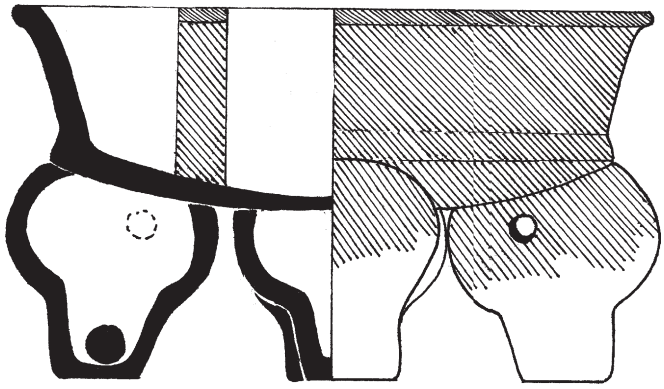
The 1997 Season of the

Chan Chich Archaeological Project

edited by

Brett A. Houk



Vessel 2 from Tomb 2, Chan Chich, Belize – A.M. '97

Papers of the Chan Chich
Archaeological Project, Number 3
Center for Maya Studies • San Antonio, Texas
1998

Chan Chich Archaeological Project

CCAP

Chan Chich, Belize - Central America

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Brett A. Houk

with contributions by

Owen Ford
Richard Meadows
Bruce Moses
Hubert R. Robichaux
M. Steven Shackley
and
Fred Valdez, Jr.

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Acknowledgments

In a way, the acknowledgment section of an archaeological report is the most important part. It is the only place where the many people and organizations who contributed to the endeavor are publicly recognized. It is also the most difficult section to write because someone is invariably forgotten, and it is also the only section that everyone reads, because they want to be sure they are mentioned. Everyone also wants to be mentioned either first or last, not buried in the middle with everyone else. If there were only two people to thank, that would work out great.

The 1997 season of the Chan Chich Archaeological Project (CCAP) would not have even taken place without the permission of the Department of Archaeology (DOA) in Belmopan, Belize. Mr. John Morris, Archaeological Commissioner, kindly granted me permission to excavate at the site under a permit issued to Fred Valdez, Jr. for the neighboring Three Rivers Archaeological Project (TRAP). We consulted throughout the season with Mr. Morris and his staff, particularly with Mr. Brian Woodye and Mr. Paul Francisco. Brian and Paul visited on two separate occasions to check on progress and provide advice about how to proceed with the excavation of the Protoclassic tomb described in this report.

Fred Valdez, as he did in 1996, graciously tolerated the CCAP and listed us on his permit application. He also came down to visit numerous times during the field season to provide needed advice to the project staff or to lecture to the field school students and volunteers about Maya ceramics. Finally, he joined the project in August during our extended analysis session as the project ceramicist.

We never would have been in Belize in the first place with the enthusiastic support of Chan Chich Lodge. The senior management staff of Tom and Josie Harding, Norman Evanko, and Lori Hayes, made our stay as enjoyable as possible. Although they did let it rain three nights in a row. What kind of resort are they running, anyway? Once again, the many employees of the lodge made our working conditions as pleasant as possible. Without the permission of the landowner, Mr. Barry Bowen, we would not be able to excavate at site of Chan Chich. I am grateful for his continued interest in our research.

Funding for the 1997 season came from a variety of sources. The initial field season was supported by the Trinity University field school, contributions from volunteers and students to the Center for Maya Studies (CMS), donations to CMS, and a grant from the National Geographic Society to TRAP. From Trinity University, I would like to thank Dr. John Donahue for arranging the field school and giving me the opportunity to teach from my alma mater. In 1997, Greg Murphy, George Carameros, Mr. and Mrs. Kirk Brown, Dr. C. Britt Bousman, and Dr. Fred Valdez, Jr. made contributions to the Center for Maya Studies which were used to support the CCAP. The extended analysis session which took place in August was funded by an emergency grant from the Foundation for the Advancement of Mesoamerican Studies, Inc. (No. 97004) and a generous contribution from Mr. and Mrs. John Miller.

The people actually doing the hard work included some eager volunteers, eleven very bright and hard working students, and my dedicated professional staff. The volunteers, who gave freely of their time and money to help us, were Linda Gunn, Donna Peifer, Elaine Dysert, Alyssa Foley, Summer Foley, Robert Duin, Cameron Brown, Stephanie Wilson, and Karis Koester. I want to thank them all for making the project a success.

One of the best group of field school students ever assembled together included the following individuals:

Rebecca Barrera, Univ. of the Incarnate Word
Andrea Betzold, University of Waterloo
Elizabeth Dysert, Cornell University
Kristen Hartnett, Cornell University
Jennifer Jellen, University of Illinois-U/C
Ruth Mathews, Univ. of Texas at San Antonio
Alexandra Miller, Univ. of the Incarnate Word

Jon Nicholson, Mount Allison University
Jessica Sanchez, Univ. of the Incarnate Word
Megan Utecht, Trinity University
Jennifer Vander Galien, U. of Wisconsin LaCrosse

Each of the students showed a genuine interest in archaeology and worked extremely hard. They should all be proud of their accomplishments. I certainly am.

As in 1996, we were lucky to have a number of individuals visit our project and offer advice or (constructive) criticism (some of which we hear through the grapevine). In 1997, numerous students and staff members from TRAP came by including Paul Hughbanks, Jon Hageman, Jon Lohse, Skye Wagner, Victoria McCoy, Julie Kunen, Levi Graziosa, James Eckhardt, Jeff Durst, Nicole Kilburn, Jen Dornan, David McDow, and Dylan Robbins. There were others I'm leaving out, and I apologize. David Driver and Heather Clagett escorted a group from the Blue Creek Archaeological Project to visit us as well. Both TRAP and Blue Creek provided our group with tours of their facilities.

The Canadians were there in 1997, too. Dr. Bill Eaton, Dr. Ed Van Zinderen Bakker, and (the neophyte) Dr. Matt Hoch graciously loaned us their students for a few days. We enjoy sharing the lodge with their group.

I would also like to thank Bob Rivard, Dan Goddard, and Charles Barksdale of the *San Antonio Express-News* (*SAEN*) for the series of excellent articles they produced about our project. We are grateful to John Miller, Vivian Vance, Doug Miller, Sr., Doug Miller, Jr., and Shirley Dahl for providing the *SAEN* team with transportation to and from Chan Chich.

The most dedicated staff (all willing to work for free—remember that in 1998) I could imagine made the 1997 season and field school run smoothly and professionally. From Chan Chich Lodge we were fortunate to have Alejandro Moh and Jorge Montuyi working with us again. The field director in 1997 was Dr. Hubert R. Robichaux of the University of the Incarnate Word. Hugh split the bulk of the lecturing duty with me and acted as the "enforcer" when necessary. Richard Meadows, a Ph.D. student at The University of Texas at Austin, directed the test pitting program like a task master. I was impressed with his professionalism and dedication. Owen Ford, a graduate student at The University of Texas at San Antonio , took over the ballcourt excavations and did an excellent job. His wit is enjoyed by all. Both Rick and Owen gave a lecture to the field school and did their share of driving. Bruce Moses and John Arnn, both of UTSA, worked with us for several days mapping the Upper Plaza with a total station borrowed from TRAP. Ashlyn Madden joined the project for ten days in August and is to be thanked for the wonderful artifact drawings in this report. Fred Valdez analyzed our ceramics during that period.

Several of the chapters in this report include the results of special studies conducted by the various consultants to the project. Frank and Julie Saul looked at the skeletal material from the tomb and the test pitting program. John Jones and Phil Dering of Texas A&M University examined samples from the tomb and the midden in the Upper Plaza. Paul Francisco of the DOA examined a sample from the tomb in Belmopan for us. Steven Shackley of the University of California at Berkeley sourced the obsidian artifacts.

Dr. R. E. W. and Jane Adams graciously hosted a reception and slide presentation at their home after we had returned from the field. I would like to thank them both for their kindness and hard work.

I am ultimately responsible for any omissions or errors in this interim report, and I want to thank the fine staff mentioned above for their contributions. I look forward to working with this group in the years to come.

Dr. Brett A. Houk
March 19, 1998

Group photo at Ground Zero, La Lucha Escarpment, June 11, 1997. Front row from left to right: Lori Hayes, Norman Evanko, Josie Harding, Jennifer Jellen, Kristen Hartnett, Liz Dysert, Ruth Mathews, and Fred Valdez; back row from left to right: Charles Barksdale (*SAEN*), Hugh Robichaux, Owen Ford, Andrea Betzold, Jon Nicholson, John Miller, Alex Miller, Rick Meadows, Jessica Sanchez, Jennifer Vander Galien, Rebecca Barrera, Megan Utecht, Brett Houk, and Tom Harding.

An Introduction to the 1997 Season

Brett A. Houk

Introduction

The chapters in this interim report document the goals, methods, and results of the second season of the Chan Chich Archaeological Project (CCAP). We were very fortunate to have a small group of very bright students and eager volunteers. We were more fortunate to encounter a collapsed Protoclassic tomb in the one of our plaza test pits (Robichaux 1998; Robichaux and Houk 1998). The results of that discovery, the investigations of the ballcourt, the exposure of the staircase to Structure A-1, and the test pitting of the western groups are presented in this report.

The author served as the project director, Dr. Hugh Robichaux of the University of the Incarnate Word in San Antonio, Texas, 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 operation directors during the four-week Trinity University Field School which took place during the project. Bruce Moses and John Arnn, both of UTSA, were the project surveyors for five days at the end of the season. Fred Valdez, Jr., of UT, and project director of the Three Rivers Archaeological Project (TRAP, formerly the Programme for Belize Archaeological Project [PFBAP]) was the project ceramicist, and, Ashlyn Madden, a student at UT, was our technical illustrator. Alejandro Moh and Jorge Montuyi, both of Belize, were employed by the project to assist with excavations.

The 1997 field season was supported by field school contributions, a cost-sharing volunteer program, private donations, and small grants from the National Geographic Society (through TRAP) and the Foundation for the Advancement of Mesoamerican Archaeology, Inc. (FAMSI). The research was conducted under an archaeological permit issued to Fred Valdez by the Department of Archaeology, Government of Belize. Mr. John Morris was Archaeological Commissioner at the time the permit was issued. The research was an element of TRAP, of which Valdez is the principal investigator.

The 1997 season of the CCAP involved a six-week period of field work in May and June. Key project members returned to Belize in August for approximately 10 days to conduct analysis of some of the artifacts and materials collected during the season. This extended season was supported by the FAMSI grant to Houk and by private donations to the Center for Maya Studies (CMS).

The Site of Chan Chich

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 140 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 Union. Chan Chich Creek and a large *aguada* 100 m north of the Main Plaza provide surface water throughout the year.

Chan Chich is located near the southern boundary of a geographically defined study area known as the Three Rivers Region (Adams 1995; Houk 1996a). 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).

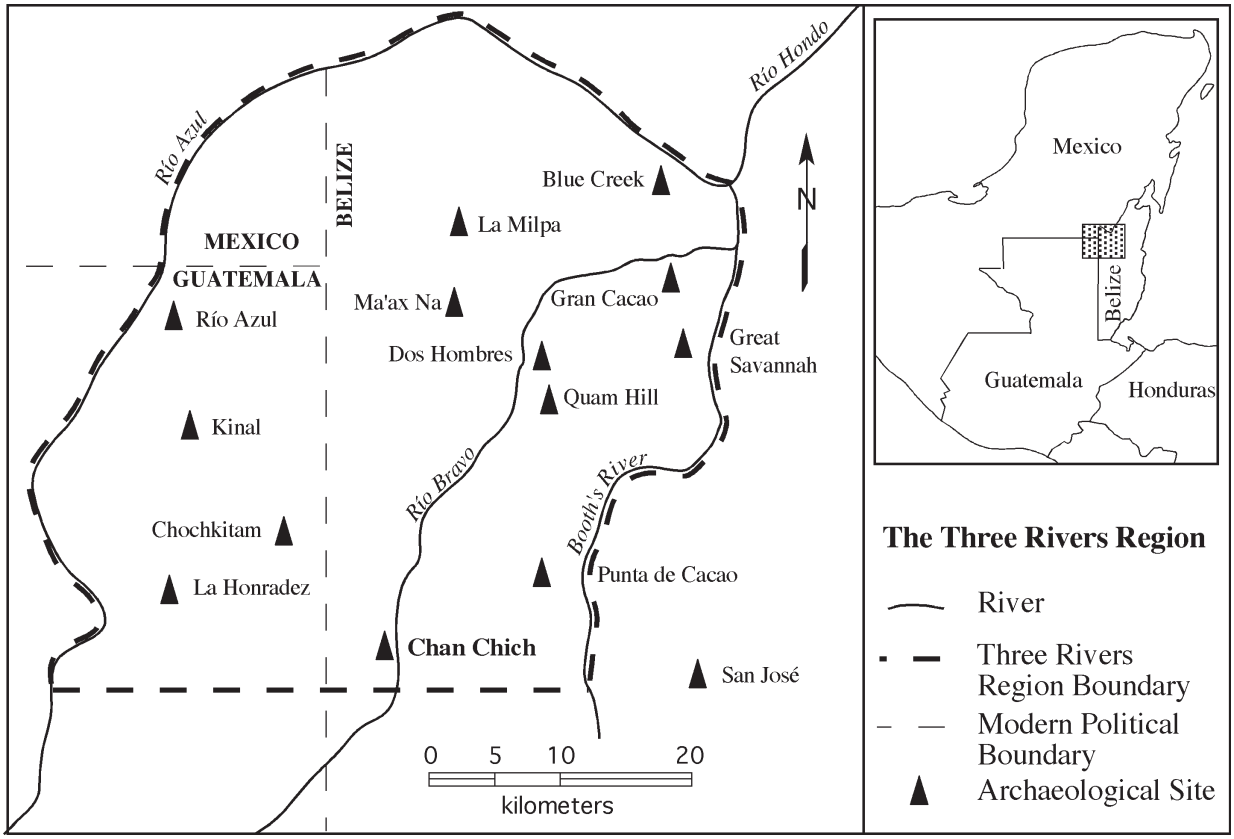

Figure 1-1. *Location of Chan Chich in the Three Rivers Region.*

Environmental Setting

Cyrus Lundell's (1937) pioneering study of the physical environment of the region remains one of the best sources of information on the subject. As director of the 1933 Carnegie Institution of Washington and the University of Michigan biological expedition to the Maya area, Lundell (1937) studied the vegetation of Petén, Guatemala. While he later published a description of the vegetation of British Honduras (Belize) (Lundell 1945), his earlier work on Petén is more detailed and comprehensive.

In the early 1990s, the Programme for Belize (PFB) contracted Nicholas Brokaw and Elizabeth Mallory of the Manomet Bird Observatory to inventory the vegetation of the western section of the Río Bravo Conservation and Management Area, an 110,000 acre tract located approximately 20 km north of Chan Chich (Brokaw and Mallory 1993). Their report includes information on the physiography, climate, and vegetation of the area and is largely applicable to the area around Chan Chich, although some important differences in vegetation patterns were noted during the course of the 1996 CCAP season.

Climate

Chan Chich is located at a north latitude of approximately 17° 32'. The recorded average annual rainfall of northern Petén between 1924 and 1934 was 1,762 mm (Lundell 1937:6). Brokaw and Mallory (1993:12) estimate that the average annual rainfall for the Gallon Jug area is approximately 1,500 mm. The year is divided into a wet season, beginning in late May and lasting into January, and a dry season, beginning in February and ending in May. Rainfall during the wet season often exceeds 200 mm/month, twice the average for the dry season (Brokaw and Mallory 1993:12). Lundell's (1937) observations from the 1930s and Brokaw and Mallory's (1993) more recent studies both indicate that rainfall totals actually vary greatly from year to year.

Unlike rainfall, the monthly temperature variations are minor. According to Brokaw and Mallory (1993:12), in November through January, the daytime temperature averages approximately 24° C (75° F), and in April through September, the daytime temperature averages approximately 26° C (80° F). The coldest months of the year are January and February when cold fronts

from the north enter the area and sometimes push the temperatures as low as 10° C (50° F). The hottest months are usually April and May, when daytime highs routinely exceed 32° C (90° F) (Brokaw and Mallory 1993:12).

It is generally believed that the climate of the Maya Lowlands fluctuated significantly over the preceding 3000 years of Maya occupation, but the debate over the effects of those changes on Maya civilization is unresolved (e.g., Dahlin 1983; Dahlin et al. 1992; Folan et al. 1983). Data from lake sediments suggest that the Yucatán Peninsula underwent alternating periods of warm/dry and cool/wet climatic conditions during the Maya occupation of the area (Dahlin et al. 1992). The driest periods are marked by decreasing lake and sea levels (Folan et al. 1983; Gill 1994). There is some evidence suggesting that these periods of drier conditions may coincide with episodes of widespread depopulation and that the wetter conditions correspond to periods of population growth (Dahlin 1983; Folan et al. 1983). Many of the most severe periods of dry weather may have been caused by major volcanic eruptions which disrupted the normal climatic patterns (Gill 1994).

Physiography

The Three Rivers Region is part of the Yucatán Peninsula, a limestone platform dating to the Eocene (58–47 million years ago). The karstic environment has been shaped by erosion, slumping, and faulting which have formed escarpments, uplands, and *bajos* (Brokaw and Mallory 1993; Rice 1993).

The area north of Chan Chich is characterized by a series of southwest-to-northeast fault lines which have produced three terrace uplands of successively increasing (from east to west) elevations (Brokaw and Mallory 1993). Each terrace is fronted by a steeply sloped escarpment. The terrain in the uplands is generally undulating, with broadly rounded hills and stretches of level ground (Lundell 1937; Dunning 1992; Brokaw and Mallory 1993). From east to west, the three escarpments are the Booth's River Escarpment, the Río Bravo Escarpment, and the La Lucha Escarpment (Figure 1-2). Chan Chich is located on the poorly defined southern extent of the Río Bravo Escarpment. The higher and more imposing La Lucha Escarpment, approximately 3 km to the west, is visible from some of the larger structures at Chan Chich (see Figure 1-2).

Figure 1-2. *Looking west from the top of Structure A-1 at the La Lucha Escarpment.*

Wide depressions, or *bajos*, occur between the hills of the uplands. These *bajos*, which contain clayey soils, are poorly drained and often flooded during the rainy season (Dunning 1992; Lundell 1937; Rice 1993). A large *bajo* is located between Chan Chich and the nearby site of E'kenha to the west.

The topography of the area is typical of the Río Bravo Uplands as described by Brokaw and Mallory (1993). It is characterized by irregular limestone hills separated by expanses of level terrain. The largest plazas and structures are situated on these hilltops (Houk, Robichaux, and Durst 1996; Robichaux et al. 1997).

The elevation of the highest natural point in the project area is approximately 150 m above sea level at the hilltop location of Norman's Temple in Group C. The lowest point occurs 200 m north of the Main Plaza in Chan Chich Creek at approximately 107 m above sea level (Houk, Robichaux, and Durst 1996).

The dominant natural feature at the site is Chan Chich Creek, a perennial stream subject to episodes of extreme flooding during the rainy season. The banks of the creek vary from steeply sloping to low, level flood plains. The *aguada*, situated at the base of the hill that supports the Main Plaza, may be a remnant of an earlier channel of Chan Chich Creek (Houk, Robichaux, and Durst 1996).

Vegetation

The terminology used to describe the vegetation of the study area has been, is, and probably will always be inconsistent. The three relevant sources, Lundell's (1937) study of the vegetation of northern Petén, Brokaw's and Mallory's (1993) vegetation inventory of Río Bravo, and Ford's (1981) description of vegetation along the Tikal-Yaxhá survey transect each use different terms to describe similar vegetation types (Table 1-1).

Hubert Robichaux (1995), in a recent settlement survey in the Río Bravo Conservation and Management Area, relied on Ford's (1981) nomenclature to describe vegetation zones, thereby maintaining consistency with her settlement data. I took a different approach, drawing largely on Brokaw and Mallory (1993) for terminology since their study was more recent (Houk 1996a). This interim report will take that approach as well, although Ford's (1981) *bajo* will be used frequently in the text since it has become imbedded in archaeological jargon. The relevant forest types found at Chan Chich are upland forests, cohune palm forests (*corozal bajos*), and cohune riparian forests. Also discussed is the transition forest (*escobal bajo*), although this forest type is not found in the immediate vicinity of Chan Chich.

Table 1-1. Forest Types in the Three Rivers Region

Source	Forest Type			
Brokaw and Mallory 1993	Upland forest	Transition forest	Cohune palm forest	Scrub swamp forest
Ford 1981	*Montaña*	*Escobal bajo*	*Corozal bajo*	*Tintal bajo*
Lundell 1937	Climax forest	*Escobal* transition zone	*Corozales*	*Bajo*

Upland Forest

Upland forests occur on well-drained soils on escarpments, ridges, and hilltops (Brokaw and Mallory 1993). The canopy of the upland forest ranges from 15-30 m in height, and the dominant tree species include zapotillo (*Pouteria reticulata*), sapodilla (*Manilkara zapota*), cherry (*Pseudolmedia* sp.), male bullhoof (*Drypetes brownii*), pigeon plum (*Hirtella americana*), and silión (*Pouteria amygdalina*) (Brokaw and Mallory 1993:21).

Cohune Palm Forest

Although cohune palm forest covers only 0.7 percent of the Río Bravo Conservation and Management Area (Brokaw and Mallory 1993), it is the dominant forest type at Chan Chich. These forests occur in areas with deep, well-drained soils at the base of slopes and are named after the cohune palm (*Orbignya cohune*), the dominant tree (Brokaw and Mallory 1993). Because cohune palm forests occupy level ground, they are occasionally inundated.

Transition Forest

Transition forest occupies the shallow gradient in topography between the uplands and the scrub swamp forest, discussed below (Brokaw and Mallory 1993). In the Río Bravo Conservation and Management Area, transition forest covers 29.6 percent of the area

(Brokaw and Mallory 1993:18), while Ford (1981:40) estimates that it "may be the most widespread environmental zone in the northeastern Petén." This forest type is absent at Chan Chich.

Scrub Swamp Forest

Scrub swamp forests occur in poorly drained, clay-filled depressions which are seasonally inundated. They are frequently called *bajos* because their distinctive vegetation corresponds directly with the physiographic features of the same name (Brokaw and Mallory 1993). These forests have low, 4–5 m high canopies (Brokaw and Mallory 1993) and dense vegetation which is often difficult to penetrate (Ford 1981). Logwood, a tree harvested for dye in the 1700s and 1880s, also known as *tinto* and from which *tintal bajo* derives its name, is a commonly occurring tree in scrub swamp forests (Brokaw and Mallory 1993).

Cohune Palm Riparian Forest

Riparian forests are found immediately adjacent to perennial streams, and occur with greater frequency in the area around Chan Chich than they do near Dos Hombres (Houk 1996a). They are seasonally inundated and presumably have fairly deep alluvial soils. The canopy of the riparian forest is low, and many of the trees lean due to poor root anchorage (Brokaw and Mallory 1993). Some large, emergent trees, particularly the bullet tree (*Bucida buceras*), are found in riparian forests, but the most abundant, large tree in the Riparian Forest around Chan Chich is the cohune palm (*Orbignya cohune*).

Forest Types at Chan Chich

The vegetation around the site of Chan Chich includes three types of forest: upland, cohune palm, and cohune palm riparian (Table 1-2). Small pockets of bamboo are located intermittently throughout the project area, the largest of which surrounds the *aguada* north of the Main Plaza. In general, forest types are closely correlated with topography (Houk, Robichaux, and Durst 1996).

Table 1-2. Forest Types at Chan Chich

Forest Type	% of Total Area
Upland	39.0
Cohune Palm	47.5
Cohune Palm Riparian	13.0

Upland forest is found on the better-drained hill tops and slopes. Cohune palm forest is located in the level areas between hills. Cohune palm riparian forest occurs in several very low, level areas immediately adjacent to Chan Chich Creek. The largest of these expanses is in the southeast corner of the project area, situated between a bend in the creek and a prominent, densely-settled hill (Group H).

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 (1991a: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 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 1991a; Houk 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 1991b).

Guderjan (1991b) 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 (1991a) 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 Fred Valdez 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 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 km^2 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 (1991b), Thompson's (1939) excavations at San José are apparently the only ones that were ever conducted within 30 kilometer radius around Chan Chich prior to 1997.

The site, like most of the larger ruins in northwest Belize and northeast Petén, Guatemala, was looted during the late 1970s and early 1980s (Figure 1-3). The degree of destruction and the amount of important information lost as a result of these activities varies from site to site and structure to structure. It is certain, however, that organized looting, fueled by unscrupulous art collectors and dealers in the United States, Europe, and Japan, has resulted in the greatest loss of data about the ancient Maya since the Spanish Conquest of Central America.

Results of the 1996 Season

The 1996 mapping project recorded 253 structures, 187 of which were previously unknown (Houk, Robichaux, and Durst 1996; Robichaux et al. 1997). 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 project area (Figure 1-4). The most dominant 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 1991a; Houk et al. 1996), but the 1996 project located several major, but previously unrecog-

Figure 1-3. *Looter's trench in the west face of Structure A-15 at Chan Chich.*

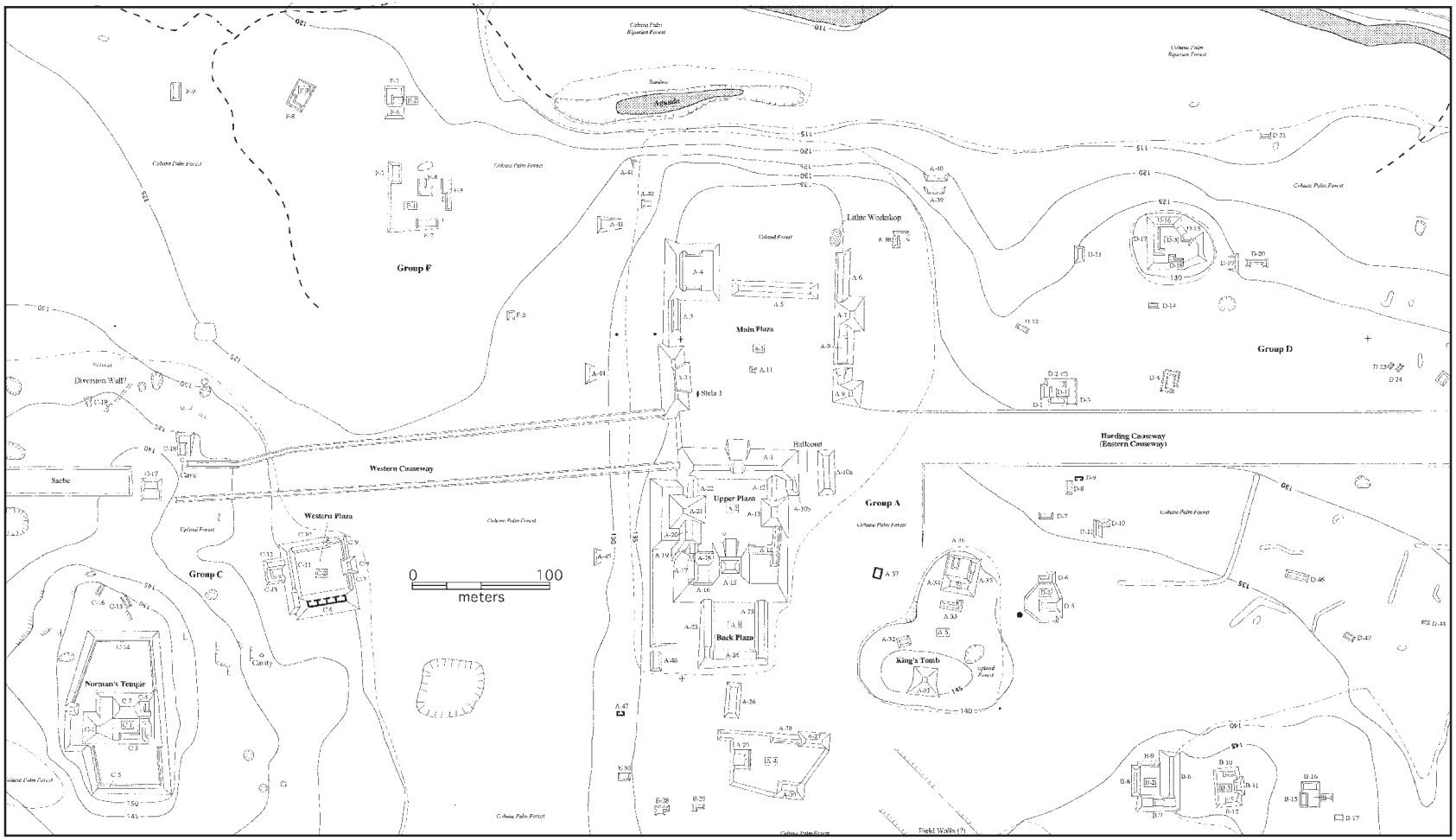

Figure 1-4. *Map of Chan Chich site center.*

nized, elements of these groups (Houk, Robichaux, and Durst 1996).

The two most important discoveries from a site planning approach (see Research Design below) are the Western Causeway and the ballcourt. Guderjan (1991a) and Houk 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; Robichaux et al. 1997). 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) which 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 Harding Causeway in that it is an entirely raised surface (Houk, Robichaux, and Durst 1996).

Another interesting feature of the Western Causeway is that a small cave, marked by a two meter wide vertical opening, is located at the west end of the causeway. This cave was cursorily examined during the 1996 season, and its actual size is not known. While the cave may prove to be small, bats were observed roosting in it.

A third causeway may exist at Chan Chich. Two parallel stone alignments are located southeast of Group A. If these represent a causeway, they would connect Group A with Courtyard B-1. The 1996 project, however, could not conclusively determine if these alignments were a causeway or not (Houk, Robichaux, and Durst 1996). Because the ground surface is higher on the southwest side of both lines (i.e., the central space is not elevated as is the case with the Harding Causeway), these features are mapped as possible field walls which may have been agricultural in function (Houk et al. 1996).

The second major discovery related to the site plan of the major architectural groups was the probable 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 1991a; Houk 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) which 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 building in the ballcourt (Houk, Robichaux, and Durst 1996).

This location is actually consistent with ballcourt placement at most sites in the area. 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 Houk (1996a, 1997). 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; Robichaux et al. 1997).

Four residential groups, Courtyards A-4, B-1, B-2, and B-3, were mapped by previous projects (Guderjan 1991a; Houk 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, a practice which has been documented elsewhere in the region (Dunning 1992). This group overlooks a low-lying strip of floodplain which 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; Robichaux et al. 1997). This

dense cluster of structures is located on the east bank of the creek. 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 (see Meadows 1998a). 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 (1991a) documented a possible chert workshop north of the Main Plaza near Structure A-6, as well.

Research Design

The research at Chan Chich in 1996 and 1997 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 is a method of addressing questions of socio-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 which can hopefully be addressed by this approach to research at Chan Chich.

The recent study of site plans in the Three Rivers Region by the author has demonstrated that sites can be classified into one of two categories: Type 1 site plans in which a large open plaza is located at the north end of the site core and an acropolis-like group is juxtaposed at the south, or Type 2 site plans in which this pattern is reversed (Houk 1996a, 1997). The most commonly occurring site plan type is Type 1. This category includes Chan Chich, La Milpa, Dos Hombres, La Honradez, Kinal, and Quam Hill (Houk 1996a, 1997). The third site plan category, Type 3, is reserved for the larger site of Río Azul which does not resemble either of the other two patterns (Houk 1996a, 1997).

There is some variation within this group, however, and the Type 1 site plans could almost be divided into two subgroups based on the overall arrangement of the common elements. In the first group would be Dos Hombres, La Milpa, Kinal, and Quam Hill—sites with a distinct linear orientation on a north-south axis. In the second group would be La Honradez and Chan Chich—sites which generalized north south orientations that have large causeways radiating out from the center (Houk 1996a, 1997).

Chan Chich and La Honradez differ slightly from each other and from the other Type 1 site plans. In the case of Chan Chich, Plaza A-1 is a well-defined rectangular plaza second in size in the region only to the Great Plaza at La Milpa. It is located at the north end of the site, but this orientation is created only by the two largest architectural groups at the site; Plazas A-1 and A-2 which are aligned north-south. Plaza A-2 appears to be an exaggerated quadrangle group which actually surpasses Plaza A-1 in structural mass. The large causeways extending to the east and west are similar to the radial causeways at La Honradez and Kinal (Houk 1996a, 1997).

Type 2 site plans occur at Gran Cacao, Punta de Cacao, San José, and Blue Creek. The most salient features of Type 2 site plans are the variable orientation of structures within the same plaza and the southern position of the public plaza relative to the location of the private/enclosed space. There is less variation within the Type 2 group, but some does occur (Houk 1996a, 1997).

An interesting pattern emerges when the distribution of site plan types is examined (Figure 1-5). The Type 2 site plans are all located on the east side of the Three Rivers Region in a north-south line, paralleling the course of the Booth's River. Type 1 plans are found west of this line along the Río Bravo and into northeast Petén.

The Type 1 site plans may be related to a site planning template originating in northeast Petén. For example, the site of Xultun which is located southwest of the Three Rivers Region, between La Honradez and Uaxactun, shares many features of Type 1 sites. Type 1 sites also demonstrate many of the site planning principles outlined by Ashmore (1991:174) in her proposed template including "(1) a strongly marked north-south axis; (2) mutually complementary, paired functions for construction and spaces at north and south ends of that axis..."; (3) the common presence of a ballcourt "as mediator between north and south"; and (4) "the frequent use of causeways...to underscore the linkage between various elements and thereby stress the symbolic coherence of the whole." The only element lacking in the Three Rivers Region Type 1 site

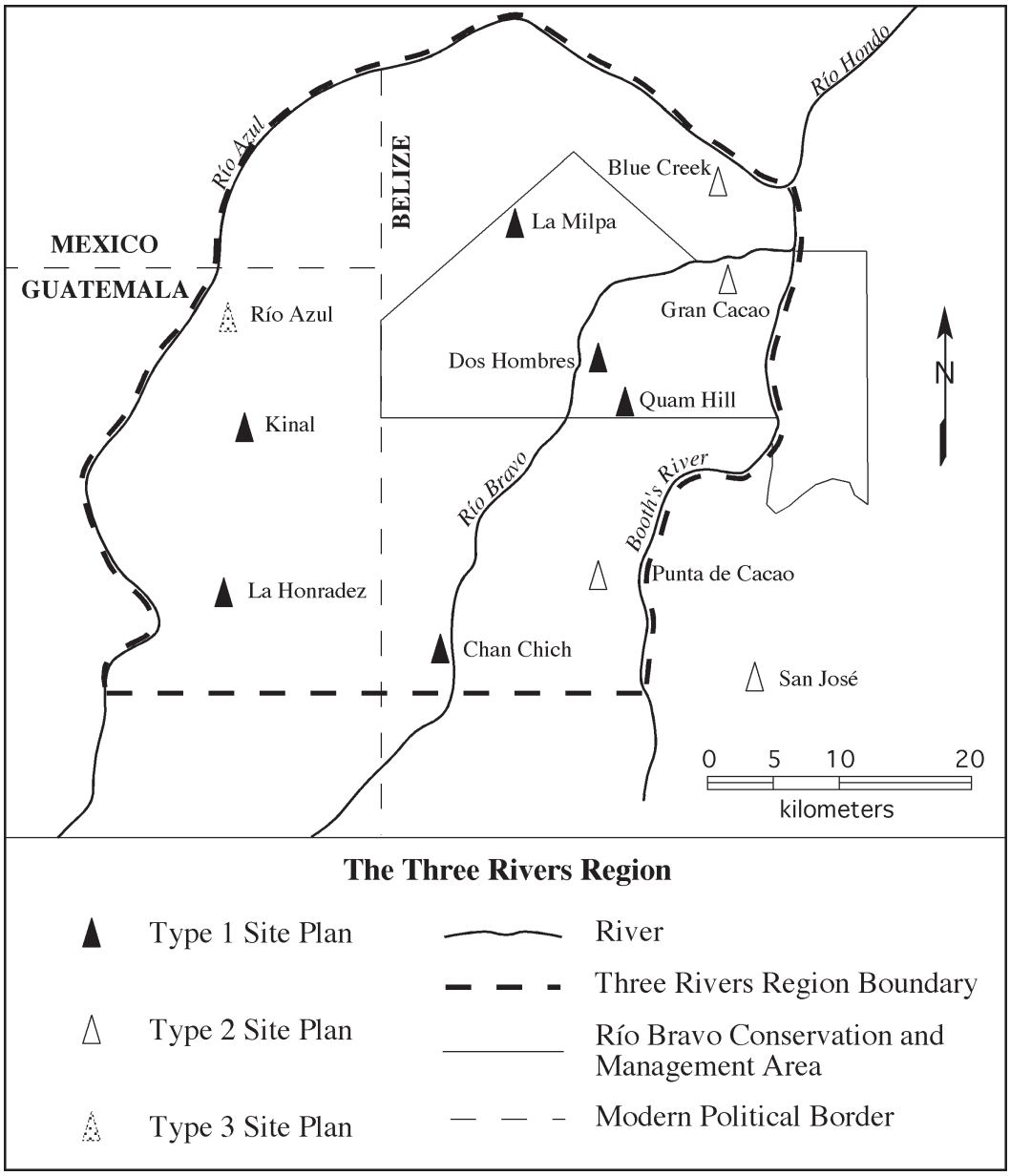

Figure 1-5. *Distribution of site plan types in the Three Rivers Region.*

plans is "the appendage of subsidiary eastern and western units to form a triangle with the north" (Ashmore 1991:174), although this appears to be present at La Honradez and possibly Chan Chich (Houk 1996a, 1997).

Type 2 site plans, on the other hand, appear to be related to the pattern recognized by Hammond (1981) for sites in the area between the Hondo and New Rivers in northern Belize. Nohmul, Aventura, and El Pozito "have a contrasting structure; in each the ceremonial precinct is split into two major parts, most apparent at El Pozito where they are massive multiphase acropoleis separated by open ground, and at Nohmul where a large and a small acropolis are linked by a sacbe" (Hammond 1981:165). Hammond (personal communication 1995) concluded that in this pattern, the public/open plazas were located at the south end of the site and the enclosed/private groups were at the north end.

The Type 2 sites appear to be on the border of two interaction spheres. They share the general site orientation of sites downstream along the Río Hondo, but other features, like well-defined acropoleis, stelae, and massive main plazas seem to be Petén influenced (Houk 1996a, 1997).

Long-Term Research Objectives

The CCAP has several important long-term 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 establish likely political and cultural ties between Chan Chich and other sites in the region.
- To establish the date at which the Type 1 site planning principles 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 (Houk 1996b). Some researchers, Hammond (personal communication 1995) 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 understanding the construction order of, and the relationship between, major structures and public spaces.

Stylistic architectural data from these same groups will allow synchronic comparisons to other excavated sites east and west of the proposed cultural boundary discussed above. Sites with published architectural data on the west side of the boundary include Kinal (Adams 1991), Dos Hombres (Houk 1996a), and La Milpa (Tourtellot and Rose 1993, 1995). East of the boundary, the sites of Blue Creek (Guderjan and Driver 1995) and San José (Thompson 1939) have published site reports with comparable data.

Artifact assemblages from elite or ceremonial contexts will be compared to similar deposits from the sites discussed above as well as from sites to the west including Kinal (Adams 1991) and Río Azul (Adams 1990) 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.

1997 Research Objectives

As a pilot project designed to determine the feasibility of a long-term research initiative, the 1997 season planned to target excavations at areas likely to yield the most information with the least effort (Houk 1996b). First, a series of test pits (approximately six 2-x-2-m units) was planned for the major architectural groups to establish the site's chronology. Second, several looter's trenches in the upper plaza were to be examined in detail. Third, selected trenches (two or three) were to be widened along exposed architectural faces to recover stylistic data as well as chronological information from sealed fill contexts. Fourth, selected structures were to be partially stripped of topsoil and collapse debris to examine the architecture of the last construction phase. The ballcourt and the staircase on Structure A-1 were selected for partial exposure.

A fifth objective was the initial investigation of Courtyard D-1, an elite residential group east of the Main Plaza. Jeff Durst was to use information from this group and a comparable group at the site of Dos Hombres as the basis for his Ph.D. dissertation.

A final objective of the project was limited consolidation of selected structures. We planned to use material removed during the widening of looter's trenches to fill some of the looter's tunnels into structures in the upper plaza. These tunnels represent a continued dan-

ger to the stability of some of the larger mounds at the site.

