humps and depressions, support the notion of a central placement. Therefore, an estimation of the total length of the central room (Room 2) is conceivable (refer to Figure 6.3). The length from the center of these three features, namely the center of the burial cut, to the far west retaining wall (Lot **A-7/11**) is 3.30 m (excluding for now the rectilinear architectural feature). Doubling this number gives a total original room length of 6.60 m. The total width of the central room including the bench and floor surface to the north

remains unknown, but the slope of the mound to the north where the floor surface remains unexcavated indicates that it probably does not exceed 4 m in total width.

Assuming symmetrical construction and looking again at the surface topography, there is more than likely another identical rectilinear architectural feature buried 1.60 m to the east of the one exposed in Suboperations A and B. If so, the original interior space was drastically reduced in size by more than two thirds with the construction of these two architectural elements that, as noted, may have facilitated the vaulting of this central room. The large space was not only considerably diminished, the low bench was effectively "nicked" by this later construction episode. Perhaps the building modification was part of an effort to create a more private space in the Western Plaza, typical of Late Classic architecture, and also offered some element of mystique for the elite personage inside.

Some scholars (Hendon 1989, 1991) argue that certain criteria, including low or non-existent benches, caches or burials, and lack of associated middens signify a ritual, rather than residential function for a building. Clearly, Structure C-6 has all the right criteria, but it does not rule out the possibility of dual functionality. However, the significant reduction in room size (barely room enough for one or two individuals to conceivably sleep in an extended position on the low bench) and the associated deposits that are clearly ritual in nature pose a strong argument in favor of a primarily ceremonial function for Structure C-6. The evidence presented below suggests that the burial deposit and burned area, coupled with the building of the rectilinear architectural feature, occurred later in the building's history and reflect a possible change in the function of Structure C-6 from a primarily residential to ceremonial space near the end of the Late Classic.

The rectangular-shaped *patolli* board, located in what appears to be the center of Room 2, is the only element found on the bench surface that may be associated with the original Late Classic construction. It begins 30 cm from the northern edge of the bench and extends width-wise about 30 cm further to the south. The fairly eroded design runs on an east-west axis ap-

proximately 50 cm across (refer to Figure 6.4). Scholars have proposed various functions for *patolli* boards, ranging from informal board games to elements of divination ritual. The boards vary in form and perhaps reflect different function, but stylistic differences do not appear to be regional expressions. For instance, two *patolli* boards that differ considerably in form were found in two different rooms within the same plaza group at the site of Xunantunich (see Church 1996). However, whether variation in form and function changes through time and space continues to evade archaeologists. The difficulty lies in definitively linking a *patolli* board with a particular construction phase and specific time period.

In the case of Room 2 in Structure C-6 at Chan Chich, the *patolli* design could have feasibly been etched any time after the latest floor plastering. Although the latest floor lips up to the faced walls of the rectilinear architectural feature, presumably built some time after the initial construction, the entire floor may not have been re-surfaced at this time. The faintness of the design leads one to believe that the board pre-dates later construction and was more than likely created soon after the original construction was complete. Another *patolli* board (see Subop D below) found in an elevated floor surface just to the south offers a comparison in the degree of preservation within this same locale. The second board is considerably better preserved and supports the argument of a significant age differential between the two.

Although no excavation this season penetrated the original building construction of Str. C-6, the wealth of Late Classic sherds recovered from the building's surface this season and the season before (see Ford and Rush, this volume) suggest that the structure was utilized and most likely built during this time. In addition, excavations dug into the plaza floor (Meadows 1998) indicate that the construction took place during the Late Classic period, perhaps at the same time Structure C-6 was built. However, I argue that the *patolli* board dates to the Late Classic period, while the other two features (Burial 8 and an associated burned area) found on the same bench surface in Room 2 may have been deposited somewhat later.

Based on a ceramic vessel found in Burial 8 that dates solidly to the Terminal Classic period (Tepeu 3), the burial deposit and associated burned area indicate that following the Late Classic period there was a significant Terminal Classic occupation in the Western Plaza. Future ceramic analysis of the sherds found in the rectilinear architectural feature will perhaps confirm whether this feature pre-dates or is coeval with the burial deposit. Either way, both provide important clues and a context in which to review functional change taking place over time in Structure C-6 within the Western Plaza.

There is a clear indication of a discrete burning activity that took place prior to the digging of the burial pit in Room 2. This burning event was performed directly above the burial cut, which is 90 cm in diameter at the floor level. The concentration of blackened plaster was partially cut into and redeposited within the fill of the burial pit. An abundance of charcoal was found in the fill of the pit that, if tested, could not only supply a more absolute date for the mortuary deposit and burning event, but also reveal what organic material was burned presumably as part of a ritual ceremony that took place prior to the individual's interment. Glyphic inscriptions often mention the burning of copal and ritual censuring in association with mortuary activity. No doubt this burning event was part of a similar activity, documented in text as an event performed by and for elite individuals.

The roughly circular burial cut was situated on the rear portion of the bench surface, beginning approximately 100 cm south of its northern edge (Figure 6.12). The diameter of the cut at floor level running north-south was roughly 45 cm and the diameter east-west was about 55 cm. The burial pit extended approximately 70 cm in depth and at about 40 cm down widened to about 85 cm in diameter. The burial was initially recognized on the surface by a small hole that damaged a portion of the burial cut in the plaster floor of the bench, revealing a semi-hollow chamber below. The first 50 cm of the pit contained dry core fill with a matrix consisting of primarily loose chert cobbles with very little dirt. The base of the pit was filled with soil that presumably accumulated there over time.



Figure 6.12. *Burial cut in bench surface in Room 2.*

The body was placed at the bottom of the pit in a tightly flexed position. The majority of bone (80–90 percent) was found roughly 55 cm below the plaster floor surface where it was better preserved due to a 20 cm layer of dirt (Figure 6.13). The individual was perhaps bundled, allowing for a small pit opening, and interred with a simple collection of grave goods. Skull fragments were found in the southwestern corner of the pit feature with the knees brought up close to the face and arms wrapped around the legs, with the hands and feet found in and around a small vessel in the southeastern corner of the pit. The articulated positioning of the legs, ribs, vertebrae, feet, and hands substantiate a primary interment buried shortly after death in a tightly flexed position. Analysis of the bone suggested that the individual was most likely a large adult male over 30–40 years of age (Frank and Julie Saul, personal communication 1999). The robusticity of the bone was suggestive of a male and evidence of mar-

ginal lipping on the patella and vertebrae bones was indicative of arthritis, typically an elderly affliction.

Associated grave goods included a small black-slipped vessel containing anthropomorphic features identified in the southeastern corner of the pit (Figure 6.14). The vessel was placed in the pit prior to the individual because pedal and finger bones rested in and around the small bowl. The vessel matches one found at Uaxactun that dates to the Terminal Classic period (Tepeu 3) (Smith 1955a). In addition, two small, almost identical discoid-shaped shell blanks approximately 1.6 cm in diameter were recovered from the burial pit. One was found proximate to the individual's jaw (possibly placed in the person's mouth) and the other was found near the feet and hands (possibly placed in the person's hands). The function of these shell blanks remains unclear, but it is theorized that they may have been game pieces perhaps affiliated with the *patolli* boards found within Structure C-6. It is possible that there were more pieces made of perishable material that have since deteriorated. Needless to say, the burial is relatively simple in both its configuration and artifactual material. However, the positioning of the burial pit on the central axis of this monumental structure and the apparent age of the individual suggest that this senior person held a relatively important elite role within the community of Chan Chich. The scarcity of associated grave goods could be a reflection of the dwindling power and prestige held by the elite members of society during the Terminal Classic period. Nonetheless, the evidence support Masson's (1993:2) statement "that while material forms of religious expression may be altered over time, their meaning and function are fundamentally reproduced in a conscious effort to maintain ties to the past."

Ritual behavior reflected in Burial 8 contain critical elements of an imbedded cultural tradition, albeit significantly simplified in comparison to earlier elite burials found at Chan Chich (see the 1997 report on the Protoclassic tomb found in the Upper Plaza at Chan Chich, Robichaux [1998]). Ancestral veneration manifest through mortuary behavior was an important part of ideology that was a focus of Maya ritual for thousands of years (McAnany 1995). Although we may never know, it is possible that Burial 8 represents the last formal elite burial (and final ruling elite member?)

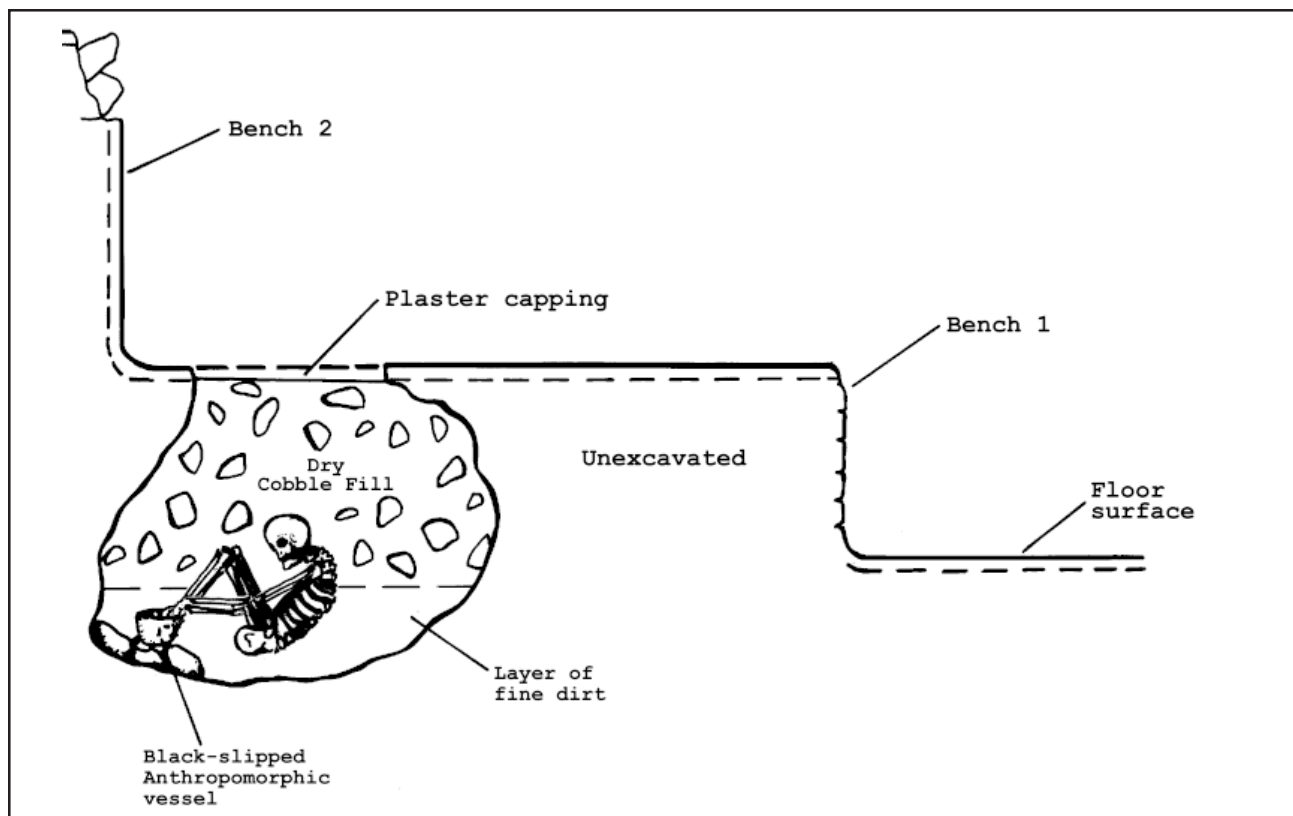


Figure 6.13. *Idealized cross-section of Burial 8, Op 7, Subop B.*

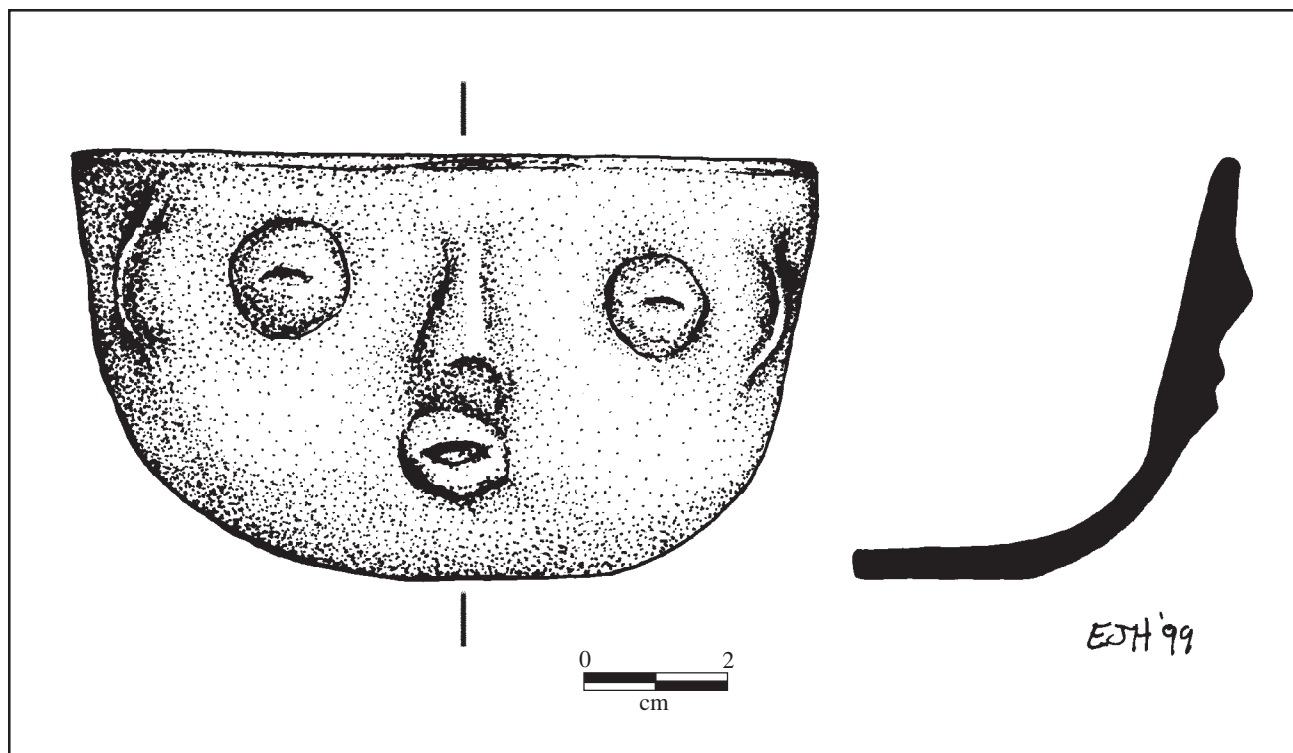


Figure 6.14. *Anthropomorphic vessel from Burial 8, Op 7, Subop B.* Illustration by Ellie Harrison.

of the Western Plaza prior to its elite abandonment sometime during the Terminal Classic period.

Suboperation C

Subop C was an L-shaped unit directly west of Subop A (see Figure 6.2). The unit was 2.5 m long (north-south). The width of the south side of the unit was only 0.50 m, but then widened to 1 m at 1.20 m to the north. The east-west width on the south end of the unit was restricted due to tree growth. The purpose of Subop C was to expand the excavation to the west of Subop A and expose more of the floor space in an attempt to better understand the layout, size, and function of Room 1 (Figure 6.15).

Subop C contained a stratified matrix of mostly collapse debris that was nearly identical to that in Subop

A. The east-west wall (Lot A-8) found running along the southern edge of Subop A continued to the west in Subop C, here designated Lot C-7. As in Subop A, the south wall was preserved to about 180 cm in height and contained patches of plaster facing on less than half of wall's surface.

The unit entailed excavating approximately 2 m of collapse debris before finding a plaster floor surface. The same artifact concentration noted about 5 cm above the floor in Subop A extended west into Subop C. A high density of ceramic was recovered, as well as several marine shell fragments that connected to pieces found in the Subop A debris. Two finely crafted bifaces, one distal end and one complete point, were also found above the floor surface in Subop C (Figure 6.16). Both were made from fine, dark brown chert that was more than likely imported. The chert found from around Chan Chich is typically white in color

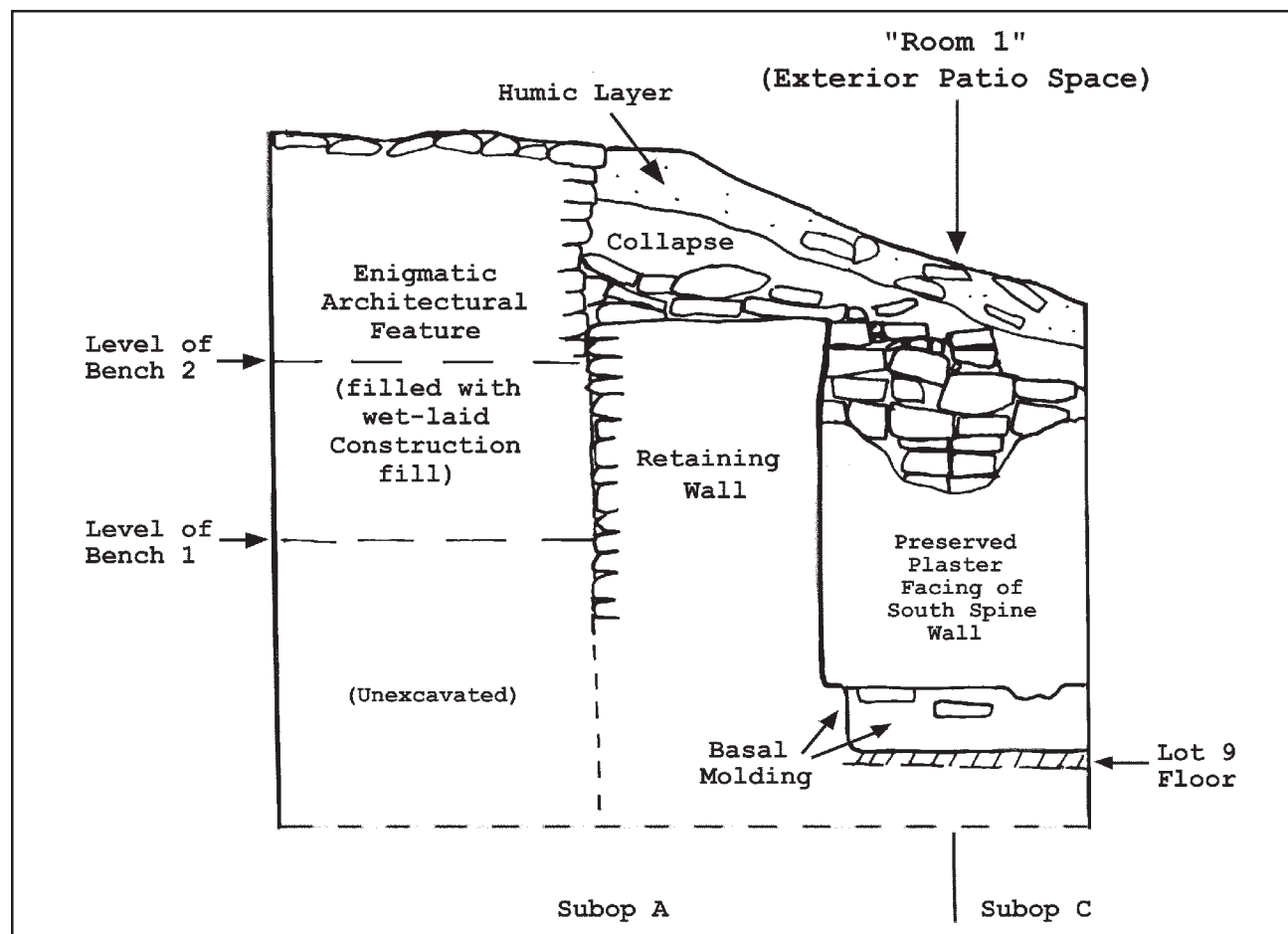


Figure 6.15 South cross-section of Op 7, Subops A and C. Note enigmatic architectural feature, retaining wall, and the levels of Benches 1 and 2.

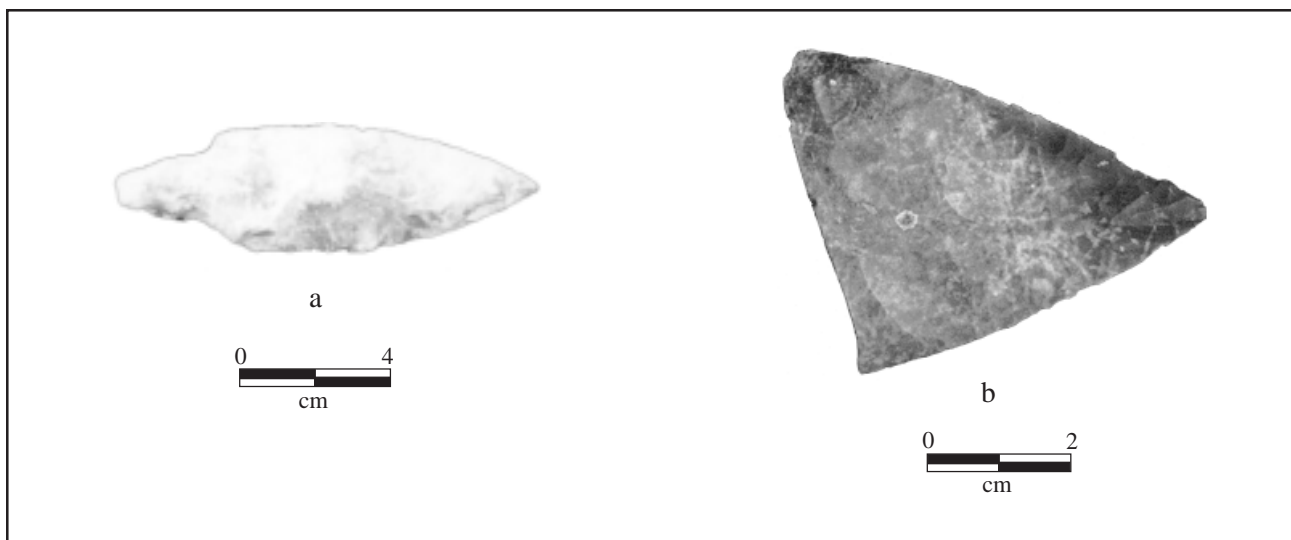


Figure 6.16. *Bifaces from Subop C. a: complete projectile point; b: distal end of thin biface.*

with a coarse, grainy texture and is considered poor lithic tool material. Quality of artifactual material found in Suboperation C is consistent with Subop A, finely-made elite items perhaps swept here during a later clean-up effort when Structure C-6 was re-occupied (see below).

Suboperation D

Subop D was a 1.5-x-2-m unit located directly south of Subop B (see Figure 6.2). The purpose of excavation was to determine the layout, size, and function of an elevated plaster surface located along the southern edge of Structure C-6 and whether the area contained evidence of later building modification. The excavation revealed an important architectural change that involved not only the vaulting of Room 2, but also the possible addition of a secondary rear bench on the south side of Room 2. In addition, architectural finds support the notion that the Western Plaza, at least along the southern edge of Structure C-6, was re-occupied post (Terminal Classic) abandonment.

The low bench found in Room 2 (Subop B) extended 1.60 m to the south before it lipped up to what initially appeared to be a back south wall. This south wall was problematic for several reasons. Foremost, at 75 cm in height the wall ended fairly abruptly and at the same elevation just centimeters to the south (in Subop D) a plaster floor (Lot **D-4**) emerged (Figure 6.17). It was



Figure 6.17. *Plaster floor (Bench 2) above Bench 1, uncovered in Subop D*

hypothesized that this surface could have once been part of a terrace or rear room running along the south side of the structure. However, with the exception of scars in the plaster there was little else remaining that would indicate a south wall which would have separated Room 2 from a south terrace or rear room. In addition, the elevated floor surface did not show any evidence of lipping up to where the south wall would have existed.

It is possible that a south spine wall once existed across the back of Room 2, but was purposefully removed when the rectilinear architectural features were added adjacent to the elevated plaster platform surface. This rear elevated surface clearly lips up to the south-faced wall of the rectilinear construction, clearly evident in Suboperations A and E (Figure 6.18). This evidence suggests that at least the final plastering event on this

rear, elevated surface was a later modification, contemporaneous with or post-dating the construction of the rectilinear architectural features. In addition, a well-preserved *patolli* board, partially exposed on the elevated plaster surface, is arguably younger than the other more faded design found on the lower bench (see Figure 6.4). The sequence of construction coupled with the evidence of a more sharply etched design on the floor surface indicate that perhaps the elevated surface was not only built later than the lower bench surface, but was also part of an interior space. *Patolli* boards appear more often on the floors of elite rooms than on outside terrace or patio surfaces. Evidence of collapsed vault stones further substantiates that the rear, elevated surface was once a covered room. The *patolli* board, as well as the sequence of construction, provide important clues concerning changes taking place in the layout, size, and function of Room 2.

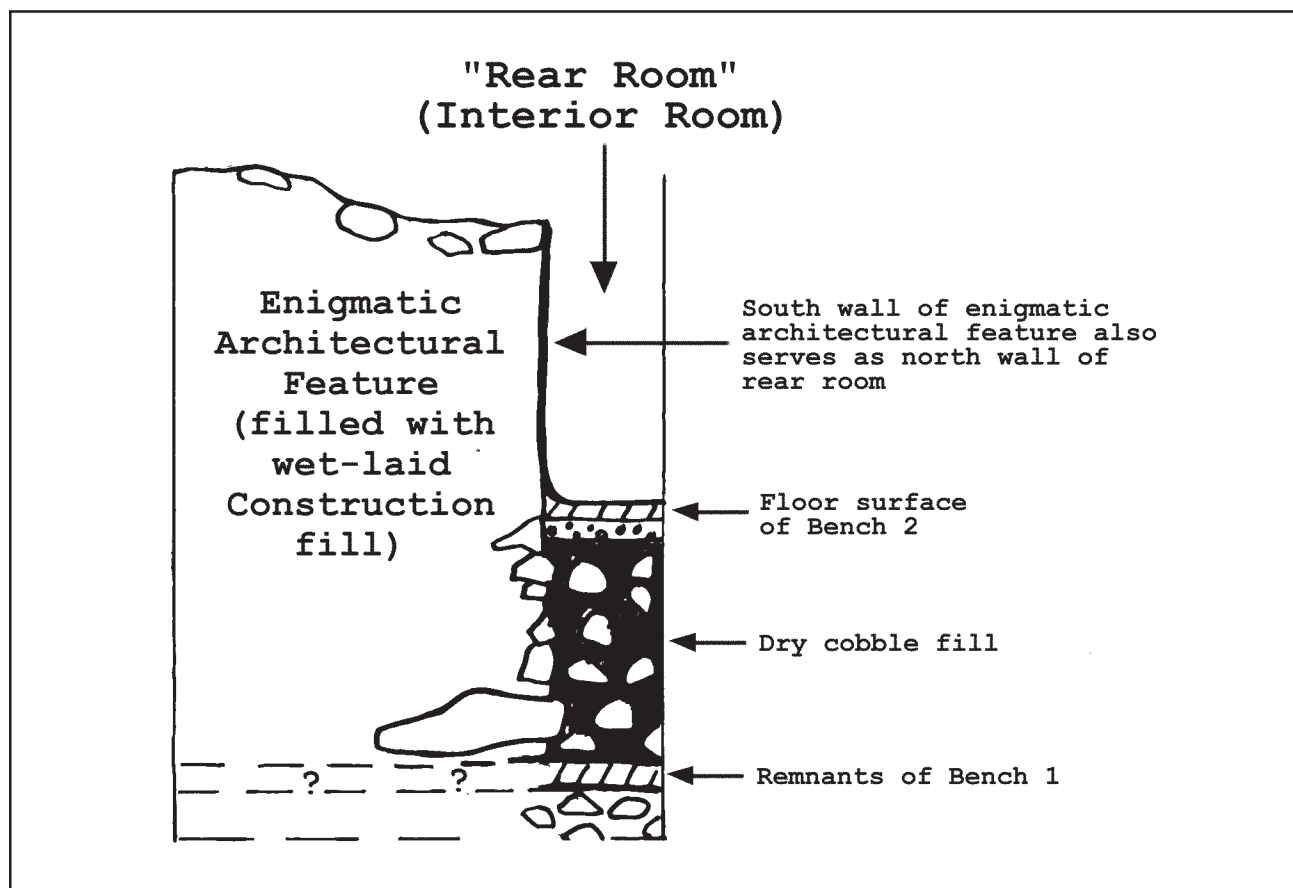


Figure 6.18. East wall cross-section of southeast corner of Op 7, Subop A. Note profile of the south wall of the enigmatic architectural feature that also serves as the north wall of the elevated rear room of Bench 2. Bench 1 presumably ran the length of Room 2 prior to this later construction.

I argue here that the later architectural modifications that took place in Structure C-6 involved not only the vaulting of Room 2, but also the construction of a second, elevated bench surface added to the south side of Room 2 (Figure 6.19). At 75 cm higher than the lower bench surface, this elevated floor could have feasibly functioned as a secondary bench that would have created a throne-like effect in Room 2. The construction of a second bench would have increased the width of Room 2 about 1.50 m further to the south, and added two elevated wings to the east and west of the secondary bench's central axis. Excavations in Suboperation E (see Figure 6.4) identified what appears to be the west wing and the remains of the western wall of this rear, elevated area. The south wall that runs along the edge of Room 1 appears to interface the remains of this west wall at a perpendicular angle. Although the west wall is not well preserved, the elevated floor surface clearly lips up to where this wall once existed and indicates the western limit of this rear area. Therefore, relying on the same theoretical framework (a symmetrical configuration for Structure C-6) discussed above, a total length of this elevated, rear bench surface is conceivably comparable in size to the original

length (6.60 m) of the lower bench area. The walls of the rectilinear features would have not only facilitated the vaulting of the entire central room (previously an unattainable task), but also eclipsed any view into this elevated, rear bench area to the east and west of the room's central axis. Again, this type of restricted, private space is typical of Late Classic architectural design and may indicate the time period of this complex, constructional modification.

A crudely made wall consisting of various types of cut stone was a distinct construction episode found running north-south, bisecting Suboperations D and E (see Figure 6.9). The unplastered wall, 1.8 m long (north-south) and 70 cm wide (east-west), clearly post-dated all other previous architectural modifications for it was built up against the south faced wall of the rectilinear architectural feature and overlaid the pre-existing elevated (bench 2) surface. The use of recycled materials, including vault stones, indicate that builders were scavenging finely cut stones presumably from buildings that had already begun to collapse at Chan Chich, possibly including Structure C-6. There is no earlier evidence on Structure C-6 of wall construction made

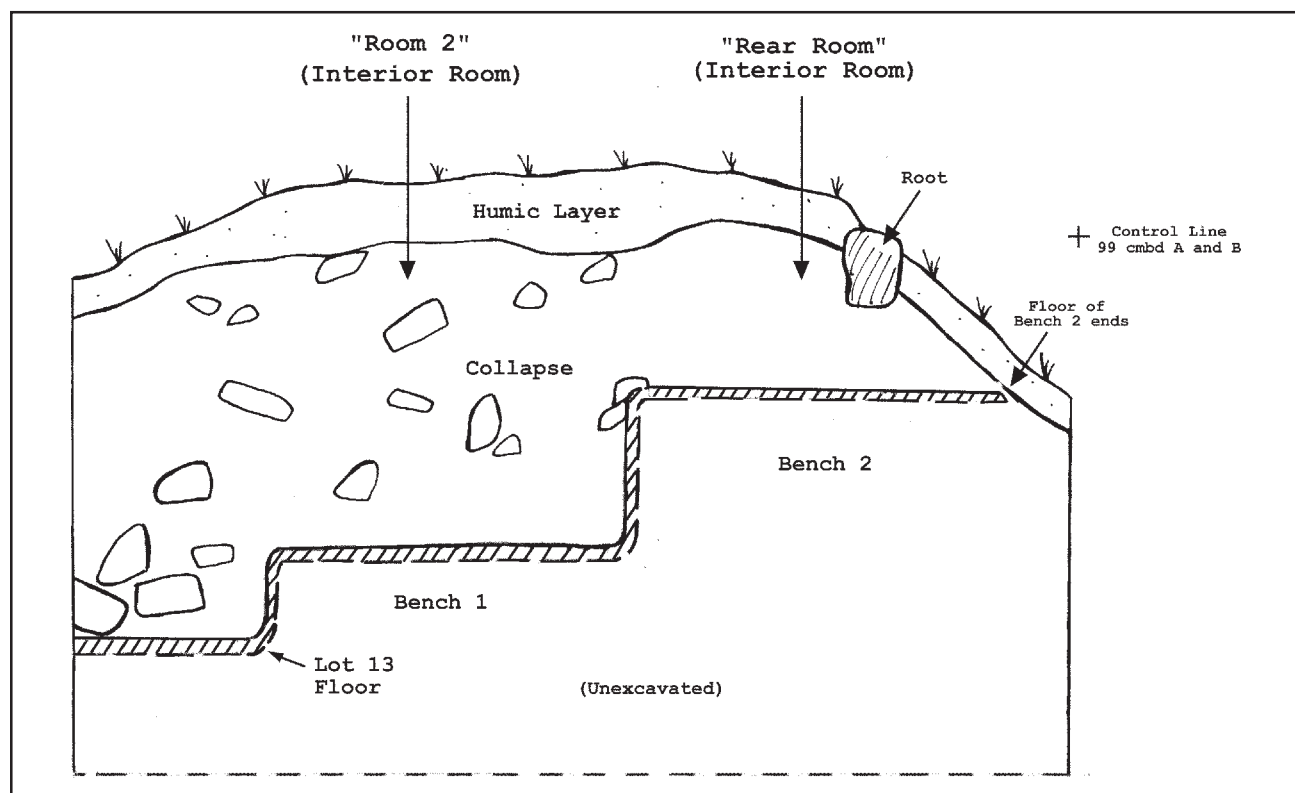


Figure 6.19. East wall cross-section of Op 7, Subops D and B showing floor surface and Benches 1 and 2.

from robbed stones. Clearly, the construction techniques used in this later wall do not compare in quality to any of the other previous construction efforts made during the elite occupation of the Western Plaza that have thus far been exposed. It is possible that the density of vault stones recovered in the collapse debris, at least from around the southern elevated area, were not only once part of room's vaulted ceiling, but also were then pilfered from the building for this later construction episode. In any event, the one intact wall indicates a reoccupation of the Western Plaza by individuals that did not possess the same wealth and power of the elite inhabitants that previously occupied the same space. It seems more than likely that a group of people reclaimed the area, perhaps as a residential space, well after the ruling elite at Chan Chich had dispersed, presumably during the Early Postclassic Period.

There is little Postclassic evidence reported found at Chan Chich, therefore scholars have previously dismissed the thought that any permanent residence was re-established (Valdez 1998). The construction of a wall, if found to be a Postclassic construction, would suggest a sense of residential permanence. With certainty, further excavation and ceramic analysis of sherds found in this potentially reoccupied area would help to confirm or disprove this initial postulation.

Suboperation E

Suboperation E, located directly to the west of Suboperation D, was a 2.30-x-2-m unit (see Figure 6.2). The purpose of this excavation was to expand to the west of Suboperation D to better understand the layout, size, and function of the elevated plaster floor, argued to be a secondary bench surface, located south of the low bench in Room 2. As noted above, the elevated bench surface runs along the southern edge of Structure C-6 and appears to be a later architectural modification added to the south side of Room 2. In addition, the west side of the wall, evidently a later phase of construction possibly dating to the Early Postclassic Period, was defined in Suboperation E.

A total of 3.8 m (east-west) of floor, identified as a secondary bench surface, was uncovered in

Suboperations D and E. The southern edge of the elevated plaster floor is considerably deteriorated and contains scars that indicate severe root disturbance. Any evidence of a south wall that would have enclosed this rear bench area is gone. It is possible that either the wall collapsed or was purposefully dismantled by the later inhabitants that built the crude wall that bisects Suboperations D and E.

Suboperation E comprises the majority of what appears to be the west wing of the rear bench, a niched space approximately 2.60 x 1.80 m. Although the south wall of this rear area is missing, there are evident remains of a west wall and a north wall, which also serves as the south facing wall of the rectilinear feature. The floor of the upper bench clearly lips up to the remains of the north (see Figure 6.18) and west (Figure 6.20) walls, but does not remain intact far enough to the south where it presumably lipped up to a south wall. Figure 6.20 not only shows the floor of Bench 2 lipping up to the remnants of the west wall (or butt end of the south spine wall), but also reveals the remains of Bench 1 running underneath this later construction. The north wall of the west wing runs 2.60 m to the east where it reaches the central part of the secondary bench (in Subop D), which is open to the north and appears to step down 75 cm to the lower bench. As noted above, the surface topography supports the notion of a mirrored configuration to the east, a niched wing enclosed by east, south and north walls (refer to Figure 6.3).

Like the features on the lower bench, the *patolli* board appears to be located on roughly the central axis of the rear, upper bench surface. As previously stated, the sharpness of the etched design and its placement on an evidently later construction episode indicates that the *patolli* design found on the upper bench surface is a later feature added to Room 2, perhaps coeval with the Terminal Classic mortuary deposit located about a meter to the north on the lower bench. These features, coupled with the presented reconstruction of the room size and layout, bring into focus the function of a space that undoubtedly housed an elite individual who was a member of the elite power at Chan Chich. With the burial of this individual, the central room of Structure C-6 transformed into an important ceremonial space, ritually charged for it was now physically and spiritually linked with the ancestors and the gods of the un-

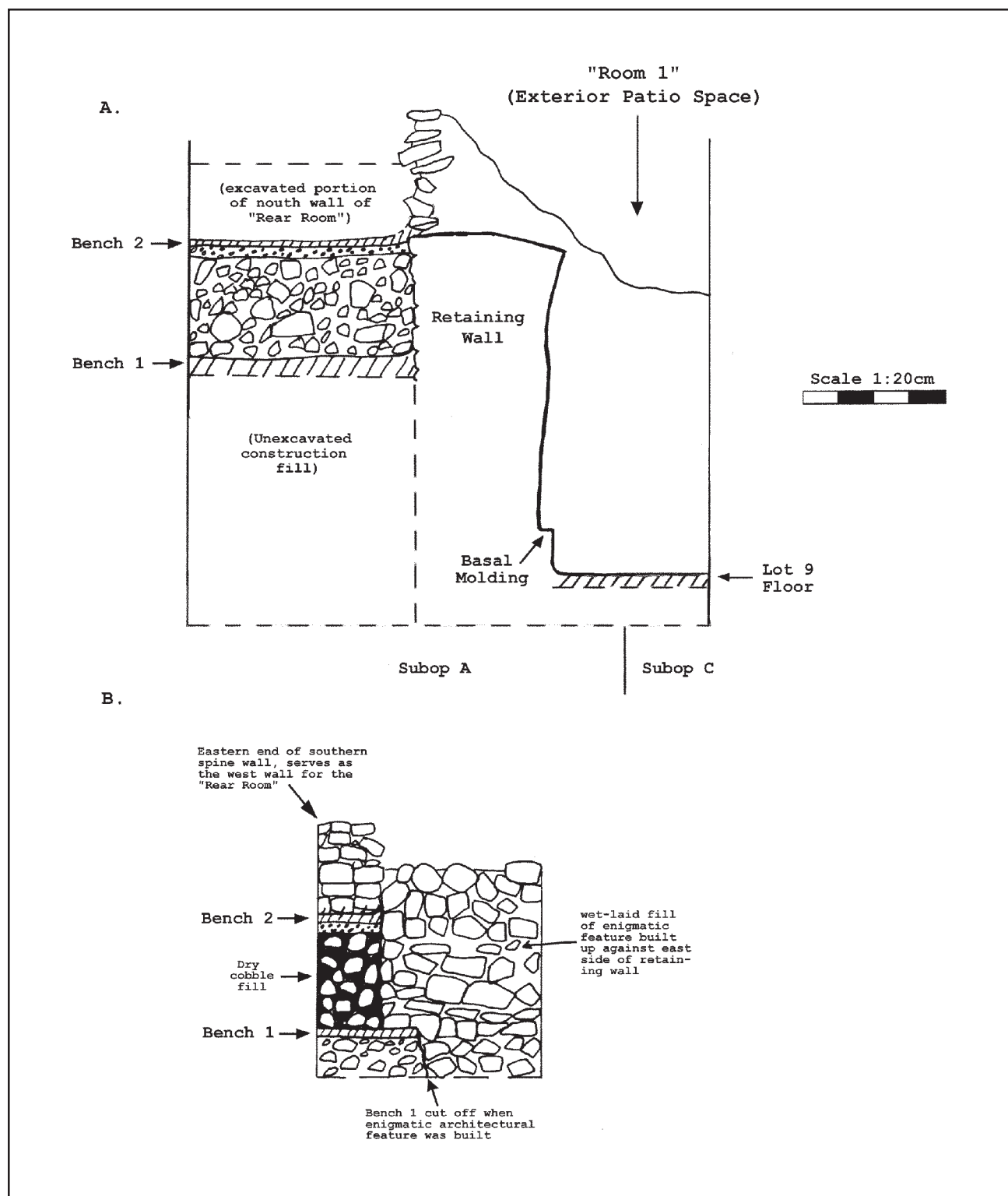


Figure 6.20. *Cross-sections of Op 7.* A: South wall cross-section of Subops A and C showing how Bench 1 lips up to the east side of the retaining wall and Bench 2 lips up to the eastern end of the southern wall. B: West wall cross-section of Subop A showing how Bench 1 was cut off by the later construction of the enigmatic architectural feature. The profile also shows Bench 2 lipping up to the eastern end of the south and north walls (now removed, see Figure 6.18) of the "rear" room.

derworld. Undoubtedly, this transformation altered the function of this space, perhaps reserving the room for purely ceremonial events where censuring and ritual divination took place, meanwhile focusing administrative activities elsewhere in the plaza.

Concluding Remarks

Excavations in the 1999 season indicate that occupation in Plaza C-2 is longer than Meadows (1998) had initially postulated. While the plaza floor may have held only one construction episode in the Western Plaza, excavations this season revealed a greater complexity in the surrounding building construction, including at least three distinct construction episodes in Structure C-6. A ceramic vessel found in a sealed burial context, identified as Tepeu 3, solidly dates the deposit found in the central room of Structure C-6 to the Terminal Classic period and confirms that the extent of elite occupation continued possibly through to the end of the Terminal Classic Period. A concentration of refuse consisting of elite items, namely finely worked marine shell and several imported stemmed blades, found in the exterior patio space to the west of the central interior room may be the remnants of the Western Plaza in its Late Classic heyday.

The spike in Late Classic construction in the form of secondary elite residential and administrative complexes, which include the Western Plaza and Norman's Temple Complex, reflect the development of an expanding elite populace that was gaining a powerful role in society, actively involved in the administration and control of a larger system ruled by the royal elite who were presumably housed in the Upper Plaza of Group A. By the end of the Classic Period, a number of the larger polities in the Maya area, such as Copan, Caracol, and Tikal, that contain a wealth of epigraphic data indicate that expansionism and military campaigns were at the forefront of the political scene at this time (Fash et al. 1992). Increased warfare undoubtedly had repercussions on neighboring polities like Chan Chich and, indirectly, impacted the stability of relations between elite and non-elite inhabitants living within and around the periphery of those sites. Scholars argue that, although Maya polities were independent political institutions, the larger city states usually dictated events

for an extremely broad area (Chase et al. 1991). For instance, a warring event between two polities could have conceivably interrupted an established trade route which, in turn, would have effected not only the two rivaling cities, but feasibly hundreds of communities directly or indirectly involved in that economic network. Arguably, the initial development of the elite class living in the Western Plaza could have been an indirect result of such an event; a wave of change that was perhaps felt throughout the region that effectively caused the expansion of the elite power at Chan Chich.

