XUNANTUNICH ARCHAEOLOGICAL PROJECT

1997
The Final Field Season

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1997 Work in the Xunantunich Core

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Introduction

The 1997 field season of the Xunantunich Archaeological Project (XAP) was the final field campaign at the ancient Maya city of Xunantunich. This project, born in 1990 from discussions between then Acting Commissioner John Morris and Richard M. Leventhal (UCLA), finished a major examination of the rise, development and eventual fall and abandonment of Xunantunich and the western part of the Belize River Valley. In addition, major programs of preservation, conservation and tourist development were integral parts of this project and have resulted in major changes at the site.

As we look back on the seven years of this project, I believe that we have been successful on several fronts. First and foremost, we have learned much about the past at Xunantunich and about the nature of the city along two lines:

1. we have been able to chart and identify the major periods of construction and development at Xunantunich - in effect we can identify the culture history of the site.

2. we have been able to examine the nature of the Maya collapse in light of new evidence of urban change and continuity at Xunantunich.

In addition to this important archaeological information we have gathered over the past 7 years, we also walk away from Xunantunich with many accomplishments along the tourist and preservation side.

1. New access to the site with a new parking area;

2. a new general Visitors Center for Xunantunich, which provides up-to-date information, photographs, and maps of the site;

3. a new Visitors Center which focuses upon the carved monuments at Xunantunich. This Visitors Center also provides greatly improved conditions for these monuments as they are out of the sun, rain and away from the hands and bodies of interested tourists.

4. Two vendors buildings

5. Two picnic/sitting structures

6. Two storage buildings

7. a defined trail system throughout the site

8. basic interpretive signs and directional signs throughout the site.

The site of Xunantunich itself is now in better shape in terms of preservation and stability than in any time over the past fifty years. Some buildings have been excavated

and consolidated such as Structure A-1 and major portions of Structure A-6 (the Castillo). Other areas of the site have been stabilized in terms of collapse and problems (Structure A-14, Structure A-11, Structure B-3, and portions of Structure A-6 - the Castillo).

The major issue at the moment for this site is one of daily and long-term maintenance. With both short-term and long-term maintenance planned for the site, there should be few serious problems at Xunantunich for the next several decades - but constant vigilance is required. The one area of continued concern is the preservation of the original east frieze.

The 1997 Excavations within the Site Core

There were four major areas of excavation and research within the central part of Xunantunich during the 1997 field season.

1. Clearing and trenching excavations were conducted within the northern Plaza A-III and focused upon Structures A-11 and A-12. These were conducted by Jason Yaeger (the 1997 Field Director) and Marjolina van der Krift.

2. Major excavations were conducted on the north side of the Castillo clearing and defining Structure A-32. Erin Clancey conducted these excavations.

3. Large-scale excavations were also conducted on the south side of the Castillo in attempting to define and understand Structure A-26 and the earlier phases of architecture on this southern area. Rebecca Hays was in charge of these excavations.

4. Finally, Angela Keller conducted test excavations and some clearing and trenching excavations to define the area to the west of the main plazas - an area in association of Structure A-21. Additional tests were conducted to the south of the Castillo.

Other small scale excavations within the site core included the following:

1. the preliminary clearing and definition of Structure C-1

2. the final small-scale extension and definition within the northern tunnel for Structure A-6-3rd.

Plaza A-III

The excavations within Structure A-11 clearly defined this structure as the likely royal residence for the ruling family at Xunantunich. Euan MacKie (1985) had previously excavated the upper part of Structure A-11 and defined the floor plan for this upper structure. He had also found a front wall and door jamb of what he thought was an earlier building buried beneath Structure A-11.

The excavations in 1997 defined a lower gallery of rooms and clearly found that these lower rooms were not part of a complete buried building. Rather these lower rooms were an integral part of the entire structure and were part of the original construction of Structure A-11.

Structure A-11, therefore, consisted of a lower gallery of three rooms and an upper building with at least five rooms defined by MacKie (1985). Access to a frontal terrace in association with the lower gallery was provided by an outset central staircase.

It might be speculated that these lower rooms were the set of 'throne rooms' or basic administrative rooms for the Xunantunich ruler himself. We excavated a tunnel into the central room and found that the room and roofing had been dismantled. But it probably originally had a corbelled roof, was probably painted red, had a large quantity of graffiti incised into the walls and floor and showed clear evidence of burning with smoke scarring and smudging along several of the walls and the floor.

Excavations along the front, southern side of the building revealed several changes in the form and nature of the building through time. First, a fragment of wall hieroglyphic sculpture was found with clear reference to a parentage statement. This again relates to the probable connection of this building to the royal family at Xunantunich.

Second, the doorway to the east room, when excavated, showed that the entrance way had been blocked up by the ancient Maya. We assume, through a view of supposed symmetry, that the west room was similarly blocked in ancient times. The central room, within which we excavated, was deliberately destroyed and filled in ancient times but this activity appears to have been one of the final actions within this Plaza A-III. The doorway to this central room was itself not blocked but simply filled. .

We did not further the clearing or excavate the upper rooms which had been opened by MacKie. But we did investigate the nature of access from the lower rooms to the upper rooms. It became clear that there was no evidence of any staircase which extended to the upper portion of the pyramid on the east, north or south sides of this building. Rather, the only access was along a small side staircase located on the west side of the building.

In the end, we can argue from good architectural evidence that this building was built with one primary phase of construction. During its use, the building did go through a series of minor changes and revisions. It appears as though this building and the general Plaza A-III were constructed at the beginning of the Late Classic II time period if not at the end of Late Classic I. It is also clear from the *in situ* ceramics found by MacKie on the floor of the upper building that Structure A-11 was abandoned at the end of Late Classic II - there is no evidence of a Terminal Classic occupation in this building or in any part of Plaza A-III. The royal residence was not occupied for a long period of time - probably not more than 200 years.

Structure A-12 on the east side of Plaza A-III was also the focus of an excavation program in 1997. This range structure consisted of a set of three double rooms facing to the east, three to the west and one each at the ends to the north and south. The interesting note about this building is that after the construction and apparent use of all of the rooms, the east facing room sets were abandoned and the western rooms were rebuilt or re-enforced with small, rough stone walls. Again, the final abandonment coincides with the end of the Late Classic II time period.

There are three other interesting features to note from these excavations. First, we identified a possible staircase running from the southeast upper and outer corner of the raised Plaza A-III to the north and down to the side complex of Structure A-23, 24, and 25. This complex of small buildings was excavated in 1994 by T. Jamison and G. Wolfe (1994) and it was then argued that these were the ancillary buildings associated with the royal residence within Plaza A-III. This may have been a food preparation and serving area. The second interesting point is that the area of Structure A-23, 24, and 25 showed clear evidence of a strong Terminal Classic occupation - but the Plaza A-III occupation clearly ended before the Terminal Classic, within the Late Classic II time period. This disjunction in occupation histories may argue for a dramatic change in the nature of this north complex at Xunantunich - from a royal residence to an occupation of small structures by a non-elite or secondary elite group during the Terminal Classic.

The third final feature to note relates to Structure A-13. Excavations at the juncture area of Structure A-12 and A-13 indicated that Structure A-13 was part of the final phase of construction within this Plaza A-III. The argument which I have made in the past (Leventhal 1996) that Structure A-13 closes off the southern, open end of the plaza in the Late Classic II period is strengthened with the 1997 excavations. But we also learned that there was a small raised platform which ran along this southern end of the plaza prior to the construction of Structure A-13. It is even possible that a perishable range structure or even a non-perishable one existed at this location prior to A-13. However, we only have evidence at this time of a small, low platform and not any superstructure.

The Castillo - Structure A-6: North Side

Structure A-32

A major clearing and excavation program of Structure A-32 was part of the focus of work during the 1997 field season. The building is presented in detail within the preliminary report of E. Clancey. However, the features of the building and certain relations with the pyramidal core structure of A-6 provide us with a basic chronology of construction and use.

Let me mention a few important features of Structure A-32 and then present this chronology. First, Structure A-32 is a very long range structure located on the medial terrace on the north side of the Castillo. It consisted of front and back or north and south gallery rooms. Although access to the front, northern room was through numerous doorways, the only access to the back southern room was through a central doorway. In addition, it is only through this central passageway that one can pass through this structure to a narrow walkway between Structure A-32 and the terraces of Structure A-6-2nd (termed Mauve Terrace).

Second, the final construction phase of Structure A-32 correlates with the Mauve Terrace wall of Structure A-6-2nd. Mauve is the major terrace retaining wall for the large pyramidal core of the Castillo. There is no central staircase located to the south of A-32 which offered access to the upper reaches of the Castillo. A stairway was identified within the walkway between Structure A-32 and Mauve Terrace. This staircase, ascending from the west to the east, provided access to the A-5 upper terrace. Similar

stairs were found on the west side (see Robin 1994). It is only along these side staircases that one could reach the upper parts of the Castillo during the last phases of occupation - probably Late Classic II and Terminal Classic time periods.

I believe that we can identify four major phases of construction and development along this front, northern section of the Castillo.

Phase 1: The first phase that we can identify relates to or is earlier than Structure A-6-3rd. This north side of the Castillo probably consisted of a fairly typical staircase form with a lower outset staircase, probably earlier than the one visible today (see Miller 1995), a medial terrace and no evidence of a building, and then a second staircase ascending to the upper superstructure A-6-3rd or earlier.

Phase 2: This phase relates to the first construction of Structure A-32 on this medial terrace and marks the first blocking of access up the north side of the Castillo. As discussed in the article by Clancey in this preliminary report, the evidence from Structure A-32 argues that the initial form of the building was a long two-galleried building with a corbelled arch roof. As continued later, the only movement through the building was along a central passageway which led from the top of the lower steps to the base of the upper staircase. It is the construction of this central passageway which argues for the continued existence and use of an upper staircase.

Phase 3: The phase three construction relates less to Structure A-32 and more to the upper pyramidal core of the Castillo (Structure A-6). It is at this point in the development of the Castillo that Structure A-6-2nd is constructed. The earlier superstructure is destroyed and the staircase and terraces on this north side are encapsulated within the massive terrace walls now visible on all sides of the Castillo. This effectively blocks access along the central line of Structure A-32 and it is likely that both the eastern and western side staircases were constructed at this time to provide access to the upper portions of the building. Sometime during this phase or perhaps slightly earlier, Quetzal building to the west is filled and its door blocked and a stairway is built with a covering screen wall (see Miller 1996 and Leventhal 1996).

Phase 4: The final phase on this north side of the Castillo relates to a major modification of Structure A-26. It appears as though both the north and south walls of the structure were dismantled and then rebuilt and it appears as though the corbelled arch roof was removed and a perishable roof constructed. I believe that this is one of the last phases of construction on this north side of the Castillo as this modification changes this building and removes its formal roof. The central passageway remains as the only access to the stairs to the east but this relates, I believe, to the process of transformation of the ruler as he ascends the Castillo, the ancestral shrine of his family.

The final construction on this north side of the Castillo relates to the construction of A-6-1st, the final building on top of the pyramid. This construction phase covers major portions of the earlier A-6-2nd but does not relate to any major lower construction or changes in association with A-32 or other building within the lower portion of the Castillo complex.

Structure A-32, therefore, is constructed as a physical and visual screen to the process of change and transformation undertaken by the ruler as he ascends to the top of the pyramid. The form and nature of Structure A-32 provides us with an understanding of the construction sequence on this side of the Castillo along with an ongoing and growing understanding of the lines of access onto the building.

Structure A-6-3rd

While discussing the north side of the Castillo, it is worthwhile mentioning the minor excavations which were conducted within the north tunnel (see Miller 1996) located approximately half way up the slope between Structure A-32 and A-6-2nd. In 1996, Miller and team had discovered Structure A-6-3rd which at that time consisted of a series of massive terraces and outsets.

In 1997 and prior to the final recording and backfilling of this tunnel, we extended the excavations along these outsets to the east and west in our attempt to find and identify a staircase. On the west side, no staircase was found. However, a staircase was clearly identified on the east side. This staircase seems to have been flanked by side balustrades - which we had uncovered the previous year.

The identification of this staircase confirms the change and chronology discussed above in terms of the nature of access onto the central pyramidal core of the Castillo.

Structure A-6-2nd and 1st

As part of our consolidation and tourist plans for the site, we decided that it was necessary to remove the modern ladders and stairs on the northern upper part of the Castillo which had provided access from the terrace of A-6-2nd to the floor of A-6-1st. These stairs and ladders had been originally constructed by A. H. Anderson and they were no longer safe. We removed these during this 1997 season and then excavated the front portion of the entire north side of Structure A-6-2nd to provide access and movement of tourists along the front of the building.

The central and eastern doorways of the north side of A-6-2nd were cleared and defined and consolidated. Most importantly, the excavation of this section of A-6-2nd recovered pieces of a modeled, stucco sculpture, which appears to be clear evidence for the existence of a frieze on the final building, A-6-1st.

The Castillo - Structure A-6: South Side

Structure A-26

Major excavations of Structure A-26 were initiated in 1996 and then continued and completed in 1997. This building, similar to Structure A-32 on the north side of the Castillo, forms a physical and visual barrier in the movement of people up onto the Castillo.

As with Structure A-32, A-26 is a long range structure with rooms on both the south and north sides. A central passageway provides access through the building towards the south. The details of this building are examined by Rebecca Hays within this preliminary report. Again, we can identify the major phases of construction and occupation on this south side of the Castillo. The four phases we identify here do <u>NOT</u>

necessarily correlate to the four phases on the north side. This is a local time frame consistent and structured only for this south side of the Castillo.

Phase 1: The first phase of this southern side of the Castillo does not include Structure A-26 which had not been constructed at this time. A central outset staircase rises from the southern base to a plaza platform edge or terrace. From this platform (which is the terrace upon which Structure A-26 will late be constructed), a series of sunken courtyards exist to the north, and west. A small fragment of a staircase was uncovered in 1997 which descends from this platform down into the sunken courtyard.

Although we know very little of these sunken plazas, we can see the western edge of the plaza within the previously excavated area on the southwest corner of the Castillo (these were A. H. Anderson excavations). Within this area we can identify the southwest interior corner of the sunken plaza.

We believe that there were several sunken plazas within this earlier form of the Castillo. This is based upon evidence from a very deep (8.30 meters) excavation that we placed this year north of Structure A-26 within the upper set of plazas forming the final construction phase. The plaster surface we found which would be associated with the plaza floor was not at the same elevation - but rather slightly higher. We might speculate that this surface was, in fact, the top of a small platform which divided this area into several different plazas.

Finally, Quetzal building, located to the northwest of this area might have formed the northern edge of these sunken plazas. This building might have served as the range structure which defined the edge of the plaza and provided access through a central passageway - similar to Structure A-13 with Plaza A-III.

Phase 2: This phase seems to relate to the initial construction of Structure A-26 along the terrace edge. This provides access to the sunken plazas through a central passageway but, as with A-26, provides a physical and visual block at the top of the lower stairs.

Phase 3: It is within this final phase of occupation that the sunken plazas are filled in and this area is raised to its present upper level. Again, within this phase the building activity results in a series of defined plazas south of the pyramidal core of Structure A-6. These late plazas are defined by Structures A-27, 28, 28, 30 and 31.

This phase is marked by the construction of the very rough retaining walls to the north of Structure A-26 and the rough inset staircase which had been initially defined in 1995 (Neff 1995). This type of rough stone construction is in sharp contrast to the building of Structure A-26 which is why A-26 falls within the previous construction phase.

Phase 4: This phase marks the abandonment of Structure A-26, and this entire southern part of the Castillo - if not the entire southern part of the site as argued previously. Apparently, the medial terrace, Structure A-26 and areas to the south are abandoned and no longer utilized while occupation and activities continue within the plazas defined by Structures A-27, 28, 28, 30 and 31.

Our excavations in 1996 and 1997 within the rooms of Structure A-26 and within the east-west passageway between Structure A-26 and the upper terraces to the north show an interesting stratigraphic sequence. On top of the floors, we find a fairly fine soil which seems to be deeper near walls and terraces. We see this as wind-swept soil which builds up within corners and next to walls after the initial abandonment of the area. Then we get a fairly dense concentration of large sherds and other artifacts - deeper to the north and less to the south. This we interpret as material thrown off of the upper plaza area and representing activities ongoing within this upper region. There is no evidence of occupation within this southern Castillo region to the south of Structure A-26 at this point in time. Preliminarily, we see the abandonment point relating to the end of the Late Classic II time period.

Additional Excavations on the South Side of the Castillo.

Sections of Structure A-28 were excavated in 1997. This low, stepped platform demarcates the southern edge of this upper plaza area (See R. Hays in this report for details).

As mentioned above, we also excavated a major pit into this southern, upper plaza (nicknamed the 'piscina'). This excavation went down 8.30 meters and provided us with a very good stratigraphic picture relating this upper plaza to the sunken plazas discussed above.

When we combine this deep vertical excavation with the long horizontal excavation of the southern tunnel (see Miller 1996), the result is a good and complete picture of the construction phases and development of this southern side of the Castillo.

Access to Xunantunich

Let me very briefly mention that Angela Keller continued her investigations of the nature and form of access to the site core of Xunantunich. This 1997 season found her conducting detailed shovel tests to the west of the site core towards Group B and Structure A-21 and to the south of the Castillo to Structure C-8. In addition, detailed excavations and trenching of Structure A-21 were conducted.

These excavations revealed a buried Middle Preclassic component along with a strong Late Classic II component that Keller ties to elite sponsored activities relating to feasting, rituals and dancing.

Keller identified two primary access points - one to the east with Sacbe I and the other to the west, Sacbe II extending towards Structure A-21. These combine with the stairway area found in 1995 (see Keller 1995) to show the primary access points to the site.

Summary

Many of the major excavations conducted during the 1997 field season focused upon the nature of the ruling family at Xunantunich. This included an examination of the ruler's residence and an identification of a single construction phase relating to the throne rooms and residence of Structure A-11.

The Castillo was also the second major focus of our excavations and revealed a complex constructional and occupational history for this huge building. Most importantly, the Castillo excavations reaffirmed the functional nature of this building relating to the ancestral shrine of the ruling family. The maintenance of the Castillo within the axial north-south line, the east-west access points relating to the Castillo and the important changes in access onto the Castillo all clearly relate to the continued sacredness and ritual importance of this building over a long period of time - from Late Classic I to the end of the occupation at Xunantunich during the Terminal Classic.

Our excavations within the site core over the past seven years have revealed much of the history of this ancient city. We have only scratched the surface in terms of areas and buildings to be excavated. However, we feel that at this time we must walk away from Xunantunich and continue the detailed analysis of our finds and excavations. It is only through these detailed analyses and eventual publication that we can truly understand what we have found and relay this information to our archaeological colleagues and to the important and supportive general public both in Belize and around the world.

Although it is time to end our work at Xunantunich, we do so with mixed feelings for our seven field season were exciting and greatly enjoyable periods work within the western Cayo District of Belize. We greatly appreciate all of the time and energy that people put into this project and we end this phase of the excavation, preservation and tourist development work with great memories of many things learned and understood about both the past and the present of Xunantunich.

Acknowledgments: There are large numbers of people who continue to be a major source of assistance for the Xunantunich Archaeological Project. Commissioner John Morris and the entire staff of the Department of Archaeology, specifically Brian Woodye and George Thompson, provide the primary support and assistance for this ongoing archaeological project. In addition, Minister Henry Young and Permanent Secretary Victor Gonzalez continue to support enthusiastically the project and the proposed touristic developments.

Within Belize, the greatest thanks must go to all of our workers who are a major part of the team as we finish our work at Xunantunich. All the people of the Village of Succotz continue to support us and our work. Specifically, we would like to thank the Village Council. Many people gave us permission to walk on, survey on or excavate on their land and we thank all of them. We also want to thank Margaret and Rudy Juan for their hospitality and unceasing helpfulness as they solve new and continued problems.

This research comes together with the quality of the graduate students and professional staff. Few archaeological projects have a better crew. Thanks to Jason Yaeger(1997 Field Director), Marjolina van der Krift, Erin Clancey, Rebecca Hays, Angela Keller, Sam Connell, Aimee Preziosi, Jennifer Scarborough, Cynthia Robin, Mike Artemieff, Lady Harrington, Jennifer Smith, Lisa LeCount, Brad Adams, Ted Neff, Linda and Lucas Neff, and Bill Feld. The settlement program continues to be directed by Wendy Ashmore, the Co-Director of the project.

Support for this project comes from the Government of Belize, USAID, the UCLA Faculty Senate, the UCLA Institute of Archaeology, and numerous private donors.

Finally, let me mention our longtime foreman, Florentin Penados, who is an important part of the XAP team.

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Settlement Archaeology at Xunantunich, 1997

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Introduction

The 1997 season marked completion of all field data collection by the Xunantunich Archaeological Project. This chapter summarizes findings of the four field programs pursued this year beyond the limits of the Xunantunich core, and relates them to the core and to the larger context of ambient settlement. Cynthia Robin continued investigation of small-scale rural homesteads southeast of Xunantunich. Sam Connell completed his studies of settlement in the Chaa Creek area. Complementing these inquiries into residential settlement, Theodore Neff examined a sample of the abundant hillslope terracing. And Jennifer Smith outlined geological and hydrological dimensions of the local landscape. Results of all four programs are reported more fully in separate chapters of this volume, by the individuals who supervised them; this chapter serves to summarize and highlight their findings.

To review the background for 1997 research, XAP goals from the outset of the project have targeted the broadest feasible understanding of ancient Maya settlement and society in and around Xunantunich. The Xunantunich Settlement Survey (XSS) was formulated in 1993 to examine relevant aspects of landscape and its settlement. With generous support from the National Science Foundation, reconnaissance and survey documented settlement and land use along and between the Mopan and Macal rivers, outlining trends in local occupation from Middle Preclassic through Postclassic times through transect and opportunistic samples of settlement (Ashmore 1993, 1996a; Ashmore et al. 1994; Neff et al. 1995; Ehret 1995; Yaeger 1992; Yaeger and Connell 1993). As noted in earlier reports, the sequence broadly parallels earlier findings in the same general region (e.g., Ball 1987; Ford and Fedick 1992; Willey, Bullard, Glass, and Gifford 1965). This is hardly surprising. What's new are insights about community forms, internal dynamics, and relative growth trajectories that we believe add to the exciting abundance of rich and varied interpretations concerning social evolution and ancient life in the middle and upper Belize valley. Even the relatively few differences encountered in culture history are informative. Although some may be ascribed plausibly to sampling effects, others suggest truly contrasting developments. For example, sampling effects are perhaps most readily seen in the perceived distribution of Postclassic remains; ancient political, economic and other factors were likely responsible for differential developmental histories in the Chan and Callar Creek zones (e.g., Ball 1987; Ehret 1995; see Ashmore 1995, 1996a).

The following overview recapitualates earlier summaries (see esp. Ashmore 1996a): Although settlement traces from the Middle Preclassic are widespread throughout the region, occupation in subsequent periods is quite heterogeneous in specific distribution and scale. Broadly speaking, the populace of farmers increased to a Late Classic maximum in probably the eighth century, at which time a well-developed settlement hierarchy is evident in a landscape extensively modified by hillslope terracing and other land-management traces. Within that general pattern, flux is evident in the locus of paramount or competing authority among the major centers--Cahal Pech, Actuncan, Buenavista del Cayo, Xunantunich, and probably Guacamayo-Tipú (e.g., Ashmore and Leventhal 1993; Awe 1992; Ball and Taschek 1991; Graham, Jones, and Kautz 1985; Leventhal and Ashmore, in press). So too do we detect parallel oscillations in growth at secondary centers and adjacent settlement (Ashmore et al.

1994; Neff et al. 1995; Ehret 1995). We also continue to examine the potential roles in upper Belize valley fortunes played by larger, more distant cities, including Naranjo, Caracol, and Calakmul (e.g., Ashmore 1996, n.d.; Ashmore and Leventhal 1993; Ball and Taschek 1991; Chase and Chase 1996; Martin and Grube 1995).

Settlement research in 1997 ranged from investigation of household and community growth and integration, to a study of probable agro-engineering for feeding residents of those settlements, to examination of the underlying landforms themselves. Drawing from a developmental model for understanding ancient Maya settlement (e.g., Fortes 1958; Haviland 1988; Tourtellot 1988a, 1998b; Robin, in Neff et al. 1995; Robin 1996; Yaeger 1995; Yaeger with Villamil 1996), Cynthia Robin's research looks at foundation and growth of some of the smallest habitations, and examines these in the context of apogee and collapse of society in the vicinity of Xunantunich. Sam Connell reviews the evidence from small civic centers and their support communities in the Chaa Creek area, relating changes in implied integration there to flux in broader political and economic matrices of the 8th through 10th centuries. Theodore Neff dissects the construction forms and histories of a sample of terraces documented by XSS, affirming, among other things, that initial survey most likely underestimated their overall abundance and variety. And Jennifer Smith documented the Quaternary and pre-Quaternary geology of some 100 km^2 of the Mopan and Macal watersheds, embracing the area of XSS archaeological survey and emphasizing the implications of local geology for ancient human settlement. Together, these studies complement XAP work reported elsewhere, from domestic compounds of higher echelons of society, and collectively they afford us the best insights into ancient life in and around Xunantunich.

Excavations in the Rural Hinterland

As a member of the 1995 XSS team, Cynthia Robin was struck by the unexpected abundance of small, single-period sites, especially on Transect 1 (T/A1; Robin, in Neff et al. 1995). Drawing on a developmental-cycle model of household growth, Robin hypothesized that the cycle had been truncated--and perhaps abruptly so--in the households once resident in these T/A1 compounds. To test her ideas, she developed a program that would examine the range of domestic activities carried out at these unprepossessing and seemingly "undeveloped" sites.

In 1996 and 1997, Robin focused on single-mound sites in locales she dubbed "Chan Noohol" (Chan South), 300-350 m south of the imposing Chan site, and "Dos Chombitos Cik'in" (Dos Chombitos West). As she noted in 1996, each collectivity is associated with a waterhole (Vogt 1969) and other possibly communal features, including variable linkage with hillslope terracing. She adapted activity-area testing methods innovatively from a diverse souces, including other XAP programs (e.g., Braswell 1992-94; Yaeger 1993-96), successive Sayil studies (Killion et al. 1989; Smyth and Dore 1992; Smyth et al. 1995), Killion's (1992) ethnoarchaeological house-lot model, Tourtellot's (1988a, 1988b) and Haviland's (1988) developmental-model applications, and her own ethnoarchaeological experience while working with John Lucy at Sisbecchen, Yucatan. As reported in 1996, the resultant array includes systematic two-stage, post-hole testing and extensive areal clearing, incorporating flotation and phosphorous testing. Even as she examines ancient construction features closely, she has given at least as much attention to outdoor spaces surrounding and away from structures.

Overall, Robin's strategy has proven highly successful at documenting houselot organization, use and modification, sometime via very subtle traces. Not only has she discovered a number of "surface-invisible" constructions, she has balanced study of built and "unbuilt" portions of these domestic arenas. Intriguing variation emerges, within and among houselots, in artifact density and phosphorous levels (e.g., her Figure 9). In Chan Noohol, she has also recovered evidence suggesting small-scale ritual feasting at a chultun by a waterhole. She interprets the waterhole focus of settlement and inferred remains of feasting in at least this instance to betoken localized forms of both economic and ritual integration.

Moreover, Robin re-situates these household- and wider-level activities within larger integrative spheres. From her research, she suggests some of the end-game dynamics among the local rural populace: That is, she notes that the pronounced Late Classic expansion in new households involved occupation of less desirable settings, by families whose homes and material possessions marked them as having lesser social and economic standing. Although the region overall witnessed widespread social contraction and demographic collapse by the close of the Terminal Classic, Robin calls attention to these relatively younger and more marginal households as having been particularly vulnerable.

Chaa Creek

The complex of sites at Chaa Creek falls beyond the XSS surveyed area has proven interpretively critical for understanding social, political and economic dynamics of society in the region under study. Early on, Sam Connell recognized its strategic location and inferred its prominence in the evolution of political and economic integration of the region. In 1997, Connell brought his cumulative findings to bear on the hypothesis that Chaa Creek became integrated significantly more closely into a Xunantunich polity at the very end of the Late Classic. From his earlier research, Connell observed that masonry (especially public-sphere) architecture and ritual artifact assemblages of Chaa Creek and Xunantunich were most homogeneous and similar in material style and technical quality at the very end of the Late Classic and the Terminal Classic period. Drawing on Durkheimian theoretical models and several lines of accumulated evidence, he hypothesized that prior to the stated period, the populace of Chaa Creek was economically more homogeneous, and followed stylistic canons with a local cast and relative heterogeneity of expression. These characteristics he inferred as depicting a society characterized by mechanical solidarity. For materials from the close of the Late Classic, however, he predicted finding greater heterogeneity in household- and settlement-level production, suggesting a trend to more organic solidarity in Chaa Creek society, coincident in time with the greater observed stylistic homogeneity in ritual materials and public architecture, and their greater similarity to Xunantunich, more than 5 km away.

To explore these matters, Connell's 1997 excavations sampled sites across the full range of scale and elaboration evident in Chaa Creek. He sought especilaly contexts yielding remains of production, consumption, and ritual. As of this writing, analyses were pending; rather than risk misidentifying his larger inferences, I refer the reader to his chapter in this volume. One particularly interesting assemblage, however, may be highlighted at CC1, an imposing site with monumental masonry architecture, and

named "Stela Group" for its several stone monuments. Connell (1995) had suggested that the long axis of the site's principal plaza was deliberately oriented to provide a sight line to Xunantunich and the Castillo there. The main structure at CC1, bounding the east side of the cited plaza, might well have been a vantage point for sighting Xunantunich, looking over a lower western platform from the door of the eastern superstructure. Although badly looted on its rear façade and hearting, the front or plaza side yielded a series of ritual features in centerline excavations. These included three caches, at least two burials, and a pair of "patolli" features in stratigraphically sequential niches set into the axial stair. The relative abundance of ritual features seems appropriate for the scale, architectural complexity, and local prominence of this site. Moreover, inasmuch as patolli features are unusually abundant at and near Xunantunich (e.g., MacKie 1955; L. S. Neff 1995; Yaeger, this volume), the discovery of a new pair and their sequential creation at this one building at CC1 hints at aspects of integration in ritual, plausibly shamanistic practices, among leaders of civic centers in the region.

Terracing Program

As noted earlier, the XSS team documented terraces covering 0.42 km^2, 7.1% of the surveyed landscape (Neff, in L. T. Neff et al. 1995: 155). This is the northernmost extent of what was reported 70 years ago as a virtually continuous band of terracing extending north out of the Maya mountains (Ower 1927; see also Fedick 1994). XSS staff grouped the features recorded into 191 instances of what we termed "terrace sets," among which, intriguingly, distinct formal types seem provisionally isolable (Gifford in Ashmore et al. 1994; Neff and Gifford 1996). Usually less elaborate than terracing characteristic of Caracol (e.g., Chase and Chase 1996; Healy et al. 1983), the features observed around Xunantunich are more similar to terracing reported around Pacbitun (Healy 1990, and personal communication, 1995). Although a few are quite imposing as recorded in survey, scales and elaboration vary widely, and some recorded terracing appears little distinct from natural hillslope contours.

For his dissertation research, L. Theodore Neff investigated a sample of terraces along T/A1, near Dos Chombitos. Terracing variability is greatest in that locale, and there was the extra interpretive (and logistical) advantage of coordinating with and complementing Robin's investigations. After pilot work in 1996, Neff returned this year for four months' study of variability in age, form, and function of these terraces, previously known only from survey data.

Initial findings provide both confirmation and expansion from survey-based interpretations. Thus far, chronological indicators are consistent with the usual Late Classic dating for Maya terracing, and Neff has documented instances of sustained use and repeated modification of particular features within the Late Classic span. The data are likewise consistent with the usual inference of agricultural use. In addition, however, Neff's excavations yielded an artifact assemblage distinct from "standard" domestic arrays. Although the sample is necessarily small, continued analysis promises added insights into activities and site-formation processes associated with terraced areas, and in turn, how use of terraced areas relates to residential occupation nearby. Complementary soil and paleobotanical analyses are pending.

Testing a range of XSS-observed terracing confirms that these features are often more elaborate than they appear at the surface, their full extent having been partially obscured by soil accumulation and other processes. Moreover, limited clearing and re-examination of select "non-terraced" areas yielded new evidence of terrace construction where XSS crew had originally thought evidence ambiguous or terracing absent. The re-assessed extent and variation of Xunantunich-area terracing clearly promise new insights as Neff's analyses of their technological, economic, and social implications proceed.

Geology and Hydrology

The original proposal for settlement archaeology at Xunantunich included plans for systematic study of ancient landforms and their change (Ashmore 1993). Although general information was available at the time, the scale of reporting tended to make localized interpolation difficult. Moreover, despite wide appreciation of the effects of alluviation on ancient habitation *and* archaeological reconnaissance (e.g., Bullard 1965; Muhs, Kautz, and MacKinnon 1985), we knew of no program that had sought to document systematically the evolution of the landscape relative to the record of human occupation. Brief inquiries early in the project supported the utility of such study (e.g., Holley et al. n.d.). Following from brief pilot research in 1996, Jennifer Smith this year established important foundations for this kind of documentation.

Over the four-month season, Smith conducted intensive field and archival study of geology and hydrology in a 100-km^2 area between the Macal and Mopan rivers, from approximately Benque Viejo and its equivalent position along the Macal, north to the confluence of those tributary rivers to form the Belize river at Branch Mouth. Smith's report includes a summary of pre-Quaternary geology, with preliminary descriptions of geological stratigraphy and structure. Combining foot survey, examination of aerial photographs, and test-pitting of selected locations, she also produced a localized map of the Quaternary geology in the study area. Notably, her descriptions of individual mapping units (her Figure 9) and landforms (her Figure 10) include specific discussion of the implications for ancient occupation (e.g., presence of exploitable lithic resources), as well as the likelihood for survival of settlement traces--and for their discovery by archaeologists (e.g., risk of masking by alluviation; localized erosion patterns).

In addition, Smith discusses the current hydrologic regime of the Mopan and Macal rivers, as well as the evidence for seismicity in the area. Although necessarily preliminary, and offered with understandable caution about projections into the past, her discussion of direct and indirect evidence on local hydrology is important to us for understanding the probable geomorphic evolution of the land within the span of human occupation, and for inferences about flood risks and potential climate during that span. She suggests specifically that these rivers "have undergone significant changes in flooding behavior and average annual discharge over the last few thousand years."

Smith's assessment of seismicity takes on added significance because of hypotheses offered for extensive destruction by earthquake in and around Xunantunich at the end of the Classic period (MacKie 1961). Although she finds the likelihood very high that a significant quake would be felt at Xunantunich sometime during the

Quaternary, Smith argues that such a quake would be unlikely to originate in the vicinity. Moreover, to be felt at Xunantunich, a quake should "have left some evidence of utter destruction all over southern Guatemala."

Discussion

Even this brief overview indicates that Xunantunich settlement investigations in 1997 expanded significantly on findings from previous years. Once again, we have recovered evidence suggesting how the populace at large was integrated, internally and in relation to overlords. And we have gained further hints of how integration changed, ultimately disintegrating by the close of the Terminal Classic. Evidence from the rural hinterland reinforces suggestions of retrenchment, in a manner paralleling the contraction of space and arguably authority evident in the civic core (e.g., Ashmore 1995; Braswell, Keller and Yaeger 1994; Leventhal 1994; Robin, in Neff et al. 1995; Yaeger 1995; Yaeger and LeCount 1995). Evidence from Chaa Creek may hint at economic reorganization and political consolidation, perhaps on a regional scale, as authority at Xunantunich reached and passed its apogee.

As we have asserted in earlier reports, Xunantunich prospered in the Late Classic and survived into the Terminal Classic, but evidently not longer. With each addition to our data, it grows clearer that the general populace north and east of the civic center likewise declined by the end of that span. What remains is analyzing the evidence in more detail, toward resolving how the various families, neighborhoods, communities, and leaders responded differently to the events around them.

Future Directions

As with any research project, addressing the questions raised at the outset inspires new questions. In 1910, for example, Edgard Lee Hewett anticipated that the relatively small Maya site of Quirigua could be adequately studied in five years. His own seasons there, plus subsequent studies including the five-year project on which I participated more than six decades later, have hardly exhausted the work that could be done. So it is elsewhere, including Xunantunich and environs. The fundamental archaeological field goals of the Xunantunich Settlement Survey were defined in 1993 and attained in 1995. Research extending through this culminating season has implemented the geological study envisioned in 1993, and has significantly augmented inquiry into initial archaeological findings. The immediate future for XSS and all XAP analysts is a time to step back, to assess further the tremendously rich data gathered in what we believe have already proven very fruitful inquiries.

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The 1997 Excavations of Plaza A-III and Miscellaneous Excavation and Architectural Clearing in Group A

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The 1997 Excavations Of Plaza A-III: Continuing Investigations Of The Royal Compound

The northernmost group of monumental architecture at Xunantunich consists of Plaza A-III and Strs A-10, A-11, A-12, and A-13 that surround it (Figure 1). Building on previous work, excavations in 1997 supervised by Marjoljne van der Krift and myself cleared more of the group's architecture, including the A-12 superstructure and, importantly, unearthed new evidence on the development of the group. The excavations also provided additional data that support the notion that Plaza A-III was the Xunantunich rulers' compound during the Late Classic II period.

Earlier Excavations in Plaza A-III

Thomas Gann conducted the first reported excavations in Plaza A-III in 1924 while searching for burials in several of the site's pyramidal mounds. For reasons he did not record, Gann trenched through a 1.3m high mound, 6m in diameter, in the northwest corner of Plaza A-III. He concluded that the pile of earth and limestone blocks he found was the remains of a house mound postdating the abandonment of the site's monumental structures (Gann 1925:81). In 1959 and 1960, Euan MacKie trenched a similar rubble mound in the southeast corner of Plaza A-III and placed another trench into the northwestern mound excavated by Gann. MacKie (1985:42-44) described the composition of both mounds as limestone rubble piled directly atop the plastered plaza surface, and he reasoned that the lack of soil between the plaza and the rubble contradicted Gann's argument that these were post-Classic house mounds. Instead, MacKie (1961; 1985) argued that the two unusual features are materials that the Maya had collected after to an earthquake-provoked collapse of buildings around the plaza, for a never-finished rebuilding program. Unfortunately, these two mounds do not exist today, having been removed sometime since 1960, possibly for aesthetic reasons.

MacKie also supervised extensive excavations of Str A-11, clearing four of the five rooms of the superstructure and excavating trenches into the southern side of the mound, one on the central axis and another to the west (Figure 2). Subsequent to MacKie's work, somebody placed another trench into the southern side of Str A-11, east of MacKie's central trench. The only record of this excavation that I am aware of is a photo of Plaza A-III taken in the 1960s that shows freshly exposed architecture in the trench. Jennifer Scarborough first noticed this detail of the photo, which hangs in the Xunantunich Visitors' Center. The photo is credited to A.H. Anderson, Archaeological Commissioner of Belize in the 1960s, and it is likely that he supervised the excavations. Another excavation, probably later, stripped large portions of the west face of the Str A-11 substructure, and members of the British Army cleaned out the rooms of the eastern half of the Str A-13 superstructure sometime in 1980s.

In its early years, the Xunantunich Archaeological Project did not focus its efforts on Plaza A-III. I placed one 1m x 2m test unit through the plaza floor in the southwest corner of the plaza and another through the north terrace of Str A-12 in 1991. The following year, James O. McGovern cleared a small portion of the junction between Strs A-13 and A-10 (Ops 16A-H). The next two years did not witness any work within the plaza, although Thomas Jamison and Greg Wolff did excavate Strs A-23, A-24, and A-25 in 1994. This group is located east of Str A-12 and just beyond the northeast corner of Plaza A-II, and the ceramic evidence suggests that it was a food preparation area,

probably in part for the residents of Plaza A-III (Jamison and Wolff 1994; LeCount 1996:267-69).

A concerted investigation to understand Plaza A-III began in 1996, when Ellie Harrison (1996) dedicated the entire season to exploring Plaza A-III. She concentrated her efforts on Str A-10, defining the form of the substructure, revealing the relationship between Strs A-10 and A-13, and discovering the alley between Strs A-10 and A-11. Excavations in the northeast corner of Plaza A-III cleared the steps and substructure of A-12 and found another alley between Strs A-11 and A-12. Finally, her work on Str A-13 revealed that the structure had several earlier phases.

Using the resulting data, Harrison (1996:85-87) argued that most of the occupation and use of Plaza A-III occurred in the Late Classic II (LCII) period, and that the Terminal Classic (TC) occupation was less intense. The architectural sequence that she outlines shows a progressive restriction of access into Plaza A-III, as the plaza is walled in with the construction of the northern terraces of Strs A-12 and A-10 and the building of the plug between Strs A-13 and A-10. Harrison contextualizes these architectural modifications and the reduced activity in the TC period within the larger pattern of changing use of space at the site, in which Plaza A-I became the public ceremonial focus at the site, and access to Plaza A-II from Plaza A-I and from the northeast entrance area was cut off (see also Jamison and Wolff 1994, Keller 1995; and Leventhal 1995, 1996).

We returned to Plaza A-III in 1997 intending to resolve several unanswered questions about the architectural sequence and function of Strs A-11 and A-12. I supervised the work on Str A-11, and in Room 7 of Str A-12; Marjoljne van der Krift supervised the majority of the excavations in Str A-12 and the testing of Str A-13.

Str A-11 (Ops 257 and 272)

Str A-11 is the northernmost structure on Plaza A-III, and it is also the northernmost structure in the monumental core of the site. It sits on the far northern edge of the limestone ridge upon which the ancient site planners built Xunantunich, and from its summit one commands an impressive view of the Mopan River valley stretching north from Xunantunich, past Actuncan, Callar Creek and Buena Vista, as far as the hills beyond Bullet Tree Falls. As noted above, Leventhal and Harrison had both argued that Str A-11 was the home of the ruler of Xunantunich, and we hoped to find additional evidence with which to evaluate this idea. We also wanted to re-examine some of MacKie's interpretations about the building's form and history.

Based on his extensive excavations, MacKie argued that Str A-11 was built in two main phases, each with later modifications. He called this putative earlier phase "A-11/2" or "A-11/ii" and the later phase "Str A-11/1." Trenches E and F into the south face of Str A-11 provided the data for his reconstruction of "Str A-11/2" as a vaulted superstructure set on a basal platform 1.8m high, reached via an outset staircase. MacKie only exposed the central doorway of this structure, but he extrapolated from the mound profile and forms of other buildings at the site to suggest that the superstructure consisted of two ranges of three rooms, the rear rooms filled in to provide a solid base for the Upper Building. The clean, white rubble in the central doorway of "Str A-11/2" led MacKie to argue that the Maya left the front rooms of this

lower building open when they built the rooms of "Str A-11/1," creating a two-story palace quite similar to the final form of Str A-6.