A major element of the planned consolidation effort was to be the first-time application of System 90, a catalytic penetrating sealer manufactured by Edison Chemical of Connecticut. System 90 is a heavy-duty, one component, low viscosity, solvent-borne sealer used to preserve porous masonry. It has the capacity to restrict larger pore sizes which may otherwise permit bulk moisture infiltration. In 1997, we planned to test System 90's effectiveness by coating approximately 100 m^2 of exposed surface area.

For various reasons, the objectives listed above were changed prior to the beginning of the project. Jeff Durst elected to remain with TRAP for the entire season. He was replaced by Richard Meadows. As a result, the excavations at Courtyard D-1 were canceled. Because of concerns on the part of DOA, all the planned consolidation efforts were also abandoned. This included the testing of System 90. All architecture exposed during the project had to be backfilled. This included the staircase to Structure A-1 and the ballcourt.

Richard Meadows (1998b) was put in charge of the test pitting program in the western architectural groups. Owen Ford (1998) was operation director at the ballcourt. Hugh Robichaux (1998) directed the investigations in the Upper Plaza. Brett Houk (1998), acting as laboratory director and project director, also over saw the excavations on Structure A-1.

Arrangement of This Report

The remaining chapters in this report summarize the various research efforts conducted at the different areas of the site. The final chapter presents a modified outline of the culture history of the Three Rivers Region incorporating the new information gathered in 1997.

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General Project Methodology

Brett A. Houk

Introduction

In a comprehensive review of the history of Maya archaeology, Black (1990:366) concluded that "the field methods and methodologies of Maya archaeology often have not been adequately recorded in the site reports." Black (1990:367) suggests that "field methods and methodologies are fundamental aspects of any field project that should not be neglected in excavation reports" because archaeological data can not be critically evaluated "unless the means by which the data were acquired are adequately discussed." The following discussion of the methods employed during the excavations at Chan Chich are presented in this chapter so that others may critically evaluate the data and the conclusions proffered in this volume. The methods used to map the site are discussed in Robichaux and Houk (1996) and will not be repeated here. Moses (1998) describes the methods used to map the Upper Plaza.

Field Methods

The excavation, mapping, and recording methods employed at Chan Chich are based on the system used by the Programme for Belize Archaeological Project (PFBAP). Most of the methods and conventions used at Chan Chich are ones that have been tested by previous archaeological projects in the Maya area.

Excavating, Proveniencing, and Recording

The Chan Chich Archaeological Project (CCAP) uses a standardized system for excavating, proveniencing, recording excavations, and collecting artifacts that has developed over several decades. Generally, the CCAP system is a modified version of the "Tikal system", described by Coe and Haviland (1982), and specifically, it is essentially identical to the one employed by the Ixcanrío Regional Project (Houk 1992) and the PFBAP (Houk 1996).

For each area investigated at the site, an *operation* (op) number is assigned. The definition of an operation is flexible: "A site dimensionally limited by the eventual scope of its study" (Coe and Haviland 1982:42). In other words, operations are not dimensionally restricted, but are adaptable and may expanded at the discretion of the excavators. Operations are numbered sequentially at the site. During the first season of excavations at Chan Chich, four operations were designated (Table 2-1). Operations do not necessarily correspond to groups at the site, although they may.

The excavations at each operation are supervised by an operation director. This individual is responsible for not only overseeing the daily work at the operation, but also for writing the results of the excavations for publication. The operation director is also responsible for completing an *operation definition form* (Figure 2-1).

Table 2-1. List of Operations

Operation	Definition	Reference
1	Structure A-1	Houk (1998)
2	1997 Upper Plaza excavations	Robichaux (1998)
3	Ballcourt	Ford (1998)
4	Test pits in Group C	Meadows (1998)

CHAN CHICH ARCHAEOLOGICAL PROJECT

Operation Definition Form Chan Chich Operation _____

Operation Director: _____ **Date Opened:** _____

Location of Operation

Located in Group Number	
Includes Structure Numbers	
Includes ES Numbers	
Other	
Other	

Please provide sketch map of Operation on back of form (include SubOps, scale, structures, features, etc.)

Definition of Operation (limits, size, etc.): _____

Assigned Suboperations **Assigned Suboperations**

SubOp	Size	Orientation	Location	SubOp	Size	Orientation	Location

Comments, Observations, Etc.: _____

Figure 2-1. *Operation definition form.*

Individual excavation units are referred to as *suboperations* (subop) and given letter designations. Suboperations may be any size or shape, but their dimensions must be recorded precisely to facilitate mapping and determining provenience information (Figure 2-2). When possible, suboperations were defined as rectangular areas.

The final level of proveniencing is the *lot*. Lots are designated and numbered sequentially within each suboperation. A lot is "the smallest, most significant provenience according to the excavator's perception of such" (Coe and Haviland 1982:43). A lot may be a stratigraphic layer or it may be an architectural feature such as a wall or a floor. A *lot form*, which is a standardized form that prompts the recorder for specific information, is filled out for each lot, recording description, location, associated artifacts, and the relationship of the lot to other lots around it (Figure 2-3). In this report, lots are referred to by their suboperation and lot number and are printed in bold text to avoid confusion with structure or ES numbers. For example, the first lot from Suboperation A, would be Lot **A-1**.

The project member directing excavations at a suboperation is responsible for completing the appropriate forms (Table 2-2), taking photographs of important lots, making plan maps of the relationships between lots, and profiling completed units.

Table 2-2. List of Field Forms and Logs

Type	Name
Form	Operation Definition
	Suboperation Definition
	Lot
	Burial and Burial Continuation
	Sample
Log	Photo
	Sample
	Profile/Plan Map

In addition to their lot numbers, special features such as burials, tombs, caches, and problematic deposits are assigned a sequential number, by category, for the site as a whole. This facilitates intersite and intrasite comparisons and analysis in the field lab.

A subdatum, whose elevation is related to the datum established in each ES at the site, is placed near each suboperation to maintain vertical control of provenience during excavations. Horizontal control is dependent upon the walls of each suboperation which are related to one another on a map of the excavations within each operation.

Artifacts are collected by lot and placed in a cloth bag that is labeled with the complete proveniencing information in an abbreviated form. For example, a ceramic sherd recovered from Operation 1, Suboperation C, Lot 4 would be placed in a cloth bag labeled 1-C-4. Paper tags with the same information are also placed in each bag to insure that the provenience is not lost.

Special samples are also collected by lot. These are listed on the appropriate lot form, and a separate sample form is completed, detailing the type of sample and its provenience, context, and collection methods.

During excavations, layers of humus, fill, and structural debris are removed using picks and shovels. In some cases, the matrix is screened through $^{1}/_{4}$-inch mesh. In other cases, the matrix is visually sorted, and the artifacts are collected by lot. The method of recover is dependent upon the nature of the deposit being excavated and the specific research question(s) being addressed by the excavations. Only ceramic sherds larger than two centimeters in diameter are retained for study. Deposits requiring more delicate excavations are worked with trowels, hand picks, and whisk brooms. Burials and caches are excavated with trowels, paint brushes, and dental picks.

Lab Methods

Materials collected in the field are brought to the laboratory where they are cataloged by the lab director or a student assistant. Ceramics and lithics are then washed in water and allowed to dry slowly on screen racks. During the washing and drying process, the provenience of the materials is carefully maintained. Once they are dry, larger sherds and lithic tools are labeled with their provenience information in India Ink, which is then sealed with a coat of PVA. Processed artifacts are then placed in sealable plastic bags. The cloth field bags are then recycled.

Special finds, such as figurines, objects of jade, obsidian, bone and shell artifacts, and complete vessels are stored in a secured location in the laboratory. These objects are photographed, illustrated, and analyzed individually.

CHAN CHICH ARCHAEOLOGICAL PROJECT

Suboperation Definition Form Chan Chich

CCAP

Operation _____ Suboperation _____

Op Director: _____ Recorder: _____ Date Opened: _____

Unit Size: _____ Orientation: _____ Datum: _____ Datum Elevation: _____

Describe Suboperation's Location (include relationship to structures, features, and other units):

Describe Purpose of Opening Suboperation: _____

Defined and Excavated Lots

Lot #	Def.	Exc.	Description

Sketch of Plan View

N

Comments, Observations, Etc.: _____

Figure 2-2. *Suboperation definition form.*

CHAN CHICH ARCHAEOLOGICAL PROJECT

Lot Form Op _____ SubOp _____ Lot _____

Recorder(s): _____ Date Opened: _____ Date Closed: _____

Lot Type (circle one): Topsoil Collapse debris Wall Floor Cache Burial Midden Other

Describe Lot's Location: _____

Sketch of Plan View

N

Sketch of _____ Profile

Unit Datum _____

Sketches include:

( ) Depths

( ) Elevations

(check one)

Materials Collected/Observed

Material	Col.	Obs	App. #	# of Bags
Ceramics				
Chert tools				
Chert debitage				
Obsidian				
Bone (human)				
Bone (faunal)				
Shell				
Groundstone				
Jade				
Other_____				
Other_____				
Other_____				

Samples Collected

Type of Sample	Sample # (s)
C-14	
Flotation	
Botanical	
Other_____	

Photographs

Roll #	Frame # (s)

Plan Maps and Profiles

Type	Drawing #

Comments, Observations, Etc.: _____

Figure 2-3. *Lot form.*

Human bone is cleaned with a dry, soft brush. Each individual bone is then placed in an aluminum foil pouch marked with the proper provenience. Bone from the same feature or burial is stored together. All human skeletal material is then prepared for exportation to the United States for analysis.

At the end of the season, bulk ceramics and lithic debitage are analyzed and discarded. A representative sample of each ceramic type is saved and placed in the project's type collection. Special finds and complete lithic tools are turned over to the Department of Archaeology in Belmopan at the end of the season.

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Mapping the Upper Plaza

Bruce M. Moses

Introduction

A thorough survey of the Upper Plaza (Plaza A-2) was undertaken by the author and John Arnn at the end of the 1997 field season. The focus of this effort was to create a detailed topographic map of the area surrounding Plaza A-2 and the newly discovered ballcourt (Structures A-10a and A10b). It was hoped that this process would provide additional insights into the function of the area and construction techniques employed by the ancient Maya. The Upper Plaza was first mapped in 1991 by Thomas Guderjan (1991) during his initial survey of Chan Chich. Upon completion of the 1996 Chan Chich mapping project, several corrections were made to the portrayal of major architecture in and around the Main Plaza and Upper Plaza (Houk et al. 1996).

Methods

During this endeavor, we used a Sokkia Set 6 total station and a SDR33 data collector which proved to be a very fast and accurate approach in the uncharacteristically thin vegetation surrounding the Upper Plaza. The use of EDM technologies has also been employed to some degree by other projects in the Three Rivers Region including the La Milpa Archaeological Project (Tourtellot 1993) and the Programme for Belize Archaeological Project (Lohse 1997, Scarborough et al. 1992, Fred Valdez, personal communication 1997). Unfortunately, due to the onset of the rainy season and predetermined time limitations, the Main Plaza (Plaza A-1) and the Back Plaza (Plaza A-3) were not mapped at this time.

The survey of Plaza A-2 began on June 19, 1997, and was completed over the course of 4 days. The master datum and two additional grid points from the 1996 mapping project were relocated and served as the starting point for a closed loop traverse (see Schmidt and Rayner 1978) established around the perimeter of Plaza A-2. The first goal was to set a limited number of traverse points at strategic locations which could later be employed to record the topography of both Plaza A-2 and the base of the modified hill upon which it is built. Additional traverse points were set up outside the loop at points which commanded a view of the surrounding landscape out approximately 30 meters from the base of the hill.

A minimal amount of clearing was required initially in areas south and west of Plazas A-2 and A-3. Unit datums at subops in Operations 1-3 were located during the preliminary traverse, and precise coordinates and elevations were assigned to them at that time. The locations of individual unit corners and looter's trenches were later recorded during the collection of topographic information.

For the topographic data collected on the upper plaza, several methods previously established for the 1996-97 Ma'ax Na survey were adapted. This is a general overview of a survey methodology which was developed to facilitate the process of transit mapping large areas of rainforest terrain in the Maya Lowlands. During this process, we studied 20 meter contour maps produced by the British Army as well as the site map produced as a result of the 1996 mapping project. The following rules were employed during the process of collecting topographic information.

1. Where the terrain was relatively constant and unbroken, shots were taken at consistent intervals not exceeding 15 meters.

2. Where the local relief varied more than 25 centimeters, additional shots were taken to record that change.

3. In low-lying areas additional shots were taken to record relief. Should an area be transected by a gully or stream, shots would be taken at close intervals along the flow-line of that drainage as well as along the top of the adjoining bank.

4. Areas adjacent to or containing structures, walls, or any other modified terrain were supersaturated with shots to give an extremely high resolution to the map.

Results

The utilization of the conventions outlined above ensured that the survey retained a high degree of detail while allowing it to proceed at a relatively fast pace. The resultant data collected as a result of the Upper Plaza survey were downloaded from the data collector into a laptop computer at Chan Chich Lodge in the form of a *text* file. This file was then opened in *Surfer*® to create a topographic map (Figure 3-1) which in turn was used to obtain the cross-sections of the Upper Plaza (Figure 3-2).

The highest points (given as meters above sea level [m asl]) on various structures and surfaces are listed in Table 3-1. The tallest structure in the Upper Plaza is Structure A-15. It is 15.11 m higher than the average elevation of the Upper Plaza. Additionally, Structure A-15 is 22.32 m higher than the surface of the Main Plaza and 22.13 m higher than the surface of Plaza A-3 (Back Plaza).

The surface of the Upper Plaza is 7.21 m higher than the Main Plaza. Structure A-1 rises 13.17 m above the Main Plaza and 5.96 m above the Upper Plaza. Structure A-21 on the west edge of the Upper Plaza is 12.34 m higher than the plaza floor. On the west side of the plaza, Structure A-13 is 5.73 m higher than the plaza. The eastern structure in the ballcourt, Structure A-10a, is 4.35 m higher than the alley.

Table 3-1. Elevations (m asl) in the Upper Plaza

Structure	Elevation
Ballcourt Alley	138.60
Plaza A-1	139.89
Plaza A-2	147.10
Plaza A-3	140.08
Structure A-1	153.06
Structure A-10a	142.95
Structure A-13	152.83
Structure A-15	162.21
Structure A-21	159.44

Although it was beyond the scope of this study, the topographic data collected in 1997 can be combined with the data being collected from looter's trenches and from excavations in the Upper Plaza to create detailed and accurate cross sections of the architecture. These complementary avenues of research will clarify the history of occupation and construction in the plaza.

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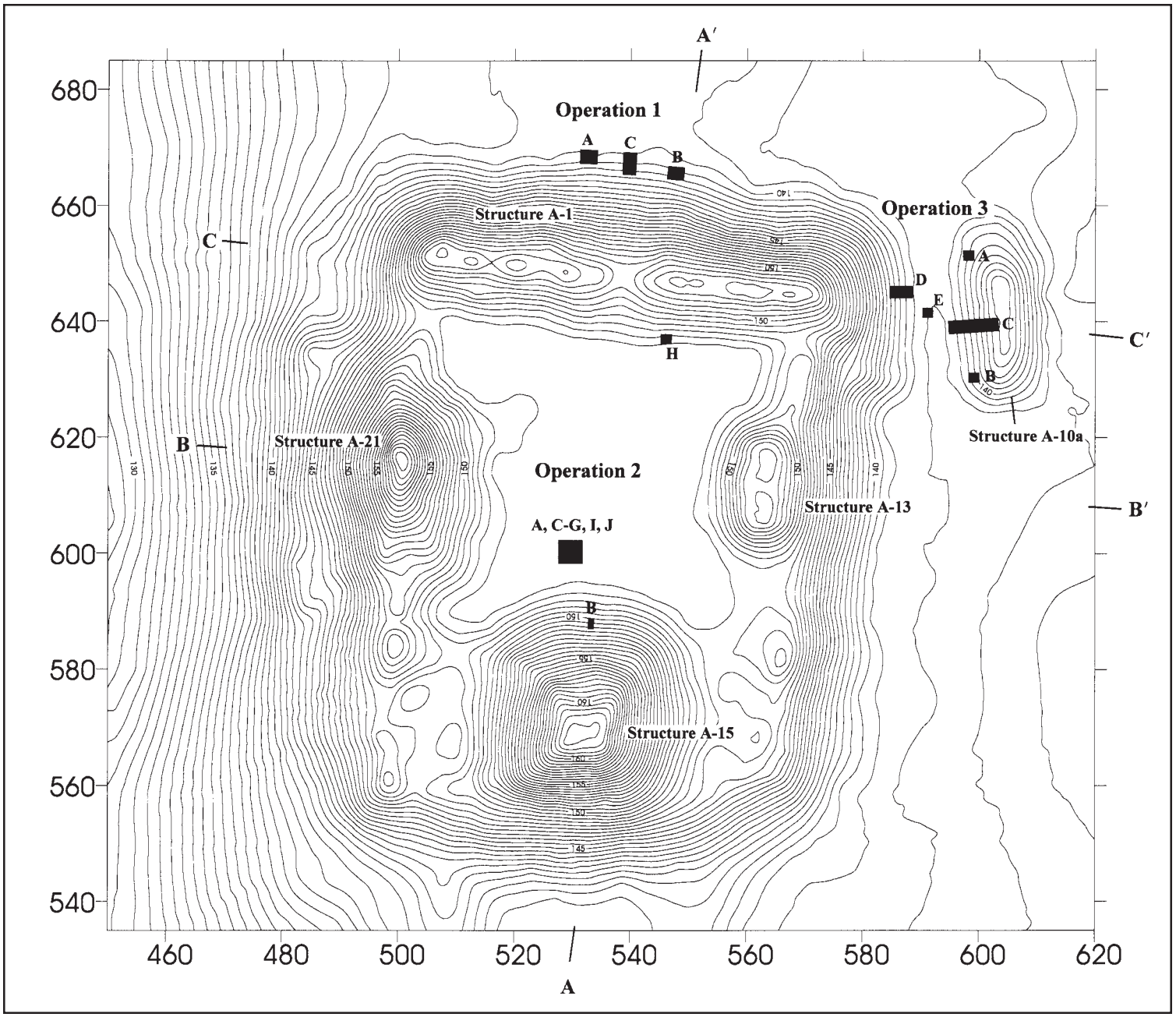

Figure 3-1. *Contour map of the Upper Plaza.* Contour interval is 50 cm. North and east axis coordinates are in meters. Excavation units marked as solid rectangles. See Figure 3-2 for cross sections indicated on contour map.

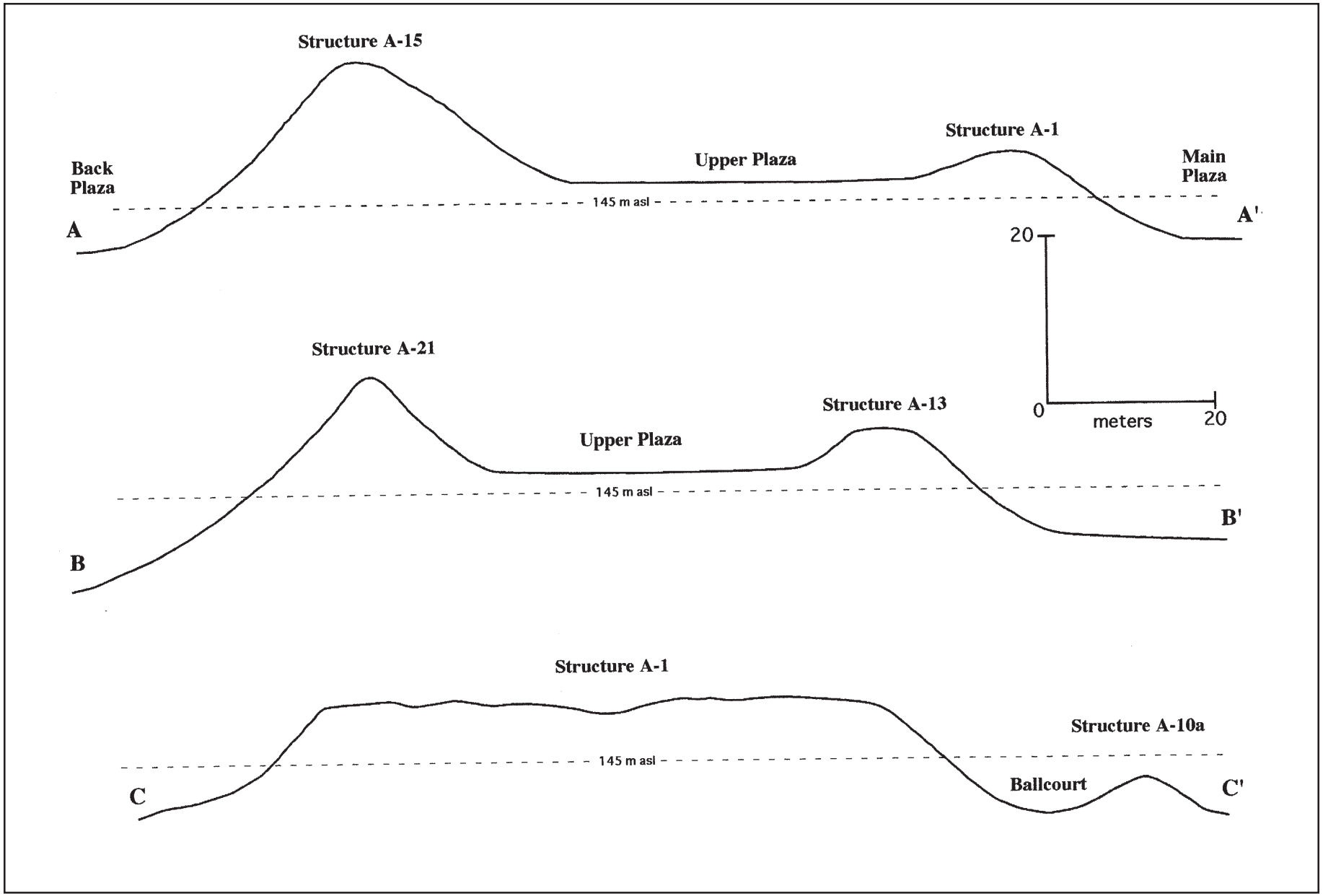

Figure 3-2. *Cross sections of Upper Plaza derived from topographic map.*

Excavations at Structure A-1

Brett A. Houk

Introduction

Limited excavations were conducted on the staircase of Structure A-1 facing into the Main Plaza at the site. These excavations were designated Operation 1, and three suboperations were defined and excavated in 1997 (Figures 4-1 and 4-2). The primary goal of the investigations at Operation 1 was to determine the size, nature, and condition of the staircase to the largest structure in the Main Plaza. Structure A-1 is a large tandem-range structure, measuring approximately 70 m in length with a height of approximately 14 m. The east end of the building is attached to Structure A-10b, one half of the ballcourt (see Ford 1998). The two causeways connect to the Main Plaza east and west of the ends of Structure A-1 and would have channeled traffic into the plaza in front of the structure (Houk et al. 1996; Robichaux et al. 1997). The south

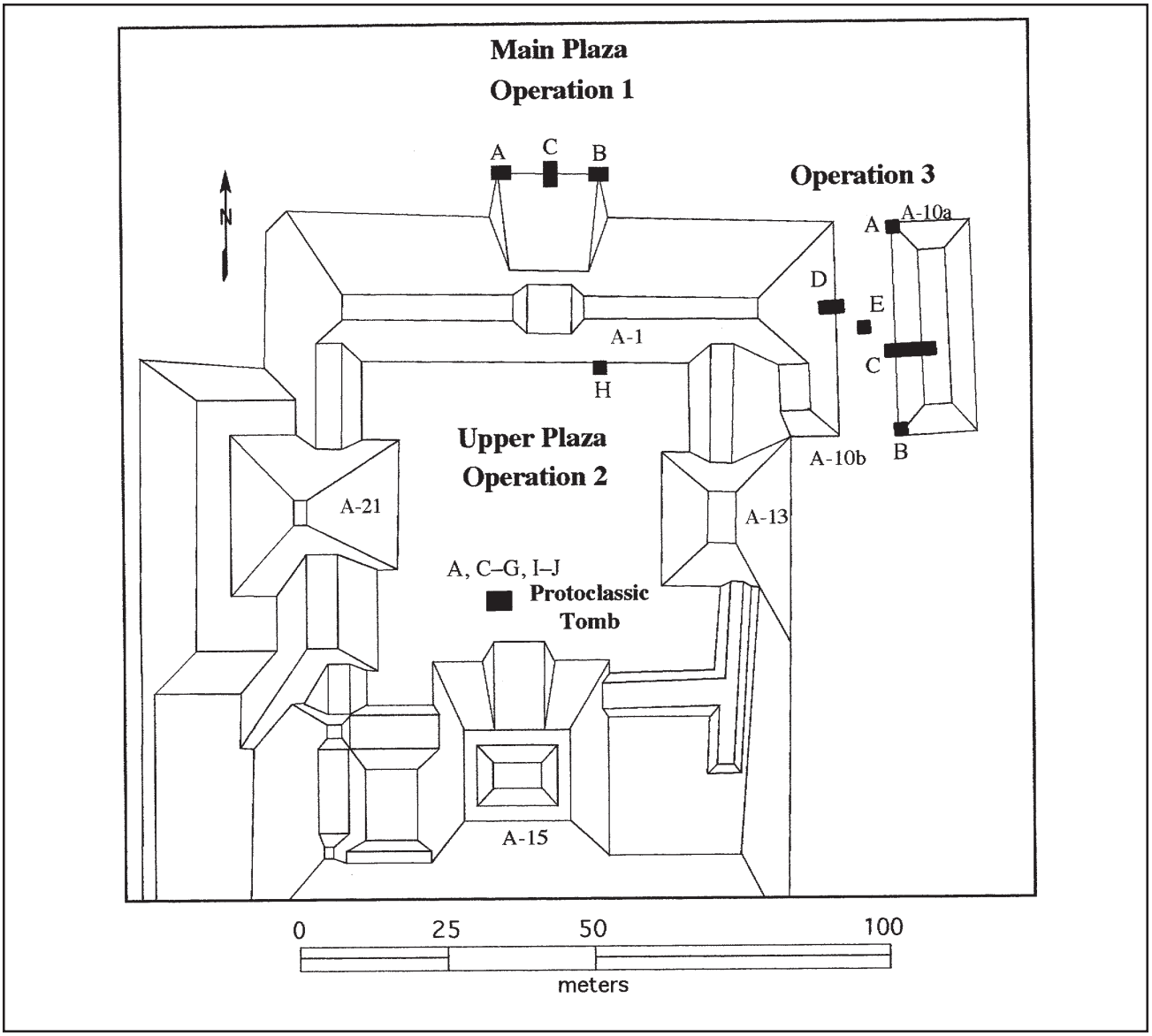

Figure 4-1. *Location of Operations 1–3 in the Main Plaza and Upper Plaza.*

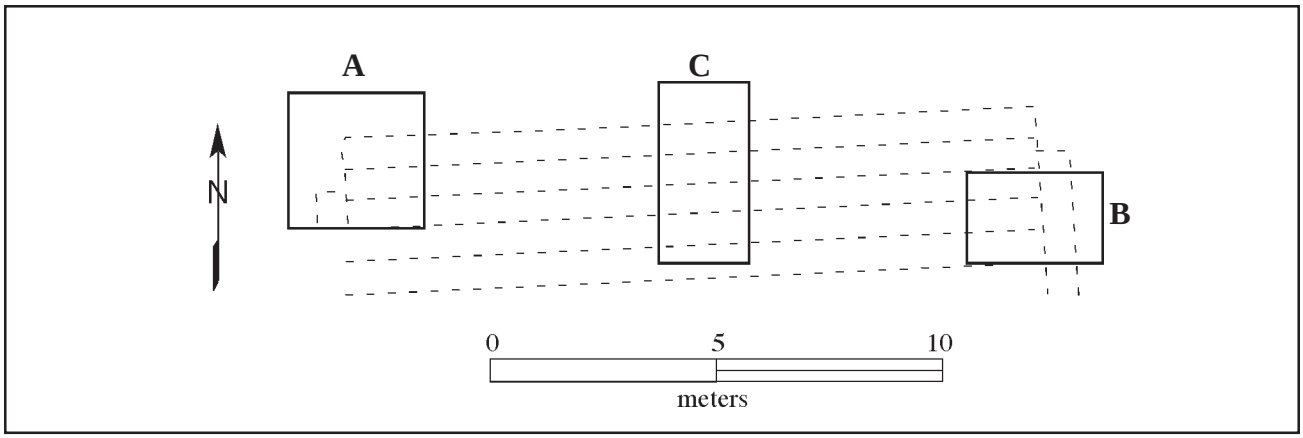

Figure 4-2. *Location of Operation 1's three suboperations. Dashed line indicates the location of the staircase to Structure A-1.*

side of the structure faces into the Upper Plaza, making the building an important transitional architectural element (see Robichaux 1998). In one sense, Structure A-1 unites the open space of the Main Plaza with the enclosed, restricted space of the Upper Plaza. In another, it acts to separate the two by forming a physical barrier between them.

Suboperation A

Suboperation A, a 2-x-3-m unit placed on the projected northwest corner of the staircase, exposed the very poorly preserved terminal architecture of the building. This unit was the first to document the generally poor quality of limestone used in the final construction of some, if not most, of the larger buildings at Chan Chich. The exposed staircase in this unit had low, narrow steps composed of soft, heavily eroded limestone blocks (Figures 4-3 and 4-4). Plaster was only preserved in small patches on the surface and showed evidence of having been burned. A stair-side outset was partially exposed in the southwest corner of the unit. The unit was backfilled after the architecture was documented.

Suboperation B

Suboperation B was a 2-x-3-m unit placed on the projected northeast corner of the staircase. Here, the terminal architecture was completely deteriorated, but the northeast corner of the penultimate construction of the staircase was located (Figure 4-5). Although it was not recognized immediately, it is now apparent that the earlier staircase had been chopped during the construction of the terminal steps. A small section of the first step was exposed in the west third of the unit. Plaster was preserved in sections. The second step had been removed during the renovation of the structure. The first step was approximately 32 cm deep. The base of the step was not excavated so its height is not known (see Suboperation C). Ceramics from the collapse debris and fill of the last construction phase date to the Tepeu 2 phase of the Late Classic period. Excavations in this unit were terminated at this point, and the unit was backfilled.

Suboperation C

Suboperation C was a 2-x-4-m unit, oriented north-south, placed on the centerline of the terminal staircase. In this unit as in Subop B, the terminal architecture was very poorly preserved. Small patches of plaster were the only evidence of the location of the terminal steps. The underlying, penultimate phase, however, was preserved well (Figures 4-6). The unit exposed the first step of the penultimate building. The step was approximately 40 cm high. The stair riser had a batter of approximately 10 cm, and the step tread was 32 cm deep. The second step had been chopped by the construction of the terminal staircase. A slight roll in the plaster marked the chop line (see Loten and Pendergast 1984 for definitions of terms).

The plaza floor associated with the penultimate staircase was well-preserved where it had been covered by the terminal construction and collapse debris. The north 1-m section of the floor was not well preserved, having apparently served as the plaza floor for both con-

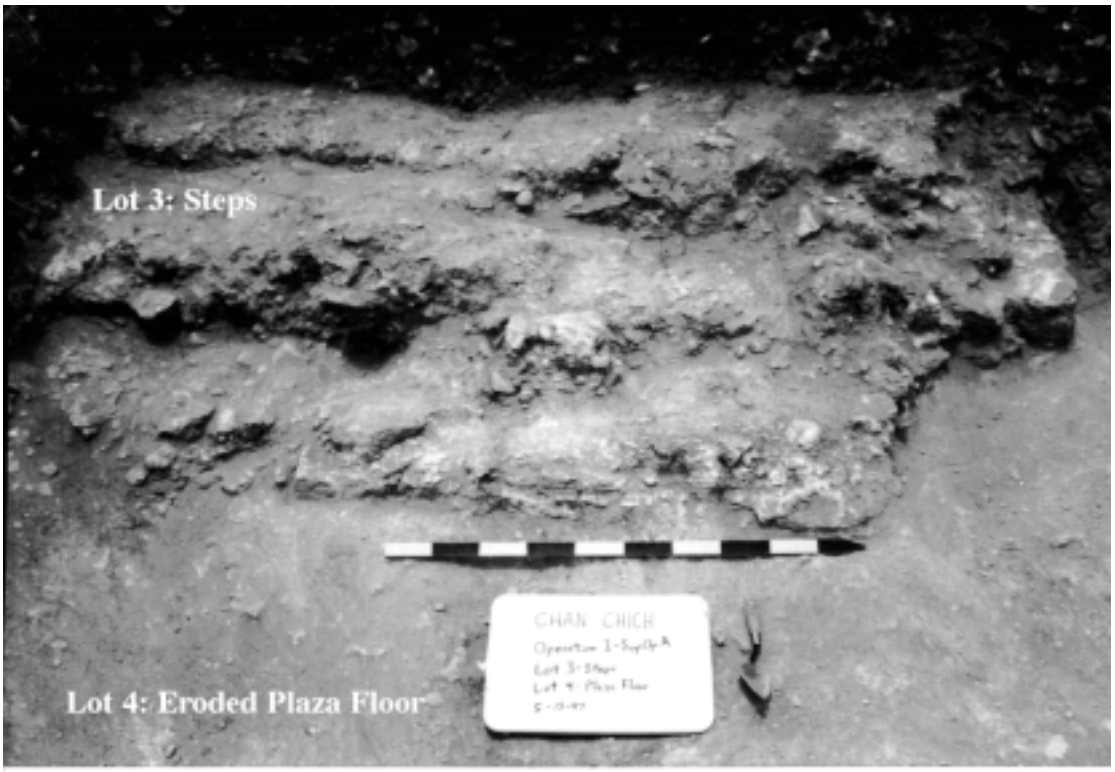

Figure 4-3. *Photograph of poorly preserved steps of the northwest corner of the staircase to Structure A-1 (facing south).*

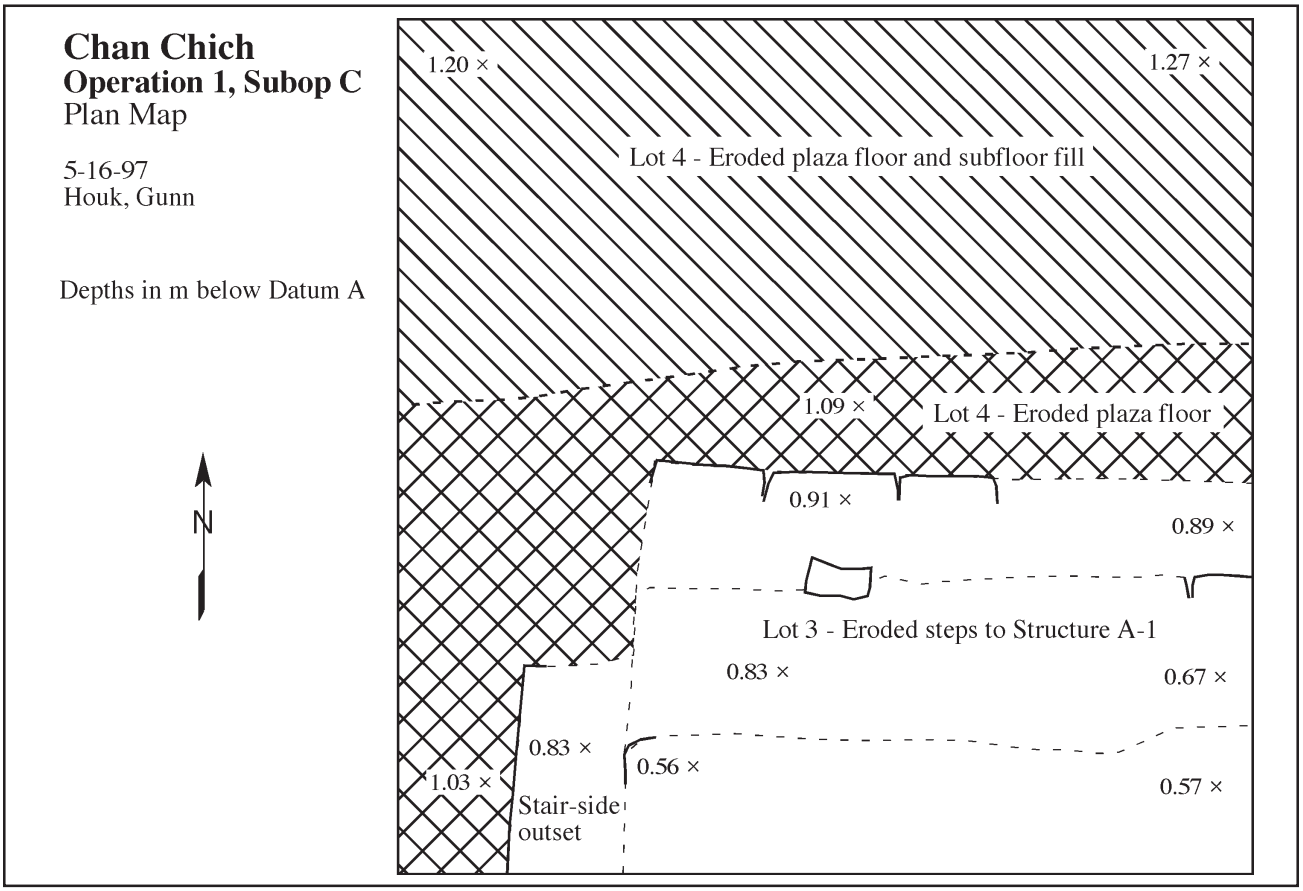

Figure 4-4. *Plan map of Op 1, Subop C.*

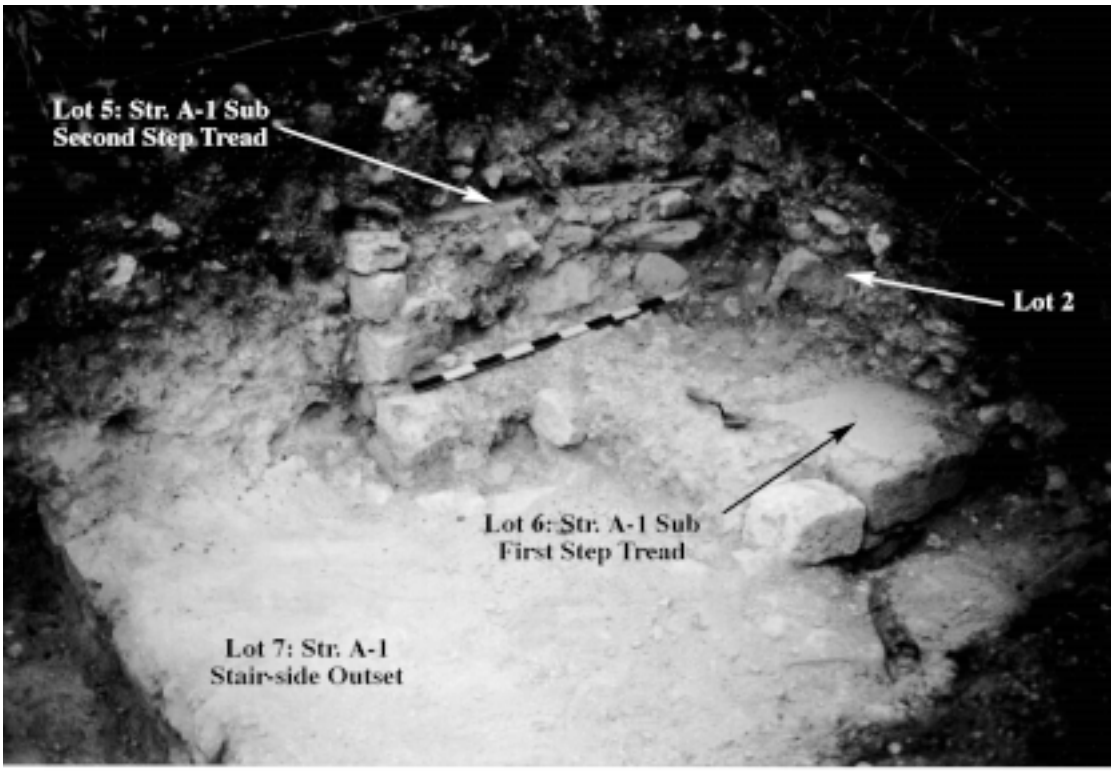

Figure 4-5. *Photograph of Operation 1, Suboperation B.*

struction episodes. This section was excavated to bedrock at 120 cm below present-day ground surface (bs).