"Archaeological remains from the end of the Maya Classic Period indicate to us a non-uniform society in the midst of a revolutionary transition" (Chase et al. 1991:1). Changes in architecture, as well as mortuary behavior, occurring in the Western plaza group at the end of the Classic period perhaps bare witness to this "revolutionary transition" taking place throughout much of the Maya area. Later architectural modifications that took place in Structure C-6, involving the construction of a second, elevated bench surface to the south side of the Room 2 and the vaulting of its interior, likely occurred at the end of the Classic Period. These changes created an increasingly private space, perhaps to promote a certain mystique for the elite living inside or maybe it was the practical response to elevating inter- and intra-site tensions developing during this tumultuous time. Burial 8, located within an evidently restricted, elite space in the Western Plaza, speaks of a pronounced simplification in burial practice that occurred during the Terminal Classic Period in what was once an economically cushioned locale in the Late Classic Period. Clearly, the social, political, economic, and religious framework at Chan Chich was, again, undergoing significant re-organization, but, moreover, was perhaps reflecting a reorganization of political powers at larger sites proximate to Chan Chich.

It would seem that the same system of cyclical change that enabled the elite body at Chan Chich initially to expand their power might also have fostered their decline. While Burial 8, an evidently Terminal Classic interment, is suggestive of the beginning of elite decline at Chan Chich, a poorly constructed wall built of robbed stones found on the south side of Structure C-6 seemingly confirms the total abandonment of an elite

presence in this area. Although data are limited, this construction may be the result of an Early Postclassic reoccupation of the site. The appearance of robbed vault stones and other randomly assorted dressed stones, stacked together to form a wall directly over an older floor surface, suggests that structures at Chan Chich had already begun to collapse when this later group arrived, though collapse was likely aided by their stone pilfering. While evidence of stone robbing is limited at Chan Chich in comparison to other sites (for instance, at Xunantunich many walls were observed dismantled down to a single remaining course during a post-abandonment period in antiquity) it does not rule out the possibility of a substantial Postclassic occupation at Chan Chich. While little evidence of a Postclassic occupation at Chan Chich has been revealed thus far, the data retrieved from the Western Plaza this season brings into question Valdez's (1998:84) statement: "While later Postclassic visitations with special offerings may have taken place, permanent Maya occupation at Chan Chich was never regained."

Further investigation of the Western Plaza may provide a finer resolution for this important, yet poorly understood transition that took place between the Terminal Classic and Postclassic Periods. Scholars are suggesting that, in some cases, there is a continuum demonstrated in the patterns found in the archaeological record between the Classic and Postclassic Periods, rather than a total break from the past (Chase et al. 1991). This concept refers more to a continuity in cultural tradition, rather than suggesting, for instance, that there was a direct ancestral connection between the Classic and Postclassic individuals living in the Western Plaza. These traditions were perhaps more firmly maintained than previously thought, yet manifested in different ways.

Clearly, there is a significant shift in the social, political, economic, and religious organization at the end of the Classic Period at Chan Chich. This "revolutionary transition" presents itself in the archaeological record in the Western Plaza and, furthermore, offers a potential opportunity to study changes in the function of space over time while offering insight into how cultural continuity maintains itself.

Acknowledgments

We are grateful to the Department of Archaeology, Government of Belize for their permission to excavate at the site of Chan Chich. The CCAP would never have happened without the excellent organization of our staff, including Brett A. Houk, Hugh Robichaux, and Leanne Romanchuk. The enormous amount of work that was accomplished over the summer 1999 season was due to the hard work of all the students that participated on the project. Also, Gilberto provided excellent machete work and provocative interpretations of our excavations throughout our season. Last, but certainly not least, I would like to thank the Chan Chich staff for their great support, beautiful accommodations, and fabulous food. Chap kept us well fed and happy. Thanks to Josie and her morning walks, Brett and I only gained 10 pounds each, as opposed to 20. Many thanks also go to Norm and Tom. Their endless generosity and patience with us crazy archaeologists is always very much appreciated.

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Preliminary Assessment of Looted Structures in the Upper Plaza

Jennifer R. Jellen

Introduction

During the 1997 and 1998 field seasons, a project was undertaken to map and seriate the construction phases of several structures at the site of Chan Chich. Before the establishment of Chan Chich Lodge at the site in 1987, Chan Chich was heavily looted and many of its structures were severely damaged, including two of the main structures in Plaza A-2, the Upper Plaza (Figure 7.1). The trenches left behind by looters reveal many internal features of the buildings and provide a rough profile from which a limited stratigraphy can be garnered, without any destructive excavation. Structure A-15 is the Plaza's largest and also the most heavily looted structure with five trenches transecting it along the transverse axis, and at various elevations. Three of these trenches actually converge within the structure. Structure A-21, on the western edge of the plaza, has two trenches

that originate from opposing sides of the structure and roughly follow the primary axis, although these trenches do not articulate.

Methods

For each trench a Master Datum Point (MDP) was established, which was then extended along the length of the trench to produce a visible line of elevation from which all measurements were based (Figure 7.2). To map the trenches, measurements were taken every 50 cm or more often if a feature, or an aspect of a feature could be identified. To maintain accuracy in our placement of the features, measurements were taken using a standard metric tape, a line level, and a plumb bob to produce angles of 90 degrees to the line of the extended MDP. Measurements were taken to within 1 cm where possible.

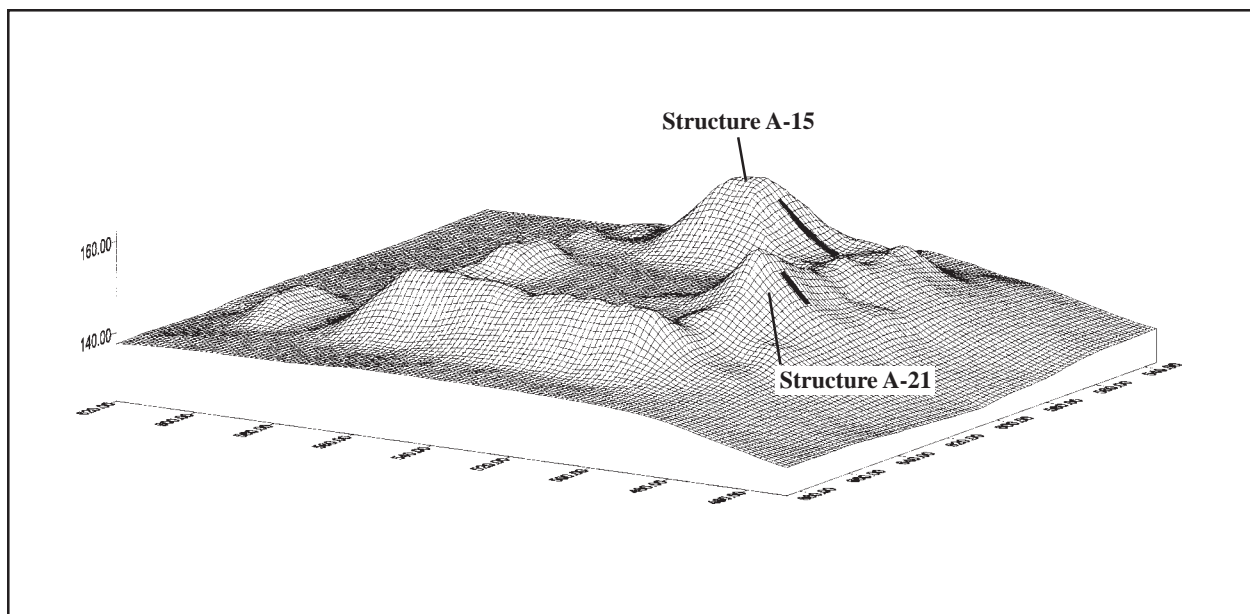


Figure 7.1. *Surface map of the Upper Plaza with looter's trenches overlaid. Elevated view from the northwest.*



Figure 7.2. *Examining the western trench in Structure A-21. Datum line visible on right.*

At every point, measurements were made to either side of the MDP line to map accurately asymmetries in the trenches. Notes were then made regarding the probable seriation of the exposed features based on their stratigraphic position, on the superposition of other features such as episodes of replastering, and on changes in materials or construction technique.

Results

The results of this project include a partial map of the internal features of Structures A-21 and A-15, as well as theory of their construction technique and seriation, and a hypothesized reconstruction of their architecture at various stages.

The results of this project are far from final, as important features remained inaccessible and further investigation is necessary. From this initial research, however, several interesting conclusions may be reached concerning the methodology of construction used, the adaptation and reuse of space, and the actual organization and style of the structures themselves. The reuse of space was particularly important as multiple structures were clearly erected one atop the other, using wet laid and dry fill to stabilize the underlying structures.

Structure A-21

The mapping of Structure A-21's trenches revealed many puzzles which are best explained by a complete remodeling of the structure somewhere in its history (Figure 7.3). It is likely that A-21 began as a range structure lying along the western edge of Plaza A-2. Structures A-20 and A-22 may be remnants of this, but as they are unlooted, it is impossible to confirm without excavation. It also appears that the earliest Structure A-21 had a basal platform extending towards the west from the rear of the building, which was retained in later construction episodes. At some point, the structure changed entirely, although several features of the earlier range structure were reused. An opening or doorway in the western exterior wall was sealed, as was a north-facing doorway in an adjacent room. The range structure was packed with a combination of wet-laid and dry fill and leveled at an elevation that allowed some of the earlier interior walls to be reused as foundations for new walls. On the west side, the first of a series of painted benches were added, along with a wide painted plaster floor. In this trench an additional construction phase can be seen in which a second bench was added and the floor was replastered to incorporate a 13-cm step 3.5 m from the exterior, giving the effect of a sunken floor. This floor runs for over 6 m without any evidence for an articulating interior wall which suggests that the room was narrow, with an east-west orientation and its weight-bearing walls lying to either side of the modern trench. At some point in history, this room was packed with wet laid fill to accommodate later architecture. In several places, impressions of woven cloth can be seen in the plaster of the fill. Just within the western edge of the

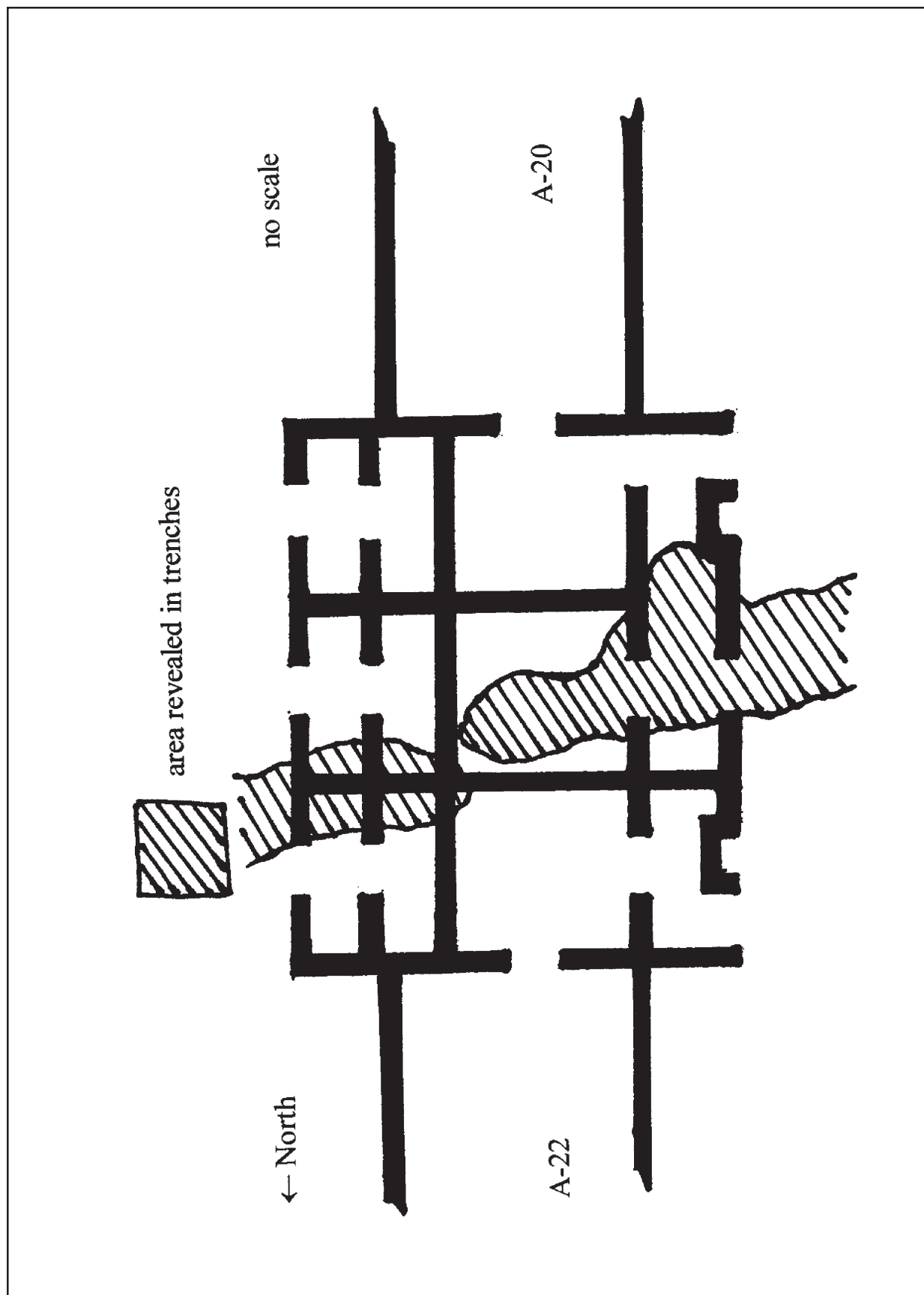


Figure 7.3. Hypothesized reconstruction of the plan of Structure A-21 showing areas revealed in trenches.

room, a round shaft has been documented which bears the impression of unwrinkled cloth along its interior, apparently reflecting the presence of a cloth wrapped wooden pole, which has since decayed. It is likely that the cloth was used as a partition within the room, or perhaps covered a doorway, using the pole as a support rod, which would have been affixed in the vault space above the room. It has also been suggested that the cloth may have been used to transport the plaster fill to the building site. In either case, the presence of the impressions demonstrates that cloth was a disposable product.

The final construction phases for Structure A-21 are not apparent at this time, as they lie above the trenches. The early architecture for the eastern side of the building is also unclear, except for a series of corbel vaulted rooms that were likely part of the earlier range structure.

Structure A-15

Structure A-15 (Figure 7.4) is the largest of Plaza A-2's buildings and faces north. It likely had a central staircase on the north façade, in line with the primary axis. This structure shows bilateral symmetry, using the primary axis as the line of dissection. The interior of this structure had several large rooms, although at this time there is not enough data to clearly define them. In the highest of A-15's eastern trenches, a corridor is visible with plastered walls and doorways that had later been sealed. This indicates a series of corbelled rooms atop one of the later buildings in Structure A-15, likely with a bearing wall along the structure's transverse axis, and rooms falling to either side (Figure 7.5). Access to these rooms would have been from the north side central stair, with the bulk of the building below being a solid fill platform of covered, antiquated architecture. It appears, from evidence in the lower trenches, that Structure A-15, in its earliest incarnations, began at or near the level of plaza floor and did not have a basal platform mound of its own. The presence of a bench in one of the later construction phases suggests that at one time the structure may have been residential or social, although it is possible that its function changed as the structure's morphology changed.

Summary

In all, the trenches of Chan Chich have yielded a tremendous amount of information about how the Maya designed and built their public structures, as well as how they reused and modified them to fit their temporal and social needs. However, more research is needed to yield a clearer picture of how these structures fit into and speak to the daily lives of the Maya at Chan Chich.



Figure 7.4. *Trenches on the west face of Structure A-15. The upper trench is actually a tunnel that begins on the east face of the building.*

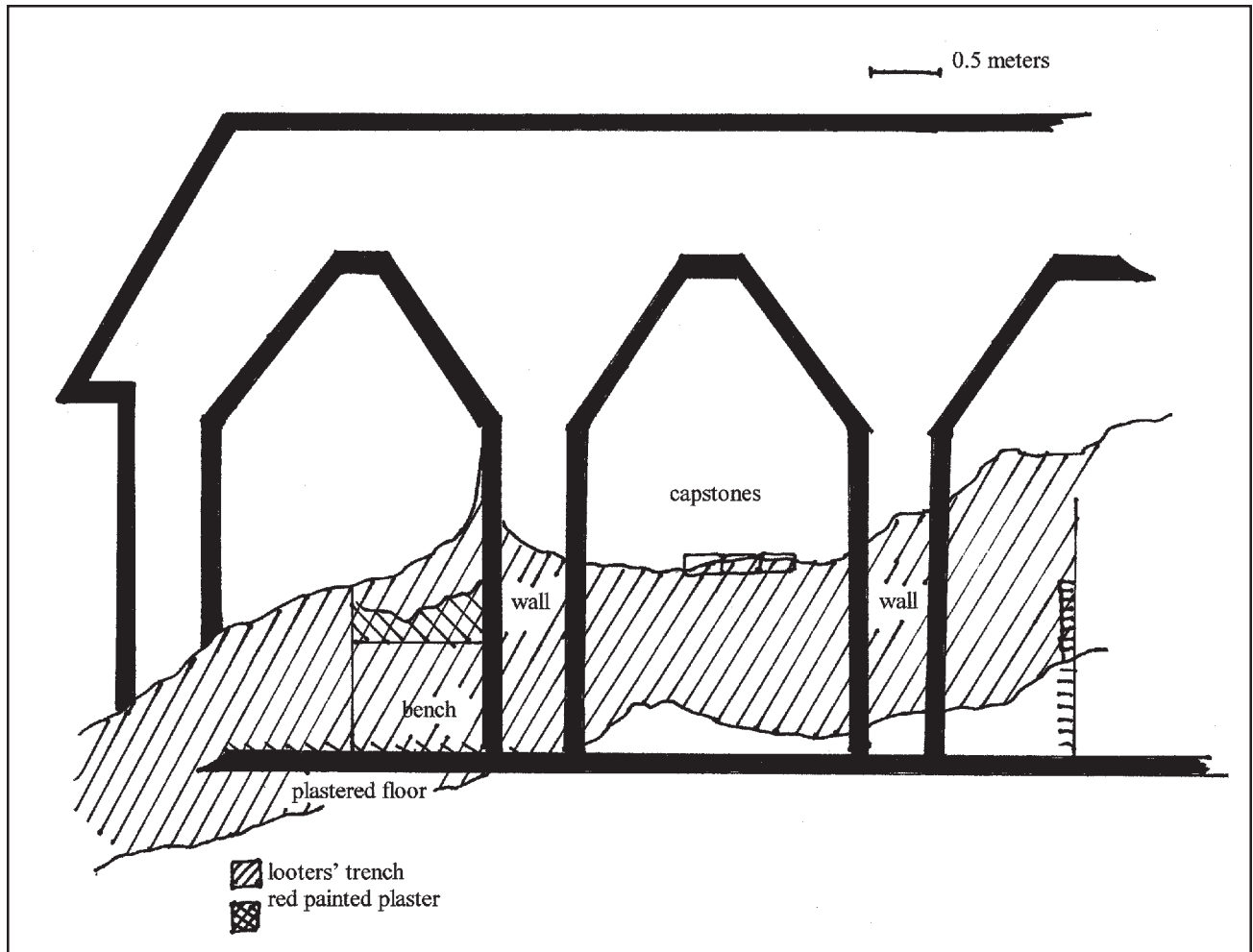


Figure 7.5. *Reconstructed south profile of the highest of Structure A-15's trenches.*

Excavations at the Temple of the Jaguar Skull

Brett A. Houk

Introduction

While we were excavating at Chan Chich in 1999, there was a National Geographic Society (NGS) photographer staying in Gallon Jug. He and his assistant were attempting to photograph a jaguar in the wild, a feat that has apparently not been accomplished in the long history of the Society. Wouldn't it have been fantastic if we had uncovered a cache with a jaguar skull in it while the NGS photographer was there? Wouldn't that have generated funding for our struggling research efforts? With this hope planted firmly in my mind, I dubbed Structure A-11—the unassuming pile of rubble in the center of the Main Plaza—the Temple of the Jaguar Skull. It is clearly not a temple, and, unfortunately, there was no jaguar skull.

Background

Structure A-11 is an enigmatic feature with an unclear history (Figure 8.1). Tom Harding, the manager of Chan Chich Lodge, reported that when the plaza was cleared of undergrowth in the 1980s, there was a small pile of rubble in the center. Workers apparently added some loose stones to the top of the pre-existing feature, making it difficult to determine its original size. In 1999, Structure A-11 measured approximately 4 m north-south by 6.5 m east-west. The roughly rectangular feature comprised large chert and limestone cobbles that were loosely stacked together and covered in vegetation, measuring approximately 70 cm high in the center.

When Tom Guderjan (1991:35) originally mapped Chan Chich in 1990, he

designated this feature Altar 1, noting “it is not an altar in the usual sense.” He speculated that it may have been part of an astronomical configuration, the point from which the summer and winter solstices could be observed using the twin buildings of Structures A-7 and A-9 (Figure 8.2). Guderjan (1991:35–36) noted:

Given the positioning of Str. 5 [renumbered Structures A-7 and A-9 by the CCAP], the entire design of Plaza A [Main Plaza] appears to reflect an astronomical concern in the design of the plaza. Structure 5 is designed so that it could be used as a solstice marker. Such concerns are reflected in other architectural plans of the Classic Maya of the region, such as the Uaxactun E group architectural type.

In 1998, however, I had the opportunity to observe the rising summer solstice sun from Structure A-11. It was nowhere near Structure A-7 or Structure A-9. While Ruppert (1943:5) suggested that some sites possessed symbolic representations of the Uaxactun solstice observatory, generally such complexes have



Figure 8.1. *Structure A-11 immediately prior to excavations.*

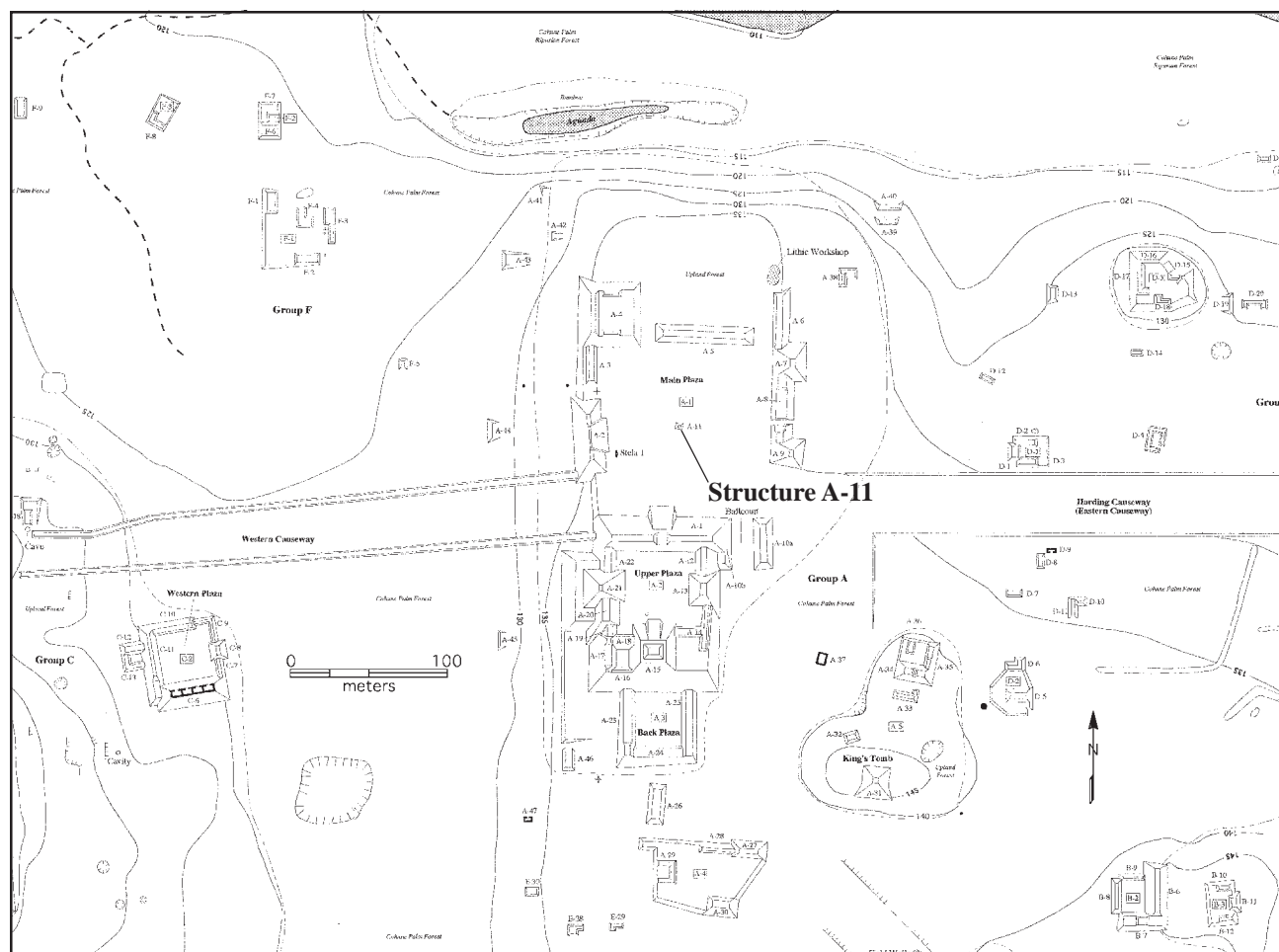


Figure 8.1. Location of Structure A-11.

three structures on the east, not two. It seems more likely that Structure A-11 is not part of an astronomical configuration.

Methods

In 1999, Operation 8 targeted Structure A-11. The goals of the limited excavations were to determine the form of Structure A-11, assessing whether or not the mound represented a recently created stone pile, a Precolumbian feature, or both. Two adjacent suboperations were eventually excavated. Subop A was placed along the approximate centerline of the mound, beginning in the plaza and extending to the approximate center of the mound. The unit measured 1 x 3 m and was oriented north-south. Subop B was placed adjacent to the west edge of Subop A and mea-

sured 1.5 x 2 m. The north ends of the two subops were aligned with one another. A datum was established on a nearby tree to control the vertical provenience of lots and architectural features.

In all cases, excavations were terminated at intact architectural features. Heavily eroded floor surfaces were penetrated in certain cases to sample the deposits below. The non-rock matrix was screened through 1/4-in mesh, and all artifacts were collected by subop and lot.

Summary of Excavations

The limited excavations at Structure A-11 revealed a complicated construction sequence that is not well understood. Bedrock was encountered in Subop B at

approximately 140 cm below the modern surface of the plaza. This slightly irregular surface was covered by a thick midden (Lots **B-14** and **B-15**) comprising a dark clay matrix with charcoal flecks throughout. The 35-cm thick deposit contained abundant ceramics, most of which were small and broken sherds, mussel shell, spiral riverine shell, one shell bead, one obsidian blade fragment, and numerous chert flakes. The ceramics from this deposit are primarily Late Preclassic types (Fred Valdez, personal communication 1999).

The midden was covered by an eroded plaster floor with fist-sized cobble fill. The small ceramic sample from this lot (**B-13**) did not allow for a temporal assessment. This floor was in turn covered by a later layer of fill and plaster that was excavated as Lot **B-12**. This floor surface was differentially preserved and was originally thought to have been cut into by a later construction event. It is probable, however, that the sections of the floor were simply more eroded than others were. The excavations into **B-13** and all of the deeper lots were confined to the most eroded area.

Above this floor, the construction sequence revealed in the excavations became more difficult to assess. The following reconstruction is the best explanation for the excavation data. The eroded plaster floor designated Lot **B-12**, was capped by another floor and subfloor fill that was approximately 25 cm higher. This floor was then capped by another floor construction that raised the plaza another 20 cm. Sections of this floor (Lot **A-5**), were then cut into. The cut penetrated through the underlying floor, as well, terminating at Lot **B-12**. Two perpendicular alignments of cut limestone blocks were then placed to line this cut (Figure 8.3). The purpose of this activity and the function of this feature remain unknown.

At some point after the stone alignments were created, the older, uncut plaza floor (Lot **B-12**) was capped by a marly matrix

containing chunks of plaster and soft marl blocks. This cap covered the stone alignments, as well (Figure 8.4). Above this, the intrusion was filled with cobble fill and soil to the level of the top of the upper most floor that had been cut (Lot **A-5**). At this point, a new plaza floor was created (Lot **A-3b**). This 10-cm thick floor was capped by the last plaza surface, Lot **A-3**. The intrusions into the underlying floors apparently occurred during the Late Classic, based strictly on the ceramics from fill (Fred Valdez, personal communication 1999).

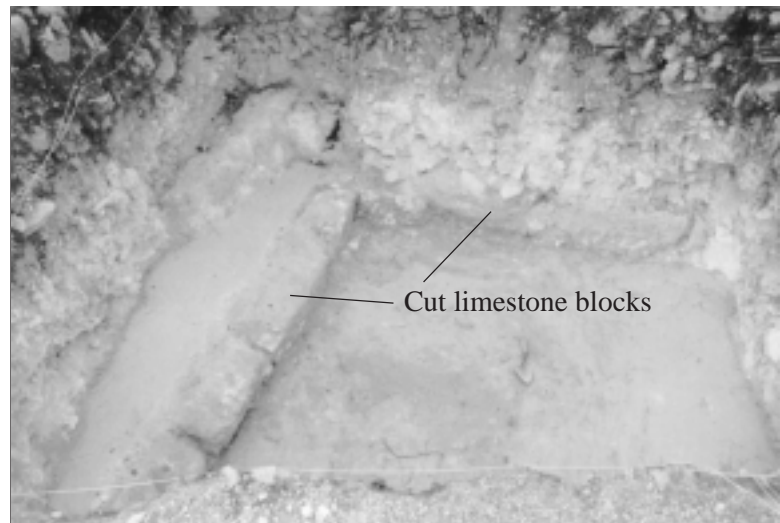


Figure 8.3. *Late Classic stone alignments on early plaza floor.*

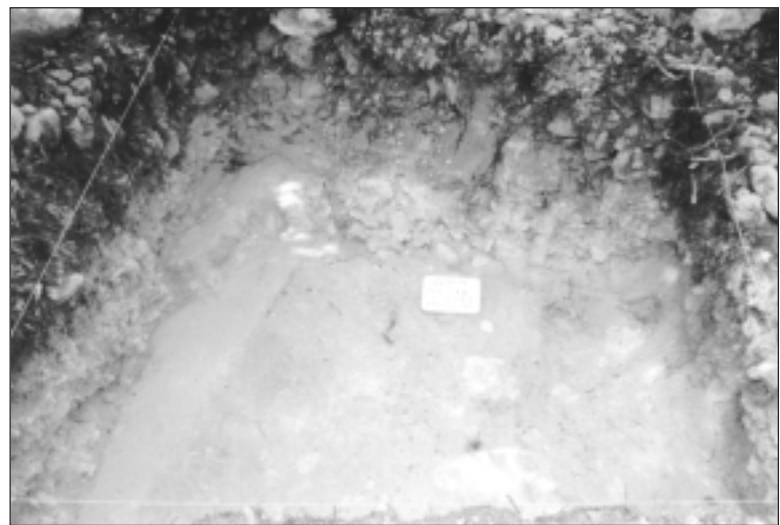


Figure 8.4. *Photograph of cut plaster floor.* Plaster is preserved on east side of excavations. Note the crude plaster cap covers the stone alignments visible in Figure 8.2.

Structure A-11 was constructed directly on the last plaza floor. The structure consisted of loosely piled limestone blocks and cobbles with no evidence of retaining walls. The stones were contained in a soft matrix of marly loam that was virtually devoid of artifacts. The original height of the structure is estimated to have been approximately 30 cm. The larger cobbles that were encountered above this height are believed to be the result of recent, non-Maya activities.

Conclusions

The excavations at Structure A-11 were limited in scope and unfortunately failed to clarify the function of the mound. Additionally, the two subops encountered a complex and enigmatic construction sequence. It was originally believed that the Late Classic intrusion into the earlier floors was associated with the placement of something in that area, and we fully expected to discover a cache beneath the crude cap filling the cut. But, since no cache was encountered the purpose of the cut is unclear. The likely explanations are that (1) the deposited material was perishable, (2) the activity resulting in the cut in the floors was related to removing something, not placing a cache, and (3) the stratigraphy has been totally misinterpreted and there was no cut.

Structure A-11 remains a mystery. No artifacts were recovered from within the fill of the structure that might indicate its function. The architecture, if it can be called that, was so poor that it is difficult to imagine the structure had an important function. The location of the mound, however, argues for significance. Unfortunately, it will require additional excavations to clarify the nature of the inappropriately named Temple of the Jaguar Skull.

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Analysis of Stone Tools from Chan Chic

David A. McDow

Introduction

The results of the analysis of the lithic artifacts from Chan Chic are presented in this chapter. The lithic artifacts from the 1998 excavations at Group H are reported by Meadows (2000 [this volume]). The artifacts in this study were analyzed at the Programme for Belize Archaeological Project during the summer 1999 field season. The collection is composed of artifacts from various proveniences at Chan Chic (see Appendix C:Table C-1) from either the 1998 (Accession Number 10052) or the 1999 (Accession Number 10009) Chan Chic Archaeological Project (CCAP) field seasons.

The goals of this analysis are to provide 1) a descriptive report of Chan Chic lithic forms 2) a macroscopic use-wear analysis and 3) breakage patterns observed when they have occurred. Forms in this study correspond to preexisting forms established from other sites in the Maya lowlands (see Hester 1985; Hult and Hester 1995; Kidder 1947; McDow 1999; Shafer 1982, 1983, 1985, 1991; Shafer and Hester 1979, 1983; Willey 1972, 1978) and are briefly described with each category.

Research Strategy

In this report I will give counts and percentages of total numbers of artifacts in each category and subcategory (e.g., biface is a category and oval biface, bifacial celt, bipointed biface, etc. are subcategories). There are a total of 82 lithic artifacts that were sorted into the following morphological categories: bifaces, unifaces, flakes, hammerstones, and cores. These were further subdivided as necessary.

Results of Analysis

Use-wear at Chan Chic

The most common use-wear observed at Chan Chic is impact fracture, battering, and polish. Step and hinge fractures are considered use in this study and are not considered production errors (cf. Drollinger 1989). There are 45 artifacts (or 55 percent of the total collection) that exhibit these types of use. Table 9.1 lists the percentages and the number of artifacts with impact fracture, battering, polish, and/or step and hinge fractures. The "Comments/Use-wear Observations" column in Table C-2 details these features (e.g., bit damage/use and the presence/absence of polish) and other outstanding use features for each specimen.

Production Errors at Chan Chic

The only identifiable production error at Chan Chic is *snap fracture* and is described below. *Perverse* and *overshot fractures* (see Shafer 1979) were not

Table 9.1. Observed Use-Wear Features

Use-Wear Categories Observed	Percentage per Category	Total (n=45)
Battering, Polish, Step and Hinge, Impact	2%	1
Battering, Polish, Step and Hinge	--	--
Battering, Polish	--	--
Battering, Polish, Impact	--	--
Battering, Step and Hinge, Impact	4.50%	2
Battering, Step and Hinge	22%	10
Battering, Impact	--	--
Polish, Step and Hinge, Impact	2%	1
Polish, Step and Hinge	4.50%	2
Polish, Impact	--	--
Step and Hinge, Impact	7%	3
Battering	18%	8
Polish	7%	3
Step and Hinge	33%	15
Impact	--	--
Total	100%	45

observed in the collection from Chan Chich. Drollinger (1989:89–90) concisely defines snap fracture as:

...a transverse fracture that bisects the piece laterally. It has been classified in different terms or subclasses, such as lateral snap (Johnson 1979:25; Purdy 1975:135) side blow snap (Johnson 1981a:27; Rondeau 1981), and end shock (Crabtree 1972:60; Shafer 1985b:283). On the concave side of the fracture face is a rolled edge that is S-shaped similar to a bending fracture (Shafer 1985b:283). The fracture results when bending vibrations from the force of the blow exceed the elasticity of the mass. The fracture usually occurs away from the point of percussion. Purdy (1975:135) indicates that the fracture occurs when the piece is not adequately supported when the impact blow is delivered, thus creating a zone of stress leading to fracture. It can also occur when there is a weakness in the piece, such as material flaw or an interior fracture from a previous percussion blow.

There are 36 artifacts (or 44 percent of the artifacts in the collection) with fractures from this collection, and all exhibit snap fracture.

Provenience of Specimens in the Study

Table C-1 in Appendix C lists provenience information and contexts from which the Chan Chich lithics were recovered. Use provided structure numbers in Table B-1 and the map found in Chapter 1 of this report for visual location of operations from which these artifacts were recovered.

Lithic Descriptions

As mentioned previously, there are a total of 82 lithic artifacts in the Chan Chich collection all having textures of fine, medium, or coarse chalcedony, and/

or chert (see Table C-2 for texture information for each artifact). In the following sections, general characteristics for each category and subcategory of artifact are described. Following each artifact subcategory is a table providing length, width, thickness, and weight attributes for each artifact. Table 9.2 gives percentages of artifact categories and subcategories as a ratio of total artifacts.

Bifaces (n=45)

There are 45 bifacial artifacts (55 percent of the total number of artifacts) from Chan Chich. Table 9.3 shows the percentage of the bifacial artifact subcategory as a ratio of the biface category.

Oval Bifaces (n=8; Table 9.4)

There are eight oval biface fragments making up 18 percent of the bifaces from the site. These artifacts are distal, medial, or proximal fragments that were in a state of manufacture and did not exhibit use (Figure 9.1). Drollinger (1989) and Shafer (1985) have posited stages for the oval biface manufacturing system. These stages are seen in this collection, and I follow the terminology set out by Drollinger (1989:198).

Table 9.2. Chipped Stone Category and Subcategory

Category and Subcategory	Total No. of Artifacts by Subcategory	Percentage of Total Artifacts
BIFACES		
Oval Bifaces	8	10%
Bifacial Celts	6	8%
General Utility Bifaces Form I	2	2%
General Utility Bifaces Form II	4	5%
Thin Bifaces	4	5%
Miscellaneous Recycled Bifaces	20	24%
Projectile Point	1	1%
UNIFACES	6	8%
UTILIZED FLAKES	2	2%
MACROFLAKES		
Macroflake (unutilized)	1	1%
Utilized Macroflakes	4	5%
CORES	8	10%
HAMMERSTONES	10	12%
MISCELLANEOUS CHUNKS	4	5%
BLADES	2	2%
Grand Total Categories	82	100%

Table 9.3. Biface Subcategory Percentages

Artifact	Percentage of Bifaces	Total No. of Bifaces
Oval Biface	18%	8
Bifacial Celt	13%	6
General Utility Biface Form I	5%	2
General Utility Biface Form II	9%	4
Thin Biface	9%	4
Miscellaneous Recycled Biface	44%	20
Projectile Point	2%	1
Total	100%	45

tem...” (Hester et al. 1991:72) that have left a particular workshop and gone into use. They show extensive use-wear and reworking to the point of exhaustion. Polish and impact fractures are seen extensively on these tools. Dimensions range from 5.7 x 4.6 x 2.2 cm to 8.8 x 6.8 x 3.5 cm.

Table 9.4. Measurements of the Oval Bifaces from Chan Chich

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-2-K-4-2	5.1	4.8	1.8	36.2
10009 CC-2-L-2-2	4.3	6.7	3.7	85.8
10009 CC-2-N-4-2	4.7	3.2	1.2	21.3
10009 CC-5-C-2-15	8.7	6.2	3.3	188.4
10009 CC-5-C-2-16	3.5	7.1	3.1	67.4
10009 CC-5-C-2-28	6.4	4.6	2.2	74.1
10052 CC-7-A-14-1	7.4	5.5	2.3	90.1
10052 CC-7-C-5-3	8.5	6.0	2.3	112.7

General Utility Bifaces (n=17)

There are six general utility bifaces from Chan Chich or 14 percent of the total number of bifaces from the site. Willey (1972:157) initially described general utility bifaces as “Chopper[s] or Celts, General Utility Form.” Willey (1972:157) further describes them as “...elongated teardrop, trapezoidal, or trianguloid...” General

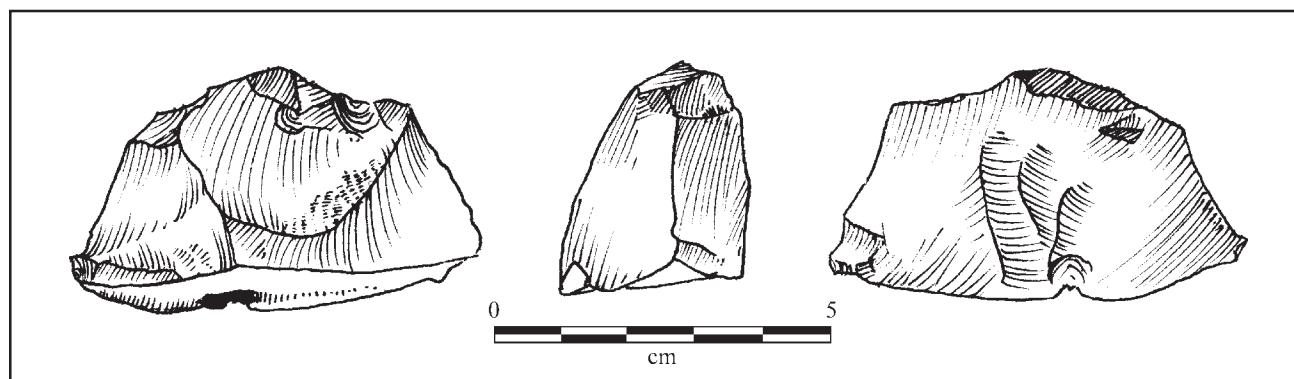


Figure 9.1. Distal oval biface fragment recovered from the base of Structure C-2. Illustration by Alexander Symcox.