We designed our excavations to examine MacKie's reconstruction, especially that of a two-phase construction history, and we hoped to obtain some ceramic material that would allow us to date the construction and use of the "Str A-11/ii." We also felt it important to determine how people reached the upper rooms of Str A-11; MacKie hypothesized the existence of lateral stairs, but Harrison's 1996 excavations found no evidence for these.

Our work on the different parts of Str A-11 always started by clearing the detritus out of earlier trenches, most of which had been partially backfilled. We labeled these "excavations" Op 257A (MacKie's central Trench F), Op 257B (MacKie's western Trench E), Op 257W (the excavations of the west face of the substructure), and Op 257M (the eastern trench into the south side of the substructure). We also re-excavated selected portions of Harrison's 1996 units to better visualize the overall architectural context of our excavations. After evaluating the exposed stratigraphy and architecture, we proceeded with the following excavations (see Figure 3):

1) Clearing along the west face of Str A-11's second terrace to look for the putative lateral stairs and the second range of rooms of the Lower Building (Ops 257C-F, 257H-J, and 257X)
2) Clearing parts of the east face of Str A-11's second terrace for the same reasons (Ops 257R-T)
3) Excavating just west of the preserved steps from Room 5 to determine if they continued down to the plaza level (Op 257G)
4) Clearing the central doorway of the Lower Building and probing into the building's substructure to obtain diagnostic ceramics from the fill and examine the structure's construction sequence (Ops 257U, 257V, 257Y, and 257AA)
5) Tunneling through the central doorway of the Lower Building to ascertain the central room's form and search for in situ floor deposits (Ops 272A-E)
6) Clearing along the east side of the south face of the Lower Building and its substructure to evaluate the issue of lateral stairs and better define the central stairs on the southern side of the structure (Ops 257K-L, and 257N-Q)
7) Excavating a trench north of Str A-11 along the building's substructure to look for refuse tossed from the northeast alley (Ops 258A-C, discussed in the next section)

The data from these excavations allow us to endorse some of MacKie's conclusions and force use to discard others. For example, the Maya apparently conceived of and built Str A-11 as a single major construction phase that included both the Upper and Lower Buildings; we found no evidence for the existence of a "Str A-11-2nd". The Lower Building of Str A-11 probably does have three doorways, but they lead to single chambers, not two ranges of rooms. MacKie was correct, however, about the existence of side stairs, and my in-field examination of the ceramic material we recovered supports his conclusion that the main construction of Str A-11 dates to the LCII period (which he calls BV IIIb following Thompson [1940]). Below, I will present our revised understanding of the construction history of Str A-11 and then examine some of the data we have for inferring the function of Str A-11 as the residence of the rulers of Xunantunich.

Initial Construction

The initial construction of Str A-11 coincides with the first phase of Plaza A-III. MacKie (1985:44), Harrison (1996:78), van der Krift, and I all found two major flooring episodes capping Plaza A-III, separated by 20cm or so of fill. In Op 257K, we cleared the corner between the eastern outset of the Str A-11 central stairway and the substructure face and found the later plaza floor at 173.51m ASL and the earlier floor at 173.31m ASL. The earlier floor surface runs under the basal course of the A-11 substructure, but a bead of plaster was worked into the junction. This floor was later resurfaced, the new floor lipping up to both the substructure and the stairway outset. I do not think that the lowest finished floor runs under the entire A-11 substructure, however, since we did not find any evidence of it in our probe (Op 257V) through the central stairway block, and we know that the substructure and the stairway are part of a single building episode. In Op 257V, we did find an unfinished mescla construction floor at 173.19m ASL, underlain by ca. 10cm of fill and then a buried A-horizon. This construction floor suggests that the ancient Maya first filled in and leveled off the entire basal platform of Plaza A-III, capping it with a mescla layer, perhaps to provide a working surface or to better level the top of the underlying rocky fill. The first finished plaster surface may have been extended just under the substructure facings to provide a hard, level surface for placing those cut stones.

We can also infer the association of this earlier surface from the first steps of the Str A-10 stairway. Not only does the final plaza floor lip up to the step's first riser, but the total height of these steps is low compared to upper risers, suggesting that fill and the later plaza floor hide the bottom 20cm or so of the step. Van der Krift's excavations, discussed below, show that Strs A-12 and A-13 are also associated with this early floor.

The A-11 substructure is fairly complex, reflecting the fact that it has to embrace two different sets of rooms, but it consists in its basic form as a set of battered terraces. From the level of Plaza A-III, three terraces rise to the platform surface that the Upper Building sits on. Unfortunately, our excavations do not allow us to reconstruct the substructure morphology between the plaza level and the ground surface on the north side of the structure, 5.4m below.

The first terrace rises 1.83m to form a broad frontal terrace in front of the lower building. The terrace facing consists of large, limestone blocks battered at an angle of 13 degrees. The stairway up to the top of this terrace is similar in construction, made of large limestone blocks with battered risers, similar to the stairway of Str A-10. The masonry facing of the terrace does not continue behind the outset stairway, indicating that the two are contemporary features. The stairway was originally 16.50m long, running much of the length of the 30.75m substructure.

In clearing out MacKie's central trench, we found that all steps of the central stairway end some 2.2m before reaching the structure's centerline. We found a corresponding north-south line of plaster lips on the stairway's treads and an east-west chop line where the original terrace floor had once continued out past the line of the uppermost step. These three pieces of evidence all suggest that the initial phase of Str A-11 included a stairway block 4.4m wide and extending out ca. 2.5m from the edge of the frontal terrace. The first course of the stairway block indicates that its face was

battered, too. The Maya ripped out this stairway block later, and I will discuss this below in the context of later modifications.

The Lower Building sits atop the first terrace of the Str A-11 substructure, set back from the edge of the first substructure terrace, leaving a 2.3m frontal walkway. A 40cm high basal molding runs along the front of the building, the walls of which are preserved to a height of 1m or so. We cleared two of the building's hypothesized three doorways, finding the eastern doorway plugged with large limestone blocks. We found the interior corners of the eastern and western rooms in our excavations along the sides of the substructure, and we tunneled through the central doorway to the back of the central room and west to the northwest corner of the room. These pieces of data allow us to offer the following reconstruction of the plan of the building if we assume symmetry around the central doorway.

The three rooms of the Lower Building are 2.45m wide, but their length varies. The central room is 6.6m long, and the flanking rooms are 9.15 and 9.75m long. In clearing the rear wall of the central room from its mid-point to its west wall, we found no evidence of doorways leading into a back range of rooms or into the western room. Apparently, each room has only one point of entrance and egress. The eastern and western doorways are placed so that the three doorways are equidistant from each other and the building's corners. Consequently, the doorways into the lateral rooms are offset toward the building's axis.

The plan of the central room is quite simple. One steps up 40cm onto the building platform at the level of the basal molding upon entering the doorway from the frontal terrace, and then up onto a 35cm high bench that forms the entire room interior. The bench surface slopes back noticeably, dropping 10cm in the 2.45m from its face back to the rear of the room. We have no evidence to test whether the bench is a later addition to the room plan, although the construction style is identical to that of the original construction.

We found a curtain tie hole on the face of the western door jamb, 40cm above the doorway threshold at the level of the interior bench. A piece of longbone was set along the butts of the 20cm wide facing stones of the jamb, and the interior of the 12cm wide hole was smoothly plastered and had a lot of soot inside. Coupled with some darkening on the jamb, this soot suggests that the curtains in the doorway burned at least once. Incised designs, red paint, and soot smudges decorated the interior wall and floor surfaces of the central room, but I will defer discussion of these features to later sections of this report.

We did not excavate the lateral rooms, but there is a piece of evidence from the excavations along the southeast corner of the building that hints at the east room's internal layout. Op 257T revealed a plaster floor in the room's northeast at a level 55cm above the building platform, suggesting that it had at least one bench level.

We also collected data to evaluate MacKie's hypothesized second range of rooms. There was no doorway through the excavated sections of the central room's walls, suggesting that any additional rooms in the Lower Building would have had their own exterior doorways. Extensive clearing around both the east and west sides of the

structure exposed the nicely faced blocks of the interior facings of the lower rooms, but we found no evidence for a facing that would have corresponded with it to form either a spine wall or an exterior wall. For obvious structural reasons, the fill closest to the Lower Building was almost always denser, with more mescla plaster and fewer air pockets. Yet despite our best efforts, we could not find any fill breaks that would have indicated that the hypothetical northern range had been removed. Finally, we exposed the plastered surface of the building platform at the level of the basal molding of the Lower Building, and found no vestigial traces on that plastered surface of the putative spine wall. Thus, we concluded that the Lower and Upper Buildings are parts of a single building episode.

Our excavations on the east and west sides of the Lower Building also unearthed some traces of the upper terraces of Str A-11. The second substructure terrace, counting from plaza level, is similar to the first terrace. It is formed of large, battered blocks and sits on the plastered floor of the building platform, set back some 65cm from the top edge of the first terrace and 60cm from the edge of the Lower Building. The second terrace was probably 2.6m tall or so, judging from a construction floor exposed in previous excavations and cleaned off in 257W, and a third terrace presumably spanned the final 2m or so up to the building platform for the Upper Building. MacKie (1985) exposed the north face of the third terrace when he cleared the stairway up to Room 5. This final terrace has a battered facing of large limestone blocks, like the first and second terraces, and its surface is probably at the same level as the roof of the Lower Building, although we did not attempt to trace out the stratigraphic connections between the two. A plastered surface does run under Upper Building in MacKie's central trench, and this floor probably forms the top of the third terrace. If so, the roof of the Lower Building would have served as the frontal terrace of the Upper Building, a relationship that also exists between Strs A-6-2nd and A-6-1st. This largely agrees with MacKie's reconstruction (1985:30).

Given the layout that we can reconstruct for Str A-11, we are left with one overriding question: How did one reach the Upper Building? The central stairway ends at the frontal terrace of the Lower Building. But if the batter of the terraces is consistent, the top of the first terrace steps up 40cm and narrows to less than 10cm as it turns the corners of the Lower Building. Clearly there was an independent means of access to the Upper Building.

MacKie hypothesized side stairways for lack of an alternative, and we decided to test this logical idea. Along the west side of the substructure in Ops 257H and 257I, we found two steps running down from the top of the first terrace and two more running up from that surface. The facings of the steps were not finished blocks but core facing. Their height (ca. 30cm) and width (ca. 25cm) suggest steps, however. Given their rise:run ratio, they would have run from the alley between Strs A-11 and A-10 up to at least the top of the second terrace. From there, they might have continued straight up, or perhaps they turned south to climb along the west edge of the third terrace and onto the roof of the Lower Building.

Subsequent Modifications

The ancient Maya planned and built the Upper and Lower Buildings of Str A-11 as a single unit. However, later modifications altered both buildings in distinct ways.

MacKie (1985:31-33) discusses a series of modifications to the Upper Building's interior plan and layout. He also provides evidence for the later addition of Room 5 and the stairs running up to it from the west. The steps that MacKie exposed run from the plastered surface of the second terrace along the north face of the third terrace up to Room 5. We found traces of two more steps below and north of those he exposed, probably part of a stairway that runs along the northern face of the second terrace.

In the Lower Building, we have evidence for several modifications to the frontal terrace. Although MacKie found some of these modifications, his limited excavation sometimes hampered his interpretation of them. We identified four modifications to the Lower Building and associated features, and they seem to have occurred in the following order: 1) The ancient Maya raised the surface of Plaza A-III. The new plaza floor lips up to the stairway block's battered south face. 2) The ancient Maya ripped out the stairway block and laid down a heavily plastered stairway with steps made of small blocks placed directly over the old, large-block stairway. The Maya resurfaced the frontal terrace, presumably at the same time, and this new floor extended out onto the new stairway. A resurfacing of the plaza floor also lips up to the plastered face of the new stairway's first step. 3) The ancient Maya placed large stone blocks in the eastern and, assuming symmetry, western doorways, blocking them entirely. (Note that the blocking of the doorways cannot be linked stratigraphically to the first two modifications, and could predate them.) 4) The builders raised much of the frontal terrace 30cm with a small addition that extended from the Lower Building out to the edge of the lowest terrace. The addition corresponded with the outset edges of the stairway, and thus ran from the middle of the eastern doorway across the central doorway and presumably to the middle of the western doorway. I therefore assume that this addition postdates the blocking of the lateral doorways, since it would have complicated movement into or out of the rooms.

We found no evidence of structural modifications to the Lower Building itself, but our tunnel into the central room of the Lower Building revealed a number of decorative features that probably postdate the building's construction. A thin coat of red paint covered most of the room's plastered surfaces, although in spots this paint had been worn off. More striking is the register of incised designs that runs along the rear wall of the room and apparently continues along the west wall. Several designs in what appears to be soot are also located on the west wall of the room, and two geometric designs, one a patolli board, are incised into the bench surface. The base of the register is some 80cm above the room's floor, as if the figures were incised by somebody who was kneeling. The tops of the complete designs are 120cm above the floor, but the wall has been dismantled in parts of the register and only the bottoms of the figures are preserved. We divided the register into 6 "figures" for the purposes of recording them. Three of these are clearly human or anthropomorphic, stylized to differing degrees (Incised Figures #2, 3, and 6). A fourth may be a snake (I.F. #7) and the other two seem to be non-living objects, although they are only incompletely preserved. In contrast, the soot designs on the west wall are geometric. One looks like a ladder or stairway, and the other consists of several arching diagonal lines; all are lines of smudged soot a few centimeters wide.

The designs incised into the plastered surface of the bench are also geometric, including a small rectilinear design on the face of the bench and a patolli board oriented

to the cardinal dimensions on the bench surface in front of the doorway, placed 30cm from the back wall of the room. The patolli board is quite similar to the patolli boards found by MacKie (1985:124, fig 14) in the Upper Building, having a roughly square perimeter and an interior cross, both divided into smaller boxes. The number of boxes per segment varies from four to six, and several boxes contain small line segments. Each of the boxes where two lines come together is marked with an "X," with the exception of the confusing northeast corner (Figure 4). Two distinct kinds of incising are apparent on the east half of the northern edge of the board (marked with dots on Figure 4). One set of very shallow lines forms a nice, perpendicular angle with the eastern edge of the board. However, more sharply incised lines like those of the rest of the board form a much rougher junction in the northeast corner. It seems that the light incision was an attempt to straighten out the rough corner, or that the light incision was a guide or pattern that the maker of the deep incisions was supposed to follow but did not.

In the room fill just inside the doorway, we found six fragments of plastered block that also bore incised designs. Two of these blocks have rounded plaster corners, suggesting that they come from the corner of a doorjamb. The fragmentary designs are mostly lattices, but there is one human figure (Figure 5). I am virtually certain that these blocks are pieces of the walls of the central room that the ancient Maya intentionally left inside the room upon dismantling it. I will discuss this further in the section titled "Abandonment," but I would like to point out that we found all of the six incised blocks in the sub-operation located just inside the doorway of the room.

Functional Considerations

Harrison (1996) followed Leventhal (1995:7) in designating Plaza A-III the home of the ruling family of Xunantunich, and this view is supported by many lines of evidence. Its elevated basal platform and the limited points of entrance and egress combine to restrict movement into a and out of the plaza, making it second only to parts of the Castillo in terms of limited access. The vaulted rooms of the buildings that flank the plaza are the only vaulted rooms in the final phase of Group A that face a plaza or patio space not visible from ground level beyond the plaza. Finally, a food preparation complex, formed by Strs A-23, 24, and 25, sits just to the east of Str A-12, and the excavators suggested that this was the royal kitchen and that meals for large numbers of people were prepared here (Jamison and Wolff 1994; LeCount 1996:267-69). These facts all support the claim that Plaza A-III is the royal residential compound and, more tentatively, that Str A-11 is the ruler's residence. The latter structure's position at the northernmost point of the site's north-south axis adds weight to this hypothesis (Ashmore 1989; Ashmore and Sabloff 1997). This year's excavations in Plaza A-III provide some additional evidence to support Leventhal and Harrison's claims and, in doing so, raise some important questions about changes in the nature of political authority in Xunantunich in the Terminal Classic period.

Careful studies of artifact distributions and architectural forms demonstrates the danger of using just one kind of data or the other in assessing the use of ancient structures (e.g., Hendon 1987). Unfortunately, there are relatively few artifacts associated with the structures of Plaza A-III, a fact that introduces a level of uncertainty into any functional interpretations. That said, I would like to suggest that the central room of the Lower Building served, at some point in its use-life, as a venue for ritual

and perhaps as the audience room for the rulers of Xunantunich. The Upper Room, in contrast, was probably the ruler's abode.

Several aspects of the central room lead me to suggest that it had a ritual function in at least one point in its history. The ancient Maya painted the interior of the room red, a practice that is not uncommon but that does mark the room as special. The red-painted room sits directly on the site's highly charged north-south axis, and there are cord holders for curtains that prevented both sunlight and people's vision from penetrating the chamber. These features are congruent with a ritual function, but they are of course not exclusive to ritual buildings. Much more compelling, I think, is the register of incised designs on the room's walls. These incisions, often given the unfortunate label "graffiti," occur in other structures at Xunantunich, notably in the Castillo (Gann 1925:58). Haviland and Haviland (1995) recently suggested that incised designs like these are not practice sketches, nor the product of mischievous children, nor post-abandonment effacement. Instead, they use the data from Tikal to argue that these designs represent images seen during trances, during which culturally meaningful symbols are interlaced with more abstract entoptic forms produced by the brain during trance states. In the examples from the central room, we find entoptic forms such as grids, parallel lines, and catenary curves used in the production of meaningful images. For example, the individual depicted in I.F. #2 wears a grid or lattice work skirt, and the hair of what appears to be a masked person in I.F. #3 consists of a series of catenary curves. Parallel lines occur in the more fragmentary and apparently non-figural I.F. #4 and 5, as well as on most of the incised blocks found in Op 272A/1. The designs' location on the wall is also consistent with their being trance products: they are located between 80cm and 120cm above floor level, at the level of somebody kneeling or seated cross-legged (see also Haviland and Haviland 1995:304).

Haviland and Haviland point out that trance-related images often occur in palace structures and are not confined exclusively to ceremonial structures. Although these images in the central room of the Lower Building suggest that people underwent ritual trances here, or at least recalled trance images, the room was not necessarily reserved for ritual use. In fact, the structure's layout suggests that the Lower Building had multiple uses. The wide flight of steps leading to the Lower Building and the broad terrace in front of its doorways, for example, make it much more amenable to the movement of people up to the front of the building and into the rooms. The stairway block increases the area of the terrace and also makes it a suitable venue for performances of one sort or another to be viewed from the plaza. These features differentiate the Lower Building from Strs A-10, A-12, and the north side of A-13, all of which have narrower frontal terraces. Thus, although we might like to have more evidence, the data we do have suggests that over the course of the use-life of the Lower Building, the frontal terrace provided a venue for public performance, and the central room was used for private rituals, and part of the Lower Building served as an audience chamber. Regardless of the level of exclusivity, those who were allowed to enter the central room would have seen the incised drawings that bore witness to the ruler's interaction with the other world during trance states. The subsequent architectural modifications discussed above should reflect, even if imperfectly, changes in the building's use, and I would suggest that the removal of the stairway block reflects the reduction or cessation of public performances on the Lower Building.

Complementing the Lower Building, the Upper Building seems likely to have been the ruler's residence. MacKie (1985:46) suggests that Str A-11 is not a domestic structure, and that Strs A-10, 12, and A-13 were residential. Aside from some similarities in layout to Str A-6, the weight of MacKie's argument lies in the on-floor ceramic assemblage he recovered from the Upper Building. The sherd descriptions and drawings allow me to tentatively assign these vessels to types following the terminology developed by James Gifford (1976; also LeCount 1996). According to MacKie's preliminary analysis, the assemblage from the Upper Building consists of two polychrome vases (Benque Viejo Polychrome?), a Red ware bowl (Dolphin Head Red?), a Red ware tripod vase (Sotero Red-Brown??), and a Red ware jar, a plain storage jar (Alexanders Unslipped) and at least 11 fugitive black jars (Mt. Maloney Black). The lack of chipped stone artifacts and grinding stones and the striking absence of Mt. Maloney Black bowls and scarcity of Cayo Group unslipped jars lead MacKie to label this assemblage non-domestic. A more accurate assessment might be that the assemblage lacks many forms related to food preparation, especially large, incurving Mt. Maloney Black bowls, and large, unslipped Cayo Group jars. LeCount (1993) identified the Mt Maloney bowl as multi-purpose vessels used for food storage and preparation, and Cayo Group jars often have organic smudges or chars that I suspect reflect cooking disasters.

The assemblage does include a few vessels related to food service, such as the vases and possibly the Red ware bowl. The most numerous form, however, is the relatively restricted-neck jar, a shape that MacKie (1985; also LeCount 1996) suggests is well-suited for water storage. To my mind, this is exactly the kind of assemblage one might expect in the ruler's home. Food preparation activities were spatially segregated, probably in Strs A-23, 24, and 25, and servants would have brought meals up to the ruler and his family in service vessels and removed the dirty dishes later. Water, however, would have been in constant demand, and having drinking water on hand would have been a necessary antidote for the tropical heat.

The very restricted access to the Upper Building via side stairs that would have been at least partially hidden by the wings of the Lower Building also supports the notion of it being the ruler's residence. MacKie notes the possibility that there was a rear doorway in the north wall of Room 2, another feature that would have allowed movement in and out of the Upper Building out of view of the plaza. Finally, the layout of the Upper Building, with several benches, would readily allow for the division of the rooms into different use areas as one would expect in a domicile. MacKie found several patolli boards on the bench surfaces and floors of the Upper Building, including two sets of paired boards and one isolated board; these are generally similar to the board found in the Lower Building. Interestingly, except for one asterisk-like incision on a bench in Room 2, he found no incised "graffiti" on the walls of the Upper Building, despite good plaster preservation, demonstrating that the ruler and his (or her) family did not record trance images in their private space.

The exterior decoration of Str A-11 also suggests that it is associated with rulership and the ruling family. The carved limestone and modeled plaster fragments that MacKie found inside the collapse in Room 5 are clear indication that Str A-11 bore a sculpted facade perhaps not unlike that of Str A-6. Although the few surviving fragments do not permit a coherent reconstruction of the sculpture's program, they

clearly mark the structure as an important building. On the frontal terrace of the Lower Building, just east of the eastern doorway, we found three pieces of a carved limestone monument, and the thinness of the fragments suggests that it was a wall panel. The shape of the pieces indicates a round panel with a circle of hieroglyphs (Figure 6). Although the three pieces all fit together, and the carving is quite crisp, the fragments are so small that I can read only the first of the three partial glyphs. This is the "smoking ahau" child-of-father relationship glyph that occurs in parentage statements and is generally followed by the name of the father, in this case preserved only as a few fragmentary affixes in two glyph blocks. It seems likely, however, that one or both of these individuals ruled at Xunantunich.

The panel fragments lay within 10cm of each other, sitting amongst the building collapse a few centimeters above the terrace surface. The location of the rest of the monument is remains a mystery since our excavations recovered no more pieces of it. They could lie farther south out on the plaza floor, or the ancient Maya could have removed them for deposition elsewhere. The stratigraphic location of the three fragments at the very bottom of the collapse debris suggests that the panel was set originally on the front wall of the Lower Building.

Abandonment

We usually think of abandonment as a process in which people simply leave an area. But abandonment is often much more complex and can alter the archaeological record in fundamental ways (e.g., Cameron and Tomka, eds., 1993). In some cases when the space being abandoned is ritually or symbolically charged, the place is ritually ""closed" or "terminated." Such may have been the case for the Lower Building of Str A-11.

MacKie seems correct in characterizing the collapse of the Upper Building as rather sudden, given the lack of a post-occupational silt or dirt buildup in the rooms, the articulation of vault stones within the collapse, and the many vessels smashed beneath the collapse. (Interestingly, Str A-12 presents opposite characteristics, with a silt buildup, few stones in the collapse, and only a few sherds near the floor.) The Lower Building presents a much different situation, however. MacKie observed that the Maya did not wall up the central doorway of the Lower Building, and clean rubble filled the opening. He considered this rubble to be the collapsed roof and walls of the Lower Building (MacKie 1985:25), but our tunnel into the central room suggests otherwise.

Although the matrix around the doorway is loose as MacKie noted, the matrix in the room's interior is quite dense and well packed, requiring considerable work with a steel bar to remove. The excavator, Leonel Panti, suggested that this was not collapse but fill, similar to contexts he had excavated in tunnels in the substructure of the Castillo. The relative scarcity of faced blocks or vault stones in the matrix and the homogeneity of the matrix and inclusions seemed to support Panti's idea. The convincing proof that the room had indeed been partly dismantled and intentionally filled was the condition of the interior walls. The rear wall of the central room is very well preserved in its lower 1m to 1.20m. Above that level, the blocks had been removed to leave the notably denser fill of the wall core. Several vertical channels hacked through the wall plaster and into the mortar joining the blocks of the top courses of the wall clearly indicate that the ancient Maya partially dismantled the

room's walls. They then probably filled the room, possibly by collapsing the roof, since we did find a few capstones and vault stones near the floor. The Maya clearly removed many of the cut stone blocks from this room, but they left several fragments of the wall with incised designs around the doorway, hinting that they may have considered these designs to be somehow sacred in nature.

I can think of two possible reasons for dismantling and filling in the central room of the Lower Building, neither of which is necessarily tied to the timing of or reasons for the collapse of the Upper Building. First, it is possible that the ancient Maya planned to expand Str A-11, and the first step in this process was dismantling and filling in the rooms of the structure to be buried. Alternatively, the Maya felt the need to "cancel" or "terminate" this ritually charged room upon abandoning the structure, just as they would "kill" vessels by putting holes in their bottoms.

Dating of Phases

The initial construction of Str A-11 and, by implication, Plaza A-III and probably Strs A-10 and A-12, took place in the LCII period. This is based on my field observation of sherds from our cut through the original stairway block fill of Str A-11 (Op 257K). Subsequent modifications to both the superstructure and the substructure apparently all take place in that same period. MacKie (1985:48) reports some modifications to the Upper Building in the LCII period (BVIIIb), and the ceramic assemblage found in situ under the collapsed roof of the Upper Building is also LCII in date (MacKie 1985:fig 14). On the floor of the central room of the Lower Building, we found several pieces of an opaque carbonate ware drum on the floor (Op 272B/2). This distinctive ware, placed in the Chial ceramic group at Xunantunich, is found in the LCI and LCII periods (LeCount 1996:392). Thus all of the ceramic evidence from Str A-11 suggests that its construction, use, and abandonment all took place within the LCII phase, over a period of less than two centuries and perhaps considerably less.

A Floor North of Str A-11 and Plaza A-III (Op 258)

Op 258 was a 6m x 1m trench with three sub-operations, labeled Ops 258A to C from south to north. We positioned this trench below the north end of the alleyway that Harrison found between Strs A-11 and A-12. I thought it was likely that the cleaning of Plaza A-III would have been done by dumping trash off the north side of the Plaza A-III platform, and I hoped to find refuse deposits that would help us better understand the use of Plaza A-III. MacKie advocated looking for refuse on the slope north of Str A-11, too, although he did not know of the alleyways at that time.

In the first unit, we located the north face of the core of the Plaza A-III substructure, which we followed down to a single intact block of the final facing. The facing sits on a foundation course of hard limestone cobbles set into a dark soil that looks like a buried A-horizon. The practice of placing foundation courses of rough cobbles is common at San Lorenzo (Yaeger 1995), and Jamison and Wolff (1994:41) noted that several courses of rough cobbles sitting on bedrock form the base of the Plaza A-III substructure west of Str A-12.

I was surprised not to find a refuse deposit in this area, although we did collect a handful of sherds in the matrix at the base of the collapse. I was even more surprised to find a plastered floor under the collapse, placed directly on the buried A-horizon and

lipping up to the top of the cobble foundation line. The next two units followed this floor north away from the base of the platform. Although the degree of deterioration increased, we found clear evidence of the floor and its ballast in all of our units, suggesting that the Plaza A-III substructure was flanked at least on its north side by a 5m wide plastered surface. The floor slopes down to the north, following the ancient ground surface upon which is sits. Although sherd density was slightly higher directly over the floor, we found nothing I felt comfortable calling a refuse deposit, and reconnaissance in the tree falls and animal burrows in the flat shelf north of our excavations found no areas of high artifact density. This suggests to me that the Plaza A-III refuse was redeposited elsewhere, and in this light I would point out that Angela Keller (1993:90) found several zones of high artifact density on the hillside north of this area.

It is not clear what function this floored area served. It probably runs around the east side of Plaza A-III to connect up with the service complex (Strs A-23, 24, and 25) and continues west, perhaps around to the large, flat area just west of Str A-10. Angela Keller pointed out the fact that this area is suspiciously flat and looks likely to be culturally modified. The floor could also lead to an alternative access up to Plaza A-III, although we found no evidence of stairs from the floor up to the alleyway between Strs A-11 and A-12. There could be stairs leading up to the other alleyway or possibly to Str A-11, although I think we would see signs of the latter in the mound's profile because of the height of Str A-11.

Str A-12 Summary (Op 255)

Marjoljne van der Krift supervised most of the excavation of Str A-12. Circumstances unfortunately prevented her from submitting a report, so I will briefly summarize her findings in this section. The primary goals of the Str A-12 excavations were to reveal the layout of the superstructure and to define the construction sequence of the structure. Using the building's plan, coupled with any artifacts in primary context that we might find, we hoped to be able to comment more definitively on the building's ancient use. I also placed one unit on the North Terrace to look for any evidence of a superstructure there.

Str A-12-1st

Excavations supervised by both Harrison (1996) and van der Krift (Ops 255 V, W, and Z) made it clear that the final substructure of Str A-12 is a battered platform made of large blocks that rises ca. 1.75m above the final plaza floor. Upon this platform sits a poorly preserved superstructure that probably consisted eight rooms. Van der Krift's excavations allow us to reconstruct the form of two rooms (Room 1, Ops 255A, D, G, J, L, N, R, T, and AA; and Room 4, Ops 255 B, F, I, K, S, M, O, U, X, and Y), and my work permits the reconstruction of a third (Room 7, Ops 255C, E, H and P). Extrapolating from our excavations, we offer Figure 7 as a very hypothetical reconstruction of Str A-12-1st, with later modifications to the building's interior marked by hatchure. The building apparently had two north-south ranges, each with three rooms, and a transversely placed room at the north and south ends of the building. I should remind the reader, however, that the building was poorly preserved, in part because of post-collapse stone scavenging, and this diagram is presented not as definitive plan but as an explanatory aid.

We found only one doorway in the three rooms we excavated, and it seems likely that each room had independent access from the substructural platform. Most of the interior space of the excavated rooms is taken up by high benches. A relatively narrow terrace runs around the building, reached from Plaza A-III by a wide, outset staircase. These stairs seem to have been the only access up to the Str A-12 building platform: the service access stairs, discussed below, lead only to the alley between Strs A-13 and A-12, and there is no sign of steps up the west side of the substructure.

On the north side of the building, the base of the building platform sits at the level of a broad open area, named the North Terrace. This broad area was probably plastered, although its use remains a unknown. We excavated one 2m x 2m unit, Op 255Q, down to the top of the rubble fill but found neither any evidence of a masonry or perishable superstructure nor any refuse or use-related artifact deposits. A small trench through the final plaza floor (Op 257Z) revealed that the North Platform postdates the second plaza fill episode. The blocks of the west facing of the North Platform sit on the finished surface of the second plaza level, and the join between the two was sealed with a well-smoothed bead of plaster. The North Platform, then, is not associated with the earlier version of the Str A-12 platform, discussed below. Instead, it seems to be an integral part of Str A-12-1st.

The ancient Maya made some obvious modifications to the superstructure of Str A-12-1st. The masonry of the building and its substructure is the large-block type, similar to that of Strs A-11, A-12, and A-13. However, in Rooms 1 and 7, the Maya placed secondary walls, unplastered, made of small limestone blocks on top of the bench surfaces and in front of the back walls of the rooms, apparently thickening and buttressing the spine wall of the building. The addition to Room 1 is only 30cm thick, and that to Room 7 is probably similar. Also in Room 1, the basal courses of the room's southern wall are made of large blocks, but small blocks complete the wall in the portion that is preserved today. A similar juxtaposition of small blocks over large blocks exist on the front wall of Str A-6-2nd and will be discussed below. These modifications suggest to me that structural problems in Str A-12 forced the ancient architects to stabilize the building and its roof by thickening the spinewall.

It bears mentioning that Euan MacKie (1985) noted these two different masonry styles at Xunantunich and designated the larger block construction "Ashlar Type I", arguing that it was temporally earlier than the small-block "Ashlar Type II." While it seems reasonable to be cautious about dating using masonry styles, the Str A-12 modifications provide a clear case in which the Type II postdates the Type I style.

The Maya did not make any modifications to Room 4, interestingly. This suggests that the rooms facing away from Plaza A-III were abandoned at this time, a conclusion supported by other evidence. Although a few centimeters of dark silt cover the surfaces of Rooms 1 and 7, Room 4 has a much thicker layer of dark matrix, suggesting a longer period of abandonment prior to the collapse of the roof and walls. Jamison and Wolff noted a stratum of silt and sherds at the base of Str A-12's substructure, running over Str A-25. Although they present a strong argument that this stratum is associated with the construction of Str A-12, it also seems possible that it could post-date the abandonment of the Str A-12 east rooms, and it might be worthwhile to re-examine the stratigraphy of this area given our new understanding of

the Str A-12 superstructure. The presence of LCII diagnostics in the dark matrix on the floor of Room 1 suggests that the active use of the building ended prior to the Terminal Classic period.

Many investigators have found evidence of stone scavenging at Xunantunich (e.g., Church 1996; Keller 1995), and Str A-12 was no exception to this practice. There was a very obvious scarcity of faced stones in all of the rooms that we excavated, even taking into account the disintegration of the soft limestone blocks. The distribution of rocks within the collapse debris in Room 4 provided even firmer evidence of post-collapse stone removal. In the northeastern part of her excavations, van der Krift found a dense pile of small pieces of limestone rubble, which contrasted markedly with the generally rock-free sascaby matrix that filled the rest of the room. I would suggest that this odd feature is a pile of rocks that the Maya tossed aside while looking for nicely faced blocks within the collapse of the structure. As part of the stone removal, they dismantled the rear wall of the room down to the basal course. We found no facing blocks that could had fallen from the back wall onto the bench surface, but the wall core was quite solid and ran nearly vertically up to the plaster floor that capped the spine wall task unit.

Earlier Construction

Van der Krift's excavations in front of Room 1 revealed an earlier substructure, similar in construction technique to the Str A-12-1st platform. The west face of this platform sits 70cm or so behind the later platform face, and it was not dismantled prior to the later building. The southwest corner of this platform is inset underneath the west wall of the Str A-12-1st superstructure, making it clear that a superstructure much different than the Str A-12-1st building must have sat atop this earlier substructure. The floor level of the earlier substructure was apparently the same as the later platform, however, and this earlier building would have been completely razed prior to constructing Str A-12-1st. Thus, we do not have much evidence with which to offer any reconstruction of the earlier building. Van der Krift's probe through the Str A-12 core in Op 255A did not find any plastered surface extending under the platform, and the stratigraphy of the platform's core suggest that the Maya built this first version of Str A-12 at the same time they built the Plaza A-III platform. This is one additional piece of evidence that the Maya planners conceived of Strs A-11, A-12, Plaza A-III and probably Str A-10 as a single architectural unit and built them simultaneously. The place of Str A-13 in this original plan need further study using the data collected by Harrison and van der Krift.

Str A-13 (Ops 255BB-EE)

Van der Krift excavated a few units at the junction of Strs A-12 and A-13 and found a very complicated architectural sequence that I will not attempt to detail here. Of interest is the existence of an earlier version of Str A-13, apparently associated with the earliest plaza floor. This substructure is slightly smaller than the final Str A-13 substructure, and plaster lips suggest that it once supported a superstructure. The Maya razed any such building, however, prior to building Str A-13-1st. Str A-12-1st postdates the construction of Str A-13-1st, evidenced by the fact that the substructure of Str A-12-1st sits on the terrace that runs along the north side of Str A-13-1st. This left an alley less than 1m wide between the Str A-13-1st superstructure and the A-12-1st substructure. A step in the corner formed by the two substructures connected the alley

to the final plaza surface of Plaza A-III, and van der Krift found two refuse deposits in this area, one sitting directly on the floor and another farther up in a zone of structural collapse.

Most of the work done at Str A-13 to date involved clearing out the east half of the superstructure. The excavators dumped the backdirt from this excavation off the east end of the substructure, and the large talus slope that resulted was both unsightly and misleading. When we found ourselves needing fill material for our consolidation efforts on Strs A-1 and A-6, we decided to remove this backdirt, stopping at the buried A-horizon. Although this matrix was not screened, we did keep all of the artifacts found during the project (Op 264A/1). The context of the materials is, of course, only very broadly traceable to Str A-13, and they are of only minor informative value. The bulk of the material was sherds dating to the LCII period, but it was interesting to find a large metate fragment and several LCIIb and TC jar rims. The latter hint that at least sporadic use of Str A-13 continued in the TC period. Although we cannot say much more, it is an important fact, given the evidence that the Maya abandoned both Strs A-11 and A-12 during the LCII period.

The Southeast Stairway (Ops 255FF-GG)

I initiated two 1m x 2m excavations just north of the east end of the alley between Strs A-12 and A-13 to look for access stairs down to the service area excavated by Jamison and Wolff. Although this part of the Str A-12/Plaza A-III substructure had collapsed fairly severely, we were able to find elements of the risers and treads of the top three steps of a stairway running north from the opening of the alley, descending along the exterior of Str A-12. Another floor and a fill break hint at a fourth step, although the state of collapse was severe.

Resurfacing episodes on the treads of the top two steps indicate that we have multiple construction episodes exposed in this small area. I can distinguish the following four architectural phases with some confidence: 1) the lower three steps, which apparently ran under the face of Str A-12; 2) a floor on top of these upon which the Str A-12-1st facing sits, suggesting that it extended out over the lower steps to form a larger platform; 3) the uppermost step, placed on this same surface and probably associated with an addition to the alleyway between Strs A-12 and A-13; and 4) a resurfacing of the alleyway and the top step. It seems, then, that we have a set of stairs associated with Str A-12-2nd that were covered up with the construction of Str A-12-1st. The earlier set of stairs would probably have led down to the alley between Strs A-24 and A-12; the location of the later stairway, if it existed, is unknown.

Plaza A-III Summary

In sum, this year's excavations in Plaza A-III provide us with the data needed to better understand the layout and history of this key part of the site. More importantly, they provide some additional evidence to support Leventhal's and Harrison's argument that Plaza A-III was the royal compound and, in doing so, raise some important questions about changes in the nature of political authority in Xunantunich in the Terminal Classic period. In this section, I would like to briefly summarize our understanding of Plaza A-III to date.

The original construction of Plaza A-III occurred in the LCII period, burying an older Middle Preclassic settlement in the process. There is no evidence of any buried or demolished architecture dating to the millennium or so that separates these two components. The Maya site planners apparently conceived of the basic layout of the plaza and its associated structures as a coherent whole, and they built all of the buildings and the first plaza level simultaneously. The amount of labor invested in this single architectural project was impressive, reflecting an ability to solicit and/or compel the labor of a lot of residents, and thus implying a fairly large hinterland population. Unfortunately, we have not yet developed labor-cost figures to be able to quantify the amount of labor needed for this project.

Subsequent modifications changed some of the buildings -- sometimes to a significant extent -- and blocked of view and access into parts of the plaza, but they did not change the basic plan of the plaza much at all. They did, however block views, if not actual access, to the plaza. The Northern Terrace of Str A-12 (and presumably of Str A-10), the widening of Str A-12's platform, and the plug between Strs A-10 and A-13 all added to the secluded nature of Plaza A-III. The plugging of the lateral doorways and the removal of the stairway block of Str A-11's Lower Building are two more indicators of a shift in the plaza's use from semi-private to private.

The following lines of evidence lead us to conclude that Plaza A-III was indeed the royal compound during the LCII period: 1) the location of the compound at the northern end of the site's axis, 2) the semi-private nature of the plaza and the surrounding vaulted structures, 3) the associated hieroglyphic monument and stucco sculpture, and 4) the food preparation complex attached to the plaza by a small, service stairway.

The ceramics found in primary and in key secondary contexts throughout the group need more study, but preliminary analyses suggest that the group was largely abandoned by the end of the Late Classic period, perhaps well before the end of the Late Classic given the ceramic diagnostics found associated with Str A-11. However, we must caution the reader that the abandonment of Plaza A-III was not a sudden event, despite the obviously abrupt collapse of Str A-11's Upper Building. Following structural weakening of Str A-12, the Maya stopped using the building's eastern rooms, buttressing the walls in the western rooms only and shifting their activities there. Eventually, the Maya abandoned the western rooms, too, and the entire structure became a source of cut stone. In Str A-11, the shift from royal residence to unused space involved the dismantling and filling-in of the central room of Str A-11, a chamber that was ritually charged, judging from the designs incised on its walls. Interestingly, the stone gatherers never disturbed the collapsed architecture of the Upper Building of Str A-11, probably because it was still recognized as a powerful place.

The abandonment of Plaza A-III is clearly part of a larger process of site contraction at the end of the LCII period (described in Leventhal 1996). During this process, Plaza A-I and A-II were partitioned first by Str A-1 and then by Str A-16 and a low wall east of Str A-1. This division of plaza space coupled with the dismantling of the Northeast Entrance in the LCII period (Keller 1995) left Plaza A-II without any major entry points. The function of the service compound (Strs A-23, 24, and 25) also shifted in the TC away from being the site of large-scale food preparation (LeCount 1996:275-

76). All of this suggests to me that Plaza A-III was largely abandoned by the middle-to-end of the LCII, leaving us with a few big questions: Is there still a ruling family? And, if so, why did they abandon their home and where are they living? The answers to these two questions require the synthesis of the great amount of evidence and is beyond the scope of this report. I will only point out that ritual activity continues in the TC on Strs A-1 and A-6 and that there are probably TC residential components in Str A-15, Group B, and Group D. I would posit, however, that the abandonment of a space as symbolically and emotionally charged as the royal residential compound that had probably been occupied for at least a few generations is a reflection of intense social and political changes at Xunantunich.

The Middle Preclassic Occupation below Plaza A-III

In previous years, excavators at Xunantunich have found hints of a Middle Preclassic occupation on the Xunantunich ridge, most of it in secondary contexts. Our work in Plaza A-III provides more evidence for this occupation, including features dating to the Middle Preclassic. Van der Krift excavated a deep testpit through the substructure of Str A-12 to clarify the structure's construction history (Op 255A). Beginning in the bench of Room 1, this excavation eventually ended at bedrock several meters below the building's rooms. Just above the bedrock, and not too far below the level of the surface of Plaza A-III, van der Krift found three superimposed marl features that look like floors. These features were associated with large, well-preserved pieces of pottery from the Jenny Creek complex, many from the Savana group, giving us solid evidence that at least part of the Middle Preclassic occupation on the Xunantunich ridge top lies under Plaza A-III.