This section of Subop C served as our chronological test pit for Plaza A-1. Three flooring episodes were documented at the following depths: 29 cm bs (Lot **C-4**), 69 cm bs (Lot **C-8),** and 1.09 cm bs (Lot **C-11**). Based on the ceramics (Valdez 1998), the oldest floor dates to the Late Preclassic (Chicanel), the middle floor to the beginning of the Late Classic (Tepeu 1–2), and the last floor to the latter part of the Late Classic (Tepeu 2–3).

Discussion

Three important types of information were generated by the excavations at Operation 1. First, the continuation of Subop C's north 1-m section to bedrock provides chronological data about the history of construction in this area of the site. Second, the width of the terminal and penultimate staircases to Structure A-1 were both determined to be approximately 15 m. Third, the contrasting nature of the quality of construction and preservation of the two architectural phases was documented. The penultimate phase (Structure A-1 Sub) employed well-cut limestone blocks which were plastered. This construction may date to Tepeu 1–2 or Tepeu 2–3. The terminal phase (Structure A-1) dates to Tepeu 2–3 and was constructed of low-quality limestone blocks. The terminal phase of the staircase has been nearly completely destroyed by natural processes.

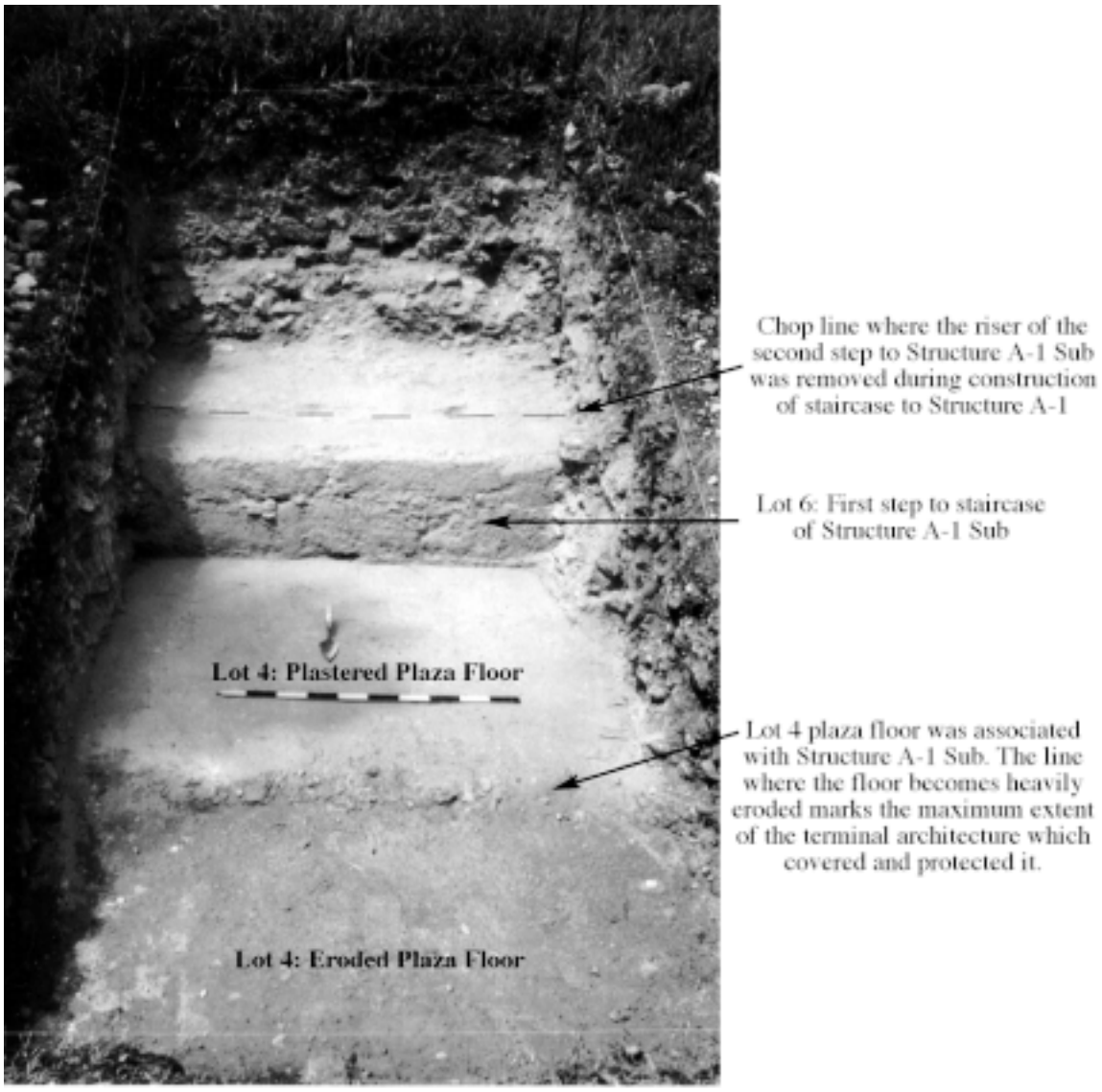

Figure 4-6. *Photograph of Operation 1, Suboperation C.*

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Excavations at the Upper Plaza

Hubert R. Robichaux

Introduction

The Upper Plaza at Chan Chich was one of the principal foci of archaeological investigation during the 1997 field season of the Chan Chich Archaeological Project (CCAP). The Upper Plaza is one of two large plazas located in the center of the ancient community. The other, the Main Plaza, is located just north of the Upper Plaza (Figure 5-1, see also Figure 1-4). The Main Plaza is larger and more open in its structural configuration. It is hypothesized to have served a more public function in the operation of the community. The Upper Plaza, on the other hand, is tightly enclosed, has restricted access, and is situated approximately 10 m higher than the Main Plaza. I posit that it was the locus of activities conducted by the elite of the community—in particular, the political and religious leadership. Since no excavations had previously been accom-

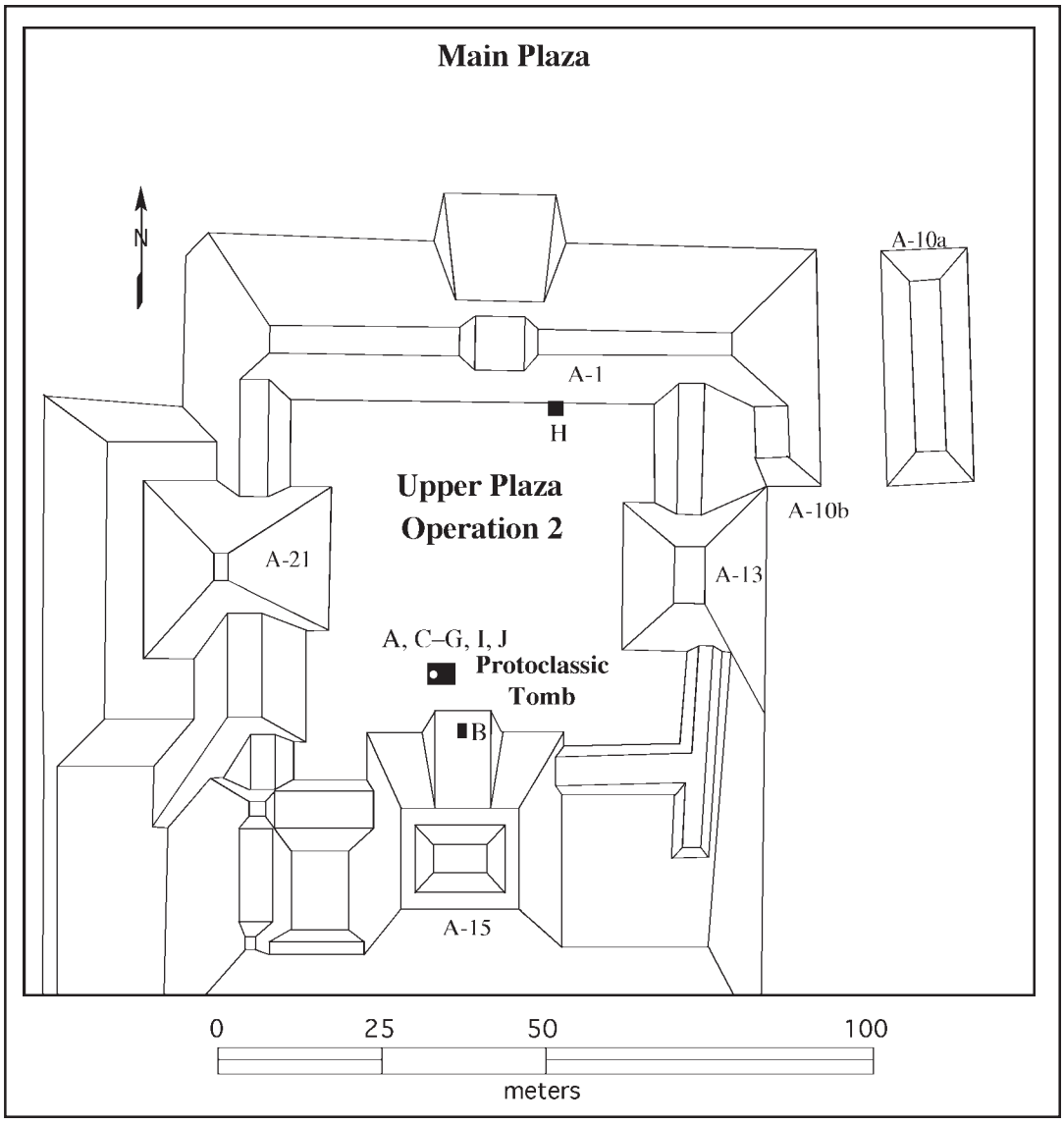

Figure 5-1. *Location of Subops at Operation 2*. Note the hole feature appears as a white circle in the Subop A area.

plished on the Upper Plaza, objectives for the field season included obtaining a general record of construction phases, and establishing the chronological framework for ancient occupations there. This chapter presents the results of the 1997 excavations.

Excavation efforts on the Upper Plaza were designated Operation 2 in the list of the project's excavation efforts at various Chan Chich locales during 1997. Ten suboperations (subops) in the form of test pits were excavated at three separate locations on the Upper Plaza during the course of the season. Their positions are depicted in Figure 5-1. Subop A was placed over the plaza floor near the front base of Structure A-15, an imposing pyramid-shaped mound situated on the Upper Plaza's south side, with the intent of meeting the data requirement for determining plaza construction sequences and chronology. Discoveries in conjunction with the excavation of Subop A led to the excavation of contiguous Subops C, D, E, F, G, I, and J. These excavations eventually resulted in the unexpected discovery of a Protoclassic period elite tomb (Tomb 2), located 1.7 m below the plaza surface. Subop B was placed over the lower, center-axis slope of pyramid-shaped Structure A-15. Subop H, located near the south center edge of Structure A-1 on the northern side of the Upper Plaza, was excavated with the purpose of augmenting the data on plaza construction phases obtained from Subop A and exploring the interface between Structure A-1 and the plaza surface.

With regard to methodology, the excavations normally proceeded by removal of natural/cultural layers and conformed to the methods outlined by Houk (1998a). Pickaxes and shovels were the principal tools for most of the excavations. Trowels, brushes, dental picks, and other more delicate instruments were used when appropriate. All of the excavated soil was screened. Generally, a $^1/_4$-inch screen was used, however, $^1/_{16}$-inch screen mesh was used for screening material which was removed from the floor of the tomb.

Dating of occupations and construction episodes was primarily based upon ceramic analysis. A stratum was assigned to the period/phase of the most recent ceramics found within it. The ceramic analysis was accomplished by Dr. Fred Valdez, Jr. (1998) of The University of Texas at Austin.

The excavation units and their findings will be considered in some detail below. Subop H which revealed the earliest occupation found on the Upper Plaza will be considered first.

Suboperation H

Structure A-1 is a large, east-west oriented, range structure which is an architectural member of both the Main and Upper Plazas (Figures 5-1 and 5-2). Based upon the mound's configuration, I hypothesize that it consisted of two back-to-back, east-west rows of rooms, one row facing northward out onto the Main Plaza, the other southward onto the Upper Plaza. A depression at the top center of Structure A-1 suggests that a stairway which has been detected on the lower northern face of the structure (Houk 1998b) continued to the top of the structure then descended down the structure's southern face, onto the Upper Plaza. This may have served as the principal access route to the lofty Upper Plaza. The stairway may have interrupted the rows of rooms in Structure A-1, so that there would have been sets of rooms to the east and west of it.

Suboperation H was placed on the Structure A-1 mound's southern slope, just above its base, approximately two meters east of the structure's north-south axis. Based upon the mound's profile, it was judged

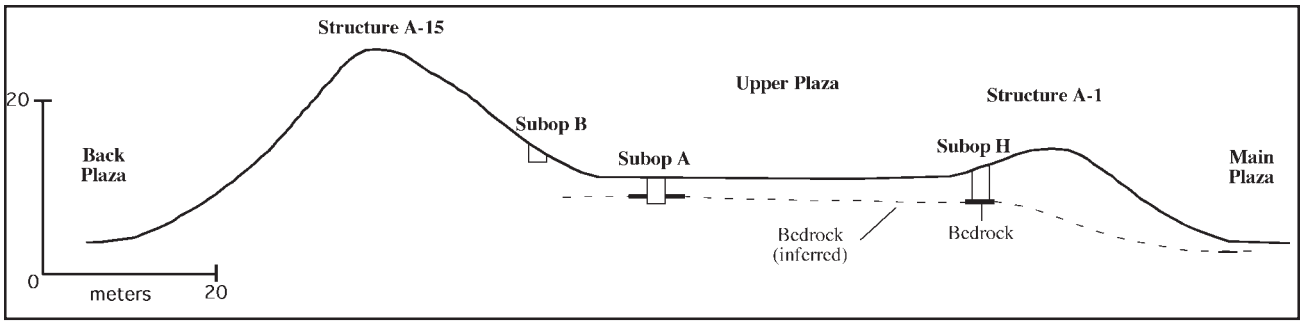

Figure 5-2. *Schematic west cross section of the Upper Plaza*

that this test pit would be in the area of the interface between the Upper Plaza surface and the southern base of Structure A-1, near where the stairway would descend to the plaza surface.

The test pit was 2 x 2 meters in size. Its sides were aligned with the magnetic cardinal directions. The northern surface of the unit was ca. 55 cm higher than its southern surface, reflecting the slope of the mound in this area. The pit was terminated at a depth of ca. 3.0 m below the northern surface (Figure 5-3), where

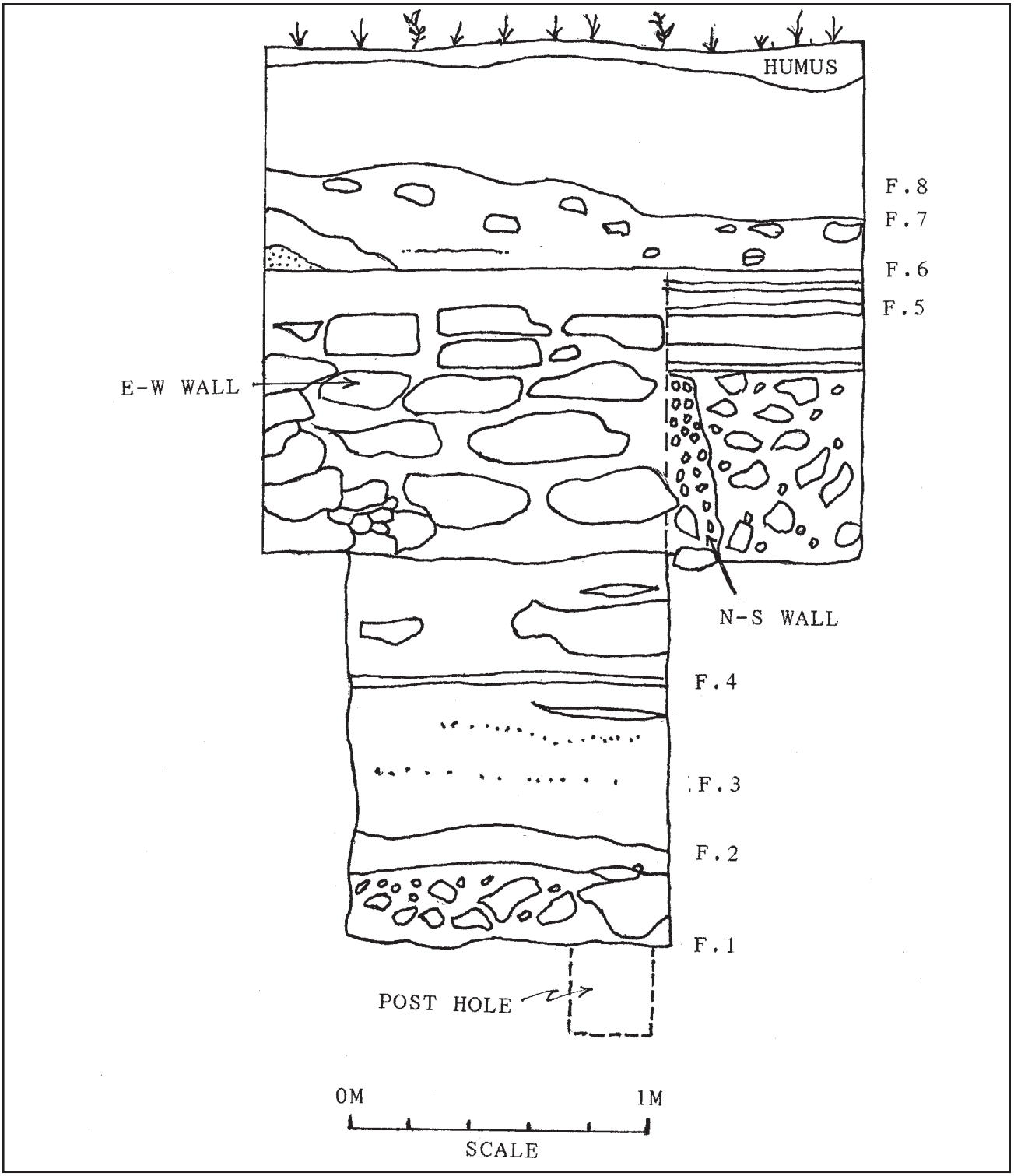

Figure 5-3. *Profile of the north wall of Subop H.* The positions of the eight floors (F) are indicated although they were not all visible in the profile (after field drawing by Mathews and Utecht).

bedrock was encountered (note that all depths referred to below for Subop H are measured from the northern surface of the unit). A probable posthole in bedrock continued down to a depth of ca. 3.35 m below the surface. The horizontal expanse of the test pit was reduced somewhat at depths below ca. 1.6 m due to constraints imposed by features encountered.

Eight sequential living surfaces (labeled *floors* below) were discovered during the excavations (Figure 5-3). A description of these occupational surfaces is provided below. The floors are numbered sequentially in chronological construction order, with Floor 1 being the earliest, and Floor 8 being the most recent.

Based upon stratigraphic and ceramic analysis, Floors 1, 2, and 3 are considered to have been constructed during the Middle Preclassic period (ca. 900–400 BC). Floor 1 consisted of plaster over a roughly flattened bedrock surface located 3.0 m below the surface. A circular 27 cm diameter hole in bedrock believed to represent a posthole was present at the bottom of the excavation unit (Figure 5-4). The hole had a depth of 31 cm. The upper edge of the hole was plastered. A few sherds were the only artifacts found in it (Lot **H-14**). The posthole is believed to represent part of the remains of a perishable Middle Preclassic structure which, based upon the large size of the posthole, may have been of moderately large size.

Floor 2 was situated at a depth of ca. 2.5 m below the surface. This floor had been plastered, but was highly deteriorated. The construction fill below Floor 2 consisted of two distinct layers, the lowest (Lot **H-12**) was a large-stone fill resting directly on Floor 1. A charcoal sample was collected from this layer and subjected to radiocarbon dating analysis. The sample provided a conventional radiocarbon age of 2520±50 BP (Beta-111921; C13/C12 = -30). The two-sigma (95 percent probability) calibrated range of 800–415 BC (with an intercept of cal BC 770) was consistent with the earlier assignment of a Middle Preclassic date to this stratum based upon Valdez's ceramic analysis. Above the large stones was a dark, midden-like sediment stratum (Lot **H-11**) which supported Floor 2. This layer contained ceramics, lithics, bone, shell, snails, and two marine shell bead fragments (Figure 5-5). A plant fragment found in this lot appears to be of preserved, immature Sabal palm fruit (John Jones, personal communication 1998).

Floor 3 was at a depth of ca. 2.25 m below the surface. It had a plastered surface. Its construction fill consisted of a dark, midden-like layer (Lot **H-10**) similar to that below Floor 2. A greenstone artifact of teardrop shape was among the artifacts found in this level (Figure 5-5).

Floors 4, 5, and 6 each sealed mixtures of ceramics dating to both the Middle Preclassic and the Late Preclassic (ca. 400 BC–AD 150), and their construction was accordingly assigned to the Late Preclassic period. Floor 4 was at a depth of 2.1 m below the surface. This surface consisted of a yellowish plaster. Between Floor 4 and Floor 3 was the same dark, mid-

Figure 5-4. *Photograph of posthole in Subop H.* Note thick midden deposits in the north profile.

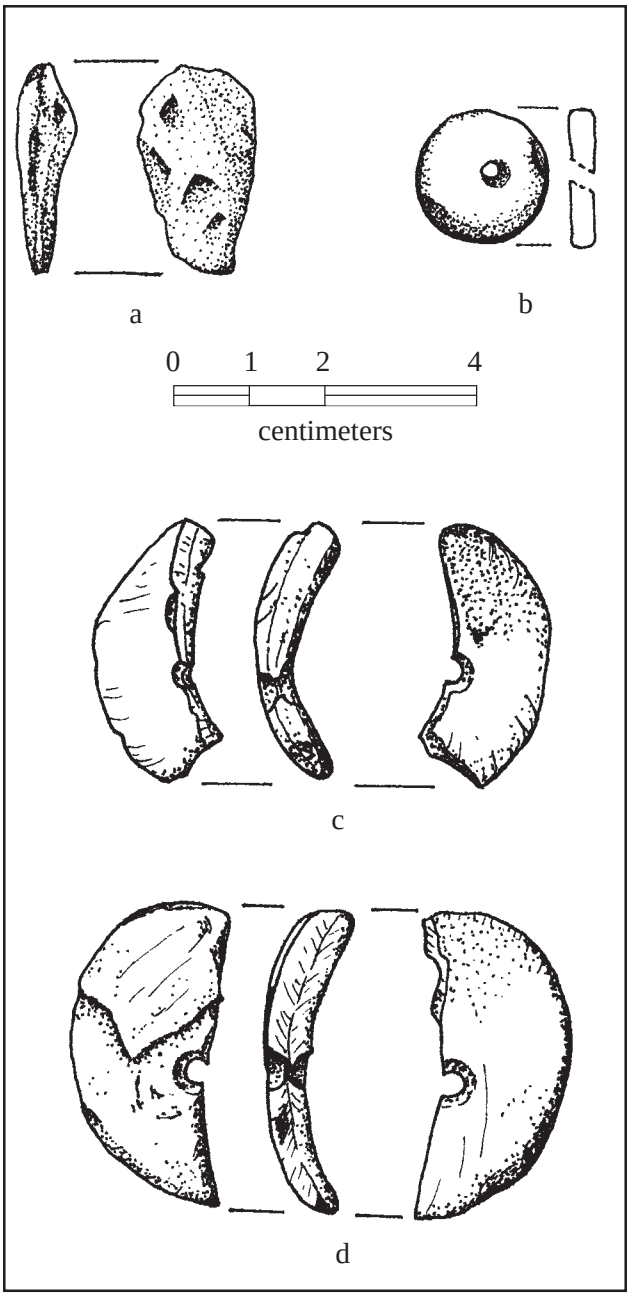

Figure 5-5. *Special finds from Subop H.* a: greenstone bead, Lot 10; b: shell bead, Lot 12; c, d: shell bead, Lot 11.

den-like sediment (Lot **H-8**) noted for the preceding two floors. Soil samples were taken from this level.

An east-west aligned stone wall running along the northern face of Subop H was apparently resting upon Floor 4 (Figure 5-3). This wall had at least six courses of long, roughly rectangular stones mortared in-place, and had a height of ca. 1.2 m. It is possible that this wall represented the southern exterior face of the basal platform upon which Structure A-1 rests. The wall's construction appears to be either concurrent with, or predating, the Late Preclassic terrace discussed below in conjunction with Floor 5.

Additionally, a north-south oriented wall was exposed near the eastern boundary of the unit (Figure 5-3). It consisted of four courses of stone mortared in place. The top of the wall was plastered (possibly the result of the plastering of Floor 5 which overrides both of the walls). Its horizontal extent was not fully revealed, however, it likely articulated perpendicularly with the wall in the north face of the unit. The N-S wall seems to have been erected during the Late Preclassic. Its base appeared to be resting on large stones above the level of Floor 4, rather than on the floor itself. A large-rock construction fill was documented beyond this wall to the east (Lot **H-7**).

Floor 5 was a plastered surface which seals off the top of the two walls mentioned above. It was at a depth of ca. 1.04 m below the surface. The construction fill between Floors 4 and 5 consisted generally of large stones (Lot **H-6**), including some burned limestone. Ceramics from both the Middle Preclassic and Late Preclassic were found in the fill. A moderate number of fractured snail shells (type as yet unidentified) were also found. Floor 5 appears to represent the initial construction of a platform terrace that extends southward from the base of the Structure A-1 platform (Figures 5-3 and 5-6). The terrace extends southward from the wall noted in the north face of the unit. The wall noted in the eastern sector of the unit may represent the eastern, lateral edge of this terrace. The large-stone fill beyond the wall, to the east, appears to represent a later addition to Structure A-1 terracing. At a distance of ca. 1.7 m from the northern edge of the unit, the terrace (or step) curved downward to meet another horizontal surface (Figure 5-6). Similar curved steps and terracing are present on Late Preclassic period Structure G-103 at nearby Rio Azul, Guatemala (Valdez 1993). This last level to which the terrace descends may represent a late surface of the Upper Plaza itself. Later Floors 6, 7, and 8 represent either refurbishment or modification to the initial terrace construction.

Floor 6 was a heavily plastered, hard, very flat surface which was in an excellent state of preservation (Lot **H-5**). Its top is at a depth of ca. 85 cm below the surface. It appears to amount to a heavy-duty resurfacing of Floor 5. Floor 7 is a plastered surface dating to the Late Preclassic (as only ceramics from that period were

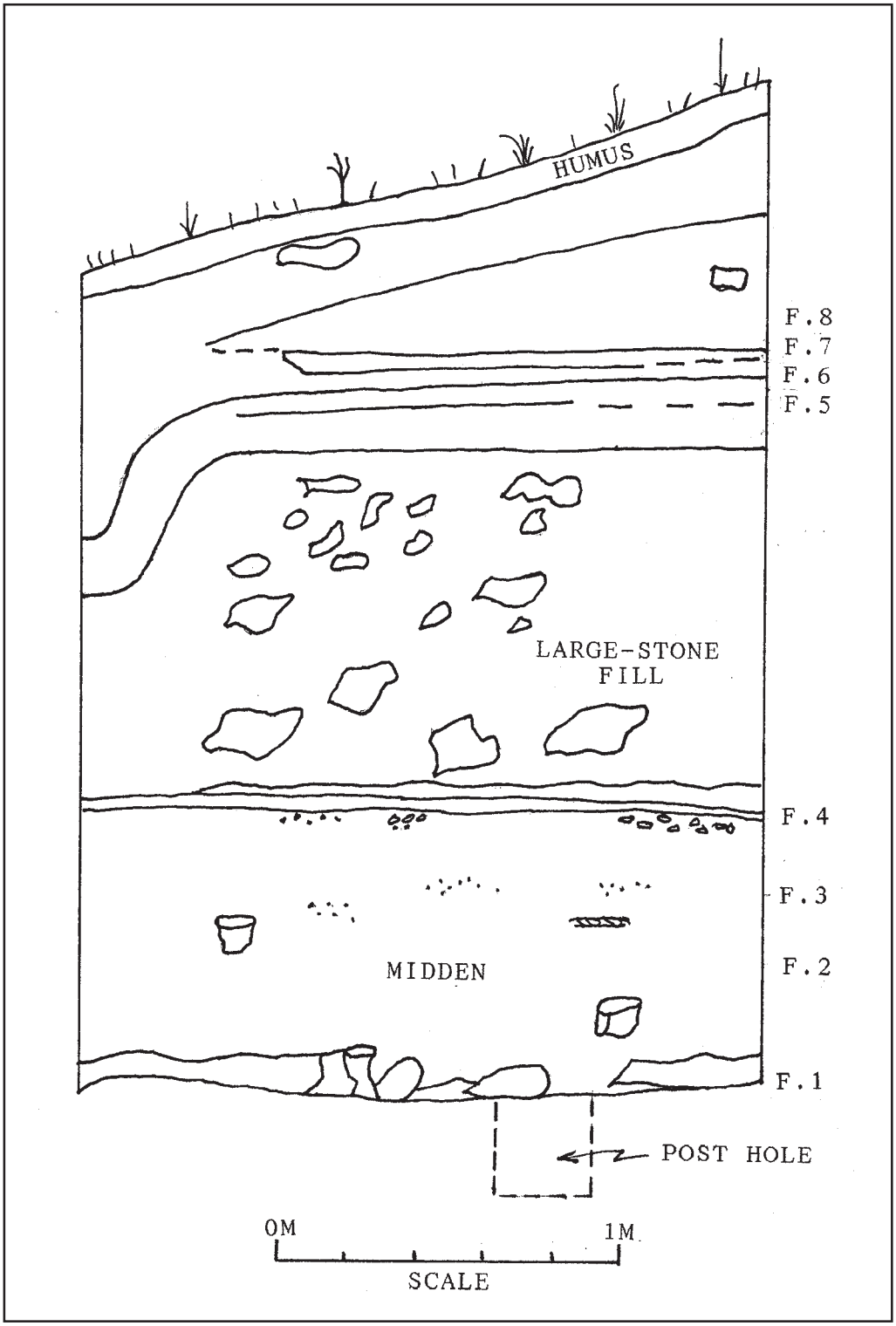

Figure 5-6. *Profile of west wall of Subop H.* The positions of the floors are indicated although they were not all visible in the profile (after a field drawing by Mathews and Utecht).

found in its fill). It is located ca. 15 cm above the level of Floor 6. Whether it (Lot **H-4**) was a low step, or simply another resurfacing of the earlier surface is not clear (Figure 5-7).

Figure 5-7. *Photograph of Floors 6–8 in Subop H.*

The final discernible occupational surface in Subop H, Floor 8, contained ceramic material from the Late Classic, Early Classic, and the Late Preclassic, and is judged to date to the Late Classic period (ca. AD 600–850). It appears to have been a plastered surface ca. 10 cm above the level of Floor 7 (ca. 68 cm below the surface), however, the plaster had eroded and only a pebble-sized concretion fill (Lot **H-3**) remained intact.

Above Floor 8 was a sloping stratum of collapse debris comprised of rubble in a light brown soil (Lot **H-2**) which contained Late Classic, Early Classic, and Late Preclassic ceramics. The final stratum was a sloping humic layer (Lot **H-1**) of ca. 30 cm thickness containing both Late Classic and Late Preclassic sherds.

In summary, Subop H revealed three episodes of construction dating to the Middle Preclassic, four to the Late Preclassic, and one to the Late Classic. The earliest of these seems to be that of a Middle Preclassic perishable structure of moderate size which rested on a plastered bedrock surface. This early structure was situated directly below the center and heart of the later Chan Chich community at its most mature stage. Based upon the evidence of the large posthole, this structure may represent some form of public structure, rather than a residence, thereby suggesting the preeminence of this spot at Chan Chich for well over a millennium.

The two subsequent Middle Preclassic occupations principally had midden-like sediments, rather than stone, as construction fills. Aside from the floors themselves, there is no indication of the size or nature of these constructions, or whether they represent interior or exterior occupational areas. During the Late Preclassic we find evidence which suggests that Structure A-1 already existed in some form. The heavily plastered Late Preclassic terrace feature with its gracefully curving surface interface suggests a well-built structure was already in existence at that time and is indicative of cultural institution elaboration, and rising social complexity.

Strikingly absent is evidence of any Early Classic (AD 250–600) construction episode. Also rather remarkable is the fact that only one Late Classic construction phase was noted in the excavation. These issues will be readdressed below.

Suboperations A, C–G, I, and J

Structure A-15 is the tallest mound at Chan Chich, having a height of ca. 15.5 meters. The mound is situated along the southern edge of the Upper Plaza and has a pyramid-like form. A number of looters' trenches and tunnels have penetrated the mound from its eastern and western flanks. Examination of the structural remains visible within the looters' illegal and destructive diggings reveals the presence of several sequential construction episodes. Guderjan (1991:37, 39),

after examination of the mound in 1988 and 1990, concluded the structure had experienced at least four construction episodes, and may have been one of the oldest and most important at the site.

Suboperation A was situated on the Upper Plaza surface about four meters south of the base of the southern slope of the Structure A-15 mound, and approximately two meters west of the structure's north-south axis (Figures 5-1 and 5-2). This position also placed the unit ca. one meter east of an 80 cm diameter circular hole which was present on the surface of the Upper Plaza. The hole had an apparent depth of 1.1 m and was lined with large stones of various shapes. Besides revealing construction phases and chronological data concerning the plaza itself, we hoped that Suboperation A would also provide some indication as to what the hole feature represented.

Subop A was 2 x 2 m in size, and had sides oriented with the magnetic cardinal directions. As the excavation progressed, features were encountered which dictated that the excavation be enlarged (Figure 5-8). Subsequently, contiguous Subops C–G, I, and J were opened. The final excavation plan was irregular in shape, and had maximum horizontal dimensions of 4.2 m east-west by 3.0 m north-south.

The excavation in Subop G was the deepest, reaching a depth of ca. 2.8 meters below the present plaza surface (note that the ground surface of the plaza was ca. 15 cm higher at the west end of the excavation than at the east end; depths cited below are from the west end surface).

Six floors were discovered. Additionally, one small, low stone-walled structure whose complete form and function are uncertain, and a Protoclassic period elite tomb located below the plaza surface were revealed by the excavation. The sequence of construction at this location is described below. The floors are numbered sequentially, from oldest (Floor 1), to most recent (Floor 6), in the discussion below.

Figure 5-9 presents a plan view of the excavation area showing the location of the Protoclassic elite tomb and the outer wall of the structure which was adjacent to the tomb. Figure 5-10 is a schematic view to the north, depicting the vertical arrangement of features including the six floors, the tomb, and the eastern and western walls of the small structure. Based upon stratigraphic analysis, and analysis of the sample of ceramics collected, all six of the floors appear to have been constructed during the Late Preclassic or Protoclassic periods (400 BC–AD 250). The five earliest floors were plastered. The most recent, Floor 6, was largely destroyed and its original surface is unknown.

The earliest construction was that of Floor 1, a surface which was situated ca. 1.2 meters below the ground surface, and 38 cm above what was apparently bedrock. Floor 2 was later constructed ca. 1.15 m below

Figure 5-8. *Photograph of expanded excavations west of Subop A showing the hole in the plaza surface and the low walled structure.*

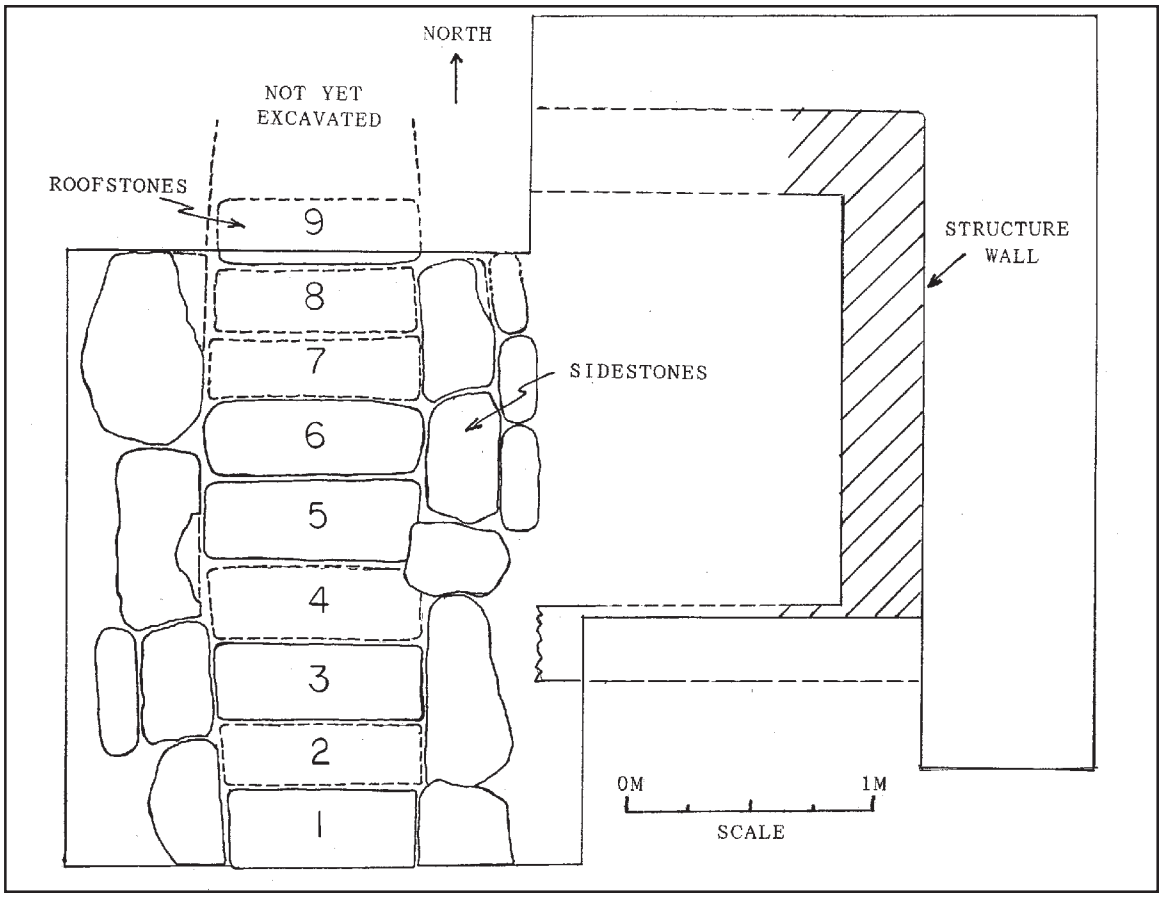

Figure 5-9. *Planview of the Subop A excavation area showing Tomb 2 on the west side with the wall of the adjacent small structure to the east and above the tomb.*

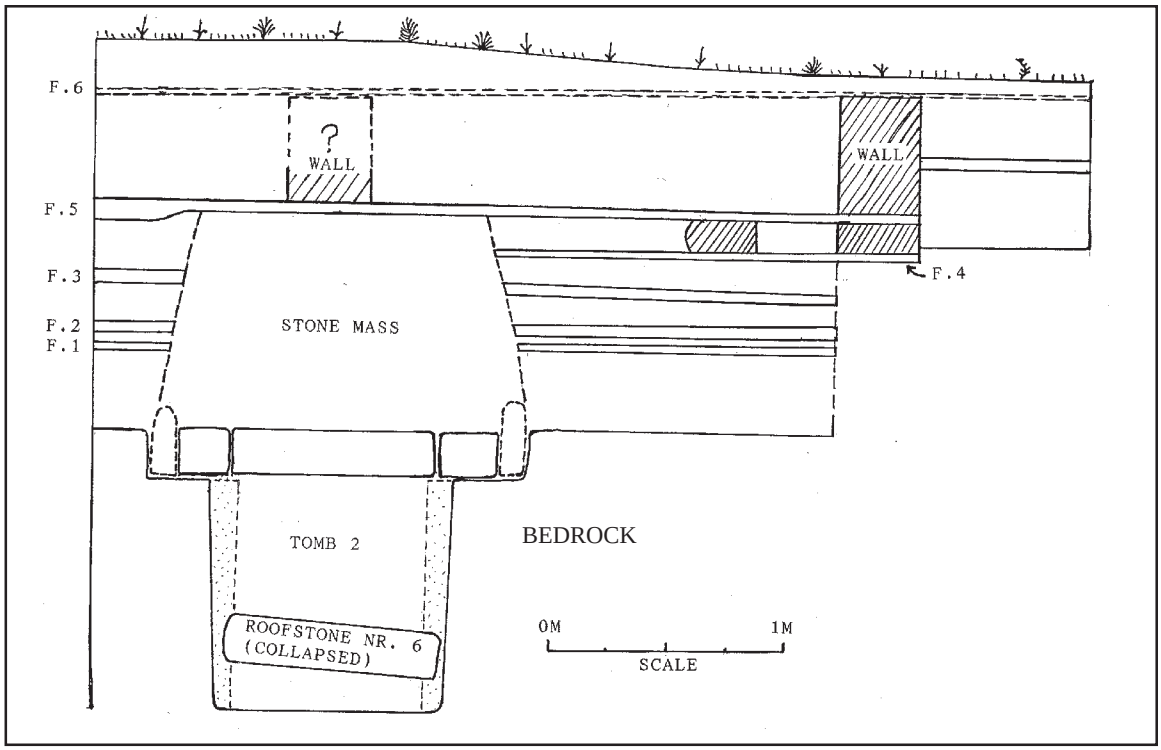

Figure 5-10. *Schematic view of the Subop A excavation area's north cross-section showing Tomb 2, floors (F), and the east wall and postulated west wall of the adjacent small structure.*

the surface. Floor 3 was positioned at a depth of ca. 95 cm below the surface.