Terms used for these stages of oval biface manufacture are Early, Middle, Late, Finished/used, and Maintenance. These stages are listed in Table C-2 under the “stages” column. Dimensions range from 3.5 x 3.2 x 1.2 cm to 8.7 x 7.1 x 3.7 cm.

utility bifaces are widespread throughout the Maya Lowlands (see Coe 1965; Hester 1976; Kidder 1947; McDow 1999; Stoltman 1978; Willey 1978; Willey et al. 1965). Hester (1985:200) differentiates general util-

Bifacial Celts (n=6; Table 9.5)

There are six bifacial celts making up 13 percent of the total number of bifaces from the site (Figure 9.2). These artifacts are heavily used “...tools from the oval biface sys-

Table 9.5. Measurements of the Bifacial Celts from Chan Chich

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-5-C-2-20	7.5	6.8	3.5	165.5
10009 CC-5-C-2-22	7.9	5.9	2.6	131.9
10009 CC-5-F-2-2	8.7	4.6	3.5	137.8
10009 CC-5-F-2-3	5.7	5.8	3.3	123.6
10009 CC-5-H-2-21	7.7	6.2	2.5	138.4
10052 CC-7-C-5-4	8.8	6.1	2.2	152.1

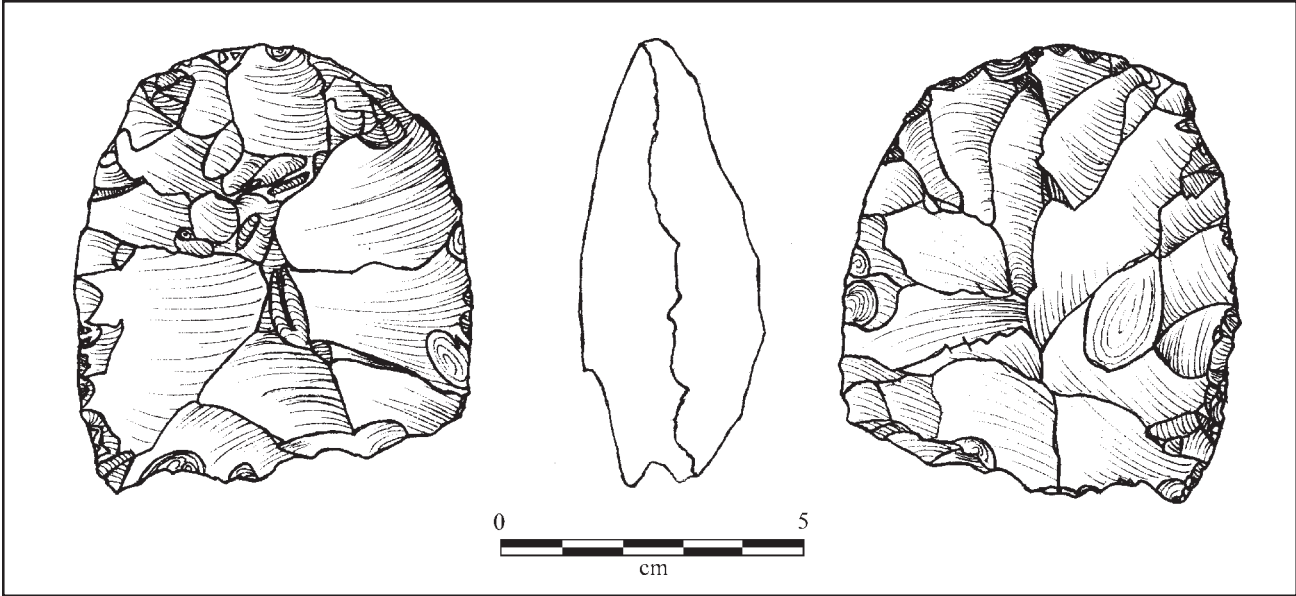


Figure 9.2. *Distal fragment of a bifacial celt recovered from the base of Structure C-2. Illustration by Alexander Symcox.*

ity bifaces from other chert tools, such as oval bifaces, as “...thick and heavy, with marked biconvex or diamond-shaped cross sections and carefully trimmed and shaped bits.” Hester (1985) further separates general utility bifaces into two forms from the site of Colha. “Form I is elongate and oval in outline while Form II has a truncated proximal end” (Hester 1985:200). There are two Form I types in the Chan Chich collection (or 5 percent of the total number of

bifaces from the site) (Table 9.6) and their dimensions are 10.0 x 7.0 x 5.1 and 16.5 x 10.0 x 5.3 cm. There are four Form II (Figure 9.3) types (or 9 percent of the total number of bifaces from the site) (Table 9.7), and

Table 9.6. Measurements of the General Utility Bifaces Form I

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-2-N-4-3	16.5	10.0	5.3	767.2
10009 CC-5-H-2-23	10.0	7.0	5.1	423.5

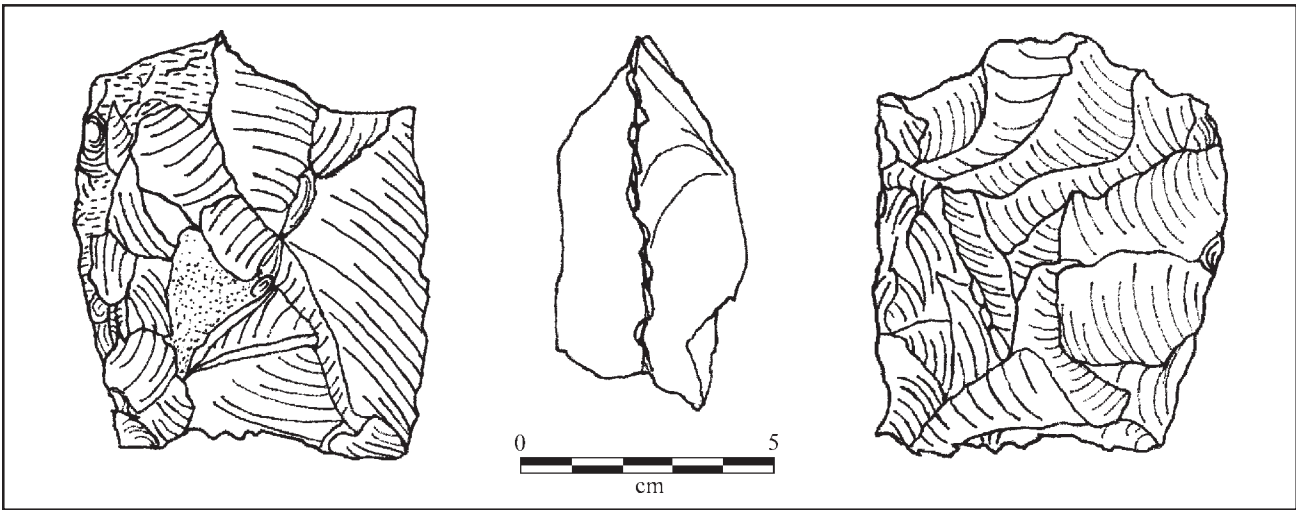


Figure 9.3. *General Utility Biface Form II from the base of Structure C-2. Illustration by J. G. Hanlon, III.*

Table 9.7. Measurements of the General Utility Bifaces Form II

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-4-D-2-17	6.8	7.1	5.0	302.6
10009 CC-5-C-2-27	8.7	7.7	4.4	358.9
10009 CC-5-E-2-21	8.0	7.1	4.2	268.8
10052 CC-7-A-18-1	8.2	5.8	3.6	250.5

their dimensions range from 6.8 x 7.7 x 3.6 cm to 8.7 x 7.7 x 5.0 cm.

Thin Biface (n=4; Table 9.8)

There are four thin bifaces of fine textured chert comprising 9 percent of the bifaces from Chan Chich (Figure 9.4). The chert is not from Colha (Fred Valdez, Jr. personal communication 1999); nevertheless, these are exceptionally worked brown and gray-banded specimens exhibiting great skill of the knapper. The dimensions for these artifacts range from 2.1 x 2.8 x 0.4 cm to 5.5 x 3.9 x 0.7 cm.

Table 9.8. Measurements of the Thin Bifaces

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-2-H-2a-2	2.1	2.8	0.4	1.7
10009 CC-5-C-2-14	2.1	3.5	0.7	5.6
10009 CC-5-H-2-8	5.3	3.9	0.7	13.8
10009 CC-5-H-2a-3	5.5	3.5	0.5	8.4

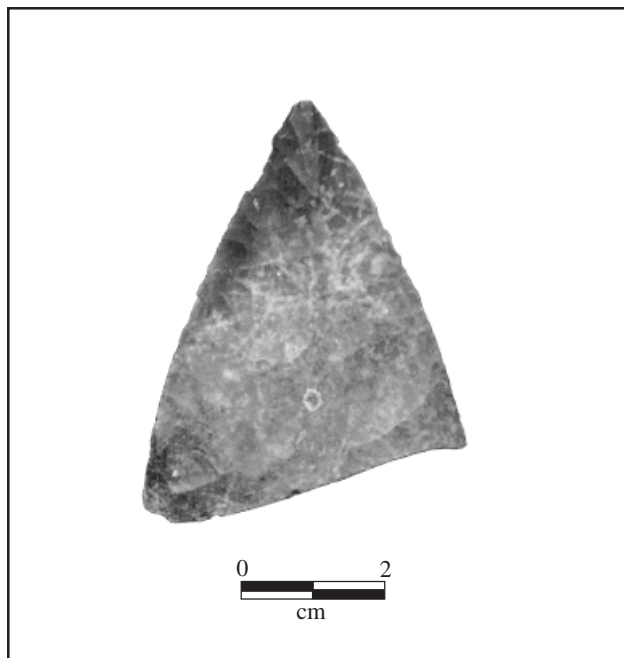


Figure 9.4. Distal fragment of a thin biface recovered from the base of Structure C-2.

Miscellaneous Recycled Bifaces (n=20)

There are 20 miscellaneous recycled biface fragments from Chan Chich (Figure 9.5; Table 9.9). These bifaces make up 44 percent of the total number of bifaces from the site. Hester et al.

(1991:72) defines these tools as “fragments or segments of bifaces, possibly celts, that were heavily re-used and recycled after breaking.” All edges show battering and extensive use. Dimensions range from 5.0 x 4.3 x 1.7 cm to 10.8 x 8.8 x 7.3 cm.

Projectile Point (n=1; Table 9.10)

There is one projectile point from Chan Chich (Figure 9.6) making up 2 percent of the bifaces from the site. Willey’s description of a (1972:165-166) “Broad Tapered Stem, Short Blade” type closely resembles the artifact from Chan Chich (see Willey 1972:166, Figure 145 for a representative drawing of the Chan Chich artifact). Willey (1972:163, 166) describes this type of artifact as “...ovate-...equilateral...triangles; stems are broad, sometimes almost as wide as the base of the blade, so that shoulder processes are small to almost absent.” Dimensions for the Chan Chich projectile point are 5.7 x 3.9 x 0.9 cm.

Unifaces (n=6; Table 9.11)

There are six unifaces that come from Chan Chich making up 8 percent of the total collection from the site (Figure 9.7). Five artifacts are described as having steeply trimmed edges to the point of exhaustion with evidence of battering on the dorsal sides. Dull polish is evident on one and all of the bits have been reworked to approximately 90 degrees. An artifact in the shape of a parallelogram (10009 CC-5-A-2-5) was unifacially knapped from the ventral side (Figure 9.8). No polish is evident on this artifact. The dimensions for these artifacts are 5.0 x 3.1 x 1.4 cm to 10.8 x 9.5 x 6.1 cm.

Utilized Flakes (n=2; Table 9.12)

There are two utilized flakes from Chan Chich making up 2 percent of the artifacts from the site. One

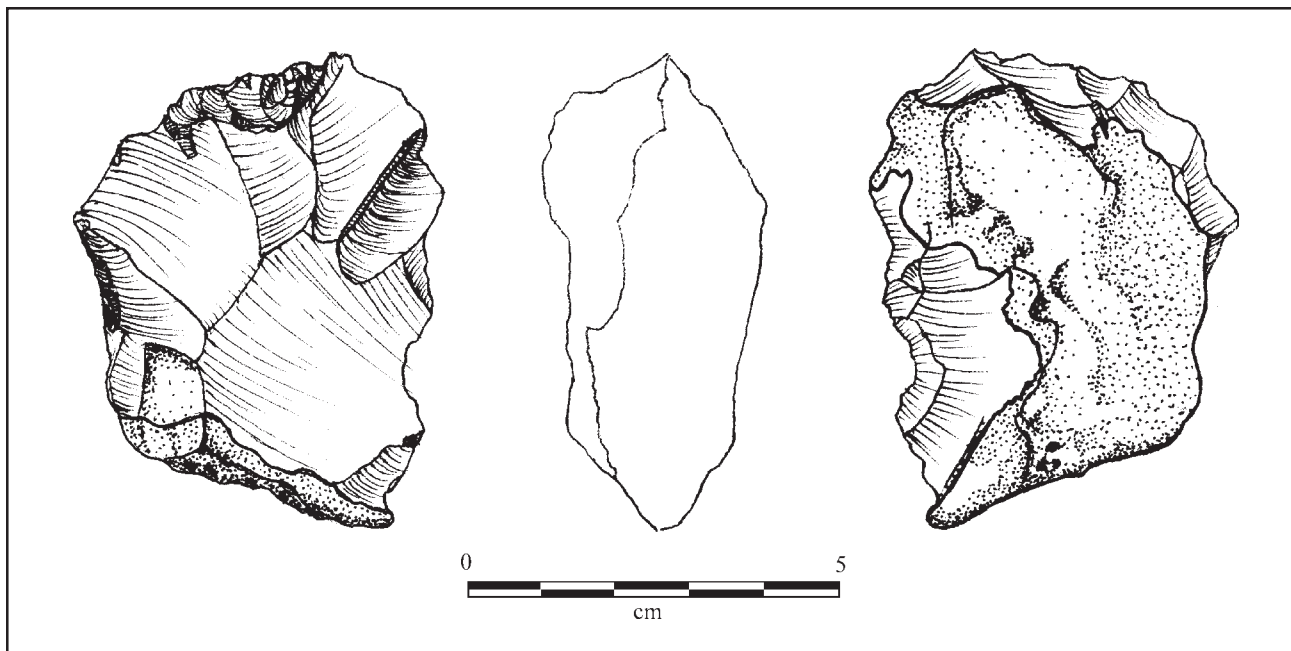


Figure 9.5. An example of a miscellaneous recycled biface recovered from Chan Chich. Illustration by Alexander Symcox.

Table 9.9. Measurements of the Miscellaneous Recycled Bifaces

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-2-K-4-1	5.3	5.5	3.5	144.8
10009 CC-2-L-1-3	7.4	7.1	4.6	247.9
10009 CC-2-L-2-3	5.6	4.3	2.1	41.6
10009 CC-2-L-8-1	6.4	6.1	1.7	96.3
10009 CC-2-S-2-1	10.8	7.2	5.1	291.3
10009 CC-2-V-2-1	10.7	7.5	3.6	333.0
10009 CC-2-W-2-1	10.4	6.9	4.3	425.1
10009 CC-4-D-2-18	10.2	8.8	5.2	437.1
10009 CC-5-A-2-7	10.4	8.1	3.4	259.6
10009 CC-5-C-2-17	5.8	7.4	5.5	211.6
10009 CC-5-C-2-18	7.3	7.5	4.8	230.3
10009 CC-5-C-2-21	5.0	5.9	3.0	89.6
10009 CC-5-C-2-23	10.4	5.9	4.2	236.3
10009 CC-5-C-2-29	7.7	8.4	4.1	269.6
10009 CC-5-E-2-22	10.7	7.0	7.3	553.2
10009 CC-5-F-1-2	8.4	6.2	5.2	336.6
10009 CC-5-H-2-22	8.2	5.8	5.3	241.6
10009 CC-5-H-2-24	7.4	7.4	5.0	278.7
10009 CC-5-H-2a-5	8.5	6.1	4.0	199.4
10052 CC-7-B-2-3	8.7	6.9	2.9	201.1

Table 9.10. Measurements of the Projectile Point from Chan Chich

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-5-A-2-4	5.7	3.9	0.9	25.2

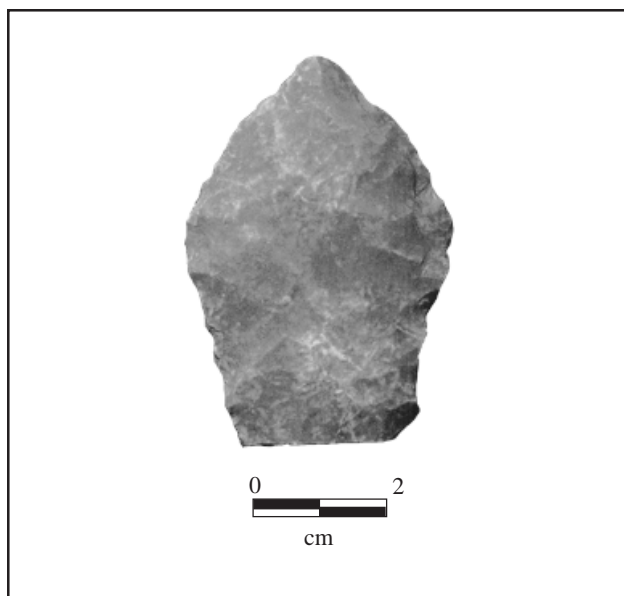


Figure 9.6. *Projectile point, broad tapered stem, short blade recovered from the base of Structure C-3.*

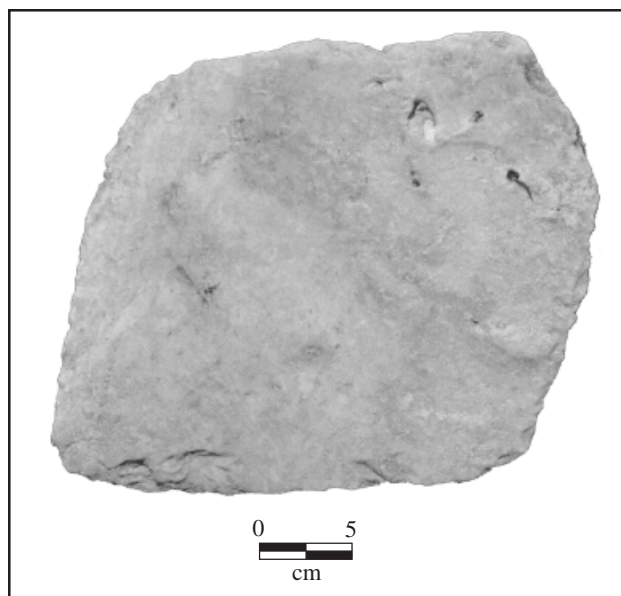


Figure 9.8. *A uniface in the shape of a parallelogram recovered from the base of Structure C-3.*

Table 9.11. Measurements of the Unifaces

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-2-L-1-1	8.9	3.9	3.1	118.9
10009 CC-2-P-1-1	8.7	9.5	6.1	513.6
10009 CC-5-A-2-5	9.5	8.0	4.0	431.4
10009 CC-5-C-2-30	5.8	3.6	1.4	46.3
10052 CC-2-AI-1-1	10.8	8.4	4.9	450.5
10052 CC-2-X-4-1	5.0	3.1	1.4	23.4

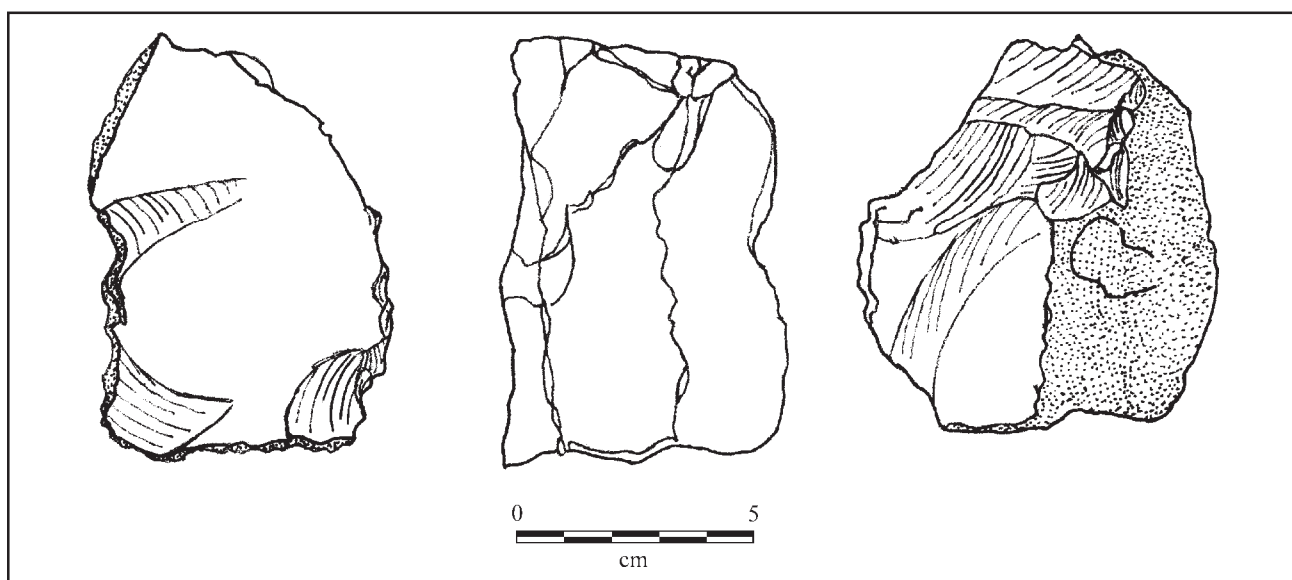


Figure 9.7. *A uniface recovered from the base of Structure C-1. Illustration by J. G. Hanlon, III.*

Table 9.12. Measurements of the Utilized Flakes

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-5-H-2-20	7.3	3.1	0.9	20
10052 CC-8-B-14-3	3.1	2.4	0.8	5.7

artifact (10009 CC-5-H-2-20) shows nibbling on both the dorsal and ventral side, no polish is evident. The other utilized flake (10052 CC-8-B-14-3) is an unusually shaped drill-like pointed implement (Figure 9.9). It has been unifacially sharpened to form a drill on the lateral edges as viewed from the dorsal side. There is no evidence of polish and there is no other use on this artifact. High power microscopy may reveal more interesting information about these specimens. Dimensions for these two artifacts are 3.1 x 2.4 x 0.8 cm and 7.3 x 3.1 x 0.9 cm.

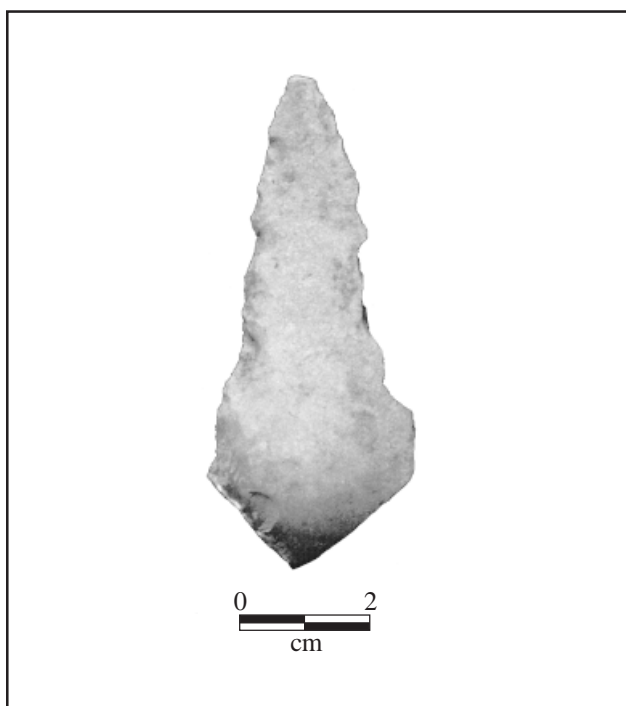


Figure 9.9. Drill-like utilized flake mentioned in the text was recovered from the center of Plaza A-1.

Macroflakes (n=5)

There are five macroflakes in two categories (see below) from Chan Chich making up 6 percent of the artifacts from the site.

Macroflake (unutilized) (n=1; Table 9.13)

There is one macroflake (unutilized) from Chan Chich making up 1 percent of the artifacts from the site (Figure 9.10). It exhibits chips that are probably from archaeological handling rather than from use. The dimensions for this artifact are 14.8 x 4.6 x 2.1 cm.

Utilized Macroflake (n=4; Table 9.14)

Four utilized macroflakes are seen from Chan Chich making up 5 percent of the artifacts from the site. The utilized macroflakes exhibit polish on various portions of their utilized ends with tiny step and hinge fractures also in these locations. Their dimensions range from 7.2 x 5.6 x 1.4 cm to 14.5 x 8.3 x 3.8 cm.

Cores (n=8; Table 9.15)

There are eight cores from Chan Chich making up 10 percent of the artifacts from the site. Prominent platforms and negative bulbs of percussion are seen on all of the specimens. Dimensions for these artifacts range from 4.5 x 3.9 x 2.5 cm to 11.8 x 9.4 x 6.9 cm.

Hammerstones (n=10; Table 9.16)

There are 10 hammerstones from Chan Chich making up 12 percent of the lithic artifacts in this collection. They exhibit battering on all sides in the form of tiny step and hinge fractures (Figure 9.11). Their dimensions range from 6.9 x 2.9 x 3.9 cm to 11.7 x 9.2 x 6.7 cm.

Miscellaneous Chunks (n=4; Table 9.17)

There are four miscellaneous chunks from Chan Chich that "...are of uncertain origin in terms of their initial form" (Hester et al. 1991:74). These specimens could have served as crude cores or casual tools (Figure 9.12). This category comprises 5 percent of the artifacts recovered from the site. The dimensions for these artifacts range from 2.4 x 2.8 x 2.0 cm to 7.9 x 5.5 x 4.5 cm.

Table 9.13. Measurements of the Macroflake (Unutilized)

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10052 CC-7-A-5-1	14.8	4.6	2.1	113.2

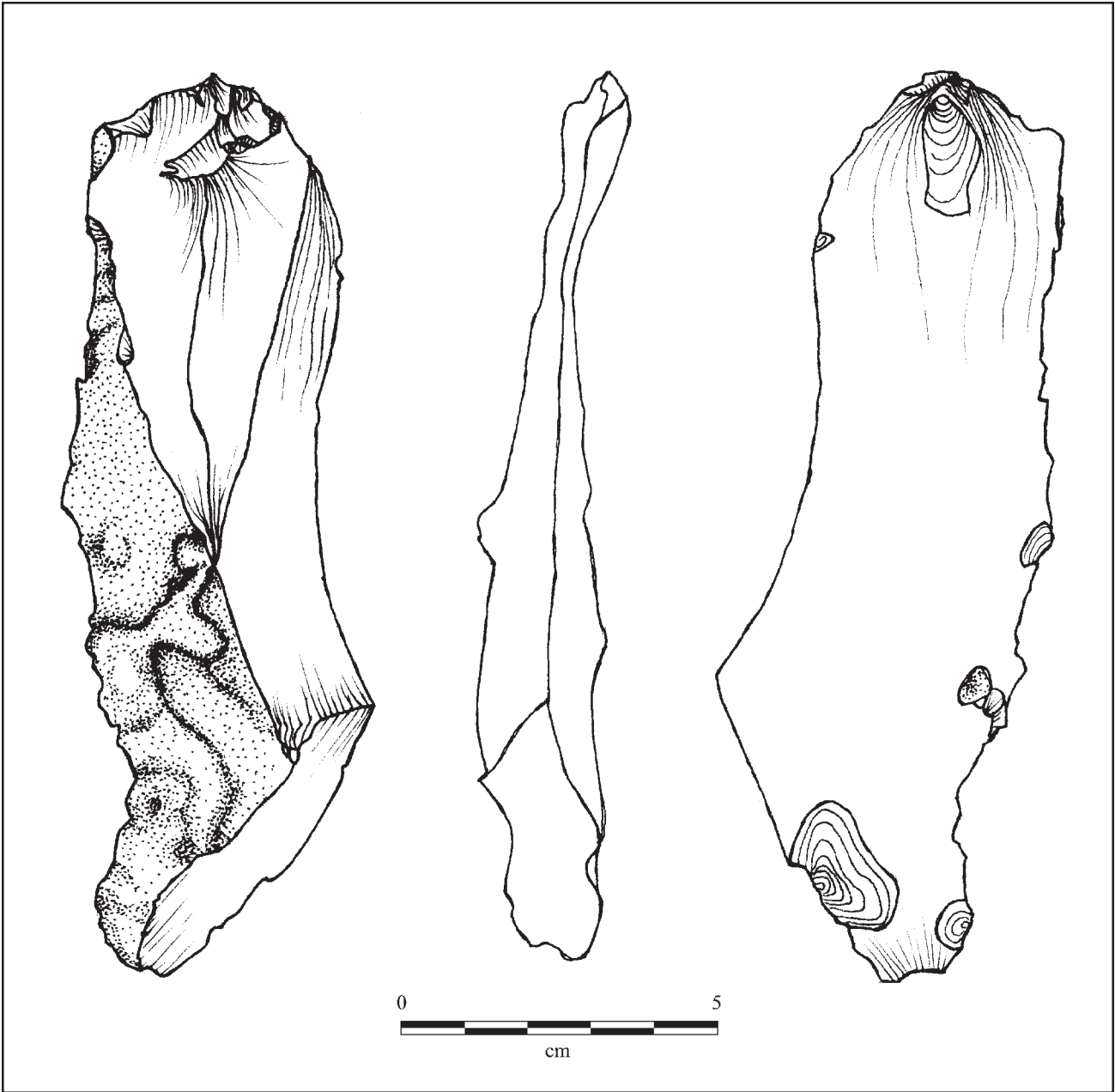


Figure 9.10. Macroflake recovered from collapse debris above the outside patio floor surface located west of “Room 2” in Structure C-6. Illustration by Alexander Symcox.

Table 9.14. Measurements of the Utilized Macroflakes

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-2-K-3-1	7.2	5.7	1.4	69
10052 CC-7-B-2-1	14.5	7.8	3.8	427.4
10052 CC-7-B-2-2	11.4	8.3	3.6	351.6
10052 CC-7-D-2-1	12.5	5.6	2.9	209.2

Table 9.15. Measurements of the Cores

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-2-K-1-2	4.5	3.9	2.5	60.7
10009 CC-2-L-1-2	7.5	5.9	5.6	267.7
10009 CC-2-R-1-1	6.6	4.9	3.6	119.2
10009 CC-5-A-2-10	8.1	9.4	6.9	572.5
10009 CC-5-A-2-9	7.0	5.2	4.5	161.4
10009 CC-5-C-2-19	6.0	7.0	4.9	180.8
10009 CC-5-F-1-1	7.0	5.8	5.8	225.6
10009 CC-5-F-2-9	11.8	8.1	6.8	791.4

Table 9.16. Measurements of the Hammerstones

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-5-A-1-1	10.6	9.2	6.7	559.2
10009 CC-5-A-2-8	6.9	7.4	5.6	319.0
10009 CC-5-C-2-11	7.2	6.9	5.6	317.9
10009 CC-5-C-2-12	10.0	6.4	5.0	377.2
10009 CC-5-C-2-13	11.7	8.3	6.4	682.0
10009 CC-5-D-2-1	8.7	8.4	5.8	430.5
10009 CC-5-F-2-4	10.4	7.1	6.4	360.7
10009 CC-5-F-2-5	7.7	5.4	4.0	229.8
10009 CC-5-H-2-25	7.5	2.9	4.6	249.3
10052 CC-2-L-15-1	9.9	6.5	3.9	266.6

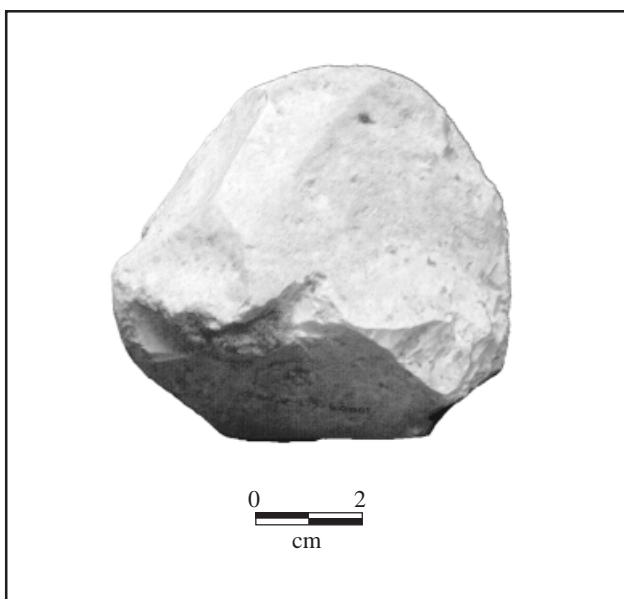


Figure 9.11. A hammerstone recovered from the base of Structure C-3.

Table 9.17. Measurements of the Miscellaneous Chunks

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-2-R-1-2	5.3	4.9	3.0	94.4
10009 CC-5-F-2-6	7.9	5.5	4.5	275.1
10009 CC-5-F-2-7	3.6	4.1	3.0	73.3
10009 CC-5-F-2-8	2.4	2.8	2.0	17.8

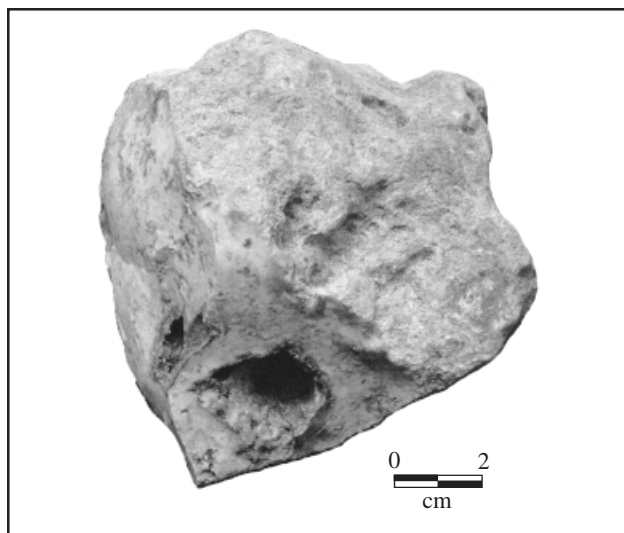


Figure 9.12. An example of a miscellaneous chunk from Chan Chich.

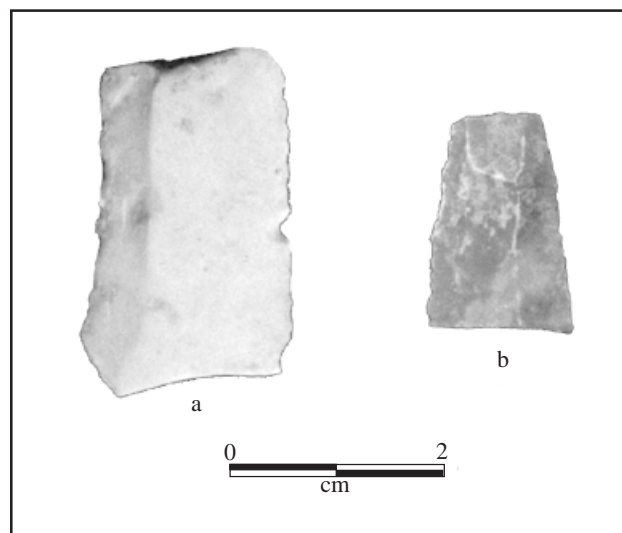


Figure 9.13. Blades from Chan Chich. a: Specimen 10009 CC-5-H-2-17; b: Specimen 10009 CC-5-H-2-18.

Blades (n=2; Table 9.18)

There are two prismatic blades from the collection or 2 percent of the total collection from Chan Chich. Blade Specimen 1 (10009 CC-5-H-2-17) (Figure 9.13a) is a prismatic blade whose material is medium chalcedony. Blade Specimen 2 (10009 CC-5-H-2-18) (Figure 9.13b) is also a prismatic blade whose material is medium chert. Valdez (1986:211) describes prismatic blades as "...long, thin, parallel-edged flakes usually with one or two dorsal ridges." Both of these specimens exhibit what Valdez (1986:211) terms "dorsal trimming,...[which]...is observable edge modification on the dorsal face of the blade...[and]...is probably the result of much use." The dimensions for these artifacts are 2.0 x 1.2 x 0.3 cm and 3.2 x 1.8 x 0.3 cm.

Implications

The Chan Chich chipped stone tools represent heavily used/reworked tools mostly recovered from construction fill, collapse debris, surface, and midden contexts. Although formal tools are represented in this collection, the lack of preforms and wastage (e.g., bifacial thinning flakes, flake fragments, etc.) indicates there were no workshop activities where these artifacts were recovered. However, Meadows (1998, 2000 [this volume]) asserts that Group H at Chan Chich (approximately 1.2 km from the site center) represents a lithic tool production area, and the results of his investigations there are reported in Chapter 2 of this volume.

Table 9.18. Measurements of the Blades

Specimen	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)
10009 CC-5-H-2-17	3.2	1.8	0.3	3.8
10009 CC-5-H-2-18	2.0	1.2	0.3	0.9

Richard Meadows (personal communication 1999) says that there were “a number of interesting production sequences occurring in the workshops: small oval bifaces/celts, a thicker triangular biface (perhaps used as a wedge or mason’s tools), and a thin biface, biconvex in cross section, perhaps used as an adze.” The stone tools recovered from the various contexts from Chan Chich fit well within Meadows’ (2000) Group H categories. Given the quality of the material and the exhausted condition of the artifacts in this collection they were probably used as rubble fill for building construction.

Macroscopic use-wear observations help demonstrate the tool type of a particular specimen. For example, a bifacial celt is distinguished between an oval biface by its macroscopically observed use. The presence/absence of polish, nicking, nibbling, etc. could place a tool into a pre-established artifact type. Microscopic use-wear observations can identify tool use (i.e., wood, bone, hide, tough fibers, limestone, etc.) and use-life (Lewenstein 1987). For example, Lewenstein (1987:Table 31) has determined that 34 percent of the tools recovered from coastal zones at Cerros exhibit wood processing activities. Until a microscopic use-wear analysis is performed on the chipped stone artifacts of Chan Chich, use-wear will be limited to a diagnostic role that places a tool into a particular tool category.

Breakage patterns observed in the Chan Chich collection exhibit only snap fracture. Lewenstein’s (1987) experimental use of stone tools attributes but does not limit tool tasks to wood chopping and land clearing. Lewenstein’s (1987) experimental tools exhibited snap fracture when used to chop various species of trees, although Lewenstein (1987) states “...I do not know if this type of break is distinctive to the chopping function...” The artifacts that exhibit snap fracture in the Chan Chich collection were near or at the exhausted state and were probably used for some sort of intensive chore, perhaps woodcutting, or land clearing. Again, a microscopic use-wear analysis will help to demonstrate the material on which these tools were used.

Conclusions

The primary objective of this chapter has been to provide a thorough description and typology of the chipped stone artifacts from Chan Chich. It has been presented in a manner that will allow clear and easy comparison with other analyses of similar material, particularly from northern Belize and northeastern Guatemala. Another major objective of this analysis is the preliminary study of use-wear characteristics, and certain use wear attributes are categorized and typed to facilitate comparative studies and future analyses. It is recommended that a microscopic use wear analysis of select tools be performed, although facilities are not available in Belize for completion of this task. A final objective was the study of breakage patterns seen in formal tool categories. The only fracture observed was snap fracture with an absence of perverse and over-shot fracture types. Taken as a whole, this study will add to the accumulating data on stone tool industries in the Maya area.

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Ground Stone Artifacts from Chan Chich

Rigden Glaab and Fred Valdez, Jr.

Introduction

The category of ground stone artifacts for the Chan Chich Archaeological Project (CCAP) is represented by 35 items. The category comprises those materials that have been made or modified by some abrasive technique. The abrasive techniques implemented and most applicable for this category are pecking and grinding. The artifact type of “polished” stone is not included in this study. Although polished stone is accomplished by abrasive techniques, first pecked or ground and then polished, it is the last step in manipulation that separates it from this “ground stone” artifact study.

The 35 artifacts studied are placed into six descriptive or functional categories. Sixteen are metate fragments. Classified under the heading of manos are nine mano segments and one complete specimen. Six of the artifacts are placed into a category of “other ground stone” due to their irregular and fragmentary forms. These six items are described by their general cross-section shape (e.g., rectangular). Three functional/descriptive categories have one artifact each including pounding or rubbing stone, bark beater, and a perforated stone ball.

Comparative data and references are derived from several sources with a focus on the Maya lowlands. The more useful and available sources were from the following sites: Altar de Sacrificios (Willey 1972), Baking Pot (Bullard and Bullard 1965), Belize Valley (Willey et al. 1965), Cerros (Garber 1989), Chalchuapa (Sheets 1978), Colha (Buttles 1992), Cuello (Hammond 1991), Lubaantun (Hammond 1975), Northern Belize (Sidrys 1983; Sidrys and Andresen 1976), San Estevan (Bullard 1965), San Jose (Thompson 1939), Seibal (Willey 1978), and Uaxactun (Kidder 1947).

The primary interest of this research paper is to document the ground stone artifacts of the project. This effort will make the data available for individual excavators of the project and for other researchers interested in the ground stone industry. While some preliminary discussion as to meaning for the types and distributions of these artifacts may be posited, the low number of artifacts does not allow for any extensive or confident discussion. The hesitation to make definitive statements about the Chan Chich ground stone collection is based primarily on the sampling available from the site.

Metates

Metates are stone grinding slabs often used in the processing of corn, seeds, grasses, and other items that require modification including grinding, crushing, and perhaps minor pounding. The metate is a stationary grinding implement used with the handheld tool called a mano. Thus, manos and metates are the complementary tool set most often associated with subsistence activity. Manos are discussed in specific detail in a separate section below.

Sixteen metate fragments are documented in the CCAP’s collection. Twelve of the 16 metate fragments are classified as basin-shaped metates following descriptions from Altar de Sacrificios (Willey 1972), Cerros (Garber 1989), and Seibal (Willey 1978). This metate form is also referred to as turtle back metate due to its rounded bottom or resting surface. The interior of the metate has a basin-like working or grinding surface. The interior surfaces of all Chan Chich examples are worn and polished from extensive use. Table 10.1 provides the provenience and metric data for each metate fragment. Figure 10.1 provides cross-sections of four basin-shaped metates from the Chan Chich collection.

Table 10.1. Provenience and Metric Data for the Basin-shaped Metates

Prov.	L	W	Th	Stone/Material
2-W-2	12.4	19.2	4.2	Limestone
5-C-2	13.5	16.7	3	Quartzite
5-E-2	16.3	9.8	3.1	Quartzite
5-E-2	10.8	9.7	3.1	Quartzite
5-E-2	18.8	10.9	3.9	Quartzite
5-E-2	14.3	13.2	2.7	Quartzite
5-E-2	13.3	13.5	2.6	Quartzite
5-H-2	12.3	12.2	3.7	Quartzite
6-B-0	17.5	20.5	3.8	Limestone
6-C-8	10.3	8.4	3.6	Quartzite
6-D-6	7.3	4.1	2.5	Quartzite
6-general	12.4	19.2	4.2	Limestone

Four metate fragments are not classified into descriptive types. The fragments are either too small or broken in a way that prevents classification beyond the identity of metate fragment. Table 10.2 lists the provenience and metric data for each of the four specimens.

Two stone/material types seem to be utilized for metates by the ancient Maya of Chan Chich, limestone and quartzite. Without direct inspection of the specimens by a qualified geologist the rock type (i.e., stone/material) presented in each table are based on descriptive comments from several sources including Garber (1989), Sidrys and Andresen (1976), and Willey (1978). Limestone specimens were easily identified and maintain a gray color. The quartzite specimens may have been acquired from highland areas such as the Maya Mountains of southern Belize.

Manos

Manos are hand-held implements used to grind, crush, or pound materials (usually for food). The specific activity employed with the mano is generally accomplished on the metate discussed above. Manos are often distinctive from other rocks or cobbles due to high polish and smoothing usually on two or more surfaces of the tool.

The CCAP collected a sample of ten manos. One specimen is a complete example, while the other nine are

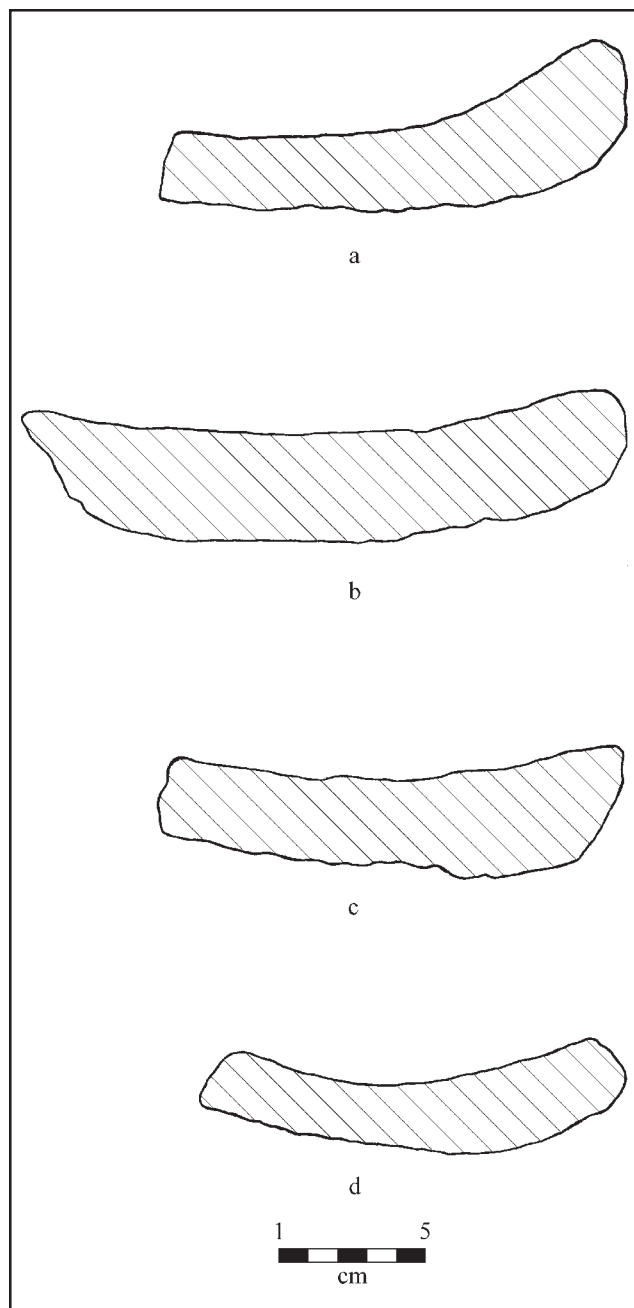


Figure 10.1. Cross-sections of four basin-shaped metate fragments from Chan Chich.