In our probe through the stairway block of Str A-11 (Op 257V), we removed a sascab construction floor associated with the earliest floor of Plaza A-III. Below, we found only 10cm of sub-plaza fill directly on top of a dark loam with a noticeable density of eroded sherds, many of them belonging to the Savana and Jocote ceramic groups of the Middle Preclassic Jenny Creek Complex. As in the A-12 probe, these sherds lie in a buried A-horizon directly under the platform fill of Plaza A-III. We stopped our excavations in 257V in the A-horizon because we were only opening up a 1m x 2m unit and would not be able to expand out to clarify any features we found. Op 257V lies 30m northwest of Op 255A, suggesting that the Jenny Creek occupation below Plaza A-III is fairly extensive, perhaps running under the entire northeast sector of Plaza A-III. Because these early features are so close to the surface of Plaza A-III, they would be easy to excavate if one wanted to study the Middle Preclassic occupation.

It bears pointing out that other investigators at Xunantunich have found Middle Preclassic features. Keller, for example, discovered a marl floor west of Ballcourt 1 (Keller, this volume). This growing body of data lends tentative support to the suggestion by Cynthia Robin and her colleagues (1994) that the monumental construction at Group E and Group O/A2-1 dates to the Middle Preclassic period.

Miscellaneous Excavations And Architectural Clearing In Group A

The 1997 season marked the close of the excavation phase of the Xunantunich Archaeological Project, and therefore it presented the last opportunity to resolve two questions that remained unanswered by previous years' research. First, we wanted to confirm the stratigraphic relationship between the eastern side of Ballcourt 1 (Str A-18)

and Str A-7, the pyramidal structure next to it. Second, we hoped to find some concrete evidence as to whether use of the rooms of Str A-6-1st and the northern rooms of Str A-6-2nd continued in the Terminal Classic period. In this section, I will present the results of these two problem-focused excavations and those of four clearing excavations that preceded consolidation work. Figure 8 shows the locations of these various operations.

Op 234L: Confirming the Relationship between Strs A-18 and A-7

In 1996, Tom Jamison (1996) conducted excavations in Group A to examine the changing use of space at the site and the roll of the ballcourts in defining that space. He and Minette Church excavated several units along the southern edge of Str A-18 and its interface with Str A-7 (Ops 234A-D and 234G-K) and 2 units on top of Str A-18 (Ops 234E and F). Acknowledging that the evidence was inconclusive, Jamison observed that the data suggest that Str A-7 predated Str A-18. Following a suggestion by Jamison (1996:66), I placed one 1m x 2m unit on the summit of Str A-18 to support or refute his idea (Op 234L). The excavation unit revealed the western terrace of Str A-7 and its intersection with the top of Str A-18, providing evidence that confirms that Str A-7 predated Str A-18.

Our excavations uncovered the basal courses of one of the western terraces of the Str A-7 substructure (see Figure 9). The platform face is battered at a fairly steep angle, suggesting that several battered terraces comprised the substructure. A line of unworked, soft limestone rocks immediately behind the final facing demonstrates that the builders used a core facing to retain the fill of the substructure. In contrast to these facings, the fill of the structure consists almost entirely of hard limestone cobbles, most ranging in size between a grapefruit and a fist.

This terrace rests on a construction floor of unpolished plaster *mezcla* poured on a few centimeters of pebble ballast (Stratum VIII on Figure 9). A polished, white plaster floor covers the construction floor, lipping up to the terrace face of Str A-7; this floor is capped by a later resurfacing, not preserved in the north profile shown in Figure 9. Both the construction floor and the polished floors end rather abruptly some 50cm west of the terrace face of Str A-7. Although this could be due to poor preservation of these floors so close to the surface, I suggest instead that they were intentionally cut. This idea is supported by the abrupt end of the floors and the slight dip at their western end, as if they were slumping and settling into a distinct fill unit.

The fill below these floors consists of dry-laid, densely packed small, hard limestone cobbles (Stratum IX). A line of unfaced limestone rocks paralleling the Str A-7 terrace facing bounds this fill, and this line almost certainly represents the core facing of Str A-7's next terrace. The fill to the west of this line consists of somewhat larger hard limestone cobbles, less densely packed and placed in a loamy matrix (Strata V and VI). This is the fill of Str A-18, and its placement in front of the core facing of Str A-7 demonstrates that the final phase of Str A-18 postdates the final phase of Str A-7.

Because our excavation was not very deep, I must stress that any earlier phases could have a different construction sequence. Gann's 1924 pit in the summit of Str A-7 (his Mound B) is the only excavation into the heart of either building, and the only evidence he mentions that could describe an earlier phase of construction is a 5' tall

masonry wall, the base of which apparently sits at or below 8′ above the plaza level (Gann 1925:54-55). Given these measurements, the base of this wall should sit 1m or so below the summit of Str A-18.

Prior to building the final phase of Str A-18, the Maya removed the finished facing stones from the lower terraces on the west side of Str A-7. The reuse of facing stones was not uncommon at Xunantunich, and Church (personal communication, 1996) found a vault stone re-set in the substructure facing of Str A-18. The removal of the Str A-7 facing would have required cutting at least the edges of the floor that topped each terrace, accounting for the chop line in these floors mentioned above. After removing the terrace facings, the builders placed the core of the Str A-18 platform right against the now exposed core facing of Str A-7, and then plastered the top of Str A-18. The floor that probably topped Str A-18 is not preserved, unless the replastering episode noted above was in fact the floor of Str A-18. The floor's elevation is consistent with this latter interpretation. We found no evidence of a masonry or perishable superstructure on Str A-18, although preservation was poor and the area exposed was small. The remarkably flat summit of the structure argues against a masonry superstructure, however.

Our limited excavations did not clear enough to even speculate as to the functional relationships between Strs A-7 and A-18. Last year's excavations demonstrated that there was access to Str A-18 via the southern stairway (Jamison 1996:65), and we found no evidence of a stairway from Str A-18 up to the summit of Str A-7. There is a what looks like the jamb of a west-facing doorway in the pit left in Str A-7 by the collapse of Gann's excavation, an excavation that ultimately plumbed the heart of the mound to a depth of over 9m. If real, this jamb would indicate that a building on Str A-7 overlooked the ballcourt, but Gann (1925:53) argues convincingly that the top of the Str A-7 was flat and lacked a stone vaulted superstructure. His claim seems solid, given that he found the bones of a burial and 35 eccentric flints within 45cm of the mound surface (Gann 1925:54). Thus, what looks like a doorway might a construction bin or a chance vertical alignment of stones in the structure's core.

Op 234L also provided some data that hint to us about wider patterns of activity and resource use at the site. First, it is interesting that the fill of Str A-18 and the collapsed fill of Str A-7 contained a notably high frequency of lithic debitage, most of it from the primary and secondary stages of reduction. Gann (1925:54) found "over 100 cores of flint, varying in weight from three to thirty pounds, all roughly trimmed, as if for facility in transport" in the top 1′ of his excavation into the top of Str A-7. This lithic material suggests that there was some stone tool production somewhere on the Xunantunich ridge. Interestingly, Keller (this volume) found a zone with a high density of biface thinning flakes just northwest of Ballcourt 1.

Another interesting note concerns the hard limestone cobbles that form the fill of Str A-7. These rounded cobbles are probably Cretaceous in date and probably were deposited during later karst formation on the Xunantunich ridge (Jennifer Smith, personal communication, 1997). Cobbles like these are common in the fill of Str C-1 and the parapet-like structures immediately south of the Castillo (Chase 1992), the final southern terraces of the Castillo (Hayes, this volume), and some of the platforms of Group D (Braswell 1994). The cobbles' distribution contrasts with that of the softer,

white limestone that we find used in the cores of platforms on the northern part of the site, such as those around Plaza A-III (Strs A-11 and A-12, at least) and Str A-1 (Zeleznik 1993). This softer limestone is probably Tertiary or perhaps even Quaternary in origin (Jennifer Smith, personal communication, 1997). Quarries of this material ring the site (Keller 1993), and the Maya builders chose it almost exclusively for making the faced blocks of the final facings of platforms and buildings across the entire site. In contrast, the hard cobbles almost never occur in the final facings of substructures or buildings, although they often appear in core retaining walls. The differential distribution of hard and soft limestone in fill contexts across the site suggests that the hard cobbles' parent deposit lies or lied on the southern side of the site, perhaps in the zone of extensive quarrying south and southwest of the Castillo.

Op 279A and 279B: Excavating Two Rooms of Str A-6-2nd

The XAP investigations have focused much of their energy on the Castillo and especially Str A-6, the heart of the Castillo (see Clancey this volume; Hayes this volume; Miller 1996, this volume; Neff 1995; Robin 1994; Sanchez 1993). Despite the amount of excavation, the relative lack of primary contexts has hindered the dating of the use of Str A-6. Because of its clear importance, we felt it quite important to try to determine if the Terminal Classic residents of Xunantunich still used Str A-6 and how. Accordingly, we decided to excavate the north-central and northwest rooms of Str A-6-2nd to see if we could locate any in situ deposits on the (Ops 279A and 279B, respectively). Of the rooms of Str A-6 that we are fairly confident were open in the final occupation phase of Str A-6, only the north-central and the northwest rooms of Str A-6-2nd are not cleared and consolidated today. It is possible that the central room of Str A-6-2nd's south side was also left open after the construction of Str A-6-1st, but this room would be very difficult to excavate because the fill in its doorway is consolidated and the relatively fragile A-6-1st superstructure rests above it. (N.B.: MacKie [1985:18] labels the two rooms that we excavated Rooms 2 and 3. Peter Schmidt also excavated on Str A-6, however, and he may have employed a different numbering system since his work predates the publication of MacKie's monograph.)

We excavated 1m x 2m units through the matrix filling each room, placing the units to catch the south corner of the east jamb of each doorway. We stopped the units upon reaching the floor, and we found no primary deposits in either room. In fact, the stratigraphic evidence suggests that the much of the material we excavated was backdirt from the previous excavations that cleared the rooms of A-6-1st, and the north-central room seems to have been excavated down to at least the level of the bench if not farther. The northwest room does not seem to have been excavated, and a thin layer of darker matrix directly on top of its looked like dust and silt accumulated before the room's collapse. This stratum contained a few sherds but no good diagnostics.

The lack of diagnostic ceramic material in undisturbed strata prevented us from dating the use of the final phase of Str A-6. We are fortunate, though, to have the data recovered by Erin Clancey (this volume) in her excavations between the base of the A-6 substructure and Str A-32. She found a refuse deposit there that includes many sherds dating to the Terminal Classic period. The only place this refuse could have come from is the top of the Str A-6 platform, confirming the structure's use into the Terminal Classic period.

We have a very firm understanding of the Str A-6 architecture thanks to many investigators, and I will not summarize their findings here (see Larios and Penados 1994; MacKie 1985; Robin 1994; Sanchez 1993; Satterthwaite 1950). These excavations do, however, permit us to add a bit more evidence on the form of Str A-6-2nd. First, I would like to suggest that MacKie was incorrect in thinking that the Maya filled the wings of the north-central room of A-6-2nd prior to the construction of A-6-1st, or if they did, the plugs are set back farther from the doors than is the case in the northeast and northwest rooms. In these flanking rooms, the Maya placed plugs just 25cm on either side of the doorway to form a narrow chamber, and new, 70cm high benches between the plugs took up most of the rooms' area. Our excavations in the north-central room found no evidence of a wall within 35cm of the door jamb. We also found a cord holder on the interior side of the central room but not in the northwest room, where it could have been filled in when the room's wings were plugged.

Second, I would like to add some support to the idea that Str A-6-1st also bore a sculpted facade. Many excavators on the Castillo have noted that the modifications to A-6-2nd left the northern face of the A-6-2nd frieze exposed, covering the western, eastern, and southern facades. A fairly large piece of sculpture found by David Wilson south of Str A-6 in 1996 suggested that there might have been a sculpted facade associated with A-6-1st, since the carved limestone fragment, probably a T757 head (an element also found by MacKie on Str A-11), contrasted with the sculpted stucco of the A-6-2nd frieze. Near the top of our excavations into the northwest room of A-6-2nd, we recovered several pieces of modeled stucco lying in backdirt from earlier A-6-1st excavations, well above a buried A-horizon. These pieces must come from Str A-6-1st, confirming the idea that sculpture of some kind adorned that structure's superstructure or roof comb. Unfortunately, the fragments recovered are too small to permit any kind of speculation as to what that sculpture was. It should be pointed out, however, that these pieces of modeled stucco resemble the A-6-2nd frieze more than they do Wilson's find, in terms of their medium.

Op 256: Clearing the Southern Stairway of Str A-1

In previous years, XAP had uncovered and consolidated the entire north side of Str A-1 and most of its southern face. Only two strips of earth remained on the southern stairway, flanking the central trench excavated in 1993 and 1994 (Jamison and Wolf 1994; Zeleznik 1993). We cleared these strips so that we could complete the consolidation of the southern stairway, including replacing the architecture we had removed while digging the central trench. Op 256A was the western strip; Op 256B was the eastern strip. The material excavated was a thin veneer of collapse that sat atop the in situ fill of the final stairway. No blocks from the final stairway remained in place, except for the basal two or three courses cleared in past years.

The artifacts found in this clearing operation were consistent with findings from previous research on Str A-1. Most of the sherds dated to the LCII and TC periods, and the collection included a high frequency of incensarios, the TC Miseria Applique type being common. This material presumably comes from rituals being performed in the small building on the summit of Str A-1 (see Zeleznik 1993 for discussion of this small building, built in the LCII period and modified in the TC).

Op 263: Clearing the Western Terraces of Str A-6 and Stabilizing the West Side of Str A-6-1st

I reserved Op 263 for the various clearing and consolidation operations on the west side of Str A-6, but it includes two distinct sets of suboperations. The first of these consists of Ops 263B, 263G, and 263H, all clearing excavations that preceded the consolidation of the western terraces of Str A-6. The second group is a series of test excavations and limited clearing integral to the stabilization of the west side and roof of the Str A-6-1st superstructure (Ops 263A, 263C-F and 263I).

The clearing of the western terrace faces was unremarkable. We cleared Peach and Puce Walls and found only a few sherds, mostly LCII in date. This clearing included parts of the inset corners of the Str A-6-2nd substructure identified by Robin (1994). We can clarify, I think, the construction morphology and architectural elements found just off the northwest corner of A-6-2nd, building on Sanchez's 1993 work. The A-6-2nd superstructure sat on a broad, low platform, the west edge of which dropped in three steps down to the plastered surface of the uppermost terrace of the A-6-2nd substructure, formed by Peach Wall. Sanchez (1993:61) first noted these stairs, but was unsure as to their extent. Our clearing found no evidence that they continue down past the top of Peach. These steps could have run all along the west side of A-6-2nd, although we cannot be sure because that area is covered up by later platform construction related to A-6-1st.

The terrace that encases the west face of the Str A-6-2nd superstructure to form a broader platform for the subsequent Str A-6-1st superstructure was built in two phases, first covering the southern two doorways and subsequently the northern doorway (Sanchez 1993). The faces of these additions, called Red and Violet Walls by Sanchez, are built with large blocks like A-6-2nd, and the second extension (Red Wall) is associated with a resurfacing of the broad terrace on the north side of Str A-6-2nd. However, the A-6-1st superstructure and later wing walls built on the northwest corner (Yellow, Black, and other Walls) to block movement along the top of Peach are all small block construction, a shift that probably reflects a change in building technique. A second resurfacing of the A-6-2nd frontal terrace lips up to the northern wing wall (Yellow Wall).

The second set of suboperations in Op 263 involve the A-6-1st superstructure. While consolidating the central spine wall of that building, we found an east-west crack, several centimeters wide, that ran the length of the building from the lintel beds up to the roof. A cement plug indicated an earlier attempt to patch the crack, probably in the 1970s when Peter Schmidt consolidated large parts of A-6-1st. Despite this patch, the extent of the crack alarmed us, and Department of Archaeology staff members Ruben Penados and Enrique Itza directed an effort to document the crack and stabilize the roof of A-6-1st. This involved excavating five trenches between the roofcomb blocks of the Castillo and setting re-bar and concrete pins or staples that tied together the roof fill on both sides of the crack. In the westernmost excavation, they found a line of small, uncut limestone rocks that appear to have been the edge of a construction bin. In excavations to remove the loose material on either side of the crack in the spine wall, they recovered a handful of sherds, including some well-preserved ashware fragments that in-field inspection suggested to be LCII in date.

Large cracks and deteriorating limestone on the west wall of the A-6-1st superstructure also required emergency consolidation. While removing deteriorated exterior facing stones from the wall, we found that floors on the interior of the superstructure extended into the wall core at the level of the basal molding, the bench, and the lintel beds. Although the technique of building in modules and capping each task unit with a plaster floor is common at Xunantunich, this seemed an extreme case. It did, however, suggest that original Maya plan for the interior configuration of Str A-6-1st is not obscured by subsequent construction.

Our cleaning of the west wall of the Str A-6-1st building also uncovered a facing of large stone blocks buried within the wall core, and we named this feature Sak Wall. This west-facing construction lay 30cm behind the exterior face of the wall. It runs north and apparently turns east to form the north face of the Str A-6-1st building platform. We only exposed the top course of the feature, which was chopped at the level of the basal molding of Str A-6-1st. It did, however, continue down below the exterior floor associated with A-6-1st. Ruben Penados observed that Sak is nearly identical in style and stratigraphic location to Blanco, exposed previously on the southeast corner of the Castillo. Penados and Rudy Larios had suggested that Blanco is the remains of a second story of Str A-6-2nd that sat inside a battered parapet that runs along the top of the east frieze. The Maya partially razed this second story prior to building Str A-6-1st.

Op 279C-279H: Clearing the North Side of Str A-6-2nd

Previous excavators had exposed the eastern half of the northern face of the Str A-6-2nd superstructure and cleared that frontal terrace up to the central doorway, but collapse and backdirt along the frontal terrace of A-6-2nd blocked visitors' passage further west. We decided to clear the rest of the A-6-2nd north face and its frontal terrace for two reasons. First, it would allow visitors to view the replica of the West Frieze from a closer vantage point at the far northwest corner of Str A-6-2nd's frontal terrace. Second, completing the exposure and consolidation of the entire north face of A-6-2nd would both make the Castillo more understandable to the visitor, as well as more impressive visually. As part of this consolidation work, we removed a modern stairway that led up to the A-6-1st rooms. This stairway, built by A. H. Anderson over 30 years ago, had deteriorated and become dangerous. Visitors can still reach both the rooms and the roof of Str A-6-1st using steps up the south side of the Castillo.

Beginning at the edge of earlier excavations that had exposed about 1m of the northwest corner of A-6-2nd, we laid out a line of 2.5m x 2m excavation units labeled Ops 279C-H from west to east. Florentin Penados supervised the work, removing the thick collapse/backdirt stratum as one lot and excavating the lowest 5-10cm as a distinct lot in the hope of finding in situ deposits on the frontal terrace. We found few artifacts near the floor, however, with the exception of a very large metate fragment in lot 279H/2 near the central doorway of Str A-6-2nd.

The A-6-2nd superstructure presented us with two interesting features. First, we found circular openings set into the basal molding 75-80cm on either side of two doorways we exposed. The function of these is unknown. They look somewhat like curtain rod holes, but they are below the door and have no companions higher on the wall. Perhaps they are openings to allow moisture to leave the wall cores?

Second, the basal molding and the next 1 to 4 courses of Str A-6-2nd's north wall are invariably made of large, limestone blocks. Placed on top of these blocks, however, we find smaller, limestone blocks identical to those used in the plugs in the rooms of A-6-2nd and in the A-6-1st superstructure. Van der Krift found a similar superposition of masonry styles in Room 1 of Str A-12, another building showing evidence of some major structural modifications including partial shoring up and rebuilding of the superstructure. These two cases provide good evidence that the Maya masons often rebuilt parts of existing walls when modifying buildings. The most likely explanation for this is that the older wall was no longer stable, perhaps due to deterioration of the exceptionally soft limestone used at Xunantunich. Alternatively, settling of the large substructures upon which the buildings sit could have caused slumping, buckling, or cracking of the walls.

Acknowledgments

The information I have reported here is the product of the work of many people. I would like to thank, first and foremost, the entire XAP crew, most of them experienced excavators from San Jose Succotz and Benque Viejo del Carmen. To list them all would take too much space, so I will only single out a few individuals who merit special mention. Florentin Penados, the XAP foreman, kept the logistical arrangements at the site running very smoothly, facilitating the work of everybody involved in the project; he also supervised the excavation of Ops 279C-H. Several people, including Ubaldomir Alfaro, Rafael Castellanos, Francisco Cunil, and Luis Panti, led the consolidation crews that did the architectural clearing. I would like to recognize the excavating and illustrating expertise of the members of the excavation crews that worked with me most of the season: Leonel Panti and Roberto Torres excavated Ops 258, 272, 279, and parts of Ops 255 and 257; Jorge Can and Abel Godoy excavated Op 234L, most of Op 257, and parts of Op 255. Their skill and hard work and the leadership of Leonel Panti allowed me to successfully fulfill my dual responsibilities as field director and excavation supervisor. Marjoljne van der Krift supervised two skilled and experienced crews in the excavation of Op 280 and most of Op 255. One crew consisted of Alfredo Puc and Benjamin Itza, the other of Rojelio Chan and Valentin Cano, and I would like to thank them for all their hard work.

As in past years, the success of our project relied in large measure on the support and assistance of many members of the Belize Department of Archaeology. I would like to thank Brian Woodye, George Thompson, Theresa Batty, Rene Torres, and David Griffin for their help and friendship. I would especially like to thank Archaeological Commissioner John Morris for his support of the project and its members. At the site, DOA representatives Ruben Penados and Enrique Itza played central roles in developing and implementing the plan to consolidate the roof of Str A-6-1st and patch the crack. They also provided help in troubleshooting other consolidation problems that came up over the course of the field season. I would like to express my special gratitude to Ruben for sharing with me his observations and insights about the architecture of the Castillo. Thanks also go to the caretaker-guides of Xunantunich, Eduardo Alfaro and Ramon Archila, for their friendship and the help they gave us on a daily basis.

Finally, I would like to thank the entire XAP staff. The 1997 season was a very satisfying one for me, both personally and professionally, and this is due in large part to their company and friendship. Special thanks go to Julia Miller for her insights on monumental architecture, to Aimee Preziosi for her consultations on ceramic identifications, and to Jenn Scarborough for her help with photographs and drawings and her boundless enthusiasm. The broader interpretations I have been able to draw about Plaza A-III rely on interpretations made by many individuals over the last few years, and I would like to acknowledge the exceptional work of Marjoljne van der Krift, Ellie Harrison, Lisa LeCount, Tom Jamison and Greg Wolff. Last but not least, Richard Leventhal and Wendy Ashmore deserve a hearty thank-you for their unfailing support and friendship, from the project's beginning to its end.

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Figures

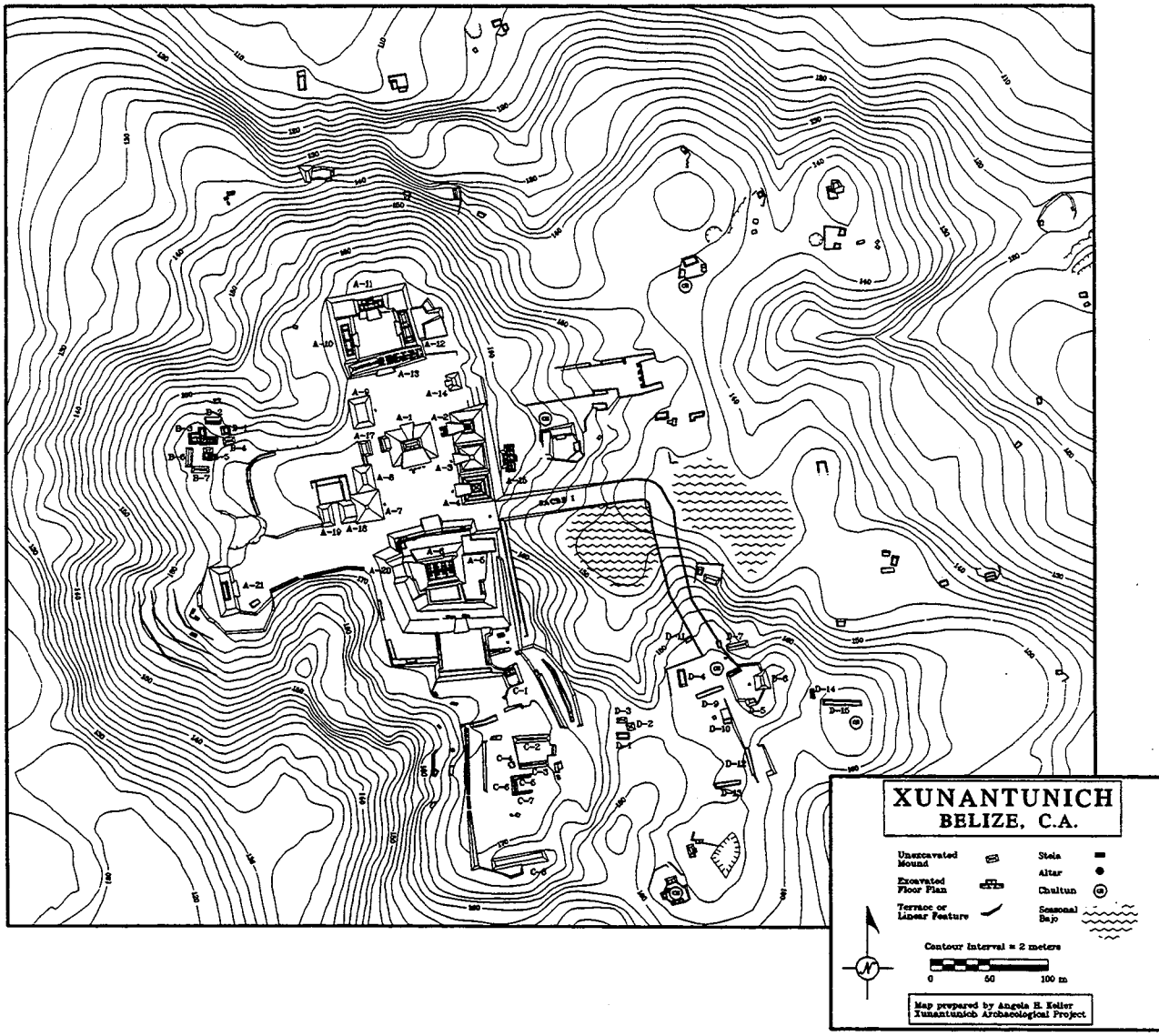

Figure 1: Map of Xunantunich
Map by Angela H. Keller; Modified by Jason Yaeger

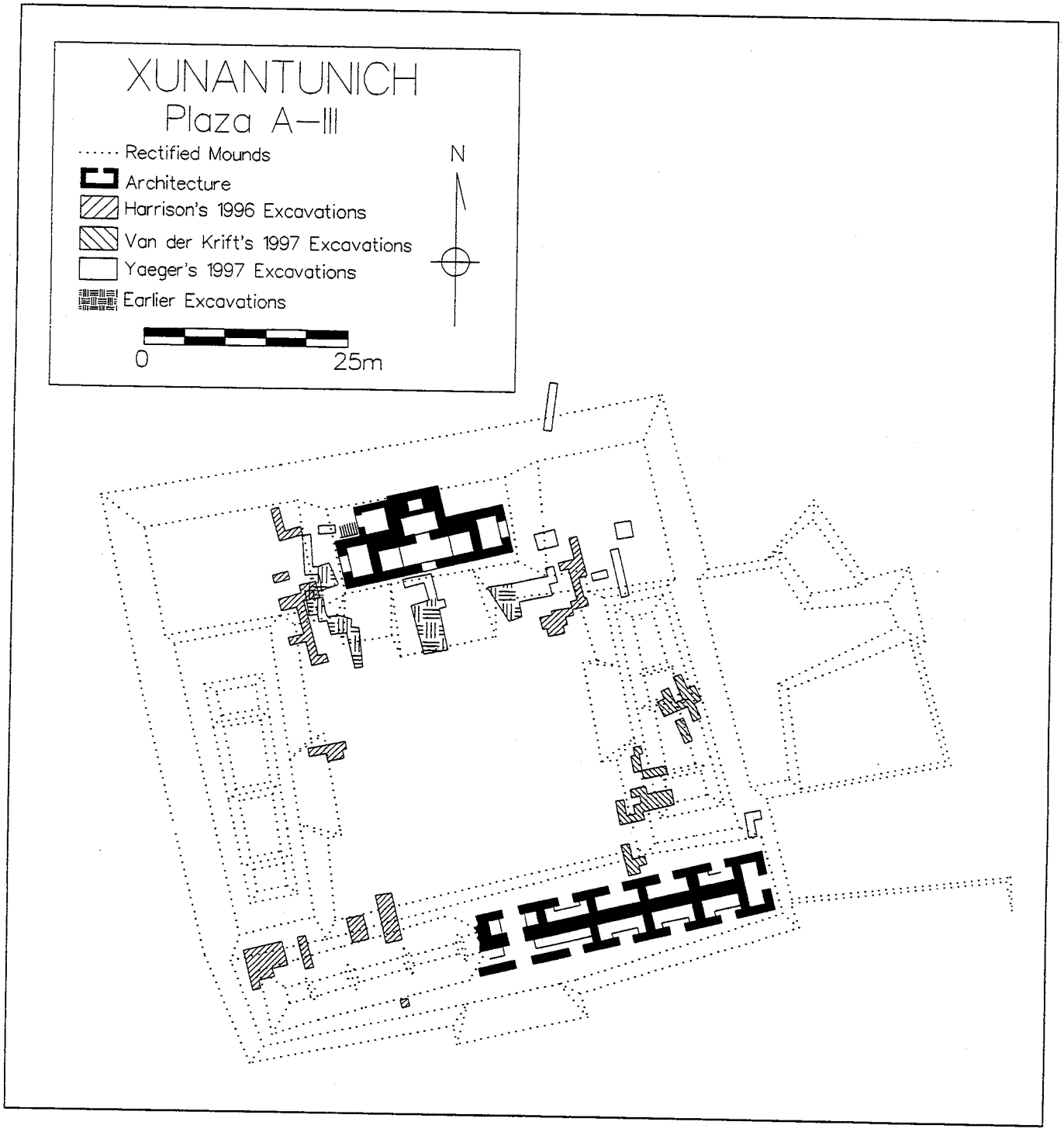

Figure 2: Map of Plaza A-III, Showing Areas Excavated by Different Individuals

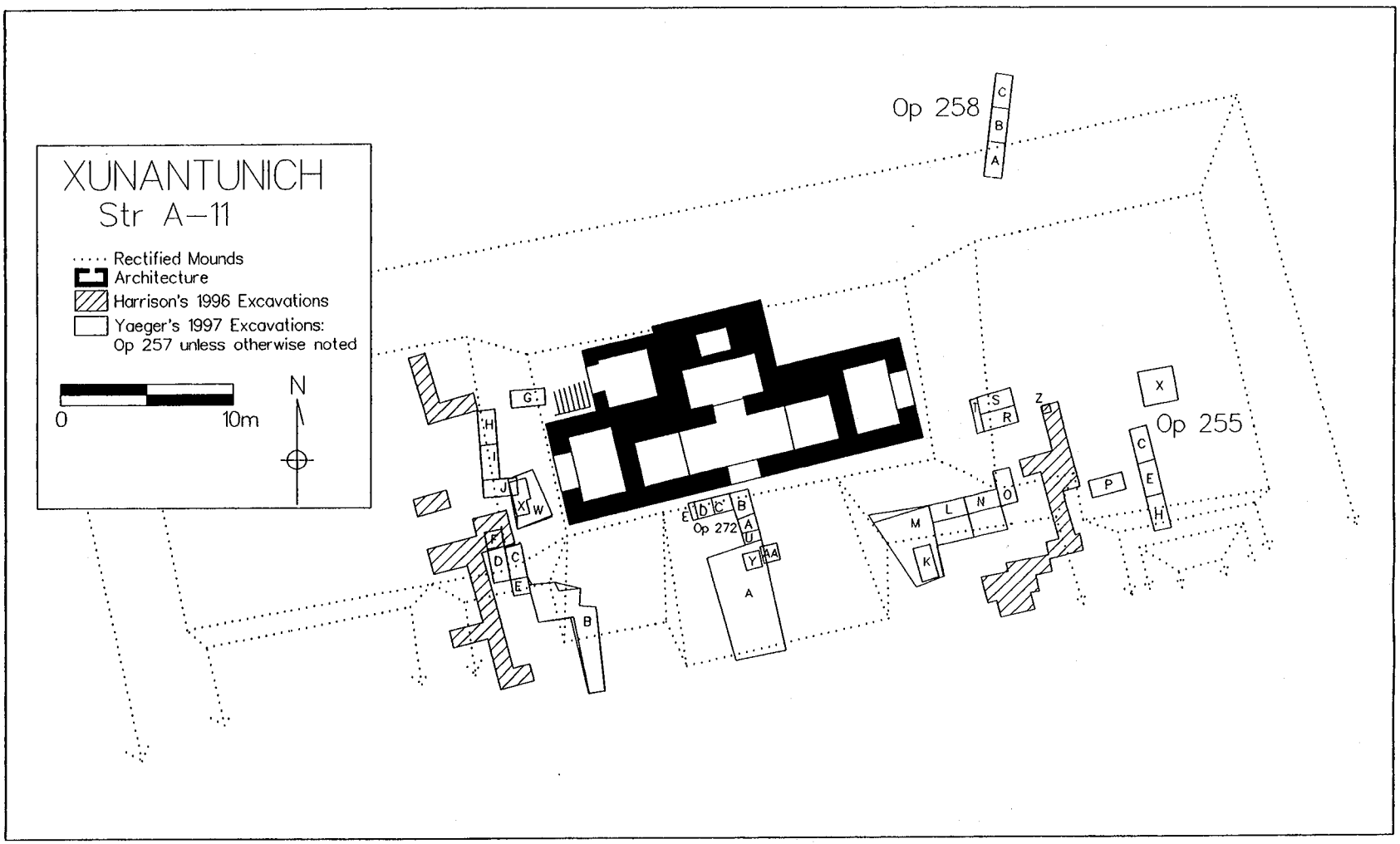

Figure 3: Map of Plaza A-III, Showing Yaeger's Sub-Ops

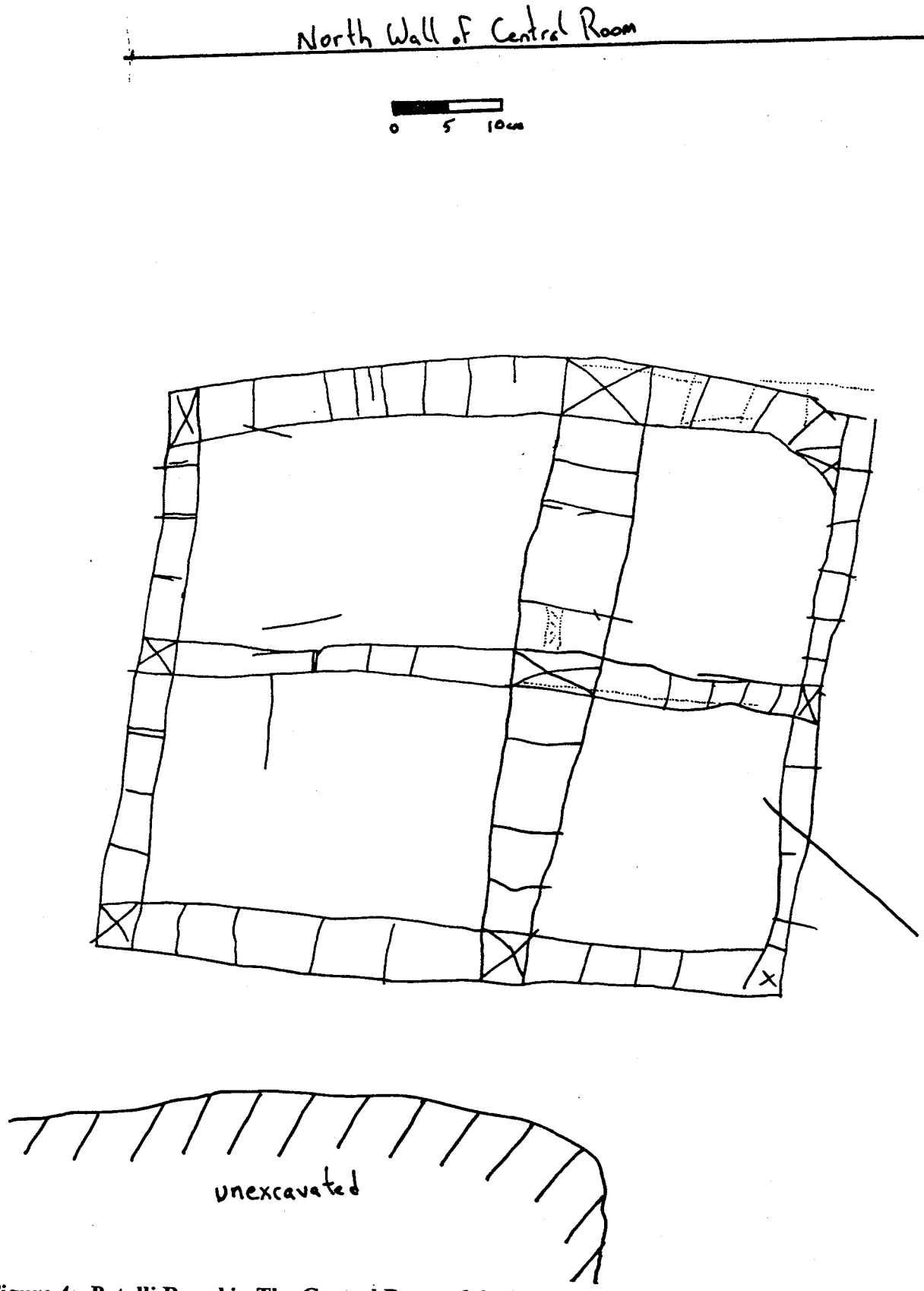

Figure 4: Patolli Board in The Central Room of the Lower Building (Op 272B)
Drawing by Jason Yaeger

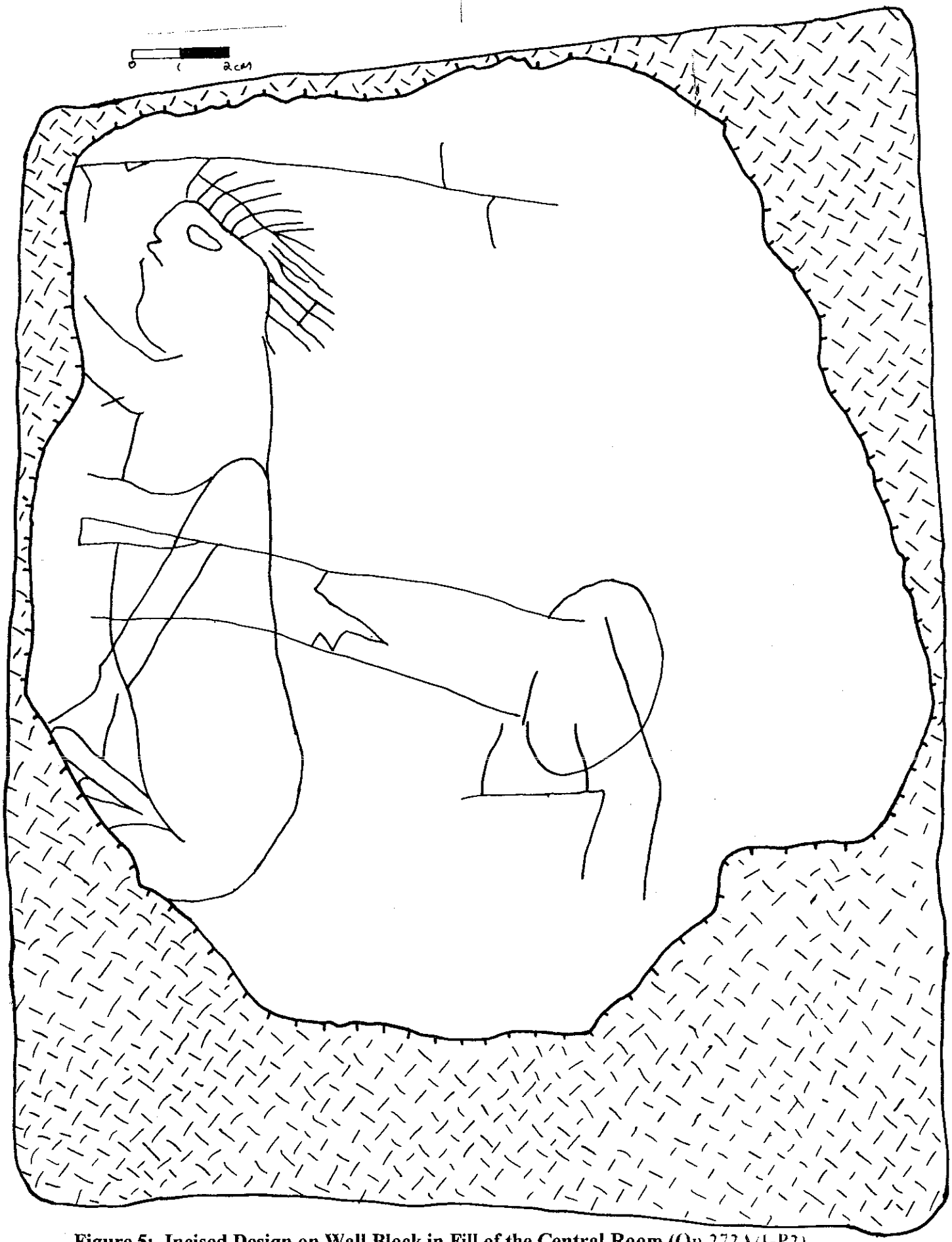

Figure 5: Incised Design on Wall Block in Fill of the Central Room (Op 272A/1-P2)
Drawing by Leonel Panti