Floor 4 appeared to be present only in the eastern half of the excavation unit. Two alignments of stone were resting upon Floor 4 to the east of Tomb 2. Of these two, the easternmost alignment coincided with the alignment of the east wall of a small structure above which rests upon Floor 5.

Tne next construction event was the creation of which occurred during the Protoclassic (AD 150–250). At that time, a rectangular shaped hole, perhaps 3.5 meters in length, with orientation near magnetic north-south (10° east of magnetic north), was excavated sequentially through Floors 4, 3, 2, and 1, until the surface of limestone bedrock was reached. The hole had a width of ca. 1.28 meters as it penetrated through Floor 4. The width of the hole was expanded gradually as it descended toward bedrock, where it reached a width of 1.6 meters. Upon reaching bedrock, the excavation narrowed to ca. 1 meter in width and continued down for 1.15 meters into bedrock to create the actual tomb chamber. It appeared that the floor and walls of the tomb were simply unplastered bedrock. The tomb has been dated to the Protoclassic period based upon the vessels present on the tomb floor (Valdez 1998).

The full length of the tomb was not exposed during the 1997 excavations. The tomb chamber appears to extend perhaps one meter farther to the north. It is anticipated that this area will be excavated during the 1998 field season.

The section of the tomb which was exposed during the 1997 field season had been covered by an estimated nine large, rectangular limestone slabs oriented east-west (hereafter referred to as *roofstones*), and laid out side-by-side, across the top of the tomb (Figure 5-9). The plan view shape of the tomb was slightly ellipsoidal, with the roofstones covering the center of the tomb being slightly longer than those at either end. There was some indication that the top of the roofstones had been plastered, tightly sealing the tomb. After the tomb had been sealed, the open area above it was filled with large stones up to a level 90 cm above the roofstones (Figure 5-10).

Then the tomb, and the large-stone matrix placed above it, were completely sealed off by the construction of Floor 5 which also dates to the Protoclassic. This presumably occurred shortly after the burial was completed. Subsequently, still in the Protoclassic, a small, low structure having stone walls was constructed upon Floor 5. A 2.04 meter long, north-south aligned segment of the structure's eastern wall was revealed early in the excavation (see Figure 5-9). At its north end, the wall turned westward, and had a nicely sculpted rounded exterior corner there. The westward extension of the wall was highly disturbed ca. 28 cm beyond the corner and its original extent can only be conjectured. The north-south wall section also appears to have turned westward at the south end of the unit, but the wall in that area was not fully exposed due to time constraints. The structure's west wall may have overlain the center of Tomb 2. These walls corralled a large-stone-and-soil fill mixture within the structure's interior. The excavation suggested that the structure represents a small platform of unknown function which was constructed subsequent to the placement of Tomb 2.

Later, apparently still within the Protoclassic Period, the final surface, Floor 6, was constructed. This floor, which was only 20 cm or so below the modern ground surface, was totally destroyed, presumably by root action, and was detectable solely through the presence of a fill matrix of various sized stones in a gray soil beneath it. The small structure above and east of the tomb was completely buried under Floor 6. Ceramics collected from the humus above Floor 6 contained mostly Late Classic and Late Preclassic material, with only a trace of Early Classic sherds being present. Thus, surprisingly, all of the construction episodes uncovered in this set of excavation units through the Upper Plaza surface appear to date to Late Preclassic/Protoclassic times.

Tomb 2

Three of the tomb roofstones were found in-place in their original positions, revealing the tomb's original configuration. The majority of the roofstones had collapsed to various depths within the chamber (Figure 5-11). Roofstones 7 and 8 had collapsed and then broken into multiple smaller fragments. The roofstones in the center of the tomb (4, 5, and 6) had collapsed the farthest, and their fall had precipitated the creation of the hole on the surface of the plaza which had originally influenced the placement of Subop A. As the center roofstones collapsed downward into the tomb, stone

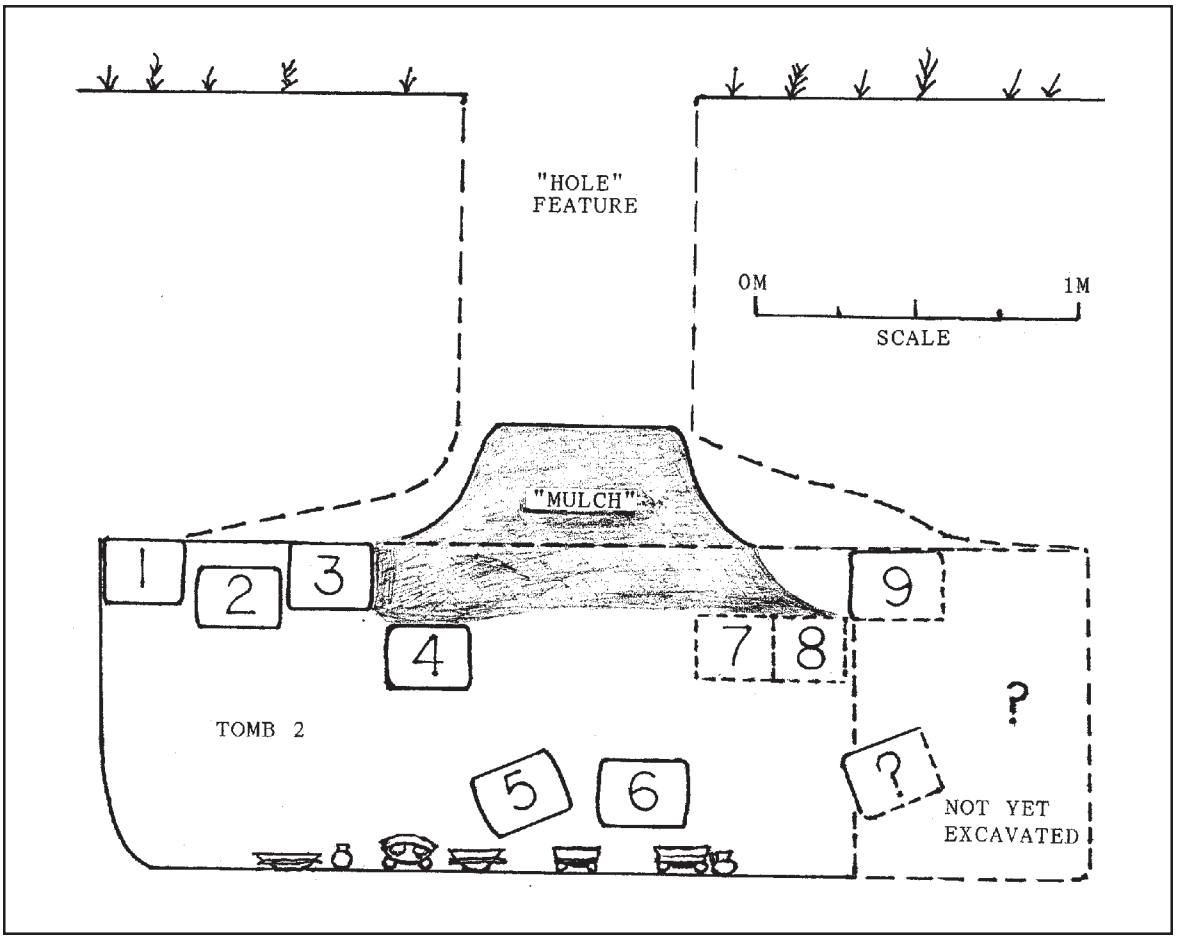

Figure 5-11. *Schematic view of west cross-section of Tomb 2 showing the relative positions of in-place roofstones, collapsed roofstones, vessels on the tomb floor, and the hole feature in the plaza floor.*

and soil above them also collapsed downward, filling the chamber with sediment and stone, and creating the surface hole above. It should be noted that Roofstone 6, the roofstone which fell the farthest, did not fall all the way to the tomb floor. It landed, instead, upon a distinctive whitish, marly sediment at a level of about 15 cm above the tomb floor. Perhaps the simplest explanation for this situation is that the sediment leaked into the tomb floor from above, or from the deteriorating bedrock side walls of the tomb, before Roofstone 6 collapsed. An alternative hypothesis would be that the whitish sediment was culturally introduced at the time of the burial.

Tom Harding (personal communication 1997), co-manager of the Chan Chich Lodge, relates that when the plaza was being cleared ca. 1988, a large, fallen tree trunk lay over this spot. The trunk was cut into several sections for removal. When one of the sections was removed the hole was revealed in the plaza surface. This suggests the possibility that the tomb collapse was a recent event, provoked by the fall of that large tree on the ground surface above the tomb. Based upon its state of decay, Harding estimated that the tree had died perhaps 15 years earlier (ca. 1973). Thus, the collapse of Tomb 2 may have been a modern event, occurring as recently as 25 years ago. This event would have allowed water to enter the tomb area, and probably accelerated the decay of the organic remains in the tomb, and deterioration of the tomb's bedrock walls and floor. The debris in the hole overlying the tomb consisted mainly of organic material, very mulch-like in nature, which had fallen into the hole.

How the heavy roofstones were supported was not perfectly clear. Smaller *sidestones* which had the same thickness as the roofstones were positioned on either side of them, at the same vertical level (Figure 5-9). The sidestones all rested upon a small ledge which had been cut into bedrock at the level of the top of the

tomb. Some of the sidestones apparently did not have adequate width to fill the space which had been cut for them, so narrow rectangular stones, set on end, were inserted, wedge-like, to fill the open space to the outside of the sidestones, thereby preventing the stones from shifting laterally. Although some of the sidestones had suffered damage over time, it was clear that they all presented flat side faces which interfaced with the flat lateral surfaces of the roofstones. It was also evident that the roofstones were "cemented" to the sidestones, thereby providing some support to keep them in position. The stone mass above the tomb weighed down upon the sidestones keeping them in place, but they also put a tremendous weight burden upon the roofstones. That the roofstones could have supported such a heavy weight while only being supported at their ends by cementing to the side stones seems doubtful. It is more likely that the bedrock walls of the tomb actually extended out slightly farther towards the tomb interior and reached under the east and west ends of the roofstones thereby supporting them from below, a much stronger arrangement. The side walls appeared to have deteriorated and softened, possibly due to water penetrating the tomb after the center roofstones collapsed.

Maya tombs covered by horizontal stone slabs and having a configuration generally similar to Chan Chich Tomb 2 have been found at a number of sites. Their use begins at least in the Late Preclassic and continues intermittently through at least the Late Classic period. Among these are Tikal's Late Preclassic Burial 85 and Early Classic Burial 22 (Coe 1990), a recently discovered Copan Early Classic royal tomb (Agurcia et al. 1989:480–487), Piedras Negras's Late Classic Burial 1 (Coe 1959), and Uaxactun's Late Classic Burial A30 (Smith 1950). A similar tomb design has been noted at the Zapotec site of Monte Alban in Oaxaca (Weaver 1981:114). While Maya burials below plaza floors are not exceptionally rare, they tend to be simple burials placed directly within a soil or construction fill matrix (see also Meadows 1998). Elite tomb burials placed under plaza floors appear to be uncommon. One such example dating to the Early Classic was recently discovered under the Great Plaza at La Milpa, a large site approximately 30 km north of Chan Chich (Hammond et al. 1996:89–90). That tomb has been interpreted as being royal in status, and is located in front of Structure 1, the tallest structure at La Milpa. Based upon the limited data available, tomb burials placed under plaza surfaces versus placement within, or under, major structures may be associated more with the early developmental stage of polities.

Contents of Tomb 2

The tomb contained human remains, jade artifacts, ceramic vessels, a serpent-shaped object, a possible paper fragment, many small green and red fragments possibly of stucco or paint, and a small fragment of wood. These will be discussed individually below. Figure 5-12 is a photo of the tomb floor as it was finally exposed. Figure 5-13 presents a plan view of the Tomb 2 floor. Figures 5-14 through 5-17 are photographs of the tomb's contents *in situ*.

Figure 5-12. *Photograph of Tomb 2 after it was completely exposed.* Taken from above the tomb, facing north.

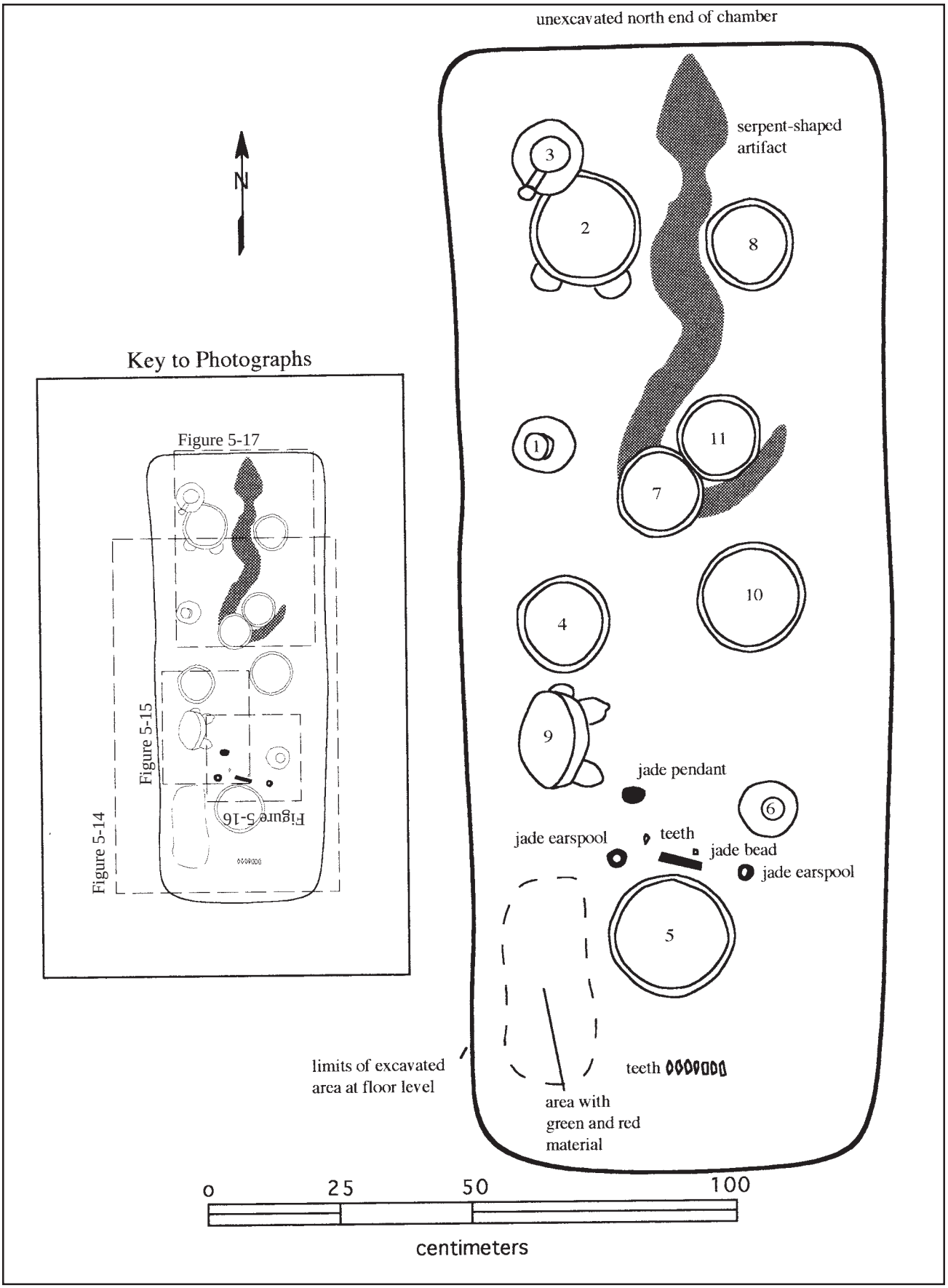

Figure 5-13. *Plan map of Tomb 2, Upper Plaza, Chan Chich.*

Figure 5-14. *Photograph of south end of Tomb 2, facing west, after vessels have been exposed.*

Figure 5-15. *Photograph of Vessel 9* in situ, *facing west.* Vessel 4 is visible on the right. One jade earspool and the jade bead are visible on the left. The jade pendant, face down, is to the right of the earspool. The dark object in the upper left corner is the photographer's foot.

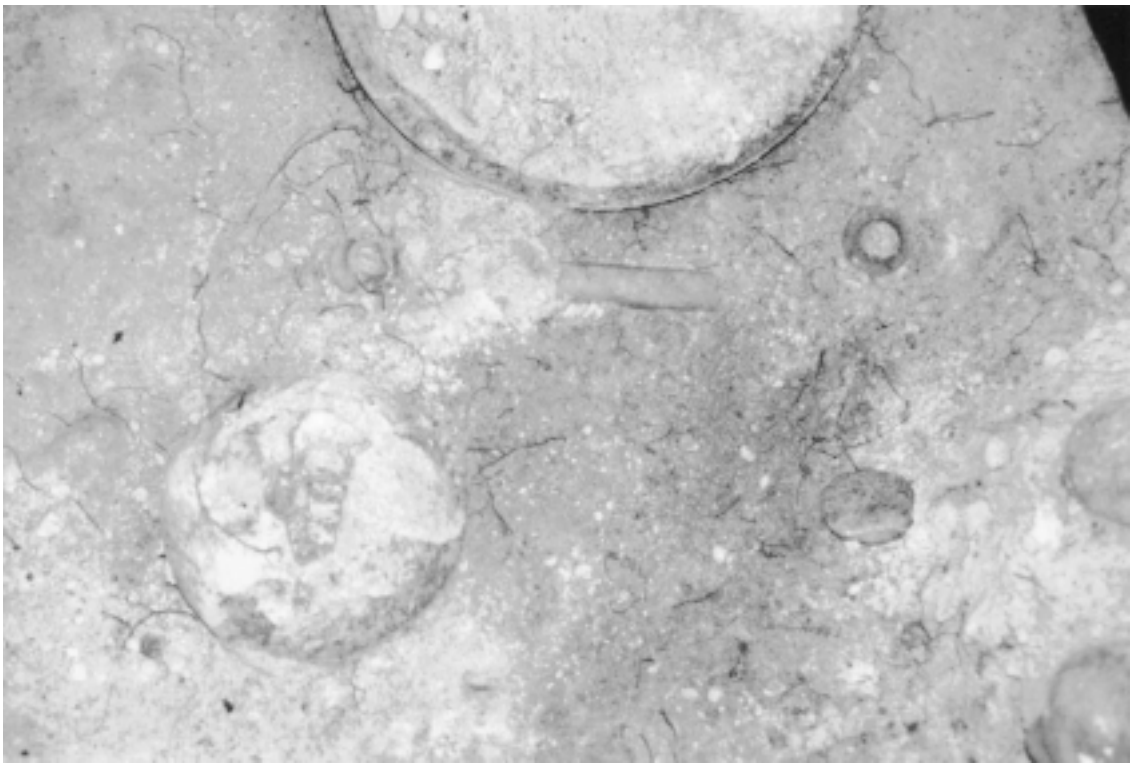

Figure 5-16. *Photograph of jade artifacts* in situ *in Tomb 2, facing south.* The jade pendant is face down on the right. The two earspools and bead are directly north of Vessel 5. Vessel 6 is to the left, and the feet of Vessel 9 are just visible on the far right.

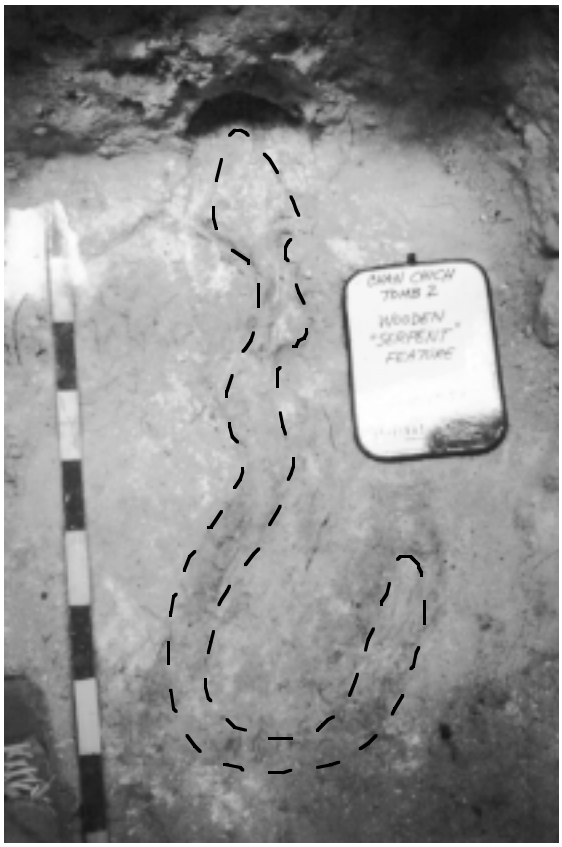

Figure 5-17. *Photograph of problematic, serpent-shaped artifact, facing north.* The ephemeral outline of the artifact has been highlighted with the dotted black line. Photograph taken after associated vessels had been removed.

Human Remains

Badly deteriorated human bone was recovered from 30 separate locations within the tomb. Sixteen human teeth were also found. The bone was widely scattered across the floor of the tomb. Four of the ceramic vessels on the tomb floor had bone within them, and some bone was also found resting on the rim of one vessel. Thirteen of the teeth were found near the tomb's south end. The human remains from Tomb 2 have been analyzed by Julie Saul (personal communication 1998). Her analysis indicates the tomb had a single occupant, a robust male in the age range of 30–45 years who was interred in an extended, supine position. The head of the deceased was oriented toward the south. Thirteen maxillary teeth were found near the south end of the tomb marking the position of the skull. Three mandibular teeth were found in the area of the jade, indicating that after the mandible separated from the skull it fell or was otherwise moved to the chest area of the individual. Three of the recovered teeth were decorated (Figure 5-18). The right maxillary canine had a material insert in it, possibly hematite, and had been filed (Romero [1970] G-15 classification). The right maxillary lateral incisor also had what may have been a hematite insert in it, but was not filed (Romero [1970] E-1 classification). The left maxillary canine had also been altered by filing, but it had no insert (Romero [1970] C-5 classification).

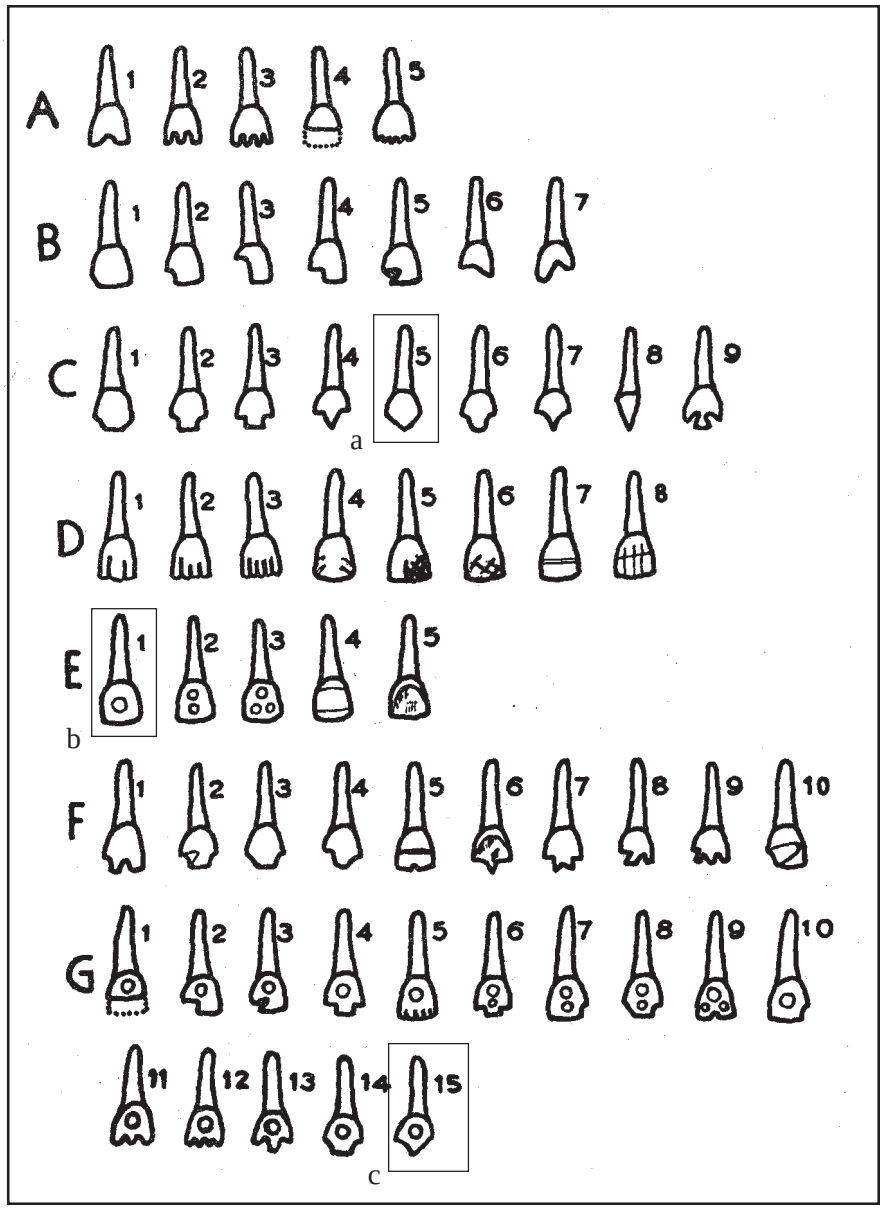

Figure 5-18. *The Romero (1970) classification system for culturally modified teeth in Mesoamerica.* The three modified teeth from Tomb 2 are similar to the examples marked by boxes. a: left maxillary canine; b: right maxillary lateral incisor; c: right maxillary canine.

The tomb floor was covered in many areas with a reddish material which may be cinnabar. The southern half of the tomb, where the upper part of the deceased's body was located, had the greatest concentration of the reddish material, especially the area around Vessel 5 and the jade artifacts. A thin layer of the reddish material also lined the bottoms of some of the ceramic vessels in the tomb. In the vessels where bone was found, the bones overlaid the reddish material. The body of the deceased seems clearly to have been positioned atop an elevated wooden litter at the time of the burial (see ceramics below).

Jade Artifacts

The greenstone objects recovered from the tomb are thought to be made from some form of jade and they

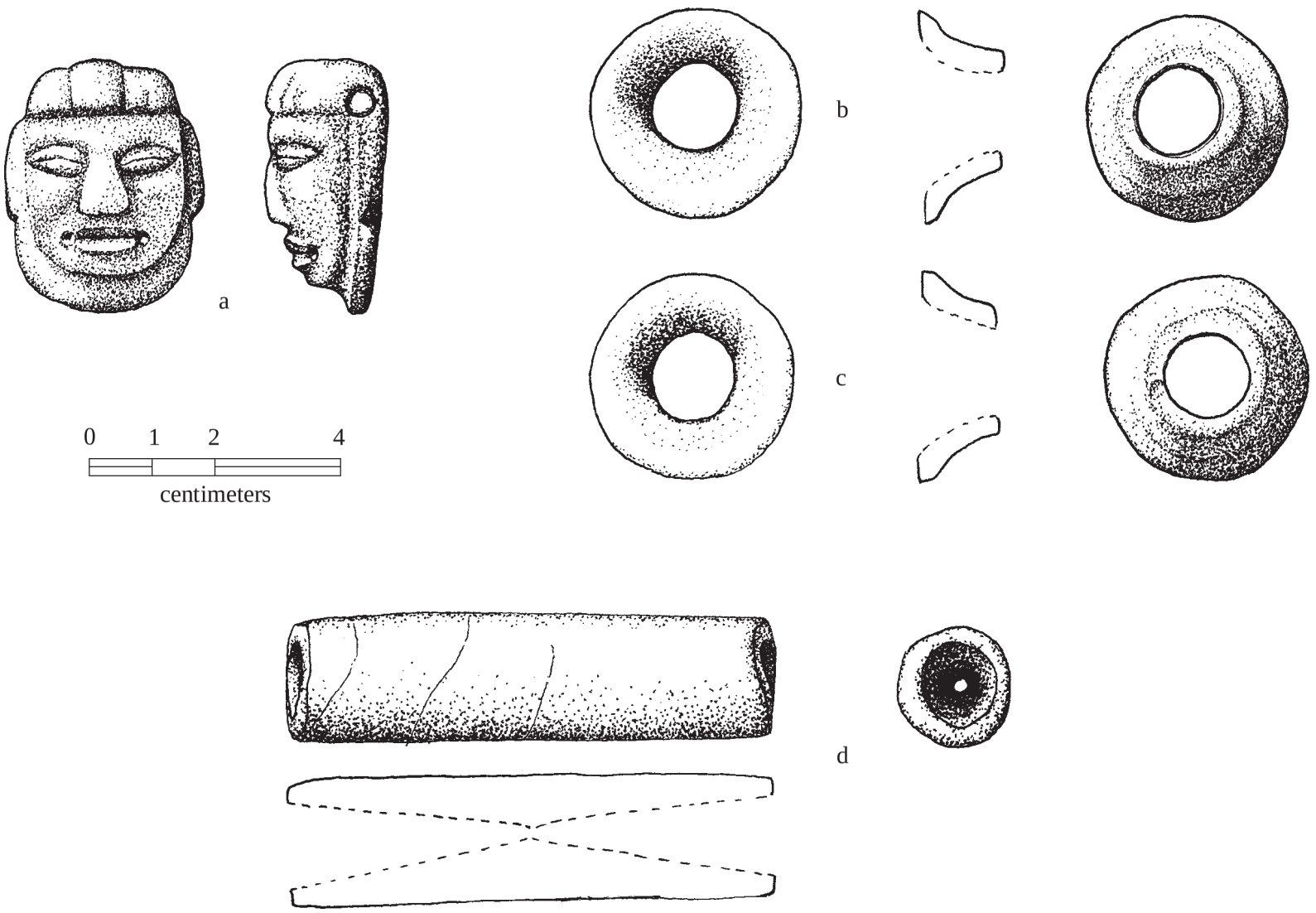

Figure 5-19. *Jade artifacts from Tomb 2.* a: helmet-bib pendant; b, c: earspools; d: bead.

are referred to here as jade, even though no confirming chemical analysis has yet been accomplished. Four jade artifacts were found in Tomb 2. They included two ear spools, one tubular bead, and a sculpted pendant. The earspools and the tubular bead (Figure 5-19) were of a design commonly found in association with the burials of Maya elite persons. The position, and symmetrical spacing of these three artifacts suggested the possibility that they were strung on a necklace, with some form of perishable material (possibly wooden tubular beads), now destroyed, separating them. Alternatively, the earspools may have been in their traditional position, attached to the person's ears, but that interpretation is inconsistent with the position of the bulk of the teeth recovered in the tomb, and the posited position of the individual's head.

Of particular interest was the carved jade pendant which is depicted in Figure 5-19. The pendant is of a type known as *helmet-bib* (Proskouriakoff 1974:10), based upon the head bearing a helmet-like headdress, and having a bib-like object surrounding the lower portions of the face. Hammond (1987), using archaeological evidence retrieved from Pomona, Cerros, and Nohmul, has made a persuasive argument that the particular face represented on the pendant is that of Kinich Ahau, the Maya Sun God. The dating of this iconographic configuration has been assigned to the Preclassic by Proskouriakoff (1974:11), and specifically to the Late Preclassic by Hammond (1987), and Schele and Freidel (1990:98–121). Helmet-bib head artifacts recovered from archaeological contexts at Cerros and Nohmul have been dated to ca. 100 BC (Hammond 1987:22). The contexts in which the Cerros and Nohmul helmet-bib sculptures have been found links them to the personage of the ruling king (*ahau*) of the polity (Schele and Freidel 1990:102; Hammond 1987:23). Freidel (personal communication to Houk 1997) suggests that the helmet-bib head pendant indicates the burial is a royal tomb. Based upon the above, it appears a reasonable possibility that the person buried in Tomb 2 was an early *ahau* or ruler of the ancient community of Chan Chich.

Ceramic Vessels

Eleven ceramic vessels were found on the floor of the tomb. They have all been dated to the Protoclassic by Valdez (1998). The assemblage included: four red mammiform support bowls (one of which had the feet removed prior to its placement in the tomb), one red basal flange bowl, one red-and-incised basal flange bowl, one red basal angle bowl, one red ring base jar, one red-and-buff mammiform support bowl, one red-rimmed buff spout-and-bridge jar, and one red-rimmed buff-incised spout-and-bridge jar (Valdez, chapter 9 this volume; Figures 9-6 and 9-7). Six of the vessels had a layer of reddish material, possibly cinnabar, overlying their interior bottoms. As noted earlier, four of the vessels in the center of the tomb (Vessels 4, 7, 9, and 10) had bone fragments within them. In each of these vessels the bone was resting atop the reddish material. Bone was also found resting upon the rim of Vessel 5. This supports the suggestion that the deceased was placed in the tomb resting upon a low, perishable litter, with the vessels having previously been placed on the tomb floor, below the litter. A small fragment of *Pinus* sp. wood (John Jones, personal communication 1998) found near the tomb floor may represent the remains of the litter. Evidently, the vessels and other tomb furnishings were placed on the tomb floor first, and then the reddish material was scattered over them. This was followed by the placement of the tombs occupant on a raised litter which straddled the vessels. Very possibly, additional reddish material was thrown or poured over the body, especially the upper body, before the burial party sealed the tomb. A similar inference concerning the presence of an elevated litter was made for an elite tomb recently discovered at La Milpa (Hammond 1996:89), based upon the relationship of bone to ceramic furnishings within the tomb.

Possible Codex Fragment

A small (ca. 1 x 1 cm), very thin section of a bluish colored material was recovered during screening of sediment removed from near the floor of Tomb 2. Its position in the tomb with relation to other objects there is unknown. John Jones (personal communication 1998) who has examined the item indicates it appears to be a section of "pressed Gossypium cotton paper" which has "blue and black brush strokes" on it. He suggests it "may be an old text fragment". Instances wherein what appears to be the remains of ancient "codex" books in elite Maya tomb contexts have been reported from a few sites, most recently at Copan in Honduras (Agurcia et al. 1989:483–486). The surmise that the small fragment in Chan Chich Tomb 2 is a codex fragment is consistent with the Kinich Ahau pendant and is supportive of the royal status of the person buried in the tomb. If indeed the fragment is from a Maya book, or codex, it would represent a very early text, given the tomb's Protoclassic date.

Paint or Stucco

Near the southwest corner of the tomb floor, to the side of where the head of the buried person is believed to have lain, was found an area which had a large number of small, thin fragments of fragile material which was either green, red, or green on red (Figure 5-13). Observed edge on, the center of many of these fragments had a blackish color. The texture of the material seemed to be similar to flattened stucco. Examination of the material by John Jones (personal communication 1998) indicates the green and red material appears to have been painted onto a curved surface which had decayed. A reasonable possibility is that the material represents painted decorative elements on either a wooden or gourd vessel which subsequently decayed and left the fractured decorative material on the tomb floor. Similar cases were noted at Rio Azul in Tombs 23 and 19 (Hall 1987:132–133; 1989:76–78). An alternative possibility, given the material's position in the tomb, is that it may represent decorative elements on a headdress made of perishable material.

Problematic Serpent-Shaped Object

A deteriorated, curvilinear-shaped object, thought possibly to be of deteriorated wood, lay across the northern half of the tomb floor. As it was first being uncovered it seemed to be a large root, but as it became more fully exposed its shape took on the appearance of a realistic wood carving of a pit-viper snake such as a fer-de-lance (see Figure 5-17). Additionally, the object's position, with the "head" at the north end of the tomb (as far as it has currently been exposed), and with its "body" extending southward along the very center of the tomb, argues against this being a root's chance resemblance of a serpent. The unexcavated part of the tomb lies just beyond the tip of the "snout" of this object. It is possible that this area is where the burial party exited, and sealed off the tomb. This area will be examined during the next field season. Should it prove to be the end of the tomb, this serpent can reasonably be interpreted to be a symbolic "guardian" of the tomb, protecting it against intruders.

Due to its fragile condition, it could not be removed intact from the tomb. Several samples were removed from the object for testing. The results are conflicting. Two experts consider the sample material to be bone (John Jones personal communication 1998; Julie Saul, personal communication 1998). Another laboratory (Beta Analytic) reported that during its efforts to cleanse a sample of the object for dating, the material almost totally dissolved, leaving only a very small residue of woody pulp (R. E. Hatfield [Beta Analytic], personal communication 1998). This usually indicates that the sample has been poorly preserved and subjected to extreme conditions during its burial. The sample may retain it's structure but very little of it's content (R. E. Hatfield, personal communication 1998). Paul Francisco, a conservator at the Department of Archaeology in Belize, examined the object *in situ* and removed a sample for microscopic analysis. He found that the upper surface of his sample was uneven and displayed consistent scrape marks (Paul Francisco, personal communication 1997). Furthermore, the specimen exhibited grains consistent with a hard wood, but that it appeared to be petrified, a finding consistent with Beta Analytic's. Francisco also identified four strands of blue thread, one strand of red thread, and one strand of grayish-green thread. The tomb floor and the remaining sections of the object were covered with sterile soil at the end of the season. The object will be re-excavated during the 1998 field season.

Suboperation B

The southern edge of Subop B was positioned ca. five meters up the southern (front) slope of Structure A-15 which was described above. The unit was 1 x 2 m in size with its long axis oriented to magnetic north. The ground surface at the south end of the unit was 0.92 m higher than that at the north end, reflecting the slope at the front of the pyramid-shaped mound. The excavation reached a maximum depth of ca. 1.25 m below the surface, and did not encounter bedrock. Excavation of this unit was severely impaired by the unexpected presence of several large roots within its boundary. A description of the findings follows.

Below a humic layer of ca. 8 cm thickness (Lot **B-1**) was a stratum of gray soil containing limestone fragments (Lot **B-2**) which are assumed to be building material collapsed from the upper portions of Structure A-15. This layer had an average thickness of 30 cm. At an average depth of 38 cm below the surface was what may have been the deteriorated remains of the last construction episode of Structure A-15 (Lot **B-3**). A bioturbated layer of stone, some shaped, but fragmented, lay in disarray across the upper surface of this stratum. A rough patterning consistent with a stairway was discernible. We penetrated slightly through

this surface in the northern half of the unit and found a matrix consistent with a construction fill below it.

The three lots of ceramics collected from Subop B were all dated to the Late Classic period. Inasmuch as no sherds were collected from the fill below the postulated final outer veneer of the structure, no estimate of the date of construction of the final phase of Structure A-15 can be stated, however, the collapse debris above it dates to the Late Classic period.

Conclusions

Two locales on the Upper Plaza were tested down to bedrock. These locales were ca. 40 m apart. The data retrieved from both locales are consistent in their chronological implications for human occupation of the Upper Plaza.

The earliest occupation was during the Middle Preclassic. Three construction episodes dating to this time period were revealed in Subop H which was located along the south base of Structure A-1. The earliest of these seems to be that of a perishable structure of moderate size, very possibly a structure with a public function, suggesting that the Structure A-1 locus, the center of the later mature community, was already a significant place during the Middle Preclassic. Middle Preclassic sherds found in floor fill in the vicinity of Tomb 2 provided additional evidence for occupation at that time on the Upper Plaza although no construction dating to then was noted near the tomb.