Table 10.2. Provenience and Metric Data for Unclassified Metate Fragments

Prov.	L	W	Th	Stone/Material
4-D-1	3.8	5.2	1.6	Quartzite
5-C-2	6.2	5.5	2.6	Quartzite
5-E-2	10.9	9.2	4.3	Quartzite
5-E-2	4.6	4.8	3.2	Quartzite

mano fragments. The ten specimens are categorized into four subforms. The subforms of the Chan Chich manos are based on cross-sections that include plano-convex (one artifact), ovate (three specimens), round (four examples), and square (two items including the complete specimen). Principal comparisons for the manos may be found in Garber (1989) and Willey (1978).

Of the ten manos documented, six are made from quartzite, three from limestone, and one from chert. Examples of manos (and metates) made from chert are known from several locations in Belize including Colha (Valdez, personal observation). Table 10.3 details the provenience and metric data for the ten Chan Chich manos.

Table 10.3. Provenience and Metric Data for the Chan Chich Manos

Prov.	L	W	Th	Subform and Stone
6-C-8	7.6	6.6	4.8	Plano-convex, limestone
4-B-2	7.5	5.1	4.3	Ovate, chert
5-E-2	9.6	7.3	5.8	Ovate, quartzite
8-A-5-1	9.1	8.3	4.7	Ovate, limestone
5-C-2	9.5	6.9	6.9	Round, quartzite
5-D-1	7.9	6.2	6.2	Round, limestone
5-E-2	7.8	5.1	5.1	Round, quartzite
5-H-2	7.3	5.9	5.7	Round, quartzite
5-C-2	22.7	6.6	6.5	Square, quartzite
5-H-2	6.6	6.5	6.3	Square, quartzite

One of the mano fragments from 5-E-2, round subform, has a groove or notch off-centered across one end. This modification is cultural, but its meaning remains uncertain. The groove may be the result of some post-“mano” activity. Most of the manos are not complete specimens and only cross-sections are provided in Figure 10.2. The one complete specimen, from 5-C-2, is illustrated in outline as well as cross-section (Figure 10.2 j).

Bark Beater

One bark beater fragment is represented among the Chan Chich ground stone artifacts. The one tool was located at 6-B-0 and measures 7.5 cm long, 5.0 cm wide, and 4.1 cm thick. The bark beater is of a quartz-

ite stone. Although fragmented, the artifact retains a groove along one side that had served as a means for attaching a handle more securely as commented upon for examples from Seibal (Willey 1978:79) and San Estevan (Bullard 1965). The Chan Chich specimen is too fragmentary to determine its complete subform, but it was probably rectangular and it may have had a hafting groove around all sides.

Figure 10.3 provides an outline of the bark beater. Of interest here are the functional surfaces designated 1 and 2 that form the larger flat (functioning) sides of the tool. Side one has parallel grooves that are spaced approximately 4 mm apart. Side two also has incised parallel grooves, but placed about 2 mm apart. It seems that this bark beater as with examples from across the Maya lowlands had two functioning sides (cf. Willey et al. 1965), one for generally coarse processing (wider groove spacing) and the second side for more refined activity (or at least a refined result).

Ground Stone Ball with Perforation

One artifact that was pecked, shaped, and generally smoothed is classified here as a ground stone oval-shaped ball with a perforation. The descriptive term is used since no function can be tied to the artifact with certain confidence. The stone ball has a grooved and drilled perforation at one end of the artifact that suggests it was suspended. The size and weight of the artifact may indicate that it served some capacity as a weight. One logical interpretation is that it may have served as a curtain weight, however its exact function remains unknown.

The stone artifact excavated at 1-B-4 is made of locally available limestone. The Chan Chich artifact measures 4 cm high, 4.7 cm wide, and 4.2 cm thick. Figure 10.3b shows several views of the perforated ground stone ball.

Pounding or Rubbing Stone

One artifact is classified as a pounding or rubbing stone. The particular artifact is from Chan Chich provenience

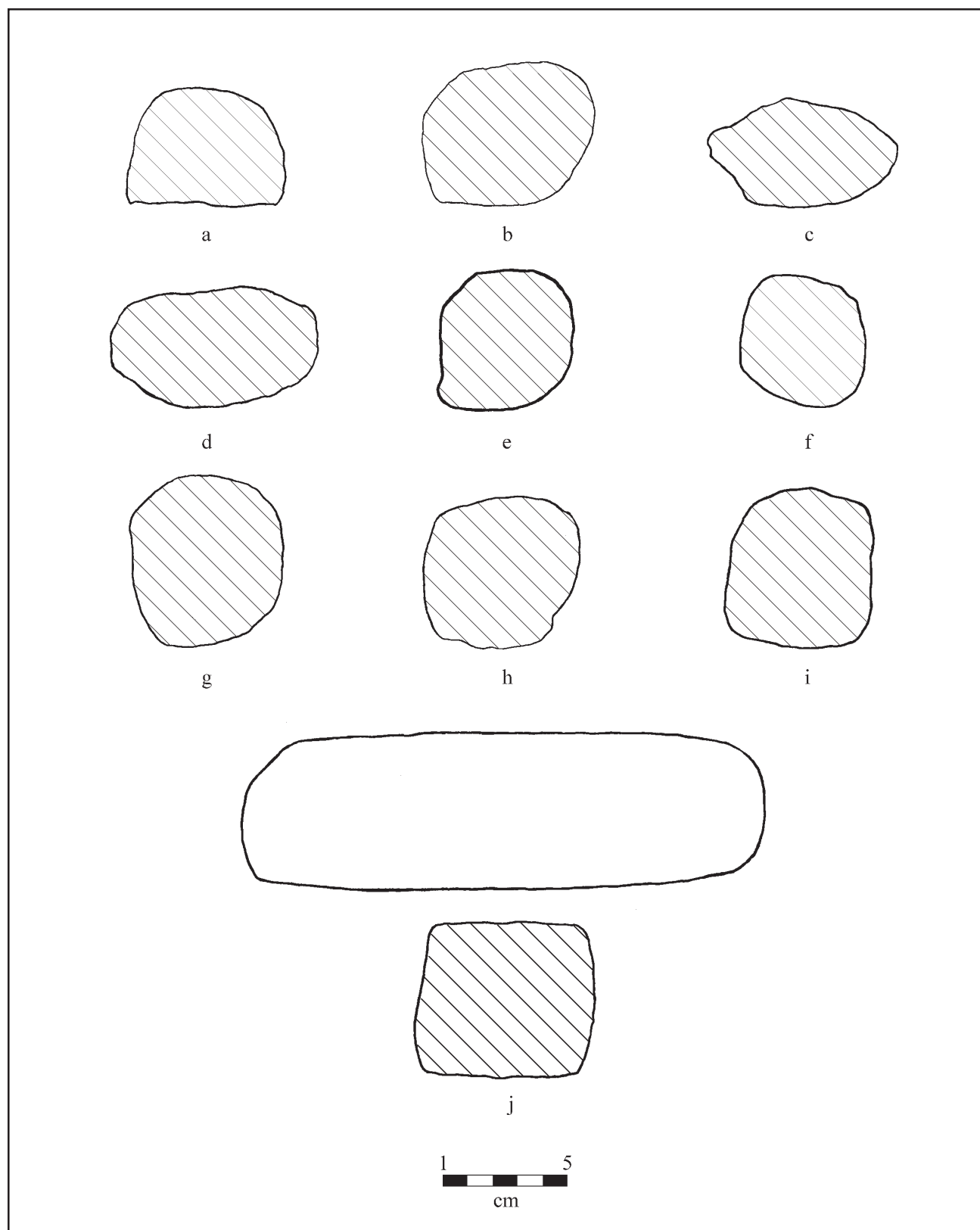


Figure 10.2. *Manos* from Chan Chich by subform (cross-section): a, plano-convex; b–d, ovate; e–h, round; i and j, square.

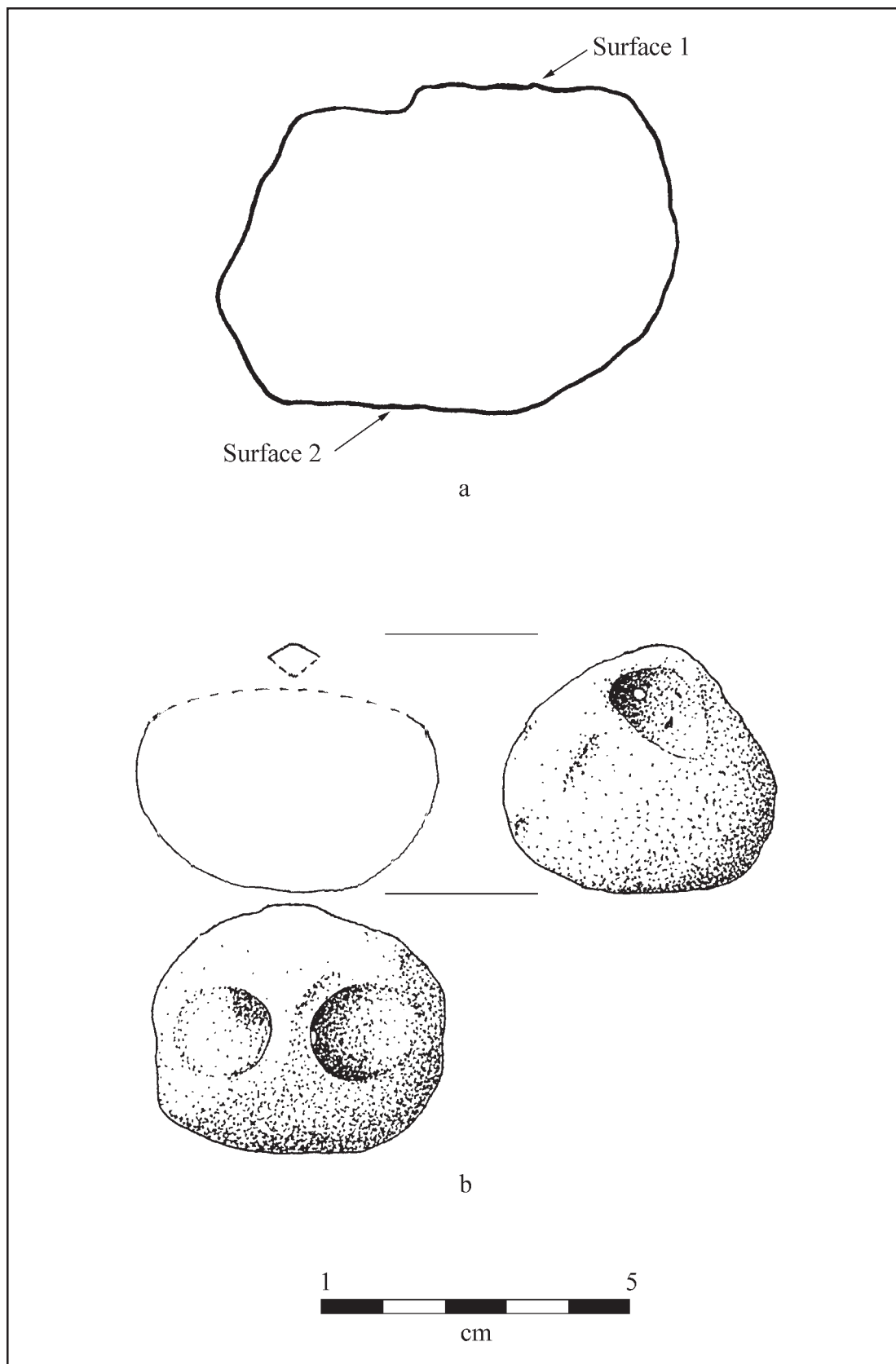


Figure 10.3. *Bark beater (a), and ground stone ball with perforation (b).*

2-L-2. The stone is ovate in form, thick in cross-section, and made of limestone. It had been pecked and roughly shaped. One surface is generally smoothed as if used in a rubbing activity. However, the other surface is very uneven and has small chunks missing indicating the some pounding may have occurred (as if used as an anvil?).

Eight small chunks of the same type material were excavated in association with the larger artifact, but none of the chunks could be re-fitted. One possibility is that the small chunks resulted from prehistoric fractures to the pounding/rubbing stone. At this time only the descriptive comments are provided with certainty and confidence. The Chan Chich artifact measures 16.2 cm long, 13.8 cm wide, and 7.6 cm thick.

Other Ground Stone

Six Chan Chich artifacts are classified as other ground stone. This category is comprised of items that are functionally and/or descriptively anomalous. All six artifacts have a ground or polished surface, but are in a fragmented shape that does not allow for specific categorization. Thus, while most of these items are probably fragments of metates, no functional interpretation is posited. Table 10.4 provides data concerning provenience, metric, subform (cross-section shape), and stone type/material.

Table 10.4. Provenience and Metric Data for Other Ground Stone

Prov.	L	W	Th	Subform and Stone
2-L-21-1	10.4	8.1	8.3	Rectangular, quartzite
6-C-8	7.8	6.7	3.5	Rectangular, limestone
4-D-2	2.7	3.5	2.5	Plano-convex, limestone
7-D-2-1	11.3	6	2.6	Plano-convex, limestone
6-B-1	9.1	7	3.5	Slab, quartzite
6-B-1	9.6	7.2	3	Slab, quartzite

Summary Comments

Thirty-five ground stone artifacts have been analyzed and described for the CCAP's artifact collection. Though small in number, the collection represents several stone/material types indicating the use of local resources (limestone) and access to long distance

(traded) items probably from the Maya Mountains region (quartzite). The range of artifact types is also impressive with general subsistence items (manos and metates) as well as other functional artifacts (bark beater, stone weight?).

It is difficult to determine a pattern of distribution for the ground stone artifacts. As a whole, the artifacts were recovered from a wide range of contexts. The metate and mano groups do provide one interesting fact in terms of occurrence. Both have a high number (and percentage) representation at Operation 5. Seven of the 12 basin-shaped metates (58.3 percent), three of the four unclassified form metates (75 percent), and seven of the ten manos (70 percent) were excavated at Operation 5. For the total number of 26 manos and metates, 17 (65.38 percent) were from this operation. A preliminary indication is that the Operation 5 locale was or at least contained a food-processing area.

Beyond the brief comment above, there is no attempt (at this time) to reconstruct the related activities of the ancient Maya at Chan Chich based on this small sample. However, this research report should be useful to scholars who may undertake studies incorporating collections/data from many sites (such as Chan Chich) to reconstruct the general implications of ancient Maya activities concerning ground stone including production/acquisition, consumption/use, and recycling or discard patterns.

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The Chan Chich Ceramic Complexes

Fred Valdez, Jr. and Brett A. Houk

Introduction

Six functionally complete complexes represent the Chan Chich ceramic sequence. Ceramics excavated from the 1997, 1998, and 1999 seasons in addition to pottery curated at Chan Chich from previous investigations are considered in the evaluation of the ceramic sequence. Three major objectives guided the ceramic analysis for the Chan Chich Archaeological Project (CCAP). First was the establishment of a chronological sequence for the site. This sequence also serves other research interests both internally (i.e., within the site) and externally to other sites and regions. A second interest of the ceramic analysis is its potential use concerning internal site ceramic patterns. In this respect the distribution of pottery within the site may reflect degrees or levels of social, economic, and political interaction within the community. This aspect of the analysis is still in progress. The analysis of ceramic patterning may also assist in determining initial settlement foci as well as changing settlement preferences over time. The third benefit of this analysis concerns correlating external interaction. Ceramics may be used to gauge intersite and interregional trade, communication, and cultural evolutionary developments. The third objective is a significant component of this report.

Analysis Methodology

The Chan Chich ceramic collection has been studied using the long established type:variety-mode system of analysis (Adams 1971; Gifford 1976; Sabloff 1975; Smith et al. 1960). This system has been applied at numerous sites across the Maya lowlands including Altar de Sacrificios (Adams 1971), Becan (Ball 1977), the Belize Valley (Gifford 1976), Cerros (Robertson-Freidel 1980), Coba (Robles 1980), Colha (Valdez 1987), Cuello (Kosakowsky

1987; Kosakowsky and Pring 1998; Pring 1977), El Mirador (Forsyth 1989), K'axob (Lopez Varela 1995), Kichpanha (McDow 1997; Meskill 1992; Reese and Valdez 1987), Laguna de On (Mock 1997), Nakbe (Forsyth 1993), Northern River Lagoon Site (Mock 1994) Oxkintok (Varela 1992), Rio Azul (Adams and Jackson-Adams 2000), Santa Rita (Chase and Chase 1988), Seibal (Sabloff 1975), and the Programme for Belize Archaeological Project (PfbAP) as a regional endeavor (Sullivan and Valdez 2000; Valdez et al. 1993).

A significant component of this analysis requires ceramic type descriptions that help to define the grouping of typological units that may then be defined into chronologically significant segments. Therefore, the type:variety-mode system of analysis allows for the ceramics to be used as a chronological tool, which is often of immediate interest to excavators. The time segments defined for Chan Chich are approximated from comparisons with certain other sites containing similar ceramics. Specific temporal designations may be determined in the future for Chan Chich with the results of radiocarbon analysis.

The Ceramic Sequence

Six ceramic complexes are currently represented in the Chan Chich sequence (Table 11.1). All of the complexes are functionally complete as defined by Adams (1971), however, the Early Classic period (Tzakol Sphere) remains a poorly represented complex. Late Postclassic visitations occurred at Chan Chich as is common at numerous other sites and represented only by censer material.

The ceramic complexes currently defined are named after birds observed inhabiting the Chan Chich area. It is believed that additional excavations will pro-

Table 11.1. The Chan Chich Ceramic Chronology

Period	Complex	Ceramic Sphere	Dates
Middle Preclassic (early)	Kiskadee	Swasey	900–600 BC
Middle Preclassic (late)	Oropendola	Mamom	600–400 BC
Late Preclassic	Jacamar	Chicanel	400 BC–AD 150
Protoclassic	Trogon	Floral Park	AD 150–250
Early Classic	Jabiru	Tzakol	AD 250–600
Late Classic	Motmot	Tepeu 1-2	AD 600–800
Terminal Classic	Pauraque	Tepeu 3	AD 800–850

vide data lending support to the general ceramic chronology as currently presented. Each season of research will ideally allow for a refinement of the chronology through better definitions of ceramic types, complexes, and complex facets.

Barquedier Grooved-incised: Barquedier variety
 Calcutta Incised: Unspecified variety
 Cotton Tree Incised: Cotton Tree variety
 Unnamed Red-on-orange paste

Kiskadee Complex

Early Middle Preclassic, Swasey Sphere. The Kiskadee Complex represents the earliest occupation at Chan Chich, which begins about 900 BC and extends to 600 BC. The significant ceramic types of this complex fit well with the northern Belize Swasey Sphere. The Chan Chich Swasey Sphere ceramics are nearly identical to those reported from Colha (Valdez 1987, 1994), Cuello (Kosakowsky 1987; Kosakowsky and Pring 1998; Pring 1977), Kichpanha (McDow 1997; Reese and Valdez 1985), the PfBAP region (Sullivan and Valdez 2000), Rio Azul (Adams and Jackson-Adams 2000), and as viewed in the K'axob collection (Valdez, personal observation 1993). However, it is important to understand that there is an intriguing overlap in similarity between the (northern Belize) Swasey and (Pasion) Xe spheres. The extent (qualitative, quantitative, and meaning) of this overlap between the two contemporary spheres has not been determined.

The major types identified for this complex are:

Consejo Red: Estrella variety
 Ramgoat Red: Ramgoat variety
 Chicago Orange: Nago Bank variety
 Savannah Orange: Rejolla variety
 Quamina Cream: Quamina variety
 Machaca Black: Wamil variety
 Tower Hill Red-on-cream: Tower Hill variety

Oropendola Complex

Late Middle Preclassic, Mamom Sphere. Approximately 600 BC to 400 BC is the Chan Chich Oropendola Complex within the Mamom Sphere. The Mamom ceramic sphere although pan-Maya does display regional variations. Sites with similar ceramic content (and complexes) include Altar de Sacrificios (Adams 1971), Colha (Valdez 1987, 1994), Cuello (Kosakowsky and Pring 1998), El Mirador (Forsyth 1989), Nakbe (Forsyth 1993), Rio Azul (Adams and Jackson-Adams 2000), Seibal (Sabloff 1975), as well as sites directly north in the PfBAP (Sullivan and Valdez 2000). Intraregional and interregional communication, although clearly occurring, may have been limited particularly as compared to succeeding phases. While distinctions between ceramics (of similar type:variety) from one site to another are present in minor form differences as well as in slip color and/or treatment, these elements are also consistent enough throughout the lowland zone to warrant the placement of the Chan Chich Oropendola Complex in the Mamom ceramic sphere.

The major types identified for this complex are:

Richardson Peak Unslipped: Unspecified variety
 Sapote striated: Unspecified (thin-wall) variety
 Joventud Red: Palmasito variety
 Chunhinta Black: Chunhinta variety
 Chicago Orange: Warrie Camp variety
 Pital Cream: Unspecified variety

Muxanal Red-and-cream: Lazaro variety
Guitara Incised: Grooved-incised variety
Desvario Chamfered: Unspecified variety
Unnamed "Belize Valley Orange Paste"
Unnamed "Unslipped Incised Orange Paste"
Unnamed Pink-and-red mottled
Unnamed Red-and-black mottled and Punctated
Unnamed Dark red w/specular hematite (?)

Jacamar Complex

Late Preclassic, Chicanel Sphere. A beginning date of 400 BC and terminating ca. AD 150 is designated for this ceramic complex at Chan Chich. While the Late Preclassic generally extends to AD 250, a separate complex is posited for the following Protoclassic period because the presence of Floral Park sphere ceramics and the excavation of a Protoclassic tomb.

The Late Preclassic complex at Chan Chich is a nearly identical in type composition to other ceramic complexes of the same period in the Maya lowlands. There seems to be among the lowland Maya during the Late Preclassic a very strong sense of what pottery should look like particularly for common wares. Bowls, jars, etc. become very uniform in shape, slip color, and surface treatment in this period. Comparative site ceramic typology for this analysis include Altar de Sacrificios (Adams 1971), Becan (Ball 1977), Cerros (Robertson-Freidel 1980), Colha (Valdez 1987, 1994), Cuello (Kosakowsky and Pring 1998), Dos Hombres (Sullivan and Valdez 2000), El Mirador (Forsyth 1989), K'axob (Lopez Varela 1995), Nakbe (Forsyth 1993), Rio Azul (Adams and Jackson-Adams 2000), and Seibal (Sabloff 1975). The Late Preclassic was a time of intensive and extensive communication in the lowland Maya region as interpreted from the ceramics. While this was a time of conservative production in pottery making, the extent of innovative development for the following phase is quite mixed from site to site.

The major types representing for this complex are:

Richardson Peak Unslipped: Unspecified variety (?)
Sapote Striated: Unspecified variety
Sierra Red: Sierra variety

Society Hall: Bound to Shine variety
Polvero Black: Unspecified variety
Flor Cream: Unspecified variety
Nictaa Buff: Unspecified variety
San Antonio Golden-brown: Unspecified variety
Mateo Red-on-cream: Unspecified variety
Puletan Red-and-unslipped: Unspecified variety
Laguna Verde Incised: Grooved-incised variety
Lechugal Incised: Macaw Bank variety
Repollo Impressed: Unspecified variety
Lagartos Punctated: Unspecified variety
Escobal Red-on-buff: Unspecified variety
Unnamed Red-and-black mottled

Trogon Complex

Protoclassic, Floral Park Sphere. The Protoclassic Trogon Complex at Chan Chich is estimated to date AD 150–250. However, the dating has recently been reviewed with suggested changes for the Protoclassic across the lowland Maya region (see below for a more complete argument). A significant overlap exists between types defined for the Jacamar Complex (Chicanel Sphere) and the Trogon Complex (Floral Park Sphere). The overlap in identified ceramic types is partly explained by the conservative and practical use of forms and slips that function well. Separation of the two complexes is based in the introduction of new and sometimes elaborate forms as well as a general hardening of the ceramic slips. The Protoclassic was generally a period of innovation when polychrome pottery was introduced and most slips had developed from "waxy wares" to a "hard, glossy" appearance. The Chan Chich Protoclassic ceramics were compared with similar material from other lowland sites including Altar de Sacrificios (Adams 1971), the Belize Valley (Gifford 1976), Cerros (Robertson-Freidel 1980), Colha (Meskill 1992; Valdez 1987), Cuello (Pring 1977), Kichpanha (McDow 1997; Meskill 1992), and La Lagunita (Ichon and Arnould 1985).

The major types represented in the Trogon Complex are:

*Sapote Striated: Unspecified variety
Caribal Red: Unspecified variety
*Sierra Red: Sierra variety

- *Society Hall: Bound to Shine variety
- *Nictaa Buff: Unspecified variety
- San Felipe Brown: Unspecified variety
- Tanjoc Burnished: Unspecified variety (?)
- *Polvero Black: Unspecified variety
- *Escobal Red-on-buff: Unspecified variety
- *Puletan Red-and-unslipped: Unspecified variety
- *Repollo Impressed: Unspecified variety
- Unnamed Red-rimmed Buff: Unspecified variety
- Unnamed Buff Incised
- Unnamed Red-and-unslipped Punctated
- Unnamed Red Incised-and-punctated
- Unnamed Red-on-black and punctated
- Unnamed Cream-and-brown with grooved rim
- * Occur in both the Jacamar Complex (Late Preclassic) and the Trogon Complex (Protoclassic)

Eleven vessels were recovered from a Protoclassic tomb at Chan Chich in the 1997 field season (Robichaux 1998; Robichaux and Houk 1998). The recovered tomb vessels provide a capsule view for this significant Maya period as ceramic modes of the Late Preclassic transition into the Early Classic. The 11 vessels (Figures 11.1–11.11) have been assigned type names for this report (Table 11.2).

A valuable study of the Protoclassic chronology for the lowland Maya is summarized at this point. A recent re-evaluation (Brady et al. 1998) of the Protoclassic dating indicates that this period may have occurred ca. 75 BC–AD 400 and contained two facets with a dividing line between facets placed at AD 150. The Chan Chich Protoclassic as currently posited has

the second facet represented as a separate complex (AD 150–250). Thus, according to Brady et al. (1998), the Protoclassic facet beginning at AD 150 may have extended to AD 400 overlapping what is known in the ceramic chronology as Tzakol 1 and beyond the current Chan Chich ending date of AD 250 for the Protoclassic Trogon Complex. The radiocarbon (C-14) dating of bone (from the tomb) or other material from Chan Chich may help to define the range of occupation for the Protoclassic and its overlap with Late Preclassic (Chicanel) and Early Classic (Tzakol) components.

Jabiru Complex

Early Classic, Tzakol Sphere. Traditionally dated from AD 250–600, the Early Classic at Chan Chich is not well represented in the ceramic remains. Although significant ceramic types have been identified, the quantity of material indicates a rather weak occupation. Several complete Early Classic vessels recovered from looter's activity point to more significant Early Classic development than implied by the project's sherd recovery. Therefore, a sampling concern rather than a reality of Early Classic occupation and activity may skew the interpretation of a weak occupation. Sites or collections compared for the Early Classic Jabiru Complex include Altar de Sacrificios (Adams 1971), Becan (Ball 1977), the Belize Valley (Gifford 1976), Coba (Robles), Colha (Meskill 1992; Valdez 1987), Kichpanha (McDow 1997; Meskill 1992), the PfbAP (Sullivan and Valdez 2000), Rio Azul

Table 11.2. Whole Vessels and Type Names from Tomb 2

Type	Form	Vessel Number	Figure
Mango Incised: Unspecified variety*	Spout-and-bridge jar	1	11.1
Sierra Red: Unspecified variety	Mammiform support bowls	2	11.2
		4	11.4
		8	11.8
		9	11.9
Cashew Red-and-buff: Unspecified variety*	Spout-and-bridge jar	3	11.3
Laguna Seca Incised: Unspecified variety*	Basal flange bowl	5	11.5
Rio Bravo Red: Unspecified variety	Ring base jar	6	11.6
	Basal angle jar	7	11.7
	Basal flange bowl	10	11.10
Matamor Dichrome: Unspecified variety	Mammiform support bowl	11	11.11

* New type name from Chan Chich.