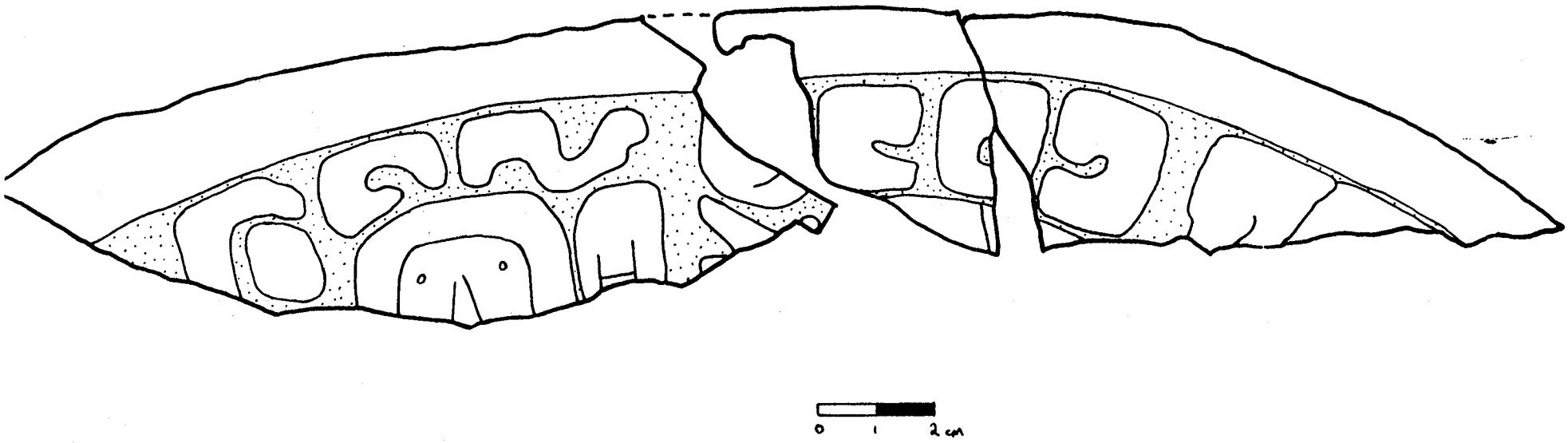

Figure 6: Monument Fragments Found on The Frontal Terrace of The Lower Building (Op 257N/3-P1)
Drawing by Jennifer Scarborough

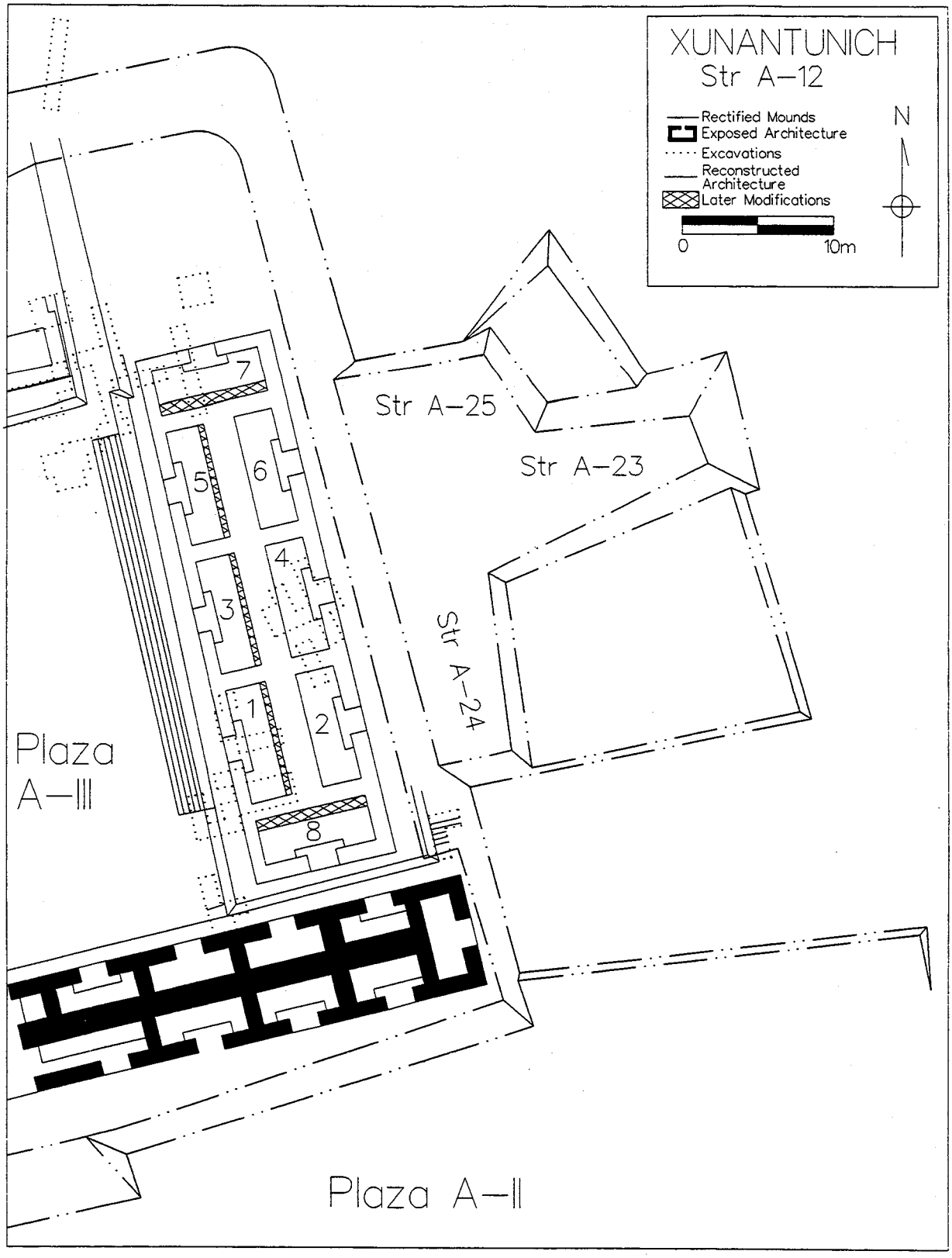

Figure 7: Hypothetical Plan of Str A-12-1st

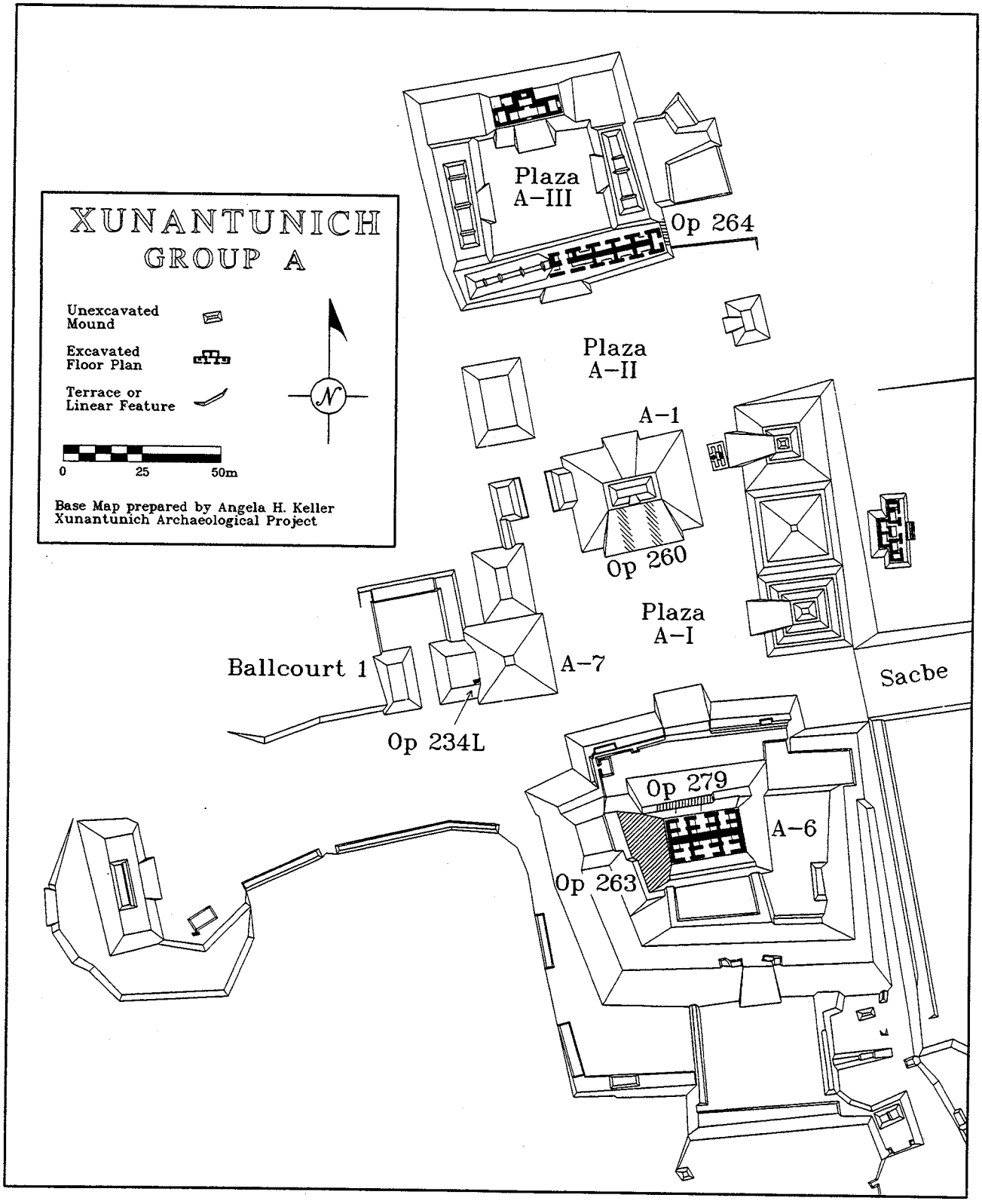

Figure 8: Map of Xunantunich Showing Excavated Areas
Map by Angela H. Keller; Modified by Jason Yaeger

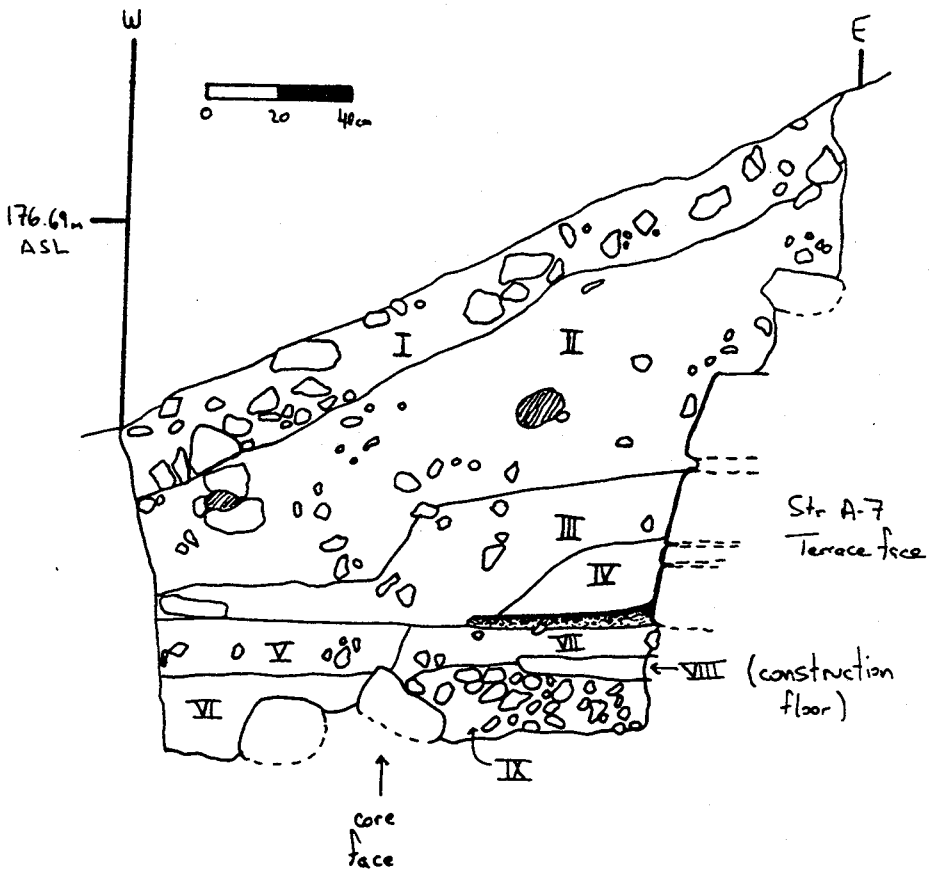

Figure 9: Op 234L North Profile
Drawing by Roberto Torres

The 1997 Excavations on El Castillo at Structure A-32

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Introduction

In the past years of excavation at Xunantunich a general pattern has been revealed which indicates that construction in the site core developed rapidly during the Late Classic period (700-850 AD) but then slowed during the Terminal Classic (850-1,050 AD) (Leventhal 1996). During the Terminal Classic period, the occupation and use of the buildings to the south of the Castillo (Str. A-6) as well as the structures on the south side of the Castillo itself were limited or halted altogether, but the north side of the Castillo underwent continuous construction and saw constant activity even during this period (Leventhal ed. 1993; 1994; 1995; 1996). Activities at the site core during the latest stages of its occupation were focused on the front of the Castillo and upon Plaza A-1 (Leventhal 1996) where the community of Xunantunich would have presumably gathered to witness the activities and rituals occurring on the Castillo.

The 1997 excavations at Structure A-32, a range structure located on a terrace part way up the front of the Castillo (fig. 1), contributed to the ongoing research interests of the Xunantunich Archaeological Project co-directed by Dr. Richard Leventhal of UCLA and Dr. Wendy Ashmore of the University of Pennsylvania. These research goals include an investigation into the dynamics of architecture at the site core through time and, in particular, an examination of the construction sequences on the north side of the Castillo and how these changes relate to shifting social practices and activities that took place at Group A and throughout the site center during the Late Classic and Terminal Classic periods.

Because Str. A-32 occupies a prominent location within the public space at the core of Xunantunich, and because the temporal span of its construction and occupation extends over the transition from the Late to the Terminal Classic at which time dramatic social transformations were mirrored by the architecture at the site, our excavation of the structure provided us with a unique opportunity to examine the way the Maya at this site used architecture to accomplish social goals. Additionally, looking at Str. A-32 in terms of the broader context of Str. A-6 as a whole, we were able to probe issues such as access to and from the most prominent ritual and monumental structures at the site and how the control of access and movement through the building played a role in the social activities that occurred here. As such, our goals during the 1997 field season were to determine the periods of occupation for Str. A-32, as well as the morphology of the structure and changes to its morphology over time. Also, we wanted to better understand the flow of traffic through the building and, if possible, to find the connection that this structure had with the other structures on the Castillo.

Group A, Structure A-32

Excavation Strategy

The basic shape of Str. A-32 was visible from the surface and the front face of the building was barely concealed by the overgrowth on the Castillo, so it was not necessary to engage in any trenching excavations or test-pit probes to determine the form of the structure and hence how to proceed with our excavation. Instead, we decided to begin near the front of the building and close to the center and then continue back (south) and out to the east and west, respectively. We did not impose a grid over the area, but rather let the basic form of the building guide the placement of our units. Our excavation consisted of 43 Suboperations from G to WW which ranged from 0.5 x 1

m to 3 x 3 m in size. The most common Subop. size was 1 x 2 m. (fig. 2). Our goal with these units was to obtain a more in depth understanding of the morphology of the structure.

Operation 247

Excavation of Str. A-32 began during the 1996 field season under the supervision of Minette Church (Church 1996). Six 1 x 2 m suboperations (A through F) were undertaken as a part of Operation 247. Church's excavations uncovered one doorway through the north wall of the structure including its west doorjamb as well as a nine meter expanse of the north face of the spinewall. Her preliminary interpretations of the morphology of the structure lent guidance to our excavation during the 1997 field season. Our excavation effectively picked up where the 1996 season left off -- we placed our first two units on either side of the trench excavated by Church's team. The duration of time devoted to Op. 247 during the 1997 season afforded us the opportunity to expand our excavation to include a much greater portion of the structure and, therefore, allowed us to refine the interpretations of the form and function of this building.

Str. A-32 Morphology

Range Structure/'Audiencia' Building

Str. A-32 belongs to a category of architecture known as a 'range' structure or 'audiencia' building. This architectural type is common throughout the Belize Valley (Leventhal 1996) and there are many examples within the site core of Xunantunich itself, the most prominent of which is Str. A-13 which is located between the elite residence and Str. A-1 on the edge of Plaza A-III. The 'range' structure is named because of its basic shape which is long and narrow and often has rooms along its transverse axis. It is generally one or two bays deep. Range structures are customarily administrative buildings and not commonly associated with features characteristic of residential architecture such as large benches, middens, and so on (Hendon 1989, Church 1996)[1]. The effectiveness of this style of architecture is a result of its physical and visual presence and its association with the structures behind, above, or near it. The range structure, or 'audiencia' building, blocks the view of architecture beyond it and thus is a visual or symbolic restriction of access to those buildings, but it is also a physical obstacle that stands between public and private space.

The basic morphology of Str. A-32 was immediately evident from the clearing of the surface debris covering the building. A-32 is a double-bayed range structure approximately 58.25 meters in length which is oriented about 10° west of north (fig. 3). It was placed at the end of the monumental staircase which begins in Plaza A-I and proceeds upwards to the medial terrace upon which A-32 sits. Upon reaching the structure after climbing the stairs, one would have proceeded through it or around it in order to reach Strs. A-5, A-20, A-6-2nd, and A-6-1st. A previously excavated section of the structure has revealed that there was a terminal room on the west side that was

[1] Julia Hendon describes her criteria for distinguishing the functional characteristics of a structure based on the features associated with the building. She describes only two categories - ritual and residential - but many would argue that there is a third category - administrative - which is a more accurate designation for range structures.

constructed athwart the transverse axis of the building. This is a common feature of range structures -- generally speaking, range structures are comprised of one or two narrow bays of rooms with doors facing front and back, respectively, and side rooms with access from the front, back, and side. An archetype of this architectural style can be found in Str. A-13.

The Front Bay of Str. A-32

In contrast to Str. A-13, Str. A-32 does not possess medial walls in its interior. This means that there are no room divisions of any kind within the building (excluding the terminal room). Instead, we found that the structure was comprised of two very long galleries which made up the front and back bays themselves. Also, there were no internal architectural features in the front bay of the building such as benches, post holes, curtain holders, etc. which lends support to our interpretation of this building as an administrative one, or at least it makes less likely the possibility that this structure could have had a residential aspect. The lack of distinctive architectural features inside the front bay led us to believe that the importance of this structure did not result from the activities that went on inside of it, but rather that it came from the function of the building as a screen for the activities that occurred behind and above it.

From the plaza below, the most prominent physical characteristic of Str. A-32 is its long north wall which is 0.82 m wide and is broken by twelve exterior doorways spaced roughly every 2.75 meters. The large block construction and the tightly mended masonry of the front face of the north wall can be seen from the surface along with the basal moulding of the structure (fig. 4). Doorways piercing through the north wall are evident by the extant jambs which are often *in situ* or can be inferred from the contrast between the orderly collapse of the wall versus the random collapse that would occur through a doorway. At the middle of this wall a much wider central doorway exists that is approximately 3.27 meters wide. This door, as I will discuss later, is matched by corresponding doors through the spinewall and south wall of the building and the passage that is created through them is the primary axis of the building (Loten and Pendergast 1984).[2]

As Church's team discovered in the 1996 field season and as our excavations confirmed, the masonry of the south face of the north wall was not as solidly constructed as the front (Church 1996). In two of our units we found the inside doorjambs of this wall preserved to only one or two courses of facing stones, and these were smaller and less defined than the facing stones in the front. It is likely that because the purpose of the north wall was to present a face to the public gathered below in Plaza A-I, greater effort was put into the construction of the north side to make it look more solid and impressive while the south side of the wall (the inside face) would not be visible and thereby did not warrant as much effort in construction.

The doors of the north wall, except in the case of the central passage, lack counterparts in the spinewall. The spinewall runs the entire length of the long front and back galleries without a break at any point except for in the middle. This means that to

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[2]Loten and Pendergast describe the primary axis of a structure to be "A line through the centre of a structure from front to rear, generally perpendicular to the exterior front face of the Building and bisecting the central front doorway..."

gain access to the south bay of Str. A-32, one would have only two choices: to reach it through the central passageway, or to go around the building to the south and enter the back gallery through a door in the south wall. The spinewall was measured at three different points (247I, 247N, 247L) , and we found that it was a very wide wall in terms of Maya architecture, between 1.96 - 1.98 m. wide. In fact, at one point in our excavations where the face of the spinewall had partially collapsed, we discovered that the wall had been constructed using a core facing wall behind both the north and south faces. The masonry of the spinewall consisted of tightly mended faced blocks which were not quite so large as the stones in the face of the north wall, but were regularly laid and solidly constructed (fig. 5, fig. 6). This fact, together with the presence of the core facing, indicates that the spinewall was an important feature in Str. A-32.

Possible Vault at Str. A-32

The thickness and the solid construction of the north wall and spinewall would seem to suggest that Str. A-32 was vaulted; in fact, the width and sturdiness of the spinewall hints at the presence of a double-vault mass. However, in our excavations we found neither remnants of a vaulted roof nor any vault stones in the collapse debris that filled the galleries of our structure. It seems unlikely that the structure would contain thick walls such as the north wall and spinewall without also possessing a vault for which the walls were built to support, so we were forced to search for an explanation for the absence of vault stones in the collapse of the structure.

In other areas at the site core, there is ample evidence to suggest that the Maya robbed stones from some structures to use in the construction of others (Church 1996, Jamison 1996). Generally speaking, stone robbing occurred after the primary occupation of a building (Church 1996), but it is also possible that stones could have been robbed from Str. A-32 while it was occupied during periods of modification or remodeling. Construction in Plazas A-I and A-II during the Late Classic and Terminal Classic incorporates re-used blocks, including vault stones, in terrace faces such as those found in Str. A-18 (Jamison 1996). It is likely, therefore, that Str. A-32 was originally vaulted, but that the vault stones were robbed for the construction of architecture around the plazas below during the Late and Terminal Classic periods.

However, there is another matter that complicates the vaulting issue: the lack of medial walls anywhere in the building. The vault mass that would be required to cover two galleries as long as those of Str. A-32 could not be supported by the front, back and spine walls alone. Medial walls parallel to the primary axis must have existed to absorb some of the shear downward force of the vault mass. They would not have needed to be as thick as the transverse walls since they would not have been load bearing walls. In fact, they could have been no more than one stone thick in order to have effectively distributed the weight of the vault evenly over the main walls. But in its final phase, Str. A-32 did not have even one medial wall along its entire 58.25 m. length and therefore could not have been vaulted at that time.

There is evidence to suggest, however, that the original design of the building differed drastically from its final appearance. In our excavation we uncovered several unusual features in the floors of the structure. In some places, we found that the plaster flooring lipped to non-existent features. In one case, we found a floor that lipped to one side of a "phantom" feature and another floor lipping to the opposite side. These floors

hint at the presence of a possible bench or wall; in this case they hint at the presence a wall, approximately 20 cm thick running parallel to the primary axis of the structure, that was ripped out at some point. I began calling these empty spaces created by the break in the structure's floors "phantom" walls because they demonstrate to us the presence of walls that are no longer there.

We also found in several of our units the remnants of early walls. In some places it is clear that a wall had existed which was razed in ancient times and covered by subsequent construction. Sometimes the entire wall was demolished leaving only the decay of the lowest limestone blocks in place, and at other times, several courses of the wall were left and incorporated into later construction. This practice is described by Loten and Pendergast as "chop" and the edge of the surface that it creates is called the "chop line" (Loten and Pendergast, 1984). So, these "phantom" walls and chop lines testify to the presence of early walls, usually early medial walls, suggesting that there may once have been sufficient medial resistance to displace upon the main walls the weight of a double-vault mass over the front and back bays of the structure. They also show that drastic remodeling of Str. A-32 took place during the building's occupation.

Although it is most common to find stone robbing occurring subsequent to the abandonment of a structure (e.g. Group C, Str. C-2 and C-3; Church 1996), it appears that the vault of Str. A-32 was dismantled while the building was still in use. The absence of vault stones in the collapse of the building certainly suggests that these stones were robbed for the construction of other architecture, but the fact that the medial walls were dismantled and built over confirms that Str. A-32 was still being used and modified after the vault had been torn down. Because the medial walls and the vault no longer exist, and because no sherds or diagnostic materials were sealed within the context of the dismantled portion of this structure, we do not have a date for this event except for one relative to other phases of construction. But it seems likely that this remodeling event took place concurrent with the construction of the structures around Plazas A-I and A-II (Jamison 1996) at the end of the Late Classic and into the Terminal Classic period.

Possible Perishable Roof at Str. A-32

If there was no vault in the final phase of the structure, then we are left to speculate as to whether the structure was left open or if it was covered by a roof made of perishable materials such as thatch. There is a precedent for the existence of structures with perishable coverings on the Castillo. In fact, in the 1995 field season Linda Neff's team speculated that Str. A-20 on the west side of the Castillo just above Quetzal building had both a vault over one section and a thatch roof over others (Neff, 1995). Her theory that parts of Str. A-20 were covered by impermanent materials relied on the presence of post holes in the floors of the building that would have been used to hold poles which would in turn support a thatch covering. Str. A-32 does not have post holes, but the front and back galleries of the structure are narrow enough that a covering could have been laid over the top of it without out the need for poles to support it.

Furthermore, there is physical evidence, in the front bay especially, that Str. A-32 had a perishable roof in its final phase, at the very least. This evidence is a thick ash layer produced by a burning event as well as the staining of the spinewall by the

proximity of burning material. In some of our units west of the central doorway (247G, 247I, 247K), there is a variable pattern of staining on the spinewall such that some parts were turned a dark gray color that extends from very near to the floor all the way to the top of the wall at its preserved height; other parts of the spinewall showed signs of staining only near the bottom of the wall.

This differential pattern can best be explained if there was a perishable roof at Str. A-32 that caught fire collapsing completely in some locations causing only the lower courses of the wall to be stained by the burning material and in other locations remaining attached but swinging down as it burned onto the wall causing the entire wall up to the top to be stained. This is especially clear in the easternmost corner of unit 247I where there is a distinct vertical line between the section of the wall that was burnt versus the section that was not. It strongly appears that the roof east of this line collapsed to the floor and burned here causing a thick ash layer to be deposited and the wall to be stained at the bottom only, but to the west of the line, the roof only partially collapsed and burned as it lay flush with the wall.

Originally, there was some speculation that this ash layer was produced by a squatters camp that used the building after its ultimate abandonment, but for a number of reasons, this does not seem to be the case. First, even though there are sections of the building that may not have been effected by the fire, the episode that caused the ash layer and the staining of the spinewall seems too pervasive to have been a camp fire; most parts of the building show evidence of burning in some manner. Also, as mentioned above, the pattern of staining seems to be most clearly related to the burning of a perishable (thatch) roof. Finally, the ash layer itself appears to sit at least 2 cm. above the level of the floor and a handful of sherds that probably fell from above and were burnt in the fire also sit on top of 2 cm. of silt. What this indicates is that the structure was abandoned for a considerable period of time - at least long enough for sediment to begin building up on the floor - before the fire occurred here. There was no cultural material above this level that suggests any subsequent occupation.

The Floors in the Front Gallery of Str. A-32

The fire that caused the staining in some of our units was not regular; that is, it did not burn all areas of the structure evenly. In the areas were the ash layer is most obvious and the staining of the wall is most prominent, the floors are also preserved much better. In other units where burning is less noticeable (247H, 247J, 247L, 247S) only small patches of plaster flooring exist, if even that. Most of these units have no traces of plaster left on the floor; all that remains of the floor is the ballast and the mescala layer which covered it. It seems that when fire burned the perishable covering of the building, it deposited a protective layer of ash onto the floor which prevented it from eroding. In the areas where the fire did not reach, the floors are badly worn away. This fact also implies that the floors were exposed at the time that the fire occurred which, as I mentioned above, almost certainly occurred after the final abandonment of Str. A-32. The front bay of the structure, at least, was not filled in at any time. Instead it was left open and was exposed to the elements for a period of time long enough to erode the floor completely away in some parts before collapse debris finally filled the building.

Where the floor is not eroded, there is evidence that several phases of replastering occurred. The distinctiveness of these phases is great enough to regard the floors as separate rather than as patching of a single floor. In two units in the front bay of Str. A-32 (247I, 247K), we confirmed the existence of five distinct floors that were layered one on top of the other. The lowest of these ran underneath the spinewall - the spinewall sat directly on top of it - and the other four floors lipped up to it. A direct physical connection of these floors to the north wall could not be made because a "phantom" wall (an early wall that had been subsequently torn out) interrupted the floors about 20 cm. to the south of the back of that wall. Several layers of the floors here have faint remnants of red paint left on them. I assume that they were at once painted more brilliantly, but over time the paint faded and eroded. The continuous replastering of the floor in the front bay of Str. A-32 is a testament to its long period of use, occupation, and modification.

The Back Bay of Str. A-32

The only access to the back gallery of Str. A-32 from the front gallery is through the central doorway breaching the spinewall. As I mentioned above, there were no other doors through the spinewall and the only other way to access the back bay would have been to walk all the way around one side of the building and come in through a back door. This arrangement of doors clearly focuses attention on the centrality of the building. However, it was previously believed that the central door was blocked by a door plug placed specifically to prevent traffic through this passageway. The consequence of which would have been to cut off the primary access to the back bay of the building and change the central focus of the structure. In the 1996 field season, two faced stones were found which extended eastward from the northwest corner of the door through the spinewall (see Church 1996, Subop. 247F). These stones were interpreted as part of a plug that blocked the central passage through the spinewall (Church 1996). Our excavations in the 1997 season, however, have shed new light onto this matter.

In our excavations during the 1997 field season, we uncovered the opposing jamb to the one excavated in 1996 (247H). The northeast jamb, similar to its counterpart, was associated with a single course of faced stones that extended westward and met those which were found in the earlier season (fig. 7). To the south of this row of stones that stretched between the two doorjambs, there was a layer of densely packed earth that covered a well preserved plaster floor (247L, 247J, 247M). In contrast, the floor to the north of this line was completely eroded. There was no plaster surface that covered the packed earth. Nonetheless, the presence of some kind of surface can be inferred from the stark contrast between the loose, collapse-type matrix that covered the packed earth and the dense matrix below. This dense material rose to the level of the stones between the doorway and extended from this row to a similar row of faced stones running between the southwest and southeast doorjambs of the same door through the spinewall.

Also, our excavations revealed two small fragments of plaster- one abutting the northeast jamb (247H) and the other abutting the northwest jamb (247J) - that lipped from the corner of each of the north doorjambs to the adjacent faced stone in the row between the two front jambs. The fragment in 247H contained remnants of red and black paint; the other, smaller fragment had no signs of paint on it. The presence of

these fragments of plaster along with the existence of the hard-packed earth surface at the same level that extends between the two rows of stones that block the north and south jambs of the central door indicate that what existed here between the doorjambs was not in fact a door plug, but rather a step of about 30 cm. in height. The plaster fragments are remnants of the surface that once extended over the packed material and eroded over time, as did the floor to the north of the door.

The step, being only one course high, did not block access through the central doorway and would not have stopped the flow of traffic to the back gallery of the structure. This step does represent an addition to the building and its modification of the primary axis of the structure does pose interesting questions regarding the nature and manipulation of the use of this building, but it does not suggest anything so serious as the blocking of the primary central access through the building.

The south wall of Str. A-32 which defines the back of the building and the back of the second gallery, is located about 1.8 meters from the spinewall. The wall itself is 1 m. thick which would have been sufficiently wide to support the weight of a vault, but as with the front bay, there were no vault stones found in the collapse filling the back bay, nor were there any existing medial walls. However, there were several "phantom" medial walls in the back bay including a section of one that appears to have been incorporated into the construction of the south wall (247T). So, for the same reasons as were stated above, the entire structure, including the back bay, was covered by a double-vault mass during an early phase of the building's occupation, and at a later date after the dismantling of the vault, it was covered by a roof made of perishable material.

The masonry of the south wall indicates that it was constructed during a phase different from those in which the north wall and spinewall were constructed. The blocks used in the face of the south wall were much smaller, were more irregularly spaced, and were more loosely mended than those of the north and spine walls. The south wall also included "spalls", or small stones set into its face as chinking in the joints (Loten and Pendergast 1984) (fig. 8, fig. 9). Generally, it has been assumed that changes in masonry style indicate temporal changes. At Xunantunich, Peter Schmidt has noted that "irregular but usually small, brick-sized blocks" indicate the latest stages of construction at the site (Schmidt 1974, quoted in Church 1996). And in other areas on the Castillo it has been found that additions to walls often include smaller and more irregular stones (e.g. Sanchez 1993). These observations suggest that the south wall of Str. A-32 was possibly a late addition to the building or, perhaps, it was constructed somewhat later than the other two walls.

Modifications to the Interior of Str. A-32

There were no drastic modifications to the front bay of Str. A-32 after the vault and medial walls were removed. Once the final form of the front bay was reached, it remained unmodified for the rest of its occupation except for the re-plastering of the floor. The back gallery, on the other hand, underwent dramatic changes in morphology over time including the addition of a step to the central doorway through the spinewall as I have already described. The south wall in its final phase appears to have been a late addition to the back bay of Str. A-32, but there is evidence to suggest that the wall that exists now is a reconstruction of a south wall that was closer to the spinewall originally. In the terminal room, there are two large faced stones which

constituted an east and west doorjamb to a door that existed through the early south wall. These two stones jut out from what was later constructed over them, the late south wall.

Also, in some of our units (247CC, 247 DD, 247HH) we found the early base of a wall that ran parallel to the south wall that may be associated with the remnants of the early south wall found in the terminal room. This early wall seems to have been cut down and built over. At the corresponding location in other units (247R, 247T) the early wall does not exist, but its presence can be inferred by the differential flooring pattern here. The plaster floor up to the point where the early wall is presumed to have existed was well preserved but ended in a jagged line. From the excavation profile in our units, we could see that the floor had at one time continued across the unit to the final south wall. It appears that when the early south wall was ripped out, the floor that already existed to the north of it was simply added to in order for it to reach the new south wall; the addition to the floor did not remain preserved possibly because it was made of a less durable material.

Between the south wall that existed in the final phase and the remnant of the early south wall in one of our units (247CC), there were some diagnostic ceramics that appear to have been sealed under the floor that extended the original floor to the new south wall. These sherds consisted of pieces of an undecorated serving platter including the rim from the Late Classic II period (Preziosi, personal communication). It seems that these sherds were included in the ballast that was laid for the new extension of the floor giving us a rough time frame for this modification to the back bay and for the construction of the final south wall. However, this interpretation must be made with caution because the floor that supposedly sealed the sherds has eroded and there is the possibility that the pieces were deposited at some time long after the reflooring was done.

Other major modifications to the back gallery of Str. A-32 were made in addition to the widening of the room due to the relocation of the south wall further back. At some time the floor in the back bay to the west of the central passage was raised for an unknown purpose. This floor was poorly preserved, but it is noticeable in the profiles of the excavation units in several places (247N, 247O, 247R, 247CC, 247HH) where collapse debris has fallen and sits at the level of the floor. Also, a bench was added to these units that abuts the back of the spinewall. The bench was supported by a retaining wall that sits on top of the floor below it and was covered by at least two distinct layers of plaster, one of which has remnants of red and black paint. With the addition of the bench, the back gallery became very narrow and the movement of people through it would have been restricted considerably.

The Human Burial at Str. A-32

Probably the most dramatic modification to the back gallery west of the central passage, though, was the cutting into one of the lower floors for the placement of a human burial (247CC, 247HH, 247JJ-B). The original floor which lipped up to the early south wall (the wall that was cut down and rebuilt further to the south in a later stage) was cut about 60 cm. from the back of the spinewall to accommodate this burial. The cut into the floor was made close to the intersection of the spinewall with the inside of the wall that divides the back gallery from the terminal room (the only existing medial

wall of Str. A-32), and it ran about 1.6 m. in length. After the placement of the body inside the cut into the floor, the entire area was covered with river cobble ballast and a new, much higher floor was constructed on top of it.

The body was placed into the floor in a flexed position lying on its right side with its knees bent, head to the west, feet to the east, and face up. It also may have had its arms crossed so that its hands rested on its abdominal region (fig. 10). Usually burials in this region are oriented north-south and are placed face down in a prostrate position (Yaeger, personal communication) so the burial here is somewhat unusual. There was not sufficient information to make an interpretation as to what this deviant style of burial might mean, but some possibilities are that this was a foreign person to the region, a visitor to Xunantunich, or perhaps the social standing of the person warranted a different kind of burial practice.

The skeletal remains were badly eroded which made the excavation of the body very tedious. Many of the bones were missing altogether such as the entire vertebral column, most of the hand and feet bones, the sternum, half of the pelvis, the right clavicle, the right scapula, both patellae, etc. What remained of the skeleton was very soft and fragile due to the effects of time, but there was no evidence of disturbance from animals or from humans after the body was laid to rest. Because the skeleton was incomplete, it was difficult to make conclusive statements as to the age and sex of the person, but the height of the skeleton suggests that he or she had reached full adulthood and was a person of considerable stature by Maya standards; the teeth also show that the person had advanced to full maturity but not yet to old age - there was no sign of substantial tooth wear or decay.

The grave that was made for the body by the cutting of the floor in the back gallery was a simple pit burial, not a crypt or a tomb (see Loten and Pendergast 1984 for definitions) and it was not associated with any grave goods whatsoever. There were no ceramics found with the body save for a very small number of crude sherds associated with the ballast of the floor that it was placed into which indicate a time frame of Late Classic II and Late Classic IIa (Preziosi, personal communication), but these dates are problematic because sherds from the ballast of the higher floor could have fallen and been mixed with the ballast of the lower, earlier floor. The absence of grave goods does not signify, however, that the burial lacked ceremony. The fact that the Maya at Xunantunich cut through a floor in a prominent structure on the most significant ritual building at the site core, the Castillo, shows that the interment of this individual was an important ceremonial event despite the apparent lack of offerings or grave goods.

The Terminal Room(s) at Str. A-32

To the west of the front and back galleries of Str. A-32, separated by the medial wall that the burial was set against, there was a terminal room oriented to the west or at a 90° angle from the main part of the building. This is a common feature of range structures as I mentioned above. The medial wall was not internal to the bays of the structure, rather it defined the end of the back bay and was the separation between it and the terminal room. Strangely, this medial wall did not continue into the front bay and we must assume either that the end of the front bay was located somewhere in the

unexcavated portion of the building or that the front bay and the terminal room were not separated.

The terminal room was excavated previously and had been left open for many years, so the area was heavily disturbed. Nevertheless, we were able to define a doorway through the west wall of the room which was about 1.8 m. wide, approximately the same width as most of the doors through the north wall (247V, 247X). Between the north and south doorjambs of this wall we found broken patches of two distinct levels of plaster flooring, but these ended abruptly in a jagged line because of structural damage the building suffered due to collapse and its proximity to the edge of the terrace in this area. The terminal room also included north and south doorways, although the south passage was blocked by the construction of the second south wall over the first one. The north doorway was very much like the other doors through the north wall.

In this terminal room, we were able to distinguish at least four separate layers of flooring which suggests a long period of occupation for the room as do the floors in the front and back galleries. In some areas, especially close to the walls, the floors were well preserved, but nearer to the middle of the room, the floors were badly eroded (247Z, 247BB). This is a result of exposure to the elements and probably to tourist traffic as well. Where the floors were not well preserved, we were able to excavate further down and we discovered that the terminal room, and most likely the entire substructure upon which Str. A-32 sits, was constructed using bins or task units (Loten and Pendergast 1984) (247Y). Crude fill walls were employed to create bins for the laying down of ballast to fill the terrace which was then covered by a floor and upon which Str. A-32 was built.

Because range structures are characteristically symmetrical, we expected that the east side of Str. A-32 would end in a terminal room similar, if not identical, to the one found in the west. However, the situation was much different on the east side of the building. We placed several units (247TT, 247UU, 247VV, 247WW) south of the last extant doorway through the north wall on the east side expecting that we would then be inside a terminal room, but instead we found a series of north facing walls with dense fill between them. The walls in the east did not line up with any of the walls found in the interior of the building and they did not possess south faces, so what appears to exist here is a stepped platform or terrace-like feature that perhaps was constructed to support the structures above it. This sharp contrast between the east and west sides of Str. A-32 breaks with the tradition of symmetry that is part of the definition of a range structure and it suggests that massive modifications of this building transformed it during its occupation.

The Central Passageway of Str. A-32

The Primary Axis and the Concept of Centrality

I have described to some extent above the definition of the primary axis of a structure which is generally an imaginary line bisecting the building from front to rear at its midpoint which is usually perpendicular to the front face of the building. In a building that is symmetrical as range structures usually are and as Str. A-32 probably once was, the primary axis also bisects the central door. The exterior façade of Str. A-32, the north wall, presents a strongly symmetrical face with eleven doors piercing

through it that are roughly 1.53 m. wide except for at the central door which is much wider, 3.27 m. This central doorway was the only one that had a corresponding passage through the spinewall which, as mentioned above, remained open throughout the occupation of the building. All of the other doors were visually blocked by the spinewall and physical access to the back bay was blocked by it as well.

The visual symmetry of the façade of Str. A-32, as well as its prominent central passage, leads to an emphasis on the centrality of the building. They focus attention on the center and lead the eye to what lies above and beyond it. This is precisely the purpose of the range structure/'audiencia' building. It is intended to manipulate the viewer's perception of the space around it. For example, Str. A-13 on the edge of Plaza A-III has a wide central passageway, the only passage through its spinewall, which frames the view of the elite residence and emphasizes its importance. Similarly, the central passageway of Str. A-32 would have focused attention on what lay beyond it and thereby would have emphasized the monumentality of the nearby structures on the Castillo.

It is for this reason that we expected to find some kind of monumental feature behind the doorway through the south wall in the central passage. Because there had been no access found from this level to A-6-2nd which is directly above Str. A-32, we hypothesized that a grand staircase would be found behind this structure leading to the higher terrace. The great width of the doorways through the north wall, spinewall, and south walls coupled with the central focus of the building would have acted to frame the activities that occurred in this space and it is tempting to picture this activity as the ascension of the ruler or other elite up a staircase located here to the temple at A-6-2nd.

Instead of finding a staircase, however, we reached a terrace face no more than 1 meter from the back of the south wall. The narrow space between the terrace and the south wall created a corridor running east-west behind the building. It is unlikely that this was the original design of the building for a number of reasons. First, the terrace seems to barely fit in this space; it was placed in a tight space that became very crowded after its construction. But more importantly, this design is not consistent with the function of a range structure. The central passage does not serve its purpose when blocked by this terrace; the viewer's gaze is unexpectedly obstructed by the terrace rather than led to the center of ritual activity. So it is likely that the terrace was added onto the back of Str. A-32 covering whatever had originally been there, and the possibility that a monumental staircase once existed here behind the central passageway is still a strong one.

The Mauve Terrace

Morphology and Orientation

The terrace that appeared in a number of our units (247U, 247W, 247GG, 247QQ) is at the same level as and most likely meets up with the Mauve terrace that was originally uncovered in the 1994 field season (Robin, 1994). In our excavations we noted that it has a superior apron moulding or cornice (Loten and Pendergast, 1984) and a battered and plastered face. We also found a few small remnants of red paint on the surface of the terrace. In one unit (247W) we were able to see the inner construction method of the Mauve terrace. It was built with a crude core facing wall which retained

the core masonry and a face constructed of alternating headers and stretchers separated from the core face by about 30 cm. of backing masonry.