The 1997 excavations indicate that the Late Preclassic and the Protoclassic were the principal periods of construction activity during the life cycle of the Upper Plaza. The excavations also established that a formal rulership which shared in the ideology and symbolism of the larger Maya area was already in-being at Chan Chich during the Protoclassic. Subop H revealed four construction phases dating to the Late Preclassic, and all seven of the Subop A associated constructions episodes also dated to that time or the Protoclassic (including Tomb 2). It was also noted that during the Late Preclassic, a substantial structure was present on the Upper Plaza at the locus of Structure A-1.

Based upon the presence of a helmet-bib pendant in Tomb 2, it is probable that an early *ahau*, or lord, was interred in the tomb (Hammond 1987:23; Schele and Freidel 990:102). This person would have served as the ruler of an incipient Protoclassic polity. The apparent decayed codex fragment found in the tomb floor matrix is also supportive to the assignment of royal status to the interred person in Tomb 2 (Agurcia and Fash 1989:486). While the presence of codex material in a tomb has sometimes been interpreted to point to royal scribal status for the buried person, I consider that the helmet-bib pendant takes precedence in indicating status, with the codex being incidental to the ahau's position as ruler. Tomb 2 is positioned below the Upper Plaza surface in front of, and slightly off center from, Structure A-15. The shallow excavation in Subop B revealed a Late Classic collapse debris above the outermost of the several construction episodes visible in looter's trenches in Structure A-15. We currently do not know the date of construction of any of the these episodes. It does seem likely that one or more of these Structure A-15 sub-constructions was already present on the Upper Plaza at the time Tomb 2 was built.

Early Classic occupation on the Upper Plaza at Chan Chich was suspected prior to the excavations because two fractured Early Classic basal-flanged polychrome bowls had been recovered from a looters' camp near Structure A-15 by the lodge staff during initial clearing of the site ca. 1988 (Guderjan 1991:45). An additional small number of Early Classic sherds were recovered during the 1997 Upper Plaza excavations (see Valdez 1998). While there is evidence for at least a limited occupation of the Upper Plaza during the Early Classic, there is no indication that any of the constructions there dates to that time. Thus, the Early Classic seems to be a subdued time on the Upper Plaza, lacking growth and dynamism. The Late Classic period is also very thinly represented in the 1997 Upper Plaza excavations on the Upper Plaza by a single construction episode in Subop H.

The available data point to the Upper Plaza becoming an important place early in the occupation of Chan Chich. The Upper Plaza may have reached its apogee during the Late Preclassic. Thereafter, over hundreds of years, it seems to have changed little in its physical configuration (see Houk 1998c). Excavations on the Upper Plaza during the upcoming 1998 field season will provide a larger data base from which to judge the chronology of the occupational and constructional sequence there.

Acknowledgments

Gratitude is expressed to the many persons who contributed to the 1997 excavations on the Upper Plaza. The following Canadian students from Malaspina College on Vancouver Island helped start the excavations: Richard Bagnald, Sandy Blandford, Richard Sumampons, and April Wood. Their professor, Dr. Bill Eaton, also contributed significantly. Pollard and Deoborah Rogers of Fort Worth provided some assistance during the initial stages. Ruth Mathews and Megan Utecht were insturmental in the excavation of Subop H. Jon Nicholson, Andrea Betzold, Rebecca Barrera, Linda Gunn, and Donna Peifer performed much of the excavation work leading to the discovery of Tomb 2. Alexandra Miller, Jennifer Vander Galien, and Jessica Sanchez accomplished the bulk of the tedious work in excavating Tomb 2. Jennifer Jellen, with the help of several of the above students, began an assessment of the architecture visible in looters' trenches. Karis Koester helped with the final documentation of Tomb 2. Alejandro Moh and Jorge Montui of the Chan Chich Lodge staff were of great assistance in the Upper Plaza excavations. The efforts of all of the above persons are greatly appreciated.

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Excavations at the Ballcourt

Owen Ford

Introduction

Identified as the possible ballcourt for the site of Chan Chich in 1996 (Houk et al. 1996), Structures A-10a and A-10b were tested during the 1997 field season. It was believed prior to the 1996 mapping project at the site that Chan Chich did not have a ballcourt despite its status as one of the larger sites in the region (Guderjan 1991). Based on observations made during the 1996 survey of the 1.5 km^2 area surrounding the monumental architecture of the site, Houk et al. (1996) proposed that Chan Chich did in fact have a ballcourt, but that it was overlooked because the western half of the court, Structure A-10b, is physically attached to Structure A-1 (Figure 6-1). The south end of Structure A-10b is visible today as a platform-like surface extending outward from Structure A-1 (Figure 6-2). The placement of the ballcourt at the southeast corner of the Main Plaza is consistent with the general location of ballcourts in the Three Rivers Region (Houk et al. 1996; Robichaux et al. 1997). Furthermore, the site of La Honradez, located approximately 18 km west of Chan Chich, has a similar, attached ballcourt (Von Euw and Graham 1984).

Structures A-10a and A-10b are both 28 m in length, aligned approximately magnetic north, with a width between summits of 24 m (see Figure 6-1). Each structure is also approximately 4.3 m high. All investiga-

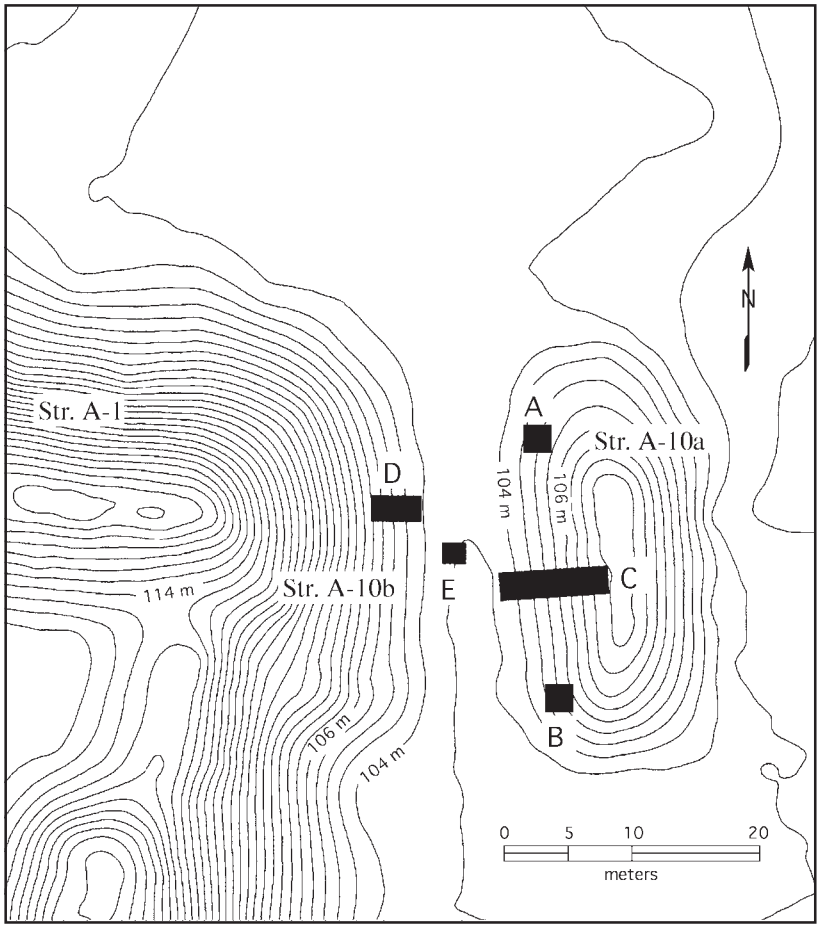

Figure 6-1. *Contour map of the ballcourt with location of Operation 3 Suboperations A–E.*

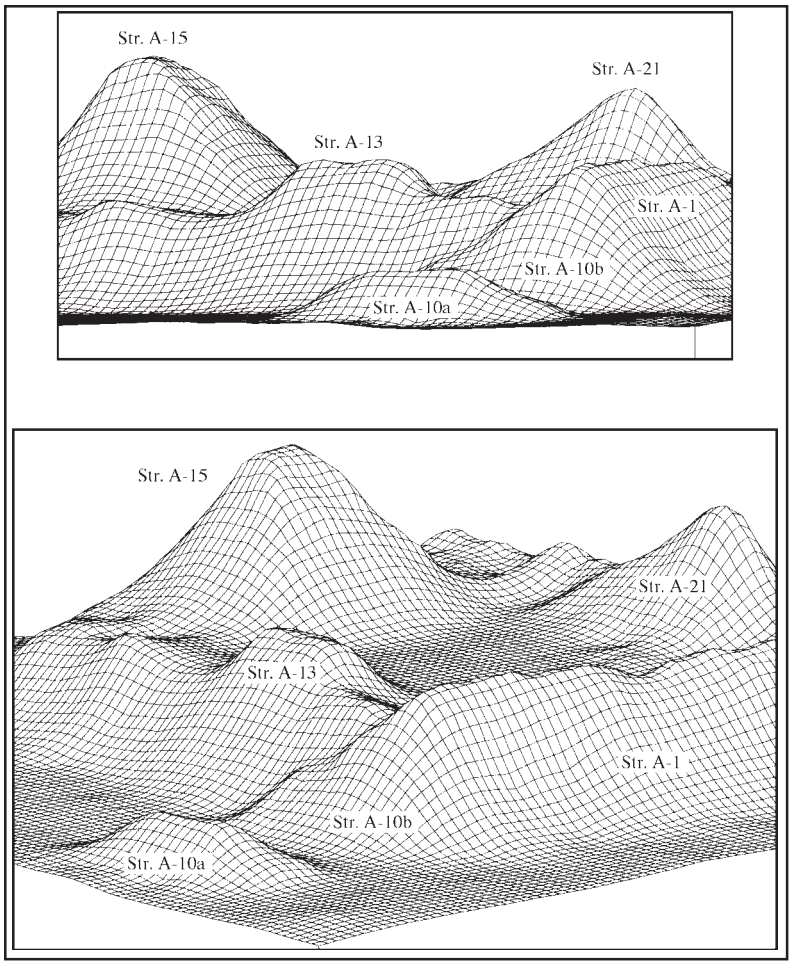

Figure 6-2. *Surface maps of the ballcourt.* Top: level view from east/northeast; Bottom: elevated view from northeast.

tions in the suspected ballcourt were designated Operation 3. Five suboperations (A–E) were excavated during the field season (see Figure 6-1). Each test unit was placed with the intention of identifying key characteristics of the structure form and function.

Excavations

Suboperations A and B were 2-x-2-m test units placed on the north and south ends of Structure 10a's west face to look for structure corners. Identifying the corners would allow for accurate estimations of structure length. Suboperation A revealed part of a plaster floor that would later be recognized as a continuation of the basal tier of the penultimate construction phase identified in Suboperation C. A large amount of collapse debris (cut and non-cut stone in a marly matrix) from the final construction phase was removed from above this plaster surface. No corner was identified.

Suboperation B revealed no structural components except collapse debris, and the unit was terminated after approximately 20 cm of material had been excavated. Further clearing of Structure A-10a revealed exposed remains of walls at each end of the structure near the summit. The wall at the north end was primarily intact (Figure 6-3) while the wall of the south end had been literally torn apart by large tree roots. In retrospect, Suboperation B was probably placed about a meter past the expected location of a possible corner.

Suboperation C was a 2-x-8.5-m test unit placed just south of the center of Structure A-10a's west face in an effort to understand the structure's configuration and construction phases (Figure 6-4). The final construction phase was badly deteriorated, and the removal of many nonaligned cut stones and rubble fill was necessary. This final construction phase had a slanted plaster surface that sloped for 6 m in length over 3 m of elevation ending with a vertical basal step or platform wall that was 30 cm in height. The plaster surface was constructed upon a thick layer of wet laid rubble. At the base of the platform, a plaster floor, representing the alley of the ballcourt, was partially preserved. This slanted form is the typical ballcourt configuration seen regionally.

Structure A-10b Sub, the penultimate construction phase, consisted of three tiers (Figure 6-5). The basal tier's step was utilized and modified during the first construction phase as the 30-cm high step mentioned above. The basal tier was chopped during the final construction phase to construct the slanted plaster surface. Based on the remaining portions of the plaster floor between the basal and middle tiers, the basal tier was 2.1 m in length with the basal step estimated at 70 cm in height before modification by the final construction phase.

The step of the middle tier was also chopped by the first construction phase (see Figure 6-5). All but the cut stones of the step base were removed. Unlike the level basal tier, the middle tier is sloped. Based on the slope of the remaining portions of the tier's plaster

Figure 6-3. *Photograph of north end of Structure A-10a, facing south.* Note the wall of rocks at the summit of the mound.

Figure 6-4. *Photograph of Operation 3, Suboperation C during excavations.* Photograph taken from east edge of Upper Plaza, facing east.

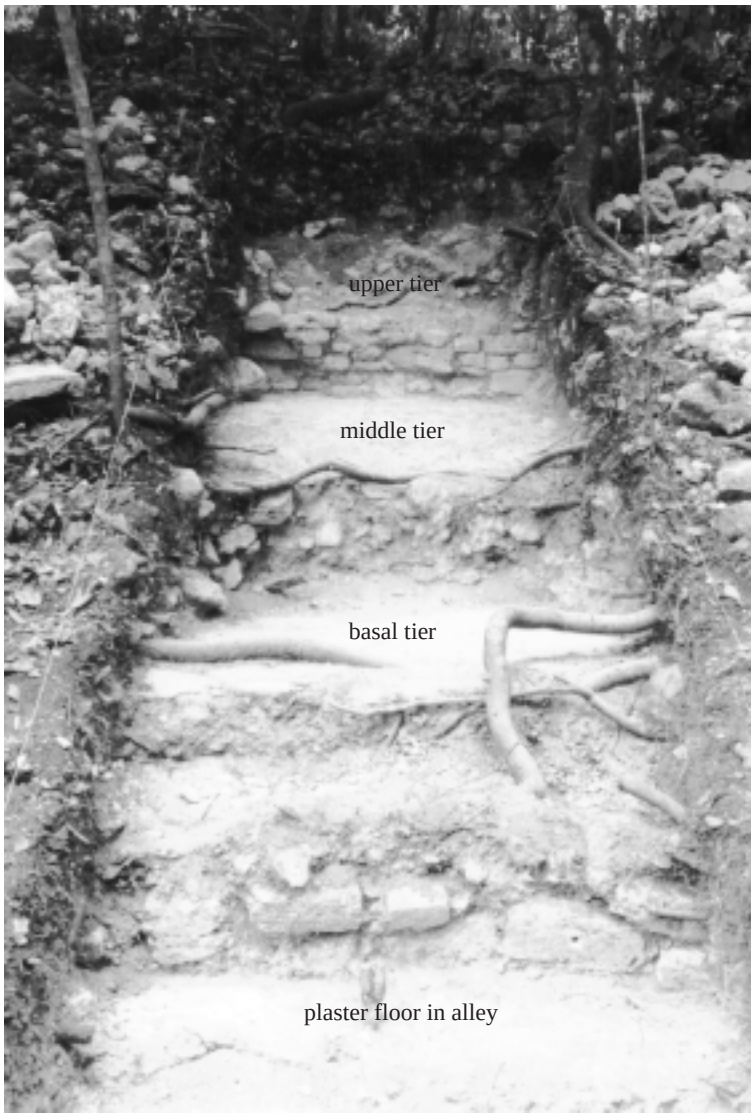

Figure 6-5. *Photograph of Operation 3, Suboperation C.* Note the three tiers of Structure A-10a Sub.

surface, the step of the middle tier is estimated to have been about 45 cm in height. The top tier step is entirely intact and is 44 cm in height. The length of the middle tier is 2.1 m with a change in height of 50 cm.

Suboperation D was a 2-x-8-m test unit opened on Structure A-10b in to identify structure form and construction episodes. It was assumed that if this was a ballcourt then the construction would be symmetrical. The horizontal distance between the summits of Structures A-10a and A-10b is 24 m. The horizontal distance from Structure A-10a's summit to its base is 7 m. Based on our assumed symmetry, it was projected that the distance from Structure A-10b's base to its summit should also be 7 m. With a total width between summits of 24 m and the width of the two structures occupying 14 m of that space, it was projected that the alley of the ballcourt would be 10 m wide. Excavations in Suboperation D confirmed that the basal steps of Structures A-10a and A-10b were located 10 meters apart.

Additional excavations proved that Structure A-10b was constructed in the same manner and form as Structure A-10a. This included two main construction phases. The final phase consisting of a sloped surface built of wet laid fill with a plaster surface. The underlying phase was a tiered structure. Excavation of Suboperation D was extremely time consuming as fall from attached Structure A-1 (approximately 13 m tall) covered all of Structure A-10b except for the last few meters of the southern end. The fall covers the summit of the structure, except the south end, and lessens the current width of the alley by more than two meters.

Suboperation E was a 2-x-2-m test unit, established in the center of the alley to attempt to locate a ballcourt marker and alley surface. The surface of the alley was identified as an eroded, light brown, marly matrix at seven centimeters below the present surface. No marker was identified, but this is not unusual for the region. Excavations at Dos Hombres (Houk 1996), La Milpa (Schultz et al. 1994), and Kinal (Hageman 1992) also failed to locate any ballcourt markers. It is not known whether or not markers were used in the region. It is also possible that wooden markers, which would have long since deteriorated, were substituted for stone.

Dating the Constructions

Based on ceramics (see Valdez 1998) from the collapse debris in Subop C and from Lot **E-1**, the visible architecture at the ballcourt dates to the Late Classic (Tepeu 2–3). No sealed deposits from within Structure A-10a Sub were excavated so it is not possible to date the earlier construction. Ceramics from Lot **E-2**, fill below the Late Classic alley, date to the Late Preclassic (Chicanel). Whether or not this deposit is coeval with the earlier form of the ballcourt is not known.

Discussion

In summary, excavations at Operation 3 included five test units excavated on Structures A-10a and A-10b and in the intervening space between the two structures. These investigations confirmed that the two structures are the ballcourt for the site of Chan Chich. This conclusion is supported by several lines of evidence. First, the symmetrical nature of the two structures is typical of ballcourt form. Second, the final construction phase's sloped surface is similar in form to other ballcourts in the region (Hageman 1992; Houk 1996; Schultz et al. 1994). Third, the penultimate phase's tiered form is not common, but is not unique. The site of Lubaantun in southern Belize contains a terraced ballcourt (Hammond 1975). Terraced ballcourts are also commonly depicted on many Late Classic polychrome vases. Finally, the proximity of the ballcourt to the monumental architecture of the site core is typical of the region (Houk 1996, 1997; Robichaux et al. 1997).

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Test Pit Program in Group C

Richard Meadows

Introduction

The 1997 test pitting program of the Chan Chich Archaeological Project (CCAP) was highly successful in accomplishing two primary research goals. The first goal was to contribute to a preliminary chronology for the site by excavating a series of 2-x-2-m test units in two epicentral courtyard groups. The second goal was to examine the extent and depth of cultural materials located on ancient plaza floors to obtain a limited horizontal view of cultural deposition within courtyards. Excavation focused on two groups located to the west of the Main Plaza, in what is known as Group C (Houk and Robichaux 1996).

Group C includes Norman's Temple, defined as exterior space (ES) C-1; and the Western Plaza, defined as ES C-2 (Figure 7-1). These groups are located north of the Western Causeway, with ES C-1 located at the

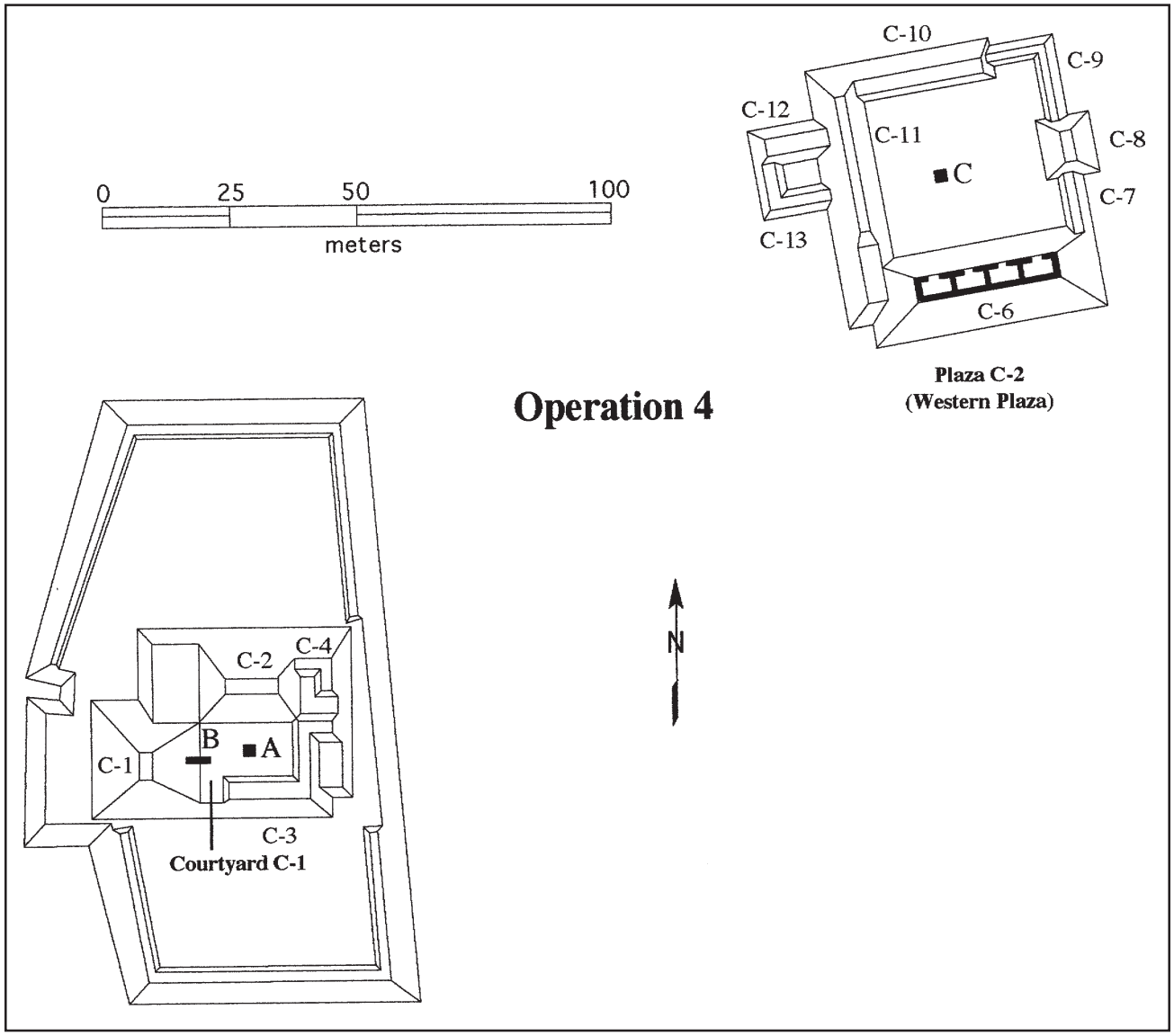

Figure 7-1. *Map of excavations in Operation 4.*

summit of a hill and ES C-2 located on the same hill's northeast slope (Houk and Robichaux 1996). It has been hypothesized that both courtyard groups served as elite residences (Houk 1996). The groups have escaped serious looting, save for the east building of ES C-2, which has been completely gutted. The test pit program focused on documenting the number of construction episodes in the two courtyards and on recovering ceramics that could be linked to a regional ceramic chronology (see Valdez 1987, 1998; Houk 1998a). Courtyard floors are generally recognized as architectural features that delineate a specific occupation. It was thought that ceramics associated with these floors and supporting subfloor fill would lend insight into specific time and duration of occupation. Suboperations were placed in the center of the respective plazas and at the base of the west structure in ES C-1 (Figure 7-1).

Figure 7-2. *Photograph of Subop A at Courtyard C-1*. Alejandro Moh, in foreground, is assisting with excavations at Subop A, while students prepare to excavate Subop B at the base of Structure C-1 (photo facing west).

Suboperation A

Suboperation A was a 2-x-2-m test unit excavated in the middle of ES C-1 (Figure 7-2). The unit was excavated in natural levels that were marked by the changing matrix of construction fill and by badly eroded plaster floors and subfloors consisting of loose gravels and small limestone cobbles. These different matrices were documented as separate lots. Moreover, discrete deposits of ceramics, bone, or lithic material were documented as separate features and (or) burials. This method is commonly used by archaeologists working in the Maya area, and was implemented in all excavations undertaken at Chan Chich during the 1997 field season (see Houk 1998b).

The upper most portion of the excavation extended to approximately 50 cm below ground surface and likely indicates a series of Late Classic occupation surfaces (Lot **A-1**). These surfaces are eroded and cannot be distinguished from one another. However, the depth of the small cobbles suggests that there may have been one or two replastering episodes during this time frame. Ceramics recovered from this zone were primarily Tepeu 2-3 (Late Classic). A substantial quantity of chert debitage was recovered from this zone. In addition, a few chert tools, primarily oval bifaces were also recovered from the upper strata of Suboperation A.

As excavation proceeded below the layers of topsoil and loose gravels, it became apparent that many of the larger cobbles used in construction fill had siliceous materials within their interior. This zone yielded a number of artifacts as mentioned above and was primarily comprised of soil and detritus until the level of the remnant plaster floor. Zone B was excavated beneath the plaster floor, to a depth of 136 cm below surface in the center of the test unit. In this context, several rim sherds of Laguna Verde incised were recovered. All of the identifiable ceramics from this zone (Lots **A-2**,

A-2a, and **A-3**) are Chicanel, indicating a Late Preclassic date for this deposit (Valdez 1998:Table 9-2). Additionally, a drilled ceramic disk and a figurine fragment were also recovered in zone B (Figure 7-3).

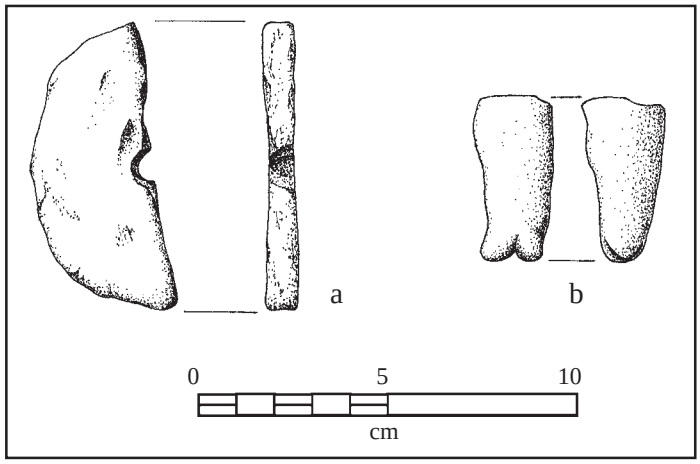

Figure 7-3. *Artifacts from Suboperation A.* a: perforated ceramic disk (Lot **A-2**); b: figurine fragment (Lot **A-3**).

Zone C (Lots **A-4** and **A-5**) is indicated by the presence of a remnant plaster floor at approximately 130 cm below the ground surface. Below the plaster floor at 136 cm, several Late Preclassic ceramic sherds were recovered, including the foot of a Sierra Red tripodal plate (Valdez 1998:Figure 9-3j). Again, a number of oval biface tool forms were recovered from zone C. This further support the notion that some domestic tasks may have been performed in or near the courtyard. At a depth of 150 cm below ground surface, the matrix of the excavation shifted to larger cobbles with little marl fill in between the stones.

Ultimately, the test unit was excavated to a depth of 285 cm below the ground surface. Excavation was halted due to wall instability caused by the presence of dry core fill and the problem of getting in and out of the test unit. At that point, very large stones were being hoisted out of the unit with the help of a makeshift pulley system. A rope was tied around a nearby tree and two loops were wrapped around each stone. Boulders were then hoisted utilizing the tree as a simple pulley. The lowest matrix exhibited no soil and virtually no artifactual material. However, this does not preclude the possibility of earlier cultural deposits located below this point.

Two cultural features of note were located in Suboperation A. The first feature was a burial encountered in the profile of the east wall (Figure 7-4). This cluster of bone material was located at 85 cm below the ground surface. The burial, designated as Burial 1, consisted of several bones and bone fragments including several long bone shafts, a portion of the scapula, and a cranial fragment. Although the burial was originally classified as secondary, Julie Saul's (personal communication 1998) subsequent analysis of the material suggests this was a primary interment. She concluded that skeletal material recovered represented parts of an entire individual (i.e., parts of the legs, arms, torso, and skull were found). She also determined that the individual was most likely a small, adult female between the ages of 35 and 50. The sex determination was based on the small size of the long bones, the small mastoid process, and the almost nonexistent supramastoid crest. The age determination was based on the internally fused sagittal suture. No teeth were recovered. The muscle attachments were very pronounced, and the humerus shafts were somewhat flattened suggesting the woman was well muscled

Figure 7-4. *Photograph of Burial 1 in east profile of Subop A.* Human skeletal material, visible in outlined area, is at 85 cm bs.

from hard physical exertion. Two expended chert cores and several pot sherds were recovered just to the north of the burial. This concentration of artifacts may represent some sort of offering placed with the skeletal remains.

The second feature was a concentration of potsherds located underneath a large stone visible in the south wall profile at 40 cm below the surface in zone A. The ceramic concentration, designated Feature 1 consisted of fragments of two vessels. The majority of sherds were part of a large, shallow bowl that may be partially reconstructible. The vessels were simple bowls that date to the Late Classic (Tepeu 2-3).

Overall, artifactual data recovered from Suboperation A indicated that the courtyard plaza had been the focus of occupation at an earlier time period than was previously thought. This occupation began in the Late Preclassic (or earlier) and ended at the close of the Late Classic. However, it is unclear whether the plaza was occupied for this entire time period. The ceramic data suggest the Late Preclassic occupation was followed by a Late Classic remodeling of the courtyard, with no intervening Early Classic construction. Additional testing of the courtyard may yield a longer span of occupation.

Suboperation B

Suboperation B was initially excavated as a 1-x-1-m test unit at the base of Structure C-1, the west structure of ES C-1. This test unit was excavated to determine the thickness of deposits that may have accumulated as midden material at the base of structures at the end of the site's occupation. The unit was gradually expanded to the west, towards the structure, until the suboperation represented a 1-x-4.5-m unit running east-west (Figure 7-5). Fairly large amounts of ceramic and lithic materials were recovered from the upper levels, just below the topsoil. Moreover, a large number of stones and smaller cobbles had fallen off of the facade of the structure. Many of these stones were faced. However, it could not be determined in the early stages of excavation from where they had fallen. As the excavation was expanded up the slope of the structure, more cultural material was recovered within changing matrices.

Zone A (Lots **B-1** and **B-2**) was excavated in the eastern 2-m of the unit to a remnant floor and subfloor. Zone A also includes the adjacent meter to the west, which was excavated to approximately 40 cm below ground surface. At this point, intact plaster was recovered at the same level as the loose gravel and small cobbles located in Suboperation A, as well as in the eastern portion of Suboperation B. Zone B was excavated another 60 cm through small cobbles that yielded ceramic materials in the east 2-m of the trench, to a change in matrix at approximately one meter below ground surface. Again, large cobbles became the norm, with little soil and no cultural material present in this lower matrix. It is hypothesized that another floor is located beneath this matrix, at approximately the same depth as the second floor remnant found in suboperation A.

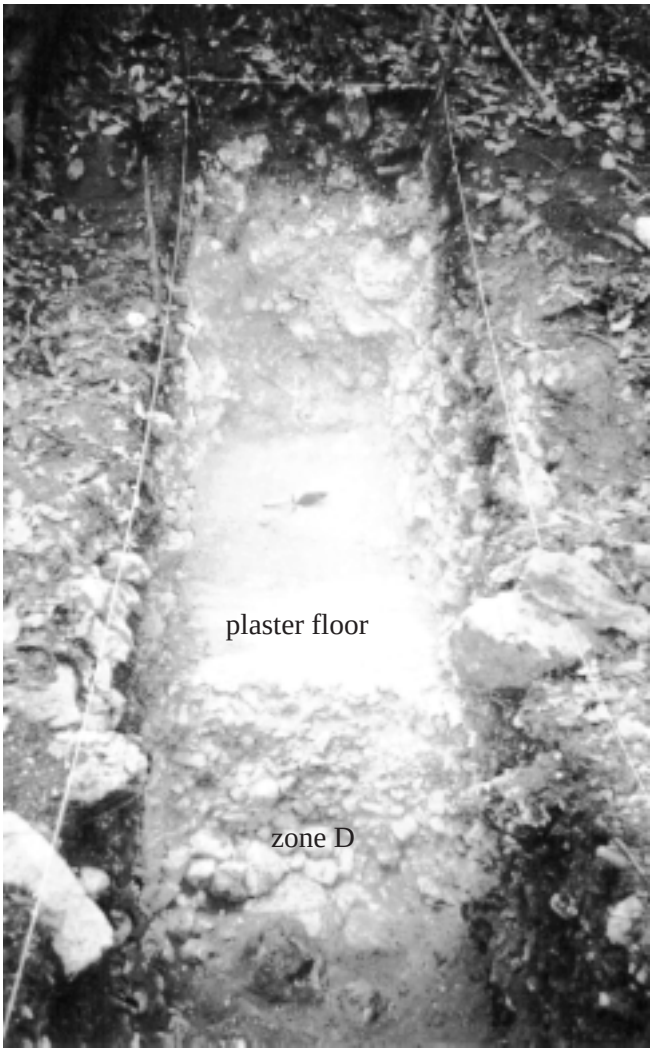

Figure 7-5. *Photograph of Subop B, facing west.* Well-preserved courtyard floor (base of zone C) and subfloor fill (zone D) are indicated.

Zone B (Lot **B-3**) was halted at the upper plaster floor in the western 1.5-m of the trench and followed the depth of an ashy, marl that marked a change to zone C. Within zone B, a matrix of building fall and cobbles, a number of ceramics were recovered. Eventually, this matrix changed to a marl, ashy matrix in which the density of ceramic material increased significantly, seen as zone C. Eventually, the marl, ashy matrix was more difficult to get through, and excavators began to draw and plot materials *in situ*, prior to removal. A ceramic concentration was recognized as the marl, ashy matrix yielded a number of ceramics sitting on the surface of a solidified, almost plaster-like surface that sloped to the east.

Zone C (Lots **B-5** and **B-6**) yielded a large quantity of ceramics, as well as some lithic materials. Eventually, a feature of ceramic and lithic materials was plotted as sitting directly on top of the plaster floor that extended from the west. These materials included a number of red and black slipped wares (including Torro Gouged and Cubeta Incised), a fragment of an Imitation Fine Orange vessel, and a fragment of a figurine with a square brimmed on which the face appeared to have been removed (Figure 7-6; see Houk 1996 for similar figurines). Moreover, several pieces of lithic debitage were recovered on the plaster floor, as well as the medial portion of a thin biface. It is unclear at present if the density of artifacts recovered in this matrix has implications for further interpretation. However, the fact that these materials were found on the plaster floor directly in front of a large structure presents interesting evidence that necessitates further investigation.

Zone D extended below the plaster floors to the change in matrix located at the bottom of Lot **B-4**. This matrix consisted of small cobbles and soil, and also a large amount of loose soil and ash. This excavation consisted of removing the plaster floors and the soils below, until the matrix changed, as stated before, to large cobbles with little soil. The ceramic assessment of this deposit suggests a Late Preclassic date for the material below the floor (Valdez 1998: Table 9-2). The plaster floor on which the aforementioned ceramic and lithic materials were recovered was left intact (Figure 7-7). It is interesting to note that at the western end of the trench a loose ashy matrix was present beneath the floor.

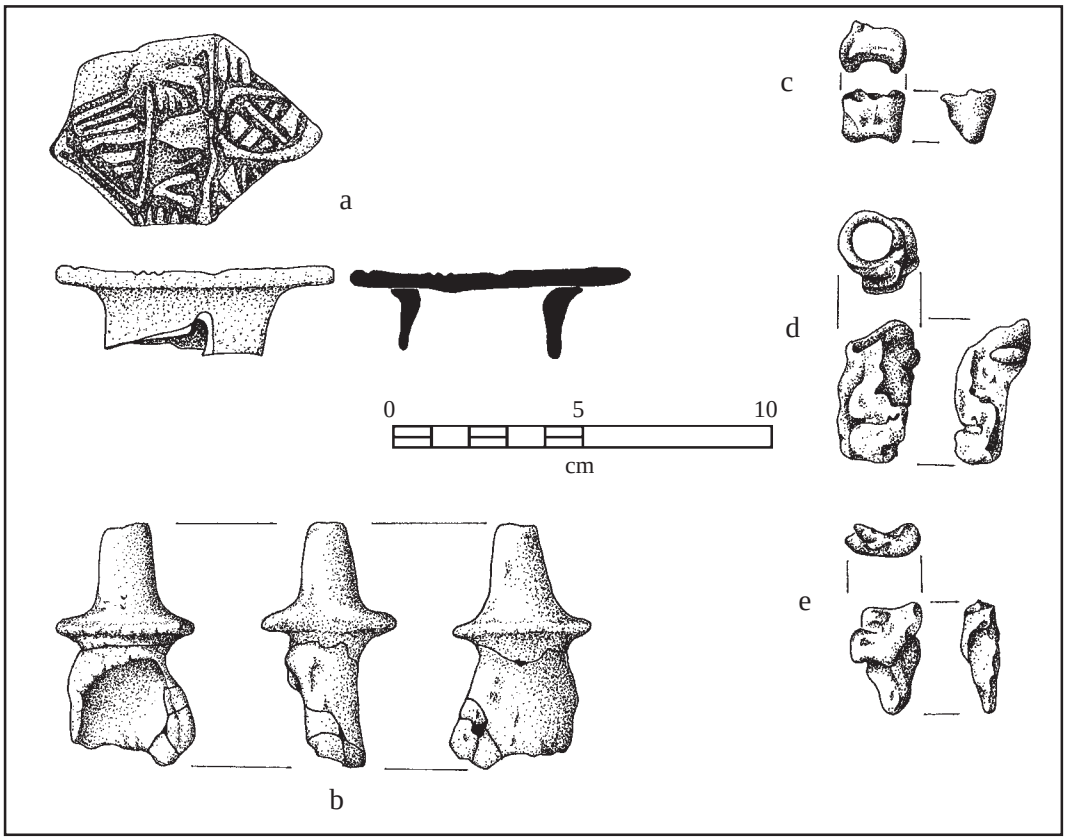

Figure 7-6. *Artifacts from Suboperation B.* a: Imitation Fine Orange ceramic vessel support (Lot **B-5**); b: figurine fragment (Lot **B-6**); c: whistle or figurine fragment (Lot **B-1**).

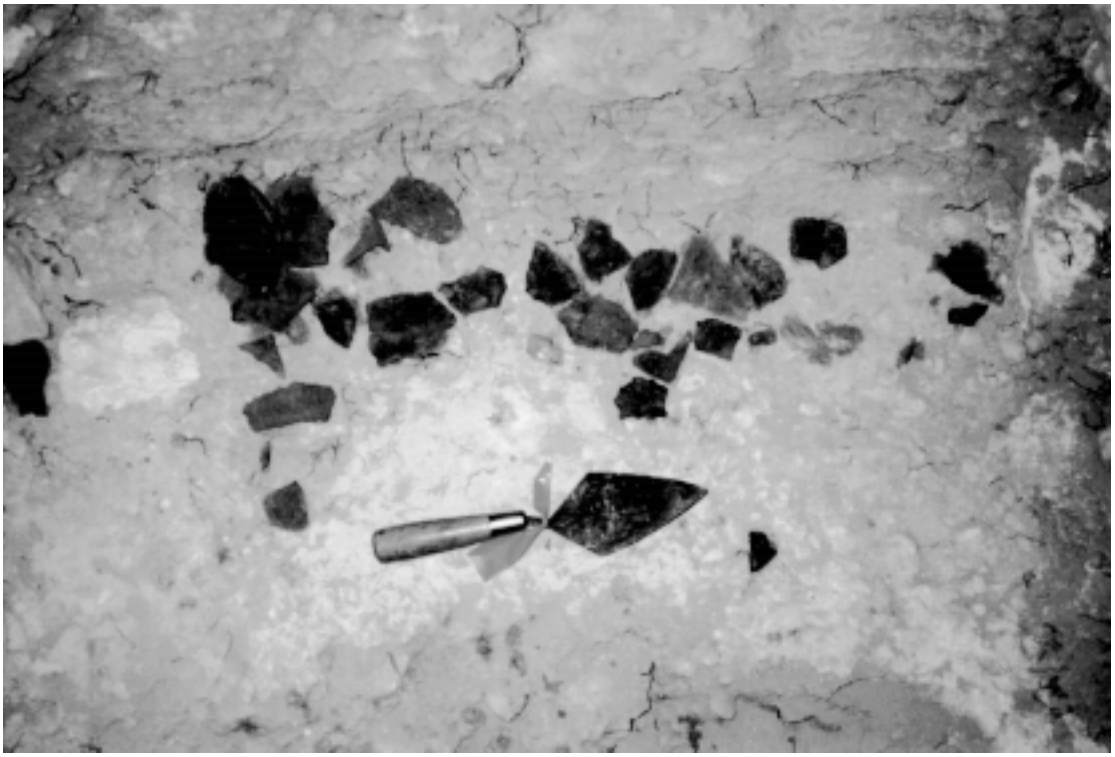

Figure 7-7. *Photograph of ceramic sherds and lithic debitage* in situ, *Lot **B-6***.