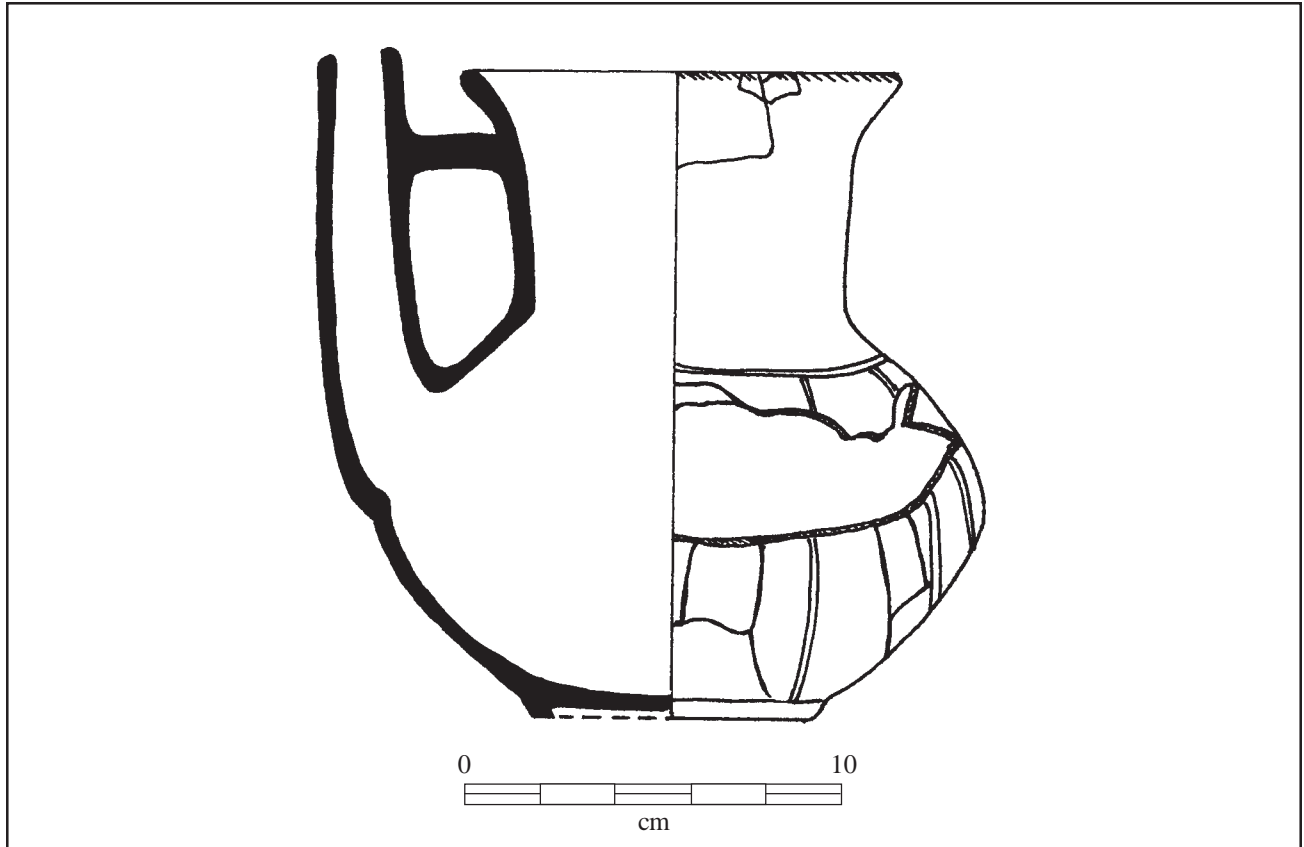


Figure 11.1. *Vessel 1 from Tomb 2, Mango Incised: Unspecified variety.*

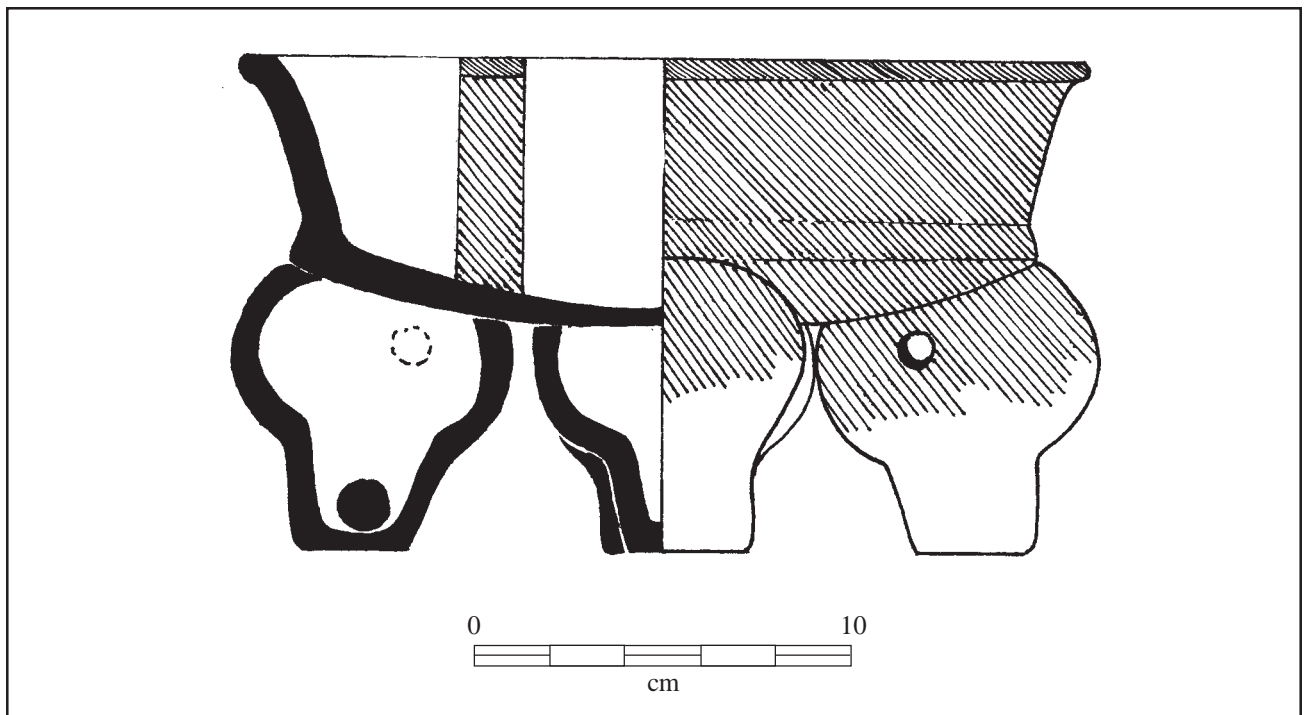


Figure 11.2. *Vessel 2 from Tomb 2, Sierra Red: Unspecified variety.*

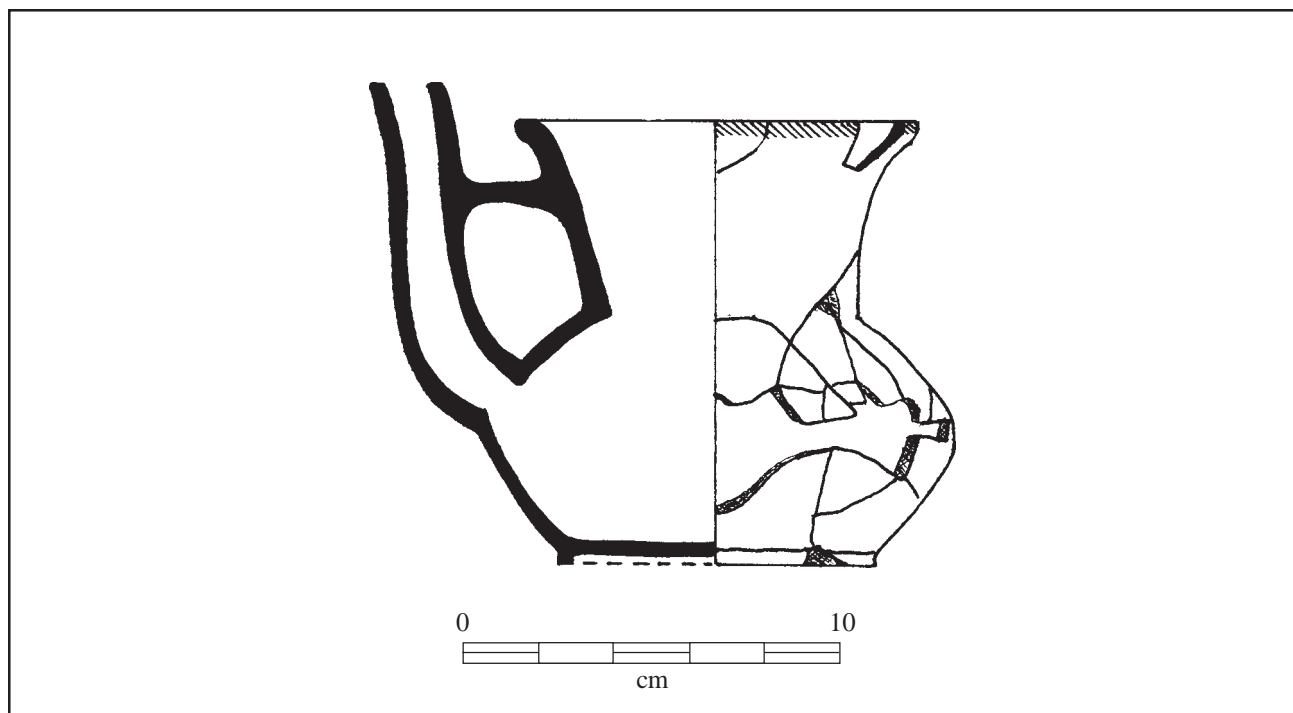


Figure 11.3. *Vessel 3 from Tomb 2, Cashew Red-and-buff: Unspecified variety.*

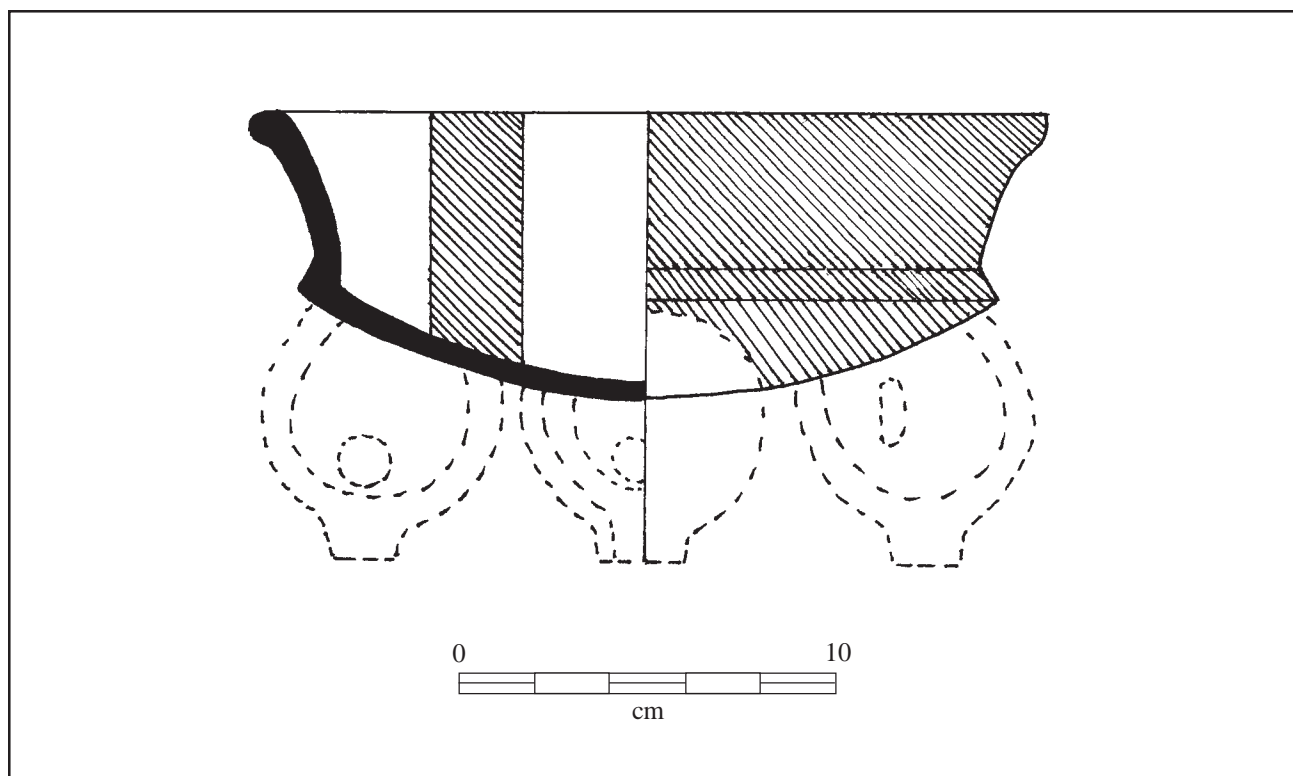


Figure 11.4. *Vessel 4 from Tomb 2, Sierra Red: Unspecified variety.*

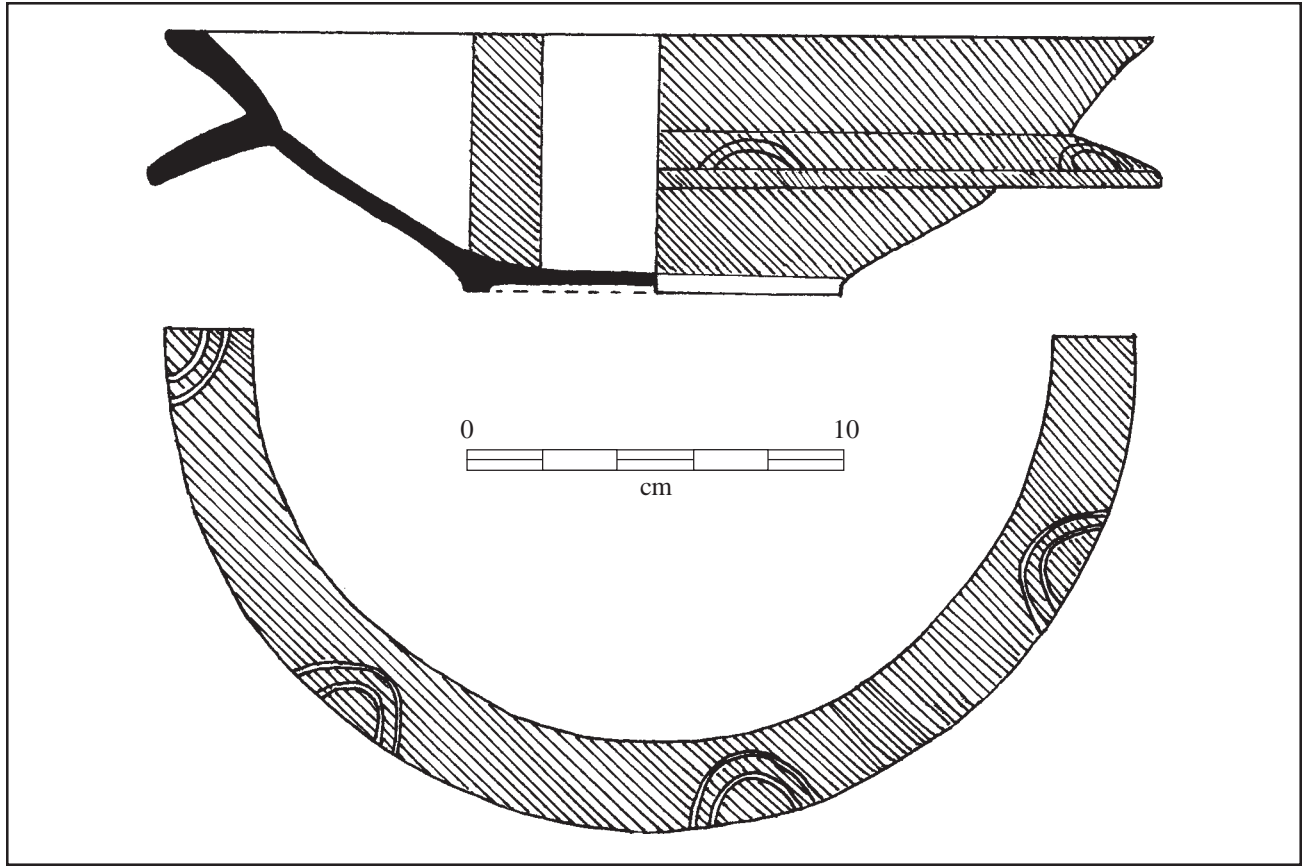


Figure 11.5. *Vessel 5 from Tomb 2, Laguna Seca Incised: Unspecified variety.*

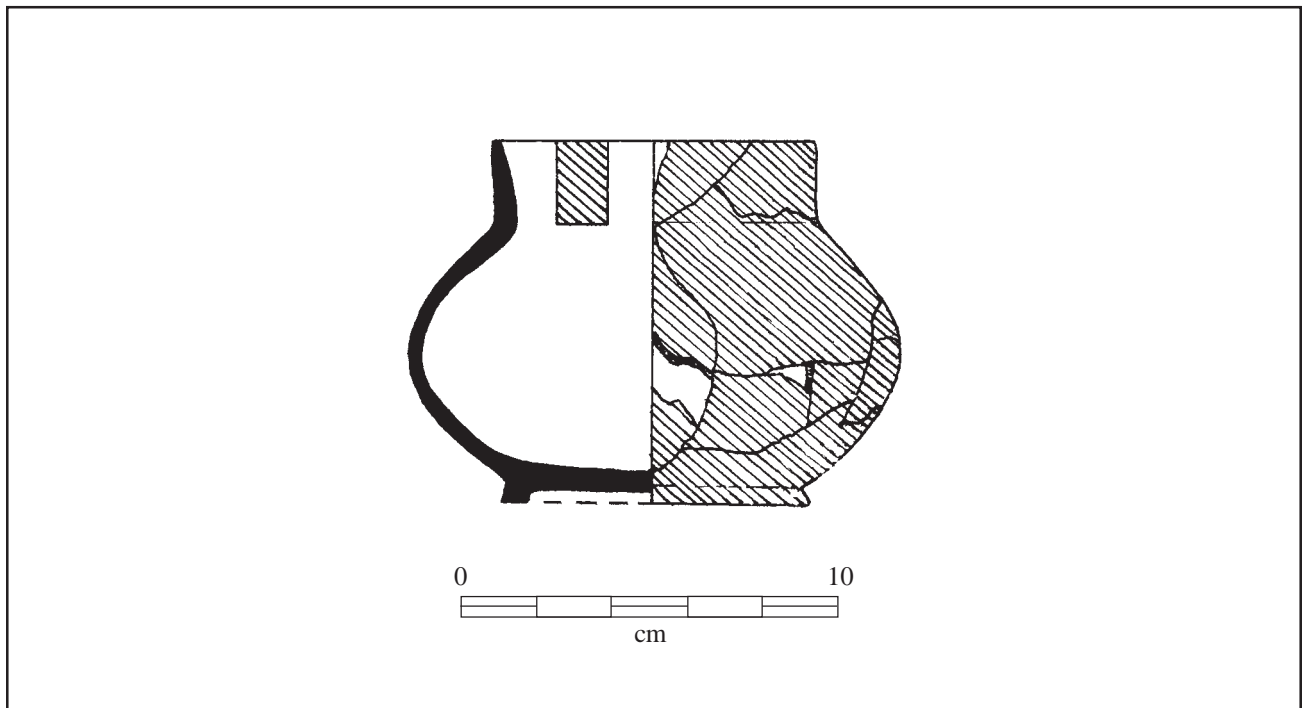


Figure 11.6. *Vessel 6 from Tomb 2, Rio Bravo Red: Unspecified variety.*

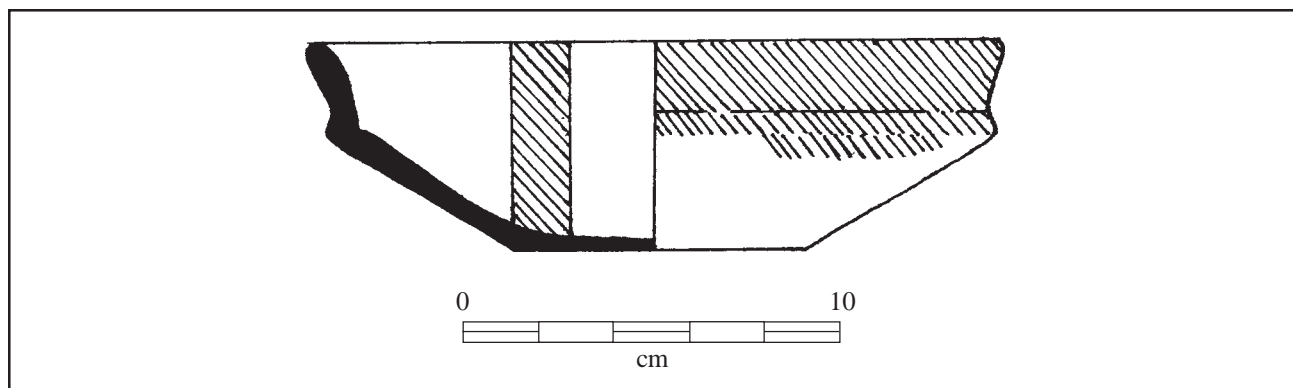


Figure 11.7. *Vessel 7 from Tomb 2, Rio Bravo Red: Unspecified variety.*

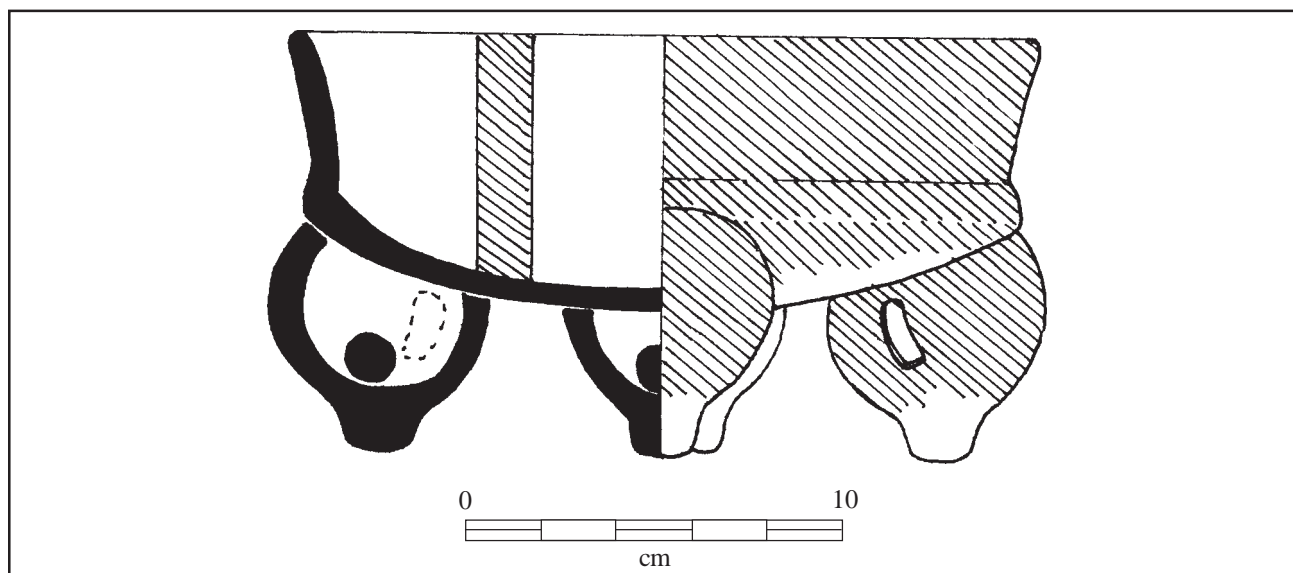


Figure 11.8. *Vessel 8 from Tomb 2, Sierra Red: Unspecified variety.*

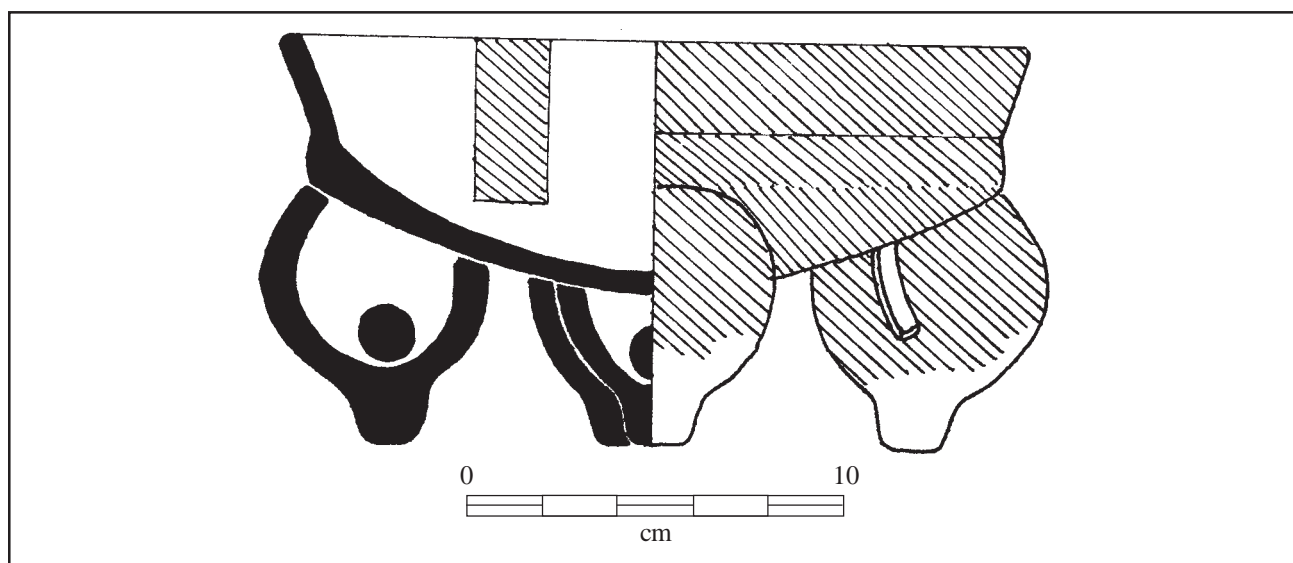


Figure 11.9. *Vessel 9 from Tomb 2, Sierra Red: Unspecified variety.*

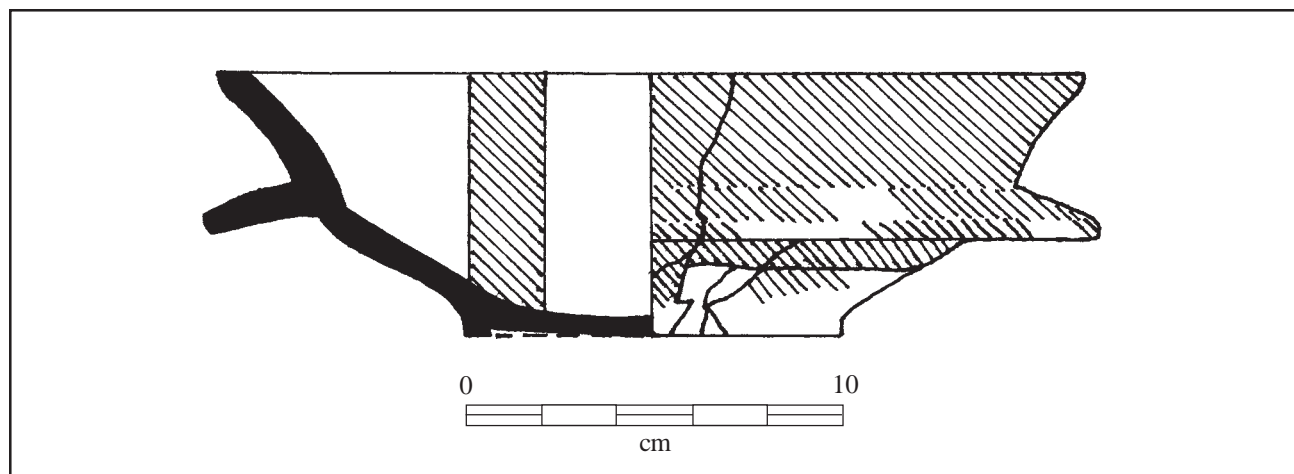


Figure 11.10. Vessel 10 from Tomb 2, Rio Bravo Red: Unspecified variety.

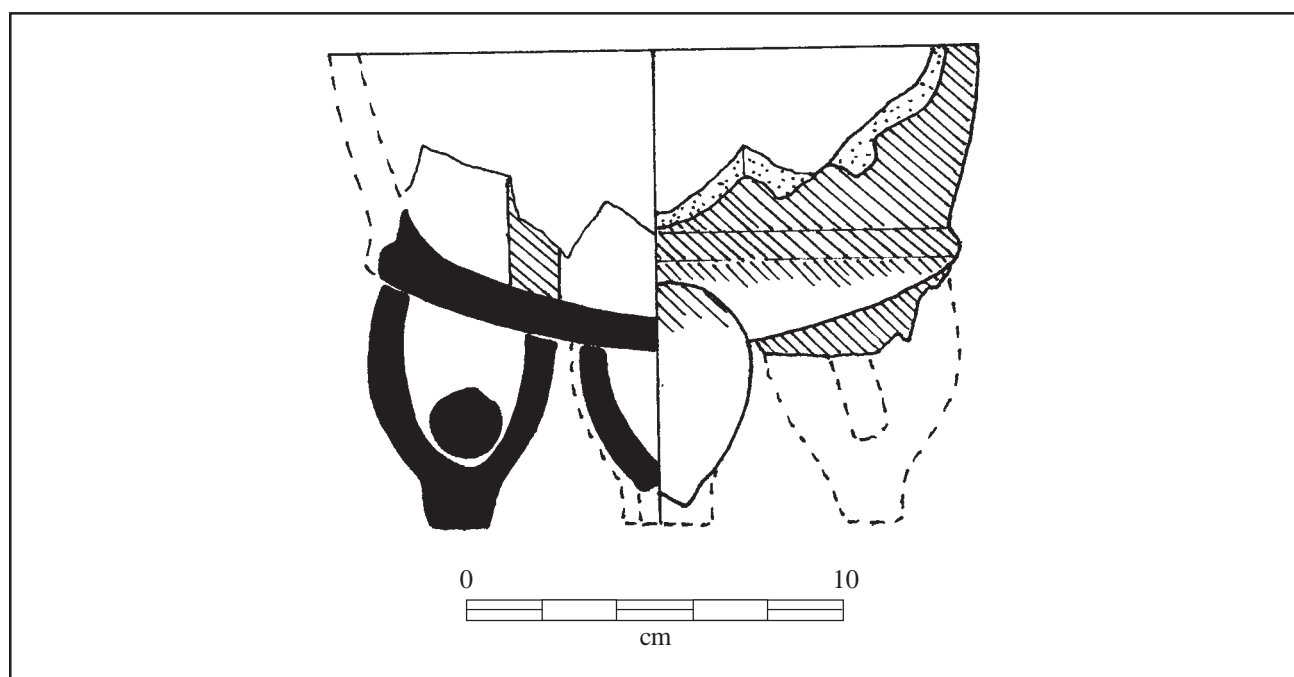


Figure 11.11. Vessel 11 from Tomb 2, Matamor Dichrome: Unspecified variety.

(Adams and Jackson-Adams 2000), Seibal (Sabloff 1975), and Stan Creek (Graham 1994).

The major types represented for the Jabiru Complex are:

Hewlett Bank Unslipped: Unspecified variety (?)
 Mopan Striated: Unspecified variety
 Minanha Red: Minanha variety
 Aguila Orange: Unspecified variety

Balanza Black: Balanza variety
 Lucha Incised: Unspecified variety
 Dos Arroyos Orange-polychrome: Dos Arroyos variety

Motmot Complex

Late Classic 1-2, Tepeu Sphere. The Late Classic 1-2 phase is presently dated to ca. AD 600–800. The

Motmot Complex at Chan Chich is easily placed within the northern Belize and eastern Peten ceramic developments of the Late Classic period. Sites of comparative interest for the Tepeu 1-2 complex are Altar de Sacrificios (Adams 1971), Becan (Ball 1977), the Belize Valley (Gifford 1976), Colha (Valdez 1987, 1994), Kichpanha (Reese and Valdez 1987; McDow 1997), Lamanai (personal observation, 1997), Northern River Lagoon (Mock 1994), the Programme for Belize area (Sullivan and Valdez 2000), Rio Azul (Adams and Jackson-Adams 2000), and Seibal (Sabloff 1975). A large number of excavated ceramics from Chan Chich date to the Late Classic Motmot Complex. It must be remembered that the Motmot Complex and the following Puraque Complex (Tepeu 3) do show a significant overlap in their ceramics types.

The major types identified for the Tepeu 1-2 period are:

Zibal Unslipped: Unspecified variety
Encanto Striated: Folded rim variety
Encanto Striated: Unspecified variety
Mountain Pine Red: Unspecified variety
Subin Red: Unspecified variety
Tinaja Red: Unspecified variety
Teakettle Bank Black: Unspecified variety
Achote Black: Unspecified variety
Cubeta Incised: Unspecified variety
Torro Gouged-incised: Unspecified variety
Pantano Impressed: Unspecified variety
Palmar Orange-polychrome: Unspecified variety
Unnamed Black-rimmed Red-on-brown

Puraque Complex

Late Classic 3, Tepeu Sphere. The Late Classic 3 Puraque Complex at Chan Chich is dated at ca. AD 800–850. The complex is by ceramic composition known as the Terminal Classic period at many sites in the lowlands. The pottery of the Puraque Complex has been compared with the following sites: Altar de Sacrificios (Adams 1971), Becan (Ball 1977), the Belize Valley (Gifford 1976), Colha (Valdez 1987, 1994), Kichpanha (Reese and Valdez 1987; McDow 1997), Northern River Lagoon (Mock 1994), the Programme for Belize area (Sullivan and Valdez 2000), Rio Azul

(Adams and Jackson-Adams 2000), and Seibal (Sabloff 1975). Most excavations at Chan Chich first encounter Terminal Classic ceramics. It does seem in most cases to be represented by a veneer deposit.

The major representative types of the Puraque Complex are:

Alexanders Unslipped: Unspecified variety
Encanto Striated: Everted rim variety
Encanto Striated: Giant variety
Belize Red: Belize variety
*Subin Red: Unspecified variety
*Tinaja Red: Unspecified variety
*Achote Black: Unspecified variety
Cubeta Incised: Unspecified variety
Cameron Incised: Unspecified variety
*Pantano Impressed: Unspecified variety
Tunich Red-on-orange: Unspecified variety
Yuhactal Black-on-red: Unspecified variety
Daylight Orange: Darknight variety
*Palmar Orange-polychrome: Unspecified variety
Ticul Thin Slate: Unspecified variety
Unnamed Incised (ash temper)
Unnamed Immitation Fine Orange

* These types have a significant overlap between the Motmot Complex and the Puraque Complex.

Inferences and Comments on the Chan Chich Ceramic Chronology

The ceramic analysis indicates that the ancient city of Chan Chich was first settled ca. 900 BC and abandoned by AD 850. Figure 11.12 is a chronological chart showing Chan Chich ceramic complexes as compared with other lowland sites.

The Middle Preclassic complexes (Swasey and Mamom Spheres) are very clearly related to other early sites in northern Belize and northeastern Peten. Although common pottery types indicate communication at a general level, it is clear when comparing complexes that broad cultural preferences (site and regional) exist. The result of this communication, yet retaining specific preferences, leads to the identifica-

Correlation	Time	Major Periods	Chan Chich	Altar de Sacrificios	Barton Ramie	Colha	Cuello	El Mirador	Seibal	Tikal	Uaxactun
10.10.0.0.0.	— 1200 —	<i>Late Postclassic</i>				Ranas					
	— 1100 —	<i>Middle Postclassic</i>				Canos				Caban	
	— 1000 —	<i>Early Postclassic</i>		Jimba	New Town	Yalam			Bayal	Eznab	
	— 900 —	<i>Terminal Classic</i>	Pauraque	Boca	Spanish Lookout	Masson		Post Lac Na	Transition Tepejilote	Imix	Tepeu 1 2 3
10.0.0.0.0.	— 800 —			Pasion Chixoy				Lac Na		Ix	
9.10.0.0.0.	— 700 —	<i>Late Classic</i>	Motmot	Veremos	Tiger Run	Bomba		Acropolis	Junco	Manik	Tzakol 1 2 3
	— 600 —			Ayn							
9.0.0.0.0.	— 500 —		Jabiru	Salinas	Hermitage	Cobweb					
	— 400 —	<i>Early Classic</i>						Paixbancito	Cantutse		Chicanel
8.10.0.0.0.	— 300 —					Blossom Park					
	— 200 —	<i>Protoclassic</i>	Trogon		Floral Park					Cimi	
8.0.0.0.0.	— AD/BC —		Jacamar	Plancha	Mount Hope	Onecimo		Cascabel		Cauac	
	— 200 —	<i>Late Preclassic</i>									
	— 300 —										
	— 400 —										
7.10.0.0.0.	— 500 —		Oropendula								
	— 600 —			San Felix	Jenny Creek Late Facet	Chiwa	Mamom	Monos	Escoba		Mamom
	— 700 —	<i>Middle Preclassic</i>	Kiskadee	Early Facet							
	— 800 —			Xe		Bolay	Swasey		Rcal		
	— 900 —										

Figure 11.12. The Chan Chich ceramic complexes and other ceramic sequences from the Ma Lowlands.

tion of a common sphere with regional complex variations.

The Late Preclassic ceramics are interpreted as indicating a period of more intensive interaction between sites and regions. In many cases, ceramic types often appear identical from site to site. Sphere identification for this phase is Chicanel. The intensified communication certainly assisted in reducing regional variation that had been apparent during the Middle Preclassic. In the Late Preclassic, Chan Chich was actively involved in the trade (and communications) systems common throughout the Maya lowlands. Following the Late Preclassic (Chicanel Sphere) developments is the Protoclassic (Floral Park Sphere) Trogon Complex. Sites containing a Late Preclassic occupation follow one of two paths of development towards the end of the Preclassic. Some sites held on to a rather conservative production and use that remained "Late Preclassic" while others became involved in a sphere of interaction represented by innovative developments called Protoclassic. Ceramics have helped to define both lines of development. Most sites maintaining their conservative stance ended in occupation by AD 250 (sometimes called the Terminal Preclassic). Other sites following the new developments or innovations, prospered with the Protoclassic and transitioned into the Early Classic.

Early Classic (Tzakol Sphere) remains follow the Protoclassic developments. Though limited in representation, it is clear that Early Classic occupants were active at Chan Chich. No satisfactory explanation for a weak or minor presence at Chan Chich during the Early Classic phase is posited. A stratified sampling strategy might help to determine a true reduction in occupation or define where Early Classic inhabitants were most active. An intriguing possibility as indicated by Brady et al. (1998) is that the earliest Early Classic (Tzakol 1) may be partially represented by Protoclassic developments. If this is the case, it is understood that occupation intensity for the period is distorted by an imposed analytical attempt to separate what are chronologically contemporaneous artifacts (in this case, pottery).

Two ceramic complexes, Motmot Complex and Pauraque Complex represent the Late Classic (Tepeu

Sphere) occupation at Chan Chich. All areas of investigation produced ceramics of the Late Classic phase usually with Tepeu 3 material near or at the surface level. Chan Chich was certainly a very active member of the Peten and northern Belize trade and exchange network. Ceramic types are easily identified with the surrounding areas implying extensive and intensive communication between sites and regions.

The occurrence of small sherds, particularly of Tepeu 3 association, indicates areas of heavy traffic. The tossed material was then broken into smaller fragments probably due to trampling. Many of the sherds recovered from Late Classic 3 contexts are also quite eroded and weathered indicating that much of it was left exposed perhaps with abandonment of the site. Why Chan Chich was abandoned at the end of the Classic period is unknown, but the site followed a passage just as most of its contemporaries. While later Postclassic visitations with special offerings did occur, no permanent Maya occupation of Chan Chich is known after the Tepeu 3 period.

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Life, the Universe, and Everything: Re-evaluating Problematic Deposit 2 from Dos Hombres, Belize

Brett A. Houk

Introduction

What is a paper about Dos Hombres doing in the Chan Chich Archaeological Projects's excavation report? To that question, I have no *good* answer, just an honest one. Basically, it all comes down to timing: I had an idea I wanted to cite in another paper but I had to get the idea published first in order to do that. This report made a timely vehicle. Truth be told, the ideas in this paper have been guiding the research at the western groups of Chan Chich since 1997 and are not completely out of place here.

Although I excavated Problematic Deposit 2 (PD 2) at Dos Hombres nearly six years ago, the feature has continued to interest me. Recently, however, I came into possession of data that before had been unavailable to me. Like the crazy aunt who is kept locked in the basement, Andrew Manning's (1997) study of Neutron Activation Analysis (NAA) of ceramics from the Three Rivers Region had been hidden in a dark chamber in Ohio. Its lofty secrets were unrevealed to the lowly dirt archaeologists scouring the jungle floor for ideas and answers. Miraculously, I was recently sent a copy of this rare manuscript. There are wonderful data, invaluable data, in there from PD 2; the kind of data that answers the questions about life, the universe, and everything... Well, not really, but the data are informative.

Originally, the importance of PD 2 lay in its ability to address the nature of the Terminal Classic in the region. The deposit, as an archaeological feature, speaks volumes about the final days of Dos Hombres, or at least I think it does. Manning's (1997) NAA data, however, bring a new dimension to the deposit. The ceramics from PD 2 inform us about the luxury-item trade within the region. Therefore this paper

addresses two aspects of PD 2: first, the nature of the deposit and its significance as an archaeological event, and, second, what the ceramics from the deposit can tell us about the luxury-item trade during the Late Classic.

The Terminal Classic

Settlement pattern studies and excavations at major sites consistently show that the cities, towns, and countryside of the Three Rivers Region were depopulated during the Terminal Classic period. The population of the region, depending upon which kind of smoke and which set of mirrors you use, averaged between 400 and 800 people per km² in AD 800. (Adams 1997, 1999; Robichaux 1995). Within 100–150 years, the total regional population of about 400,000 people dropped to essentially zero (Adams 1997, 1999; Robichaux 1995). During the Terminal Classic period in the region, around AD 850, the social fabric of the Classic Maya inhabitants completely unraveled. This disintegration of the social institutions may have occurred in a single generation or even within a period of just a few years.

Recent excavations in the Three Rivers Region have encountered problematic deposits at several sites that provide information about the nature and timing of this apparent upheaval and the failure of the elite to maintain social order. Superficially, these features resemble middens in terms of their composition, but ritual termination deposits in terms of their contexts. They, however, are neither. I hope to demonstrate that PD 2 is an example of what may be the most important data set in the region for informing us about the nature of the Terminal Classic demise of the major centers.

Problematic Deposit 2

At Dos Hombres, a midden-like deposit, poetically dubbed Problematic Deposit 2, was excavated in 1993 and 1994 in a test pit in a small, elite courtyard at the entrance to the elevated acropolis at the site (Figure 12.1). The Acropolis is built on a large platform and is comprised of a complex of small courtyards and apartment-like rooms surrounding the smallest plaza at the site. Temples C-2 and C-3 are on the south side of this

plaza. The north side is bounded by Temple C-1, a large structure that also faces into Plaza C-2 to the north of the acropolis.

Access to the Acropolis was most likely through a series of climbing staircases in the northwest corner of the group. The stairs must have entered the north end of Courtyard C-7 because this is the only area of the upper platform where the edges are not nearly vertical.

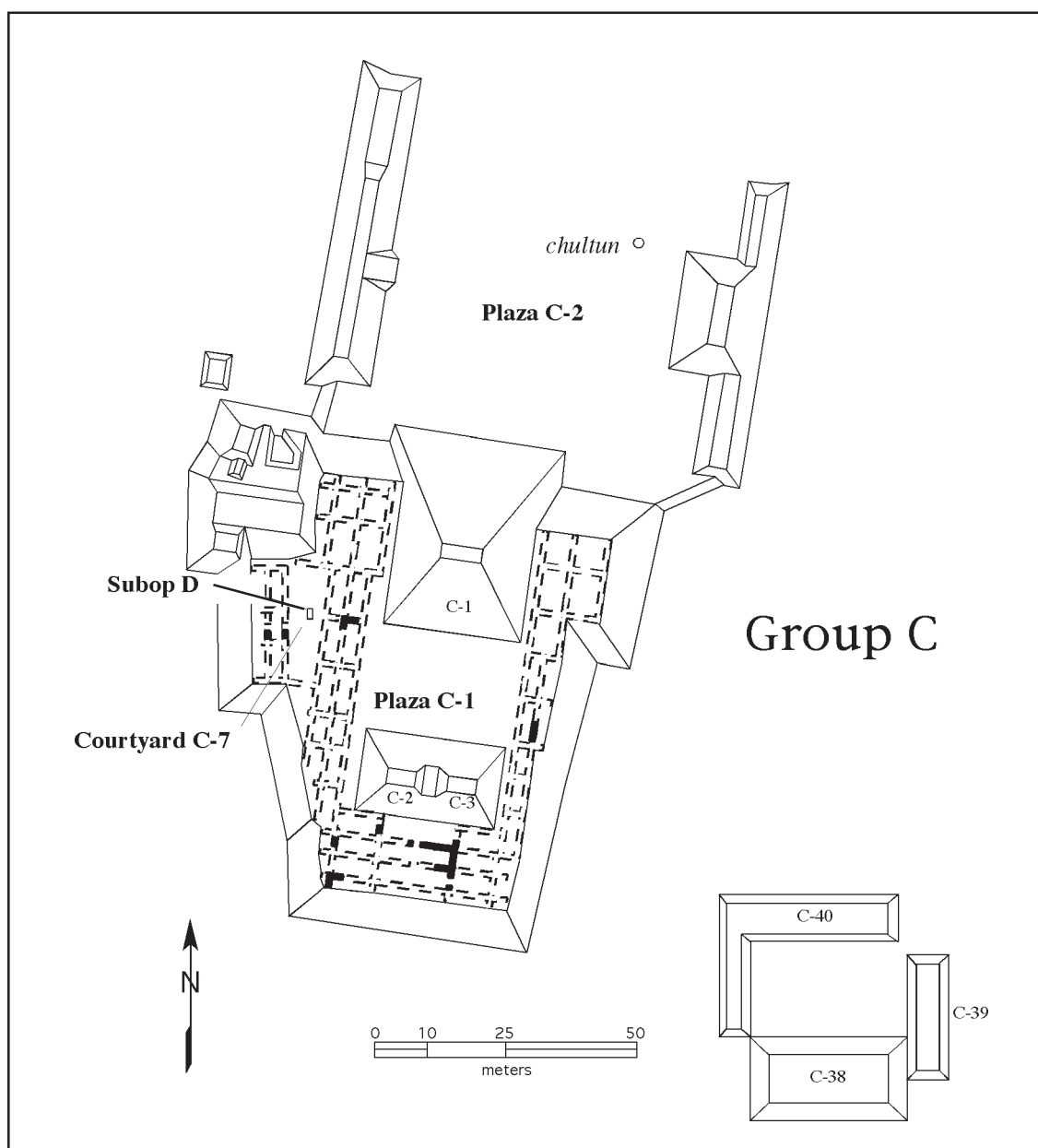


Figure 12.1. Map of the Acropolis at Dos Hombres and the location of Operation 2, Subop D.

Operation 2, Subop D

In 1993 a 1-x-2-m test pit was excavated in the center of Courtyard C-7 (see Figure 12.1). In 1994, the excavation was expanded by the addition of a 1-x-1.5-m unit on the east side of the original excavation. These two units documented an important construction sequence at the site that will be summarized here (Figure 12.2). The earliest construction at Courtyard C-7 was a hard packed dirt floor built directly on bedrock, occurring approximately 2.75 m below the modern ground surface. Ceramics from this level dated to the Tepeu 2-3 phase of the Late Classic (Houk 1996).

This floor surface was covered by 25 cm of dry-stone core rubble fill that was capped by an extremely well preserved, 20-cm thick plaster floor surface. Ceramics from this construction episode were also Tepeu 2-3 types (Houk 1996). This surface, which apparently served as the courtyard floor, was buried in a thin layer of marl, colored pink by the weathering of pieces of red plaster, that contained a variety of exotic artifacts broken on the floor surface (Houk 1996). This deposit was covered by a thick layer of dry-stone core and another plaster floor surface, raising the level of the courtyard by approximately 1 m. Ceramics from the fill, again, dated to the Late Classic (Tepeu 2-3). The final surface of the courtyard was a crude packed earth and marl floor with a supporting layer of earth and cobble fill that elevated the courtyard floor sur-

face to the level of the exterior step or terrace at the base of Structure C-21 on the east side of the courtyard. During the Terminal Classic, the final episode in the occupational history of the courtyard took place. A thick layer of artifactual material was deposited on the floor of the courtyard. This midden-like deposit, designated PD 2, contained some of the most exotic artifacts at the site.

The stratigraphy of this courtyard is interesting because all four documented construction episodes apparently took place during the Tepeu 2-3 phase of the Late Classic, indicating a fairly rapid construction of the Acropolis at Dos Hombres. The two most important strata from this unit are Lot D-8, the thin layer of pinkish marl and artifacts covering the second floor of the courtyard, and Lot D-2, the dense, midden-like PD 2.

Description of Lot 2-D-8

The earlier of these deposits was a 10–20 cm thick layer of soft marl discolored pink by weathered plaster chunks. This Tepeu 2-3 deposit contained an obsidian blade core, two obsidian blade fragments, a partially reconstructable Achote Black cylinder with blue and white stucco on the exterior, a bone bead, a Late Preclassic ceramic deer figurine head, chunks of charcoal, small concentrations of clay, and a partially reconstructable Palmar Orange Polychrome plate with a hieroglyphic text around the interior rim. This is a

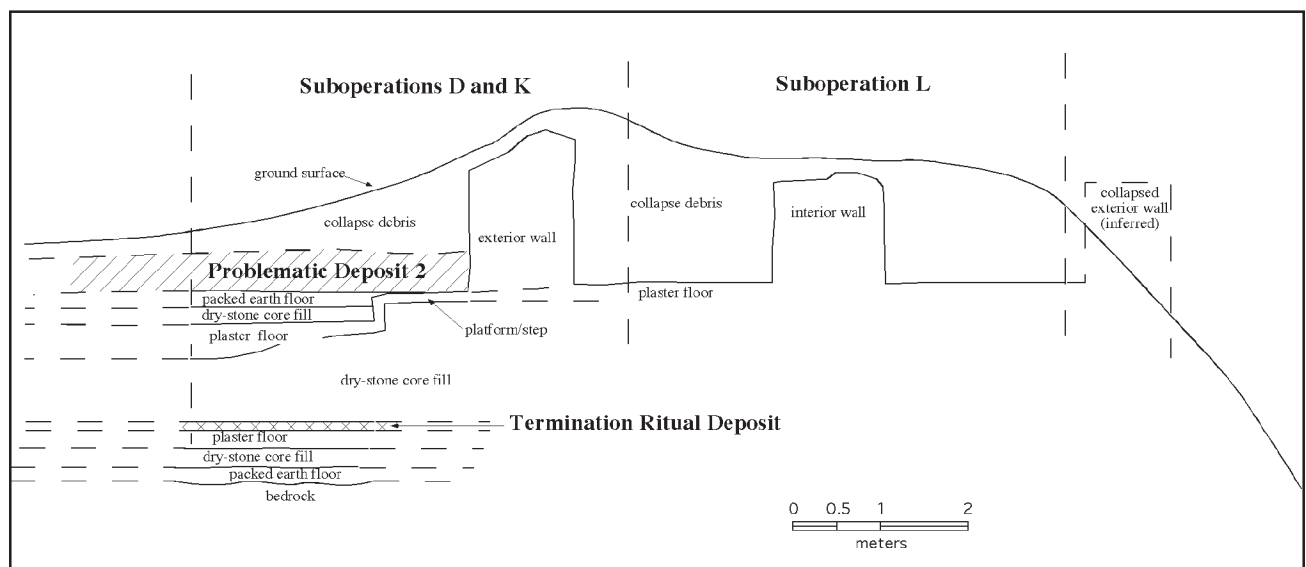


Figure 12.2. South cross-section of excavations at Courtyard C-7.

classic example of a type of deposit referred to as a termination ritual (e.g., Garber 1989). Obviously the deposit itself is not the ritual, but the byproduct of the ritual. The termination of the courtyard included perhaps a feast or other event in which the artifacts such as the polychrome plate fragment were used and then smashed on the courtyard floor and covered by soft marl, a pattern documented for the Late Preclassic at Cerros (Garber 1989; Robertson and Freidel 1986). The courtyard was then expanded in a new construction episode.

Description of Problematic Deposit 2

The latter of these deposits is PD 2, a 50-cm thick concentration of artifacts covering the final courtyard floor. Artifacts from this deposit included numerous partially reconstructable vessels, an eccentric biface of imported chert, a rollerstamp, a figurine head with an elaborate bird headdress, a ceramic animal face, a drilled jaguar tooth, an obsidian biface, and an anthropomorphic whistle. Although most of the ceramics were utilitarian (striated or unslipped), excavators recovered exotic ceramics, including a Cubeta Incised sherd with hieroglyphs, Daylight Orange plate fragments, and Palmar Orange Polychrome vessel sherds.

The total number of ceramics recovered from the estimated 4 m³ excavated section of the deposit numbered 6,731 sherds (Table 12.1). Assuming that the materials were deposited across the entire courtyard, this sample represents approximately 6.5 percent of the total that is estimated to include approximately 104,000 ceramic sherds. Conservatively, the projected total number of sherds would represent approximately 1000 complete vessels (Houk 1996).

The dating of the deposit at Dos Hombres is tied to Daylight Orange and Dolphin Head Red sherds. Both ceramic types first appear during the Tepeu 3 phase of the Late Classic in the region. Although the deposit is midden-like, it lacks substantial amounts of faunal material and includes numerous large vessel fragments that may have been broken in place.

PD 2 as a Destructive Event Deposit

The significance of this feature lies in its context. Although it resembles a midden, its locations in an elite courtyard complicates this interpretation. Others have interpreted similar deposits at Tikal and Blue Creek as middens of Terminal Classic squatters (see Culbert [1993] and Guderjan [1995], respectively), but the context and composition (including elite artifacts and ceramics and excluding substantial faunal remains) of these features more closely resemble a ritual termination deposit. It seems illogical to conclude that, unlike their Late Classic ancestors, Terminal Classic squatters would throw their refuse in their courtyards, or, alternatively, live elsewhere and use the best architecture at the site as a trash pit.

Turning back to the Dos Hombres example, contextually and in terms of the deposit's archaeological signature, the later Terminal Classic event is comparable to the earlier ritual event. The scope and finality of the Terminal Classic event, however, is important. First, it was on a scale that greatly surpassed that of the earlier ritual. At least 1000 vessels were smashed in the courtyard. Second, the event was not followed by a renovation of the acropolis. In fact, the event effectively terminated the entire architectural group by sealing the entrance. In this sense PD 2 resembles a typical termination ritual.

It deviates from the formula, however, in that actors were probably different. This deposit may represent a more secular event, mimicking the earlier rituals (perhaps only in their archaeological signatures), but directed at terminating not a structure or courtyard but the elite themselves. Perhaps, the word *terminate*, which conjures images of ritual and cosmology, should be replaced with the word *destroy*. These were profane, non-sacred, non-ritual acts that destroyed the possessions of the elite, the physical symbols of their ideological prestige and power. As such, I prefer the term *destructive event deposit* to describe PD 2. At Dos Hombres, structures and courtyards in more public areas of the site were not desecrated in this manner. Only the private, enclosed domain of the elite was the subject of this form of destruction.

Table 12.1. Artifacts from PD 2, Dos Hombres

Ceramics					
Category	Type	Comments	Rims	Bodies	Total
Black	Achote Black		49	194	243
	Achote Black	Eroded	4	252	256
	Achote Black	Some w/ nubin feet	22	14	36
	Achote Black	Fake slate type paste	55	50	105
	Achote Black	1 small vessel base		90	90
	Achote Black	eroded	13	67	80
	Achote Black	Basal ridge fragments, black slipped interior		5	5
	Achote Black	Plate rims with slipped interior and unslipped exterior	4		4
	Black and Tan mottled	Fire clouding (?), eroded	1	3	4
	Meditation Black		15	35	50
	Polvero Black (?)	Waxy, Late Preclassic slip		1	1
Brown	San Antonio Golden Brown	Late Preclassic form, firecloud	1		1
Buff	Unidentified buff slipped	Eroded, buff interior with faint striations on exterior		3	3
	Unidentified buff slipped	Late Classic form with appliqué		1	1
Orange	Daylight Orange	Darknight Variety	10	34	44
	Unidentified orange slipped	Shallow bowl, thin with rounded rim and band of orange slip on interior of rim	14		14
	Unidentified orange slipped	Reed impressed, incurved round lip, impressed band around lip	1		1
Red/Orange	Unidentified Red/Orange Slipped	Early Classic style slip		2	2
	Unidentified Red/Orange Slipped	Bottom of grater bowl		1	1
Red	Dolphin Head Red	Rims refit	4		4
	Dolphin Head Red		1		1
	Garbutt Creek Red		172	0	172
	Ramgoat Red	Rim is spouted neck fragment	1	2	3
	Roaring Creek Red (?)	Beveled rim, eroded	9		9
	Sierra Red	Late Preclassic style rims	9	1	10
	Society Hall (?)	In form	30		30
	Subin Red		53	233	286
	Tinaja Red	Some thicker than typical for Tinaja Red	78	687	765
	Tinaja Red	Eroded	8	330	338
Tan	Unidentified tan slipped	Eroded	1		1
	Unidentified tan slipped	Dark tan with outflaring rims	2	11	13
Fluted	Achote Black Fluted			1	1
Incised	Achote Black Incised	Herringbone style		1	1
	Cubeta Incised		5	20	25
	Duck Run Incised			1	1
	Laguna Verde Incised		1		1
	Torres Gouged-Incised	Flat bottom jar form, blood red slip on exterior	2	5	7
	Unidentified black slipped	Eroded, incised and impressed, exterior slipped with band of slip on interior	1		1
	Unidentified incised	Late Classic shallow bowl with incised designs		1	1
Impressed	Kaway Impressed		7	1	8
	Patenero Impressed	Incised rim	1		1
Polychrome	Palmar Orange Polychrome		36		36
	Saxche Orange Polychrome	Eroded, 1 with bright orange paste	2		2

Table 12.1. (continued).

Ceramics					
Category	Type	Comments	Rims	Bodies	Total
Other decorated	Appliqué	Small, eroded sherd		1	1
	Basal flange	Eroded slip		1	1
	Censor	Eroded censor sherds		3	3
	Fake Slateware		4	3	7
	Foot with tinkler	Eroded slip		1	1
	Nubin feet		0	8	8
Striated	Encanto Striated		138	2414	2552
Unslipped	Coconut Walk Unslipped	Thick, orange paste	9	6	15
	Cayo Unslipped		345	992	1337
	Zibal Unslipped	Thin, eroded, water jar bodies	1	15	16
Eroded	Eroded		3	129	132
	Gunshot			507	507
Other Artifacts					
Category	Type	Comments	Number		
Bone	Non-human bone	Miscellaneous unidentifiable fragments	app. 5		
	Worked bone	Two incised, one drilled	3		
	Turtle carapace		app. 10		
	Drilled Jaguar tooth		1		
	Human cranial fragments	Left parietal cranial fragments of young adult (Saul and Saul 1995)	app. 5		
Ground stone	Partially drilled stone ornament	Houk 1996:Figures 5.46 and 5.47	2		
	Slab of travertine	Possibly unmodified, from a cave	1		
	Fragment of groundstone ball		1		
	Granite metate fragments	Valdez and Buttles 1995	2		
Lithics	Lanceolate biface	Houk 1996:Figure 5.48	1		
	Obsidian biface	Broken in three pieces	1		
	Obsidian blade fragments		18		
	Obsidian chunk		3		
	Quartzite or chert hammerstone	Found in a group against exterior wall of Structure C-21	6		
	Obsidian flake		1		
	Biface or projectile point	Houk 1996:Figure 5.49	1		
	Incomplete biface		1		
	Eccentric biface	Imported Colha chert, Houk 1996:Figure 5.47	1		
Shell	Conical riverine shell	Common across site, presumably a food item	2		
	Drilled Olivella shell		1		
Special Ceramics	Figurine head	With bird headdress, possible red slip, Houk 1996:Figure 5.44	1		
	Ceramic face	Valdez and Buttles 1995	1		
	Ceramic animal face	Valdez and Buttles 1995	1		
	Ceramic whistle	Valdez and Buttles 1995	1		
	Anthropomorphic whistle	Valdez and Buttles 1995	1		
	Alligator whistle	Valdez and Buttles 1995	1		
	Rollerstamp	Valdez and Buttles 1995	1		
	Ceramic disk	Valdez and Buttles 1995	2		
	Hieroglyphic sherd	Houk 1996:Figure 5.45	1		

PD 2 and similar deposits, therefore, may be a crucial data set for understanding the collapse in the region. Similar (and even more extensive) deposits have been excavated at Blue Creek (Guderjan 1995; Hanratty 1998), may exist at Chan Chich (Houk et al. 1999),

and are suspected to exist at Punta de Cacao (Guderjan et al. 1991). That they have not been found at La Milpa, the largest site in northwest Belize may indicate that the elite there were able to maintain control longer, effectively riding out the wave of destruction. Their

widespread occurrence at the secondary centers argues for a pan-regional, calamitous event that marked the destruction of elite culture in a short period of time. Whether or not they represent an internal revolt or external invasion is unclear. Whatever the case, these features represent the abandonment of the ceremonial centers in the region and precede a massive depopulation of the countryside.