The terrace face is oriented directly north in contrast to the orientation of Str. A-32 which is approximately 10° west of north. This supports the idea that the terrace and the structure were built during two different stages in the development of the Castillo at Xunantunich. It also causes an unusual space to be created behind Str. A-32. At the west end of the structure, the terrace nearly abuts the back face of the south wall (247W) causing there to be little or no space to walk between them. In the center (247GG, 247QQ), as I mentioned briefly above, there is only one meter separating the terrace from the south edge of the building creating a very narrow corridor between these two structures. And in the east (247U) there are nearly four meters between the terrace and Str. A-32 which left enough room for the builders to construct an east-west running staircase. The lack of alignment between the building and the terrace indicates that these structures are part of two different construction events and because of the abutment patterns and the nature of the structures themselves, it seems that the Mauve terrace was a later addition to the Castillo than was Str. A-32.

Staircase I at Str. A-32

Morphology and Orientation

The staircase that was constructed between the Mauve terrace and Str. A-32 is oriented directly east and abuts both the terrace and the structure. The orientation of the stairs as well as evidence from the flooring patterns and abutment patterns suggests that the stairs were constructed at the same time or soon after the construction of the terrace. If the terrace did in fact block the earlier central staircase that ran from the back of Str. A-32 through the central passageway up to A-6-2nd, then it would make sense that a new staircase was needed when the terrace was built to bridge this gap, and the likely spot for it would be precisely in this location east of the central passage. However, the staircase here does not reach all the way to A-6-2nd. The end of the stairs comes only to Str. A-5 on a lower terrace on the east side of the Castillo. We were unsuccessful in finding the route that one would have taken to climb from the terrace upon which A-32 sits up to the higher structures on A-6-2nd.

We excavated a total of fifteen steps on the staircase that began in unit 247AA and ended in unit 247LL. The height of the riser of each step was an average of 32 cm. and the depth of the tread averaged approximately 50 cm. The stairs were covered by at least two layers of a plaster surface the top one of which was burnt. The burning was probably a result of the same episode that caused the ash layer and the wall staining in the front bay of the structure. The lower layer of plaster had remnants of red paint on it. The steps closest to the base of the stairway, which lay in an unexcavated portion of the structure just beyond our unit 247AA, were very well preserved because of the collapse debris that covered it and protected it from erosion. But the higher steps were very badly damaged due to erosion and disturbance from tourist traffic.

The staircase was most likely reached through the doorway in the south wall that provided an entrance/exit to the structure at the base of the staircase. This doorway did not have a corresponding doorway through the spinewall, so to reach it from the front of the building, one would have had to walk through the central doorway, through the passage into the back gallery, and then to the south doorway

and on to the staircase. This is a much more circuitous path than the one that would have originally existed if, in fact, there was a central staircase at the end of the central passage through Str. A-32.

The juncture of the staircase and Str. A-32 also indicates that the final appearance of this area was not the original design of the building. The staircase included a stair edge wall that was actually added onto to the back of the doorjamb of the south wall (247S). This stair edge wall appears to have been constructed as an extension onto the back of the south wall and it continues all the way up the side of the staircase, or at least it does in the units in which we are able to see it (247S, 247U, 247EE, 247FF). Also, the stairs themselves meet up with the back of the structure in a very odd way. The threshold step through the south doorway which defines the back edge of Str. A-32 leads out onto two different steps of the staircase; that is, instead of stepping down onto a flat surface after exiting the building through the south door, one would have either stepped out onto a higher stair or a lower stair. The abutment pattern here and the odd confluence of the staircase and the structure both point to the fact that the staircase and, consequently, the terrace were added to the back of Str. A-32 late into the occupation sequence of the building.

Staircase II and Str. A-5

Preliminary Interpretations and Connections to Str. A-32

Close to the first staircase that we uncovered, there was a second staircase that was poorly preserved. This staircase was just to the north of the first staircase and based on its elevation was possibly an earlier staircase although we could not find a physical connection between the two and, therefore, do not know how they connect to one another. This second staircase, which was also painted red, only reached as far as Str. A-5 just as the first one did. We must presume that from Str. A-5 there was a route that led to A-6-2nd, even though one has yet to be found, since we have failed to find such a path leading from Str. A-32. It seems likely that at one time when there was a central staircase leading from Str. A-32 up to the higher structures, this building was the focus of attention and activity. But perhaps when that access was blocked and a new one was created from A-32 to A-5, Str. A-5, being the new junction between the lower and upper terraces, became the focus of attention.

Access and Restricted Access

Modifications to the Interior of Str. A-32

I have already mentioned many of the structural modifications to the morphology of Str. A-32 such as the removal of the medial walls, the dismantling of the vault, the relocation of the south wall, the construction of the Mauve terrace behind the building, etc. but there were also modifications to the structure that did not involve major structural reworking. Rather, they were additions to the already existing architectural features of Str. A-32. Generally, these changes had to do with the use of the building; the additions to Str. A-32 mainly involved access through the building or the restriction of that access.

In the central passageway, the addition of a step between the spinewall doorjambs created a small obstacle, not an impassable one, simply a slight hindrance to the easy flow of traffic through the passageway. Also, to the south of this step at the door through the south wall we found that there was an addition to the doorjamb to

the east and to the south. Attached to the back of the south wall at the central doorjamb, there was a feature built of faced blocks that narrowed the corridor between the terrace and the back of Str. A-32 by about 35 cm. (247KK). And attached to the east side of this doorjamb there was a dense mescala deposit that extended the doorjamb about 20 cm. to the east and thereby narrowed the passage through this door considerably (247GG). These modifications to architectural aspects of Str. A-32 served to restrict movement through the structure.

Fill, Collapse, and Refuse Deposits at Str. A-32

Other non-architectural features also served to restrict access through Str. A-32. At the east staircase we excavated a crude fill retaining wall that was constructed to contain fill placed against the Mauve terrace and which covered approximately half of the width of the stairway (247U). This feature was not intended to fill the entire area, hence terminating the use of the staircase; but rather it was built to narrow the space on the staircase that could be utilized - i.e. it was constructed to purposefully restrict the use and flow of traffic on the staircase (fig. 11). There also seemed to be a shallow layer of fill outside of the retaining wall that covered the lower steps of the east staircase (247U, 247AA). We hypothesized that this fill may have been deposited here after spilling out of the retaining wall, but the matrix of the soil in this fill is much different than that behind the retaining wall (which was dry-laid and included very little soil matrix). Also the fill on the steps outside of the retaining wall included a high density of artifacts, so it seems unlikely that this fill is associated with the intentional fill for which the retaining wall was constructed. Above this shallow layer of fill, the entire area was covered by collapse debris.

In the central passageway, the situation is similar. Almost all of the material excavated above the floor between the south wall and the terrace was collapse debris (fig. 12) as had been the material above the back and front bays, but just above the level of the floor in the corridor there was a fill deposit that contained a high density of ceramic sherds and other artifacts. The difference between this deposit and that which covered the east stairs was that in the center there was also a layer of sterile sascab fill with large blocks that seemed to have been intentionally, though haphazardly laid over the floor in the corridor which effectively raised the level of the floor in the corridor to the same level as the threshold step between the central south doorway. The fill above this sascab layer was also unusual in that its matrix included loose gravel-like material and a considerable amount of charcoal that was evenly mixed within the matrix (fig.13).

The ceramic content and the concentration of artifacts behind the structure on the staircase and in the central passageway contrasts sharply to the utter lack of artifacts found in the interior of Str. A-32. We had considered the possibility that the high density of sherds along with the layer of fill indicated that a termination ritual was performed here as a means of closing the back of the structure off and discontinuing access to this area. Partly, this idea was upheld by the discovery of almost whole vessels between the south doorways of the structure (247S, 247GG) which is a common occurrence in termination rituals. These practices are well precedented at the site core of Xunantunich (e.g. Str. C-2, Str. C-3, Church 1996). Also, the nature of the artifacts in the fill may support the hypothesis that the fill was placed behind the structure as part of a ritual event. These artifacts include ceramics associated with feasting such as large platters, highly decorated serving vessels, manos and metates, etc., as well as ritual or

ceremonial artifacts such as incensario fragments, penis-shaped incensario plugs (Preziosi, personal communication)[3], a monkey-head anthropomorphic figurine, and shell jewelry fragments.

However, the layer of fill that was deposited over the steps in the east and in the corridor between the terrace and the south wall was not nearly high enough to have filled the area, or even high enough to have prevented the use of this area. In other words, it does not seem that the occupation of this area was necessarily or purposefully terminated, and thus it does not seem likely that the placement of fill here was part of a termination ritual. Also, the artifacts that were found inside the fill were not entirely associated with ritual or ceremonial activities; there were many utilitarian ceramic sherds such as jar rims, undecorated coarse wares, etc., and there was also a spindle whorl found in the fill. The pattern of fill here and the nature of the artifacts is more consistent with that of a refuse deposit similar to those found on the south side of the Castillo (Robin, 1994; Leventhal 1994). Even the sherds found between the south doorways are consistent with this pattern. It seems as if refuse was placed behind Str. A-32 against the terrace and on the lower steps of the staircase which then spilled through the doors and onto the floors between the doorways.

Conclusion

The Dynamics of Architecture and the Manipulation of Space

In the final phase of Str. A-32, the two long, narrow galleries of this range structure were left open and were swept clean of any refuse. Behind the structure, on the other hand, the area between the terrace and the south wall was beginning to accumulate refuse that may have been thrown there from the interior of the building. This may indicate that the corridor behind the structure, and perhaps the east stairway became obsolete in the final days of the occupation of this area. The flow of traffic behind the building had been restricted to such an extent that it is possible that the movement of people through it was no longer a primary concern and at this point the gradual filling in of the building's exterior began. We can be very certain about the time frame for this sequence of events because the wealth of ceramic artifacts in the fill behind the structure have been dated to the Late Classic II period and to the Terminal Classic (Preziosi, personal communication).

However, we cannot be certain about the chronological periods for the phases of construction that occurred before this final phase. What we can conclude is that Str. A-32 was designed originally as a range structure with medial walls, a vault, and probably a staircase leading from its central passage to the higher terrace of A-6-2nd. At a later time, the medial walls and the vault were removed and a perishable roof was constructed. Also, the central staircase was blocked by the construction of the Mauve terrace and an eastern staircase was constructed abutting both the terrace and the structure. These modifications represent major morphological changes that alter the

[3]Two stone cylinders carved in the form of a human phallus as well as one ceramic penis figurine were found in units 247U, 247GG, and 247KK. Aimee Preziosi, the site ceramicist, has informed me that these appear very much like generic incensario plugs except for the fact that these ones are carved. Because these figurines were associated with incensario fragments in the context of a single fill episode, I am interpreting these artifacts to be incensario plugs.

entire nature of the building. The changes effectively transformed Str. A-32 from a symmetrical 'audiencia' building with a strongly central focus, to an asymmetrical building with no clear focus at all. These changes as well as the other modifications that did not alter the building but restricted access through it, controlled one's experience of the structure. For these reasons, Str. A-32 is an example of how the Maya at Xunantunich manipulated space both physically and visually by their use of architecture to create emphasis or to take emphasis away from their activities on the north face of the Castillo.

Acknowledgments:
I would like to thank the dedicated excavators and ayudantes who worked very diligently to excavate Str. A-32 this season including Amirto Puc, Carmen Mattias Meneses, Edwin Camal, Erik Can, and Gregorio Manuel Tut without whom this report could not have been possible. The International Studies and Overseas Programs office provided funding for travel for which I am very grateful. I would also like to thank Jason Yaeger for his helpful advice in the field, as well Richard Leventhal for giving me the opportunity to dig at Xunantunich. Thanks also go to Lady Harrington for the help she gave with field drawings and to Sam Connell for his help with CADD drawings. Finally, a very special thank you goes to Ari Horn for reading and editing early drafts of this report.

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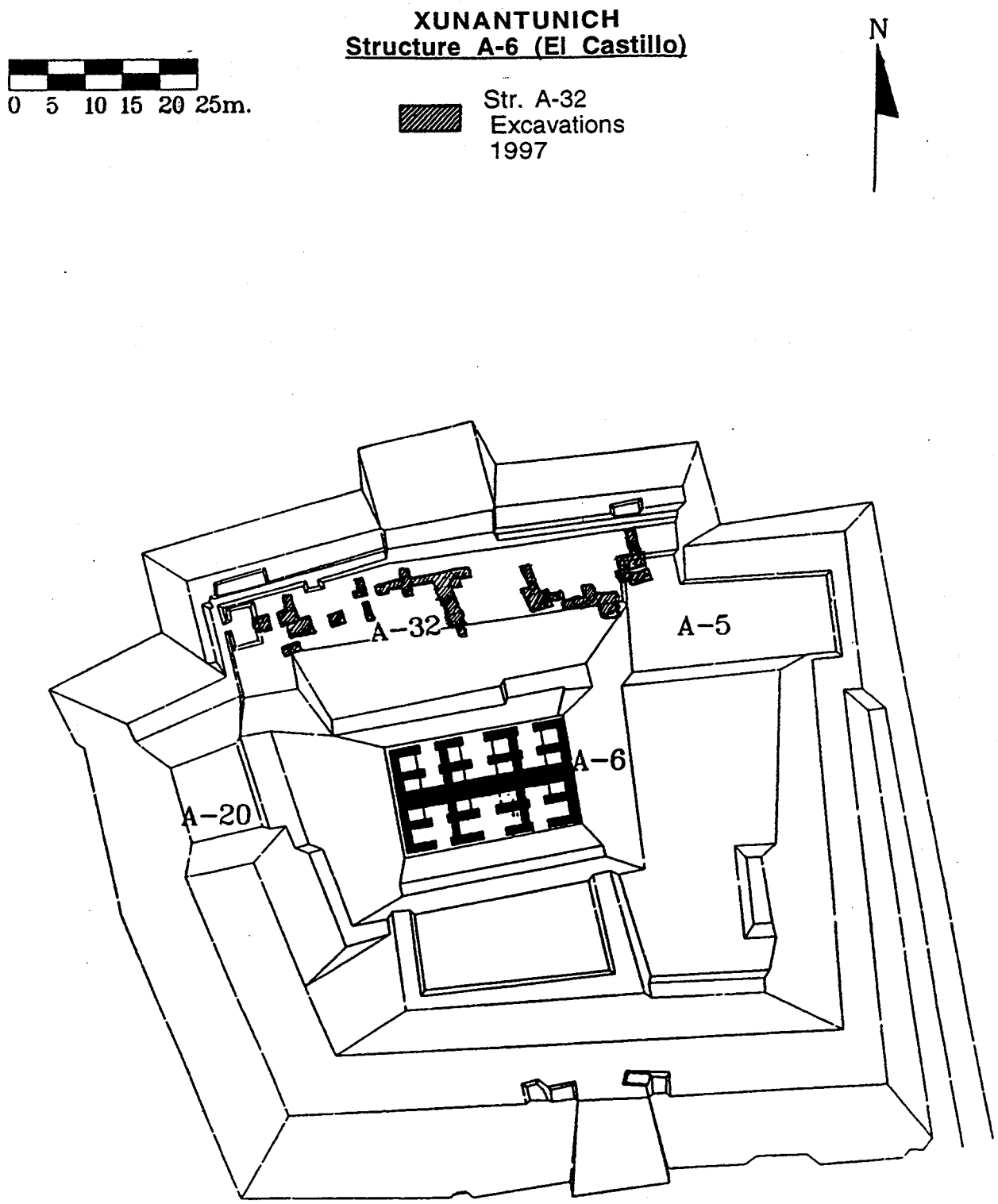

XUNANTUNICH
Structure A-6 (El Castillo)
0 5 10 15 20 25m.
Str. A-32
Excavations
1997
N
A-32
A-5
A-6
A-20

Figure 1

Structure A-32
Suboperations

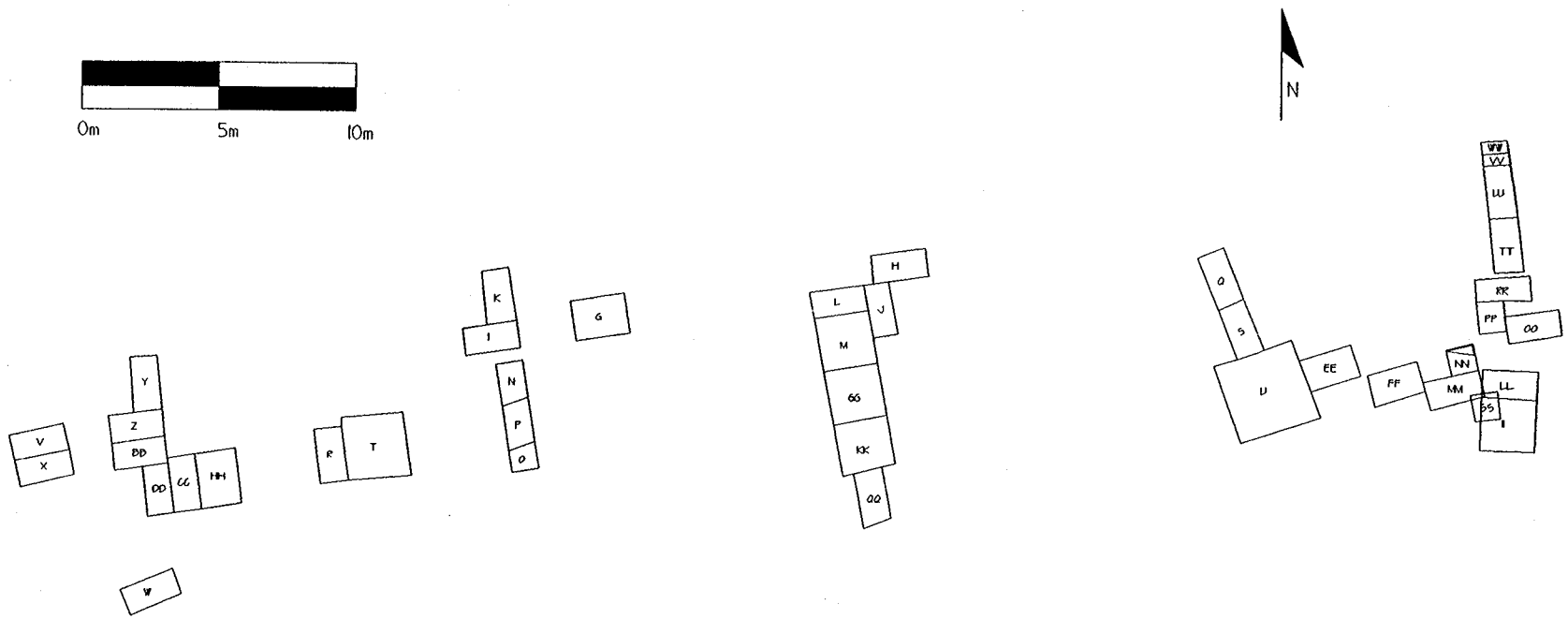


Figure 2

Structure A-32

Architectural Reconstruction

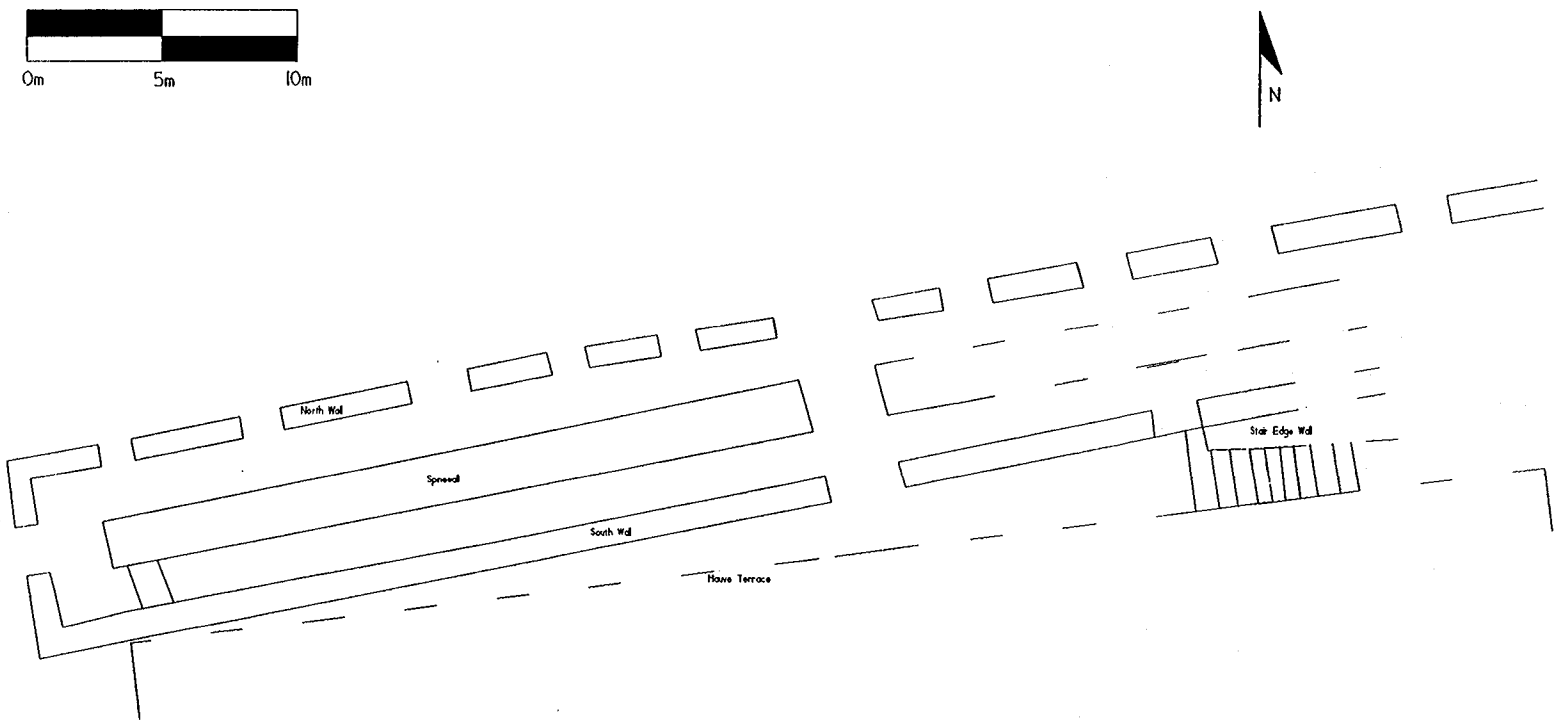


Figure 3

Structure A-32

North Wall - Profile facing South
247 K (unexcavated)

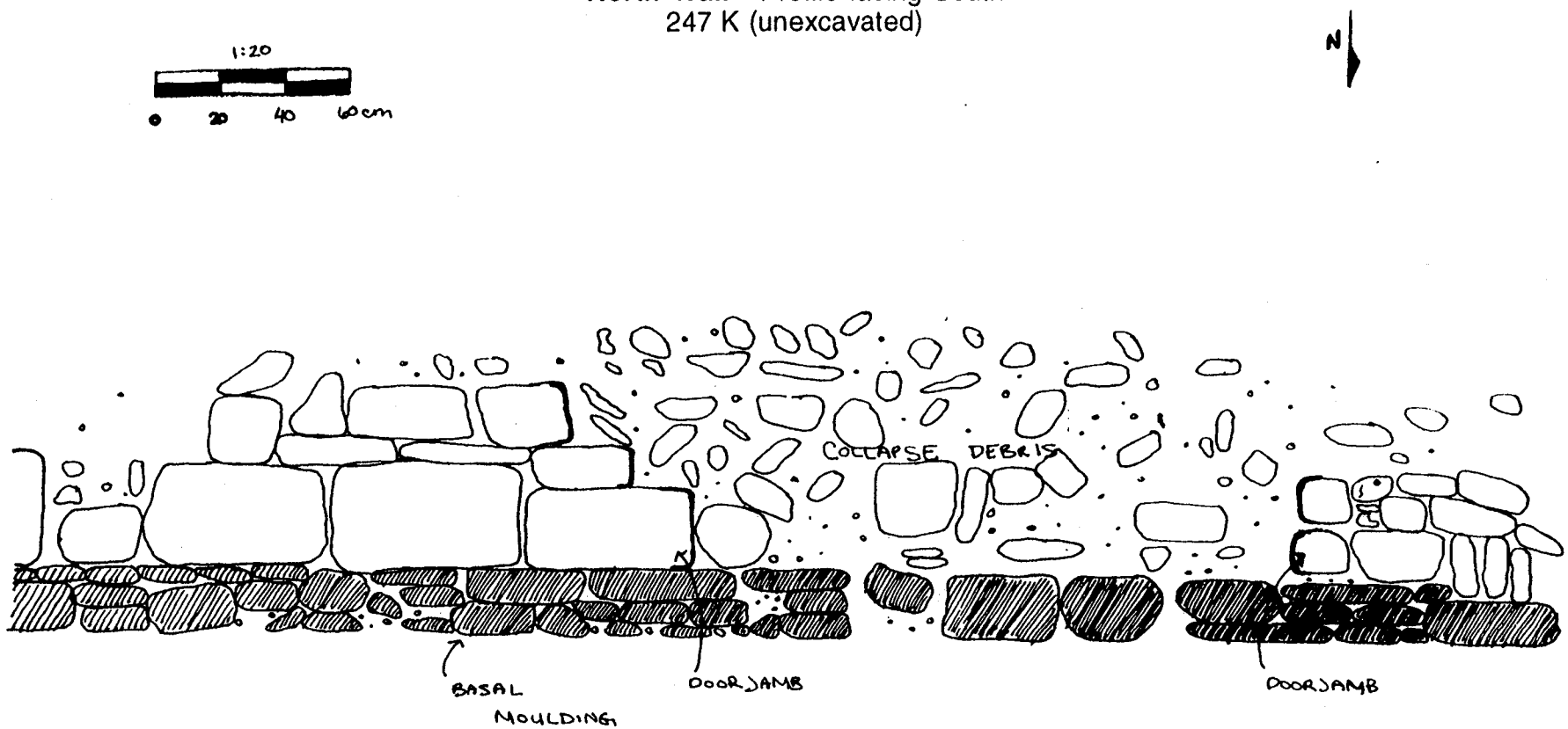
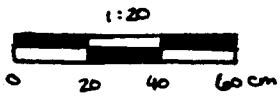


Figure 4



Structure A-32

Spine Wall - Profile facing South
247 I

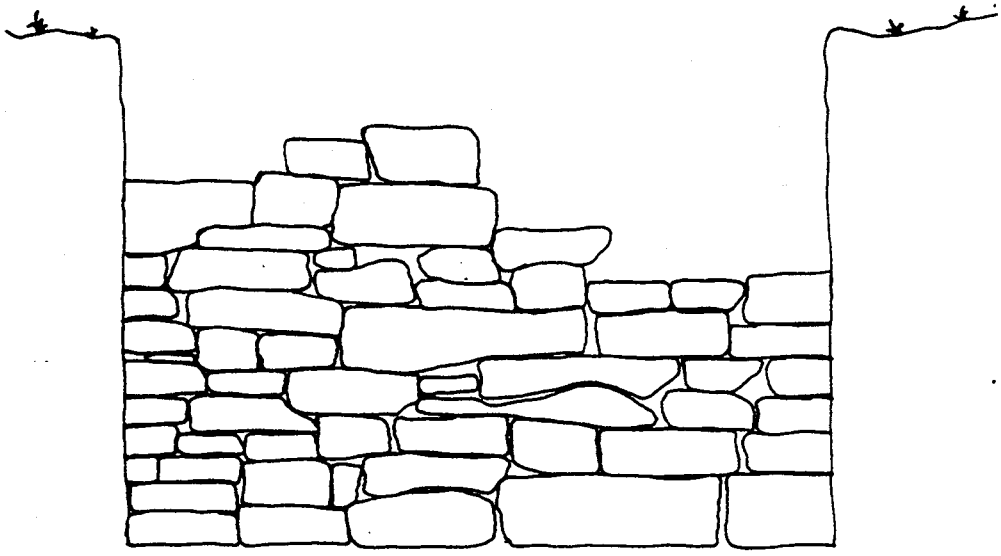


Figure 5

Spine Wall - Profile facing South
247 G

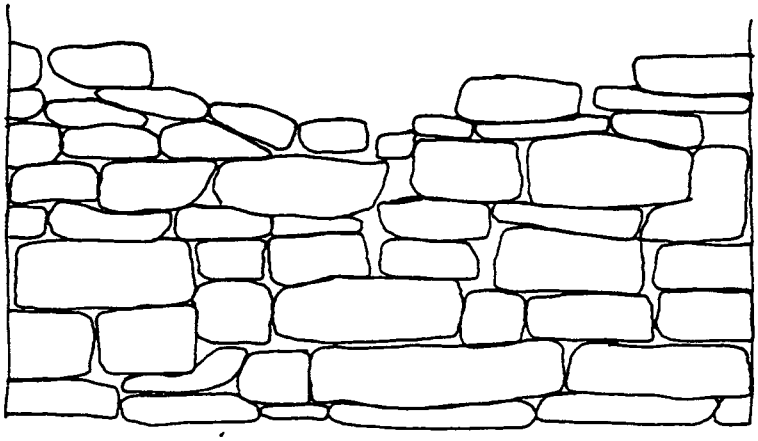
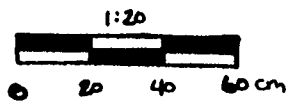


Figure 6

Structure A-32

Spinewall and Step - Profile facing South
247 H, J, and L



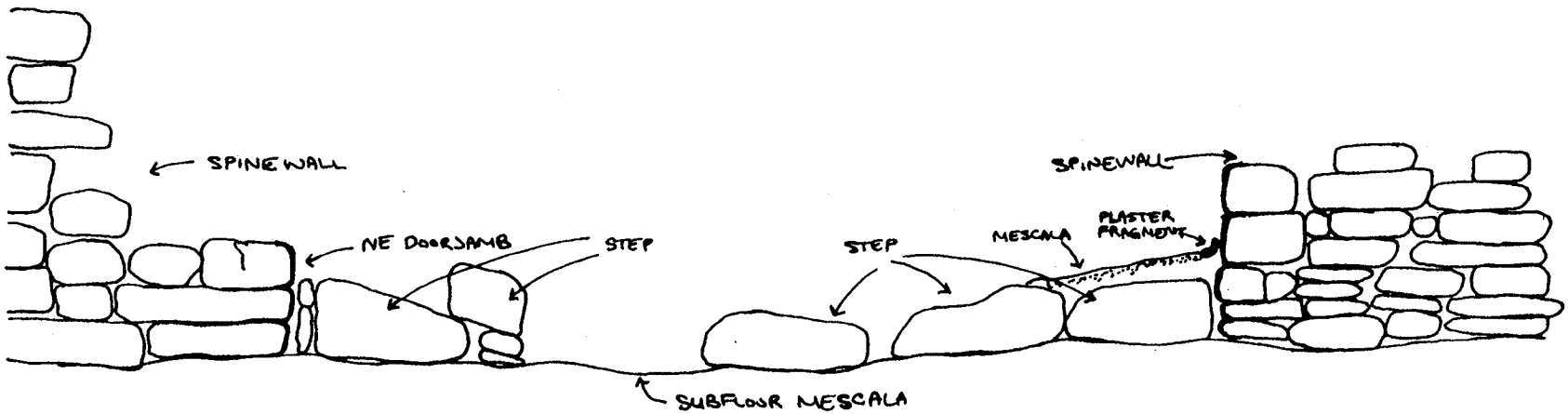
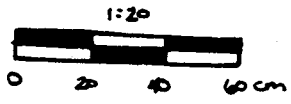


Figure 7



Structure A-32

South Wall - Profile facing South
247 R and T

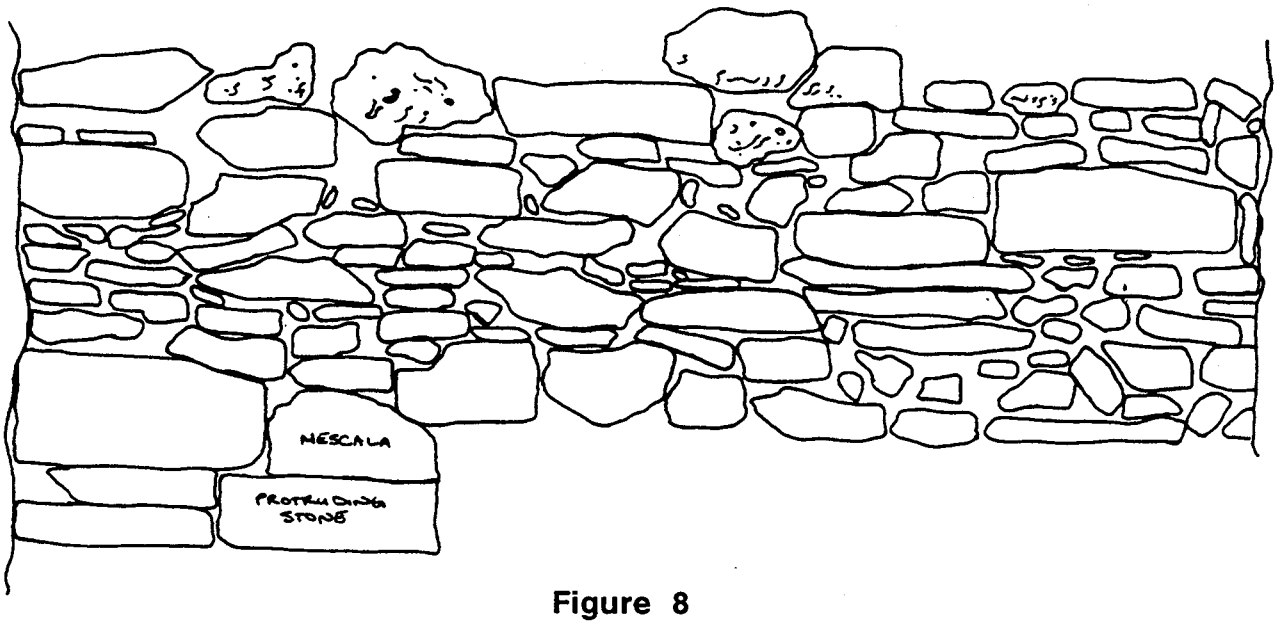


Figure 8

South Wall - Profile facing South
Surface (unexcavated)

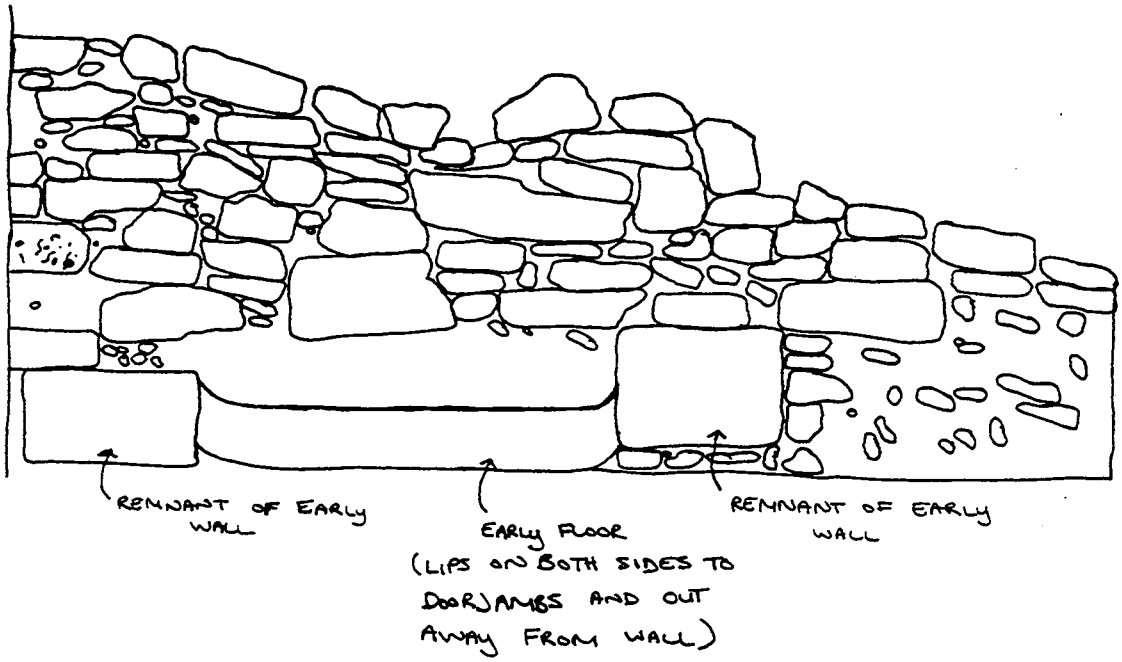
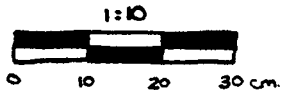


Figure 9

Structure A-32



Human Burial
Op. 247 JJ-B

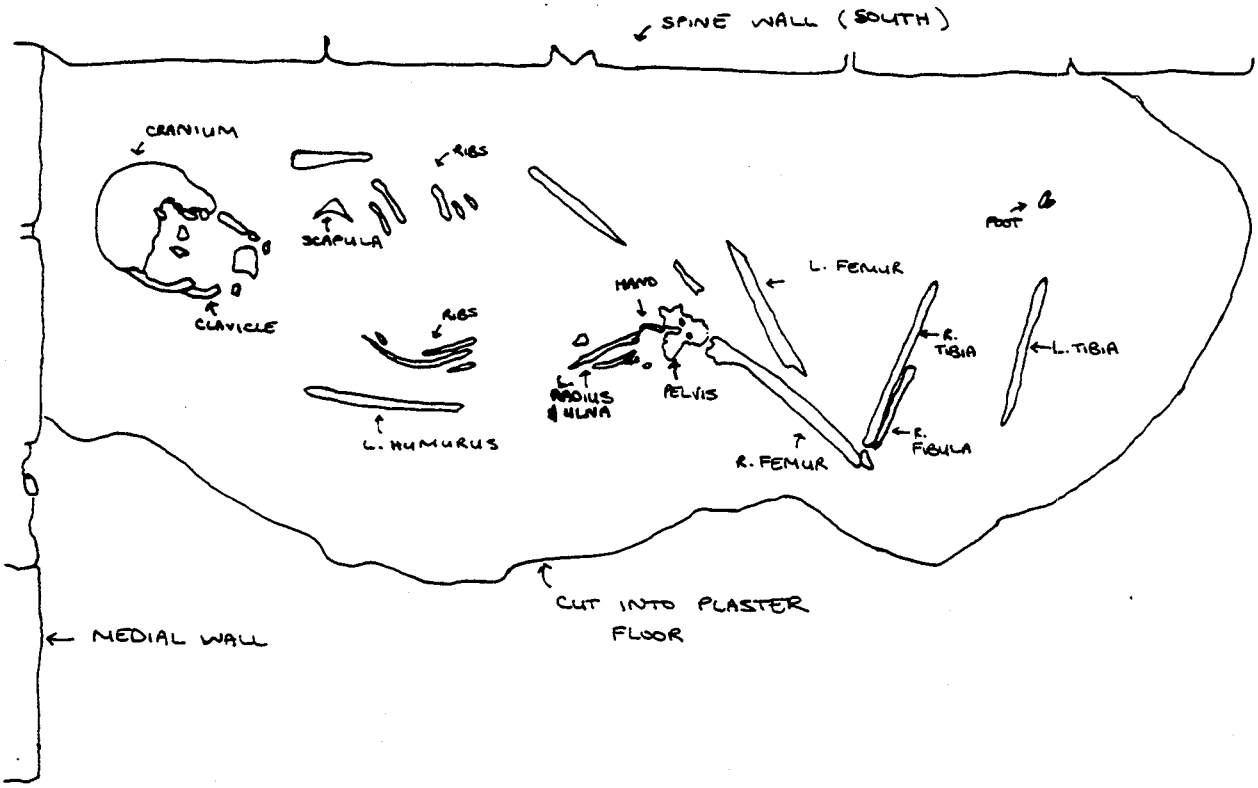
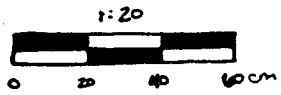
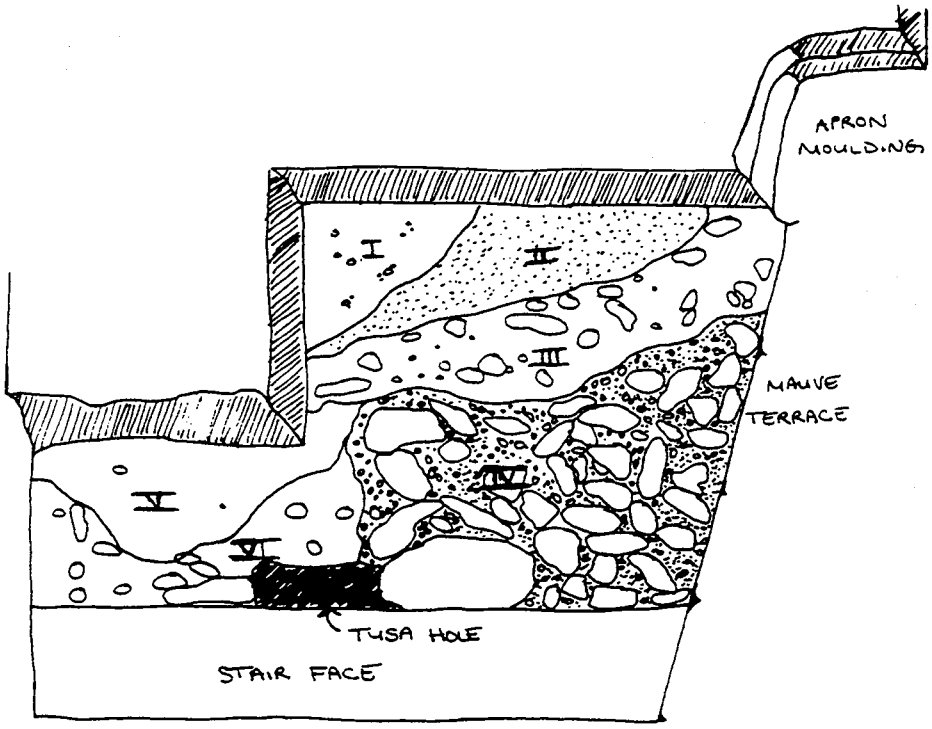