This strata was excavated to a change in matrix some 90 cm below the ground surface at the west end of the unit. The ashy matrix and the cultural material recovered from Suboperation B indicate limited deposition at the base of Structure C-1 at Norman's Temple. However, the excavation hinted at the complex construction sequence preserved in the eastern edifice. At the close of the season, several plastic bags were placed at the bottom of the unit and on the remaining portion of plaster floor. This was undertaken to facilitate removal of backfill when more comprehensive excavations of Structure C-1 are undertaken during the coming 1998 field season.

Suboperation C

Suboperation C was a 2-x-2-m test pit excavated in Plaza C-2 (Western Plaza). The subop was located in the west half of the plaza, approximately seven meters from the central part of the base of the west structure (see Figure 7-1). Range structures dominate the plaza on both the west and the south sides. The south building exhibits the remains of exterior rooms at its summit (Houk and Robichaux 1996). At the initiation of excavation, it was observed that gravel and small cobbles were present in the topsoil (Figure 7-8). It appeared after excavating only 5 to 10 cm that this surficial layer was part of a remnant subfloor. This was likely the latest floor of the group's occupation. The ceramics from this construction (Lot **C-1**) date to the Late Classic (Valdez 1998: Table 9-2). The location of the group on a platform constructed on the southeast slope of a hill, and what appears to be a wide, shallow channel located directly to the west support the notion that this area was the site of dynamic hydrological processes that may have exposed the plaza floor to sheet wash and perhaps erosion that removed detritus deposition.

After the subfloor was documented, excavation continued. Zone B (Lot **C-2**) is shown as the matrix below the subfloor to bedrock. The upper portion of zone B yielded a substantial number of ceramic sherds. These included rim pieces of large water jars. An obsidian blade fragment was recovered from this zone. Also recovered were several sherds of Balanza (Tzakol) and Cubeta Incised (Tepeu 2) black slipped wares. Below this matrix of small cobbles, the stones became increasingly larger and soil became increasingly rare. Eventually, at approximately 100 cm below ground surface, bedrock was encountered. In addition, three large boulders were found to be protruding from the walls of the test unit and resting on the bedrock surface (Figure 7-8).

Figure 7-8. *Photograph of Subop C in the Western Plaza.* Note the shallow depth of bedrock and the large boulders incorporated into the fill.

The results of the excavation Suboperation C supports 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. Ceramic data has solidified the conclusion that the Western Plaza was occupied primarily during the Late Classic. Further excavations of structures will refine the courtyard's chronology and construction sequences.

Future Research and Concluding Remarks

As part of the first systematic archaeological excavations at the Maya site of Chan Chich, the 1997 test pitting program documented the construction sequences of two major courtyard groups located to the west of the Main Plaza. Excavations consisted of two 2-x-2-m test pits in the plaza floors, and an initial east-west oriented unit measuring 1 x 4.5 m located at the base of Structure C-1. The data recovered from these excavations have given us an initial indication of the extent and intensity of occupation there. It appears that the construction sequence at Norman's Temple dates to the Late Preclassic through the Classic Period. However, the duration of occupation and the construction episodes that occurred during the Classic Period remain unclear. The question of termination activity also remains unclear. It is critical that further excavation at the base of Structure C-1 continue during the 1998 field season.

Excavations at Structure C-1 should focus on uncovering the location(s) of intact walls and surfaces associated with the final construction episode, as well as a possible stairway along the east-west axis of the building. This kind of investigation includes opening larger areas, perhaps 2-x-2-m units extending out from each side of Suboperation B at its western extent. Excavation along the east-west axis, up the slope of the building, should also be continued to locate and document dedicatory caches and (or) earlier buildings. Testing for the former would help establish that the elite at Chan Chich were engaged in rituals of dedication and termination prevalent at other centers in the Maya lowlands.

In the Western Plaza, it is proposed that a 2-x-2-m unit be excavated on the east-west axis of Structure C-11, at the base of the structure. This unit will determine whether or not deposits similar to the concentration of broken ceramics and lithic debris found at the base of Structure C-1 are present in the Western Plaza as well. Limited excavations through the final construction episode and along the building's east-west axis may uncover the building's dedicatory cache. This again would help solidify the pattern of dedication and termination of structures by other members of the elite at Chan Chich. The date of these caches would also refine the chronology of respective structures.

The research potential of these two residential groups is clear. Norman's Temple was founded much earlier

than suspected and occupied for perhaps 800 years. The Western Plaza, while occupied for a much shorter time, may provide further evidence of elite activity during the site's apogee. Future research will continue to clarify the nature of deposits in these courtyard groups, as well as help to define their synchronic and diachronic role(s) within the context of the larger center of Chan Chich.

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An Energy Dispersive X-Ray Fluorescence Analysis of the Obsidian Artifacts from Chan Chich, Belize

M. Steven Shackley

Introduction

The following report documents the energy dispersive x-ray fluorescence (EDXRF) analysis of ten obsidian artifacts recovered from the site of Chan Chich, Belize in 1997 (Table 8-1, Figure 8-1). Each obsidian artifact was assigned an obsidian sample (OS) number in the field. The attribute data in Table 8-1 is based on a technological examination of the artifacts by Brett A. Houk. The temporal context information reflects the latest date for ceramics from the same excavation lot. As is typical in most time periods in Belize, most of the artifacts were produced from obsidian procured from El Chayal in Guatemala. The remaining specimens were produced from obsidian procured from Ixtepeque, Guatemala; San Martín Jilotepeque, Guatemala; and one of the sources in the Sierra de Pachuca in the state of Hidalgo, Mexico.

Table 8-1. Provenience, Context, Source, and Attribute Data for Obsidian Artifacts
Length, Width, and Thickness Measurements are in mm.

OS Number	Provenience	Temporal Context	Source	Description	L	W	Th	Edge
97-1	1-A-2	Tepeu 2	El Chayal*	Medial blade	8.0	8.6	2.4	Heavy post-depositional chipping
97-2	2-B-1	Tepeu 2	El Chayal	Distal blade, snap fracture	25.7	8.0	2.7	Minimial post-depositional knicking
97-3	1-B-4	Tepeu 2	El Chayal	Flake (lateral edge missing)	23.1	13.1	3.6	Post-depositional crushing on one edge
97-4	2-J-6	Chicanel	El Chayal	Proximal flake	14.8	16.8	5.6	Platform preparation flake
97-5	2-J-5	Chicanel	San Martin Jilotepeque	Medial blade, snapped both ends	18.2	9.9	2.2	Utilized with post-depositional knicking
97-6	3-C-2	Tepeu	El Chayal	Medial blade, snap at proximal end	34.3	13.5	2.8	Utilized with post-depositional knicking
97-7	3-C-2	Tepeu	Ixtepeque*	Chip	7.1	9.5	0.9	Post-depositional crushing
97-8	3-C-2	Tepeu	El Chayal	Medial blade, snap at proximal end	20.0	10.8	2.7	Post-depositional knicking
97-9	Surface ES C-1	Unknown	Sierra de Pachuca	Medial blade, unknown break	42.0	12.0	3.4	Heavy post-depositional chipping
97-10	4-C-1	Tepeu 2-3	El Chayal	Proximal blade, snap fracture	22.6	12.1	3.2	Heavy post-depositional knicking

* Due to the small size of these samples, the elemental composition is somewhat variant from the established standards (see Davis et al. 1998).

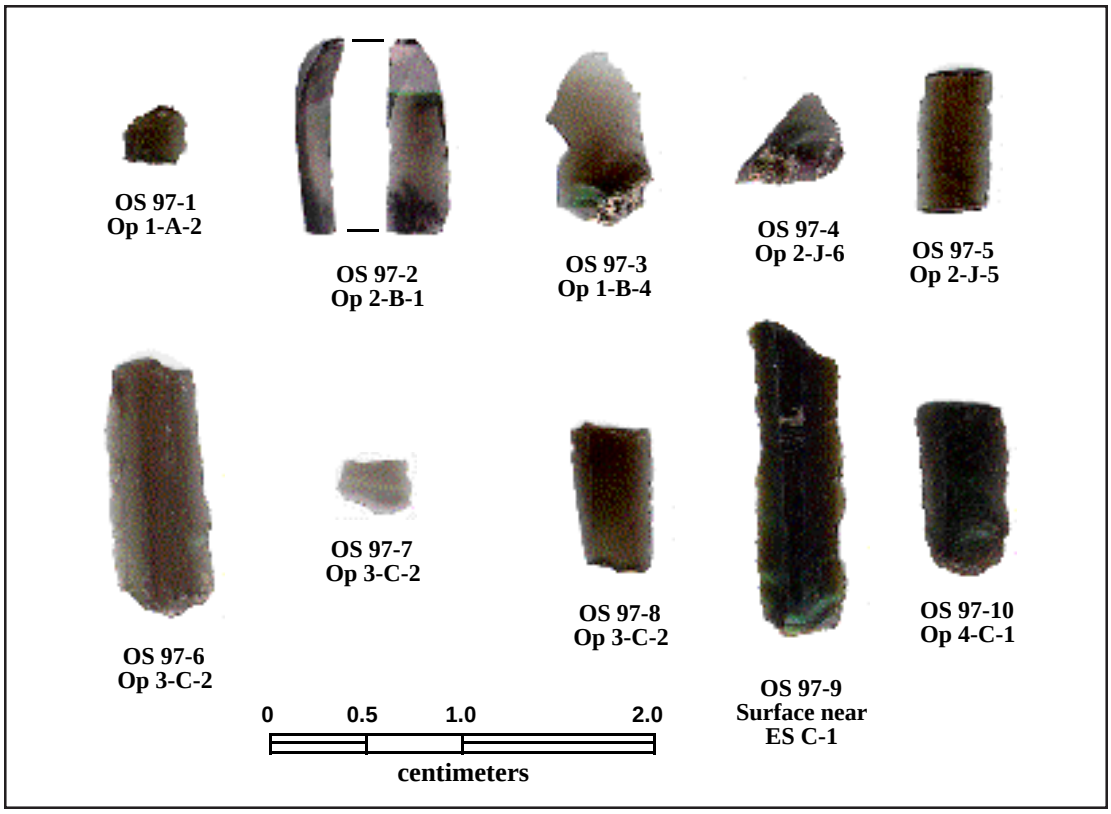

Figure 8-1. Obsidian artifacts from the 1997 season at Chan Chich, Belize.

Analysis and Instrumentation

All samples were analyzed whole, with no intensive sample preparation. The results presented here are quantitative in that they are derived from "filtered" intensity values ratioed to the appropriate x-ray continuum regions through a least squares fitting formula rather than plotting the proportions of the net intensities in a ternary system (McCarthy and Schamber 1981; Schamber 1977). Or more essentially, these data through the analysis of international rock standards, allow for inter-instrument comparison with a predictable degree of certainty (Hampel 1984).

The trace element analyses were performed in the Department of Geology and Geophysics, University of California, Berkeley, using a Spectrace™ 400 (United Scientific Corporation) energy dispersive x-ray fluorescence spectrometer. The spectrometer is equipped with a Rh x-ray tube, a 50 kV x-ray generator, with a Tracor X-ray (Spectrace™) TX 6100 x-ray analyzer using an IBM PC based microprocessor and Tracor reduction software. The x-ray tube was operated at 30 kV, 0.20 mA, using a 0.127 mm Rh primary beam filter in a vacuum path at 250 seconds livetime to generate x-ray intensity Ka-line data for elements titanium (Ti), manganese (Mn), iron (as Fe^T), zinc (Zn), thorium (Th), rubidium (Rb), strontium (Sr), yttrium (Y), zirconium (Zr), and niobium (Nb). Weight percent iron ($Fe_2O_3^T$) can be derived by multiplying ppm estimates by 1.4297^{10-4}. Trace element intensities were converted to concentration estimates by employing a least-squares calibration line established for each element from the analysis of international rock standards certified by the National Institute of Standards and Technology (NIST), the US. Geological Survey (USGS), Canadian Centre for Mineral and Energy Technology, and the Centre de Recherches Pétrographiques et Géochimiques in France (Govindaraju 1989). Further details concerning the petrological choice of these elements in Southwest obsidians is available in Shackley (1988, 1990, 1992, 1995; also Mahood and Stimac 1991; and Hughes and Smith 1993). Specific standards used for the best fit regression calibration for elements Ti through Nb include G-2 (basalt), AGV-1 (andesite), GSP-1 and SY-2 (syenite), BHVO-1 (hawaiite), STM-1 (syenite), QLM-1 (quartz latite), RGM-1 (obsidian), W-2 (diabase), BIR-1 (basalt), SDC-1 (mica schist), TLM-1 (tonalite), SCO-1 (shale), all US Geological Survey standards, and BR-N (basalt) from the Centre de Recherches Pétrographiques et Géochimiques in

France (Govindaraju 1989). In addition to the reported values here, Pb, Ni, Cu, and Ga, were measured, but these are rarely useful in discriminating glass sources and are not generally reported. These data are available on disk by request.

The data from the Tracor software were translated directly into Quattro Pro for Windows software for manipulation and on into SPSS for Windows for statistical analyses. To evaluate these quantitative determinations, machine data were compared to measurements of known standards during each run. Table 8-2 shows a comparison between values recommended for three international obsidian and rhyolite rock standards, RGM-1, NBS(SRM)-278, and JR-2. One of these standards is analyzed during each sample run to check machine calibration. The results shown in Table 8-2 indicate that the machine accuracy is quite high, particularly for the mid-Z elements, and other instruments with comparable precision should yield comparable results. Further information on the laboratory instrumentation can be found on the World Wide Web at: <http://obsidian.pahma.berkeley.edu/xrflab.htm>.

Trace element data exhibited in Tables 8-2 and 8-3 are reported in parts per million (ppm), a quantitative

Table 8-2. X-Ray Fluorescence Concentrations for Selected Trace Elements of Three International Rock Standards

± values represent first standard deviation computations for the group of measurements. All values are in parts per million (ppm) as reported in Govindaraju (1989) and this study. RGM-1 is a U.S. Geological Survey rhyolite standard, SRM-278 is a National Institute of Standards and Technology obsidian standard, and JR-2 is a Geological Survey of Japan rhyolite standard. Fe^T can be converted to $Fe_2O_3^T$ with a multiplier of 1.4297^{10-4} (see also Glascock 1991).

Sample	Ti	Mn	Fe	Rb	Sr	Y	Zr	Nb	Ba
RGM-1 (Govindaraju 1989)	1600	279	12998	149	108	25	219	8.9	807
RGM-1 (Glascock and Anderson 1993)	1800±200	323±7	12400±300	145±3	120±10	n.r.[a]	150±7	n.r.	26±31
RGM-1 (this study)	1516±58	259±19	13991±143	152±3	108±2	24±1	226±4	10±1	806±12
SRM-278 (Govindaraju 1989)	1469	402	14256	127.5	63.5	41	295	n.r.	1140[b]
SRM-278 (Glascock and Anderson 1993)	1460±270	428±8	14200±300	128±4	61±15	n.r.	208±20	n.r.	891±39
SRM-278 (this study)	1376±96	372±17	15229±399	129±2	68±2	42±2	290±3	17±2	1090±38
JR-2 (Govindaraju 1989)[b]	540	852	6015	297	8	51	98.5	19.2	39
JR-2 (this study)	343±51	680±17	7358±65	300±5	10±1	49±3	94±2	16±2	34±6

[a] n.r. = no report

[b] values proposed not recommended

Table 8-3. X-Ray Fluorescence Concentrations for the Archaeological Data

All measurements in parts per million (ppm).

OS #	Mn	Fe	Zn	Th	Rb	Sr	Y	Zr	Nb	Source
97-1	439.1	8104.4	51.1	19.5	127.2	127.0	12.5	79.7	11.5	El Chayal[1]
97-2	667.3	9902.0	54.8	13.1	161.2	156.1	18.9	105.2	8.6	El Chayal
97-3	592.3	9159.7	42.6	20.0	159.9	154.0	18.7	107.9	7.5	El Chayal
97-4	568.1	9028.0	64.6	17.2	138.0	141.4	20.1	100.8	6.0	El Chayal
97-5	446.7	9557.2	39.4	10.2	124.1	190.0	14.3	107.5	10.0	San Martín Jilotepeque
97-6	603.6	9345.1	49.6	27.6	169.9	164.6	16.7	108.8	8.6	El Chayal
97-7	399.6	11427.7	42.2	18.4	92.0	136.3	15.8	123.9	7.5	Ixtepeque[1]
97-8	511.3	8594.1	41.9	17.6	146.4	142.8	17.1	101.8	5.6	El Chayal
97-9	1273.8	20890.3	263.1	24.2	236.3	4.8	122.2	1056.1	97.3	Sierra de Pachuca
97-10	573.7	9058.5	46.9	16.2	155.0	153.5	20.2	109.3	8.5	El Chayal

[1] Due to the small size of these samples, the elemental composition is somewhat variant from the established standards (see Davis et al. 1998).

measure by weight. Table 8-3 and Figures 8-2 and 8-3 exhibit the data for the archaeological samples. Source assignment was made by comparison to source standards at Berkeley, and by comparison to data from the University of Missouri Research Reactor Facility (Braswell and Glascock 1998; Glascock 1996, Glascock et al. 1998, and personal communication 1997). Ti, Rb, and Sr appear to best separate the sources in this data set (Figures 8-2 and 8-3).

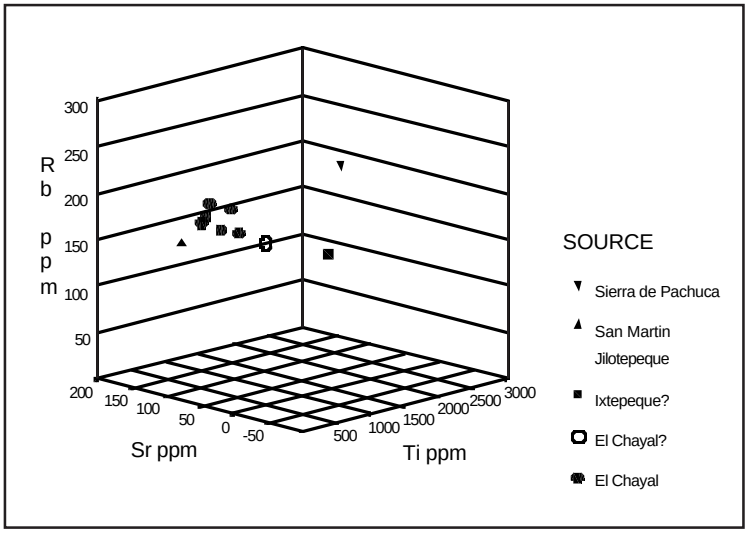

Figure 8-2. Rb, Sr, Ti plot of archaeological data.

Discussion

The results of the analysis are within the expectations for the time period and expected procurement for sites in Belize. One El Chayal specimen and the specimen assigned to the Ixtepeque source were relatively small and the resulting elemental composition is somewhat variant from the expected values.

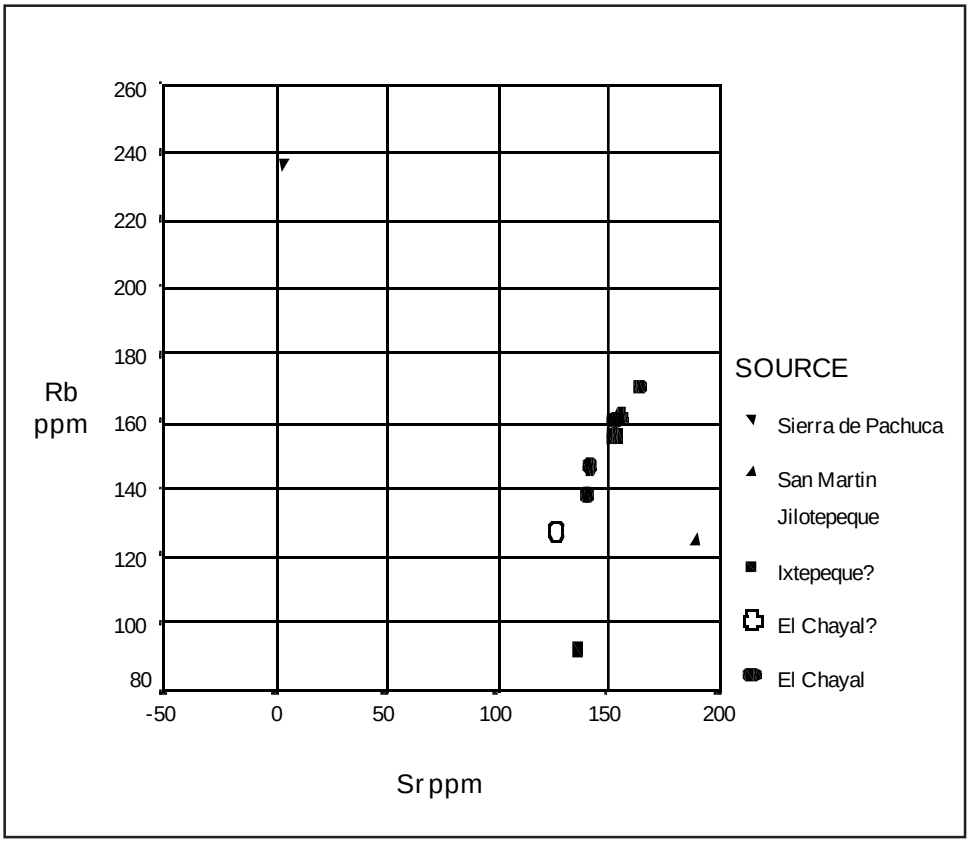

Figure 8-3. Rb versus Sr plot of archaeological data.

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The Chan Chich Ceramic Sequence

Fred Valdez, Jr.

Introduction

This study reports an analysis of ceramics recovered from survey, testing, and excavations during the 1997 field season at Chan Chich. Ceramics curated at Chan Chich from previous investigations are also considered in the evaluation of the ceramic sequence. Three major objectives serve as guiding interests in this early phase of the Chan Chich Project for the ceramic study. First is the establishment of a chronological sequence for the site. This sequence will then serve 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. 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 gage intersite and interregional trade, communication and cultural evolutionary developments.

At this stage of the ceramic analysis, objective one will be greatly advanced and some commentary may be provided towards the second and third areas of interest. However, all statements provided here are subject to significant modification as each field season provides more explicit information requiring a reevaluation of data interpretations.

Analysis Methodology

The Chan Chich ceramic collection is evaluated using the long established type:variety-mode system of analysis (Smith, Willey, and Gifford 1960; Adams 1971; Gifford 1976; Sabloff 1975). 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 (Pring 1977; Kosakowsky 1987; Kosakowsky and Pring 1998), El Mirador (Forsyth 1989), K'axob (Lopez 1995), Kichpanha (Reese and Valdez 1987; Meskill 1992; McDow 1997); Laguna de On (Mock 1997), Nakbe (Forsyth 1993), Norther River Lagoon Site (Mock 1994) Oxkintok (Varela 1992), Río Azul (Adams and Jackson-Adams 1987), Santa Rita (Chase and Chase 1988), Seibal (Sabloff 1975), and the Programme for Belize Archaeological Project (PFBAP) as a regional endeavor (Valdez, Sullivan, and Buttles 1993; Sullivan and Valdez 1998).

The primary task in this analysis requires ceramic type descriptions that lead to the grouping of typological units which may then be defined into chronologically significant segments. This system allows for the ceramics to be used as a chronological tool which is of immediate interest to excavators. The time segments defined for Chan Chich are determined by comparisons with similar ceramics at other sites. Specific temporal designations may be modified with the results of radiocarbon analysis.

The Ceramic Sequence

Six traditional lowland Maya ceramic complexes are represented in the Chan Chich sequence (Table 9-1). While not all are functionally complete as defined by Adams (1971), it is clear that the site was settled by ca. 900 BC and maintained continuous occupation through the Late Classic to about AD 850. Late Postclassic visitations may have occurred as is common at numerous other sites.

The ceramic complexes currently defined, will be named after the 1998 season. It is believed that additional excavations will provide data lending support to the general ceramic chronology. Each season of research will ideally allow for a refinement of the chronology through better definitions of complexes and complex facets.

Table 9-1. Chan Chich Ceramic Chronology

	Complex	Sphere	Dates
early	Middle Preclassic	Swasey	900–600 BC
late	Middle Preclassic	Mamom	600–400 BC
	Late Preclassic	Chicanel	400 BC–AD 150
	Protoclassic	Floral Park	AD 150–250
	Early Classic	Tzakol	AD 250–600
	Late Classic	Tepeu	AD 600–850

Early Middle Preclassic (Swasey)

Beginning about 900 BC and extending to 600 BC, this complex represents the earliest occupation at Chan Chich. Although few in number the significant ceramic types of this complex fit well with the northern Belize Swasey Sphere (Figure 9-1). The Swasey Sphere ceramics from Chan Chich match those reported from Colha (Valdez 1987, 1994), Cuello (Pring 1977; Kosakowsky 1987; Kosakowsky and Pring 1998), Kichpanha (Reese and Valdez 1985; McDow 1997), the PFBAP region (Sullivan and Valdez 1998), Río Azul (Adams and Jackson-Adams 1987), and as viewed in the K'axob collection (personal observation 1993). However, it is important to note that there is an intriguing overlap in similarity between the Swasey and Xe spheres. The extent (qualitative, quantitative, and meaning) of this overlap between the two contemporary spheres is yet to be determined.

The major types identified for this complex are:

Consejo Red: Estrella variety
Chicago Orange: Nago Bank variety
Machaca Black: Wamil variety
Tower Hill Red-on-cream: Tower Hill variety
Barquedier Grooved-incised: Barquedier variety
Calcutta Incised: Unspecified variety
Cotton Tree Incised: Cotton Tree variety
Unnamed Red-on-orange paste

Late Middle Preclassic (Mamom)

Dated from 600 BC to 400 BC, this Chan Chich complex belongs to the Mamom Sphere which is pan-Maya, but displays regional variations. Although very similar in content to complexes at other known sites e.g., Altar de Sacrificios (Adams 1971), Colha (Valdez 1987, 1994), Cuello (Kosakowsky and Pring 1998), El Mirador (Forsyth 1989), Nakbe (Forsyth 1993), Seibal (Sabloff 1975), as well as sites directly north in the PFBAP (Sullivan and Valdez 1998), clear communication intraregionally and interregionally may have been limited particularly as compared to succeeding phases. While distinctions between type:variety from one site to another are observed in terms of minor form differences as well as in slip color and/or treatment, these elements are consistent enough throughout the lowland zone to warrant the placement of the Chan Chich complex in the Mamom Sphere (Figure 9-2).

The major types identified for this complex are:

Sapote striated: Unspecified (thin-wall) variety
Joventud Red: Palmasito variety
Chunhinta Black: Chunhinta variety
Chicago Orange: Warrie Camp variety
Pital Cream: Unspecified variety
Guitara Incised: Grooved-incised 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 (?)

Late Preclassic (Chicanel)

This complex at Chan Chich is placed with a beginning date of 400 BC and guessed to end about AD 150. Ordinarily the Late Preclassic would extend to AD 250, however, given the presence of Protoclassic/Floral Park ceramics matched with a Protoclassic tomb containing 11 vessels, a separate complex is posited for the period beginning ca. AD 150.

The Late Preclassic as recognized at Chan Chich is a nearly identical in type composition to other Maya sites’ complexes of the same period. Some of the significant types are presented in Figures 9-3 and 9-4.

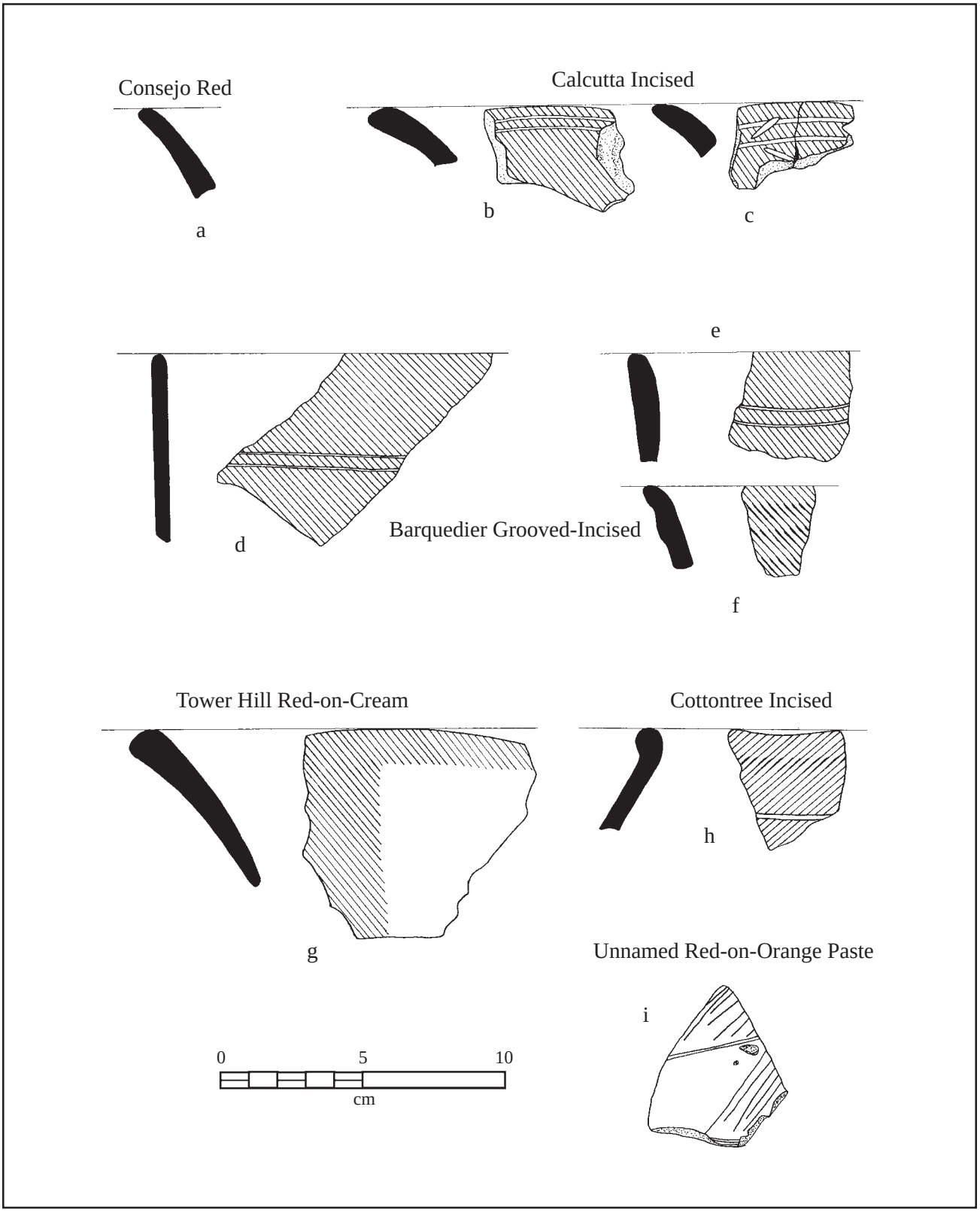

Figure 9-1. *Early Middle Preclassic ceramic types from Chan Chich.* a–c: Op 2-H-6; d: Op 2-H-9; e: Op 2-H-10; f: Op 2-H-11; g: Op 2-H-6; h: Op 2-H-10; i: Op 2-H-6.

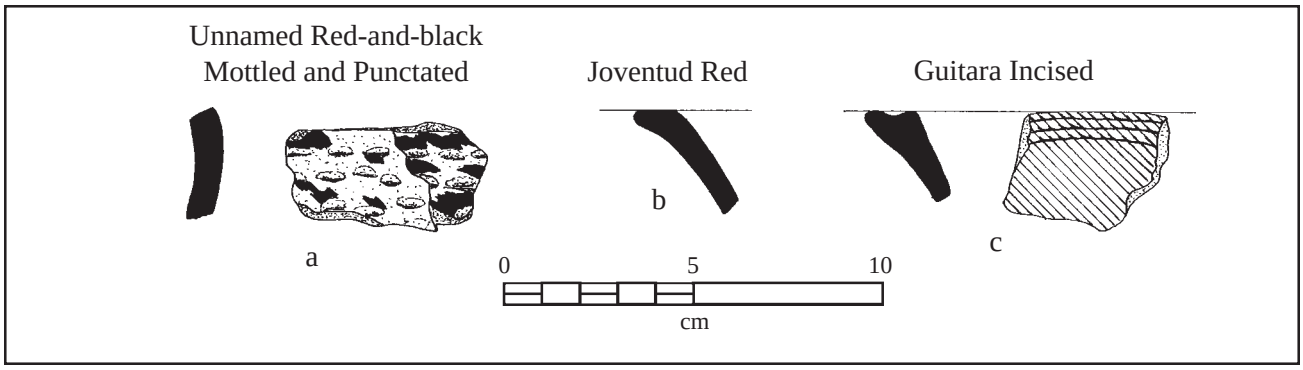

Figure 9-2. *Late Middle Preclassic ceramic types at Chan Chich.* a: Op 2-A-6; b: Op 2-J-3; c: Op 2-J-7.

There occurs among the lowland Maya a very strong sense of what pottery should look like particularly for common wares. Thus, bowls, jars, etc. become very uniform in shape, slip color, and surface treatment. The sites used for comparisons in this analysis include Altar de Sacrificios (Adams 1971), Becan (Ball 1977), Cerros (Robertson-Freidel 1980), Colha (Valdez 1987, 1994), Cuello (Kosakowsky and Pring 1998), El Mirador (Forsyth 1989), Kichpanha (McDow 1997), Nakbe (Forsyth 1993), and Seibal (Sabloff 1975). The Late Preclassic as interpreted from the ceramics represents a time of intensive and extensive communication in the Maya region, particularly within the lowland zones. This is also a time of conservative decisions in pottery making. However, the extent of (innovative) development with the following phase is quite mixed from site to site.

The major types represented for this complex are:

Sapote Striated: Unspecified variety
Sierra Red: Sierra variety
Society Hall: Unspecified variety
Polvero Black: Unspecified variety
Flor Cream: Unspecified variety
Nictaa Buff: Unspecified variety
San Antonio Golden-brown: Unspecified variety
Laguna Verde Incised: Grooved-incised variety
Lechugal Incised: Macaw Bank variety
Lagartos Punctated: Unspecified variety
Escobal Red-on-buff: Unspecified variety
Unnamed Red-and-black mottled

Protoclassic (Floral Park)

Described as a separate complex from the Late Preclassic, the Protoclassic at Chan Chich is presently estimated to date ca. AD 150–250. A significant overlap exists between types defined for the Late Preclassic (Chicanel Sphere) and the Protoclassic (Floral Park Sphere). This is partly explained by the conservative and practical practice of continued use for those attributes (forms, slips, etc.) that function well. What separates the two complexes most is the introduction of new and sometimes elaborate forms as well as a general hardening of the ceramic slips. In sum, the Protoclassic is a period of innovation when polychrome pottery is introduced and the slips have moved generally from "waxy wares" to a hard "glossy" appearance. Figure 9-5 provides illustrations of several Protoclassic sherds. Eleven complete vessels (from Tomb 2) are assigned to this phase. Sites to which comparisons of the Chan Chich Protoclassic ceramics were made include 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 Arnauld 1985).

The major types represented for this complex are:

* Sapote Striated: Unspecified variety
  Caribal Red: Unspecified variety
* Sierra Red: Sierra variety
* Society Hall: Unspecified variety
* Nictaa Buff: Unspecified variety
  San Felipe Brown: Unspecified variety
  Tanjoc Burnished: Unspecified variety (?)
* Polvero Black: Unspecified variety
* Escobal Red-on-buff: Unspecified variety
  Unnamed Buff Incised
  Unnamed Red-and-unslipped Punctated
  Unnamed Red Incised-and-punctated
  Unnamed Red-on-black with punctation
  Unnamed Cream-and-brown with grooved rim

* Occur in the Late Preclassic and Protoclassic

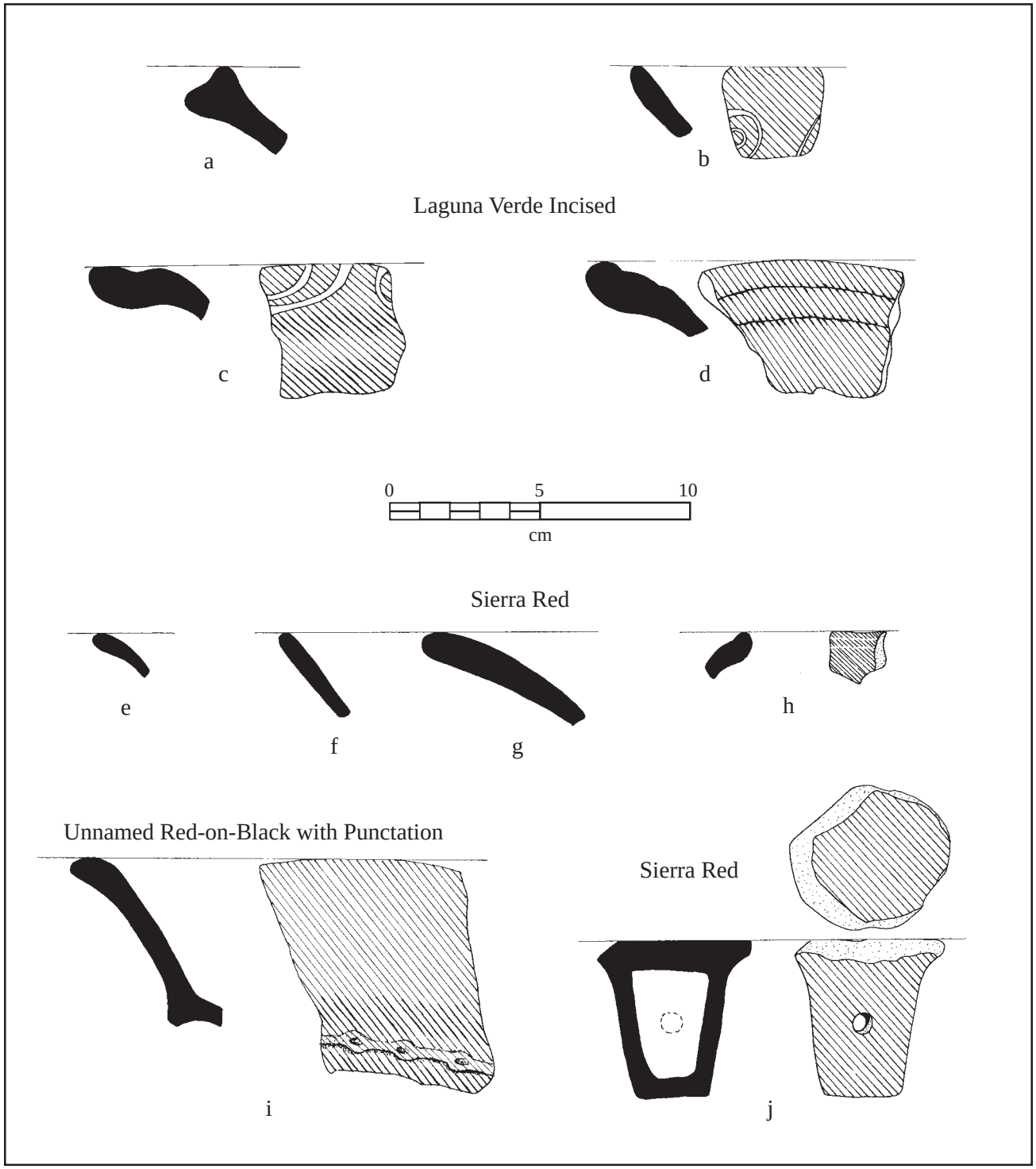

Figure 9-3. *Late Preclassic ceramic types at Chan Chich.* a, b: Op 4-A-2; c: Op 2-J-6; d: Op 2-J-7; e: Op 3-E-2; f, g: Op 4-A-2; h: Op 1-C-10; i: Op 4-C-2; Op 4-A-4.