Late Classic Luxury Item Trade

Using ceramics from a variety of contexts and multiple sites in northwest Belize, Manning (1997) subjected 230 samples of Peten Gloss wares to NAA. This analysis technique is an efficient and accurate method for quantifying the elemental composition of the ceramic paste, which includes elements occurring naturally in the clay and elements added by humans to alter the fabric of the clay (Manning 1997:270). The 230 samples in Manning's (1997:284–285) study were then compared to over 12,000 NAA samples in the Maya Polychrome Data Base to look for “like” samples sharing similar elemental compositions. A portion of his sample comprised sherds from PD 2.

Interestingly, Manning's (1997:411–412) study found five samples from PD 2 that “had a significant hypothetical probability of matching samples from various sites and regions of the Maya lowlands.” Specifically, he concluded that two Daylight Orange sherds matched two samples from Lamanai, two other Daylight Orange sherds matched samples from Yaxha and Cerros, and one Zacatal Cream sherd matched a sample from Yaxha. In each case, this indicates that the vessel (sherd) from Dos Hombres and the matching vessel from another site were both produced at the same place, using the same materials and techniques.

Lamanai and Cerros are approximately 40 km and 90 km northeast of Dos Hombres, respectively. Yaxha is nearly 90 km southwest of Dos Hombres. In the case of the Daylight Orange type, vessels from the same production locale were found over 180 km apart. Regardless of where the vessels were produced, this distribution indicates a mechanism of exchange capable of distributing goods over great distances.

The nature of elite luxury item exchange is a debatable issue. Manning (1997) concluded that PD 2 represents stored goods that were to be exchanged in a market, presumably located in Plaza C-2. I find this extremely unlikely given the context of the deposit. Unlike Manning (1997), I believe that the Acropolis was an elite residential complex. It represented an enormous labor investment, had restricted access, and boasted one of the largest temple pyramids in the entire region. This was the private residential compound of the elite and not an incredibly elaborate ceramic storage center.

Potter and King (1995:25) “perceive two different systems of lowland Maya ceramic production and exchange.” In one system, households produced utilitarian ceramics and exchanged them along kinship lines. This system “was distinguished by a relatively high volume of goods over limited areas” (Potter and King 1995:28). The second system involved smaller quantities of luxury goods such as the Peten Gloss wares used in Manning's (1997) study. “These were produced specifically for and at least partially by elite individuals and likely traded over greater distances” (Potter and King 1995:26). Luxury items “were probably gifted between elites on the occasion of state visits, weddings, funerals, and the like” (Potter and King 1995:25). McAnany (1991:282) refers to this mechanism of distribution as “inter-polity high level exchange.” Potter and King (1995:25) conclude “if such is the case, the hierarchical market-redistribution approach appears as poor a model for elite wares as it is for utilitarian ones.”

What Manning's (1997) analysis confirms is the elite in the region participated in the far-flung luxury item distribution system described above. Beyond NAA data, other excavated examples from the region support this conclusion. For example, a particular Early Classic polychrome design has been found on vessels or sherds from Dos Hombres, Chan Chich, and San Jose within the region, but also occurs on vessels from Holmul and Uaxactun (Sullivan and Sagebiel 1999). Similarly, during the Terminal Classic, Pabellon Modeled-carved Fine Orange vessels found at Chan Chich are remarkably similar in their imagery to examples from Seibal, Altar de Sacrificios, and Uaxactun (Figure 12.3). These examples indicate an active and ex-

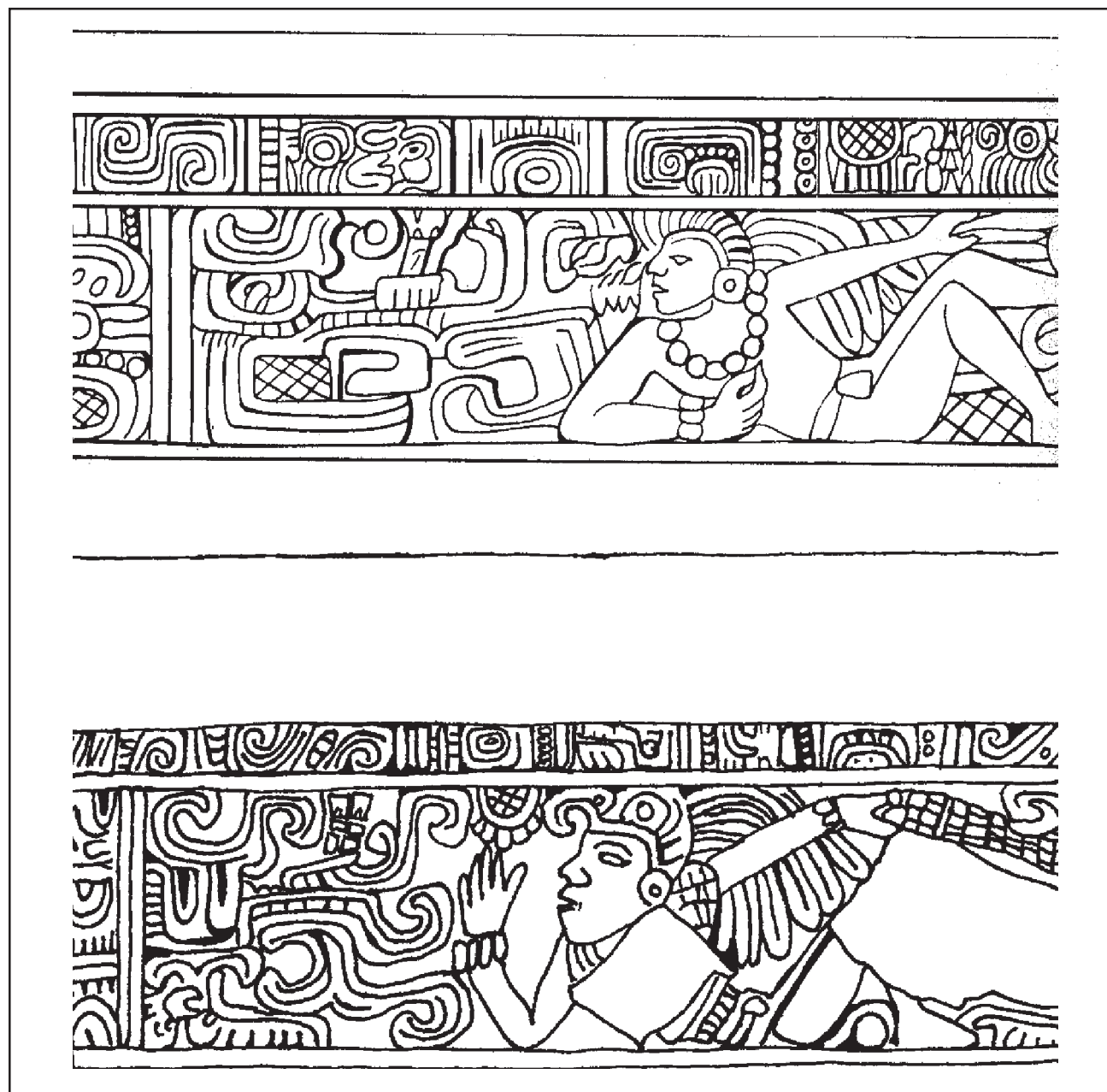


Figure 12.3. *Pabellon Modeled-carved Fine Orange Ceramics showing common theme of reclining figure facing a stylized serpent or monster.* The top vessel is from Burial #31 at Seibal (Sabloff 1975:Figure 385) and the bottom, partially-reconstructed vessel is from a possible destructive event deposit at Courtyard C-1, Chan Chich (illustration by Ellie Harrison).

tensive exchange network of luxury ceramics. As Potter and King (1995:29) observe, luxury-item exchange occurred laterally, between peers and neighboring sites, and vertically, down a single polity's hierarchy. Through gifting, luxury items moved down the hierarchy from elites to non-elites, "the trickling down of fine polychromes, obsidian, and other exotics to non-

elites...as symbols or badges would have served to emphasize the legitimacy of a vertical social and political structure" (Potter and King 1995:29). On another level, the route of exchange was as valuable as the gift itself because it forged important political relationships between elites and non-elites (or lesser elites) (McAnany 1991).

In addition to the distribution of luxury goods, the elite probably controlled their production, as well. Elite items such as finely decorated polychromes and shell beads were probably produced at the major centers (Potter and King 1995:25). Indeed, Manning's (1997) study concluded that specialized ceramic producing workshops were present in the eastern part of the region, and Lewis (1995) excavated a midden associated with a shell-working workshop attached to an elite residence on the periphery of Rio Azul.

Conclusions

Problematic Deposit 2 at Dos Hombres is a significant archaeological deposit that provides data about the abandonment of the site during the Terminal Classic and about the nature of luxury item trade between elites. Thankfully, PD 2 is not unique. There are other deposits like it in the region, but our understanding of the relationship between them is still poor. I originally asserted that the features at Chan Chich and Blue Creek were also destructive event deposits related to a pan-regional calamity that marked the end of elite rule at the major centers in the region (Houk 1997; Houk et al. 1999). I believe, however, that there may be some important differences between them, but our research is still too preliminary to allow for meaningful comparisons. Regardless of their similarities or differences, PD 2 and those features in similar contexts are demonstrably invaluable data sources that yield themselves to multiple analytical approaches.

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Chan Chich in Context

Brett A. Houk

Introduction

At this point in the project, after four years of research, it is appropriate to evaluate the success with which we have addressed our research goals. This final chapter postulates on the history of Chan Chich as it relates to the development of the site's plan. Many of the ideas presented here were first included in a chapter for a book being compiled on the political economy and built environment of the Three Rivers Region (Houk 2000a).

There are over a dozen sizable centers in the Three Rivers Region that are comparable to Chan Chich in size, and, as a class, the sizeable centers are one of the most important elements of the built environment in the Three Rivers Region (Figure 13.1). In the Three Rivers Region hieroglyphic texts are rare, and we are left to devise alternative means of reconstructing not only the history of individual sites, but also the relationships between sites. As with many other parts of the Maya world, archaeologists working in the Three Rivers Region initially compared the newly discovered ruins to one another and at-

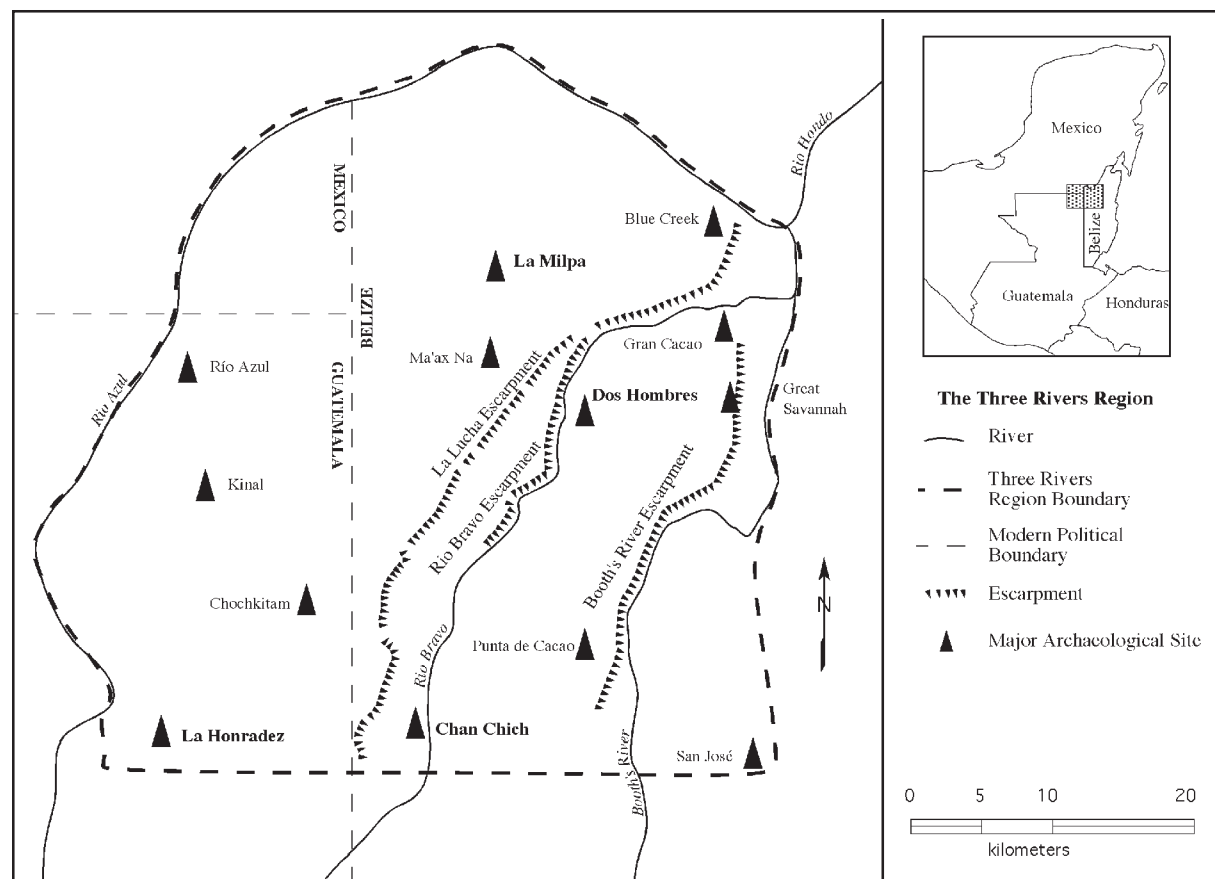


Figure 13.1. Map of the Three Rivers Region showing the locations of rivers, escarpments, and major sites.

tempted to rank them based primarily on size (e.g., Adams 1991, 1995; Guderjan 1991; Houk 1996). While such comparisons are useful, they do little to inform us about the relationships between sites other than to create the impression of a political hierarchy. By examining the plans of individual sites in more detail and comparing them to one another, we are able to identify site planning patterns in not only the architectural design of sites but in their locations as well. This allows for a clearer understanding of the regional picture and gives us the initial basis from which to begin to ask interesting questions about the relationships between sites.

Perhaps more than any other material expression of the ancient Maya, it is their ceremonial centers that best inform us about all elements of Maya culture. From the economic to the ritual, from the practical to the cosmological, Maya cities are the concentrated time capsules of their dispersed archaic state. Paul Wheatley (1967:7) noted in his brilliant 1967 lecture, *City as Symbol*, that the city was “the style centre in the traditional world, disseminating social, political, technical, religious, and aesthetic values, and functioning as an organizing principle conditioning the manner and quality of life in the countryside.”

This study analyzes the architectural design and the location of the major centers in the region from a site planning perspective that assumes certain elements of settlement patterning, “at scales from individual structures through regional landscapes,” were deliberate and followed “the spatial etiquette of the particular culture” (Ashmore 1989:272). Site planning among the ancient Maya influenced not only the form and size of their cities, but their locations as well. In the Three Rivers Region, the larger centers are scattered across the landscape occupying a variety of physiographic settings. Understanding the relationships between the larger centers, the significance of their locations, and the meaning of their site plans is a crucial step in reconstructing the political and social history of the region. Unraveling the relationship between the larger centers and the smaller sites and households of the region is necessary to model the organization of the economy that governed the distribution of goods and labor between sites and people.

As an example of the utility of the above approach, this paper examines the plans of La Honradez and Chan Chich. Drawing upon available mapping and excavation data, the significance of site plans is addressed allowing for the creation of hypotheses regarding the origin of the Late Classic site planning, the relationship between sites, and the role of the larger centers in the economy of the region. These hypotheses, in turn, allow for a discussion of the heterarchically (e.g., Crumley 1995; Potter and King 1995) organized aspects of Maya society in the Three Rivers Region during the Late Classic, specifically with respect to the relationship between the ruling elite and the larger economy of the region.

The Three Rivers Region

Although the geography of the region is addressed in the introduction to this volume (Houk 2000b), a few particularly relevant aspects of the regional physiography that directly influence a discussion of site planning are reiterated here. Erosion, slumping, and faulting that have resulted in the formation of escarpments, uplands, and *bajos* have shaped the karstic environment of the Three Rivers Region (Brokaw and Mallory 1993; Rice 1993). The eastern half of the region is situated on a series of southwest-to-northeast fault lines that have produced three terrace uplands of successively increasing east to west elevations (Brokaw and Mallory 1993). A steeply sloped escarpment fronts each terrace. The terrain in the uplands is characteristically undulating, with broadly rounded hills and stretches of level ground (Brokaw and Mallory 1993; Lundell 1937). From east to west, the three escarpments are the Booth’s River Escarpment, the Río Bravo Escarpment, and the La Lucha Escarpment. The rolling terrain of the La Lucha Uplands continues west into Guatemala.

Three rivers drain the study area—from east to west, these are the Booth’s River, the Río Bravo, and the Río Azul. The Río Bravo begins in Guatemala as an intermittent stream that flows from southwest to northeast. In Belize this stream becomes perennial in the vicinity of the site of Chan Chich, where it is called Chan Chich Creek. The river courses northward at the base of the Río Bravo Escarpment, its flow aug-

mented by small springs. Near the site of Gran Cacao, the northward flowing Booth's River joins the Río Bravo. From this point, the Río Bravo continues northward, eventually emptying into the Río Hondo south-east of the Mexican town of La Unión. While the Booth's River and the Río Bravo are both perennial rivers, the Río Azul is not. The Río Azul begins 28 km northeast of Tikal in Guatemala. It is an intermittent river, flowing during the wet season from southwest to northeast into Mexico where it feeds into the Río Hondo.

Elements and Patterns of Site Plans in the Region

Of the fourteen known major sites in the region, only seven are investigated intensively. These include Dos Hombres (Durst 1998; Houk 1996; Lohse et al. 1999), Río Azul (Adams 1987, 1989, 1990, 1999; Adams et al. 1984), Kinal (Adams 1991; Hageman 1992; Scarborough et al. 1994), La Milpa (Hammond and Tourtellot 1993, 1995, 1999; Scarborough et al. 1995; Tourtellot et al. 1999; Tourtellot and Rose 1993, 1995), Blue Creek (Guderjan 1995a, 1995b, 1999; Guderjan and Driver 1995; Guderjan et al. 1993, 1994), San José (Thompson 1939), and Chan Chich (Houk [editor] 1998, 2000). Gran Cacao is mapped (Lohse 1995) and tested (Durst 1995), as are large portions of Ma'ax Na (Barnhart 1997; Shaw and King 1997; Shaw et al. 1999). Of the other five sites, most of the major architecture at Punta de Cacao (Guderjan et al. 1991) and La Honradez (Von Euw and Graham 1984) is mapped. Several plazas at Chochkitam are mapped, but the site is probably larger than the map indicates (Morley 1937–1938). Wari Camp is investigated and partially mapped, but the map is not published (Laura Levi, personal communication 1999). The final site, Great Savannah has only been briefly visited by archaeologists (Houk 1996).

Every major site investigated to date in the Three Rivers Region has substantial Late Classic construction, and this study compares these Late Classic plans to one another. Each of the 11 sites in the region that have published maps share some of the following site plan *elements*:

1. A large, rectangular plaza;
2. A quadrangle group that is attached to and elevated above the main plaza;
3. An acropolis-like group that is typically juxtaposed with the main plaza;
4. A ballcourt that usually mediates between the two main groups of architecture;
5. At least one stela;
6. Internal causeways connecting otherwise separated sections of the site core;
7. Large causeways that radiate outward from the site core to distant architectural groups or features; and
8. A north-south alignment of the major architectural groups.

The arrangement of these elements varies in each site, but three *patterns* are apparent. First, the larger sites are located in the western part of the region, situated in the La Lucha Uplands. Second, sites in the west possess, on average, many more stelae than do the sites in the eastern half of the region. La Milpa, Río Azul, and La Honradez have at least eight carved stelae each. The exceptions to this are the western sites of Kinal, a fortress-like center built rapidly during the Late Classic that has no stelae (Adams 1991), and Ma'ax Na, a less-well-understood site with no carved stelae and the suggestion that it may have been built very late. Sites in the east all have fewer than four stelae, and few of these are carved.

The third pattern is that the Three Rivers sites generally fall into one of two groups, based on the relative positions of the open space in their main plazas and the enclosed space of their acropoli. In the first group, the main plaza is at the north end of the site, while in second it is to the south (Figure 13.2). This seemingly simple observation is extremely important when considered from a site planning perspective and when the distribution of the site plans is examined. Those sites with their largest plaza at the north end of the architecture occur in the western part of the region; the other sites are strung along the eastern side of the region.

I proposed previously (Houk 1996, 1997) that the site plans in the western part of the region were based on the Petén site planning template proposed by Ashmore (1989, 1991, 1992). Ashmore's (1989, 1991, 1992)

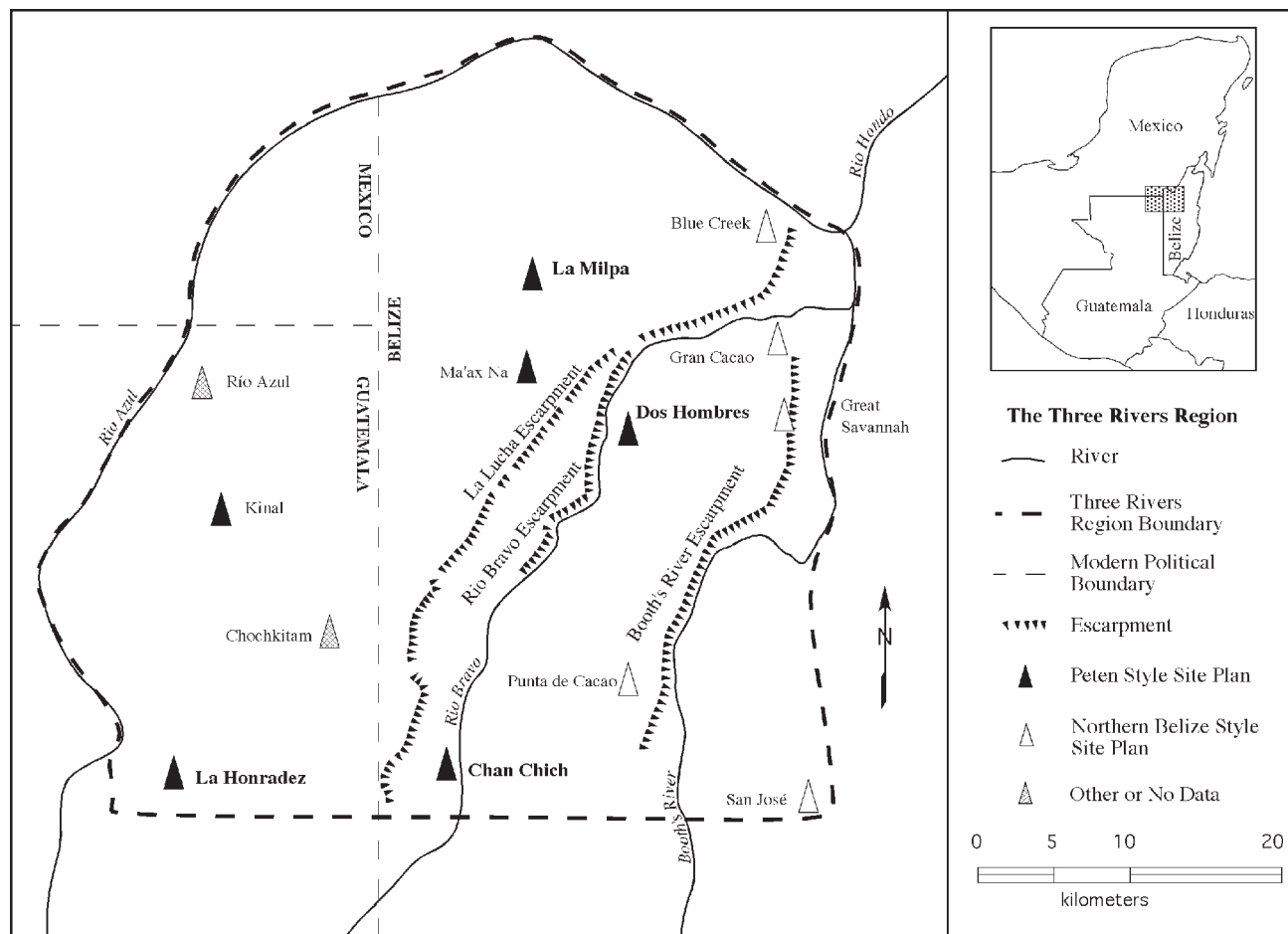


Figure 13.2. Distribution of site plan types in the Three Rivers Region.

template is based on patterns of repeated architectural elements common to many Maya site plans and incorporates a pattern recognized by Coggins (1967) for sites near Uaxactun. Coggins (1967) noted that at 13 sites within a 100-km radius of Uaxactun palace groups are located at the south end of the ceremonial center frequently with a north-south oriented ballcourt positioned north of the palace groups. Coggins (1967:7) speculated that this pattern represented the exportation of a geomantic or cosmological template from Uaxactun. Ashmore (1989, 1991, 1992) asserts that the principles involved in the site planning template are linked to Maya cosmology and are evident at various sites during the Late Preclassic Period (300 BC–AD 250) through the Late Classic Period (AD 600–900). These site planning principles combined to form Ashmore's (1991:200) template:

- (1) emphatic reference to a north-south axis in site organization;
- (2) formal and functional

complementarity or dualism between north and south; (3) the addition of elements on east and west to form a triangle with the north, and frequent suppression of marking the southern position; (4) the presence in many cases of a ballcourt as transition between north and south; and (5) the frequent use of causeways to emphasize connections among the cited elements, thereby underscoring the symbolic unity of the whole layout.

One of the most important cosmological components of Ashmore's (1989, 1991, 1992) model is directionality. Specifically, Ashmore (1991:216) draws upon sources that suggest that the Maya conceptualized a north-south axis as equivalent, "in some contexts, to a vertical dimension, to 'above-below,' or heaven-underworld." In her model, the north "stands for the celestial supernatural sphere, and the south, for the Underworld or the worldly" (Ashmore 1989:273).

The formal and functional dualism between paired precincts is recognized by other scholars as well (e.g., Coggins 1967; Hammond 1981). The relationship in Ashmore's (1989, 1991, 1992) model is one of opposition in which the open north-end spaces are related to public ritual, while the south end is marked by an enclosed, private residential compound of the ruling elite. The intermediate placement of the ballcourt in this model is an important element. The ballcourt symbolically represented a passage to the Underworld. In Ashmore's (1989:279) model, the ballcourt's position is related to the other components of the site in the following way:

The main gallery of dynastic monuments was placed in the heavens, on the north, with the earthly residence of the rulers below, to the south. The placement of the ballcourt likewise to the south, but north of the palace compound, might be taken as an alternative expression to the nine-doorwayed building, to represent the Underworld, scene of the ancient ballgames involving the Hero Twins...The Underworld itself is thus again left below the visible realm, and communication with its denizens is strictly channeled via the ballcourt gateway. The juxtaposition of the residence of the sovereign with this symbolically critical access point implies his control over such communication, and thus serves to underscore his position as one of consummate power.

The best fits for this model are Dos Hombres, La Milpa, and Kinal where a ballcourt mediates between the enclosed architectural groups in the south and the massive, open plazas at the north. La Honradez, Chan Chich, and Ma'ax Na also have affinities to the Petén template, particularly in their strong north-south architectural organization.

Sites to the east, including Blue Creek, Gran Cacao, Punta de Cacao, and San José are arranged fundamentally differently. Each site has a large, open plaza and an acropolis, but their spatial arrangement is reversed compared to the western sites. Their plans, however, are remarkably similar to one another and to those described by Hammond (1981) for sites in Northern Belize. In a study of settlement patterns in Belize,

Hammond (1981) noted that at several sites in the Lower Hondo-Nuevo Region the ceremonial centers are split into two distinct parts, separated by an open space or connected by a *sache*. Sites fitting this pattern generally have an open plaza at the south and an enclosed plaza or acropolis at the north (Hammond 1981).

Río Azul, the largest site in the region, does not fit either one of these types. Perhaps this is due to the site's long history of construction, its size, or its function. The site is over twice as large as any other site in the region (Houk 1996), and Adams (1999) has determined that most of the architecture was built during the Early Classic period. The Late Classic population was substantially smaller, and large sections of the site may have been abandoned after AD 600. It is impossible to lift the Late Classic site plan from the tangle of the Early Classic construction despite the years of research there.

I have concluded elsewhere that the distribution of these site planning types suggests that a cultural boundary existed in the Three Rivers Region during the Late Classic (Houk 1996, 1997). This boundary loosely followed the course of the Rio Bravo and marked the western extent of Petén-Maya culture (Houk 1996, 1997). Generally, I believe that observation is still valid, but I also think the nature of the boundary can be better defined in light of new data.

Unraveling Site Planning Relationships

One goal of the research at Chan Chich has been to compare the site's plan to those of other sizeable centers in the region to identify possibly significant similarities or differences. Recent mapping and excavation data have improved our understanding of the construction history of the site, confirming that the site plan underwent significant formulation during the Late Classic. Furthermore, comparisons to other sites in the region have determined that Chan Chich and La Honradez, both representative of the Peten site planning template, are organized differently than other sites in the region and share some important characteristics.

La Honradez is located in the southwest corner of the Three Rivers Region. It is currently the third largest site in the hierarchy (though is probably larger than La Milpa) and possesses at least eight carved stelae. The data available for the site are limited to Von Euw's (Von Euw and Graham 1984) partial map and discussion that were derived from a 16-day stay at the site in 1976 (Figure 13.3). The site core is situated on an oval-shaped hill and is particularly remarkable for the presence of three large causeways that radiate to the north, the east, and the west. These causeways are 40-m wide spaces formed by low, parallel mounds. The east and west causeways lead to small residential groups, but the north causeway does not appear directed toward anything (Von Euw and Graham 1984).

Von Euw's (Von Euw and Graham 1984:94) description of the site is brief, but he does note that "the heart of La Honradez is a large plaza, approximately 90 m east-west and 65 m north-south, in which all the stelae found at the site were set." The largest structure at the site is A-21, a 17.5 m high temple on the east side of the main plaza (Von Euw and Graham 1984). Von Euw's (Von Euw and Graham 1984) map depicts an elevated and attached group on the north end of the plaza, and an acropolis-like complex on the south. Another interesting feature of the plaza is the double ballcourt in the northeast corner. Little more is known about the site except that it probably had substantial Early Classic and Late Classic occupations based on the stelae there (Von Euw and Graham 1984).

Chan Chich is located approximately 17 km east of La Honradez, 4 km east of the La Lucha Escarpment on the poorly defined southern end of the Rio Bravo Escarpment. At this point, the escarpment is a series of low, rolling hills, at most only 10 m higher than the channel bed of Chan Chich Creek. The site itself is located adjacent to Chan Chich Creek, several hundred meters south of its confluence with Little Chan Chich Creek. The major architecture at the site, composed of the largest structures and plazas, includes Plaza A-1 (Main Plaza) and Plaza A-2 (Upper Plaza). Plaza A-1 is the second largest, clearly defined, plaza in the region, covering 13,080 m² (Figure 13.4). Plaza A-1 is interesting not only for its size but also for the arrangement of its structures and its relationship to Plaza A-2. The largest building in the group is a range

structure, Structure A-1, which is approximately 13 m taller than the surface of Plaza A-1 and 3 m taller than the surface of Plaza A-2. A single, uncarved stela is present at the base of Structure A-2.

An inspection of now-filled looters' trenches by Guderjan (1991) indicated that the buildings surrounding Plaza A-1 were built during the Late Classic. The excavations at Structure A-11 demonstrated that Late Preclassic floors, features, and deposits are present beneath the massive plaza (Houk 2000c), but that there was a major Late Classic expansion of the plaza.

Plaza A-2, the site's acropolis, is attached to and elevated above Plaza A-1. Excavations have shown that it was built on a natural rise and has a long construction history. Test pits in the Upper Plaza discovered a Middle Preclassic midden at the north end and a Protoclassic tomb at the south end (Robichaux 1998). Looters' trenches in structures around Plaza A-2 show a complex construction history, dating to the Late Preclassic or Early Classic (Houk 2000c).

Two other architectural features at Chan Chich are important for this study. The first is the ballcourt. It is situated in the southeast corner of the Main Plaza and was not recognized until 1996 because its western range structure was actually attached to Structure A-1 (Houk et al. 1996). This location is consistent with the tenants of the Petén site planning template.

The second feature comprises two causeways. A 40-m wide, elevated *sacbe* extends east from the southeast corner of the Main Plaza. The 1996 project traced this feature for nearly 1 km before it became too ephemeral to follow (Houk et al. 1996). Investigations to the west of the Main Plaza discovered a complementary causeway (Houk et al. 1996). The Western Causeway is architecturally different from the Harding (eastern) Causeway in that it is composed of two, parallel, linear mounds defining a 40-m wide space between them. The causeway connects the Main Plaza to an isolated mound (Structure C-17) that is located approximately 100 m north of Norman's Temple. On the west side of this mound, another *sacbe* continues westward, but in a different form. Here it is similar to the Eastern Causeway in that it is a raised surface (Houk et al. 1996).

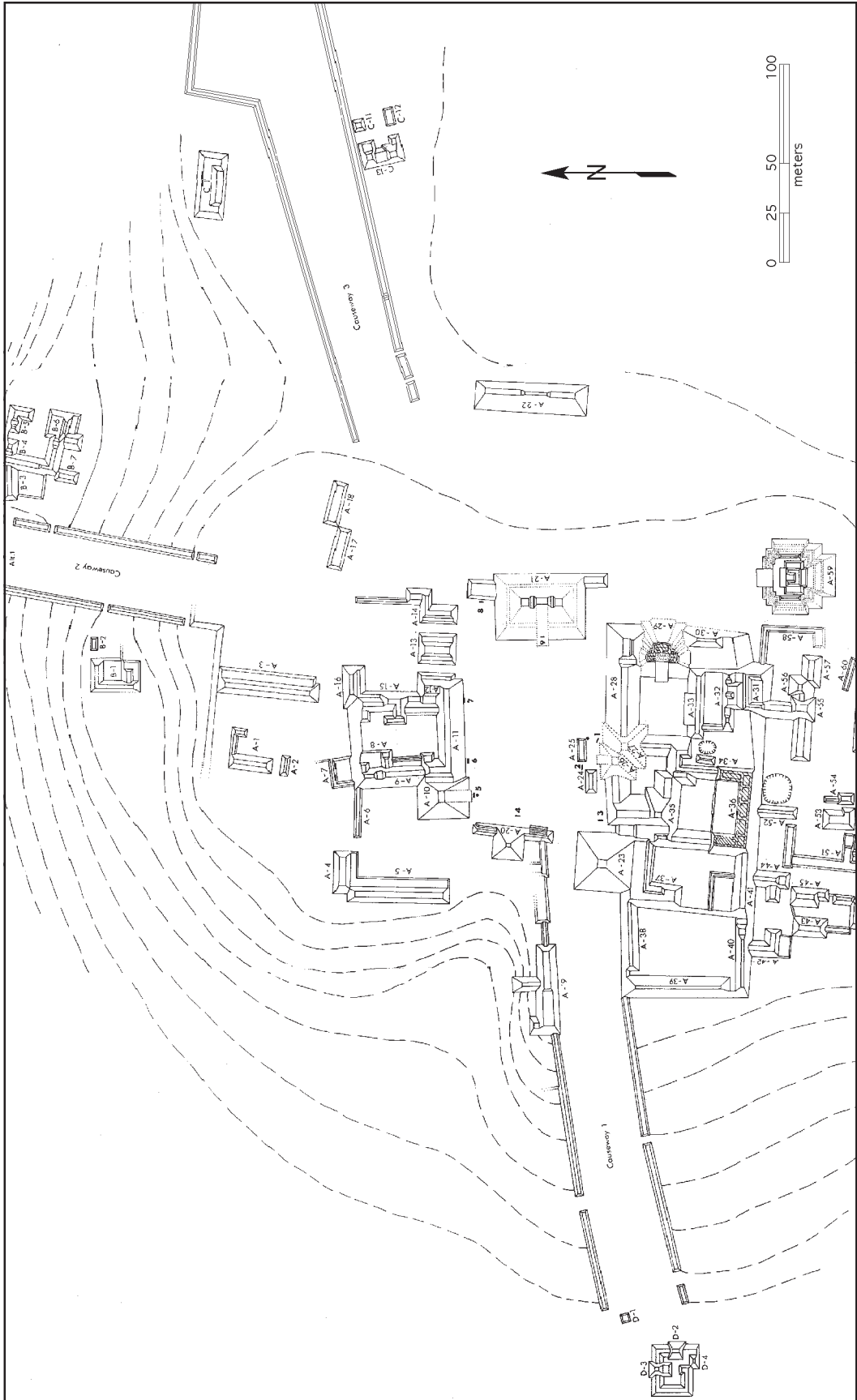


Figure 13.3. Map of La Honradez (after Von Euw and Graham 1984).

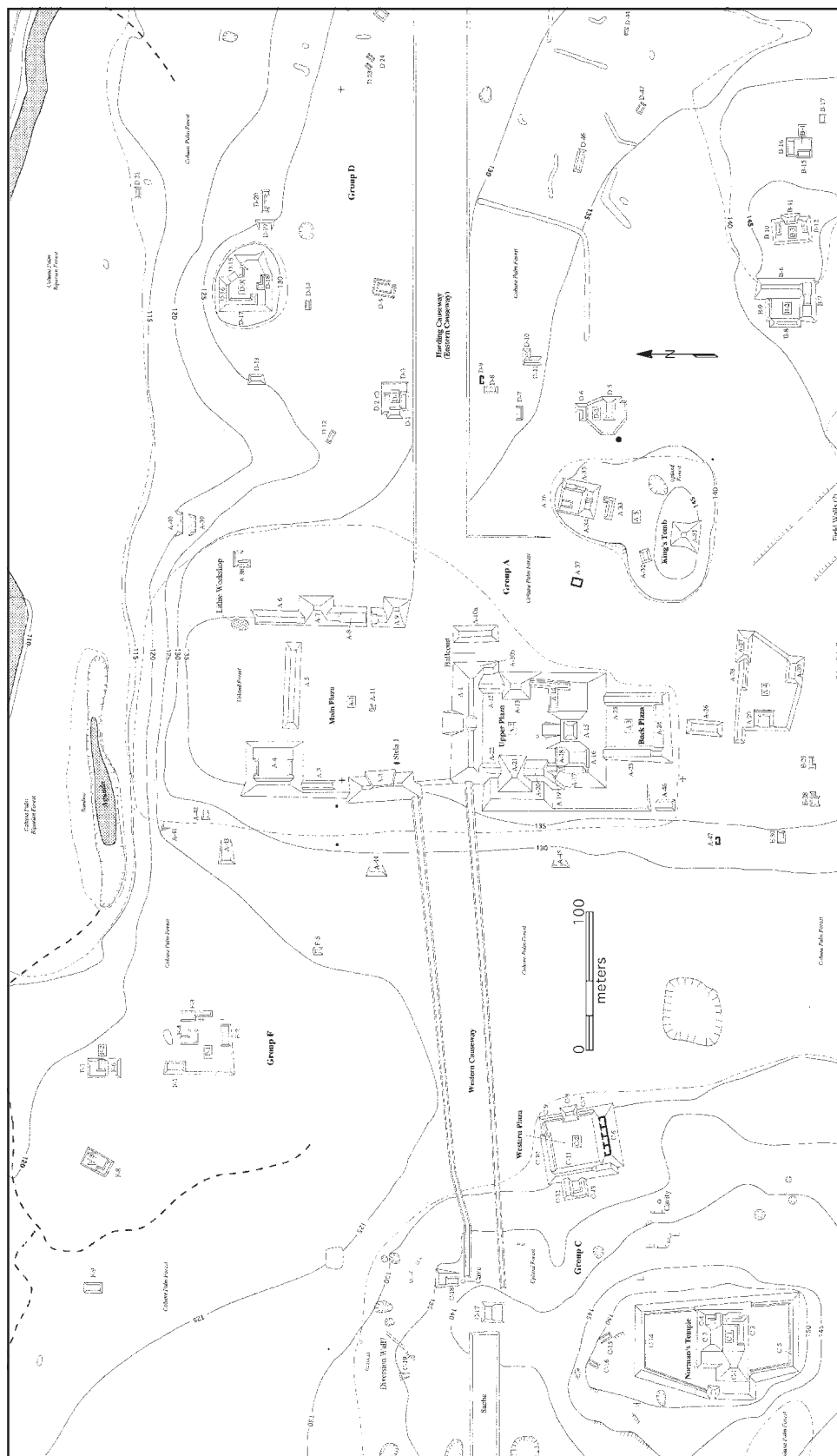


Figure 13.4. Map of Chan Chic.

When compared to one another, La Honradez and Chan Chich share some notable similarities. First, each has a well-defined, large plaza with an elevated and attached acropolis on the south side. Second, each has a ballcourt that is physically attached to another structure. While this construction technique is not unknown elsewhere in the Maya area, these are the only two examples of it from the region. Third, each has wide causeways that radiate out from the main plaza to the east and west. In most cases, these causeways are formed by two elevated mounds and are not raised platforms. This is a rare architectural form in the region. Two of La Honradez's causeways connect to outlying courtyard groups. The Western Causeway at Chan Chich is postulated to extend over 2 km to the east, through a small *bajo*, to the site of Kaxil Uinic (Houk et al. 1996). J. Eric Thompson actually walked from Kaxil Uinic to La Honradez in 1938, stopping at Chochkitam en route (Thompson 1963).

Site Planning Significance

The larger site is found to the west, situated on the La Lucha Uplands. The smaller site is found in a much lower topographic setting, near a perennial source of water. La Honradez has numerous carved stelae, while Chan Chich has a single uncarved stela. Early Classic stelae at La Honradez (Von Euw and Graham 1984) suggest the site was an important center at that time. Chan Chich was likely occupied during the Early Classic, but this occupation was much smaller than during the subsequent Late Classic period—a time during which the site underwent rapid construction. This construction episode buried earlier buildings and formed the final plan of the site, creating a massive northern plaza, a distinct north-south alignment, and a restricted residential zone in the Acropolis.

I suggest that the site plan of Chan Chich is an individualized expression of the Petén site planning template previously identified by Ashmore (1989, 1991, 1992), and that the site itself represents a Late Classic imitation of La Honradez. A couple of competing hypotheses present themselves to explain this occurrence. First, the local elite at Chan Chich may have attempted to link themselves to the more powerful site to the west

by mimicking its architectural layout. Ashmore (1989:273) notes that:

The commissioning of monumental and multibuilding constructions—that is, manipulation of three-dimensional space as well as physical construction volume—offers a means of expressing personal power and, indirectly, professing affiliation with executors of like projects, whether revered ancestors or powerful peers. For Maya sovereigns, just as sculpted stelae and hieroglyphic texts extolled ancestry, titles, exploits, and alliances, so construction projects expressed their political identity, at least among the cognoscenti... When...the conditions of local wealth and building space were right, use of site-planning to express oneness with the political elite was certainly an available option, and its expressive potential was clearly exploited in multiple instances.