Figure 10



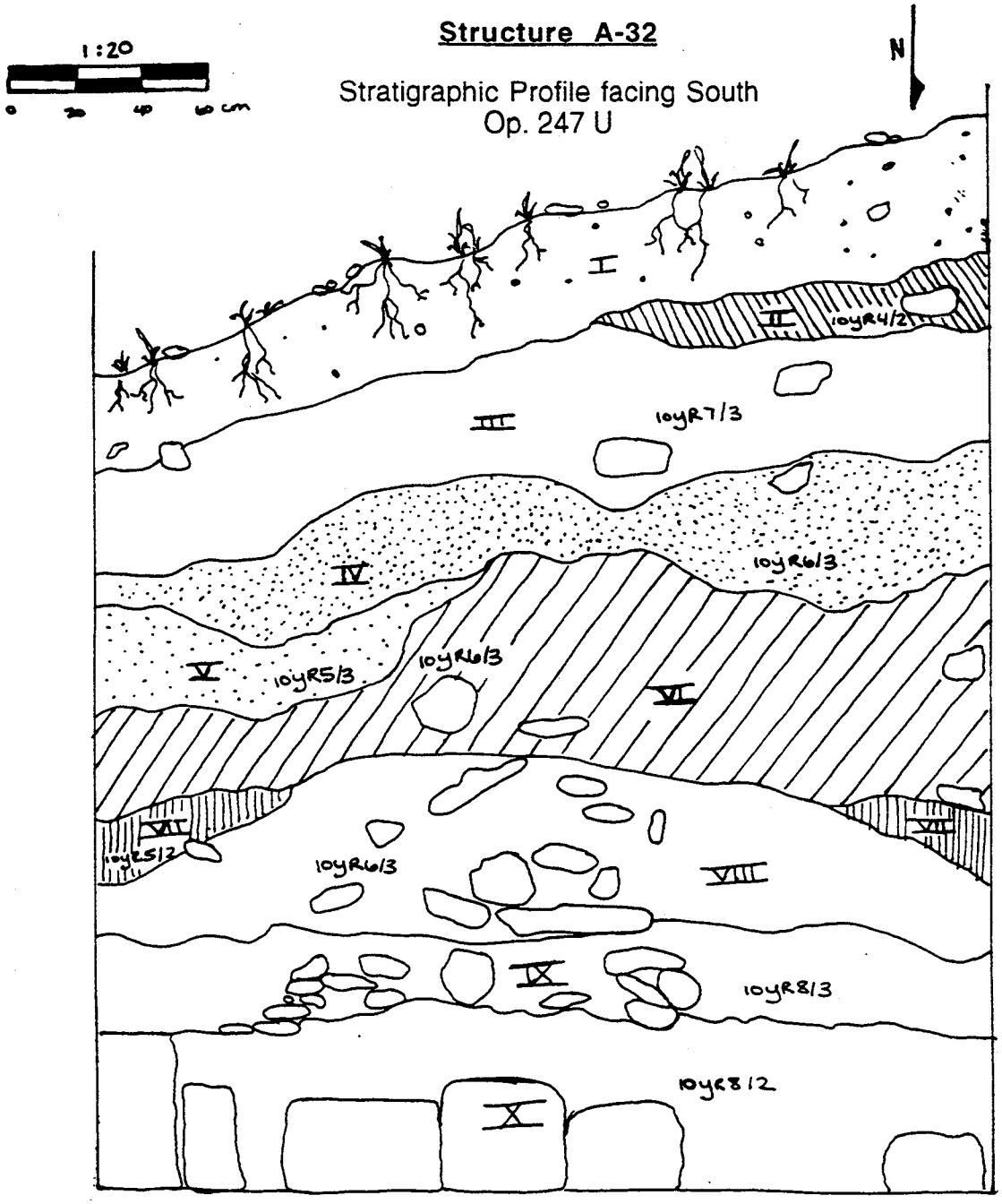
Structure A-32

Stratigraphic Profile facing East
Op. 247 U



I. 10YR6/8, no rocks, loam matrix - Ancient Buried A
II. 10YR7/3, no rocks, sascab/loam matrix - Ancient Collapse
III. 10YR8/2, small rocks, sascab matrix - Transition between collapse and fill
IV. 10YR7/3, dry-laid rock and gravel - Fill
V. 10YR8/1, no rocks, clay-like sascab - Wash-in/Collapse
VI. 10YR8/1, clay-like matrix with rocks - Wash-in/Collapse

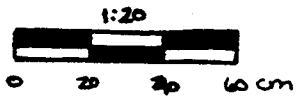
Figure 11



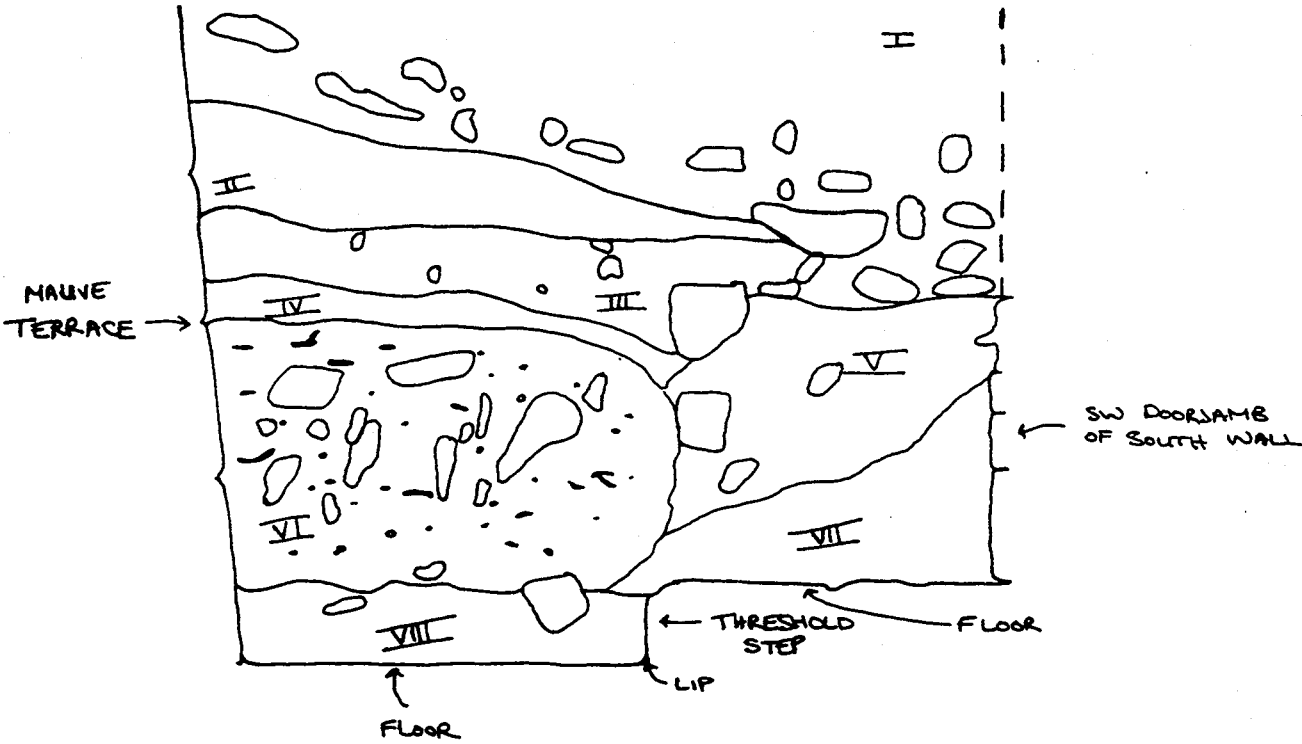
I. Topsoil and Humus Layer
II. Loose Gravel and Sand - Modern Buried A Layer
III. Loose Silty Sand - Archaeological Debris
IV. Very Loose Gravel - Debris and Sediment
V. Loose Gravel - Debris
VI. Silt - Modern Collapse or Backdirt
VII. Clay-like Soil - Ancient Buried A Layer
VIII. Soft Silty Clay - Ancient Collapse
IX. Fine Sascab - Construction Fill of Terrace
X. Apron Moulding of Mauve Terrace

Figure 12

Structure A-32



Stratigraphic Profile facing West
247 KK



I. Loose Collapse Debris
II. Soft Ashy Soil
III. Silt Layer
IV. Dark, Course Soil
V. Coarse Soil - Transition from Collapse to Fill
VI. Sascab with Gravel and Charcoal - Refuse Deposit
VII. Light Pink Fill - Possible Addition to Doorjamb
VIII. Fill with Large Stones

Figure 13

Excavations on the Southern Upper and Medial Terraces of El Castillo, Xunantunich, Belize

Rebecca L. Hays
Tulane University

Background of the Area of Study

Much time and energy has been invested in the Castillo complex at the site core of Xunantunich, however for obvious reasons the majority of the excavations have taken place within the larger structures such as A-6 and A-5. The natural focus of the Castillo, after all, is towards the north and the triple plaza complex. The first major excavations which took place to the south of A-6 were carried out by A.H. Anderson, the then Archaeological Commissioner of British Honduras, in the early 1960's (MacKie 1985:11). He was responsible for uncovering Structure A-33, and the surrounding area in the western corner of the medial terrace. Unhappily, despite heroic efforts by Lady Harrington, the XAP archivist, the records of these excavations have been lost to us. Further test excavations on the upper and medial terraces to the south of A-6 were carried out in 1994, 1995, and 1996 by various Xunantunich Archaeological Project investigators under the direction of Dr. Richard Leventhal from the University of California at Los Angeles (Robin 1994, Neff 1995). The focus of my excavations for the 1997 season was to further increase our understanding of the structures within this little-known area of the Castillo, and to attempt to place them within the temporal and spatial context of the site core as a whole.

Operation 147: Structure A-26

Overview

Our main excavations, which occurred to the south of Structure A-6, centered on the medial terrace (Fig. 1). Previous excavations in the structure located here (hereafter designated as A-26) uncovered a stairway leading to the north (Neff 1995) and a central passageway which bisected the construction. This passageway was bounded by an open area and collapse in the south, and the stairway in the north. The southern section, which was poorly preserved, contained a doorway which passed through the central spine wall of the structure. This spine wall, which I have designated as "Pitorial Wall" runs to the east and west. To the south of the central doorway, the small amount of preserved material included more of the central plastered passage, which widened to incorporate what I believe to be a foyer area. To the north of the doorway, the plastered passageway continues northward, revealing an open, benched room (Room 2) on the eastern side. A beautifully preserved northern doorway, located approximately 2.2 meters from the first, opens out into a narrow, east-west passageway which demarcates the northern edge of Structure A-26. The threshold of the northern stairway continues 10 cm. beyond the doorjamb before curving down to meet a plaster surface 30 centimeters below. The threshold edge remains consistent along the entire length of the previously exposed northern wall of the structure (Burión Wall) as a basal moulding.

The lower plaster surface lips up to the moulding and extends 50 centimeters to the north, where it intersects the staircase. The plaster surface extends below the staircase, however, and does not lip up to the first step or the rough cut stone wall located to the northeast. My excavations this year revealed an earlier inset stairway, leading below this construction, which is affiliated with the east-west passageway and Str. A-26 (see below). It is clear that the stairway and curved stone wall are late additions to the structure. The first step, which aligns N-S with the central passage, is bounded on the east by the incurved terminus of the cut-stone wall, and on the west by

debris which could possibly be fill for an unknown construction. The cut stone wall to the east appears to have been constructed with roughly cut stones which may have been robbed from elsewhere. Its eastern terminus, at the edge of the previously excavated central section, appears to inset towards the north in a similar fashion to its westernmost end. This construction appears to be a facing wall affiliated with the northern retaining wall (Aqua Wall) revealed in Neff's 1995 excavations.

The northern face of Burión Wall contains two interesting features. Ceramic curtain-holders, constructed with the lips of ceramic jars, are inset immediately above the basal moulding, and approximately 70 centimeters to the east and west of the two northern doorjambs. A tentative Late Classic I date has been affixed to them (Preziosi 1997: Personal Communication). I find their presence surprising because I have interpreted this wall as the northern boundary of Structure A-26. The curtain-holders appear to be integrally placed within the wall at its initial conception, as opposed to a later addition in association with the rough-cut facing wall in the north. While we know that later constructions to the north enclosed the east-west passage, the curtain holders are not adequately explained in the original context of the structure.

My excavations this season commenced where the previous ones had left off. I began by following the northern Burión Wall to the east and west in an attempt to uncover more of the northern face of A-26, and hopefully reveal other entrances into the structure. Over the course of the season, my crew excavated 32 suboperations within or on the exterior edge of A-26 (Fig. 2). As a result, we were able to formulate a relatively complete picture of what the structure looked like, and how it may have functioned within the settlement context to the south of the Castillo. We revealed a building which contained a minimum of six rooms, with at least four doorways opening from the north, and a single branching entrance to the south.

Room 1

Room 1 was identified to the west of the central stairway. Excavations within this segment of the building included suboperations Q, S, T, V, W, Y, FF, HH, and OO (Fig. 3). This room is rectangular, with an interesting bench structure. A small threshold opens onto a high L-shaped bench in the south which extends across the central and eastern sides of the room. This bench, rising 60 centimeters above the threshold, was constructed with small cut stones that are consistent with the building material used in other bench constructions within A-26. The plaster surface of the bench is not well preserved in places, especially near the edges, however we are able to see that the plaster surface of the threshold lips up to it. The L-curve of the bench was revealed in Suboperation 147W, where two perpendicular cut stones were revealed approximately 80 centimeters to the west of the room boundary (Golondrina Wall). The remains of Golondrina Wall were not extensive. We have approximately three courses of stones, denuded of plaster except for the basal course, which rested in association with the main bench. The central excavated section of the room revealed its threshold. The eastern doorjamb was revealed in 147S. The exterior of the western doorjamb remained unexcavated, however the slumped remains of it interior were uncovered in 147T. Immediately to the west of the western doorjamb, a second, higher bench extends to the westernmost edge of the room (147OO). This bench is rectangular, and measures approximately 40 centimeters above the larger L-shaped bench. In

essence, the majority of the room itself is taken up by bench space, a pattern which is found in all other rooms in the structure.

The soil which we uncovered within the room was relatively homogeneous. The vast majority of the soil was a gray loam (10YR5/2) with an abundance of small gravel, which I have identified as a refuse layer. Within this layer, we recovered quantities of large ceramic sherds and other artifact debris. The density of such debris increased as we excavated down within the unit, peaking at 10 centimeters above the plaster threshold surface. While some sherds were resting upon the floor, they did not appear to be in primary context. The significance of the ceramic placement, as well as the gently sloping profile of the soil indicates refuse was chiefly accumulated from the north--hardly surprising when we realize that several later buildings were located above and to the north of the structure. The location of the dense ceramic layer suggests several things. First, we know that some soil accumulated before the majority of the refuse gathered in the building. The soil underlying the refuse layer is not sterile, however. The ceramic sherds found in the lowest layer of soil are much smaller on average than those found within the refuse layer. This implies that the area within and around A-26 may still have been in limited use, even though it was not maintained, during the time it took for the 10 centimeters of soil within the lowest layer to accumulate. In contrast, the large sherds found within the lower regions on the refuse layer are often in association with other sherds from the same ceramic vessel. Their close proximity, as well as size, indicates that they have not been disturbed. We can therefore assume that the appearance of the large ceramic sherds marks the complete abandonment of A-26.

In the uppermost layers of humus and collapse, we recovered a few large, flat stones which may have been vault stones. We are obviously quite interested in the appearance of any stones which may have been used in vaulted construction, since it was unclear whether a permanent or perishable roof structure was utilized in Str. A-26. The results of this search were not promising. First, none of the excavated rooms contained large quantities of "vault stones"--in fact, room one yielded the largest number overall. Second, the identification of such stones was, by no means, certain. Excavations on the highest, westernmost bench revealed a promising series of stones which actually were affiliated with Coholito Wall. This wall, in fact, had been composed of courses of flat stones, which had subsequently fallen at the same time across 147OO. Unless the structure was almost completely looted of all vault stones, it is unlikely that this building had a permanent roof.

Room 2

This area, which I have defined as "Room 2" included Suboperations 147 X, Z , and BB. In actuality, it defines a large bench structure which was open to the central passageway (Fig. 4). The bench which defines this room was of comparable height (approximately 60 centimeters) to the bench construction described in Room 1. This dimension is relatively high in comparison to benches found in other constructions at Xunantunich (Leventhal 1997: Personal Communication). For example, bench heights within Structure A-6 are an average of 30 centimeters, while those within A-5 average 40 centimeters in height. The bench within Room 2 is approximately 2.3 meters E-W, and a probable 2.2 meters N-S. It is bounded on the north by Burión Wall, and on the east by Chombito Wall. Burión Wall, as mentioned above, extends across the entire

northern exterior face of the structure. It is constructed with large, well-cut stone blocks. Chombito Wall, in contrast, is more consistent with other internal wall constructions within A-26. It was formed from a mixture of small and medium-sized cut stones. In fact, this seemingly random, inelegant construction method is what earned this wall its name.

Our excavations revealed a 1 meter portion of the western edge of the bench structure (147Z), as well as its connection to the central passageway. Close observation of the bench's conjunction with the central corridor revealed two different floor episodes. The first, lower floor, ran below the stone construction, while the later plaster lipped up to it. I find this interesting because of the finished quality of the lower floor. It does not appear to be a construction floor due to its hardened, polished surface. Nevertheless, I hesitate to draw any strong conclusions from this limited evidence. I also noted that the type of stone construction in the bench face, small, heterogeneous cut stones, was consistent with construction types found throughout A-26, especially in Room 1. This evidence implies that the Room 2 bench may well have been constructed at the same time as the rest of the structure.

The surface of the bench provided additional information. 40 centimeters of the western edge of the bench were poorly preserved, and the uppermost course of stones at the edge itself had slumped westward. The plaster was better preserved to the east, although it was still pocked and worn. An interesting line of stones extended north-south approximately 50 centimeters from Chombito Wall in the east. These stones are too well-aligned and linear to be randomly situated. I believe that these stones may represent the remains of a rough wall which was erected on top of the bench in a later construction episode. The plaster surface of the bench provides evidence to support this solution. While the plaster to the west of the stones is, as I have noted, well weathered, the plaster to the east is in much better condition. Unfortunately, the reason for the placement of such a "wall" remains elusive. We did not uncover any special finds in the area to the east of the stones, nor could we detect any meaningful distinction in soil type or color.

The soil above the bench contained ceramics which were consistently LCII in date (Preziosi 1997: Personal Communication). As seen in Room 1, the ceramic content drastically decreased immediately above the bench surface. No meaningfully placed artifact were uncovered on the bench itself. As we excavated down the western profile of the bench edge, however, we encountered a cluster of sherds which came from similar vessels, probably of the Belize Red type (Gifford 1976). These sherds were located within the grayish loam (10YR5/2) which I have identified as a refuse layer. As seen elsewhere, the sherds were deposited approximately 5 to 10 centimeters above the floor. In contrast, the floor itself, as well as the soil immediately above it, was relatively free of sherds. Due to the extreme clustering of the sherds, it is possible that they were deposited from nearby, possibly from on top of the bench itself. Since the sherds are quite large, we can assume that the ceramics were deposited after the abandonment of this area.

Room 3

My excavations in this region were located to the south and west of Robin's test excavations, designated as 147A and B (1994:58-59). This room was uncovered in

Suboperations 147 EE, GG, and indirectly in 147U (see below). Room 3, more than any other, was defined by a bench structure that dominated its interior (Fig. 5). The 1.8 meters wide doorway, revealed in the northeastern and northwestern profiles of 147EE, opened out into a small threshold area approximately 40 centimeters N-S by 2 meters E-W. The northwestern doorjamb was placed flush against Chombito Wall to the west, and was only one stone (20 centimeters) wide. It was composed of medium-sized, well-cut stone blocks. The partial collapse of the doorjamb stones was nicely captured within the north profile of 147EE. The northeastern doorjamb was only revealed within the eastern profile of 147EE, however it also appeared to be composted of medium-sized stone blocks.

Immediately to the south and west of the threshold, an L-shaped bench face with a well-preserved plaster facing was uncovered. The bench, which rose almost 70 centimeters above the plaster threshold floor, probably covered the remaining space within the room. Previous excavations to the east were partially revealed in the eastern profile of 147GG. This prevented us from excavating further in that direction, however the evidence seems to indicate that this bench elevation remained consistent. In our excavations of 147U, described in further detail below, we uncovered the external northeastern corner of Burión Wall, and therefore Structure A-26. Since the average thickness of Burión Wall is 80 centimeters, I have estimated that the overall E-W dimension of Room 3 is 3.5 meters, with a N-S dimension of 2.7 meters. Our excavations in 147GG revealed the bench terminus in the south, where it lipped up to the spine wall of the structure (Pitorial Wall). This section of Pitorial Wall was composed of a heterogeneous collection of small to medium-sized stones, however they seemed to be more uniform in shape than many other examples from within the structure.

Immediately within the doorway of the structure, we uncovered several large fragments of a single plate with a zoomorphic design (147EE/7). Again, these large fragments were located in the grayish-brown refuse layer. The sherds were tightly clustered, and could easily be refitted. Once more, it seemed likely that either these sherds were either dumped from close-by, preserving their close provenience to one another, or the original vessel was largely intact when discarded. Due to their vertical placement, however, the former hypothesis seems more likely.

Rooms 4 & 5

These two rooms are discussed together because they appear to be mirror images of each other. The exposed portion of Room 4 consisted of suboperations 147JJ, LL, and MM. Room 5 was defined by suboperations 147AA, KK, and NN. Room 4 is located to the south of the spine wall, and faces west towards the foyer area, while Room 5, also to the south of Pitorial Wall, faces east. The excavations of Room 4, immediately to the south of Room 3, uncovered the southern face of Pitorial, and a well-preserved plaster surface that extended to the south (Fig. 6). Like its northern face, Pitorial was composed of a heterogeneous collection of stones, however the southern stones were slightly larger than their northern counterparts. Within an exceptionally large, oblong cut wall stone, we uncovered a small ovoid depression. This depression, 14 centimeters deep, 18 centimeters high, and 17 centimeters across, was clearly artificial and may be either a niche or the remains of a curtain-holder. Unfortunately no artifacts were found within it. The preserved plaster surface affiliated with this wall curved

down in the western edges of 147JJ and LL, indicating a bench edge. This surface was poorly preserved in the southern section of 147LL, due to the southern slumping of the interior face of Sanate Wall. This wall, possibly the southern exterior wall of Str. A-26, is poorly preserved. However, a few stones located approximately 20 centimeters to the south and east of 147MM appear to be *in situ* and may represent the remains of Sanate Wall's exterior face and basal moulding. These few stones are the best evidence we have of the southernmost portion of the structure, since the majority of the southern exterior face has collapsed to the base if the lower platform. Based on the limited evidence on hand, a rough estimate of the N-S dimension in Room 4 is 2.2 meters.

Excavations within Room 5 yielded a more detailed floor plan. The easternmost excavations of this room revealed its connection to the central foyer area. Immediately to the west of the foyer, the northern doorjamb to the room was uncovered on a 20 centimeter high plaster surface. The doorjamb projected from the exposed face of Pitorial Wall to the north. Approximately 1.1 meters to the west of the doorjamb, a low plaster bench rose 34 centimeters above the threshold surface. To the south, the plaster surfaces are deteriorated, and very little remains of the structure. Approximately 60 centimeters to the east of the bench, and 40 centimeters above the plaster threshold floor, we uncovered a well-preserved ceramic curtain-holder (Fig. 7). The ceramic rim used in this construction has been tentatively dated to terminal LCI (Preziosi and Yaeger 1997: Personal Communication).

The measurement from the west-central wall terminus of Pitorial Wall to the western bench edge in Room 5 was 4.5 meters. When I gauged the distance from Room 4's bench edge to the opposite central wall terminus, I produced an identical measurement. This is the main evidence for a symmetrical floor plan within Rooms 4 and 5. Based on this evidence, I have assumed that the floor plans within these two rooms were extremely similar. If the depression within the northern face of Pitorial Wall, Room 4, was indeed a curtain-holder, however, then the division of private space within these rooms was quite different. I would like to suggest a hypothetical explanation for the similarity between these rooms, in opposition to the distinct floor plans of the northern rooms. I have interpreted the south side of this structure as the "front" of the building. My reasoning for this is that the closest residential population base is located immediately to the south and below the medial platform upon which Str. A-26 rests. The open foyer area, as well as Rooms 4 and 5, may have been more public, and were therefore more generic in form. The northern rooms, more private in nature, were designed with a more specific function in mind.

Artifact recovery in the southern rooms was much reduced in comparison to the northern rooms. While we did uncover a slightly lighter version (10YR6/2) of the granular loam with small cobble inclusions that I have often affiliated with the refuse layer, the large. clustered sherds were conspicuously absent. It appears, unsurprisingly, that the large sherd deposits were consistently originating from the northern upper terrace, which includes Structure A-6 and the satellite structures immediately to the south (Structures A-28 and A-29). Again, representative samples of the sherds recovered in the south were, like their northern counterparts, solidly LCII in date (Robin 1994:59; Yaeger and Preziosi 1997: Personal Communication). No sherds from the Terminal Classic Period were recovered.

Room 6

By the time I had completed my excavations of the five rooms mentioned above, I had optimistically concluded that I knew what the overall floor plan for Structure A-26 looked like. I had hypothesized that, while the structure was not symmetrical on the interior, it would appear to be so from an exterior perspective. The initial results seemed to support this view, especially in the east and south. The first clue that I might actually be excavating within the interior of a room, however, occurred when I was unable to locate a moulding at the base of the western face of Coholito Wall. This wall, first identified in 147OO as the western boundary of Room 1, visibly extended to the south, and I had been testing the assumption that it was the western exterior wall of the structure. Continued excavation in 147II, PP, QQ, and RR revealed that I was indeed within a room, with a north-facing doorway (Fig. 8). The most interesting feature of this room was that, even though it was inset to the south from Rooms 1, 3, and the Central Passageway, it was constructed at the same time as the rest of the structure. The plaster floor of Room 6, which lipped up to Coholito Wall in the west, also lipped up to a poorly preserved wall (Greco Wall) in the south. Only the interior face of Greco Wall was preserved, however it is clear that this wall interdigitated with Coholito Wall in the southeastern corner of Room 6.

This room, unlike the other rooms in Structure A-26, was not dominated by a bench construction. Instead, the room was composed of an unusual threshold, a mere 20 centimeters above the plastered "corridor" which ran roughly E-W to the north of Structure A-26, and a second L or U-shaped rise of 20 centimeters that was consistent throughout the remaining majority of the room surface. We recovered a large quantity of sherds and collapse debris within this room, however the soil composition was not consistent with the grayish "refuse" loam type. Instead, we uncovered an extremely light soil that was composed mainly of decomposed limestone. This "collapse layer" was much more prevalent in my excavations immediately to the east and west of Structure A-26, as we shall see below.

Despite the distinction in soil, however, the large sherds associated with the northern A-26 excavations were certainly present within this room as well. Within Room 6, to the south and east of the doorway, we recovered an interesting ceramic find -- a monkey-spout vessel fragment, with obsidian insets for eyes, lying face-down on the floor (see Preziosi 1998, this volume, for illustration and further detail). This fragment, similar to the monkey spout we uncovered in 266B, is LCII in date (Preziosi 1997: Personal Communication; LeCount 1994). It did not appear to be intentionally placed upon the floor--rather, like the other large ceramic debris, it was part of the trash deposited from the northern upper terrace and A-6.

The Immediate Exterior of Structure A-26

This rather disparate category under discussion refers to the miscellaneous regions we excavated immediately to the exterior of Structure A-26, with special emphasis on the East-West Passageway immediately to the north of the Central Passageway and south of Neff's 1995 excavations, the northeastern corner of Structure A-26, the so-called foyer area in the south, and the inset region linking Room 1 and Room 6 in the northwest. Each of these areas were crucial to our understanding of the structure as a whole, and provided the necessary evidence for linkage to the architecture uncovered further to the east in Operation 271, to the west in the Operation

276 excavations, and possibly even to the far west with Anderson's excavations in the 1960's.

The east-west passage appears to extend the length of the northern face of the structure, and perhaps beyond (see Op. 276 discussion below). There is evidence of the plaster surface in Suboperation 147R and 147 U, which revealed the northeastern corner of A-26. This surface, affiliated with the base of Burión Wall and its basal moulding, extends across 147R, U, and presumably 147P. The passageway narrows considerably within the central section of the excavation, where it is sandwiched between Burión Wall in the south and the rough cut-stone wall and stairway in the north. Excavations within 147TT, however, have confirmed that the stairway, Aqua Wall, and the rough cut-stone wall were all part of a later construction phase. The initial construction of the E-W "passageway" may have lead, in actuality, to a series of separate sunken plazas to the north of Structure A-26. Unit 147TT revealed a beautifully-preserved inset staircase which was located below Aqua Wall, and offset to the north and east of the central passageway. This stairway was later filled in, and the light loam which we recovered from this area contained sherds tentatively dated to the transitional LCI-LCII period (Yaeger 1997: Personal Communication). While little in known about the actual floor plan of the sunken courtyard, it may have been affiliated with a similar construction which Anderson excavated to the east of Structure A-33 (see 276C discussion below). This pattern may mirror the series of three sunken plazas located at the base of the Castillo, to the south in Group C (Leventhal 1997: Personal Communication; M. Church 1996). The later construction of the rather crude stairway (Neff 1995) and wall outsets above the plaza shifted to focus of the central passageway to the later structures built on top of the new platform which we see today abutting Structure A-6. It is important to note that the central passageway does not line up with A-6, but slightly to the east of the structure. Clearly, another structure was the focus of this later stairway.

Further to the west, north of the doorway to Room 1, we uncovered more evidence of the east-west passageway. Suboperation 147Q revealed a rough quarter -circle of stones, arching from the northeastern profile to the northwestern corner of the unit. The northeastern fill, within the boundaries of the cut stones, was composed of small, loosely-packed limestone cobbles, with little soil matrix. The architectural function of these stones is unclear, however they appear to be an inset of some kind. Originally, I believed that they were affiliated with the remains of a "crude stairway" located in the northern quadrant of 147S, however the "stairway" turned out to be a simple fill episode. Both 147Q and S contained the "refuse" layer of grayish loam, along with the associated large ceramic sherds which were concentrated approximately 10 centimeters above the plaster surface of the E-W passage.

There is evidence to indicate that the plaster surface follows the apparent inset of the structure in the west, as seen in the multiple threshold surfaces uncovered in the entryway of Room 6, however the evidence for this is problematic. The extremely poor preservation of the "inset" northeastern corner of Structure A-26, as revealed in 147SS, could not be used as substantiating evidence for the continuity of the E-W passage. Both Coholito Wall in the east, and Canario Wall in the south, inexplicably disappeared approximately 20 centimeters below their appearance. The soil below this clearly originated as fill, and contained several large cut stones. We also recovered several large ceramic sherds, including the complete neck of a large jar.

Excavations within the northeastern corner of Structure A-26 consisted of suboperations 147 P, R, and U. Several features were revealed, including the actual corner of the structure itself, as I have mentioned above. Additionally, three retaining walls were uncovered, which shed some light on the possible construction and abandonment of the medial and upper terraces. In the northern profiles of 147 R and P, we uncovered a rough retaining wall (Turquoise Wall) which I believe supported the later upper terrace construction. I believe this retaining wall is affiliated with the retaining wall we uncovered in our N-S trench (266B-L). While a few cut stones were located in collapse at its base in 147R, there is no clear indication that this retaining wall was covered with a facing wall. In the eastern profile of 147R, we uncovered another retaining wall (Jade Wall). This wall terminates slightly to the east and north of the northeastern corner of Str. A-26 (Burión Wall), and is buttressed by Indigo Wall, located in the northern profile of 147U. Together, these two retaining walls effectively block off the E-W passageway. This may not be the primary purpose of their construction, however. It is possible that these retaining walls serve as a construction bin which may have been used to quickly fill this area after its abandonment, in a way similar to the construction cells seen to the north in 266M, and in the construction of A-1 (Zeleznik 1993:40; Keller 1997: Personal Communication). There are a few factors which support this theory. First, the soil within the "bin" was a mottled loam which I have come to associate with fill. Second, few artifacts, none of which were large, were removed from the "fill". If this hypothesis is correct, A-26 was not only abandoned, but also intentionally buried.

Additionally, we uncovered a later plaster floor 40 centimeters above the plaster floor affiliated with the E-W passageway in 147U. This floor lipped up to Indigo Wall in the north, yet the wall continued down below it. It is essentially the same elevation as a floor uncovered to the south and east of structure A-26, described in further detail below. As a further note, we uncovered a huge cut-stone block within 147R, a stone that was unique in relation to all others within this structure and general area in terms of both its large size and extremely regular, rectangular shape. I can only conclude that this stone collapsed from the upper terrace, however its ultimate origin is unknown. The majority of the soil above and to the sides of the construction bin was a light decomposed limestone like the matrix recovered in Room 6. This collapse soil sloped gently from the north. The soil within the bin itself was mottled and slightly darker in color, as we might expect for fill.

The possible "foyer" area is only partially understood due to the fact that much of the south side of Str.A-26 has collapsed and is not preserved. The foyer is suggested, however, through our excavations within 147DD, as well as the orientation of Rooms 4 and 5. The plaster floor uncovered within 147NN, at the base of the threshold to Room 5 is essentially identical in elevation to the plaster floor uncovered within 147DD. The latter is located immediately to the south of Pitorial Wall, which clearly continues from the northern face of Room 5. Reconstruction of the various architectural elements suggests an open, plastered area which terminates on three sides with doorways. To the north, the first doorway leads into the central passageway, through Pitorial Wall, while the eastern and western sides open into Rooms 4 and 5, respectively. It is possible that this area may have been roofed, however we have no evidence of this.

Operation 271: East of Structure A-26

The objective of this operation was to explore the eastern section of the medial terrace in the hopes of uncovering additional architectural features, as well as possible links that might increase our understanding of Structure A-26. These excavations focused on two separate areas. The first was a 2x2 meter area (271A and B) to the immediate south and east of 147U, the northeastern corner of Structure A-26. The second 2x1 meter area (271C) explored the eastern corner of the medial terrace.

271A and B revealed a raised platform and substructure, underlain with fill. The plaster floor uncovered within this area corresponds to the later plaster floor uncovered in 147U. The lower floor which corresponded with the E-W passageway, however, was not present. This platform probably did not support a superstructure. A suspicious "lip", visible in the south, is actually the result of uplift from the cut-stone substructure immediately below the floor surface, which was revealed in the eastern profile of 271 A and in 271B/5 (Leventhal 1997: Personal Communication). However, close inspection of the southern break in the plaster revealed two distinct floor surfaces. Floor 1 had a nicer, more finely polished surface that the floor which appeared immediately below it. Underlying the floor and substructure, we encountered a mixed loam, decomposed limestone, and sascab matrix typical of fill. 1.4 meters below the Floor 1, we uncovered a squared-off portion of a construction wall which rested on a third floor surface. Floor 3 was not polished, and probably served only as a construction floor. It was located approximately 1.8 meters below Floor 1. Based on the evidence present in 271 A and B, as well as 147U, it appears that the purpose of the higher floor in 147U was to level out the depression between Structure A-26 and the low platform so that the eastern portion of the medial terrace would become a single, consistent elevation.

Excavation within 271C revealed further "bin" architecture atop a construction floor. Two perpendicular retaining walls were revealed, containing typical fill matrix. The floor extends below these, and does not lip up to either. Even though the height of the floor is not identical to the construction floor revealed in 271A, it is probably from the same phase of construction. Despite the fact that no finishing floor was preserved, we utilized the general precedent determined by 271A (1.4 meters) to project its likely elevation. A rough estimate from the upper floor (Floor 1) in 271A to the hypothetical upper floor in 271C showed a 40 centimeter difference. This may indicate that 271C is located beyond the low platform, and that the new "floor" level had reverted to the same height as the lower floor exposed in 147U and R.

Within the northern profile, we uncovered the possible remains of a retaining wall which may correspond to Turquoise Wall in 147 R and P. If this is the case, the northern profile of the unit represents the edge of the later upper terrace construction. Again, we found no evidence of a facing wall, adding credence to the argument that the upper terrace was never faced at all. Artifact recovery within this region was unremarkable, probably due to the high percentage of fill. A few diagnostic sherds indicated that the majority were probably consistent with elsewhere on the medial terrace, and were LCII in date (Yaeger 1997: Personal Communication).

Operation 276: West of Structure A-26

The objective of this operation was to explore the region to the west of Structure A-26, placing special emphasis on the possible continuation of the E-W passageway

uncovered in 1477RR, and the partially exposed excavated area which Anderson uncovered in the early 1960's. Excavations within 276A revealed several architectural features which helped link this intermediary architecture to structures A-26 and A-33. First, Aguila Wall was revealed, running E-W in the southern quadrant of the unit. In the northeastern corner of this exposed section of the wall, its curved terminus was exposed. This terminus represents either a doorjamb that opens into a north-facing room, or the exterior of a separate structure. The basal moulding of Aguila Wall was distinct from the mouldings seen to the east on Burión Wall. While the latter is elongated and gently curved on the top, the former jutted out in the form of square cut blocks, which were incorporated into the wall facing. Clearly, we are dealing with a separate construction style in this case.

In addition, two different construction episodes, in conjunction with a plaster surface that may coincide with the E-W passage immediately to the north of the doorjamb in Room 6, were uncovered in the central and northern quadrants. In the most recent construction phase, a retaining wall and facing wall of loosely placed cut-stone appeared to the north of the plaster floor. These walls are constructed in the same way as those uncovered in the northern central area to the east of the stairway in structure A-26. The narrow passageway which results between this construction and Aguila Wall is also reminiscent, however this central space is even narrower than the first example to the east. Furthermore, we recovered an extraordinary array of artifacts from the soil within this corridor, extremely similar the refuse layer observed within A-26. The assemblage included a bone instrument fragment, obsidian, and a wide variety of painted ceramics. The latter were generally LCII in date (Preziosi and Yaeger: Personal Communication).

Below the northern fill and wall stones, we uncovered the remainder of the plaster floor which ran underneath it. This construction floor was placed over the earlier construction in order to support the new wall structure. When we excavated through the northern quadrant of the construction floor, we uncovered and earlier floor and terrace edge like the ones noted in 276C (Fig. 9, see below). The earlier plaster floor rested 20 centimeters below the terrace edge, and is much higher than the "corresponding" plaza floor in 276C. It is, however, identical to the lowest, most northerly plaster floor in 147RR. In this respect, the floor seems to be an extension of structure A-26 architecture, as well as the lower floor of the terrace edge, south of 276C. It seems clear that there is some sort of transition in floor heights and architectural style occurring here.

Excavations within 276B, immediately to the southwest of 276A revealed the remains of the southern face of Aguila Wall, as well as a series of overlapping plaster surfaces. Only a small portion of Aguila Wall was preserved, however. Only 20 centimeters below the rough exterior face of Aguila Wall, a poorly preserved plaster surface appeared. Excavations in the south revealed another plaster floor which ran 20 centimeters below the first. The layout was reminiscent of the "dual threshold" features within 147RR, at first, however we soon realized that the lower floor ran completely below the first, and was not in association with it. These floors, therefore, represent separate construction episodes. Their precise function remains unknown.

Clearing Excavations within 276C and Structure A-33

As I have mentioned above, there are no surviving records of the excavations in the southwestern corner of the medial terrace and Structure A-33 which were carried out by A. H. Anderson in the early 1960's. Several areas within the structure were partially exposed, however. In an effort to better understand this area, we cleared off much of the previously excavated architecture within the structure. A collapse area immediately to the east of the structure required more intensive clearing -- this area was designated as 276C.

The architecture which we uncovered in 276C correlated nicely with the data recovered within 147TT in the central corridor. We isolated at least three construction episodes in the terrace area immediately to the east of A-33 (Fig. 10). The early construction phase included a sunken courtyard similar to the courtyard originally to the north of A-26. Two outset steps, projecting from the battered face of the terrace edge, provided access to the courtyard below. Tecolote Wall, which served as the eastern edge of Structure A-26 provided the western boundary of the sunken plaza. There were several features associated with this wall. First, a corbelled vault construction had been exposed at one time, possibly serving as an access point through Structure A-33 to the sunken plaza revealed in 276C. Later, this access point was filled in, however a trapezoidal drain remained at the base. The plaster surface immediately surrounding this drain is slightly depressed, so that water could easily flow from east to west. A third construction stage filled in the sunken plaza, and placed a plaster floor over the area so that the elevation was consistent with the top of the terrace to the south of the plaza. This later phase, as I have mentioned, is also present within the northern quadrant of 276A. A rough cut-stone facing wall, located immediately to the east of 276C, is also affiliated with the latest plaster surface, and appears to correlate with the same basic construction seen in the central passageway north of A-26. The western edge of the wall appears to curve towards the north, and may be an inset.

To the southeast of the plaster terrace, a building corner was exposed. It is probable that this construction is a continuation of Aguila Wall, based on its orientation and the similarity of the basal moulding. This is clearly a separate entity from Structure A-33, however the buildings were closely situated, and may have performed related functions. At one time, the northwestern corner of this structure and the southeastern corner of Str. A-33 may have served as a narrow doorway. This access appears to have been blocked at one time, as indicated by the line of stones still visible in the floor between the two corners.

The access to Structure A-33 is not clear, largely due to the fact that only the southeastern portion of the structure was exposed. There are three basic areas which I was able to define in association with the structure: the southeastern exterior, the corbelled drain and its overlying plaster surface, and a curious stair / altar structure to the north. The exterior includes Tecolote Wall, described above, which extends to the north and west. In the northern section of the wall, a moulding was exposed which appeared to correspond with the basal moulding of Aguila Wall to the east. In the western section of Tecolote Wall, we cleared off a series of wide stairs or benches which were offset from the wall to the south. These graduated surfaces do not appear to be an access, however, since there is not a break or doorjamb present within the exposed section of Tecolote Wall. In fact, Tecolote Wall appears to corner to the northwest, curving around the highest bench-like structure. The architecture to the west of these

curious features was not preserved, however, so it is difficult to determine their specific function.

To the north of the western branch of Tecolote Wall, we cleared a round drainage hole and a plaster surface which overlaid the corbelled passage / drain mentioned in association with 276C. The plaster floor lipped up to Tecolote Wall in the east. The southeast corner of the surface had collapsed into the drain below, clearly exposing the passage which ran below it, as well as the west side of the blocked entrance to the sunken plaza. This surface appears to be affiliated with a later construction, however no other features were exposed within that might provide clues as to the function of this area.

The northernmost area which we exposed contained several features. Of most import was the low, rectangular construction which appeared in the northwest corner, flush against the western face of Tecolote Wall. Two barely discernible lines of stones in the eastern quadrant of this structure suggested small stairs, however no obvious access point was visible within the corresponding portion of Tecolote Wall. Alternately, this feature might have served as a free-standing bench or altar. Unfortunately, there is not enough evidence to formulate a solid hypothesis as to its function. To the southwest of the southwestern corner of the feature, we uncovered a posthole embedded in the plaster floor running across this area. The floor lips up around the circumference of the hole. A second, oblong hole was uncovered further to the west. This hole appears to have been produced by a stake that was placed within the floor at an angle, and may have served as a tripod support (Leventhal 1997: Personal Communication). Due to time constraints, we were unable to perform any true excavation of our own in this area. I was impressed with the preservation of the architecture which we were able to expose, however. More intensive excavations of this area might be an interesting project for future generations of researchers.