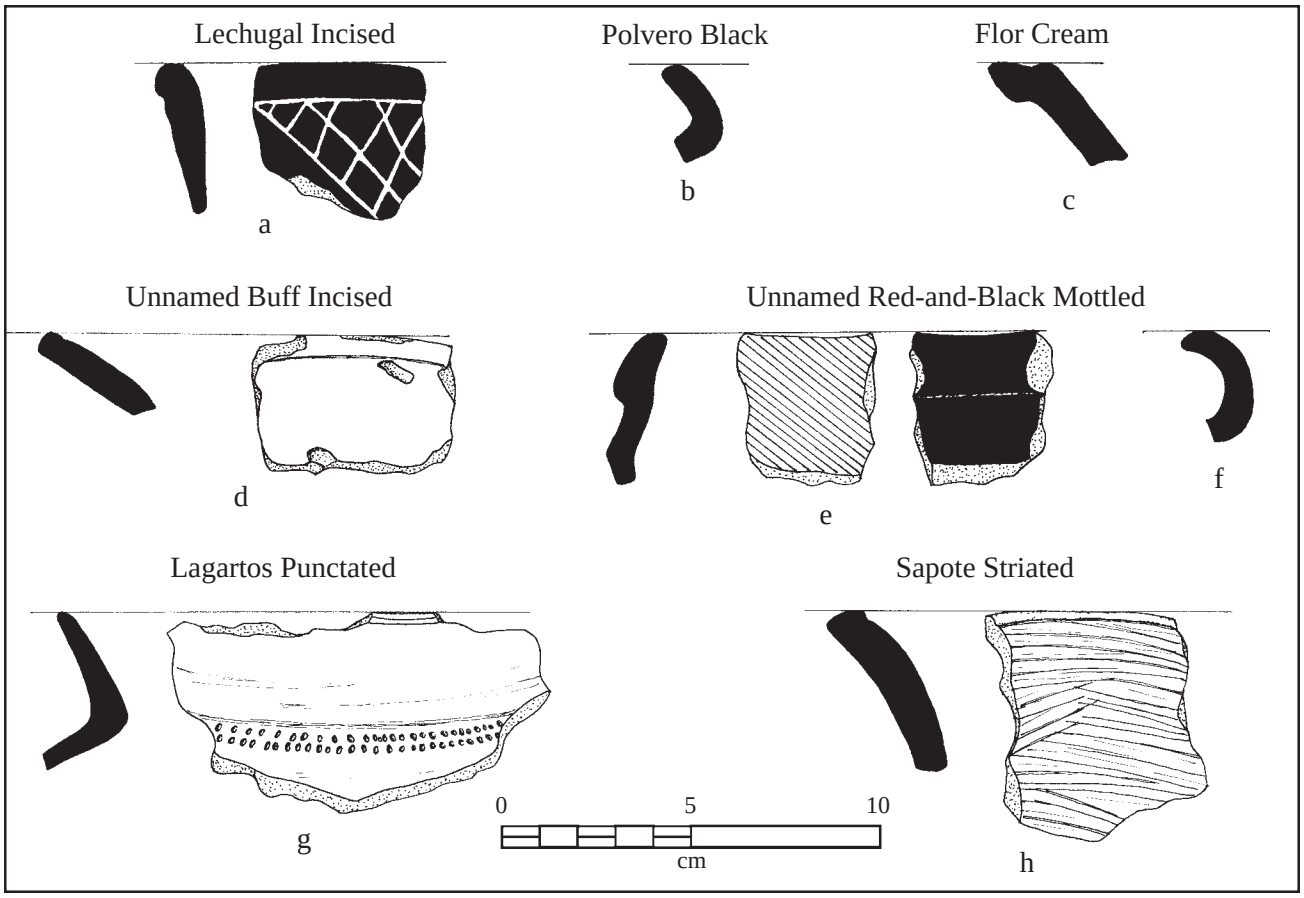

Figure 9-4. *Additional Late Preclassic ceramic types at Chan Chich.* a: Op 4-B-7; b: Op 2-C-2; c: Op 2-D-1; d: Op 2-J-5; e: Op 2-F-4; f: Op 2-J-4; g: Op 2-G-2; h: Op 4-C-2.

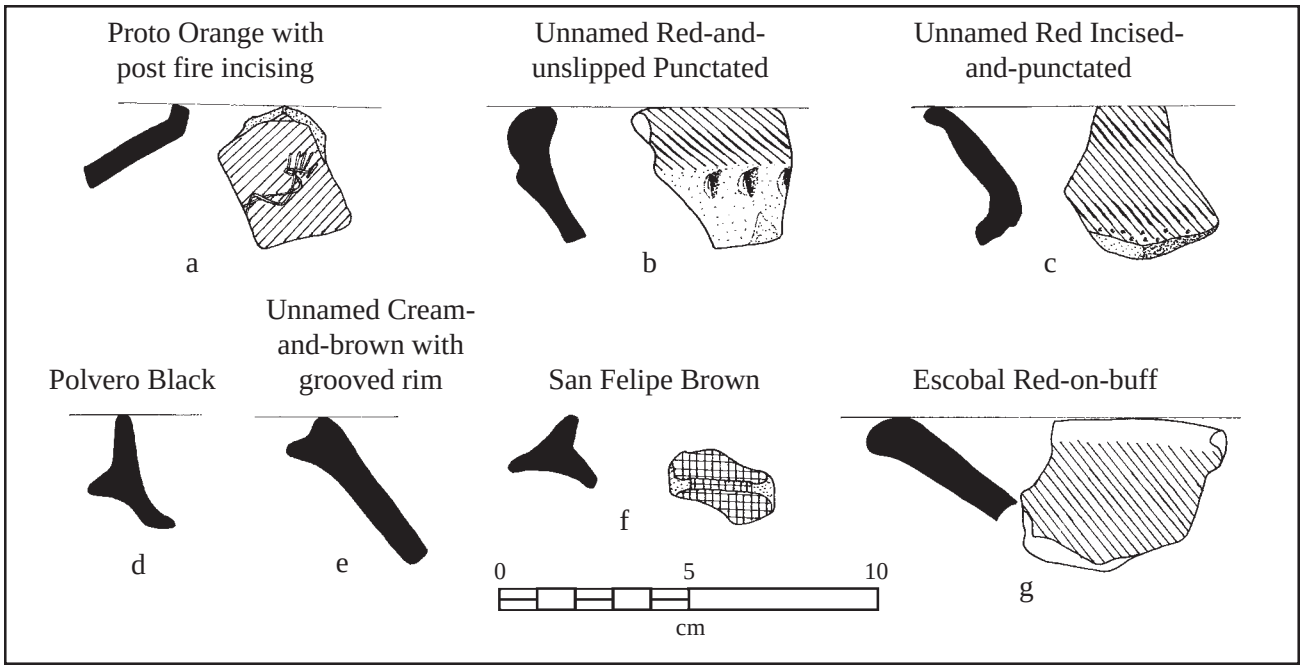

Figure 9-5. *Protoclassic ceramic types at Chan Chich.* a: Op 2-G-4; b: Op 1-C-11; c: Op 1-C-4; d: Op 2-J-2; e: Op 4-A-4; f: Op 2-A-5; g: Op 3-C-5.

Eleven whole vessels (Figures 9-6 and 9-7) were recovered from a Protoclassic tomb at Chan Chich this season (Robichaux 1998; Robichaux and Houk 1998). The ceramics of the tomb provide a capsule view for this significant Maya period as a transition point from the Late Preclassic into the Early Classic. The 11 vessels remain "unnamed" as to type for this report, but will be named as further analysis confirms assessments. However, they are currently divided into eight significant descriptive categories:

Unnamed Red; mammiform support bowls (4)
Unnamed Red; basal flange bowl; (1)
Unnamed Red; basal angle bowl (1)
Unnamed Red; ring base jar (1)
Unnamed Red-incised: basal flange bowl (1)
Unnamed Red-and-buff; mammiform support bowl (1)
Unnamed Red-rimmed, Buff; spout-and-bridge jar (1)
Unnamed Red-rimmed, Buff-incised; spout-and-bridge jar (1)

An important comment concerning the Protoclassic chronology should be interjected at this point. A recent re-evaluation (Brady et al. 1998) of the dating often associated with the Protoclassic indicates that this period may occur as two facets with a dividing line between facets at AD 150. Thus, the Chan Chich Protoclassic as currently understood has the second facet represented as a separate complex (AD 150-250). However, according to Brady et al. (1998), this Protoclassic facet beginning at AD 150 may extend to AD 400 overlapping what is known in the ceramic chronology as Tzakol 1. The chronometric dating of bone or other material at Chan Chich (ideally from the tomb) may help to define the range of occupation for the Protoclassic and its overlap with Late Preclassic (Chicanel) and Early Classic (Tzakol) components.

Early Classic (Tzakol)

Traditionally dated from AD 250–600, the Early Classic at Chan Chich is poorly represented ceramically. While significant ceramic types have been identified (Figure 9-8), the numbers do not indicate a very strong occupation. However, several complete Early Classic vessels recovered from looter's activities point to more significant Early Classic developments than implied by the sherd recovery. Therefore, this interpretation of a weak occupation may be skewed by a sampling concern rather than a reality of Early Classic occupation and activity. Significant sites or collections for comparison include Altar de Sacrificios (Adams 1971, Becan (Ball 1977), the Belize Valley (Gifford 1976), Coba (Robles 1980), Colha (Meskill 1992; Valdez 1987), Kichpanha (McDow 1997; Meskill 1992), the PFBAP (Sullivan and Valdez 1998), Seibal (Sabloff 1975), and Stann Creek (Graham 1994).

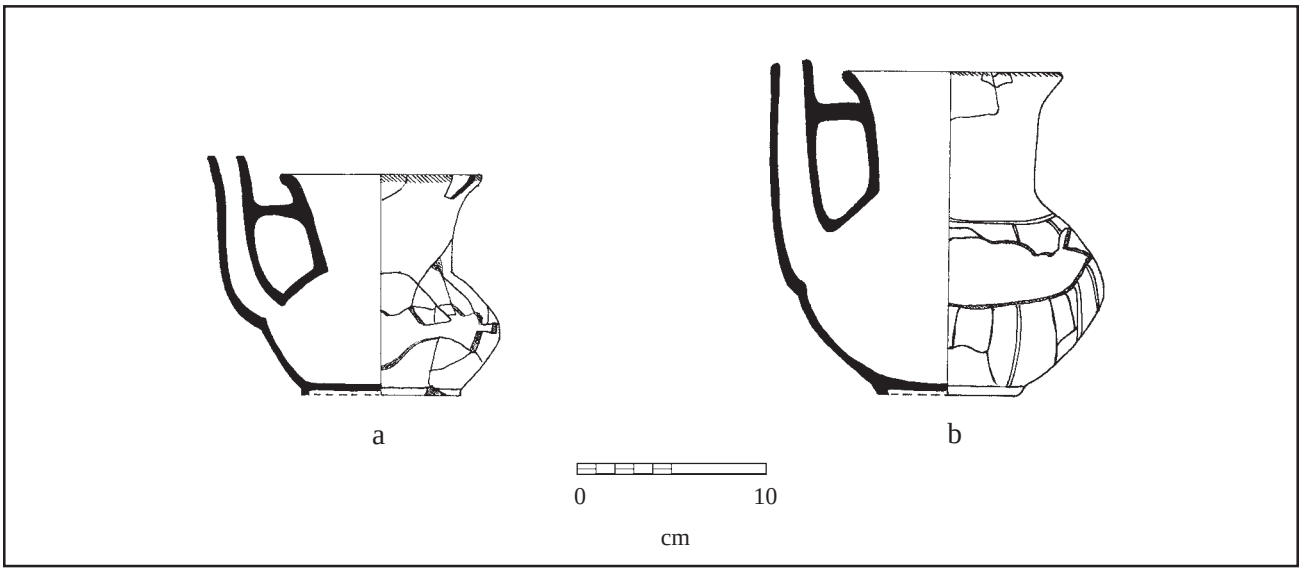

Figure 9-6. *Spouted Protoclassic vessels from Tomb 2 at Chan Chich.* a: Vessel 3, Unnamed Red-rimmed, Buff, spout-and-bridge jar; b: Vessel 1, Unnamed Red-rimmed, Buff-incised, spout-and-bridge jar.

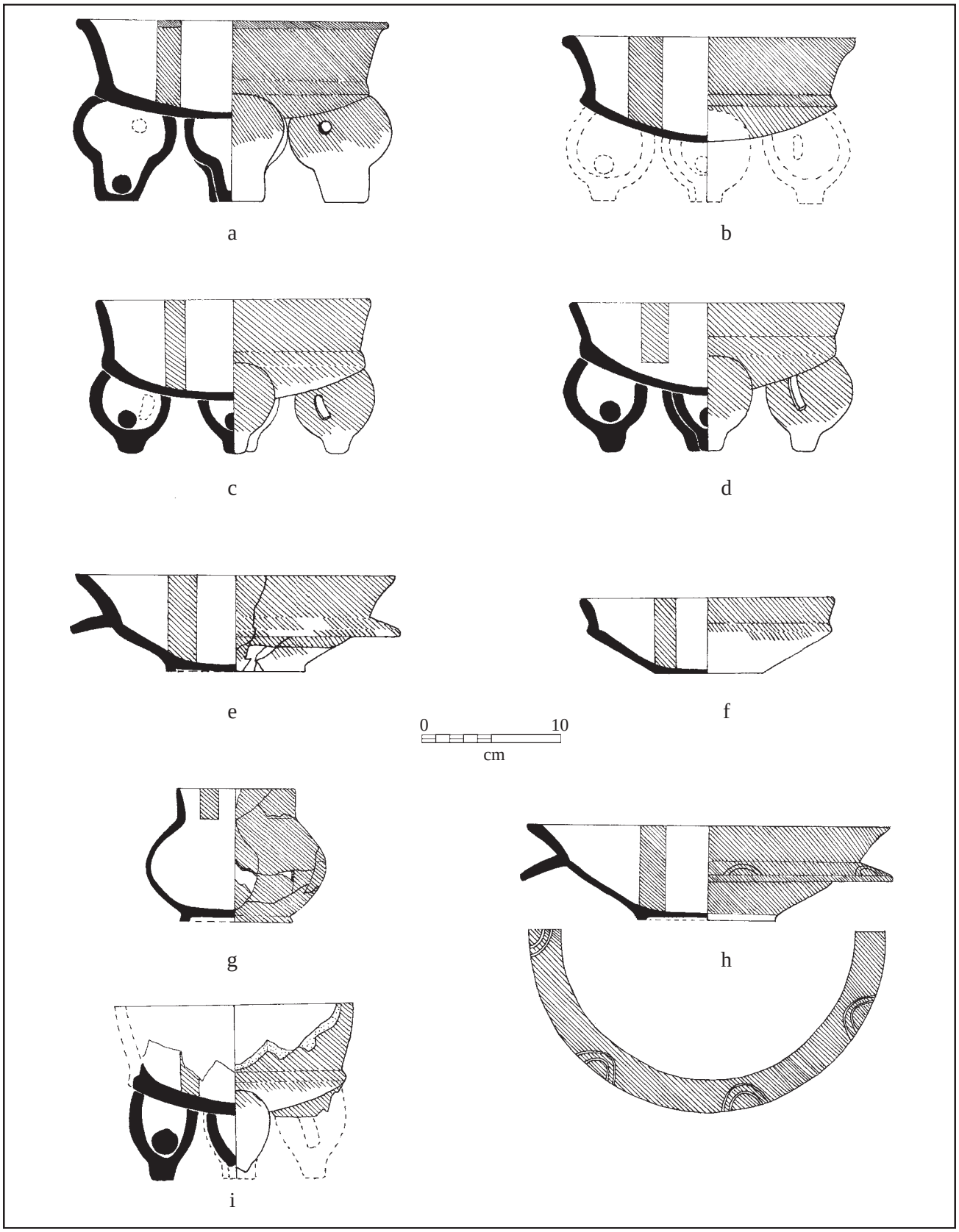

Figure 9-7. *Remaining Protoclassic vessels from Tomb 2 at Chan Chich.* a–d: Vessels 2, 4, 8, 9, Unnamed Red, mammiform support bowls; e: Vessel 10, Unnamed Red, basal flange bowl; f: Vessel 7, Unnamed Red, basal angle bowl; g: Vessel 6, Unnamed Red, ring base jar; h: Vessel 5; Unnamed Red-incised, basal flange bowl; i: Vessel 11, Unnamed Red-and-buff, mammiform support bowl.

The major types represented for this complex are:

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

Late Classic (Tepeu)

Presently dated to ca. AD 600–850, the Late Classic represents the last phase of occupation at Chan Chich. Two facets have been identified for the Late Classic complex, an early facet representing Tepeu 1-2 and a later facet overlapping Tepeu 2 and types/attributes associated with Tepeu 3. The Chan Chich Late Classic is easily placed within the northern Belize and eastern Peten ceramic developments of the period. Figure 9-9 provides selected illustrations of Late Classic sherds. Among the sites of comparative interest 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), Río Azul (Adams and Jackson-Adams 1987), and Seibal (Sabloff 1975).

By far, the largest number of excavated ceramics from Chan Chich date to the Late Classic. A significant amount of the recovered pottery from this period are eroded or weathered and will be discussed in the overview and commentary below. The major types identified for this complex are:

Encanto Striated: Unspecified variety
Belize Red: Belize variety
Subin Red: Unspecified variety
Tinaja Red: Unspecified variety
Achote Black: Unspecified variety
Cameron Incised: Unspecified variety
Cubeta Incised: Unspecified variety
Torro Gouged-incised: Unspecified variety
Tunich Red-on-orange: Tunich variety
Yuhactal Black-on-red: Unspecified variety
Daylight Orange: Darknight variety
Palmar Orange-polychrome: Unspecified variety
Unnamed Incised (ash temper)
Unnamed Black-rimmed Red-on-brown
Unnamed Imitation Fine Orange

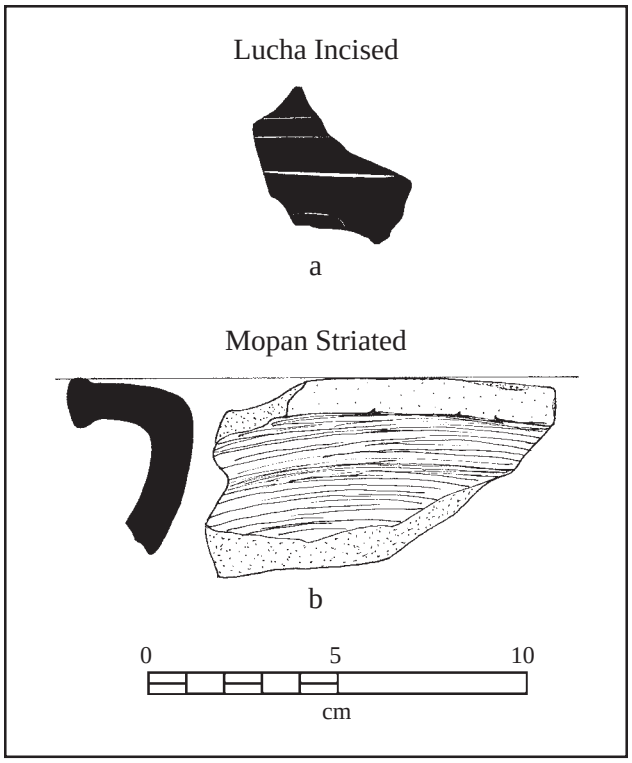

Figure 9-8. *Early Classic ceramic types at Chan Chich.* a, b: Op 4-C-2.

Overview and Commentary

An overview of the ceramic chronology will be presented and followed by comments concerning selected aspects of the sequence. The ancient city of Chan Chich, as evidenced by ceramic remains, was occupied by 900 BC and vacated ca. AD 850. The Middle Preclassic complexes (Swasey and Mamom Spheres) are directly related in types to other early sites in northern Belize and northeastern Peten. The extent of common pottery types indicates communication at some general level allowing for artistic license while emphasizing broad cultural preferences. The result of this combination is what leads to the identification of a common sphere with regional complex variations.

The Late Preclassic demonstrates more intensive interaction to the extent that ceramic types often appear identical from site to site. Sphere identification for this phase is Chicanel. The developed communication must have assisted in cutting down regional variation which was more apparent in the Middle Preclassic. Chan Chich in the Late Preclassic was definitely involved in the ceramic production and trade systems common throughout the lowlands. Overlapping the Late Pre-

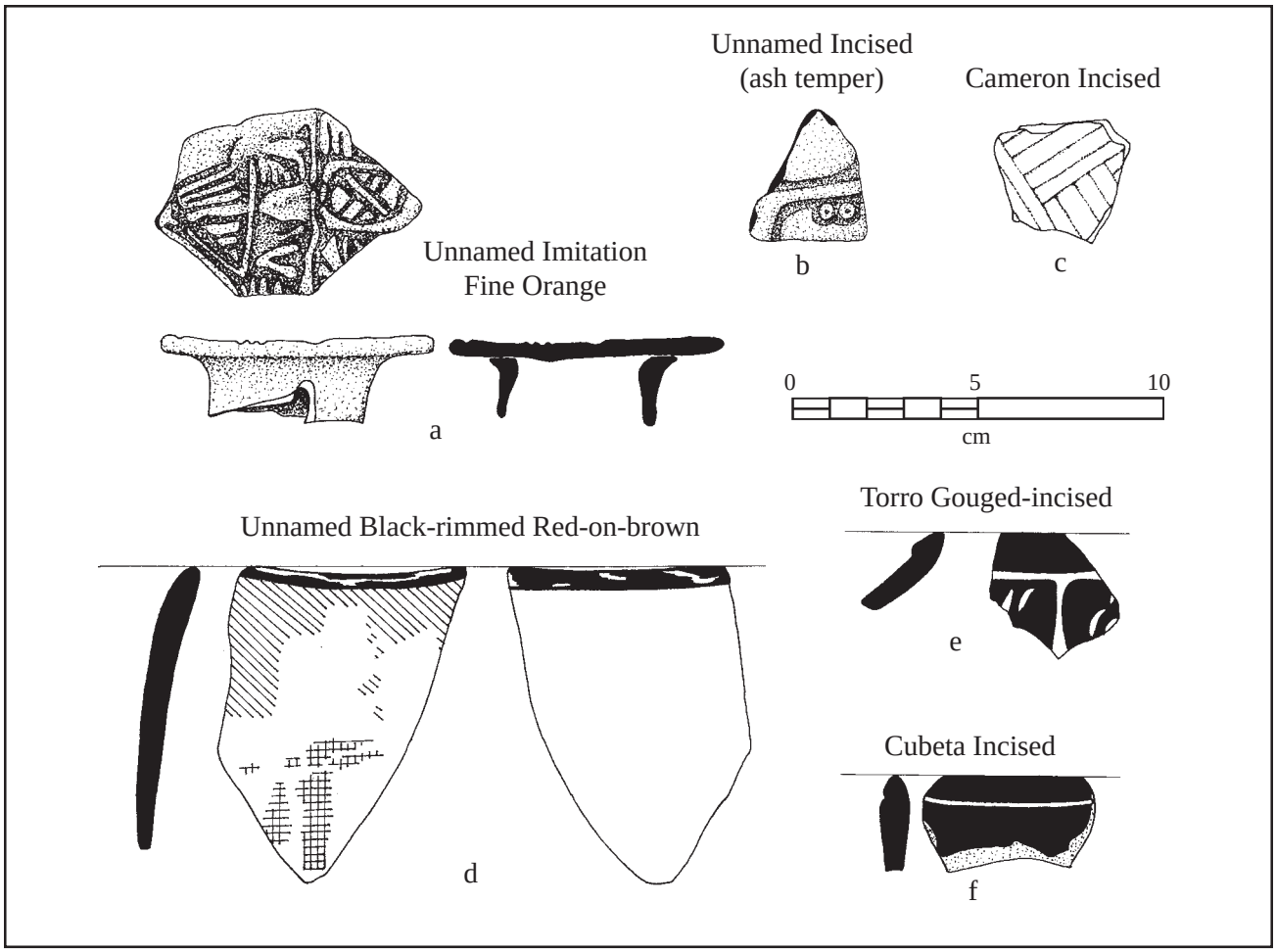

Figure 9-9. *Late Classic ceramic types at Chan Chich.* a: Op 4-B-5; b: Op 3-D-2; c: Op 1-B-8; d: Op 3-C-5; e, f: Op 4-B-6.

classic (Chicanel Sphere) remains is the Protoclassic (Floral Park Sphere) complex. For sites demonstrating a Late Preclassic occupation there were two paths of development towards the end of this period. Some sites maintained a rather conservative occupation that remained "Late Preclassic" while others became involved in a sphere of interaction represented by innovative developments called "Protoclassic". Both lines of development are defined from ceramic remains. Several sites that maintained their conservative stance ended in occupation by AD 250. Other sites following the new developments or trends grew with the Protoclassic and transitioned into the Early Classic.

The next complex is represented by Early Classic (Tzakol Sphere) remains. Though limited in representation, it is clear that Early Classic occupants were active at Chan Chich. No satisfactory explanation for a minor presence at Chan Chich during this period is posited. Rather, a sampling strategy might help to determine a true reduction in occupation or define where Early Classic inhabitants were most active. An intriguing consideration as indicated by Brady et al. (1998) is the possibility 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 (pottery).

The final period of occupation is called the Late Classic (Tepeu Sphere). Most areas of investigation in the 1997 season produced ceramics of the Late Classic phase (Table 9-2). Chan Chich is a very active member of the Peten and northern Belize trade and exchange network. Ceramic types are easily identified with the surrounding areas and the extent of communication seems intensive.

The occurrence of small sherds indicates areas of heavy traffic breaking the material into fragments smaller than when tossed out. Many of the sherds recovered from

Table 9-2. Chronological Assessment of Excavated Lots at Chan Chich

Op	Subop	Lot	Number of Sherds	Chronological Assessment (Sphere)
1	A	1	29	Tepeu 2
1	A	2	14	Tepeu 2, Floral Park, Mamom
1	B	1	8	Tepeu 2, Chicanel
1	B	2	64	Tepeu 2
1	B	4	9	Tepeu 2
1	B	8	47	Tepeu 2
1	B	9	22	Tepeu 1-2
1	B	10	35	Tepeu 1-2, Chicanel
1	C	1	12	Tepeu 2-3
1	C	2	8	Tepeu 2
1	C	3	61	Tepeu 2, Floral Park, Chicanel
1	C	4	106	Tepeu 1-2, Floral Park, Chicanel
1	C	8	19	Chicanel
1	C	10	50	Chicanel, Mamom
1	C	11	22	Chicanel, Mamom
2	A	1	82	Tepeu 2-3, Chicanel
2	A	2	111	Tepeu 2-3, Chicanel
2	A	3	14	Chicanel
2	A	4	28	Chicanel
2	A	5	34	Chicanel
2	A	6	24	Chicanel
2	A	7	53	Chicanel
2	A	8	71	Chicanel
2	A	9	7	Chicanel (?)
2	B	1	13	Tepeu 2-3
2	B	2	15	Tepeu 2-3
2	B	3	1	Tepeu (?)
2	C	1	123	Tepeu 2, Tzakol, Chicanel
2	C	2	58	Chicanel
2	D	1	94	Tepeu (?), Chicanel
2	E	1	168	Tepeu 2, Chicanel
2	F	1	71	Floral Park (?), Chicanel
2	F	2	44	Floral Park (?), Chicanel
2	F	3	25	Chicanel
2	F	4	21	Chicanel
2	G	1	18	Chicanel
2	G	2	32	Chicanel
2	G	3	50	Chicanel, Swasey
2	G	4	52	Floral Park (?), Chicanel
2	G	5	8	Chicanel
2	G	6	2	Chicanel/Mamom
2	H	1	69	Tepeu 2-3, Chicanel
2	H	2	11	Tepeu 2-3, Tzakol, Chicanel
2	H	3	6	Tepeu (?), Tzakol, Chicanel
2	H	3*	24	Tepeu (?), Tzakol, Chicanel
2	H	4	44	Chicanel
2	H	5	43	Chicanel, Mamom
2	H	6	294	Chicanel, Mamom, Swasey
2	H	8	409	Chicanel, Mamom, Swasey
2	H	9	22	Mamom, Swasey
2	H	10	234	Mamom, Swasey
2	H	11	155	Swasey
2	H	12	37	Swasey
2	H	13	5	Swasey
2	H	14	3	Swasey
2	I	1	31	Tepeu, Chicanel, Mamom
2	J	1	24	Tepeu, Chicanel
2	J	2	5	Chicanel
2	J	3	13	Chicanel, Mamom
2	J	4	21	Chicanel, Mamom
2	J	5	151	Chicanel, Mamom
2	J	6	106	Chicanel, Mamom
2	J	7	14	Chicanel, Mamom
2	J	8	20	Chicanel
2	J	9	4	Chicanel, Mamom
3	A	1	22	Tepeu 2, Chicanel
3	B	1	3	Tepeu
3	C	1	14	Tepeu, Chicanel
3	C	2	107	Tepeu, Tzakol, Chicanel, Mamom
3	C	3	5	Chicanel
3	C	4	4	Tepeu (?), Chicanel
3	C	5	17	Tepeu (?), Chicanel
3	D	1	4	Tepeu
3	D	2	62	Tepeu 2, Chicanel
3	D	3	20	Tepeu (?), Chicanel
3	D	4	15	Chicanel
3	E	1	40	Tepeu 2-3
3	E	2	54	Chicanel, Mamom(?)
4	A	1	554	Tepeu 2-3, Chicanel
4	A	2	328	Chicanel
4	A	2a	34	Chicanel
4	A	3	1	? (figurine frag.)
4	A	4	70	Chicanel, Mamom
4	A	5	3	unidentified/eroded
4	B	1	238	Tepeu 2-3, Chicanel, Mamom
4	B	2	22	Tepeu, Chicanel
4	B	3	68	Tepeu 2, Chicanel
4	B	4	127	Tepeu (?), Chicanel, Mamom
4	B	5	43	Tepeu 2-3
4	B	6	307	Tepeu 2, Chicanel
4	B	7	46	Chicanel
4	C	1	138	Tepeu 2-3, Tzakol, Chicanel
4	C	2	173	Tepeu 2, Tzakol, Chicanel

Late Classic contexts are also quite eroded and weathered. This condition of the ceramic material indicates that much of it was left exposed perhaps with abandonment. It is uncertain why Chan Chich was abandoned at the end of the Classic period, but the site has gone the way of most of its contemporaries. While later Postclassic visitations with special offerings may have taken place, permanent Maya occupation at Chan Chich was never regained.

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A Research Design for Group H

Richard Meadows

Introduction

The 1997 field season at Chan Chich focused excavation on the site center, primarily on monumental architecture and site chronology at elite residential areas. However, as the 1996 site map illustrates, Chan Chich was also settled by groups of people that were not living in the site center, but undoubtedly played a critical role(s) in socioeconomic activities that took place within greater Chan Chich. Group H is one settlement area that suggests intensive economic and likely political affiliation with the elites in the site center (Figure 10-1). Four weeks of excavation will be undertaken at Group H during the 1998 field season of the Chan Chich Archaeological Project (CCAP) to discern these roles.

Excavations will include preliminary investigation of a patio group, an isolated structure, and two large chert debitage mounds. It is hypothesized that the structures in Group H represent the remains of extensive domestic activities and production of lithic tool forms. Moreover, it is hypothesized that associated ceramics will indicate that Group H was occupied most intensively during the Late Classic, primarily by Tepeu 2-3 times, with perhaps a Postclassic overlay of ceramic material. A third research issue is proposed addressing possible continuities in the lithic assemblage. It is hypothesized that the workshops manufactured oval bifaces. With this production, a diverse array of debitage was produced. This debitage and the broken tool remains can tell us much about socioeconomic and technological systems at work during the site's occupation, as well as household structure and production. By examining semi-peripheral domestic production areas, an understanding of the elements of the local society as an integrated whole can be approached.

Group H was first documented during the 1996 mapping season of the CCAP (Houk et al. 1996). This residential area is located some 1.25 km to the southeast of the Main Plaza. The structure groups in this area are located along the western slope and at the summit of a prominent hill immediately to the southeast of Chan Chich Creek (Houk et al. 1996). Group H contains three primary patio groups, as well as some 31 structures within a 250-x-250-m survey block (see Figure 10-1). Moreover, several mounds of chert debitage are associated with these structures. These mounds are the remnants of lithic production and maintenance activities that took place here. Two of these mounds are approximately 1.5 m high and initial subsurface probes indicate that the lithics deposits are at least 30 cm thick (Houk et al. 1996). It is clear that the buildings and their associated refuse mounds can provide important data with respect to domestic and localized economic activities of the ancient inhabitants of Chan Chich.

Research Objectives and Methods

The following is a discussion of the primary objectives of the 1998 excavations at Group H. It is thought that these excavations are will provide further insight into how Chan Chich as a whole was integrated in terms of settlement location, and more specifically, in terms of domestic socioeconomies of production and consumption.

Objective 1

To establish a chronology of occupation for the primary platform, known as ES H-1. This platform is the largest platform in Group H and likely the focus of domestic and lithic production activities. In addition, excavations at this platform will yield data that can illustrate the domestic structure of non-elite residents of Chan Chich.

Investigation on this platform will consist of a 1-x-2-m test unit located between Structures H-3 and H-4 and oriented to the north-south. It is hoped that this test unit will reveal the outer walls of the two structures as well as material that was deposited between the two buildings.

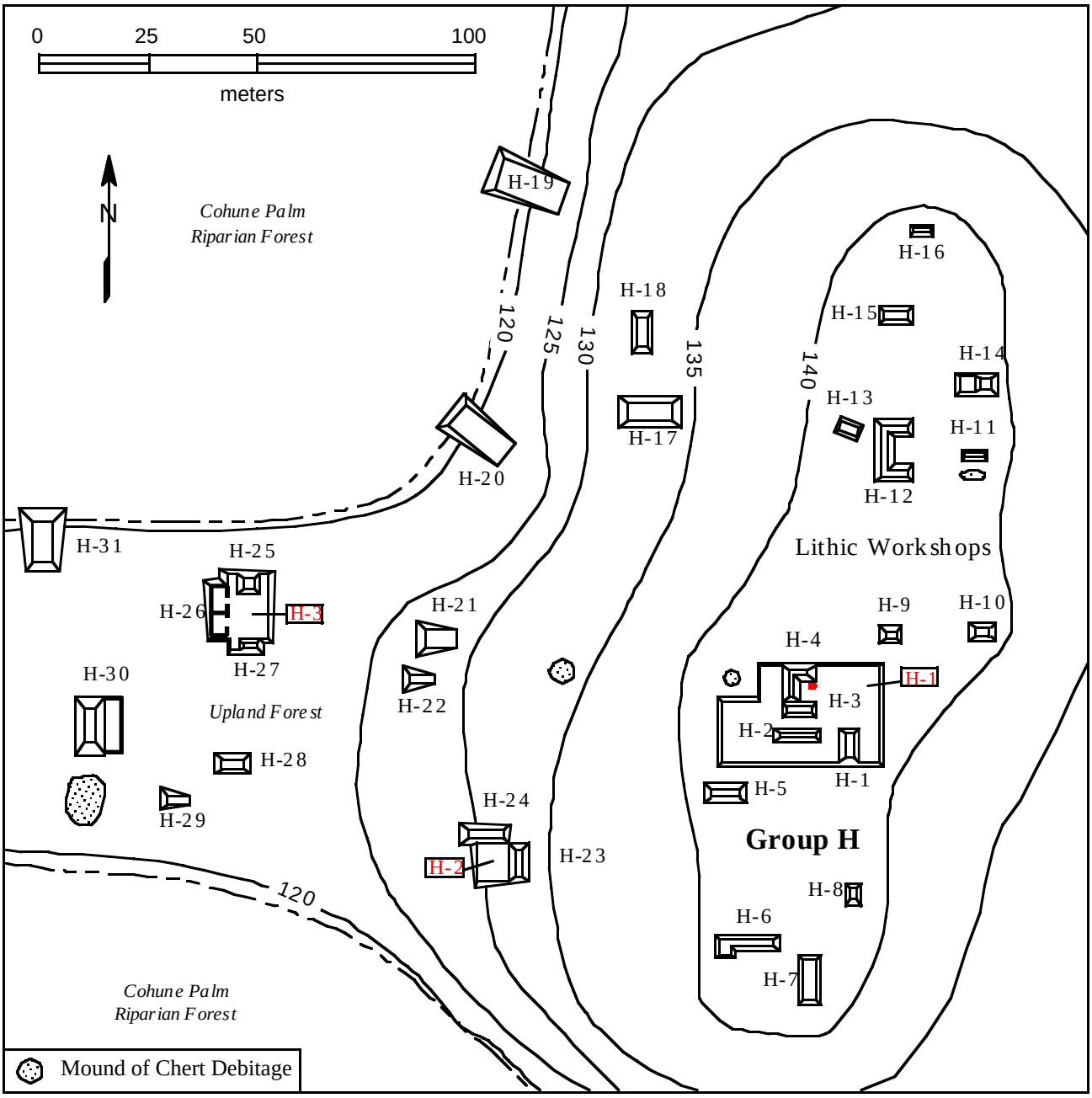

Figure 10-1. *Map of Group H.*

Objective 2

Investigate the content of the large debitage mound located some 30 m to the west of ES H-1. It is thought that this mound represents a refuse deposit formed by lithic production activities undertaken at ES H-1. By excavating the mound, it will be possible to ascertain what was being produced, as well as to obtain an estimate as to the intensity of production (see Shafer and Hester 1983; 1991).

Investigation at this debitage mound will be comprised of a 1.5-x-1.5-m test pit excavated on the mound. Complete flakes, tools, and tool fragments will be collected, along with a 20-x-2-cm column sample. This sample will be analyzed for microdebitage and faunal remains.

Objective 3

Excavate the large debitage mound located five meters to the south of Structure H-30. This debitage mound

likely represents refuse from lithic production and (or) maintenance activities undertaken either at Structures H-28–H-30 or at ES H-3. Excavation of this mound will provide insight into what kinds of lithic material were being produced, as well as what other materials may have been utilized and (or) produced in domestic contexts.

As was proposed for the previously mentioned debitage mound, investigation at this mound will be comprised of a 1-x-2-m test pit, oriented north-south, excavated in the mound. Complete flakes, tools, and tool fragments will be collected, along with a 20-x-20-cm column sample. This sample will be analyzed for microdebitage as well as faunal remains.

Objective 4

To establish a chronology for Structure H-30, located just to the north of the aforementioned debitage mound. Excavation of this structure will yield data that will contribute to an understanding of the function of isolated structures. It is thought that this structure was used in a domestic context and may have been the site of lithic production.

Excavations at this mound will consist of a 1-x-2-m excavation unit, oriented east-west across the center of the building. This excavation unit will help establish a chronology and provide data for a preliminary interpretation of structure function.

Concluding Remarks

The 1998 excavations at Group H will be the first systematic excavations undertaken outside the site center of Chan Chich. Because of the intensity of settlement in the area, as well as the presence of large debitage mounds, it is clear that the inhabitants of this area were engaged in lithic production. What kinds of tools were being made, as well as what was being maintained still remains unclear. Moreover, the chronology of settlement and other kinds of domestic activities undertaken at structures in the area is also not certain. It is the goal of the 1998 Group H excavations to clarify this picture.

Group H provides a unique opportunity to examine domestic structure as well as localized socioeconomies of production. By linking the structures in the area with the significant debitage refuse, a better crosscut view of the site as a whole is possible. It seems evident that groups inhabiting this area were an integral part of Chan Chich society. Exactly how this settlement area served as a domestic and economic locus remains to be seen.

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Closing Remarks on the 1997 Season

Brett A. Houk

Staggering from the hammock at four a.m., enduring 18-hour days of work and heat, preyed upon by innumerable delighted insects, and prompted to inward musings by internal rumblings, the archaeologist often wonders whatever led him to choose this line of work. — Richard E. W. Adams

Introduction

This first season of excavations at Chan Chich, although brief, has provided a tremendous amount of information about the site. In this chapter, I will attempt to summarize some of the more important results of our excavations. I will also identify areas where our analysis is on-going or dependent upon additional excavations. Finally, I will present an updated model of the culture history of the Three Rivers Region which incorporates the data generated by our excavations as well as available data from other projects operating in the region.