An alternative interpretation is that Chan Chich is actually a Late Classic colony of the larger western site. In this case, the site plan is a copy of La Honradez writ small. More importantly, Chan Chich represents an idealized version of the site planning template in that its plan is largely unfettered by previous planning ideals unlike the larger site with its substantial Early Classic construction. In one sense, it is what Wheatley (1967:10) described as “imitations of a celestial archetype,” conforming to a shared cultural understanding, a pervasive ideology that was present in the Petén core area. In another sense, it is an attempt to recreate the sacred space of the founding city. It is an expression of the familial and cultural ties between the elite at the two sites.

A Petén-Maya Intrusion in Context

During the Early Classic, the population density of the countryside in the Three Rivers Region was perhaps 70 percent lower than during the Late Classic (Adams 1999). The major centers in the region followed a primate pattern in which Rio Azul was the largest site by far. La Milpa and possibly La Honradez are the only

other sites postulated to have had significant monumental precincts in the greater Petén part of the region. Guderjan's (1995b) research has determined that the site core of Blue Creek was nearly as large during the Early Classic as in the Late Classic. Similarly, Gran Cacao seems to have been an important site during the Early Classic based on architecture and artifacts exposed in looter's trenches. Durst (1998) excavated an Early Classic tomb at Dos Hombres in a courtyard near the Main Plaza, but earlier and more extensive excavations in the Main Plaza failed to locate evidence of substantial Early Classic construction there (Houk 1996). Similarly, intensive excavations at Chan Chich have determined that the Upper Plaza may have an ephemeral Early Classic component, but little evidence can be marshaled for a major occupation (Robichaux 2000).

At the end of the Early Classic, the picture changed dramatically. Rio Azul declined in population, paralleling the well-documented Middle Classic Hiatus that affected the core area of the Petén (Adams 1990:29). The trajectories of the other major centers during this time are not as clear, but it is known that a dramatic event took place at Blue Creek probably marking the end of the local elite's rulership of the site (Guderjan 1999). The end of the Early Classic may have been a period of instability, caused in part by Rio Azul's decline. Others have postulated that a world-wide weather event took place in AD 536, causing drought and crop failures in many parts of the world, possibly precipitating the Middle Classic Hiatus (Robichaux 1996).

By the middle of the seventh century, however, many of the sites in the region experienced unprecedented growth. These included Chan Chich and Dos Hombres. While alternative explanations are possible, I suggest that the ruling elite at La Honradez found themselves unhindered by the once-more-powerful rulers at Rio Azul at the start of the Late Classic. Additionally, a historically underpopulated zone paralleling the La Lucha and Rio Bravo escarpments lay to the east of them. Using this situation to their advantage, the rulers asserted control over the local elite populations at Chan Chich. They established a satellite community, smaller and less prestigious than the founding city, but

expressing their cultural affiliation through "the language of sites" (Kuper 1972).

For the rulers of La Honradez, the satellite site of Chan Chich offered them something they were previously lacking—a perennial source of surface water that allowed for more stable agricultural production. In effect, they co-opted to their benefit a well-positioned riverine community. This conscious decision may have been in response to previous crop failures that affected the communities located along the margins of *bajos* in the uplands at the end of the Early Classic.

The Role of the Larger Centers

This scenario fits well with the model outlined by Scarborough (1998) in which centers are forced to "hive off" descendent communities as populations increase. In actuality, however, the segment of the population that was being hived off was the elite. For the ruling elite of a site, it would be beneficial to reduce their internal ranks by sending relatives (potential competitors) to conquer or create new descendant communities. The newly empowered elite would be dependent upon the founders for various forms of support, probably in the form of specialists—priests, architects, astronomers, scribes, etc.—sent to help establish the community. They would presumably reciprocate by supplying some needed resource to the founding center. Using Chan Chich as an example, the imported specialists included architects who recreated the "celestial archetype" of the Petén site, and the new rulers reciprocated by providing La Honradez with a stable, supplementary food source.

The rural populations around Chan Chich may have been more closely related (genetically and culturally) to the elite at non-Petén sites like Punta de Cacao and San José than to the new rulers of the center. The complex architectural language of the major centers was, at its heart, part of Maya *elite* culture, and the centers themselves were components of an extensive support system for the elite. They were grandiose expressions of membership in elite society, but they were also "the material instruments of a particular political theory, and the symbolism inseparable from that role was not

a mere decorative veneer but one of a functionally interrelated core of urban institutions” (Wheatley 1967:18). The centers acted as nodes for the collection of information, a valuable commodity, and interacted in the production, distribution, and trade of elite goods and elite *knowledge*.

Excavation data have demonstrated the participation of the elite in the region in a far-flung luxury item distribution system. For example, a distinctive Early Classic polychrome design has been found on vessels or sherds from Dos Hombres, Chan Chich, and San Jose within the region, but also occurs on vessels from Holmul and Uaxactun (Sullivan and Sagebiel 1999). Similarly, during the Terminal Classic, Pabellon Modeled-carved Fine Orange vessels found at Chan Chich are remarkably similar in their imagery to examples from Seibal, Altar de Sacrificios, and Uaxactun. These two examples indicate an active and extensive exchange network of luxury ceramics. As Potter and King (1995:29) observe, luxury-item exchange occurred laterally, between peers and neighboring sites, and vertically, down a single polity’s hierarchy.

In addition to the distribution of luxury goods, the elite probably controlled their production, as well. Elite items such as finely decorated polychromes and shell beads were probably produced at the major centers (Potter and King 1995:25). Indeed, Manning’s (1997) neutron activation analysis of ceramics determined that specialized ceramic producing workshops were present in the eastern part of the region, and Lewis (1995) excavated a midden associated with a shell-working workshop attached to an elite residence on the periphery of Rio Azul.

The elite provided certain services to the rural population, as Wheatley (1967:7) noted, “disseminating social, political, technical, religious, and aesthetic values.” Many of the benefits the colonizing Petén-elite would have brought to the local population would have been intangible and non-material—increased regional stability, increased access to ceremonies and rituals, different agricultural techniques, etc. In return, the newly installed rulers must have expected and received labor to build the new cities and acquire the foodstuffs to support themselves and their specialists.

However, the degree to which the elite controlled the daily activities of the populace is unclear. Potter and King (1995) suggest that there was low scale elite economic involvement and that the production and distribution of utilitarian goods such as ceramics and stone tools was a self-organizing system. They propose that “goods appear to have traveled laterally through as yet poorly understood horizontal networks that may have relied on existing kin ties” (Potter and King 1995:29). This heterarchical organization would have functioned without elite management, although the elite would have interacted with the system as consumers of utilitarian goods (Potter and King 1995). Fry’s (1980:16) analysis of ceramic exchange at Tikal concluded “the system...appears to be less centralized than many of us had expected. It is surprising that much of the exchange around the great site of Tikal during its Late Classic height was handled through localized distribution subsystems.”

The larger centers, then, had limited roles with respect to the subsistence economy of the region. I find it unlikely that these sites were giant distribution centers as Manning (1997) suggests. Based on Neutron Activation Analysis of ceramics from the Three Rivers Region, Manning (1997) concluded that specific plazas served as marketplaces and were designed for regional exchange. The context of Manning’s (1997) data precludes this interpretation, however. What the data actually indicate is that the elite were participating in the extensive luxury-item trade discussed above. Manning’s (1997) data from Dos Hombres were collected from the Acropolis at the site, specifically from a Terminal Classic “destructive-event deposit” that accompanied the end of elite rule there (Houk et al. 1999; Houk 2000d). Furthermore, his data from Gran Cacao come from ceramics found in looters’ trenches into large structures at the site (Manning 1997). The ceramics represent the possessions of the elite, not stockpiles of goods awaiting distribution. That small rural sites had imported, high-quality ceramics as Manning (1997) notes, is not surprising. Gifting elite paraphernalia to smaller, rural sites would create and maintain ties to the larger center. This would be the lowest end of the vertical distribution system for luxury goods.

On another level, to postulate that the large plazas at sites were marketplaces would be contrary to the more intrinsic function of the traditional city. As Wheatley (1967:25–26) describes it:

The supremely sacred central precinct, the *axis mundi*, was usually reserved for ritual purposes. Building in this zone was then restricted to habitations of gods and those of elites who, in societies structured in the image of the hierarchical cosmic order, were either conceived as occupying status positions close to divinity or were experts in the technics of ceremonial and ritual service...[Traditional cities] were quintessentially sacred enclaves within which man could proclaim the knowledge that he shared with the gods and dramatize the cosmic truth that had been revealed to him. As such they were more often than not constructed as *imagines mundi* with the cosmogony as paradigmatic model, islands of sacred symbolism in the intrinsically hostile continuum of profane space. They were theatres for the performance of the rituals and ceremonies which guaranteed man's liberation from the terrors of the natural world.

The strategic location of most of the major sites near critical agricultural resource areas such as *bajos*, aguadas, and riverine settings is an important factor in site planning. While the elite interacted only minimally with the larger economy of the region, they were dependent upon it. In response to this dependence, they positioned themselves both geographically and economically to intervene in times of crisis or to resolve disputes. First, their proximity to vital resource areas allowed direct access to information and the ability to influence agricultural practices and production firsthand, if need be. Second, by creating and maintaining ties with non-elite households through gifting of luxury goods, the elite established an informal economic/social control mechanism, perhaps targeting groups with access to important resources.

Conclusions

The comparison of site plans presented here offers some intriguing and admittedly speculative conclusions about the nature of the larger centers in the region. First, the data indicate that many of the sites in the area fit a site planning template that originated in the Petén (cf. Ashmore 1991). Other sites, those along the eastern edge of the region, housed elite who were probably more closely related culturally to the inhabitants of northern Belize as their centers share similar site plans. Second, at the beginning of the Late Classic, the region may have still been destabilized by Rio Azul's rapid Middle Classic decline. Several Petén-related sites, including La Honradez, apparently took advantage of this instability by establishing descendant communities at the base of the escarpments in areas not strongly influenced by other sizeable centers. In doing so, they chose pre-existing communities situated near perennial rivers. This provided them access to a more stable food supply in times of drought. It also allowed the growing elite at the parent sites to reduce their ranks by sending relatives to settle the new sites.

Rather than simply occupy the existing structures at Chan Chich, the colonizing elite remade the site to mimic the architectural layout of the parent center. They utilized the Petén site planning template "to depict the structure of the Maya cosmos and to emphasize graphically their own and their family's importance within that cosmos" (Ashmore 1989:279). In exchange for labor and agricultural products, the transplanted elite supplied the rural populace with greater access to ritual and increased proximity to the sacred. Ties were forged through gifting of luxury goods to non-elite, or possibly limited exchange of such items for utilitarian ceramics, stone tools, and foodstuffs.

The elite directed and maintained an extensive luxury-item trade network, exchanging not only fine ceramics and other objects but also information along vertical and horizontal lines. The degree to which the elite of the Petén outposts like Chan Chich interacted with eastern elite occupying San José, Punta de Cacao, Gran Cacao, and Blue Creek is still unresolved. Lacking evidence for regional conflict, at least before the Terminal Classic (see Houk 2000d), it is reasonable to

assume that exchange of luxury goods and information occurred horizontally between neighboring sites. It is also likely, however, that exchange was more active along kinship or group ties, meaning that western sites had more active and better-established trade routes between themselves than they had with the eastern sites.

Beneath this overlay of the elite economy, a self-organizing system functioned to distribute utilitarian goods and products amongst the non-elite (e.g., Potter and King 1995). The elite, however, were positioned to intervene in the system through their proximity to vital resource areas and their socially created ties to the rural populace. Perhaps the Terminal Classic demise of the major sites in the Three Rivers Region is related to the elite's response to an environmental crisis. Born into the role and lacking specific knowledge or expertise, the elite attempting to hierarchically manage an intrinsically heterarchical subsistence economy during an extended drought or period of social unrest would have led to disaster.

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Appendix A: Column Samples from Group H

Table A.1. Operation 6, Suboperation B, Column Sample Medium Fraction (1/8 inch) Weights and Content

Level	Depth (cm)	Weight (kg)	Fraction Content
6-B-1	0-10	0.22	soil, root fragments, wood, debitage
6-B-2	10-20	0.20	soil, debitage, roots, wood fragments
6-B-3	20-30	0.40	debitage, soil, roots, wood fragments
6-B-4	30-40	0.35	debitage, soil, roots, wood fragments
6-B-5	40-50	0.30	debitage, soils, limestone frags, roots, wood
6-B-6	50-60	0.77	debitage, microdebitage, limestone fragments
6-B-7	60-70	0.63	debitage, limestone fragments, soils
6-B-8	70-80	0.19	debitage, microdebitage, soils
6-B-9	80-90	0.21	debitage, microdebitage, soils, limestone frags.
6-B-10	90-100	0.03	debitage, microdebitage, soils, limestone frags.
6-B-11	100-110	0.18	limestone fragments, debitage (much less)
6-B-12	110-120	0.27	limestone fragments, debitage (much less)
6-B-13	120-130	0.25	limestone, soils, debitage
6-B-14	130-140	0.27	limestone, soils
6-B-15	140-150	0.27	limestone, soils

Table A.2. Operation 6, Suboperation B, Column Sample Light Fraction (1/32 inch) Weights and Content

Level	Depth (cm)	Weight (kg)	Fraction Content
6-B-1	0-10	0.11	microdebitage, soil, root fragments
6-B-2	10-20	0.18	soil, microdebitage, roots, wood fragments
6-B-3	20-30	0.14	soil, some wood and root fragments, microdebitage
6-B-4	30-40	0.11	soil, some root frags., microdebitage
6-B-5	40-50	0.10	microdebitage, soil, root fragments
6-B-6	50-60	0.23	microdebitage, limestone fragments, some roots
6-B-7	60-70	0.20	soil, microdebitage, roots, wood fragments
6-B-8	70-80	0.25	soil, microdebitage, roots, wood fragments
6-B-9	80-90	0.11	soil, microdebitage, limestone fragments, wood frags.
6-B-10	90-100	0.14	soil, limestone fragments, microdebitage
6-B-11	100-110	0.11	soil, limestone fragments, microdebitage, vegetal frags.
6-B-12	110-120	0.11	soil, limestone frags., microdebitage, vegetal frags.
6-B-13	120-130	0.11	soil, limestone frags., microdebitage, vegetal frags.
6-B-14	130-140	0.15	limestone fragments, soil, vegetal material
6-B-15	140-150	0.15	limestone fragments, soil

Table A.3. Operation 6, Suboperation D, Column Sample Medium Fraction (1/8 inch) Weights and Content

Level	Depth (cm)	Weight (kg)	Fraction Content
6-D-1	0-10	0.22	debitage, soil, snail, animal bone frags., roots
6-D-2	10-20	0.30	debitage, soil, roots, wood, animal bone fragments
6-D-3	20-30	0.68	charcoal, wood, debitage, soil, limestone fragments
6-D-4	30-40	0.25	debitage and microdebitage, some soil
6-D-5	40-50	0.35	debitage, sand, microdebitage
6-D-6	50-60	0.51	debitage, sand, microdebitage
6-D-7	60-70	0.39	debitage, microdebitage, sand, limestone fragments
6-D-8	70-80	0.36	debitage, microdebitage, sand, limestone fragments
6-D-9	80-90	0.52	debitage, soil, limestone fragments
6-D-10	90-100	0.98	limestone, soil, smaller quantities of debitage
6-D-11	100-110	0.45	soil and limestone fragments

Table A.4. Operation 6, Suboperation D, Column Sample Light Fraction (1/32 inch) Weights and Content

Level	Depth (cm)	Weight (kg)	Fraction Content
6-D-1	0-10	0.15	soil, wood frags., roots, microdebitage
6-D-2	10-20	0.13	soil, wood frags., roots and vegetal frags., microdebitage
6-D-3	20-30	0.30	soil, microdebitage, roots, limestone fragments
6-D-4	30-40	0.10	microdebitage, sand, vegetal frags., limestone fragments
6-D-5	40-50	0.27	microdebitage, sand, limestone fragments
6-D-6	50-60	0.25	limestone fragments, soil, microdebitage
6-D-7	60-70	0.18	microdebitage, soil, limestone fragments
6-D-8	70-80	0.20	soil, microdebitage, limestone fragments
6-D-9	80-90	0.30	soil, some microdebitage
6-D-10	90-100	0.64	soil, some microdebitage, some limestone fragments
6-D-11	100-110	0.34	soil, limestone fragments

Appendix B: Debitage Data from Group H

Table B.1. Complete Flakes from Suboperation B, Debitage Deposit 1 Column Sample (measurements in cm)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-B-1	0-10	5.2	4.3	0.8	6	0	0	1.1	0.2	1
6-B-1	0-10	5.8	3.1	0.7	4	0	0	1.0	0.4	0
6-B-1	0-10	4.9	9.3	1.7	2	1	0	1.1	0.3	0
6-B-1	0-10	3.9	3.9	0.6	5	0	0	1.7	0.4	1
6-B-1	0-10	7.2	3.7	0.9	2	1	0	1.0	0.3	0
6-B-1	0-10	6.8	4.7	1.0	6	0	0	1.6	0.5	0
6-B-1	0-10	4.7	4.1	0.7	5	1	0	0.7	0.2	0
6-B-1	0-10	4.8	2.7	0.4	4	1	0	0.8	0.2	0
6-B-1	0-10	4.9	3.5	0.4	5	0	0	0.7	0.1	0
6-B-1	0-10	5.7	2.9	0.8	4	1	0	0.5	0.2	0
6-B-1	0-10	4.2	3.5	0.5	4	1	0	0.9	0.3	0
6-B-1	0-10	5.9	4.1	0.7	5	0	0	1.1	0.2	0
6-B-1	0-10	4.9	3.3	0.6	3	0	0	0.7	0.3	0
6-B-1	0-10	3.8	5.6	1.4	3	1	0	3.2	1.3	0
6-B-1	0-10	4.6	4.5	0.5	6	0	0	0.4	0.2	1
6-B-1	0-10	3.0	2.7	0.3	5	0	1	2.0	0.4	0
6-B-1	0-10	5.1	3.1	0.8	3	1	0	1.0	0.3	0
6-B-1	0-10	4.1	2.7	0.4	3	0	0	1.4	0.3	0
6-B-1	0-10	5.2	2.1	0.5	3	0	0	0.5	0.2	0
6-B-1	0-10	3.8	2.8	0.3	3	0	0	0.5	0.2	0
6-B-1	0-10	5.3	2.9	0.6	2	1	0	0.7	0.3	0
6-B-1	0-10	2.8	1.9	0.3	3	0	0	0.7	0.2	0
6-B-1	0-10	4.0	3.1	0.6	6	0	0	0.7	0.2	1
6-B-1	0-10	4.5	2.0	0.4	3	1	0	0.8	0.3	0
6-B-1	0-10	4.5	4.9	1.1	4	0	0	1.3	0.3	0
6-B-2	10-20	4.1	3.9	1.2	3	1	0	2.4	0.6	0
6-B-2	10-20	4.6	3.9	0.6	4	0	0	1.6	0.7	0
6-B-2	10-20	7.2	3.5	1.1	3	0	0	1.1	0.3	0
6-B-2	10-20	5.7	4.8	0.8	3	1	0	1.2	0.4	1
6-B-2	10-20	3.1	2.5	0.4	2	1	0	2.0	0.5	0
6-B-2	10-20	4.0	3.0	0.7	3	0	0	1.3	0.2	0
6-B-2	10-20	2.1	1.6	0.4	2	0	0	0.9	0.4	0
6-B-2	10-20	4.0	3.5	0.4	3	1	0	1.9	0.4	0
6-B-2	10-20	5.3	3.2	1.6	3	1	0	0.8	0.2	0
6-B-2	10-20	3.6	2.4	0.7	3	1	0	1.7	0.8	0
6-B-2	10-20	4.6	2.2	0.5	3	0	0	1.0	0.2	0
6-B-2	10-20	2.8	2.2	0.4	3	0	0	1.0	0.4	0
6-B-2	10-20	3.2	3.2	0.4	3	0	0	1.1	0.2	0
6-B-2	10-20	2.5	1.4	0.4	2	0	0	1.2	0.4	0
6-B-2	10-20	2.3	1.4	0.5	2	0	0	1.1	0.4	0
6-B-2	10-20	1.2	1.0	0.1	1	0	0	0.4	0.1	0
6-B-2	10-20	3.1	2.0	0.2	3	1	0	0.5	0.3	0
6-B-2	10-20	2.8	2.7	0.5	3	0	0	1.1	0.5	0
6-B-2	10-20	3.2	2.0	0.3	3	0	0	0.7	0.2	0
6-B-2	10-20	2.5	1.0	0.2	2	0	0	0.4	0.1	0
6-B-2	10-20	2.6	2.5	0.4	2	0	0	1.3	0.3	0
6-B-2	10-20	2.0	1.6	0.2	3	1	0	0.6	0.2	0
6-B-2	10-20	1.8	1.2	0.3	3	0	0	0.6	0.4	0
6-B-2	10-20	2.1	1.6	0.2	2	0	0	0.7	0.2	0
6-B-2	10-20	2.0	1.1	0.1	2	1	0	0.6	0.2	0
6-B-3	20-30	5.5	4.3	0.7	3	1	0	0.6	0.2	0

Table B.1. Complete Flakes from Suboperation B, Debitage Deposit 1 Column Sample (continued)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-B-3	20-30	5.8	4.8	0.8	3	1	0	0.9	0.3	0
6-B-3	20-30	5.2	4.8	0.3	3	0	0	0.6	0.2	0
6-B-3	20-30	3.9	2.5	0.4	2	1	0	1.2	0.4	0
6-B-3	20-30	3.8	1.8	0.4	3	0	0	0.9	0.3	0
6-B-3	20-30	7.1	3.5	0.7	4	1	0	1.4	0.4	0
6-B-3	20-30	3.8	3.1	0.5	3	0	0	1.4	0.4	0
6-B-3	20-30	2.5	1.0	0.2	2	0	0	0.3	0.1	0
6-B-3	20-30	3.9	3.3	0.6	4	1	0	1.0	0.5	1
6-B-3	20-30	1.6	1.5	0.2	2	0	0	0.7	0.2	0
6-B-3	20-30	3.0	1.9	0.5	4	1	0	0.9	0.3	0
6-B-3	20-30	3.2	2.0	0.4	1	0	0	0.6	0.2	0
6-B-3	20-30	5.8	3.1	0.5	3	0	0	0.8	0.2	1
6-B-3	20-30	1.8	1.1	0.2	3	0	0	0.5	0.1	0
6-B-3	20-30	4.4	2.7	0.5	4	1	0	0.5	0.2	0
6-B-3	20-30	1.1	1.0	0.2	1	0	0	0.9	0.3	0
6-B-3	20-30	3.1	1.4	0.3	3	0	0	0.7	0.2	0
6-B-3	20-30	1.8	1.4	0.2	2	0	0	0.6	0.2	0
6-B-3	20-30	1.7	1.0	0.1	2	1	0	0.3	0.1	0
6-B-3	20-30	4.2	2.1	0.4	3	1	0	1.1	0.3	1
6-B-3	20-30	3.3	2.7	0.2	3	1	0	0.8	0.2	0
6-B-3	20-30	1.7	1.1	0.4	2	1	0	0.5	0.2	0
6-B-3	20-30	3.7	2.0	0.6	3	0	0	0.7	0.2	0
6-B-3	20-30	1.7	0.9	0.1	2	0	0	0.5	0.2	0
6-B-3	20-30	4.9	5.7	0.8	3	0	0	1.6	0.9	0
6-B-4	30-40	6.4	4.2	0.9	3	0	0	1.2	0.5	0
6-B-4	30-40	5.2	5.1	1.1	4	1	0	1.4	0.5	0
6-B-4	30-40	4.4	3.9	0.4	3	1	0	1.1	0.3	0
6-B-4	30-40	2.1	1.4	0.2	2	0	0	0.4	0.1	0
6-B-4	30-40	1.9	1.1	0.2	2	0	0	1.0	0.1	0
6-B-4	30-40	1.8	1.0	0.2	2	0	0	0.3	0.1	1
6-B-4	30-40	4.7	2.4	0.6	4	0	0	0.9	0.2	0
6-B-4	30-40	3.2	2.7	0.4	2	0	0	0.8	0.2	0
6-B-4	30-40	2.7	2.0	0.4	2	0	0	1.4	0.3	0
6-B-4	30-40	4.8	3.2	0.3	3	1	0	0.5	0.1	0
6-B-4	30-40	2.9	3.3	0.6	4	0	0	1.6	0.3	0
6-B-4	30-40	1.8	1.7	0.3	2	0	0	1.0	0.2	0
6-B-4	30-40	4.8	3.2	0.5	3	0	0	1.4	0.5	0
6-B-4	30-40	2.5	1.7	0.3	3	0	0	0.5	0.1	0
6-B-4	30-40	2.2	1.4	0.2	2	0	0	0.7	0.2	1
6-B-4	30-40	3.3	1.5	0.2	2	0	0	0.7	0.1	0
6-B-4	30-40	1.2	1.1	0.1	2	0	0	0.6	0.2	0
6-B-4	30-40	5.1	2.8	0.4	4	1	0	1.2	0.3	0
6-B-4	30-40	3.2	2.4	0.3	3	0	0	1.1	0.4	0
6-B-4	30-40	1.3	0.8	0.2	2	0	0	0.5	0.2	0
6-B-4	30-40	2.4	1.7	0.4	2	0	0	0.9	0.3	1
6-B-4	30-40	2.6	1.2	0.2	2	0	1	0.4	0.1	0
6-B-4	30-40	2.2	1.5	0.3	3	0	0	0.9	0.3	0
6-B-4	30-40	1.5	1.3	0.2	2	0	0	0.7	0.2	0
6-B-4	30-40	1.6	1.2	0.2	2	0	0	0.6	0.1	0
6-B-5	40-50	4.2	3.1	0.6	3	0	0	1.0	0.3	0
6-B-5	40-50	8.5	6.1	2.5	4	1	0	2.5	0.7	0

Table B.1. Complete Flakes from Suboperation B, Debitage Deposit 1 Column Sample (continued)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-B-5	40-50	2.0	2.1	0.4	3	0	1	1.3	0.2	0
6-B-5	40-50	3.3	2.1	0.5	2	1	0	0.9	0.3	0
6-B-5	40-50	3.7	2.7	0.3	3	1	0	1.3	0.5	0
6-B-5	40-50	2.8	1.6	0.4	4	0	0	0.6	0.3	0
6-B-5	40-50	3.8	2.2	0.4	4	0	0	1.1	0.5	0
6-B-5	40-50	5.0	1.9	0.4	3	0	0	1.2	0.3	0
6-B-5	40-50	4.2	2.6	0.4	2	1	0	0.6	0.3	0
6-B-5	40-50	3.7	2.6	0.4	4	0	0	0.8	0.3	0
6-B-5	40-50	3.6	1.8	0.4	3	1	0	0.8	0.2	0
6-B-5	40-50	2.8	1.6	0.2	5	0	0	1.1	0.2	0
6-B-5	40-50	2.2	1.8	0.3	2	0	0	1.1	0.3	0
6-B-5	40-50	1.8	1.6	0.2	1	1	0	1.0	0.3	0
6-B-5	40-50	2.7	1.3	0.3	2	0	0	0.8	0.4	0
6-B-5	40-50	2.8	1.6	0.2	3	0	0	0.9	0.2	0
6-B-5	40-50	1.5	1.8	0.2	2	0	0	0.7	0.2	0
6-B-5	40-50	1.6	1.1	0.3	2	0	0	0.8	0.3	0
6-B-5	40-50	2.0	1.4	0.2	2	0	0	1.0	0.2	0
6-B-5	40-50	1.7	1.3	0.3	3	0	0	1.1	0.3	0
6-B-5	40-50	1.5	1.1	0.2	2	0	0	0.6	0.2	0
6-B-5	40-50	2.7	1.3	0.2	3	1	0	0.5	0.1	0
6-B-5	40-50	1.4	1.5	0.5	2	1	0	0.5	0.2	0
6-B-5	40-50	2.0	0.9	0.2	3	0	0	0.2	0.1	0
6-B-5	40-50	1.5	0.8	0.3	1	0	0	0.6	0.2	0
6-B-6	50-60	5.3	4.7	0.6	6	0	0	1.6	0.3	0
6-B-6	50-60	3.0	1.8	0.3	2	0	0	0.9	0.3	0
6-B-6	50-60	2.4	1.9	0.4	3	0	0	1.1	0.4	1
6-B-6	50-60	2.3	1.5	0.3	2	0	0	0.5	0.2	0
6-B-6	50-60	1.2	1.1	0.1	2	0	0	0.6	0.1	0
6-B-6	50-60	1.7	1.3	0.2	2	1	0	0.5	0.2	0
6-B-6	50-60	1.0	1.1	0.1	1	0	0	0.7	0.2	0
6-B-6	50-60	1.1	1.2	0.1	2	0	0	0.3	0.1	0
6-B-6	50-60	2.9	2.8	0.3	2	1	0	1.0	0.5	0
6-B-6	50-60	2.3	1.9	0.3	3	0	0	0.7	0.2	0
6-B-6	50-60	3.0	1.5	0.4	2	0	0	0.9	0.5	0
6-B-6	50-60	2.0	1.1	0.2	2	0	0	0.7	0.2	1
6-B-6	50-60	1.2	0.9	0.1	1	0	0	0.4	0.2	0
6-B-6	50-60	5.7	2.8	0.7	3	1	0	1.2	0.2	0
6-B-6	50-60	2.6	2.6	0.5	2	0	0	0.9	0.4	0
6-B-6	50-60	3.9	2.3	0.6	3	1	0	0.6	0.2	0
6-B-6	50-60	4.0	1.3	0.3	3	0	1	0.4	0.2	0
6-B-6	50-60	2.3	2.5	0.4	2	0	0	0.7	0.3	1
6-B-6	50-60	3.8	2.7	0.4	3	0	0	1.1	0.4	0
6-B-6	50-60	1.8	1.0	0.2	3	1	0	0.3	0.1	0
6-B-6	50-60	1.8	1.1	0.4	2	1	0	0.5	0.3	0
6-B-6	50-60	2.7	2.4	0.3	2	1	1	1.2	0.4	1
6-B-6	50-60	1.4	0.9	0.2	2	1	0	0.3	0.2	0
6-B-6	50-60	1.4	1.2	0.2	3	0	0	0.7	0.1	0
6-B-6	50-60	3.5	3.3	0.7	3	1	0	1.4	0.6	0
6-B-7	60-70	4.0	2.5	0.3	2	1	0	1.5	0.4	0
6-B-7	60-70	4.4	2.3	0.4	3	1	1	1.1	0.3	0
6-B-7	60-70	2.1	1.5	0.2	3	0	0	0.6	0.2	0

Table B.1. Complete Flakes from Suboperation B, Debitage Deposit 1 Column Sample (continued)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-B-7	60-70	1.6	1.0	0.3	2	1	0	0.7	0.3	0
6-B-7	60-70	3.0	3.1	0.5	2	0	0	1.0	0.4	0
6-B-7	60-70	2.1	1.6	0.3	2	0	0	1.1	0.3	0
6-B-7	60-70	2.3	2.1	0.2	2	0	0	1.3	0.3	0
6-B-7	60-70	1.9	1.5	0.2	1	0	0	1.0	0.2	0
6-B-7	60-70	1.0	0.8	0.3	2	0	0	0.6	0.2	0
6-B-7	60-70	0.8	1.0	0.2	1	0	0	0.7	0.2	0
6-B-7	60-70	0.9	1.1	0.2	2	0	0	0.8	0.2	0
6-B-7	60-70	3.5	3.7	0.7	3	1	0	1.5	0.5	0
6-B-7	60-70	2.1	1.4	0.3	3	1	0	0.7	0.2	0
6-B-7	60-70	3.3	1.6	0.5	3	0	0	1.1	0.5	0
6-B-7	60-70	1.3	0.9	0.2	2	1	0	0.4	0.2	0
6-B-7	60-70	3.8	3.0	0.7	3	0	0	1.5	0.4	0
6-B-7	60-70	2.4	1.7	0.4	2	1	0	1.0	0.5	0
6-B-7	60-70	3.2	3.0	0.4	3	0	0	0.7	0.2	0
6-B-7	60-70	1.1	1.1	0.2	2	0	0	0.5	0.1	0
6-B-7	60-70	3.5	2.2	0.4	3	0	0	1.5	0.3	0
6-B-7	60-70	2.0	1.3	0.3	3	0	0	0.4	0.1	0
6-B-7	60-70	3.7	1.5	0.3	2	0	1	0.5	0.1	1
6-B-7	60-70	1.2	0.9	0.2	2	0	0	0.4	0.1	0
6-B-7	60-70	3.4	1.8	0.4	2	0	0	1.2	0.5	0
6-B-7	60-70	2.6	2.7	0.3	3	0	0	0.7	0.2	0
6-B-8	70-80	5.6	4.3	1.2	3	1	0	1.6	0.6	0
6-B-8	70-80	5.7	4.5	1.1	5	1	0	1.2	0.3	0
6-B-8	70-80	1.5	0.3	2.0	2	0	0	0.4	0.1	0
6-B-8	70-80	3.0	1.5	0.3	2	0	0	0.8	0.4	0
6-B-8	70-80	2.2	1.1	0.2	2	0	0	0.5	0.2	0
6-B-8	70-80	4.4	3.3	0.7	4	0	0	1.0	0.4	0
6-B-8	70-80	1.4	0.8	0.1	3	0	0	0.4	0.1	0
6-B-8	70-80	4.9	2.8	0.4	3	0	0	0.5	0.2	0
6-B-8	70-80	1.7	1.3	0.3	2	0	0	1.0	0.3	0
6-B-8	70-80	3.1	2.0	0.4	3	0	0	0.8	0.1	0
6-B-8	70-80	6.0	3.1	1.2	4	1	0	0.9	0.6	0
6-B-8	70-80	2.6	2.4	0.4	2	1	0	1.3	0.5	0
6-B-8	70-80	1.7	1.0	0.2	2	0	0	0.5	0.2	0
6-B-8	70-80	4.5	4.1	0.4	5	0	0	0.6	0.3	0
6-B-8	70-80	1.4	0.9	0.1	2	0	0	0.3	0.1	0
6-B-8	70-80	2.8	1.8	0.3	2	1	0	0.9	0.2	0
6-B-8	70-80	3.1	3.7	0.4	2	0	0	1.7	0.3	0
6-B-8	70-80	2.2	1.7	0.4	3	0	0	1.1	0.2	0
6-B-8	70-80	3.2	2.1	0.4	3	0	0	1.3	0.6	0
6-B-8	70-80	3.4	2.0	0.2	2	1	0	0.5	0.2	0
6-B-8	70-80	1.4	0.9	0.2	2	0	0	0.4	0.1	0
6-B-8	70-80	2.3	1.8	0.4	3	0	0	1.6	0.5	0
6-B-8	70-80	3.8	3.1	0.3	3	0	0	1.4	0.3	0
6-B-8	70-80	3.1	0.9	0.2	3	0	0	0.5	0.2	0
6-B-8	70-80	1.6	0.8	0.2	2	1	0	0.4	0.2	0
6-B-9	80-90	7.0	3.4	0.8	3	1	0	1.2	0.5	1
6-B-9	80-90	2.8	1.9	0.3	2	0	0	0.4	0.2	0
6-B-9	80-90	6.0	4.1	1.1	4	1	0	2.4	1.1	0
6-B-9	80-90	2.2	1.5	0.3	2	0	0	0.9	0.2	0

Table B.1. Complete Flakes from Suboperation B, Debitage Deposit 1 Column Sample (continued)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-B-9	80-90	4.1	2.5	0.6	3	1	0	0.9	0.4	0
6-B-9	80-90	1.6	1.1	0.2	2	0	0	0.4	0.1	0
6-B-9	80-90	2.9	1.7	0.2	2	0	0	0.5	0.1	0
6-B-9	80-90	5.4	3.5	0.5	2	1	0	1.7	0.6	0
6-B-9	80-90	1.3	1.1	0.2	1	0	0	0.7	0.1	0
6-B-9	80-90	4.5	2.3	0.3	3	1	0	0.9	0.4	0
6-B-9	80-90	3.9	2.6	0.3	4	0	0	1.1	0.3	0
6-B-9	80-90	1.5	0.9	0.2	2	0	0	0.6	0.1	0
6-B-9	80-90	4.9	4.2	0.7	3	0	0	1.1	0.5	0
6-B-9	80-90	2.6	2.1	0.2	2	1	0	0.5	0.2	0
6-B-9	80-90	2.5	2.4	0.4	3	1	0	0.7	0.4	1
6-B-9	80-90	4.5	4.3	0.5	5	1	0	1.4	0.4	0
6-B-9	80-90	2.8	1.3	0.2	2	1	0	1.0	0.2	0
6-B-9	80-90	4.4	1.4	0.3	3	0	0	0.7	0.2	0
6-B-9	80-90	2.2	2.1	0.4	2	0	0	0.9	0.3	0
6-B-9	80-90	2.8	1.2	0.2	2	0	0	0.4	0.1	0
6-B-9	80-90	4.5	3.7	0.5	3	1	0	1.0	0.3	0
6-B-9	80-90	4.9	5.3	0.8	3	1	0	2.0	0.7	0
6-B-9	80-90	1.2	0.5	0.1	2	0	0	0.3	0.2	0
6-B-9	80-90	2.0	1.3	0.2	2	0	0	1.2	0.4	0
6-B-9	80-90	2.8	2.0	0.2	2	0	0	1.4	0.3	0
6-B-10	90-100	4.5	4.1	0.9	6	1	0	1.0	0.4	0
6-B-10	90-100	2.1	1.5	0.3	2	0	0	1.0	0.3	0
6-B-10	90-100	3.7	3.1	0.6	3	1	0	0.1	0.2	0
6-B-10	90-100	2.0	1.6	0.2	3	0	0	0.5	0.2	0
6-B-10	90-100	1.8	1.7	0.3	2	0	0	0.8	0.2	0
6-B-10	90-100	2.4	1.9	0.3	3	0	0	0.9	0.3	0
6-B-10	90-100	4.0	3.2	0.4	4	1	0	1.5	0.5	0
6-B-10	90-100	1.6	1.5	0.2	3	1	0	0.5	0.2	0
6-B-10	90-100	4.6	5.2	1.1	5	1	0	1.8	0.5	0
6-B-10	90-100	4.7	2.8	0.3	2	1	0	1.6	0.4	0
6-B-10	90-100	6.7	3.7	0.8	5	0	0	1.7	0.6	1
6-B-10	90-100	2.6	1.9	0.2	2	0	0	0.6	0.1	0
6-B-10	90-100	2.2	0.9	0.2	2	0	0	0.4	0.1	0
6-B-10	90-100	3.3	2.3	0.5	3	0	0	1.4	0.5	0
6-B-10	90-100	7.0	3.6	1.4	4	1	0	3.3	1.7	0
6-B-10	90-100	5.2	4.4	0.7	4	0	0	1.3	0.5	0
6-B-10	90-100	1.8	1.5	0.2	2	0	0	0.9	0.2	0
6-B-10	90-100	2.6	1.0	0.2	2	0	0	0.7	0.3	1
6-B-10	90-100	2.9	1.8	0.4	3	0	0	0.5	0.3	0
6-B-10	90-100	4.6	2.3	0.5	3	1	0	0.4	0.2	0
6-B-10	90-100	2.3	1.0	0.1	2	0	0	0.5	0.1	0
6-B-10	90-100	3.8	3.6	0.9	5	0	0	1.5	0.7	0
6-B-10	90-100	0.8	0.9	0.2	2	0	0	0.6	0.1	0

Table B.2. Complete Flakes from Suboperation D, Debitage Deposit 3 Column Sample (measurements in cm)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-D-1	0-10	6.1	3.2	0.5	3	1	0	1.2	0.3	0
6-D-1	0-10	2.5	1.7	0.2	2	0	0	0.9	0.3	0
6-D-1	0-10	2.3	2.2	0.1	2	0	0	0.3	0.2	0
6-D-1	0-10	2.1	1.8	0.1	3	0	0	0.4	0.1	0
6-D-1	0-10	3.8	3.8	0.7	3	1	0	1.5	0.4	0
6-D-1	0-10	5.1	3.2	0.7	3	1	0	1.5	0.4	0
6-D-1	0-10	2.2	1.7	0.3	2	1	0	0.8	0.2	0
6-D-1	0-10	1.6	1.6	0.2	2	0	0	0.4	0.1	0
6-D-1	0-10	5.5	3.6	0.7	4	1	0	0.7	0.1	0
6-D-1	0-10	2.8	2.4	0.4	3	0	0	0.5	0.3	0
6-D-1	0-10	6.1	3.5	1.1	3	1	0	1.7	0.4	0
6-D-1	0-10	1.8	1.2	0.2	2	0	0	0.4	0.1	0
6-D-1	0-10	3.2	3.0	0.4	4	1	0	1.0	0.6	0
6-D-1	0-10	2.5	1.1	0.2	3	0	0	0.3	0.1	0
6-D-1	0-10	2.0	2.0	0.3	3	1	0	0.4	0.1	0
6-D-1	0-10	2.2	1.8	0.2	2	0	0	0.8	0.4	0
6-D-1	0-10	3.6	1.7	0.3	4	1	0	1.1	0.2	0
6-D-1	0-10	6.1	3.9	1.1	5	1	0	1.8	0.4	0
6-D-1	0-10	1.4	1.0	0.2	2	0	0	0.7	0.2	0
6-D-1	0-10	4.4	2.7	0.4	5	1	0	1.8	0.4	0
6-D-1	0-10	1.4	0.8	0.1	1	0	0	0.3	0.1	0
6-D-1	0-10	3.0	1.6	0.6	3	1	0	1.0	0.5	0
6-D-1	0-10	1.6	0.9	0.1	2	0	0	0.5	0.1	0
6-D-1	0-10	1.5	1.2	0.3	2	1	0	0.2	0.1	0
6-D-1	0-10	1.2	0.9	0.2	3	0	0	0.7	0.2	0
6-D-2	10-20	5.7	2.5	0.5	4	1	0	0.7	0.2	0
6-D-2	10-20	4.5	4.8	0.9	4	1	0	1.1	0.4	0
6-D-2	10-20	7.7	3.0	0.7	4	1	0	0.7	0.2	0
6-D-2	10-20	7.2	3.1	0.8	5	0	0	1.0	0.3	0
6-D-2	10-20	6.8	3.0	0.7	3	1	0	0.5	0.2	0
6-D-2	10-20	5.6	5.7	0.6	3	1	0	1.2	0.4	0
6-D-2	10-20	4.6	3.6	0.7	4	1	0	0.5	0.2	0
6-D-2	10-20	1.7	1.5	0.2	2	1	0	0.3	0.1	0
6-D-2	10-20	1.5	1.4	0.3	2	0	0	0.5	0.2	0
6-D-2	10-20	1.0	1.1	0.2	3	0	0	0.5	0.1	0
6-D-2	10-20	3.0	2.3	0.4	3	1	0	0.9	0.2	0
6-D-2	10-20	1.6	1.4	1.2	2	0	0	0.3	0.1	0
6-D-2	10-20	2.1	1.2	0.3	2	1	0	1.0	0.3	0
6-D-2	10-20	1.8	1.0	0.1	2	0	0	0.5	0.1	0
6-D-2	10-20	3.6	2.3	0.3	6	0	0	0.7	0.2	1
6-D-2	10-20	2.2	1.1	0.2	2	0	0	0.6	0.1	0
6-D-2	10-20	3.1	2.8	0.4	4	0	0	0.6	0.4	0
6-D-2	10-20	3.8	1.7	0.2	3	0	0	0.7	0.2	0
6-D-2	10-20	4.1	2.3	0.4	4	0	0	1.7	0.4	0
6-D-2	10-20	2.3	1.9	0.2	3	0	0	0.5	0.1	0
6-D-2	10-20	1.2	1.1	0.2	3	0	0	0.4	0.1	0
6-D-2	10-20	5.4	1.6	0.4	4	0	0	1.0	0.3	0
6-D-2	10-20	2.4	2.0	0.2	3	0	0	0.5	0.1	1
6-D-2	10-20	3.2	1.5	0.3	3	0	0	0.5	0.1	0
6-D-2	10-20	3.3	1.9	0.2	3	0	0	0.6	0.1	0
6-D-3	20-30	2.3	1.7	0.1	4	0	0	0.3	0.1	0