Operation 266: Structure A-28

This operation was located in the southern upper terrace, immediately to the south of Structure A-6. The objectives for this operation were twofold. First, we were interested in Structure A-28, a stepped construction that may have ringed a sunken plaza adjacent and to the south of A-6. This sunken area, affectionately known as the "Piscina", had been partially excavated in a previous season (Robin 1994). In order to understand the substructure of A-28, we excavated a N-S trench through it. This had the added bonus of creating a drainage point so that the sunken architecture would be preserved from future water damage. Second, we were interested in the sequence of the construction of the upper terrace. As a result, we sank a deep pit into the floor of the "Piscina" in an attempt to gather an artifact assemblage for dating purposes as well as architectural data which might shed light on the sequential construction of the terrace. In addition, we hoped to encounter a plaster floor which would correlate with the floor in the E-W passageway immediately to the north of A-26, thus linking the two constructions.

North-South Trench

This trench, which incorporated suboperations 266B-L, initially followed the overlying architecture of Structure A-28 (Fig. 11). We first uncovered a plaster floor within 266B, the northernmost unit of the trench, which correlated directly with the

plaster floor in the "Piscina". This floor, while in relatively poor condition, did contain darker discolored sections in the northwestern quadrant of the unit which may have been caused by scorching. In the south profile, we uncovered a row of dressed stone blocks which I had identified initially as Loro Wall in 266A, located 2 meters to the east of this unit. This line of stones was only 1 to 2 courses high, and seemed to level off approximately 40 centimeters above the floor. To the south of the facing stones, we encountered a fill episode. It is likely that this area was originally plastered over, however no plaster is currently preserved. Nestled against the base of one of the southwestern stones, we found a monkey spout sherd which was remarkably similar to one found within Group D (LeCount 1996). Other sherds associated with the spout in this unit were all LCII in date (Preziosi 1997: Personal Communication).

Approximately 60 centimeters to the south of "Loro Wall" we uncovered another wall of roughly stacked cut stones. These stones, which rose nearly 60 centimeters in height, were more heterogeneous than those to the north. Furthermore, there was a discernible vertical break 80 centimeters to the east of the west profile. This break marked the corner of the substructure for A-28. Again, this stepped region appeared to level out into exposed fill. No plaster surface was recovered. The third vertical "step" was uncovered 110 centimeters to the south of the second rise. This rise, the highest preserved in the structure, consisted three large stone blocks at its height, underlain by smaller faced stones. Once more, there was a vertical division in the stones 80 centimeters east of the western profile, which was part of the interior structure of the construction. Because there is no interdigitation along these divisions, it is reasonable to assume that the substructure, as well as the eastern portion of A-28 were constructed first. There is no clear indication that the region immediately to the west was open for a period of time before the "addition" which we see currently, however this is a possible interpretation. The leveled off area to the south of the third tier again retains no evidence of a plaster surface. The southern section of Structure A-28 is less preserved than the north, and was thus more difficult to reconstruct precisely. At approximate 1 meter intervals, there was some evidence of three lines of stones which may have formed tiers of decreasing elevation, roughly mirroring the tiers to the north.

At the border between 266E and F, a line of four mid-sized stones were recovered in what was essentially a shallow clearing lot at the surface. A clearer line was observed along the 266F / 266G border. An undulating line of cut stones, clearly collapsing to the south marked this second tier. The third tier, exposed along the northern border of 266H, was comprised of a collapsed line of cut stone, placed in a more linear formation than the previous tiers of stones. Like the second southern tier, we recovered clear evidence of wall collapse to the south. This tier, like the others before it, was only three stones high at maximum.

Excavations below the tiered superstructure of A-28 revealed a curious substructure (Fig. 12). The wall marking the second tier in the north face of the structure was uncovered to its base, where it met with the plaster floor uncovered to the north in 266B. The wall, as mentioned above, was composed of heterogeneous faced stones, and extended from east to west, intersecting a north-south retaining wall. The latter wall, 3.2 meters in length, was composed of heterogeneous faced stones. Its intersection with the northern wall (266C) as well as the southern wall exposed along

the south face of 266F was clearly visible in profile. The question remains, however, whether this wall was intentionally exposed at any time in the use of Structure A-28. My hypothesis is that it was not. The chief reason for this conclusion is that, while the stones are faced, they are roughly stacked with quite a bit of air space between stones. It does not have the appearance of a faced wall such as the one exposed in the central corridor of A-26. Furthermore, A large amount of plaster would be necessary to stabilize the face of the wall, as well as provide it with a smooth finish. No plaster was recovered in association with these stones. Finally, the base of the wall rests upon the same plaster surface which was observed in the "Piscina" area, as well as 266B and C. The floor disappears beneath the retaining wall instead of lipping up to it.

Excavations further to the south, below the tier edges, revealed several features. South Tier 2 extended below the base of the plaster construction floor. It did not rest on a lower floor or discernible surface. Instead, a second row of stones, not observed in our original clearing project, was revealed approximately 60 centimeters to the south of the tier edge. Concurrently, we uncovered some roughly faced stones in the eastern and western profiles of the southern units which appeared to be bracketing these rough lines of stones. It is possible that the newly exposed stones are the remains of a construction stairway, however the slope of the "stairs" does not coincide with the slope of the upper terrace or with what we know of the lower architecture in Str. A-26. Identification of these stones as a meaningful construction, therefore, must remain tentative.

Excavations in the southernmost region of the upper terrace, along its most extreme slope, proved to be a challenging endeavor. Those unfortunates standing below the excavations often had to dodge flying stones and debris, as the excavation team clung to the side of the terrace, clearing off the topsoil. We managed to reveal a rough retaining wall of uncut stone which appeared to match Turquoise Wall and the retaining wall to the east in 271C. This retaining wall disappeared approximately 1.3 meters above the base of the upper terrace, in an area which continued a concentration of sascab. It is possible that a further projection or apron may have extended out to the south at this point, however no evidence of such a construction remained.

Deep Excavation Within the "Piscina"

This unit, originally 3 meters by 2 meters in dimension, was to become one of the most extensive excavations my team attempted during this season. By the time this excavation reached its ultimate depth of 8 meters below the plaster floor of the "Piscina", we were able to reconstruct the building processes immediately to the south of A-6 with a degree of confidence (Figs. 13 & 14). As we excavated below the plaster surface, it became obvious that we were within a large, rectangular construction bin. The southern wall of the bin, which I have designated as Sage Wall, was composed of roughly faced stones. This wall disappears approximately 2.5 meters below the surface, and is underlain by loosely stacked cobbles of varying sizes. The remaining walls of the bin were composed of large, roughly stacked cobbles in a like manner. An interesting facet of this construction was that it occurred immediately below the plaster surface of the Piscina. As we have seen elsewhere at the site, it is more common for bin construction and construction walls to appear at least 1 meter below the plaster surface its supports (Leventhal 1997: Personal Communication). Excavation within the upper portion of the construction bin revealed a mottled fill, laden with artifacts and ceramics

dating to the LCII period (Yaeger 1997: Personal Communication). These included a multitude of incised, painted, and / or slipped ceramic sherds, a shaped and polished bone fragment, multiple obsidian prismatic blades, and a chert biface. The fill was generally composed of a grainy loam matrix with a mixture of small and large stone inclusions. Many of the large cobbles were a dark amber-red in color, usually with deep, sinuous grooves in their undersides. Some were geodes, and contained cloudy yellow crystals. Approximately 4.5 meters below the plaster surface of the Piscina, we recovered a second plaster floor. This floor was not polished, yet it is difficult to determine if it is a construction or living floor. At least a partial function of the floor is to support the 4.4 meter high construction bin, however. This floor is located approximately 2.4 meters above the floor of the central passageway in structure A-26. Further excavation revealed a retaining wall running north-south in the center of the unit. This wall, composed of densely-stacked, small to medium-sized faced stones, was located 1 meter below the lower plaster floor uncovered in 266M/21, and probably served as its supporting construction wall. The base of the wall rested upon a third plaster surface, a mere 50 centimeters above the plaster surface of the E-W passageway north of A-26. The plaster surface did not lip up to the construction wall, but extended below it across the remainder of the unit. Within the fill of the construction wall, we located several artifacts of interest: a ceramic figurine head with a hooded headdress and earspools, a human upper premolar, and a Benque Viejo Polychrome rim sherd displaying a partial *ahaw* glyph in cartouche. Below this third plaster surface, we encountered a more homogenous, dark fill matrix with small rubble. We uncovered a second sherd displaying an *ahaw* glyph in cartouche in this region. This time, the sherd was identified as a Chunhuitz Orange, of borderline LCI / LCII date (Preziosi 1997: Personal Communication). Approximately 1 meter below the third plaster floor, we uncovered a second construction wall in the eastern quadrant of the unit. Like the construction wall above, it was composed of small to medium-sized stones, approximately half of which were faced. The wall angled slightly to the west, and was densely stacked. We were unable to expose the wall in its entirety however. The stability of the sidewalls was becoming questionable, and so the decision was made to halt excavations at 8.3 meters below Datum 1094.

We did not encounter a plaster floor which specifically correlated to the floor in the E-W corridor north of A-26. This objective was set before we were aware of the sunken plaza which originally stood to the north of A-26, however. Based on the available evidence, it is reasonable to assume that the 50 centimeter difference between the E-W passage floor in A-26 and its nearest floor below the Piscina is of little import, because they were affiliated with different structures. It is possible that the northern floor is on top of a terrace edge which ringed the sunken plaza, but this implies that the terrace edge did not maintain a consistent elevation. It is difficult to determine whether the northern floor was originally utilized as a construction or living floor, since the surface is unpolished and its association to the construction cell is not clear. My tentative hypothesis, however, is that it did serve as a living floor at one time, possibly as part of a platform or terrace surface. In a later construction phase, this surface was utilized as a construction floor, supporting the large construction cell above it. The particulars of the original architecture below the upper terrace remains unknown.

Summary and Conclusions

My excavations on the upper and medial terraces of the Castillo, to the south of A-6, revealed a complex of buildings which served as an access point to the upper reaches of the Castillo, as well as a series of specialized activity areas. The main focus, Structure A-26, was revealed as a building with a minimum of six rooms. The two southern rooms were probably symmetrical, and provided a more public function for the residents of Group C and others who approached the building from the south. The southern entrance probably represented the "front" of the structure. The central passageway of the structure, containing a large, public benched area (Room 2) lead to the more restricted areas to the north. The two main rooms to the north, with their extensive bench structures, may have served a more private function, however the specifics are unclear. Possibilities include audiences, meetings, small banquets, or even private domestic activities. The smaller inset room to the west (Room 6) had the dual function of restricting access from the south and providing more private space to the north. It is possible that a row of adjacent rooms to the west also blocked off access from the south, however they appear to be part of a separate construction episode. It is not clear whether the structures to the west (including A-33) or Structure A-26 were built first. It is clear, however, that they did exist concurrently for a certain period of time. I believe that these structures were abandoned at roughly the same time as well, due to the ceramic evidence. To the east, a separate, low platform was erected, and it is possible that a perishable structure was placed atop it. In a later construction phase, this platform was smoothed out by raising the elevation of the terrace surface surrounding it.

When Structure A-26 and the western structures on the medial terrace were constructed, there were a series of sunken plazas to the north. It is unclear when, exactly, these plazas were constructed, however we know that the northern terraces of A-26 and to the east of A-33 are closely affiliated with them. Due to their disparate elevations, it is apparent that the sunken plazas to the north and northwest are not identical, and are most likely separate entities. Possibly the plazas were divided by a structure running N-S, correlating with the structures located at the base of the Castillo (Leventhal 1997: Personal Communication; Church 1996). In a later construction phase, the upper terrace was placed on top of the sunken plazas and their affiliated structures. This phase probably encompassed several construction episodes, as indicated by the multiple living and / or construction floors located below the large construction bins used to formulate the bulk of the terrace. A rough, inset staircase was placed to the north of the central passageway of A-26, linking the medial terrace to the upper terrace. The placement of the staircase indicates that it was focused not on A-6, but on another structure on the upper terrace. This structure is largely unknown, although it might be affiliated with Structure A-28, an open-tier construction which focused on a sunken plaza adjacent and to the south of A-6. Structure A-28 may have functioned as a feasting or gathering area.

Some time during the LCII phase at Xunantunich, Structure A-26 and the medial terrace were abandoned. A vast array of elite and ceremonial refuse, originating from the upper terrace in the north, was discarded on the medial terrace. It is possible that some of the refuse was actually placed on top or within the structure, due to the close proximity of sherds from individual vessels. Structure A-26, probably roofed with perishable materials, would have been open for this sort of deposition after a relatively short period of abandonment. There is no evidence that the area was later reoccupied.

Instead it appears that, with the abandonment of Group C in the LCII period, the main focus of the structures on the medial terrace had ceased to exist. This evidence provides further credence to the hypothesis that there was a shift in the orientation and focus of the site core during this period (Leventhal, et. al. 1993; Robin 1994:58).

I would like to gratefully acknowledge my crew for the 1997 season: Crew Captain Luis Godoy, Luis Camal-Chi, Roberto, and José, as well as my temporary *ayudantes* Telico and Carlos. I could not ask for a more competent or dedicated group of excavators. Furthermore, I wish to thank Lady Harrington, Jennifer Scarborough, Miguel Medina, Gliss, and Ishmael for the excellent drawings which they provided for the cause. Finally, I am deeply indebted to Dr. Richard Leventhal. Dr. E. Wyllys Andrews V, and the Middle American Research Institute at Tulane University for providing the opportunity to work at Xunantunich. Thanks are also due to Jason Yaeger and the rest of the XAP crew for their unfailing support, advise, and friendship. It was an honor to work with all of them.

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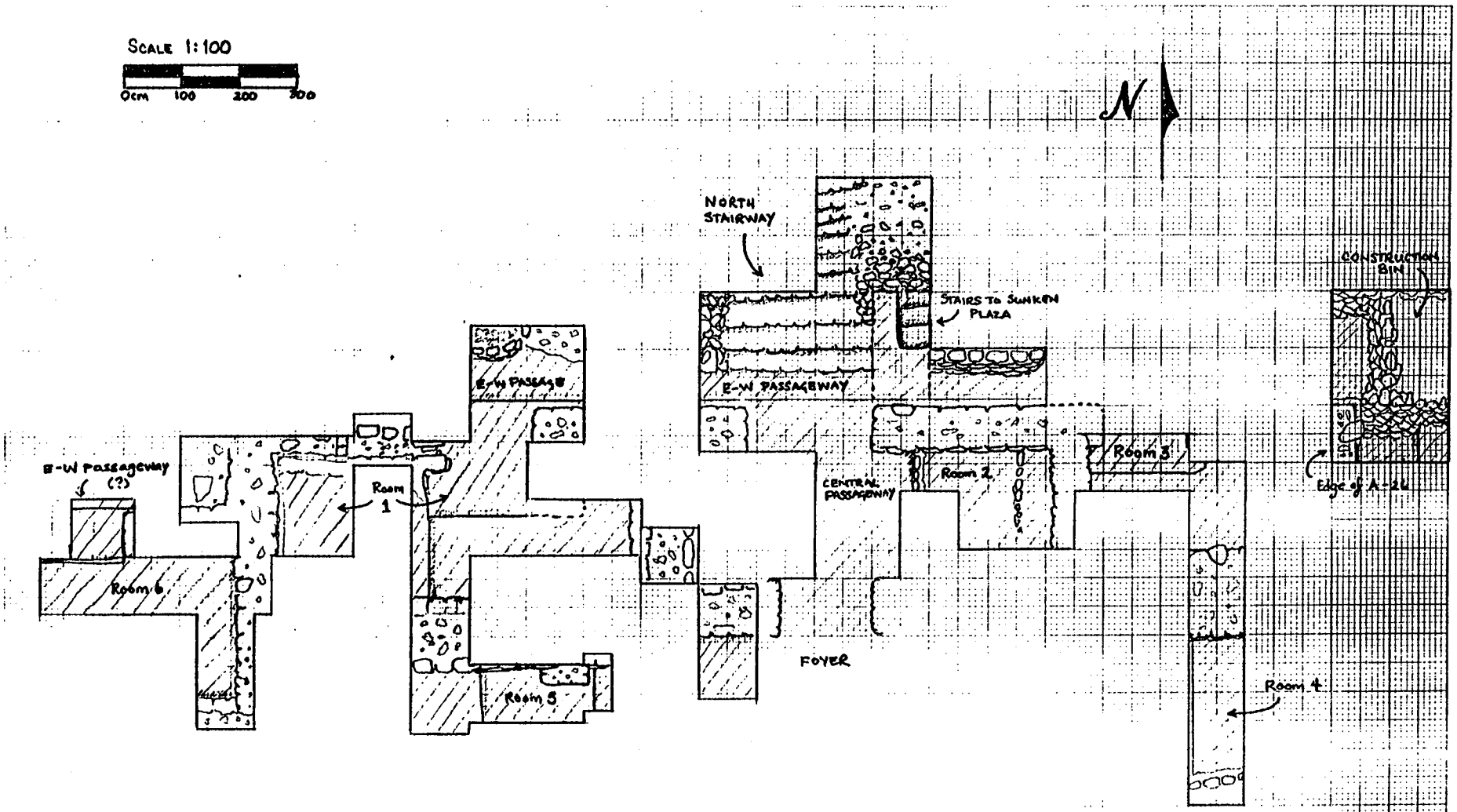
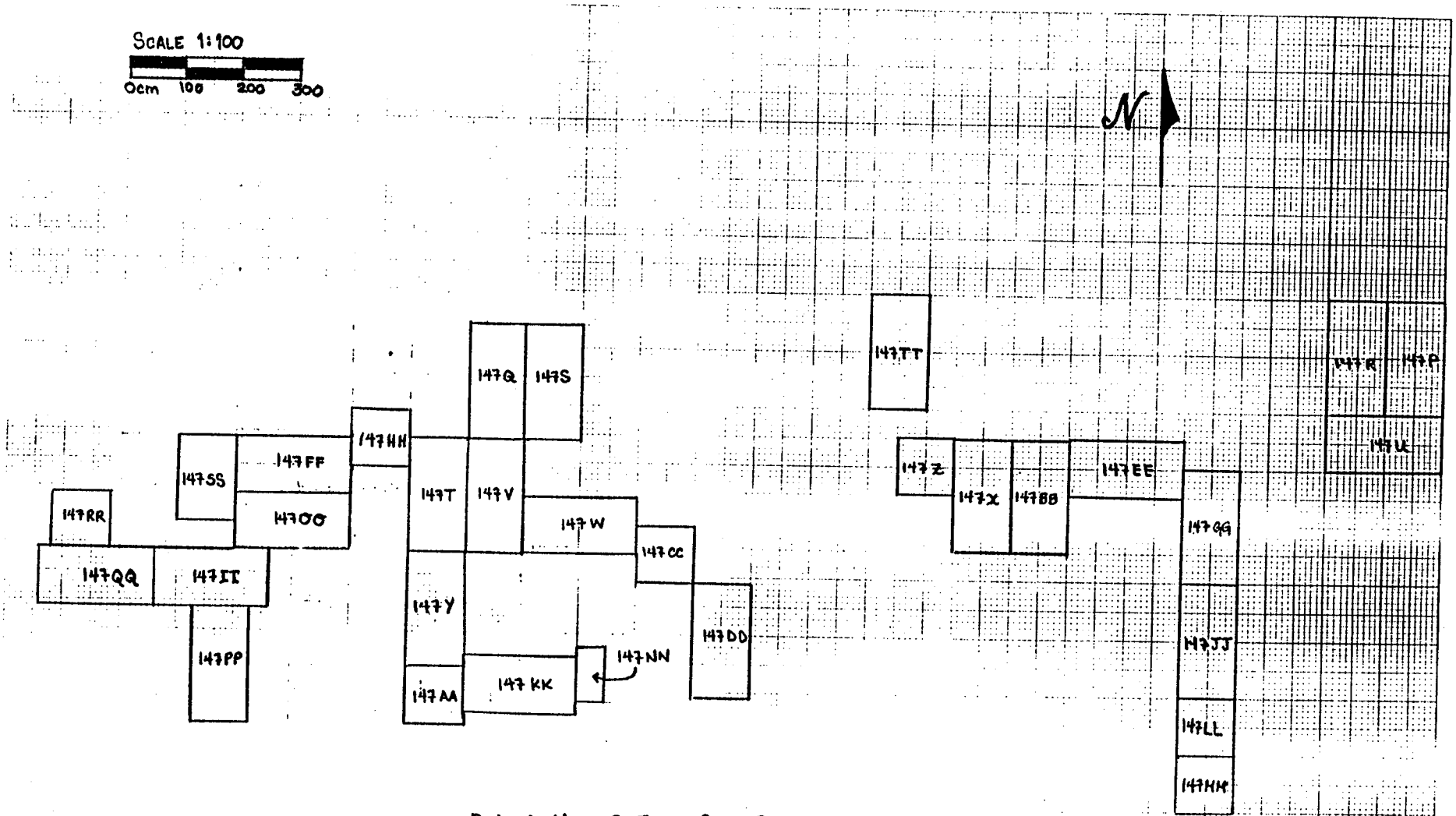


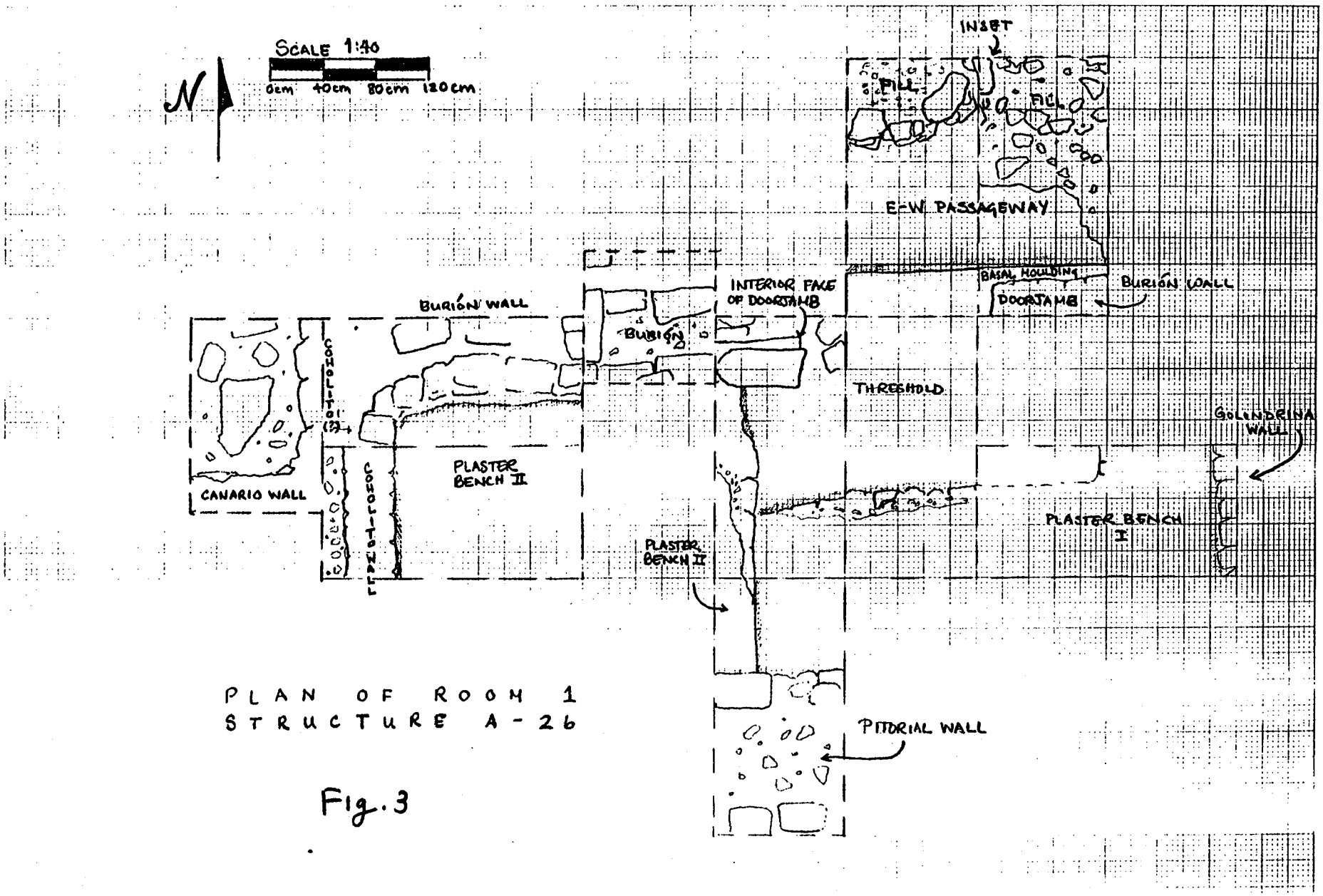
PLAN OF EXCAVATIONS
WITHIN STR. A-26

FIG. 1



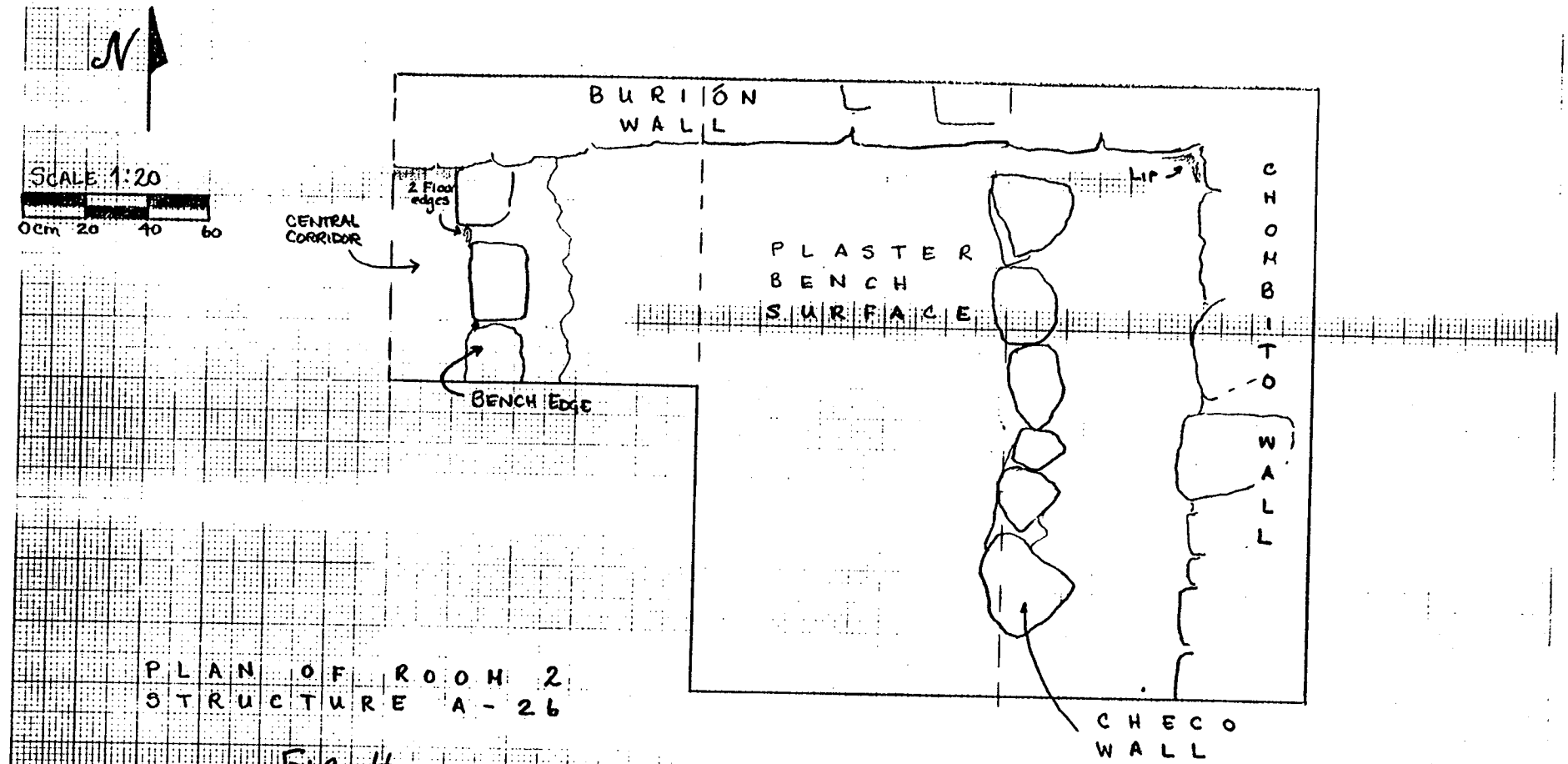
PLAN OF SUBOPERATIONS
WITHIN STRUCTURE A-26

Fig. 2



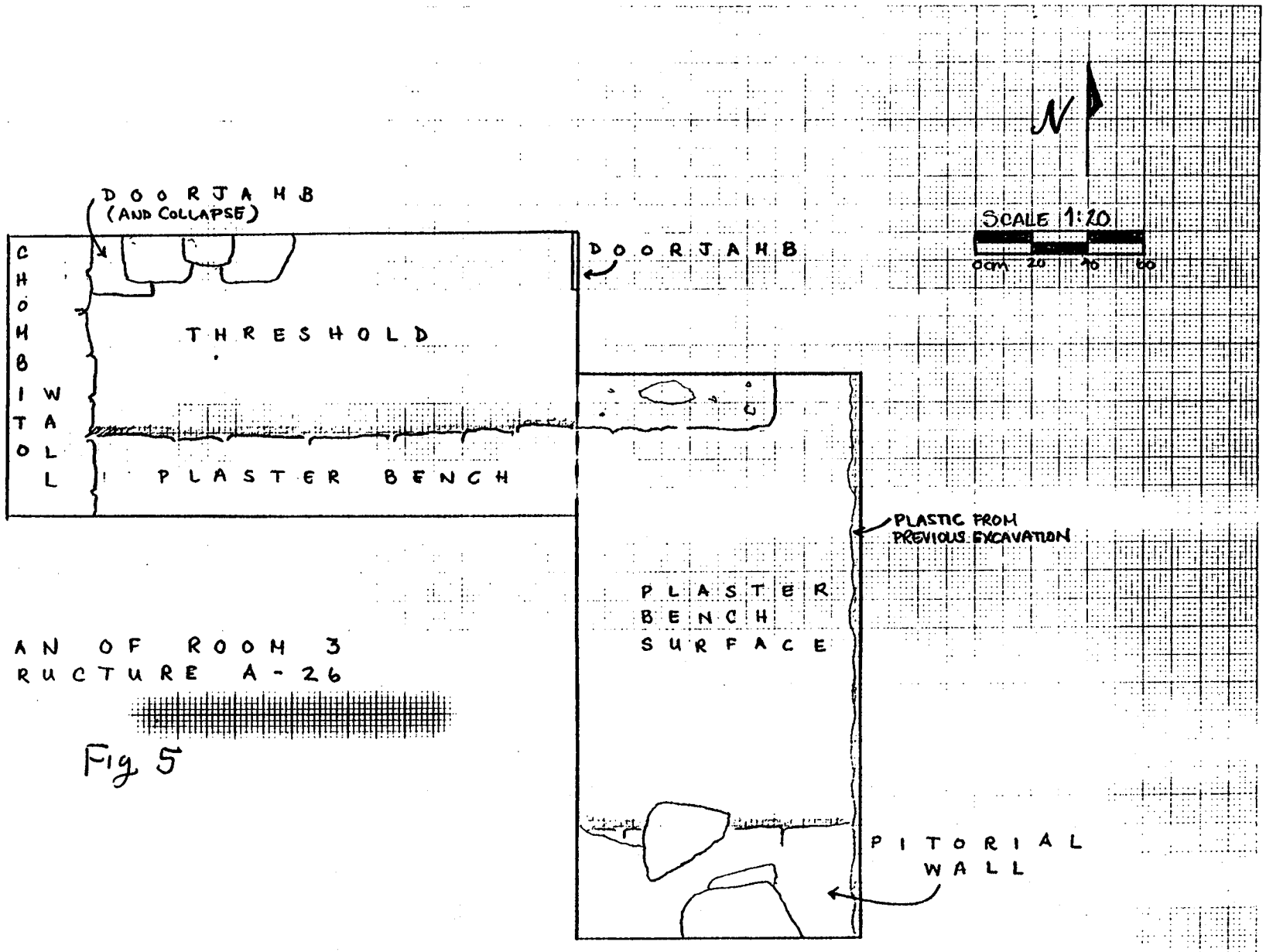
PLAN OF ROOM 1
STRUCTURE A-26

Fig. 3



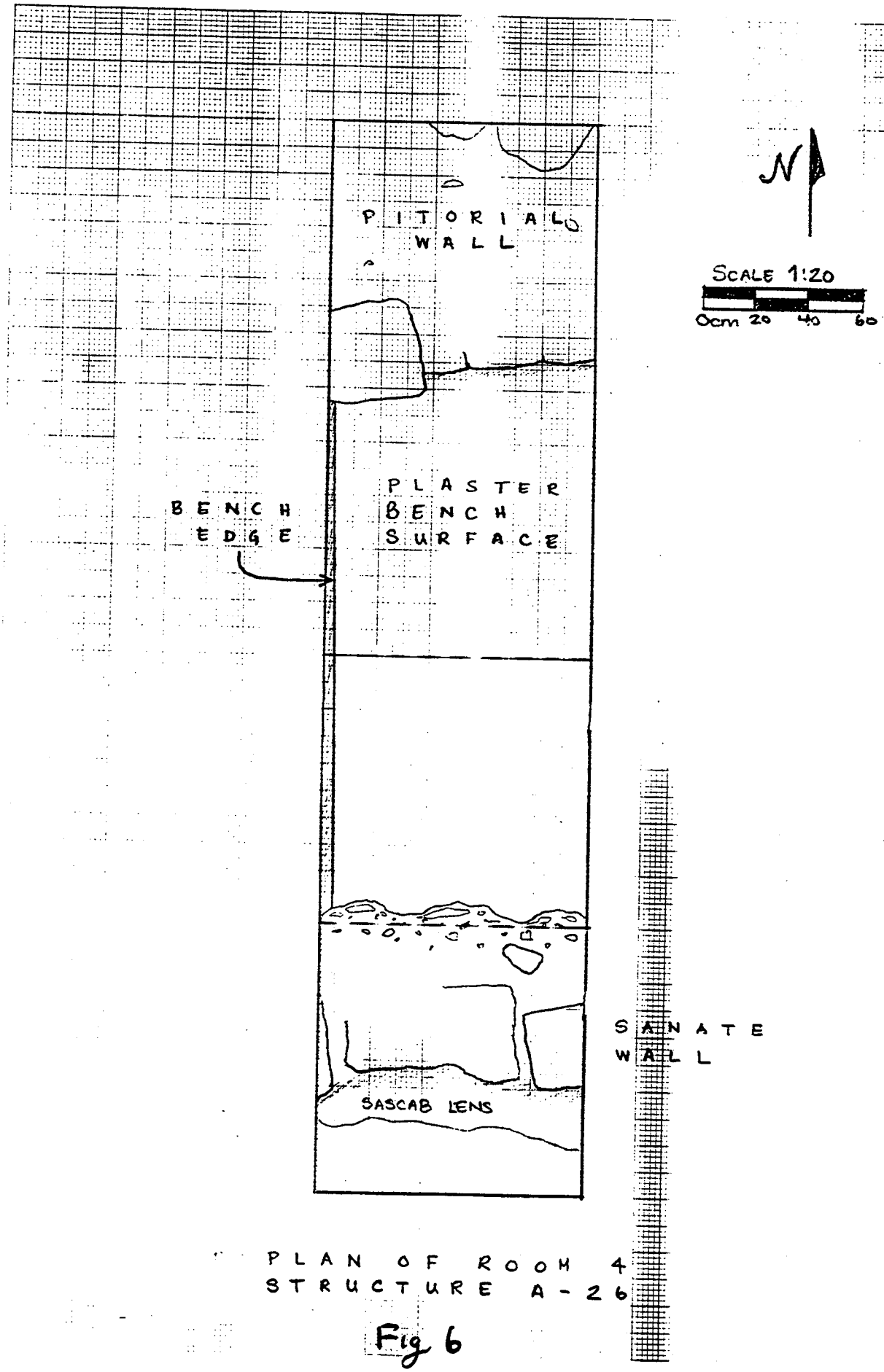
PLAN OF ROOM 2
STRUCTURE A-26

Fig. 4



PLAN OF ROOM 3
STRUCTURE A-26

Fig. 5



PLAN OF ROOM 4
STRUCTURE A-26

Fig 6

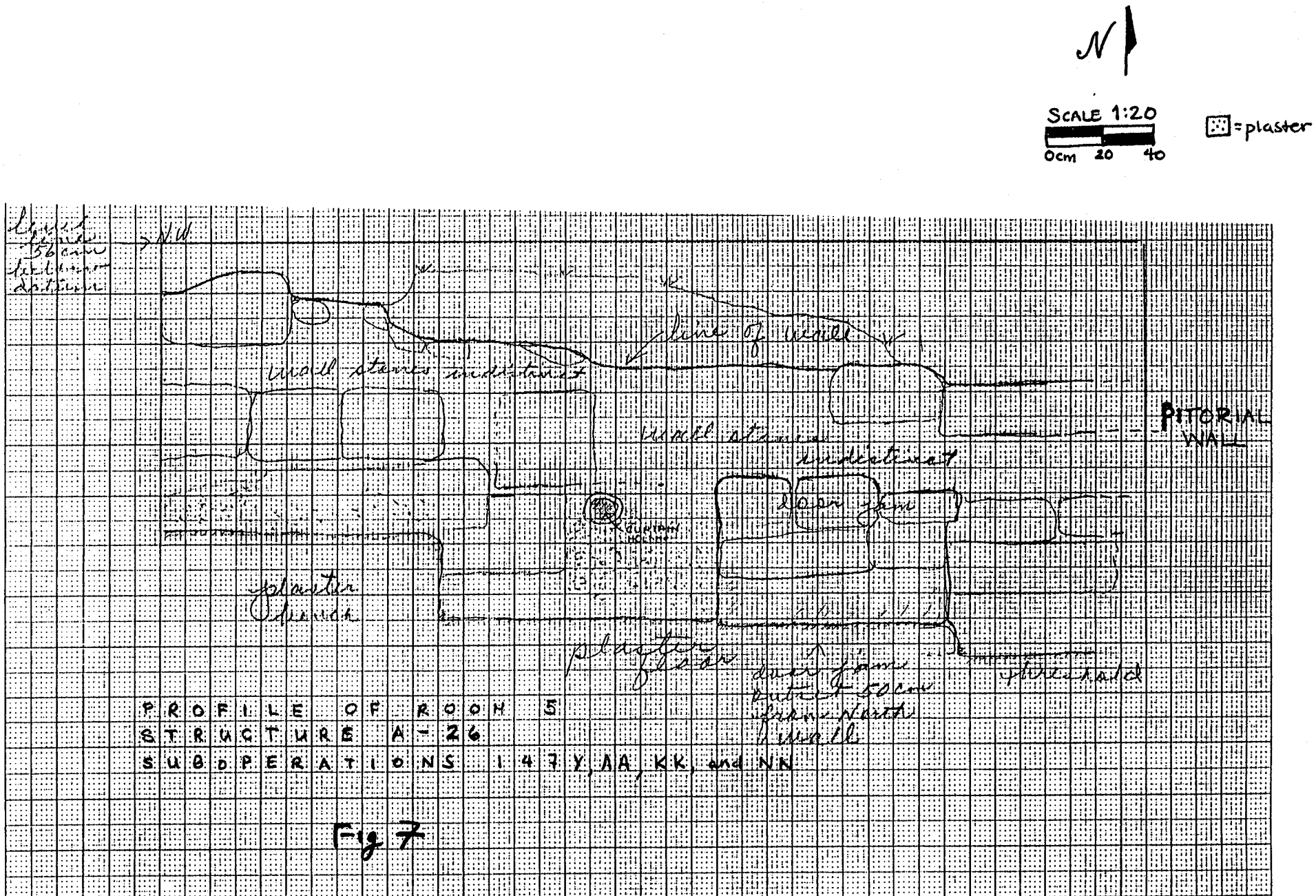
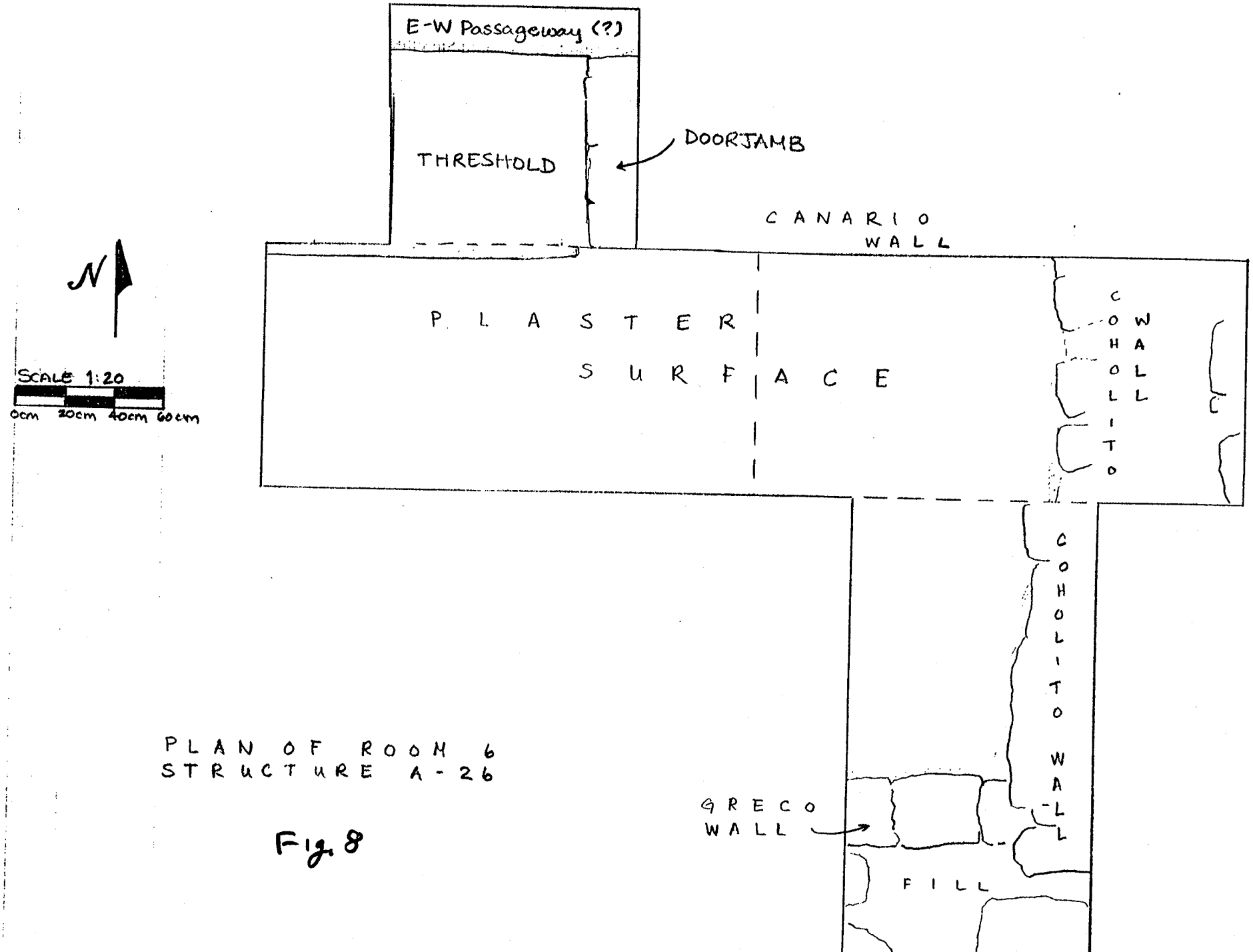