Results of the 1997 Season

Our primary objective in 1997 was to establish a chronology for the construction and occupation of Chan Chich. To accomplish this goal, we excavated test pits in the Main Plaza (Houk 1998), the Upper Plaza (Robichaux 1998), the Western Plaza (Meadows 1998a), and Norman's Temple courtyard (Meadows 1998a). Concurrent with the excavations, we launched an initial study of the looter's trenches in the Upper Plaza. Those investigations have not yet been completed, but will be discussed briefly with the rest of the Upper Plaza results below. A secondary objective in 1997 was to test the suspected ballcourt at Chan Chich (Ford 1998).

During the course of our investigations, two burials were excavated during 1997, and both were unexpected (Table 11-1). Burial 1, a primary interment found in a courtyard test pit at Norman's Temple probably dates to the Late Preclassic, based on the surrounding fill (see Meadows 1998). Alternatively, it could be a later burial which was excavated into the underlying Late Preclassic courtyard construction. Burial 2 is also classified as Tomb 2. This primary interment is described in detail by Robichaux (1998) and will be investigated further in 1998.

A looted tomb in Structure A-31 was recorded first by Guderjan (1991a) and restudied by Jennifer Jellen and Jon Nicholson of our project in 1997. Designated Tomb 1, this chamber is located near the top of Structure A-31 and probably dates to the Late Classic. It is oriented north-south, is 1.92 m long, 0.92 m wide, and 1.0 m high. The floor of the chamber is 6-cm thick plaster, the walls are made of cut stone, and the ceiling is comprised of four capstones. Nothing remained of the contents of the tomb in 1997, but Guderjan (1991a) reported small fragments of human bone and nodules of copal incense in the chamber.

Table 11-1. Burials and Tombs Recorded in 1997

Feature	Number	Provenience	Context	Notes
Burial	1	Op 4-A-3	Primary in LPC fill	See Meadows (1998a)
	2	Op 2-J-6	Protoclassic tomb in Upper Plaza	Tomb 2; see Robichaux (1998)
Tomb	1	Structure A-31	Late Classic	Looted tomb; see Guderjan (1991a)
	2	Op 2-J-6	Protoclassic tomb in Upper Plaza	Burial 2; see Robichaux (1998)

Investigations at the Ballcourt

The limited testing at Structures A-10a and A-10b in 1997 confirmed that the two form the ballcourt at Chan Chich (Ford 1998). The completely unexpected tiered form of Structure A-10a Sub is puzzling, however. It is important to point out that we have not found a comparable structure except for the ballcourt excavated by Hammond (1975) at Lubaantun. However, Late Classic ballgame imagery (Figure 11-1) often depicts ballgame players with a ball in front of a stepped platform (Cohodas 1991). At Lubaantun, imagery of this nature was found on a carved stone ballcourt marker as well as on a Late Classic polychrome vase (Hammond 1975, 1980). In fact, Cohodas (1975:257) notes that the stepped platform is "nearly ubiquitous in second-stage scenes" which date to ca. AD 600 to 760.

Schele and Miller (1986:247–249) suggest that the stepped platform represents a post-game ritual which takes place on the steps of another building. Cohodas (1991:264), however, states that the "stepped-platform is appropriate to both conquest and ballgame imagery in that it conveys the general meaning of the sun's sacrifice and descent through the earth's surface for entrance into the Underworld, analogous to the architectural symbolism of the ballcourt itself."

While I do not contest the rich iconographic evidence associating ballcourts with passages to the underworld, I propose an alternative explanation: the stepped-platform imagery actually represents a tiered ballcourt. There is no need to fictionalize post-game rituals in which the loser is bound up like a ball and kicked around the steps of a temple as Schele and Miller (1986) suggest or to propose complex explanations of the imagery linking the sacrifice of a prisoner to a losing ball player (*and* to the setting sun) as Cohodas (1991) has postulated, when reality seems to be just as plausible. I believe that future excavations of ballcourts in the area will encounter parallels to Structure A-10a Sub and that a rethinking of Late Classic ballgame imagery is in order.

Unfortunately, we did not recover a sizable sample of ceramics from within Structure A-10a Sub nor confirm the shape of the ends of the tiered building. In 1998 we plan to conduct additional excavations at the ballcourt to date the construction episodes more securely and to document the architectural form of the buildings more completely.

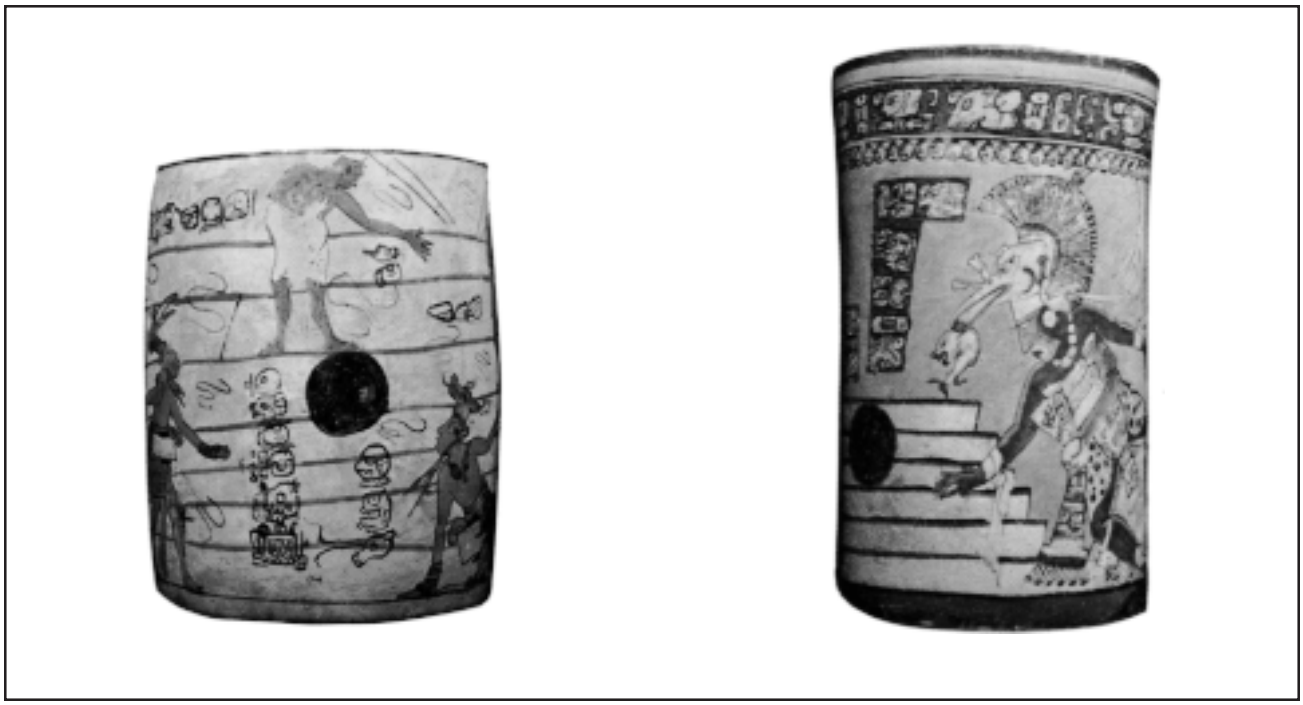

Figure 11-1. *Examples of Late Classic ceramic vessels with stepped structures and ballgame imagery.* After Stuart and Stuart 1989.

Upper Plaza

The unexpected discovery of the Protoclassic tomb in the Upper Plaza not only was a cause for great excitement, but a source of constant concern. The time consuming excavations forced us to shift our efforts from other areas of the project and exhausted the reserves in our budget. Unexpected expenditures included the construction of 11 wooden boxes (out of marine plywood which was all that was available) to house and protect the vessels from the tomb and the return trip in August to begin the analysis and conservation of the tomb's contents. These budgetary problems were offset by grants from the National Geographic Society and the Foundation for the Advancement of Mesoamerican Studies, Inc. A private donation allowed us to extend the August trip and complete additional analyses. We were not able to complete our study of the looter's trenches in the Upper Plaza, however, nor were we able to excavate as many test pits as planned.

Tomb 2

The time, energy, and resources spent excavating the tomb, however, were worth it. Our understanding of the site has changed dramatically because of that discovery, and new questions that we never thought to ask before will direct our research in the future. Before discussing the implications of the tomb and the other investigations in the Upper Plaza, I must point out one glaring omission from Robichaux's (1998) account of the tomb: the tremendously difficult nature of the excavations. The chamber, which was approximately three meters below the plaza floor, was difficult to access and to exit. The massive amounts of material, including the large roofstones, which overlay the collapsed chamber took weeks to remove. The floor of the chamber and the tomb's contents had to be carefully exposed by removing the surrounding marly matrix with dental picks, trowels, and paint brushes.

Once the chamber had been exposed, two excavators could work side-by-side on alternating quadrants of the tomb (Figure 11-2) for a period of days. As the floor of the chamber was gradually exposed, eventually only one person could work in the chamber at a time. The work had to be done in socks or bare feet. There was no breeze, it was extremely hot, and flies swarmed by the dozens.

The onset of the rains in June forced us to build a temporary structure to keep water out of the chamber. The tarp roof of this structure did a fairly good job of channeling large amounts of runoff onto the surface of the plaza around the excavation unit during heavy rains. We had to build a makeshift sand bag wall around the entire unit to keep this water from draining into the tomb as it pooled on the Upper Plaza.

Figure 11-2. *Tomb 2 during excavations.* From left to right: Hugh Robichaux, Jennifer Vander Galien, and Jessica Sanchez.

The two most surprising aspects of the tomb were its location and its age. Plaza tombs, as Robichaux (1998) has discussed, are rare in the Maya area. Protoclassic tombs, in any form, are also rare. The Protoclassic and how Chan Chich fits into the regional picture are discussed briefly in the culture history below.

Architecture

Jennifer Jellen, Jon Nicholson, Rebecca Barrera, and Jennifer Vander Galien began the difficult task of documenting, profiling, and mapping the looter's trenches in Structures A-15 and A-21 in the Upper Plaza. These trenches indicate at least four large construction episodes took place at these structures. Unfortunately, we did not recover any ceramics from sealed contexts within these various constructions, and we can not yet date the episodes. Based on the amount of Late Preclassic fill and the number of Late Preclassic flooring episodes documented by Robichaux (1998) it seems likely that these buildings have their origins in that period.

The total station mapping of the Upper Plaza (Moses 1998) has provided us with a valuable data set that can be used in the coming seasons to complete our reconstruction of the history of the Upper Plaza. This accurate information will allow us to view the Upper Plaza three-dimensionally and make it easier to incorporate accurately the data from the looter's trench studies. Ultimately, I hope that we will be able to produce very detailed cross sections of the Upper Plaza, documenting the evolution of this elite architectural group.

Two interesting observations from the investigations of the trenches were what appears to be fabric impressions in wet-laid rubble fill in the west trench in Structure A-21 and graffiti in the upper-west trench in Structure A-15. The impressions suggest that fabric was used either to carry the wet plaster or to contain it during the construction process. The graffiti (Figure 11-3) is carved into a plaster wall in a partially collapsed room on the west side of Structure A-15 (Figure 11-4). Although it is not very clear, the image may represent the pattern on a fer-de-lance. Graffiti at Maya sites is common and has been documented in the region at BA-22a (Houk 1992) near Ixcanrío and at Kinal (Graham 1967; personal observation 1991).

Chronology

Prior to the 1997 season, it was assumed that Chan Chich had a strong Early Classic component underneath the visible architecture which presumably dated to the Late Classic. This assumption was based, in part, on two Early Classic polychrome plates recovered from a looter's camp and on Guderjan's (1991a) observations of looter's trenches in the Main Plaza. Robichaux's (1998) investigations, however, documented Middle Preclassic deposits, a succession of Late Preclassic floors, a Protoclassic tomb, and a thin veneer of Late Classic capping it all. He concludes that the Upper Plaza underwent a large period of construction during the Late Preclassic and then remained virtually unchanged throughout the rest of the site's history (Robichaux 1998:49).

I, however, am not convinced that the lack of Early Classic material is not either a sampling error or a problem with the ceramic typology for the region. My caution is based on having been burned once before by this very issue. At Dos Hombres, the test pit program (Brown 1995) and my own more extensive excavations (Houk 1996a) failed to locate any substantial

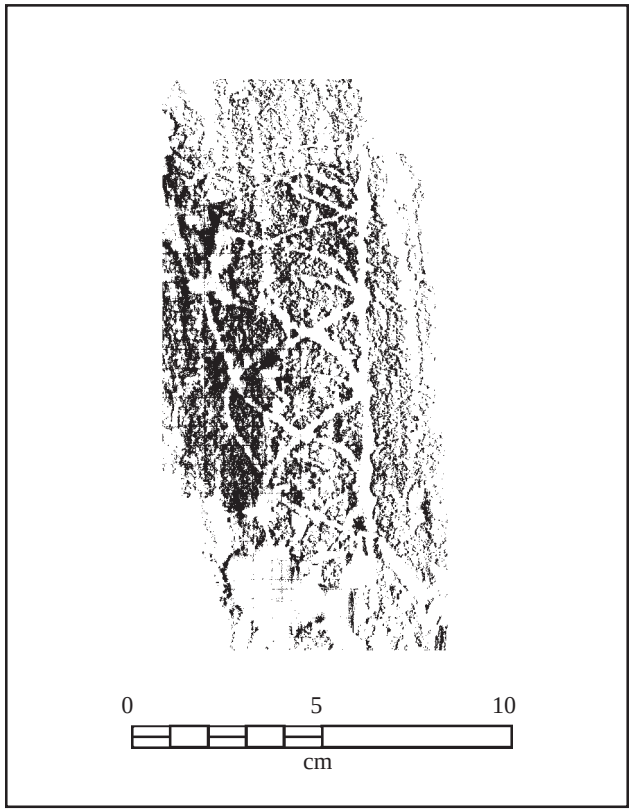

Figure 11-3. *Graffiti from upper west trench in Structure A-15.*

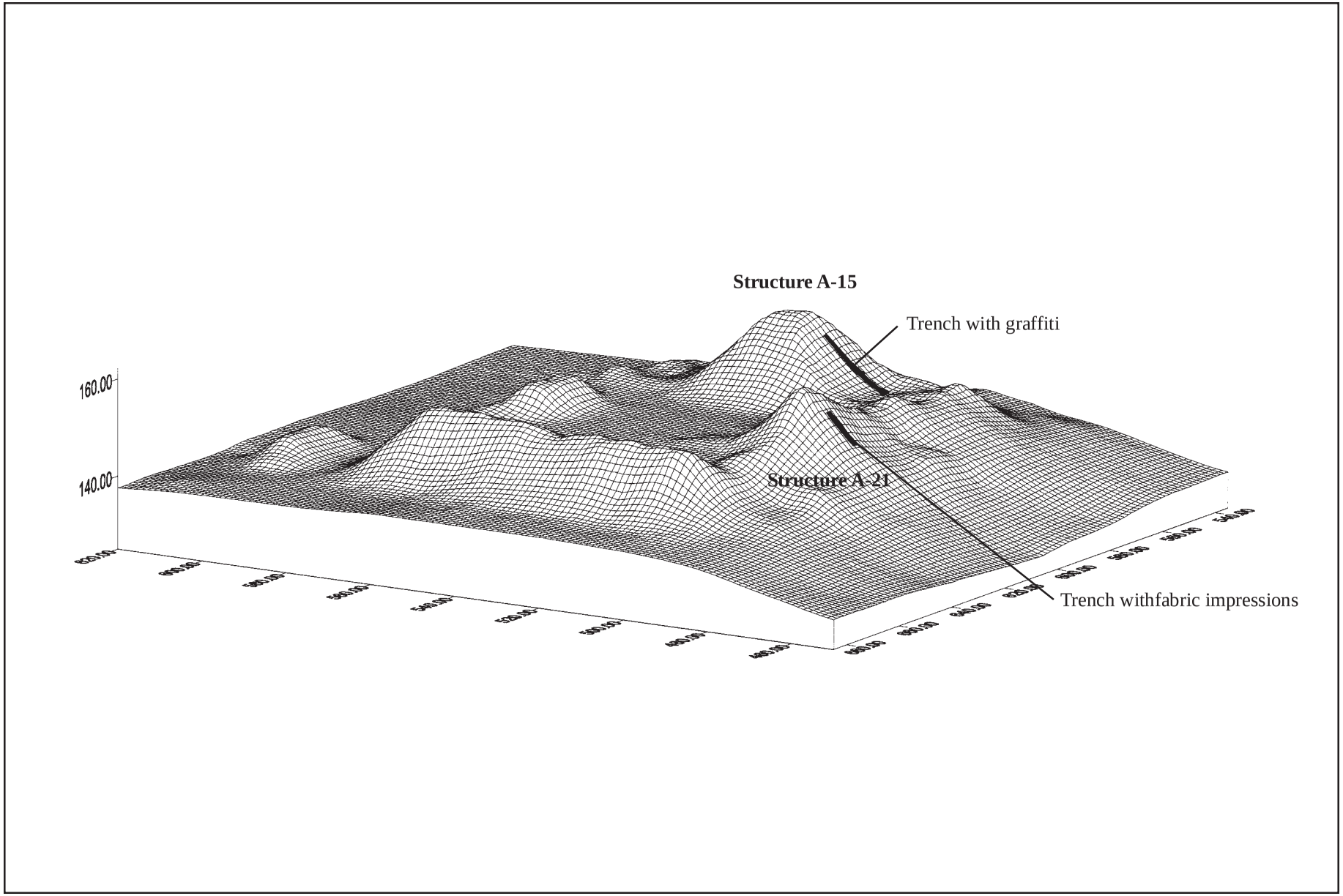

Figure 11-4. *Surface map of the Upper Plaza with the locations of looter's trenches overlaid.* Elevated view from northwest.

evidence for an Early Classic occupation of the site. Jeff Durst (personal communication 1997), however, excavated an Early Classic tomb in Structure B-17, part of a small courtyard group west of the ballcourt at Dos Hombres in 1997. Additionally, studies by Sagebiel and Kosakowsky (1997), Sullivan (1998), Sullivan and Valdez (1996), and Valdez (1998) suggest that Late Preclassic slips continue into the Early Classic, potentially masking Early Classic occupations or constructions. It is possible that during the Early Classic, most ceramics are similar to the Late Preclassic types and the ceramic types traditionally associated with the Early Classic, such as polychromes and basal flange bowls, are reserved for special deposits such as caches, burials, and tombs.

The data from Operation 1 (Houk 1998) indicate a Tepeu 2-3 construction date for Structure A-1 with (possibly) a Tepeu 1-2 date for Structure A-1 Sub. Two Late Classic construction episodes to Structure A-1's Main Plaza face would presumably have counterparts in the Upper Plaza. Additional excavations in 1998 will clarify this issue.

Test Pitting in Group C

The most unexpected result of the test pitting directed by Meadows (1998) in Group C was the determination that there was a substantial Late Preclassic construction at Courtyard C-1. The pretesting hypothesis was that both Norman's Temple and Plaza C-2 were late additions to the site plan at Chan Chich. While the data from Op 4, Subop C confirm that the Western Plaza is strictly a Late Classic entity, the data from Op 4, Subop A indicate that most of the platform supporting the Norman's Temple group was constructed during the Late Preclassic. I would urge the same cautionary approach to the chronology of this group as I did for the Upper Plaza. Additional excavations at Courtyard C-1 are planned for 1998, and they should confirm or deny these tentative conclusions.

The deposit of ceramics and lithics on the plaster floor at the base of Structure C-1 is reminiscent of deposits in elite courtyards at Dos Hombres and Blue Creek (see discussion in Houk 1996a). The amount of material encountered at Chan Chich, however, is low compared to these other sites, but is similar in composition. The ceramics include exotic slipped wares and the figurine fragment pictured in Figure 7-6 (in Meadows 1998). The nature of these deposits is problematic, but I continue to believe that they are representative of the termination of the elite occupation of the site (Houk 1996a). The 1998 excavations at Norman's Temple will hopefully provide more data on this phenomenon. I believe that the deposits are pan-regional and may relate to the depopulation of the Three Rivers Region during the Terminal Classic. Others, however, have documented similar deposits (and concluded that they represent desecatory termination rituals) at Yaxuna in Mexico (Stanton and Pagliaro 1997).

Special Studies

This report includes two special studies from 1997: the ceramics (Valdez 1998) and obsidian (Shackley 1998). The ceramic analysis is important because it forms the basis for our chronology of the site. This data will be augmented by the material collected in 1998. Additionally, the vessels from Tomb 2 will be analyzed in greater detail in 1998, and names will be assigned to the types represented (Valdez 1998).

While the sample of obsidian collected during 1997 was small, I believe that it is important to present the source data so that others may reference it. Obsidian, because it is not naturally available in Belize and because its origin can be determined, is a valuable source of data that can be used to formulate models of inter- and intraregional exchange (e.g., Dreiss 1988). Hopefully, other projects will begin to source their obsidian as well, making it possible to develop trade models for the region. From Dos Hombres, I recovered over 150 blade fragments (Houk 1996a) from a Late Classic context, and Durst (personal communication 1998) has collected thousands from above the Early Classic tomb at the same site. If sourced, the Dos Hombres samples could provide important diachronic data necessary to develop a good model of exchange for the area or to fit the region into lowland-wide models already proposed (e.g., Dreiss 1988).

Related to the discussion of the Early Classic above, the piece of Pachuca obsidian (see Shackley 1998) is potentially important. Pachuca and other Mexican obsidians are most prevalent in lowland deposits dating to the Early Classic (Dreiss 1988). Their occurrence may be related to Teotihuacan's hypothesized influence in the region during that period. Although the

Pachuca blade at Chan Chich is from the surface, it hints at an Early Classic occupation at the site.

The lithic tools recovered in 1997 are currently being analyzed by Richard Meadows and are not reported in this volume. They will, however, be related to the data to be collected in 1998 through the proposed testing at Group H (Meadows 1998b). The one lithic tool that I will mention here, was a chert arrow point found at the ballcourt (Figure 11-5). This artifact type dates to the late Post Classic period (Hester 1981).

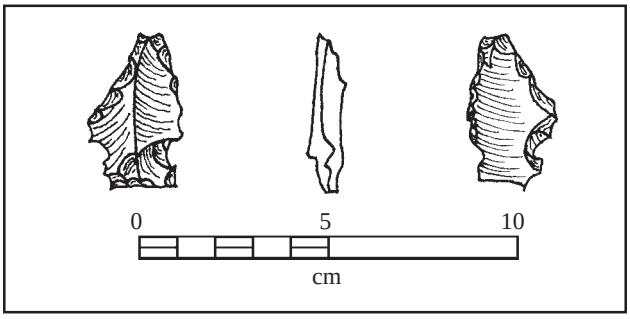

Figure 11-5. *Postclassic arrow point from Op 3, Subop C, Lot 2, at the ballcourt.*

Culture History

An exhaustive review of Maya prehistory is not appropriate for this interim report, but the data collected in 1996 and 1997 by the CCAP can contribute to the culture history of the Three Rivers Region. The history of the area north of Chan Chich is quickly becoming clearer, due entirely to the fact that several large research projects all began conducting investigations in and around the Río Bravo Conservation and Management Area in the past seven or eight years (e.g., Adams 1994, 1995; Guderjan 1991b; Guderjan et al. 1994; Guderjan and Driver 1995; Hammond and Tourtellot 1993, 1995; Houk 1996a; Robichaux 1994).

This culture history is based upon the Maya developmental sequence of Middle Preclassic (ca. 900–400 BC), Late Preclassic (400 BC–AD 150), Protoclassic (AD 150–250), Early Classic (AD 250–600), Late Classic (AD 600–850), Terminal Classic (AD 850–900), and Postclassic (AD 900–1600). In general, dates are determined by comparing the types:varieties of ceramics from sites with previously established ceramic chronologies (Valdez 1998).

Middle Preclassic (ca. 900–400 BC)

Evidence for occupation of the Three Rivers Region during the Middle Preclassic is limited to a few sites in the area. In the western part of the region, the site of Río Azul was settled by pioneer farmers around 900 BC (Adams 1990:34). The 15 m high temple platform G-103 sub 2 at Río Azul was apparently constructed around 500 BC (Adams 1995:6). West of the region, the site of Nakbé possessed monumental architecture during the Middle Preclassic as well (Hansen 1990). Middle Preclassic deposits have been found at La Milpa (Guderjan 1991c), Blue Creek (Guderjan 1995b), Dos Hombres (Brown 1995), and Chan Chich (Robichaux 1998). At Chan Chich, the posthole in bedrock in the Upper Plaza may be part of the earliest settlement at the site. The dense early and late Middle Preclassic midden deposits from that excavation unit (Op 2, Subop H) yielded a single radiocarbon date of 770 cal BC (Robichaux 1998).

Based on the available data, it is likely that the Three Rivers Region was sparsely populated by small groups of farmers living in small villages during the Middle Preclassic. To the east of the region, there is good evidence for Middle Preclassic villages at Colha (Anthony 1987; Anthony and Black 1994; Hester 1994; Sullivan 1991; Valdez 1994) and Cuello (Hammond 1990). In the lowlands in general, during the Middle Preclassic broad regionalism of ceramic production occurred, but there were "shared culturally based rules for the forms of ceramic vessels and perhaps their intended functions" (Valdez 1994:9).

Late Preclassic (400 BC–AD 150)

The number of sites with evidence of Late Preclassic occupation is larger than for the preceding period. In the western part of the region, a line of nearly continuous settlement existed along the Río Azul, punctuated approximately every 2 km by formal platforms and small temples (Adams 1995:6). The large, red painted, plastered temple platform G-103 sub 1 was erected over the Middle Preclassic structure during this period (Valdez 1992).

In the eastern half of the region, Late Preclassic constructions have been documented at Dos Hombres (Brown 1995), La Milpa (Guderjan 1991c), and Chan Chich (Robichaux 1998). Late Preclassic caches or

other dateable features have been found at Dos Hombres (Houk 1996a), La Milpa (Guderjan 1991b; Tourtellot and Rose 1993), Las Abejas (Sullivan 1995a, 1995b), Blue Creek (Guderjan 1995b; Guderjan and Driver 1995), Gran Cacao (Levi 1994; Lohse 1995), and Chan Chich (Guderjan 1991a; Robichaux 1998). The Upper Plaza at Chan Chich experienced tremendous growth during the Late Preclassic (Robichaux 1998).

The population of the project area and the lowlands in general was apparently growing continuously during the Late Preclassic. South and west of the region, monumental architecture was erected at El Mirador (Matheny 1986), Tikal (Adams 1991:131), and Uaxactun (Ricketson and Ricketson 1937). To the east, there is evidence that villages continued to grow in size at the sites of Colha (Anthony and Black 1994; Hester 1994; Hester et al. 1982; Sullivan 1991), Cuello (Hammond 1990), Nohmul (Hammond 1985), and Cerros (Scarborough 1991) where monumental architecture was erected. Clear evidence for craft specialization has been found at Colha (Hester 1985) and for intensive agriculture at Pulltrouser Swamp (Turner and Harrison 1983) during this period. Robichaux's (1995a:244, 274) survey of the Dos Hombres and La Milpa peripheries found Late Preclassic ceramics in 27 percent and 26 percent of the test pits, respectively.

Protoclassic (AD 150–250)

The Protoclassic in the Three Rivers Region is not well understood, primarily because the tomb found in the Upper Plaza is the only Protoclassic deposit from the region (at least that I am aware of). 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). Generally, the Protoclassic is recognized by the appearance of Floral Park ceramics at around 150 AD (Gifford 1976; Valdez 1987; 1998). The Protoclassic may be largely an elite cultural marker as Protoclassic ceramics are found exclusively in funerary or elite contexts at many sites (Meskill 1992). The presence of Protoclassic ceramics at Chan Chich may be a direct indication of adoption or development of kingship at the site. The association of the ceramics with the jade helmet-bib pendant strengthens this conclusion (Robichaux 1998).

Early Classic (AD 250–600)

The population of the western half of the Three Rivers Region apparently underwent a change in the Early Classic period, becoming nucleated in a few sites with remarkably little rural population (Adams 1995). In the eastern half, this pattern does not occur. Robichaux (1995a:244-246, 274-276) encountered Early Classic ceramics in 50–60 percent of his test pits in the Dos Hombres and La Milpa peripheries, an increase of 23–34 percent over Late Preclassic ceramics. Muñoz (1995a, 1995b) found evidence for rural occupation at the Gateway Site near Guijarral. Sites with evidence of substantial Early Classic occupation or construction include Dos Hombres (Durst, personal communication 1998), Río Azul (Adams 1990; 1995), La Milpa (Guderjan 1991c), Gran Cacao (Lohse 1995), and Blue Creek (Guderjan 1995a; Guderjan and Driver 1995), and possibly Quam Hill (Guderjan et al. 1991). At La Milpa (Hammond et al. 1996), Río Azul (Adams 1990; Hall 1989), and Dos Hombres (Durst, personal communication), tombs dating to the Early Classic have been excavated.

Adams (1990, 1995) believes that Tikal conquered Río Azul around AD 390 and executed the city's ruling elite. The motive for Tikal's expansion into the Three Rivers Region may have been to gain and control access to the Río Azul which flows to the Caribbean (Adams 1995). The new rulers began an ambitious construction program, erecting a series of large temples and elaborate tombs (Adams 1990). Several of the tombs contained data suggesting influence from Teotihuacan during this period (Adams 1990; Hall 1989).

The Early Classic in the eastern half of the Three Rivers Region is not well understood, although it is becoming clearer. Adams (1995:8) speculates that, given its proximity to Río Azul (25 km), La Milpa was probably not independent. Guderjan (1995a, 1995b) hypothesizes that Blue Creek was an independent center by the close of the Early Classic, controlling trade along

the Río Bravo and Booth's River. This conclusion is based largely on the presence of Early Classic masks, large buildings in Plaza A, and the impressive jade cache from Structure 4 (Guderjan 1995a; 1995b). Guderjan's (1995a) model of the political organization of the area in the Early Classic does not factor in the presence of Gran Cacao. Preliminary data from looter's trenches at the site suggest that there was a substantial amount of Early Classic construction, including a ballcourt (Lohse 1995). Gran Cacao, situated near the confluence of the Río Bravo and Booth's River, shared the same geographical advantages with respect to the control of riverine trade that Blue Creek possessed. It is likely that the political organization of the eastern half of the project area during the Early Classic will remain unclear until more data is recovered from La Milpa and Gran Cacao.

Reconstructing the political organization of the southern part of the project area continues to be problematic. Early Classic ceramics, including nearly complete polychrome vessels which were recovered from looter's camps at Chan Chich (Guderjan 1991a), but the 1997 excavations failed to find evidence for an intensive Early Classic occupation. This period of Maya culture history remains on of the most poorly understood for the region. This may be partially due to the nature of the ceramics in the area, as discussed above.

In general, the population of the Three Rivers Region continued to grow during the Early Classic, although some sites with Late Preclassic populations may have declined, and the rural area around Río Azul was apparently depopulated (Adams 1995; Houk 1992). Several centers grew greatly in size, and the region may have been heavily influenced by Tikal, although the evidence for this is confined to the western half of the region (Adams 1995).

The end of the Early Classic, sometimes referred to as the Middle Classic Hiatus, is marked by Tikal's withdrawal from the Three Rivers Region and a general population decline throughout the region (Adams 1995). Río Azul was apparently abandoned and destroyed around AD 530, possibly the victim of a civil war (Adams 1990:35; 1995:9). At Blue Creek, the impressive jade cache was deposited at Structure 4 ca. AD 550 (Guderjan 1995b). Guderjan's (1995b) interpretation of this event is that it was the ritual termination of Structure 4 and may have represented the end of a ruling lineage or, perhaps, the end of Blue Creek's status as an independent polity. A major atmospheric event which caused a dimming of the sun's light for up to 18 months in the Old World may have caused a serious drought in this area, possibly accounting for the apparent population decline (Gill 1994; Gunn et al. 1995; Robichaux 1996).

Late Classic (AD 600–850)

After a century long period of relatively low population recovery in the countryside, the population of the Three Rivers Region apparently underwent rapid growth (Adams 1995). Sites with evidence of major Late Classic construction or population in the region include Río Azul (Adams 1990; 1995), Kinal (Adams 1990; Hageman 1992), La Honradez (Adams 1984), La Milpa (Guderjan 1991c; Tourtellot and Rose 1993), Dos Hombres (Houk 1994; 1995a; 1995b; Houk and Brown 1995), Blue Creek (Guderjan 1995a; Guderjan and Driver 1995; Neivens 1991), Ma'ax Na (Barnhart and Ross 1996; Shaw and King 1997), Chan Chich (Guderjan 1991a; Houk 1998; Meadows 1998a), Gran Cacao (Lohse 1995), Punta de Cacao (Guderjan et al. 1991), and possibly Great Savannah (Fred Valdez, Jr., personal communication 1995). Numerous small to medium sized sites, including Las Abejas (Sullivan 1995a, 1995b), Guijarral (Hughbanks 1995), Dos Barbaras (Lewis 1995a, 1995b), the Gateway Site (Muñoz 1995a, 1995b), and El Arroyo (Tovar 1995), show evidence of Late Classic construction and occupation.

In the western part of the project area, the site of Río Azul was reoccupied ca. AD 600, but relatively little construction took place in the Late Classic, although a ruler of the city did erect a stela in AD 661, commemorating a conquest and signifying independence from Tikal (Adams 1995:9). The dominant site in northeast Petén during the Late Classic was Kinal, a fortress-like center which was rapidly constructed during the later part of the Tepeu 2 phase (ca. AD 650) of the Late Classic (Hageman 1992).

In the east, La Milpa underwent a florescence, erecting a series of stelae between AD 700 and 780 (Hammond and Bobo 1994). It is likely that the Late Classic was also a time of large-scale construction at La Milpa as the main plaza was resurfaced and several large structures were added around its margins (Tour-

tellot and Rose 1993). The southern end of the site, the acropolis-like Tzaman Courtyards, may have been largely or completely constructed during the Late Classic (Guderjan 1991c).

A similar developmental sequence is apparent at Dos Hombres as well. The site underwent a period of rapid growth: Plaza A-1 was resurfaced, the Preclassic structures in Courtyard A-2 were buried by the Late Classic renovation of the group, and most of the visible architecture south of Plaza A-1, including the Acropolis, was constructed between AD 650 and 800 (Houk 1996a). The three stelae and the altar in Plaza B-1 may date to this period. Adams (1995) suggests that the stelae at Dos Hombres may signify the site's independence from La Milpa.

At Blue Creek, Guderjan and Driver (1995) note an apparent shift in construction activities at the site from major public buildings to elite residences in the site core. This included the transformation of a plaza into private residential structures in the north end of the site (Guderjan 1995b; Guderjan and Driver 1995).

At Chan Chich much of the visible architecture in the Main Plaza was apparently built (Guderjan 1991a; Houk 1998), the Western Plaza was built (Meadows 1998a), Courtyard C-1 was expanded (Meadows 1998a), and the Upper Plaza may have been expanded (Robichaux 1998). The final form of the ballcourt was also completed during the Late Classic (Ford 1998).

The rural areas around La Milpa and Dos Hombres were most heavily populated during the Late Classic (Robichaux 1995a). The same pattern is apparent in the northeast Petén data as well. The countryside between Río Azul and Kinal contained numerous small settlements during the Late Classic (e.g., Grazioso 1995; Houk 1992). The evidence for widespread agricultural modifications to the landscape during this period is strong in northeast Petén (Culbert et al. 1989, 1990) and Río Bravo (Hughbanks 1995; Robichaux 1995a; Walling 1995; Walling et al. 1995). Mass production of lithic tools for use in agricultural fields has been documented at El Pedernal, near Río Azul (Adams 1990), and household level production of stone tools occurred at several locations in Río Bravo (Lewis 1995a, 1995b; Tovar 1995). The generally inferior quality of chert in the region prevented the production of tools on the scale seen at Colha during the same period (Shafer and Hester 1983).

Terminal Classic (AD 850–900)

The short lived Terminal Classic in the Three Rivers Region was a period of tremendous change. The data relevant to this period comes from Río Azul (Adams 1990; 1995), Kinal (Hageman 1992), Dos Hombres (Houk 1995a), La Milpa (Hammond and Bobo 1994; Tourtellot and Rose 1993), Blue Creek (Guderjan 1995b; Guderjan and Driver 1995), and Robichaux's (1995a) settlement survey.

Río Azul was apparently overrun by northern invaders ca. AD 840 who erected a Puuc or Chichen style stela depicting the "hand-scattering" motif, characteristic of a new dynasty and regime (Adams 1995:10). Kinal apparently remained independent, but declined at the end of the period as the population fell victim to the general collapse of food production in the area (Adams 1995). The remnant population lived in former elite structures and constructed small buildings in the Acropolis using stones robbed from surrounding structures (Hageman 1992). The rural areas in northeast Petén were also depopulated by the end of the Terminal Classic (Houk 1992).

In the eastern half of the region, the pattern is similar. At La Milpa, the population declined and possibly retreated into the main plaza as evidenced by Structure 86, a low walled building constructed of stones removed from surrounding buildings (Tourtellot and Rose 1993:15). At Dos Hombres, similar stone alignments have been found in Group D, an elevated courtyard that may represent a defensive position for the Terminal Classic population. An intriguing feature at Dos Hombres that apparently dates to the Terminal Classic is a dense midden of elite and exotic artifacts deposited on the floor of Courtyard C-7. A similar feature was excavated in the Structure 13 Courtyard at Blue Creek (Guderjan 1995b). In both cases, it is debatable whether or not the features are ritual termination deposits or occupational refuse (Houk 1994; Guderjan 1995b). The less extensive deposit at Courtyard C-1 at Chan Chich may be similar to those mentioned above (Meadows 1998a).

Robichaux's (1995a) survey data indicate that the rural populations around Dos Hombres and La Milpa declined slightly during the Terminal Classic period. The peak population for the region appears to have occurred during the end of the Late Classic, ca. AD 830 (Adams 1995; Robichaux 1995a). Interestingly,

Robichaux's (1995a) survey found no evidence for rural occupation after the end of the Terminal Classic. Such a rapid depopulation of the region signifies a complete collapse of the social systems. Centuries of clearing land for agriculture and harvesting wood to be used as construction material or as fuel to make plaster, had led to widespread deforestation by AD 750 (Adams 1995). Gill (1994) hypothesizes that a series of long-term droughts which began in AD 800 added substantial stress to a system already operating at capacity.

Postclassic (AD 900–1600)

The evidence for Postclassic occupation of the Three Rivers Region is limited to Río Azul and several sites in the eastern half. At Río Azul, Lacondon censers were found on the summit of Structure A-3 (Adams, personal communication 1996). Some Postclassic ceramics have been recovered from Gran Cacao, but the nature of the Postclassic presence at the site has not been determined (Fred Valdez, Jr., personal communication 1996). At La Milpa, Hammond and Bobo (1994) speculate that many of the stelae were moved and reset in the fifteenth or sixteenth centuries. At the very least, the placement of Late Postclassic *incensarios* at the base of Stela 7 indicates that small groups were making pilgrimages to the ancient site (Hammond and Bobo 1994). At Dos Hombres, a similar *incensario* was found in the topsoil at the base of Stela 2. It is possible that the three stelae in Plaza B-1 were also reset during the Late Postclassic (Houk 1995). A single Lacondon Maya incense burner was recovered on top of Structure A-4 (Guderjan 1991a), and Ford (1998) recovered a Post Classic arrow point at the ballcourt at Chan Chich. Robichaux (1995c) did not find any evidence for Postclassic occupation of the area in his survey of the Dos Hombres and La Milpa peripheries. Masson (1997) has documented Post Classic pilgrimage routes in northern Belize, but did not include the Three Rivers Region in her study.

The Final Word

The culture history above is a modified version of that presented by myself elsewhere (Houk 1996a, 1996b). It will become more detailed as research at Chan Chich and other sites in the region continues and as past research is published. The conclusions offered by this volume are also subject to change. Continued excavations at the Upper Plaza, the ballcourt, and Courtyard C-1 may lead to radical alterations of our understanding of the development of Chan Chich. Additionally, the proposed testing at Group H may provide important information about the economic organization of the elite and non-elite (Meadows 1998b). We have only just scratched the surface and already we are beginning to understand how little we really know.

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