Table B.2. Complete Flakes from Suboperation D, Debitage Deposit 3 Column Sample (continued)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-D-3	20-30	3.0	2.3	0.2	3	0	0	0.9	0.2	0
6-D-3	20-30	1.8	1.0	0.1	1	0	0	0.5	0.1	0
6-D-3	20-30	1.6	1.2	0.2	3	0	0	0.5	0.2	0
6-D-3	20-30	4.3	3.0	0.4	2	1	0	1.3	0.5	0
6-D-3	20-30	4.8	3.3	0.7	3	0	0	1.0	0.2	1
6-D-3	20-30	1.4	1.4	0.2	2	0	0	0.7	0.1	0
6-D-3	20-30	2.0	1.9	0.2	1	1	0	0.5	0.2	0
6-D-3	20-30	2.7	2.7	0.3	4	0	0	0.4	0.1	0
6-D-3	20-30	2.3	1.6	0.1	3	0	0	0.7	0.3	0
6-D-3	20-30	4.0	2.8	0.7	3	1	0	1.0	0.5	0
6-D-3	20-30	1.3	0.9	0.1	2	0	0	0.3	0.1	0
6-D-3	20-30	2.7	2.1	0.6	2	0	0	0.4	0.2	0
6-D-3	20-30	4.1	3.3	0.6	3	0	0	1.3	0.4	0
6-D-3	20-30	1.7	1.5	0.4	2	0	0	1.4	0.5	1
6-D-3	20-30	3.8	2.0	0.4	3	0	0	0.8	0.2	0
6-D-3	20-30	7.2	4.4	2.1	4	1	0	1.5	0.3	0
6-D-3	20-30	1.2	1.0	0.1	2	0	0	0.6	0.2	0
6-D-3	20-30	1.9	1.0	0.2	3	0	0	0.8	0.2	0
6-D-3	20-30	4.2	2.1	0.4	4	0	0	0.7	0.2	0
6-D-3	20-30	5.0	3.2	0.4	5	0	0	0.8	0.2	0
6-D-3	20-30	1.6	1.7	0.3	3	0	0	0.5	0.2	0
6-D-3	20-30	4.7	3.2	0.4	2	0	0	1.3	0.5	1
6-D-3	20-30	2.6	1.7	0.2	2	0	0	0.8	0.2	0
6-D-3	20-30	6.2	3.1	1.2	4	1	0	1.3	0.3	1
6-D-4	30-40	1.7	1.0	0.1	2	0	0	0.4	0.1	0
6-D-4	30-40	2.6	2.1	0.3	2	0	0	0.7	0.2	1
6-D-4	30-40	1.8	1.3	0.2	2	0	0	0.3	0.1	0
6-D-4	30-40	2.9	2.2	0.3	2	0	0	1.5	0.3	0
6-D-4	30-40	4.4	3.8	0.7	4	0	0	1.4	0.5	0
6-D-4	30-40	1.8	1.7	0.3	2	0	0	1.0	0.3	0
6-D-4	30-40	5.3	5.2	0.8	3	1	0	2.1	0.5	1
6-D-4	30-40	3.4	3.1	0.7	3	0	0	1.0	0.3	0
6-D-4	30-40	3.8	2.3	0.4	3	1	0	0.5	0.2	0
6-D-4	30-40	2.7	1.9	0.2	2	0	0	0.6	0.1	0
6-D-4	30-40	3.4	2.0	0.4	3	0	0	0.9	0.4	0
6-D-4	30-40	5.5	3.0	0.4	4	0	0	1.1	0.4	0
6-D-4	30-40	6.1	3.7	0.6	3	0	0	1.0	0.4	0
6-D-4	30-40	2.5	1.6	0.3	3	0	0	0.9	0.3	0
6-D-4	30-40	1.9	1.4	0.2	3	1	0	1.3	0.3	0
6-D-4	30-40	4.3	3.8	1.0	3	1	0	1.1	0.2	0
6-D-4	30-40	1.8	1.4	0.2	2	0	0	0.6	0.2	0
6-D-4	30-40	3.7	2.8	0.7	2	1	0	2.0	0.8	0
6-D-4	30-40	1.6	1.5	0.2	1	0	0	0.7	0.1	0
6-D-4	30-40	1.7	1.2	0.2	3	1	0	0.5	0.2	0
6-D-4	30-40	3.3	1.9	0.4	4	0	0	0.8	0.3	0
6-D-4	30-40	3.0	2.1	0.2	3	0	0	0.4	0.2	0
6-D-4	30-40	5.4	5.0	0.8	5	0	0	1.3	0.5	0
6-D-4	30-40	1.6	1.4	0.2	2	1	0	0.7	0.2	0
6-D-4	30-40	3.9	2.5	0.5	5	1	0	1.3	0.3	1
6-D-5	40-50	4.0	1.9	0.3	4	0	0	0.6	0.1	0
6-D-5	40-50	1.6	2.3	0.3	3	1	0	0.8	0.3	0

Table B.2. Complete Flakes from Suboperation D, Debitage Deposit 3 Column Sample (continued)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-D-5	40-50	2.4	2.1	0.5	3	0	0	0.7	0.2	0
6-D-5	40-50	2.3	2.2	0.3	2	0	0	1.6	0.6	0
6-D-5	40-50	1.2	1.0	0.3	2	0	0	0.7	0.3	0
6-D-5	40-50	1.5	0.8	0.2	2	0	0	0.4	0.1	0
6-D-5	40-50	5.2	3.7	0.7	4	1	0	1.0	0.3	0
6-D-5	40-50	1.6	1.2	0.2	2	0	0	0.7	0.2	0
6-D-5	40-50	3.1	1.8	0.3	3	0	0	0.9	0.4	1
6-D-5	40-50	3.7	3.1	0.5	3	1	0	1.4	0.3	0
6-D-5	40-50	2.5	1.5	0.2	2	0	0	0.8	0.3	0
6-D-5	40-50	1.1	1.0	0.1	1	0	0	0.9	0.2	0
6-D-5	40-50	4.9	4.7	1.0	4	1	0	1.5	0.4	0
6-D-5	40-50	1.9	1.2	0.1	1	0	0	0.3	0.1	0
6-D-5	40-50	6.0	3.8	1.1	4	0	0	0.8	0.2	0
6-D-5	40-50	2.3	1.5	0.2	2	0	0	0.5	0.3	0
6-D-5	40-50	3.1	1.9	0.3	2	0	0	0.8	0.2	0
6-D-5	40-50	1.2	0.8	0.1	1	0	0	0.3	0.1	0
6-D-5	40-50	3.5	2.1	0.6	4	0	0	1.1	0.7	0
6-D-5	40-50	4.1	2.0	0.5	4	1	0	0.6	0.3	0
6-D-5	40-50	1.0	0.6	0.1	1	0	0	0.3	0.1	0
6-D-5	40-50	4.0	3.1	0.6	6	1	0	0.6	0.1	0
6-D-5	40-50	1.5	1.1	0.1	2	1	0	0.7	0.1	0
6-D-5	40-50	2.9	1.8	0.3	3	0	0	0.6	0.2	1
6-D-5	40-50	2.0	1.4	0.2	2	0	0	0.8	0.4	0
6-D-6	50-60	3.5	3.0	0.6	6	0	0	0.9	0.5	0
6-D-6	50-60	1.6	1.4	0.2	2	0	0	0.5	0.2	0
6-D-6	50-60	2.0	0.9	0.1	1	0	0	0.6	0.2	0
6-D-6	50-60	3.3	1.6	0.2	3	0	0	1.3	0.5	0
6-D-6	50-60	1.6	1.9	0.3	2	0	0	1.1	0.3	0
6-D-6	50-60	4.7	3.5	1.0	3	1	0	1.3	0.6	0
6-D-6	50-60	1.3	1.0	0.2	3	0	0	0.6	0.2	0
6-D-6	50-60	3.6	2.8	0.5	3	1	0	1.7	0.5	0
6-D-6	50-60	2.8	2.2	0.4	2	1	0	0.8	0.1	0
6-D-6	50-60	2.8	2.1	0.3	2	1	0	0.9	0.2	0
6-D-6	50-60	4.1	2.4	0.5	2	0	0	0.7	0.3	0
6-D-6	50-60	5.2	3.3	0.5	3	1	0	1.0	0.5	0
6-D-6	50-60	5.3	2.4	0.6	4	1	0	0.6	0.3	0
6-D-6	50-60	1.6	1.5	0.2	2	0	0	0.8	0.2	0
6-D-6	50-60	1.4	1.2	0.3	2	0	0	0.7	0.3	0
6-D-6	50-60	5.1	3.0	0.3	2	0	0	1.0	0.2	0
6-D-6	50-60	2.7	1.7	0.2	3	0	0	0.4	0.1	0
6-D-6	50-60	4.0	3.2	0.5	4	1	0	1.7	0.4	0
6-D-6	50-60	2.6	2.1	0.4	3	0	0	0.8	0.3	0
6-D-6	50-60	1.8	1.1	0.1	3	0	0	0.3	0.2	0
6-D-6	50-60	4.4	2.3	0.5	5	0	0	1.0	0.3	0
6-D-6	50-60	3.2	1.7	0.4	2	0	0	1.4	0.4	0
6-D-6	50-60	0.8	0.9	0.2	1	0	0	0.8	0.3	0
6-D-6	50-60	3.8	2.3	0.3	3	0	0	1.0	0.3	0
6-D-6	50-60	2.4	1.0	0.2	2	0	0	0.6	0.2	0
6-D-7	60-70	2.1	1.7	0.2	3	0	0	0.3	0.1	3
6-D-7	60-70	6.0	5.3	0.8	2	0	0	1.7	0.8	0
6-D-7	60-70	3.7	3.4	0.4	3	1	0	1.6	0.5	0

Table B.2. Complete Flakes from Suboperation D, Debitage Deposit 3 Column Sample (continued)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-D-7	60-70	3.3	1.9	0.4	2	0	0	0.7	0.2	0
6-D-7	60-70	4.5	2.3	0.5	5	0	0	0.6	0.3	0
6-D-7	60-70	3.3	2.5	0.5	3	0	0	0.9	0.3	0
6-D-7	60-70	4.1	3.1	0.7	2	1	0	1.3	0.2	0
6-D-7	60-70	5.3	3.5	0.7	6	1	0	0.9	0.3	0
6-D-7	60-70	1.4	0.8	0.3	2	0	0	0.7	0.4	2
6-D-7	60-70	0.9	0.5	0.1	2	0	0	0.3	0.1	0
6-D-7	60-70	2.9	1.3	0.4	3	0	0	0.6	0.3	0
6-D-7	60-70	1.5	0.9	0.2	2	0	0	0.4	0.1	0
6-D-7	60-70	3.2	2.0	0.2	3	0	0	1.0	0.3	0
6-D-7	60-70	1.4	1.4	0.2	3	1	0	0.7	0.2	0
6-D-7	60-70	2.1	1.1	0.3	2	1	0	0.6	0.2	0
6-D-7	60-70	5.2	3.3	0.7	5	1	0	1.1	0.3	0
6-D-7	60-70	1.6	1.0	0.1	2	0	0	0.5	0.2	0
6-D-7	60-70	4.0	2.8	0.6	3	1	0	1.6	0.4	1
6-D-7	60-70	0.9	0.7	0.2	2	0	0	0.3	0.1	0
6-D-7	60-70	1.5	1.1	0.3	2	1	0	1.1	0.3	0
6-D-7	60-70	4.6	2.9	0.5	6	1	0	0.7	0.2	0
6-D-7	60-70	3.3	1.5	0.2	3	0	0	0.8	0.2	0
6-D-7	60-70	5.2	3.7	0.6	4	0	0	2.0	0.5	0
6-D-7	60-70	1.4	0.8	0.2	2	0	0	0.6	0.2	0
6-D-7	60-70	1.1	0.7	0.3	3	0	0	0.4	0.2	0
6-D-8	70-80	2.0	1.1	0.2	2	0	0	0.6	0.1	0
6-D-8	70-80	6.1	4.1	0.4	4	1	0	1.0	0.4	0
6-D-8	70-80	2.3	1.5	0.2	3	0	0	0.8	0.2	0
6-D-8	70-80	4.7	4.3	0.7	4	1	0	1.8	0.4	0
6-D-8	70-80	1.5	1.3	0.3	2	0	0	0.8	0.3	0
6-D-8	70-80	1.7	1.6	0.2	2	0	0	1.2	0.3	0
6-D-8	70-80	0.7	0.7	0.1	1	0	0	0.6	0.1	0
6-D-8	70-80	1.5	1.3	0.3	4	0	0	0.8	0.1	0
6-D-8	70-80	3.1	1.7	0.3	3	0	0	0.6	0.2	0
6-D-8	70-80	1.3	1.2	0.3	2	0	0	0.8	0.1	0
6-D-8	70-80	2.0	1.1	0.2	3	0	0	0.5	0.1	0
6-D-8	70-80	6.4	4.3	0.7	3	0	0	1.3	0.5	0
6-D-8	70-80	1.2	1.5	0.2	2	0	0	1.0	0.2	0
6-D-8	70-80	5.1	3.8	1.0	5	1	0	1.5	0.5	0
6-D-8	70-80	2.4	1.3	0.2	3	0	0	0.5	0.2	0
6-D-8	70-80	1.8	1.1	0.1	3	0	0	0.3	0.1	0
6-D-8	70-80	2.0	2.0	0.5	2	1	0	0.8	0.2	0
6-D-8	70-80	1.9	1.2	0.2	2	0	0	0.3	0.1	0
6-D-8	70-80	1.7	0.9	0.1	1	0	0	0.5	0.2	0
6-D-8	70-80	5.2	1.9	0.6	3	0	0	0.5	0.3	0
6-D-8	70-80	1.5	0.7	0.2	2	0	0	0.4	0.1	0
6-D-8	70-80	3.9	2.3	0.4	4	0	0	1.1	0.3	0
6-D-8	70-80	0.9	0.8	0.2	2	0	0	0.5	0.1	0
6-D-8	70-80	3.8	2.5	0.5	3	0	0	1.0	0.3	1
6-D-8	70-80	3.1	2.5	0.3	3	1	0	0.6	0.2	0
6-D-9	80-90	3.6	2.4	0.5	3	0	0	1.1	0.3	0
6-D-9	80-90	2.0	1.3	0.2	4	0	0	0.4	0.2	0
6-D-9	80-80	1.7	1.0	0.2	2	0	0	0.6	0.2	0
6-D-9	80-90	1.0	1.0	0.1	2	0	0	0.8	0.3	0

Table B.2. Complete Flakes from Suboperation D, Debitage Deposit 3 Column Sample (continued)

Lot	Depth (cm)	L	W	Th.	Dor. Fac.	Cortex	Thermal Alt.	Plat. Width	Plat. Th.	Plat. Prep
6-D-9	80-90	2.4	1.6	0.5	2	0	0	1.0	0.5	1
6-D-9	80-90	5.8	5.2	1.1	3	1	0	1.7	0.7	0
6-D-9	80-90	4.9	2.5	0.6	4	0	0	0.9	0.1	0
6-D-9	80-90	2.3	1.3	0.3	2	0	0	0.9	0.3	0
6-D-9	80-90	1.5	1.2	0.2	2	0	0	0.5	0.1	0
6-D-9	80-90	5.6	3.1	0.6	4	0	0	1.2	0.5	0
6-D-9	80-90	1.6	1.2	0.3	2	0	0	0.5	0.3	0
6-D-9	80-90	3.1	3.5	0.4	1	1	0	1.1	0.5	0
6-D-9	80-90	2.5	1.3	0.3	2	0	0	0.7	0.2	0
6-D-9	80-90	1.4	1.9	0.1	1	0	0	0.8	0.1	0
6-D-9	80-90	3.6	1.6	0.3	3	0	0	0.4	0.2	0
6-D-9	80-90	1.6	1.3	0.1	2	0	0	0.4	0.1	0
6-D-9	80-90	2.4	1.5	0.2	2	0	0	0.6	0.1	0
6-D-9	80-90	5.0	3.3	0.5	3	0	0	2.0	0.5	0
6-D-9	80-90	1.6	1.1	0.2	2	0	0	0.8	0.3	0
6-D-9	80-90	2.2	1.2	0.4	2	0	0	0.9	0.4	0
6-D-9	80-90	4.1	2.8	0.5	3	0	0	0.8	0.3	0
6-D-9	80-90	2.1	1.1	0.3	2	0	0	1.1	0.3	0
6-D-9	80-90	1.5	1.5	0.2	2	0	0	0.6	0.2	0
6-D-9	80-90	1.8	0.9	0.1	3	0	0	0.5	0.1	0
6-D-9	80-90	5.3	3.5	0.5	7	0	0	0.6	0.3	0
6-D-10	90-100	4.5	2.3	0.7	3	1	0	1.6	0.7	0
6-D-10	90-100	1.5	1.1	0.2	2	1	0	0.5	0.2	0
6-D-10	90-100	2.7	1.6	0.4	2	0	0	0.7	0.3	0
6-D-10	90-100	1.6	0.7	0.2	2	0	0	0.4	0.2	0
6-D-10	90-100	4.7	3.9	0.4	4	0	0	0.7	0.2	0
6-D-10	90-100	3.3	2.0	0.5	4	0	0	0.6	0.3	0
6-D-10	90-100	3.7	2.0	0.4	3	0	0	1.1	0.4	0
6-D-10	90-100	1.9	1.3	0.2	2	0	0	0.5	0.2	0
6-D-10	90-100	4.6	3.3	0.6	3	0	0	1.1	0.5	0
6-D-10	90-100	3.1	3.1	0.4	3	1	0	0.6	0.3	0
6-D-10	90-100	1.4	1.1	0.2	3	0	0	0.3	0.1	0
6-D-10	90-100	3.6	2.8	0.7	4	1	0	0.6	0.5	0
6-D-10	90-100	2.8	1.3	0.5	2	0	0	0.8	0.7	0
6-D-10	90-100	1.2	0.9	0.2	2	0	0	0.6	0.2	0
6-D-10	90-100	3.7	2.1	0.6	3	0	0	0.8	0.2	0
6-D-10	90-100	1.9	1.0	0.1	2	0	0	0.6	0.2	0
6-D-10	90-100	4.3	2.6	0.7	3	1	0	1.5	0.5	0
6-D-10	90-100	1.0	0.6	0.1	2	0	0	0.3	0.1	0
6-D-10	90-100	2.0	1.4	0.2	2	0	0	0.5	0.2	0
6-D-10	90-100	1.3	0.7	0.1	2	0	0	0.3	0.2	0
6-D-10	90-100	5.2	3.3	0.5	4	0	0	0.9	0.3	1
6-D-10	90-100	1.2	0.7	0.2	1	1	0	0.7	0.2	0
6-D-10	90-100	3.8	1.7	0.3	4	0	0	0.9	0.3	0
6-D-10	90-100	1.8	0.9	0.2	2	0	0	0.7	0.2	0
6-D-10	90-100	4.3	1.6	0.3	2	0	0	1.0	0.4	1

Appendix C: Lithic Artifacts

Table C.1. Provenience of Non-Group H Lithic Artifacts

Provenience	Location	Context	Artifact
10009 CC-2-H-2a-2	Plaza A-2	Collapse debris.	Thin Biface
10009 CC-2-K-1-2	Center of Plaza A-2	Topsoil.	Core
10009 CC-2-K-3-1	Center of Plaza A-2	Construction fill.	Utilized Macroflake
10009 CC-2-K-4-1	Center of Plaza A-2	Construction fill.	Miscellaneous Recycled Biface
10009 CC-2-K-4-2	Center of Plaza A-2	Construction fill.	Oval Biface
10009 CC-2-L-1-1	Summit of Structure A-13	Topsoil.	Uniface
10009 CC-2-L-1-2	Summit of Structure A-13	Topsoil.	Core
10009 CC-2-L-1-3	Summit of Structure A-13	Topsoil.	Miscellaneous Recycled Biface
10009 CC-2-L-2-2	Summit of Structure A-13	Construction fill.	Oval Biface
10009 CC-2-L-2-3	Summit of Structure A-13	Construction fill.	Miscellaneous Recycled Biface
10009 CC-2-L-8-1	Summit of Structure A-13	Construction fill.	Miscellaneous Recycled Biface
10009 CC-2-N-4-2	Face of Structure A-13	Collapse debris.	Oval Biface
10009 CC-2-N-4-3	Face of Structure A-13	Collapse debris.	General Utility Biface (Form I)
10009 CC-2-P-1-1	Face of Structure A-13	Collapse debris.	Uniface
10009 CC-2-R-1-1	Face of Structure A-13	Topsoil.	Core
10009 CC-2-R-1-2	Face of Structure A-13	Topsoil.	Miscellaneous Chunk
10009 CC-2-S-2-1	Summit of Structure A-1	Collapse debris.	Miscellaneous Recycled Biface
10009 CC-2-V-2-1	Face of Structure A-13	Collapse debris.	Miscellaneous Recycled Biface
10009 CC-2-W-2-1	Summit of Structure A-1	Collapse debris.	Miscellaneous Recycled Biface
10009 CC-4-D-2-17	Base of Structure C-6	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	General Utility Biface (Form II)
10009 CC-4-D-2-18	Base of Structure C-6	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-A-1-1	Base of Structure C-3	Topsoil.	Hammerstone
10009 CC-5-A-2-10	Base of Structure C-3	Collapse debris.	Core
10009 CC-5-A-2-4	Base of Structure C-3	Collapse debris.	Projectile Point?
10009 CC-5-A-2-5	Base of Structure C-3	Collapse debris.	Uniface
10009 CC-5-A-2-7	Base of Structure C-3	Collapse debris.	Miscellaneous Recycled Biface
10009 CC-5-A-2-8	Base of Structure C-3	Collapse debris.	Hammerstone
10009 CC-5-A-2-9	Base of Structure C-3	Collapse debris.	Core
10009 CC-5-C-2-11	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Hammerstone
10009 CC-5-C-2-12	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Hammerstone
10009 CC-5-C-2-13	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Hammerstone
10009 CC-5-C-2-14	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Thin Biface
10009 CC-5-C-2-15	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Oval Biface
10009 CC-5-C-2-16	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Oval Biface

Table C.1. Provenience of Non-Group H Lithic Artifacts (continued)

Provenience	Location	Context	Artifact
10009 CC-5-C-2-17	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-C-2-18	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-C-2-19	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Core
10009 CC-5-C-2-20	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Bifacial Celt
10009 CC-5-C-2-21	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-C-2-22	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Bifacial Celt
10009 CC-5-C-2-23	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-C-2-27	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	General Utility Biface (Form II)
10009 CC-5-C-2-28	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Oval Biface
10009 CC-5-C-2-29	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-C-2-30	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Uniface
10009 CC-5-D-2-1	Base of Structure C-3	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Hammerstone
10009 CC-5-E-2-21	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	General Utility Biface (Form II)
10009 CC-5-E-2-22	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-F-1-1	Base of Structure C-1	Topsoil.	Core
10009 CC-5-F-1-2	Base of Structure C-1	Topsoil.	Miscellaneous Recycled Biface
10009 CC-5-F-2-2	Base of Structure C-1	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Bifacial Celt
10009 CC-5-F-2-3	Base of Structure C-1	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Bifacial Celt

Table C.1. Provenience of Non-Group H Lithic Artifacts (continued)

Provenience	Location	Context	Artifact
10009 CC-5-F-2-4	Base of Structure C-1	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Hammerstone
10009 CC-5-F-2-5	Base of Structure C-1	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Hammerstone
10009 CC-5-F-2-6	Base of Structure C-1	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Chunk
10009 CC-5-F-2-7	Base of Structure C-1	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Chunk
10009 CC-5-F-2-8	Base of Structure C-1	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Chunk
10009 CC-5-F-2-9	Base of Structure C-1	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Core
10009 CC-5-H-2-17	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Blade
10009 CC-5-H-2-18	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Blade
10009 CC-5-H-2-20	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Utilized Flake
10009 CC-5-H-2-21	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Bifacial Celt
10009 CC-5-H-2-22	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-H-2-23	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	General Utility Biface (Form I)
10009 CC-5-H-2-24	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface
10009 CC-5-H-2-25	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Hammerstone
10009 CC-5-H-2-8	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Thin Biface
10009 CC-5-H-2a-3	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Thin Biface
10009 CC-5-H-2a-5	Base of Structure C-2	Collapse debris and topsoil mixed with Terminal Classic materials that may be in primary context.	Miscellaneous Recycled Biface

Table C.1. Provenience of Non-Group H Lithic Artifacts (continued)

Provenience	Location	Context	Artifact
10052 CC-2-AI-1-1	Center of Structure A-1	Humus layer	Uniface
10052 CC-2-L-15-1	Floor of Structure A-13N	Construction fill.	Hammerstone
10052 CC-2-X-4-1	North edge of Tomb 2	Weathered Plastered Surface	Uniface
10052 CC-7-A-5-1	Structure C-6	Collapse debris above the outside patio floor surface located west of	Macroflake
10052 CC-7-A-14-1	Structure C-6	Construction fill.	Oval Biface
10052 CC-7-A-18-1	Structure C-6	Construction fill.	General Utility Biface (Form II)
10052 CC-7-B-2-1	Structure C-6	Located in collapse debris above floor surface in the central room, perhaps part of construction fill	Utilized Macroflake
10052 CC-7-B-2-2	Structure C-6	Located in collapse debris above floor surface in the central room, perhaps part of construction fill	Utilized Macroflake
10052 CC-7-B-2-3	Structure C-6	Located in collapse debris above floor surface in the central room, perhaps part of construction fill	Miscellaneous Recycled Biface
10052 CC-7-C-5-3	Structure C-6	Collapse debris above the outside patio floor surface located west of	Oval Biface
10052 CC-7-C-5-4	Structure C-6	Collapse debris above the outside patio floor surface located west of	Bifacial Celt
10052 CC-7-D-2-1	Structure C-6	In Collapse debris resting directly on top of the plaster floor surface	Utilized Macroflake
10052 CC-8-B-14-3	Center of Plaza A-1	Late Preclassic midden.	Utilized Flake

Table C.2. Non-Group H Lithic Artifact Descriptions

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-2-H-2a-2	Thin Biface	Finished/used	Medial Fragment	Fine Chert	Snap	This artifact has split longitudinally and there are several potlids on the outer surface (there is no way to ascertain dorsal and ventral sides). Heating probably caused this after initial deposition.
10009 CC-2-K-1-2	Core	Finished/used	Whole	Coarse Chalcedony	None	
10009 CC-2-K-3-1	Utilized Macroflake	Finished/used	Whole	Coarse Chalcedony	None	There is bifacial resharpening on the left edge as viewed from the dorsal side. There is also bifacial resharpening on the distal end. There is no polish evident.
10009 CC-2-K-4-1	Miscellaneous Recycled Biface	Finished/used	Unknown	Coarse Chalcedony	Snap	Impact fractures are seen on the bit end along with tiny step and hinge fractures. Step fractures are seen on the right side as viewed from the ventral side. No polish is evident.
10009 CC-2-K-4-2	Oval Biface	Finished/used	Proximal Fragment	Coarse Chalcedony	Snap	
10009 CC-2-L-1-1	Uniface	Finished/used	Whole	Coarse Chalcedony	None	This artifact has unifacial resharpening on all dorsal edges. Step and hinge fractures are seen on the left edge as viewed from the dorsal side creating a stack. There is no sign of polish.
10009 CC-2-L-1-2	Core	Middle	Whole	Coarse Chalcedony	None	

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-2-L-1-3	Miscellaneous Recycled Biface	Finished/used	Whole	Coarse Chalcedony	Snap	This artifact exhibits tiny step and hinge fractures and battering on the bit end. The implement was reshaped after the use episode because this battering is abruptly ended and unused edges appear. Battering indicative of hammerstone use is seen on the left side as viewed from the dorsal side. No polish is seen.
10009 CC-2-L-2-2	Oval Biface	Early	Distal Fragment	Coarse Chalcedony	Snap	
10009 CC-2-L-2-3	Miscellaneous Recycled Biface	Finished/used	Whole	Medium Chalcedony	None	This artifact is a flake that has been resharpened bifacially on the distal end. There are also tiny step and hinge fractures on the distal end. There is no polish evident.
10009 CC-2-L-8-1	Miscellaneous Recycled Biface	Finished/used	Whole	Coarse Chalcedony	None	There are no signs of use on this implement. There seem to have been flakes (blades?) struck from the dorsal side. Flakes have been struck from both the dorsal and ventral sides with no apparent pattern. There is no sign of polish.
10009 CC-2-N-4-2	Oval Biface	Finished/used	Proximal Fragment	Medium Chalcedony	Snap	This artifact exhibits small step and hinge fractures on the right side when viewed from the ventral side. Nibbling is seen on the left side. No polish is evident.
10009 CC-2-N-4-3	General Utility Biface (Form I)	Early	Whole	Coarse Chalcedony	None	There is no use evident on this artifact. It probably was a cobble selected for testing. No polish is evident.

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-2-P-1-1	Uniface	Finished/used	Whole	Coarse Chalcedony	None	This artifact exhibits tiny step and hinge fractures on the distal end on the ventral side. The dorsal side toward the distal end exhibits small step fractures along the main arris. There is no polish evident.
10009 CC-2-R-1-1	Core	Finished/used	Whole	Coarse Chalcedony	None	This heavily patinated artifact shows no conchoidal fracture. There are three polids evident.
10009 CC-2-R-1-2	Miscellaneous Chunk	Unknown	Unknown	Coarse Chalcedony	Snap	This artifact exhibits nibbling on the edge (proximal and distal ends are not discernable). There are small step and hinge fractures in this area also. There is no polish evident.
10009 CC-2-S-2-1	Miscellaneous Recycled Biface	Finished/used	Whole	Coarse Chalcedony	None	There are no signs of use or polish on this artifact. Flakes have been struck from the ventral side. The dorsal side has three flake scars terminating in steps and a stack. There is no sign of haft wear or polish.
10009 CC-2-V-2-1	Miscellaneous Recycled Biface	Middle	Whole	Coarse Chalcedony	None	This artifact exhibits use on the distal end in the form of step and hinge fractures. There is no evidence of polish on the bit or haft wear/polish.
10009 CC-2-W-2-1	Miscellaneous Recycled Biface	Finished/used	Whole	Medium Chalcedony	Snap	There are tiny step and hinge fractures on the right and left edges of this artifact. There is also evidence of battering indicative of hammerstone use after fracturing.
10009 CC-4-D-2-17	General Utility Biface (Form II)	Finished/used	Medial Fragment	Medium Chalcedony	Snap	

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-4-D-2-18	Miscellaneous Recycled Biface	Unknown	Whole	Coarse Chalcedony	None	This artifact was probably a tested cobble that was used as a hammerstone. There is bashing indicative of hammerstone wear on the right, lower right, and lower left edge as viewed from the ventral side.
10009 CC-5-A-1-1	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	This was probably a tested cobble that was found to have too many inclusions to thin bifacially and was employed as a hammerstone. There is limited battering in two places on the proximal and distal ends of the tool.
10009 CC-5-A-2-10	Core	Unknown	Whole	Coarse Chalcedony	None	
10009 CC-5-A-2-4	Projectile Point?	Finished/used	Whole	Medium Chert	None	The dorsal side of this artifact exhibits hinge and stacks where it would be hafted. The point exhibits bifacial thinning flake scars with some hinging and stacking. The ventral side exhibits bifacial thinning flake scars with tiny step and hinge fractures on the right side at the bit. The bit edge exhibits battering, step and hinge fractures and "mini" stacks. There is no polish evident.
10009 CC-5-A-2-5	Uniface	Finished/used	Whole	Coarse Chalcedony	None	This artifact is shaped like a parallelogram and exhibits unifacial knapping. All four sides have been shaped with small flakes taken off of the ventral side forming a squarish form. No polish is evident.

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-5-A-2-7	Miscellaneous Recycled Biface	Finished/used	Whole	Coarse Chalcedony	None	This is probably a tested cobble that was used as a casual or ad hoc tool. There is battering on the left edge where several large flakes have been taken off (there is no dorsal or ventral side). There is no polish and no other use for this implement.
10009 CC-5-A-2-8	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	This implement has battering indicative hammerstone use on the distal end and on the left edge as viewed from dorsal side. There are also large step and hinge fractures on the right edge as viewed from the dorsal side.
10009 CC-5-A-2-9	Core	Finished/used	Whole	Coarse Chalcedony	None	
10009 CC-5-C-2-11	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	This spherical artifact has extensive battering over its entire surface indicative of hammerstone use.
10009 CC-5-C-2-12	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	The proximal and distal ends of this artifact exhibit tiny step and hinge fractures and battering indicative of hammerstone use. Right in the center of the artifact on the ventral side there is a negative impression of a shell fossil. The left side as viewed from the ventral side is tiny step and hinge fractures that could possibly be use from platform preparation.
10009 CC-5-C-2-13	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	There is battering on the proximal and distal ends as viewed from the ventral side.

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-5-C-2-14	Thin Biface	Finished/used	Medial Fragment	Fine Chert	Snap	There is fine bifacial thinning on the left edge as viewed from the ventral side. The dorsal side has bifacial thinning but not as fine (or small) as the ventral side. Polish is not evident.
10009 CC-5-C-2-15	Oval Biface	Finished/used	Medial Fragment	Coarse Chalcedony	Snap	There is no sign of wear or use on this artifact as was probably in a stage of reduction when it was discarded.
10009 CC-5-C-2-16	Oval Biface	Early	Proximal Fragment	Coarse Chalcedony	Snap	This artifact is a tested cobble. Although it has been bifacially thinned, there is no sign of use and was probably rejected because of excessive inclusions.
10009 CC-5-C-2-17	Miscellaneous Recycled Biface	Early	Distal Fragment	Medium Chalcedony	Snap	This artifact is heavily stacked on the dorsal side. There is evidence of crushing and tiny hinge and step fractures on the distal end indicative of hammerstone wear. There is no evidence of polish
10009 CC-5-C-2-18	Miscellaneous Recycled Biface	Finished/used	Unknown	Medium Chalcedony	Snap	This core has a flat platform on the dorsal side from which five flakes have been struck. There are five negative bulbs of percussion evident below the platform. There are four negative bulbs of percussion that have been taken from the ventral side that extend to the platform.
10009 CC-5-C-2-19	Core	Finished/used	Unknown	Coarse Chalcedony	Snap	

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-5-C-2-20	Bifacial Celt	Finished/used	Distal Fragment	Medium Chalcedony	Snap	There are large impact fractures on both the dorsal and ventral sides of the bit. Smaller step and hinge fractures are seen on the bit also. Polish is evident on the dorsal and ventral sides of the bit.
10009 CC-5-C-2-21	Miscellaneous Recycled Biface	Finished/used	Unknown	Medium Chert	None	There are no signs of use or polish on this artifact. The dorsal side is heavily patinated. There have been two flakes struck from the dorsal side and one from the ventral side.
10009 CC-5-C-2-22	Bifacial Celt	Finished/used	Whole	Coarse Chalcedony	None	This implement shows wear on the left edge as viewed from the ventral side. The edge is crushed exhibiting tiny step fractures (haft wear?). There is no sign of polish on the bit or either side of the implement. The bit shows no evidence of use and looks to have been freshly sharpened before being discarded.
10009 CC-5-C-2-23	Miscellaneous Recycled Biface	Unknown	Whole	Coarse Chert	None	This artifact shows battering on the left edge as viewed from the dorsal side. There are large step fractures that have formed a stack on both the dorsal and ventral sides at the bit.
10009 CC-5-C-2-27	General Utility Biface (Form II)	Finished/used	Medial Fragment	Coarse Chalcedony	Snap	This artifact shows tiny step and hinge fractures on the left and right edges. The proximal and distal ends exhibit battering indicative of hammerstone use.
10009 CC-5-C-2-28	Oval Biface	Finished/used	Medial Fragment	Coarse Chalcedony	Snap	

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-5-C-2-29	Miscellaneous Recycled Biface	Finished/used	Whole	Medium Chalcedony	None	This artifact has had several large flakes taken from both the dorsal and ventral sides. There are many inclusions in the material. There is use on the right edge as viewed from the dorsal side in the form of tiny step fractures. Polish is not evident.
10009 CC-5-C-2-30	Uniface	Finished/used	Whole	Fine Chalcedony	None	This artifact exhibits small step and hinge fractures on the right and left edges and the distal end when viewed from the dorsal side. The left edge when viewed from the dorsal side was resharpened to 90 degrees. The right was retouched to near exhaustion also. The distal end was also retouched to approximately 90 degrees. The ventral side is brightly polished throughout its length.
10009 CC-5-D-2-1	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	Battering is seen over the entire artifact indicative of hammerstone use.
10009 CC-5-E-2-21	General Utility Biface (Form II)	Finished/used	Medial Fragment	Coarse Chalcedony	Snap	This artifact exhibits impact fractures and battering on the proximal end. There are small step and hinge fractures on the left and right edges on both the dorsal and ventral sides. No polish is evident.
10009 CC-5-E-2-22	Miscellaneous Recycled Biface	Finished/used	Whole	Coarse Chalcedony	None	This is a cobble that has been bifacially knapped into the form of a hand axe. There are tiny step and hinge fractures on the left edge (there is no dorsal or ventral sides) and battering on the right edge. No polish is evident.
10009 CC-5-F-1-1	Core	Finished/used	Whole	Coarse Chalcedony	None	

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-5-F-1-2	Miscellaneous Recycled Biface	Finished/used	Whole	Coarse Chalcedony	None	This squarish artifact has had tiny flakes removed bifacially from the right side as viewed from the dorsal side. There is no sign of polish.
10009 CC-5-F-2-2	Bifacial Celt	Finished/used	Whole	Coarse Chalcedony	None	This artifact is in the shape of a "mini" bifacial celt. There is battering on the distal end with no other discernable signs of use. Polish is not evident.
10009 CC-5-F-2-3	Bifacial Celt	Finished/used	Distal Fragment	Coarse Chalcedony	Snap	This artifact shows very little use on the bit in the form of battering in two places. One area of use is approximately 0.4 cm long and the other is approximately 0.8 cm long. There is small step fractures on the left side when viewed from the ventral side that resulted in a stack. Polish is not evident.
10009 CC-5-F-2-4	Hammerstone	Unknown	Whole	Coarse Chalcedony	None	Battering and step and hinge fractures are seen on edges indicative of hammerstone use.
10009 CC-5-F-2-5	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	Battering and step and hinge fractures are seen on edges indicative of hammerstone use.
10009 CC-5-F-2-6	Miscellaneous Chunk	Finished/used	Whole	Coarse Chalcedony	None	This artifact has numerous step and hinge fractures on the dorsal and ventral sides. There are also impact fractures on both the proximal and distal ends of the artifact on both the dorsal and ventral sides of the artifact. There is no evidence of polish on this artifact.
10009 CC-5-F-2-7	Miscellaneous Chunk	Unknown	Unknown	Coarse Chalcedony	Snap	
10009 CC-5-F-2-8	Miscellaneous Chunk	Unknown	Unknown	Medium Chalcedony	Snap	
10009 CC-5-F-2-9	Core	Unknown	Whole	Coarse Chalcedony	Snap	

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-5-H-2-17	Blade	Finished/used	Medial Fragment	Medium Chalcedony	Snap	This polyhedral blade exhibits nibbling on both the right and left edges when viewed from the dorsal side. Polish is not evident.
10009 CC-5-H-2-18	Blade	Finished/used	Medial Fragment	Medium Chert	Snap	This polyhedral blade exhibits nibbling on both the right and left edges when viewed from the dorsal side. Polish is evident on the right and left edges when viewed from the dorsal side.
10009 CC-5-H-2-20	Utilized Flake	Finished/used	Whole	Coarse Chalcedony	None	This artifact has been resharpened to create an alternately beveled point. There is no polish evident.
10009 CC-5-H-2-21	Bifacial Celt	Finished/used	Medial Fragment	Coarse Chalcedony	Snap	
10009 CC-5-H-2-22	Miscellaneous Recycled Biface	Early	Proximal Fragment	Coarse Chalcedony	Snap	
10009 CC-5-H-2-23	General Utility Biface (Form I)	Finished/used	Whole	Coarse Chalcedony	None	There are tiny step and hinge fractures on the distal end. There are also larger step and hinge fractures on the right edge as viewed from the dorsal side. Polish is not evident.
10009 CC-5-H-2-24	Miscellaneous Recycled Biface	Unknown	Unknown	Coarse Chalcedony	Snap	This artifact has tiny step and hinge fractures on the left side as viewed from the dorsal side. There is no evidence of polish or any other use.
10009 CC-5-H-2-25	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	There is battering indicative of hammerstone use on the left edge of this artifact as viewed from the dorsal side.
10009 CC-5-H-2-8	Thin Biface	Finished/used	Distal Fragment	Fine Chert	Snap	This artifact is extremely well knapped. There are tiny bifacial thinning flakes scars on both edges. Polish is evident on both edges. This is not Colha chert (Valdez personal communication).

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10009 CC-5-H-2a-3	Thin Biface	Finished/used	Medial Fragment	Fine Chert	Snap	This artifact has split down the center and there are several potlids on the outer surface (there is no way to ascertain dorsal and ventral sides). Heating probably caused this after initial deposition.
10009 CC-5-H-2a-5	Miscellaneous Recycled Biface	Finished/used	Whole	Medium Chalcedony	None	There is polish evident on ventral side near the distal end. There is no other apparent use noted.
10052 CC-2-AI-1-1	Uniface	Finished/used	Whole	Coarse Chalcedony	None	This artifact shows bifacial shaping on the distal edge. There are tiny step and hinge fractures on the right side as viewed from the ventral side. There is no sign of polish
10052 CC-2-L-15-1	Hammerstone	Finished/used	Whole	Coarse Chalcedony	None	Battering is seen over the entire artifact indicative of hammerstone use.
10052 CC-2-X-4-1	Uniface	Finished/used	Whole	Medium Chalcedony	None	This artifact has been resharpened on the distal end to approximately 90 degrees. The right side exhibits tiny step and hinge fractures. There are signs of dull polish on the dorsal side at the bit.
10052 CC-7-A-14-1	Oval Biface	Unknown	Proximal Fragment	Coarse Chalcedony	Snap	
10052 CC-7-A-18-1	General Utility Biface (Form II)	Early	Proximal Fragment	Coarse Chalcedony	Snap	Haft wear is evident on the right and left sides of this implement. There is on large impact fracture that runs the length of the implement on the dorsal side of the bit.
10052 CC-7-A-5-1	Macroflake	Early	Whole	Coarse Chalcedony	None	
10052 CC-7-B-2-1	Utilized Macroflake	Early	Distal Fragment	Coarse Chalcedony	Snap	This artifact has been bifacially resharpened. Flakes have been taken off of the dorsal and ventral sides. There is no evidence of polish on the dorsal and ventral sides of the bit.

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10052 CC-7-B-2-2	Utilized Macroflake	Middle	Whole	Coarse Chalcedony	Snap	This artifact has been bifacially retouched on the distal, or bit, end. The form of the bit resembles an end scraper. There are small impact fractures at the bit. Tiny step and hinge fractures and battering are seen on the right side as viewed from the ventral side. Step and hinge fractures are seen on the left side as viewed from the ventral side. No polish is evident.
10052 CC-7-B-2-3	Miscellaneous Recycled Biface	Finished/used	Whole	Coarse Chalcedony	None	This artifact has been bifacially thinned on the right and left edges when viewed from the ventral side. These edges exhibit battering and tiny step and hinge fractures. There is no polish evident.
10052 CC-7-C-5-3	Oval Biface	Finished/used	Proximal Fragment	Coarse Chalcedony	Snap	There is battering on the distal end of this artifact. There impact fractures on the bit. There are tiny step and hinge fractures on the left side of the implement when viewed from the ventral near the proximal end (haft wear?). Polish is evident at the bit and is seen approximately 3 cm toward the proximal end.
10052 CC-7-C-5-4	Bifacial Celt	Finished/used	Distal Fragment	Coarse Chalcedony	Snap	

Table C.2. Non-Group H Lithic Artifact Descriptions (continued)

Provenience	Artifact	Stage	Portion	Grain	Break	Comments/Use-wear Observations
10052 CC-7-D-2-1	Utilized Macroflake	Finished/used	Whole	Coarse Chalcedony	None	This artifact exhibits small step and hinge fractures on the right edge as viewed from the ventral side. The left edge, as viewed from the ventral side, exhibits bifacial resharpening. No polish is evident.
10052 CC-8-B-14-3	Utilized Flake	Finished/used	Whole	Coarse Chalcedony	None	This artifact has been unifacially sharpened to a point on the right side as viewed from the dorsal side. There is no evidence of polish and there is no other use on this artifact. Provenience note included with the bag in which it was stored says: "From LPC midden w/ drilled shell bead."