N
SCALE 1:20
0cm 20 40
= plaster
NW
line of wall
wall stones indistinct
wall stones indistinct
door sill
PITORIAL WALL
plaster
plaster floor
door frame
door 50cm
from north
wall
threshold
PROFILE OF ROOM 5
STRUCTURE A-26
SUBOPERATIONS 147Y, AA, KK, and NN

Fig 7

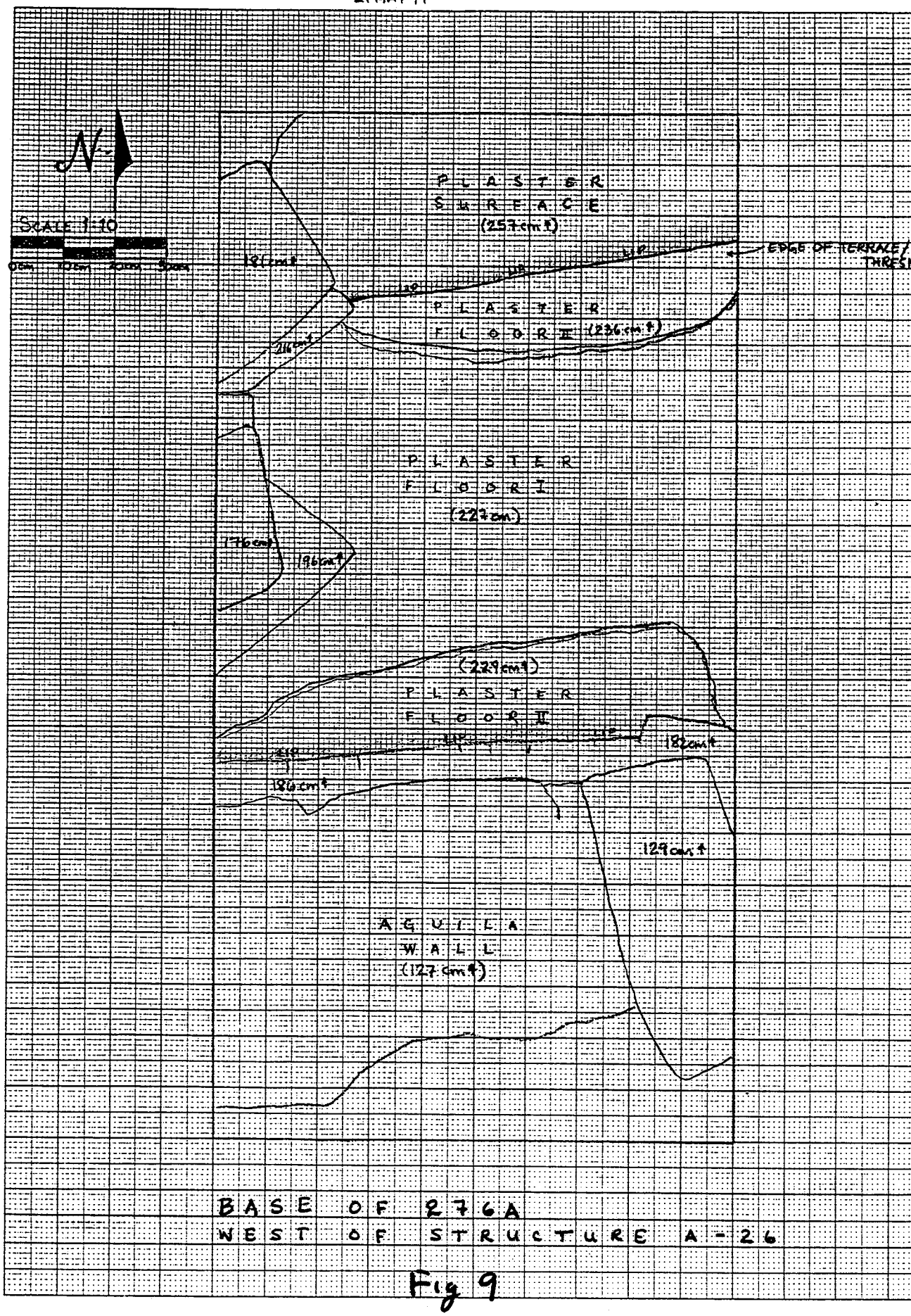


PLAN OF ROOM 6
STRUCTURE A-26

Fig. 8

BASAL PLAN, ETC.
XUNANTUNICH, WEST OF STR. A-26
DATUM 1117

RLH 97.93
Rebecca Hays
21 MAY 97



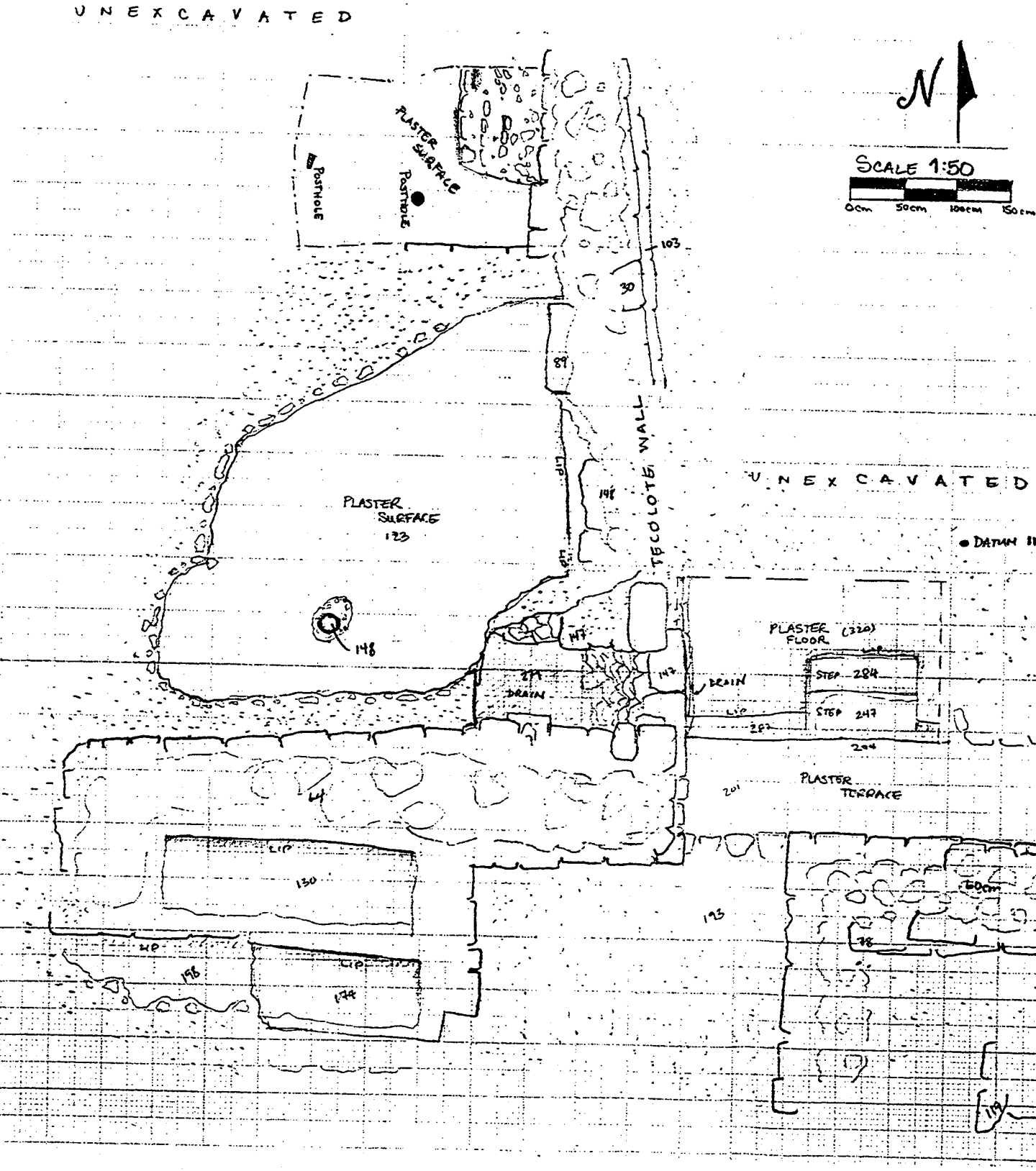
BASE OF 276A
WEST OF STRUCTURE A-26

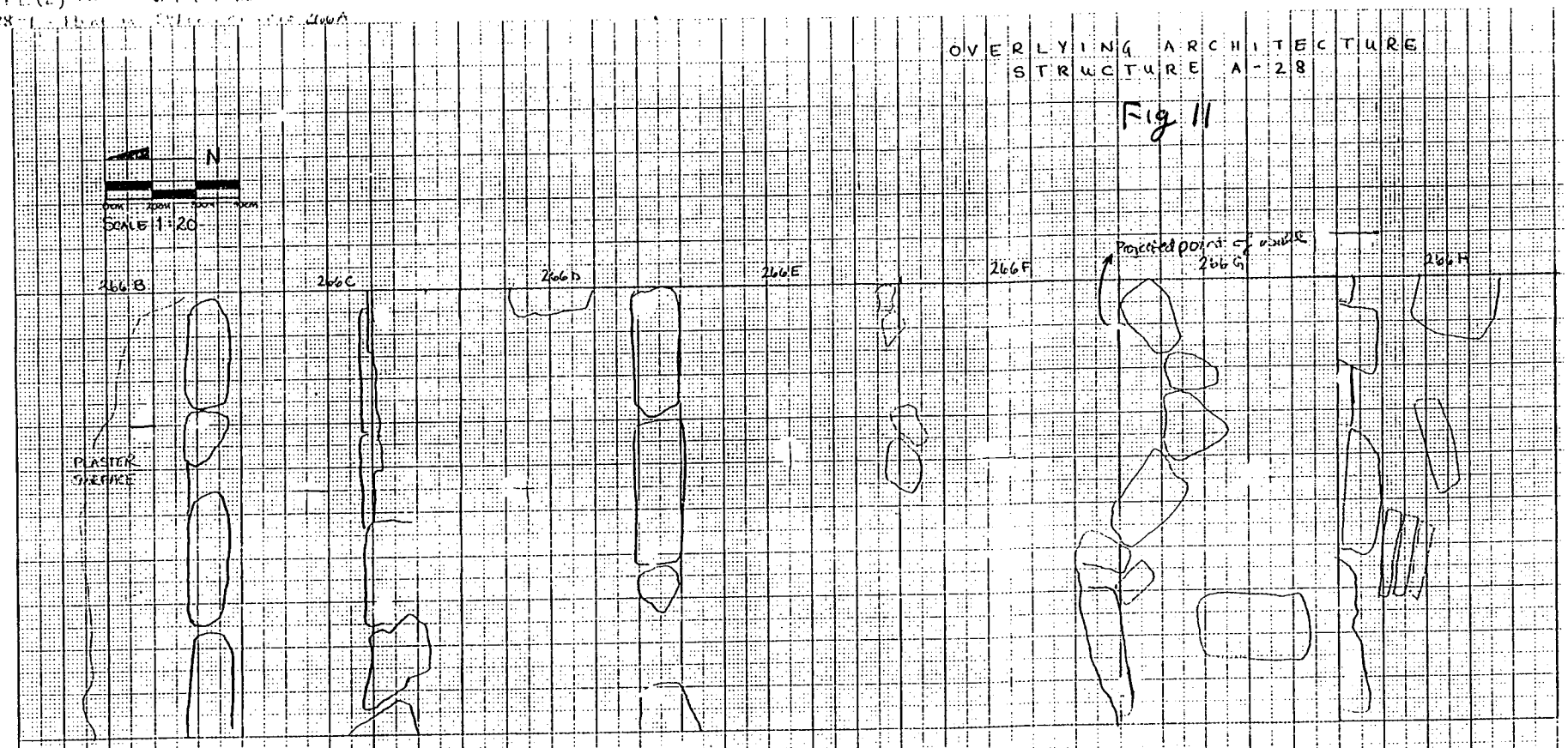
Fig 9

PLAN OF VISIBLE ARCHITECTURE, WEST OF A-26 & STR. A-33
XUNANTUNICH, ANDERSON'S EXCAVATIONS SOUTH OF CASTILLO
DATUM 1144

RLH 97:121
Rebecca Hays
04JUN97

Fig 10




OVERLYING ARCHITECTURE
STRUCTURE A-28
Fig 11
N
SCALE 1:20
266B
266C
266D
266E
266F
266G
266H
PLASTER SURFACE

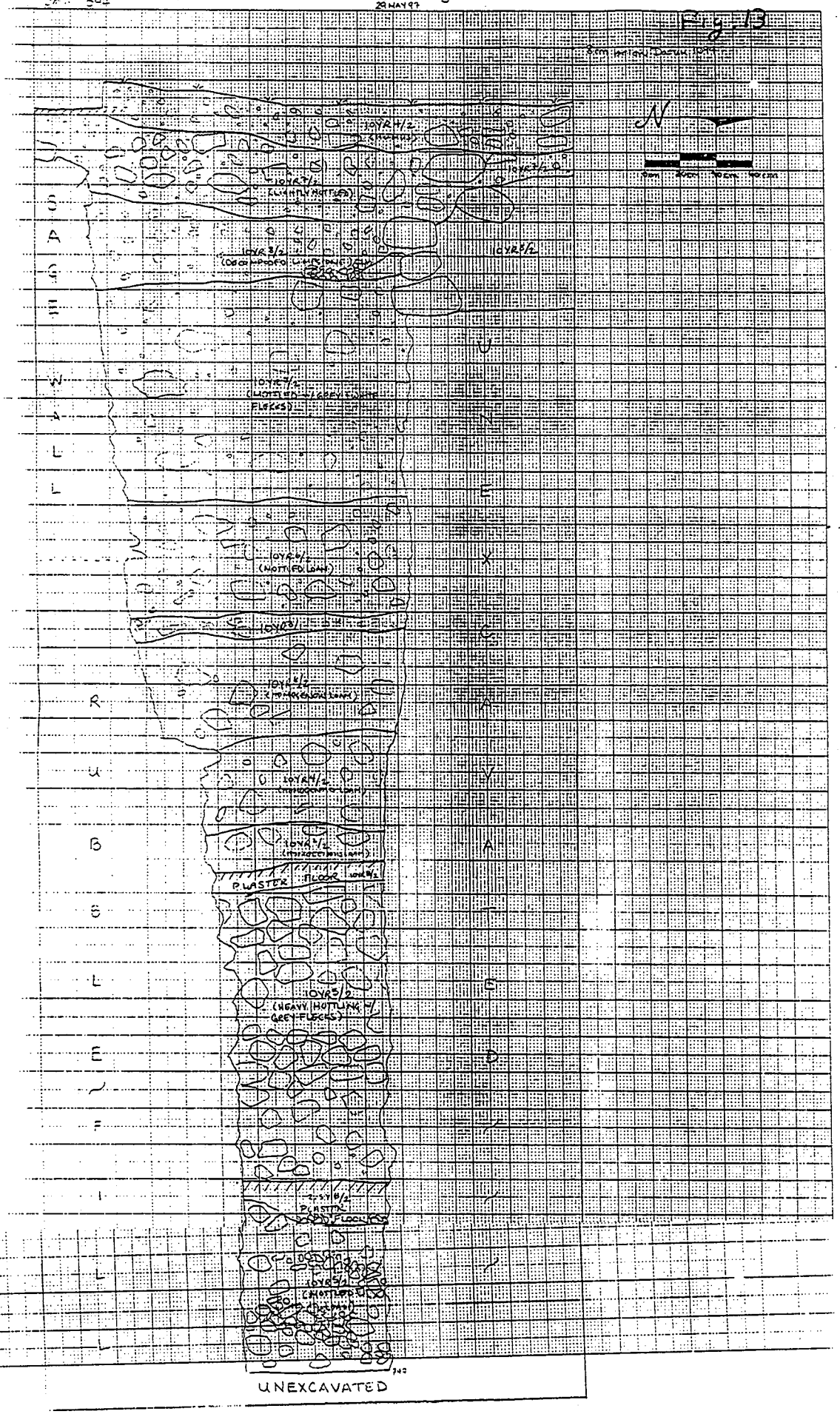
SUBSTRUCTURE
STRUCTURE A-28

Fig. 12

WEST PROFILE 266M

RLH 97:99
Rebecca Hayes
28 MAY 97

Fig. 13



Xunantunich, Str A-28
Datum 10M
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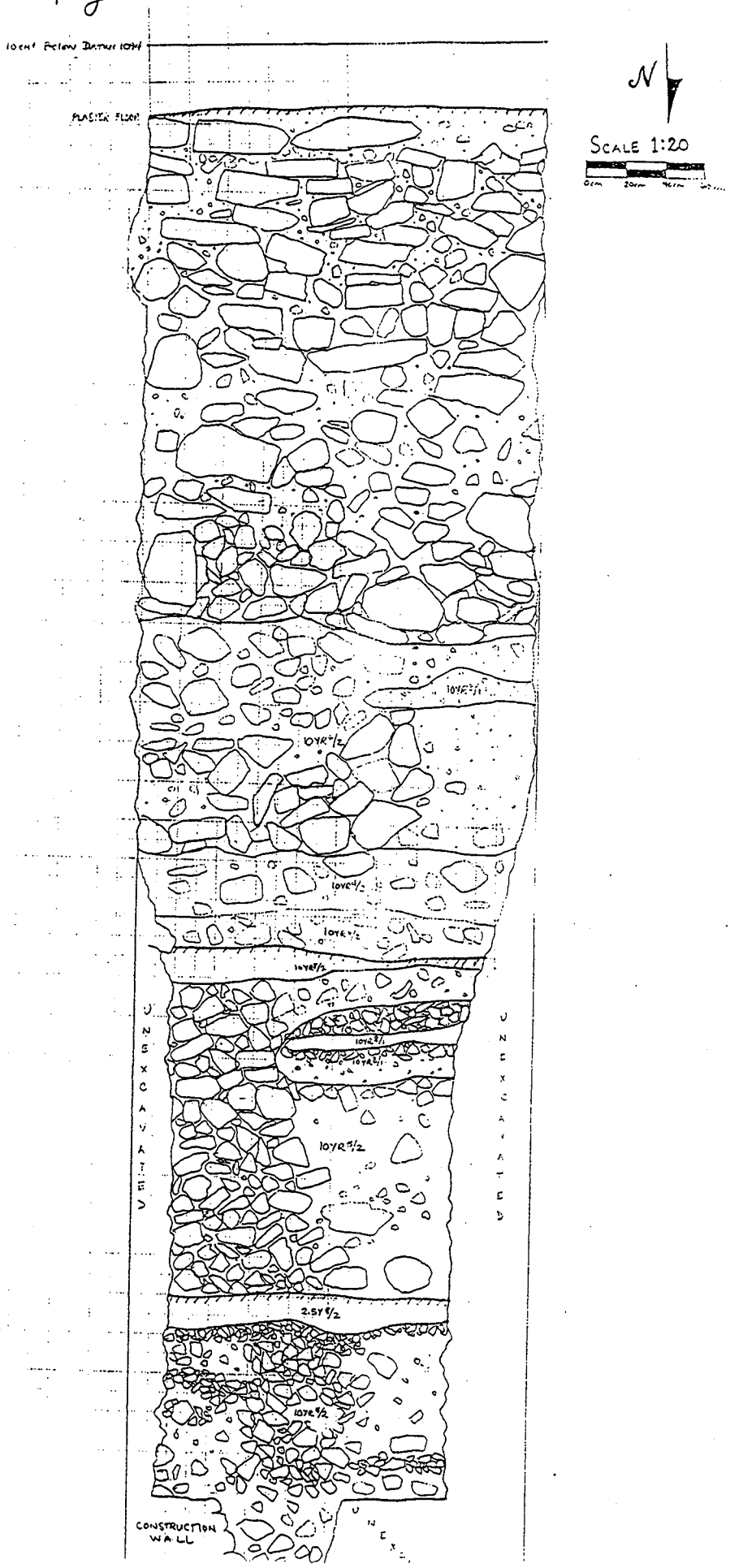
Fig. 14



Testing and Excavation around *Sacbe* II and Group C

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As the final year of excavation for the Xunantunich Archaeological Project (XAP), 1997 also marked the end of the author's sub-project attempting a formal spatial analysis of the site plan and roadways of Xunantunich as they changed over time reflecting social, political, and symbolic planning principles. This work began in 1993 with the completion of the Xunantunich site core map, and the discovery of a previously unknown ancient road (*Sacbe* I) linking Groups A and D (Braswell 1993; Keller 1993; see Figure 1). In 1994 excavation began along *Sacbe* I, tracing it through disturbed areas where the roadway was "invisible" in surface survey (Keller 1994). Work continued on *Sacbe* I in 1995 at the *sacbe* turn (under the modern access road to the site) and at the threshold where the roadbed enters Plaza A-I in Group A (Keller 1995b). In 1995, we also expanded the research area to the north and uncovered an independent access feature, the Northeast Access, (see Figure 1) composed of a series of plastered terraces originating to the east at a stepped C-shaped patio group and terminating in a monumental staircase opening onto Plaza A-II. After a year's respite, in the 1997 season we completed testing and targeted excavation in the western (*Sacbe* II and Str. A-21) and southern (Group C) portions of the site core, thereby gaining the areal coverage necessary for an analysis of the site plan as a whole.

Presented below is a synthesis of the theoretical and methodological precepts of this project as a whole, as well as a review of some of the more significant material findings from 1993 to 1997. Much of this year's testing, excavation, and materials analysis work is included in the synthesis. More specific details and some unexpected, tangential findings are presented in the brief Operation Summaries at the end of the report.

Theoretical Introduction

Many current interpretations of the Classic Maya postulate that the site plans of ancient Maya centers carried symbolic significance and fostered certain forms of movement and activity (e.g., Ashmore 1991, 1995; Carlson 1981; Coggins 1980; Demarest 1992; L. Jones 1993a&b), and yet those significances and activities are stubbornly difficult to document. Archaeologists are faced with a paucity of *in situ* artifacts, and a minimum of correspondence between one Maya site plan and another. Conceivably, we must look beyond the present theoretical boundaries of Maya archaeology. As documented through spatial analysis in other culture areas (e.g. Bourdieu 1973; Donley-Reid 1990; Hillier & Hanson 1988; Rapoport 1990; Thomas 1991; Tilley 1994), the orientation and manner of site access and flow (human movement patterns) should have shaped ancient visitors' appreciation the symbolic ordering of space, and regulated their movements and activities within that space. Thus, the archaeological investigation of site access and flow patterns in the public core of Xunantunich offers a novel means of recapturing the activity and symbolism that must have characterized an ancient Maya center as it rose to prominence and eventually collapsed.

Archaeologically, ancient movement is most readily retrievable where it is architecturally directed, as at Maya public centers where walkways, stairways, and walls channel the flow of human concourse today as in the past. Of these, ancient roads constructed of stone and plaster are the most recognizable in the Maya area. To date, excavations along the roads and peripheral public access and plaza spaces of

Xunantunich have documented new access avenues and roads, and *possible* locales of feasting, ritual, and market trade (Keller 1994, 1995b; see also S.Chase 1992; LeCount 1996) (Figure 1). Further, by focusing upon the *in-between* access and communication spaces, we have identified a previously unrecognized cruciform site plan formed by the intersection of roads and plazas, and marked at each of the four ends and in the center with structures (Figure 2).

The Xunantunich Core

Late Classic Florescence

Over a period of scarcely more than 200 years (ca. AD 650/700-900; LeCount's Late Classic II, or **LCII**, phase), the core architecture of Xunantunich was built or substantially remodeled (LeCount 1994; Leventhal 1994). An important component of this LCII phase remodeling appears to have been a program of architectural and landscape modification which reoriented human access and flow patterns, and established a monumental new site plan (Keller 1995a). By focusing upon the non-mound, surrounding, and connecting spaces a clear site pattern emerges (Figure 2)

In the hypothesized LCII plan, the *Castillo* (the largest and most complex pyramid at the site, topped by Str. A-6) became the central pivot of a cardinally-oriented cross, with public plazas and patios forming the north-south axis, and *Sacbeob I & II* forming the east and west arms, respectively. Masonry constructions mark the perimeter of the site core to the north (Str. A-11), south (Str. C-8), east (Str. A-15 and Group D), and west (Str. A-21). Following Ashmore's (1991) directionality model of site planning, the perimeter "end point" structures and east-west running *sacbeob* may have carried a suite of symbolic significances tied to the supernatural principles of "up" (north) and "down" (south), and the east-west daily circuit of the sun (see also Coggins 1988). Further, the Castillo and Structure A-6 standing at the center of the site where all 'roads' meet, may also have been a cosmological "center place" where worldly and otherworldly realms intersect (Freidel, et al. 1993:123-172). As the "up" position, or the celestial place of the ancestors, the north seems an apt location for the Xunantunich rulers' residence as identified by MacKie (1985) in Plaza III, Structure A-15. While supporting the overall model, this end point has not been investigated as it seems an unlikely candidate for a public access judging from the precipitousness of the approach from the north, and the enclosed nature of Plaza III (i.e., the only access to the royal residential complex, Plaza III, is from the *interior* of the site, from Plaza II). Investigations of the eastern area were completed in 1995 (Keller 1994, 1995b), and the southern and western areas were tested this year (see Figure 2).

Attached to and aligned with this basic cruciform plan is the Northeastern Access, underscoring the importance of "traffic" from the Belize River Valley which would likely have entered from that direction (Figure 1). The accessway is composed of a series of plastered terraces originating to the east at a stepped C-shaped patio group and terminating in a monumental staircase opening onto Plaza A-II. This entrance appears to have been the primary access point into the site in Late Classic times, designed to funnel large numbers of visitors around residential spaces and into the heart of the public core. Low and unwalled, the terraced Northeastern Access is arguably different from the formal, raised and walled *sacbeob* which form the east-west axis of the Xunantunich cross. In contrast, the two formal *sacbeob* of Xunantunich do not seem to function principally as public access points, and *Sacbe* I is actually *closed* to

access from all but the main plazas in Groups A & D. At least at Xunantunich, the construction and use of *sacbeob* seems to have little to do with communication (economic, political, social, or otherwise) between the site center and its greater sustaining area. The communication the *sacbeob* foster is clearly internal, and possibly ceremonial, in character.

Terminal Classic Disintegration

During the Terminal Classic period (ca. AD 900-1000, LeCount's Terminal Classic, or TC phase), changes occur throughout the site, and at the public access/communication areas in particular, that underscore the significance of these spaces for the continuing coherence and prosperity of the Xunantunich polity. While at surrounding communities like San Lorenzo (Yaeger 1994, 1995) and Chaa Creek (Connell 1994, 1995), TC occupation and construction are ongoing, albeit reduced, at the Xunantunich center the reduction is much more profound (Braswell, et al. 1994). TC phase material in the site core is often no more than a thin veneer of trash, and only a handful of walls and modest additions to intact LCII structures may date to the TC period (Braswell 1994; LeCount 1994; Leventhal 1994, 1996; MacKie 1985). Simultaneously, access to the site was radically diminished, and formerly significant activity areas simply ceased to function. Heralding the decline of the Xunantunich regime, public communication spaces and accessways were some of the first areas to be systematically abandoned (S.Chase 1992; Keller 1995b) (Figure 3).

In the course of extensive excavations in the Northeastern Access area, we encountered minimal TC phase material. Additionally, many of the large finely cut blocks used as facing stones in both the lower eastern patio areas and the North Stairway were removed by the Maya, possibly for use in construction elsewhere. Finally, upon abandoning the northeast, the Maya seem to have made an effort to formally close the area by removing a cache from the western structure (Str. 2) of the C-shaped patio group (Keller 1995a&b). This cache-removal pattern in the TC period has also been noted in excavations at Chaa Creek (Connell 1995) and San Lorenzo (Yaeger 1995).

Concurrently, the Group C area (south of the Castillo), *Sacbe* II and Str. A-21 were apparently abandoned, as very little TC phase material has been found in these locations (S.Chase 1992; Keller 1994). Excavations in Structures C-2 & C-3 found a familiar pattern of facing-stone removal, along with a high incidence of stone quarrying tools and waste, possibly discarded during the reshaping of scavenged blocks (Church 1996). Excavations at Str. A-21 this year revealed a similar scenario. The eastern (front) stair was in an exceedingly poor state of preservation, and did not appear to contain enough stone material (collapsed and in-place) to reconstruct the staircase. The upper platform lacked the fine limestone cut blocks which consistently face site core architecture at Xunantunich, leaving only what appear to be roughly made "construction" walls erected before the final facing stones. Strewn amidst this destruction were several thick bifaces which may have been used in the dismantling of the building (cf., Eaton 1991; Woods & Titmus 1993).

The majority of TC activity that we can identify seems to have occurred in Plaza I and its surrounding structures, effectively reducing the accessible, usable space of the site core to a fraction of its florescent LCII size. At this time the monuments that line

the south side of Str. A-1 may have been set (or re-set) in a pattern similar to the rows of re-set monuments found in the Great Plazas of Tikal, Guatemala (Satterthwaite 1958) and La Milpa, Belize (Hammond & Bobo 1994). The only access avenue remaining in use through the TC period appears to have been *Sacbe* I, a walled, raised roadway connecting the site core with the largest outlying elite residence, Group D. This causeway though, provided no access from the outside as the only entry points onto *Sacbe* I are from Groups A and D (Keller 1994). Constricted and dismembered, the center of Xunantunich apparently placed its future in an internal alliance between the royal core lineage and the lineage of Group D, and literally shut out the rest of the world. After 50 to 100 years of this existence, the city closed down all together (ca. AD 1000).

Spatial Analysis: Directional Symbolism

Both the apparent contemporaneity and the relative simplicity of the core architecture at Xunantunich, make the site an ideal location to test principles of Maya site use and planning (cf., Ashmore & Sabloff, n.d.). Initially, the coherence of the LCII cross-plan appears likely on the basis of probable contemporaneity, remarkable symmetry, and shared orientation and alignment. Further, Structures A-11, A-15, A-21, and C-8 are at the actual *edges* of site core architecture. They stand as the physical and symbolic boundary markers of the ceremonial and civic core.

If the cruciform pattern identified at Xunantunich was in fact deliberate and cosmologically significant, we should expect to find artifacts and architectural configurations that symbolically reference the metaphoric concepts of north, south, east, and west associated with it (cf., Ashmore 1991; Coggins 1988). Structures, artifacts, and iconography to the west and south might explicitly use underworld and death imagery and associated concepts. Similarly, to the east and north we should expect references to the celestial upperworld, ancestors, and rebirth. While more analysis of the whole plan is required, preliminarily the east-west axis defined by *Sacbeob I* and *II* seems to carry recognizable referents to the cosmological principles of life and renewal (east) and death and underworld (west).

Sacbe I is a 20 meter wide and roughly 300 meter long road elevated .5m to over 1m in external height, that connects Plaza A-I of the site core with the largest outlying elite residential complex, Group D (see Figures 1&2). Centered upon a pyramidal ancestral shrine, Structure D-6, Group D was likely the residence of a long-lived local elite lineage who were integrated into the new Late Classic plan, but in a curious manner. The north-south running leg of *Sacbe* I makes several slight adjustments in alignment to hit the (possibly pre-determined) turning point, while the east-west leg runs straight. This course takes the road into what is today a seasonally-inundated, clay-filled basin at the base of a natural drainage. Water was likely trapped behind the *sacbe* to the southwest creating a small *aguada* (reservoir), and a water management problem which may have eventually flooded the *sacbe* (see Keller 1994, 1995b). Apparently, the importance of this alignment overshadowed these difficulties.

Sacbe II is a 20 meter wide road running 138 meters west from Plaza A-I to Structure A-21, a platform without any apparent superstructure. The western-most building of the site core, Structure A-21 boasts a nine-stepped front stair, alluding to the nine levels of the underworld described in Maya cosmology (cf. Freidel, et al. 1993:216

fig.4:28; also see, Coggins 1980, 1988). Following Ashmore's (1991) proposal that ancient Maya centers physically represented basic cosmological principles, at Xunantunich west seems to have been the direction of the underworld and death. By extension the east place, occupied by the *Sacbe* I turn and adjacent *aguada*, may have been the direction of life and rebirth (see also, "Artifact Analysis" section below). The east-west passage of the sun, emerging from the east and setting to the west, seems to be the primary referent here (cf., Ashmore 1995). Significantly, at the junction of *Sacbe II* and Plaza I stands the primary Late Classic ballcourt (Strs. A-18 & A-19), putative location of ballgames, royal battles of power fought to the death. While not fully understood, the juxtaposition of *sacbe* and ballcourt is a common pattern observed at sites as close as Baking Pot, Belize, and as distant as Sayil, Mexico and Seibal, Guatemala (cf. Scarborough & Wilcox, eds. 1991). Gillespie convincingly argues that ballcourts and ballgames are liminal constructs, both literally and metaphorically, tied to the cosmic cycle of death and rebirth as it unfolds in agricultural, political, and other arenas (Gillespie 1991). Further, ancient ballcourts were known as *hom*, meaning "ballcourt" and "cemetery" in Quiche, and "perforated" or "gate/hole" in Yucatec, amplifying the potential underworld, death, and portal-like transitional qualities of ballcourts, the ballgame, and by association, *Sacbe II*.

Archaeological Testing

Protocols & Methods

Trained archaeological crews (two persons each), hired locally, performed all excavations. Excavations were gridded to magnetic north, or aligned with the main axis of architecture, and initially partitioned into units not exceeding 2x2 meters (generally 1x2m or 2x2m) for provenience control. To ensure comparability with previous research, all excavated material was screened through 1/4" mesh, and all artifact types recovered. In special contexts such as ritual deposits and lithic production loci, material was screened through 1/8" or finer mesh, and appropriate samples for botanical and chemical tests taken. XAP has the facilities to float soil samples in the field, and to retrieve and store most common sample types. Post hole tests were conducted by the same trained excavation crew members using manual post hole diggers. As in other excavations, all material was screened through 1/4" mesh, and all artifact types sorted, counted, and collected in the field. All field data, notes, and inventories, were entered into the existing XAP database, and related to analysis databases.

Equally important for this spatially-oriented research was the ongoing mapping and provenience recording using a Topcon Total Station with data collector along with the *GenericCADD* (computer-aided drawing), *Surfer* (topographic interpolation), and *Paradox* (database) programs. Using these tools, all new structural features, excavation units, datums, and post hole test probes were recorded and mapped electronically. Combined with detailed scale field drawings, this data allowed the immediate analysis of new structural areas, as well as accurate point plotting and contour modeling of artifact distributions (cf. Whallon 1984; Wandsnider 1996; see also Figures 3 & 11).

Finally, analyses of all ceramic and flaked lithic artifacts, as well as more limited studies of other artifact classes recovered from these excavations will form a large portion of the original data necessary for a reconstruction of site planning and use. At the termination of the 1997 XAP excavation field season, all washed and sorted artifacts were transported to a house/laboratory rented in the neighboring town of San Ignacio.

All materials were catalogued, and detailed analyses of ceramic and lithic materials initiated.

For ceramic materials I followed LeCount's (1992, 1993, 1994) combined type-variety and formal (modal) analysis. Using features from LeCount's (1992), Preziosi's (1996), and Yaeger's (1996, unpublished) ceramic analysis databases, I created a distinct but fully compatible database. All sherds were sorted by paste, temper, decorative and surface treatment attributes, and identified to ware group, type and variety when possible (type-variety and ware names follow Gifford 1976, with additions from Sabloff 1975, and LeCount 1996). Rim sherds were further identified as to vessel form (dish, bowl, vase, jar, drum, etc.) using the types established by Sabloff (1975:22-27). Previously identified lip and rim details with temporal or spatial significance were noted (e.g. the microseriation of Mt. Maloney incurving bowl lip forms, LeCount 1992:135, fig.4), along with other possibly significant varieties of lips, rims, vessel curvature, flanges, ridges, angles, spouts, handles, feet/stands, and bases. Within each provenience (*lot*) groups of like sherds were counted and weighed (all weights obtained with a portable electronic balance accurate to the tenth of a gram (0.1g)). A type collection of diagnostic and unusual sherds was culled from the total sample, and documented in greater detail (profiles and reconstruction drawings, photographs, and descriptions including Munsell color codes). Finally, in all refuse contexts (*lots*) and a comparative sample of fill and fall contexts, sherds were visually sorted into 6 size classes (0-2cm, 2-4cm, 4-6cm, 6-8cm, 8-10cm, >10cm) using a gridded sheet, and counted and weighed. This data, along with a subjective assessment of the degree of erosion (scale of 1-5), will be used to compare and characterize each of the refuse locales with regard to the depositional and post-depositional factors.

Lithic analysis has been more rudimentary, as a majority of activities anticipated do not include flaked stone tool production or retouching. A significant exception to this assumption, though, is the dismantling of masonry buildings, possibly for the purpose of scavenging construction materials (see "Terminal Classic Disintegration" discussion above). This would require flaked stone chisels, axes, and other stone tools and the occasional refurbishing of these, evidence of which might be found in the uppermost *lots* on and around apparently dismantled buildings. All formal tool types and cores, as well as all flakes with retouch or use-wear scars (evident without magnification), were weighed, measured, and documented separately. Tools and cores were assigned to VandenBosch's (1997, personal communication) previously identified tool types and/or classification scheme when possible (see also, Hester & Shafer, eds. 1991). Where applicable, tools, cores, and utilized/retouched flakes were evaluated for several attributes: raw material type, color, and coarseness, amount of cortex present, number of dorsal scars, termination type, *erailliure* scar and/or platform lipping, thermal alteration, type and location of retouch and/or utilization. All other flakes and debitage were sifted through graduated screens for size class assessment, sorted on the basis of amount of cortex present (0-25%, 25-50%, 50-75%, 75-100%), and finally sorted formally into chunks, shatter, flakes, and blades. Combined, these analyses should yield a picture of the nature of flaked stone use and production (or lack thereof) on and around key structures and spaces.

In addition to these detailed analyses, I also catalogued, measured, weighed, described, and, where applicable, identified all modern (glass, metal, etc.), groundstone,

slate, other stone (sandstone, jade, hematite, pyrite, etc.), and shell artifacts. Important, diagnostic, and unusual artifacts were also drawn and photographed. More detailed analyses requiring special facilities or expertise, such as lithic microwear analyses, will be completed by specialists on limited samples of materials returned to the US for that express purpose (pending export permits in 1998).

Artifact Analysis: Chronology & Activity

The primary objectives of the combined ceramic, lithic, and other materials analyses are the chronological assessment of construction and refuse, and a functional description of the areas under study. Temporally diagnostic ceramics form the basis of chronology, while lithic and other materials occasionally offer additional support for a temporal assignation. Functionally, the types and frequencies of artifacts in refuse deposits and scattered over structures and plazas, may vary predictably depending on the general type of space (public vs. domestic), and the specific activities performed there (e.g., craft production, feasting, ceremonial performance, cooking).

Unfortunately, large-scale public activities like festivals, markets, processions, and dances, should leave little to no archaeologically retrievable remains. Many items we might use to reconstruct public activity at ancient Maya centers are either extremely perishable (e.g., wood, feathers, cloth), or relatively rare outside of burials and caches (e.g., musical instruments, sacrificial knives, censers, and items of jewelry or apparel such as jade and shell beads). Consequently, any items found during surface collection and clearing excavation, however fragmentary, are significant as they have the *potential* to distinguish ancient activities.

In the Maya area, the artifact and architecture types we might use to reconstruct ancient public activities can be, at least preliminarily, identified on the basis of previous research and with analogy to modern and historic Maya communities (see Table I). On and around the *sacbeob* and walkways specifically, I expected to find artifact types and patterns indicative of ceremonial activities such as: procession, prayer, devotional offerings (including sacrifice), dancing/music, staged performances, and feasting. In general character this ceremonial material should be similar to that outlined by Silverman for ancient Peruvian pilgrimage centers, and Sofaer, Marshall, and Sinclair for the Chacoan Great North Road in New Mexico. Both studies found: (1) a "paucity of quotidian artifacts;" (2) high concentrations of ceramic serving vessels associated with "non-habitation" locales; and (3) the "remains of ritual paraphernalia;" all indicating non-domestic and likely ceremonial activities (Silverman 1994:6; Sofaer, et al. 1989). Further, food production and serving items should be of a distinctively higher quality (i.e., more slipped wares) than would be expected for domestic areas as documented at outlying residences (e.g., Braswell 1994; Yaeger 1995). In fact, LeCount (1996) has recently proposed a correlation between open ceramic vessel forms (vases, bowls, dishes, plates) and ceremonial feasting, identifying plate forms with elite feasting in the site core. In addition, I anticipate a clear *spatial patterning* of these materials. Assuming that public spaces were periodically swept clean, we should find minimal *in situ* debris along *sacbeob* and plazas, and trash dumps associated with, but at some distance from, these spaces.

Preliminary Results

As an initial test, the Northeast Access and *Sacbeob* I and II conform nicely to these expectations. As predicted all public walkway areas were largely devoid of debris. In the northeast, a probable trash dump containing a significant percentage of fine serving wares (excavated previously by MacKie 1985) was located and tested. Also, no cooking pots or groundstone of any variety were encountered, and one apparently re-entered cache pit was discovered with a single obsidian eccentric remaining to one side of the pit (see Figure 3).

While the testing excavations along *Sacbe* I were not designed with artifact recovery *per se* in mind, we did locate a small number of artifacts apparently fallen from the parapets (Keller 1994, 1995b). Along the south side of *Sacbe* I as it rises to enter Plaza I, we found a portion of a modeled ceramic drum and a concentration of twenty (20) obsidian blades. Farther to the east, along the southern parapet in the curve of *Sacbe* I as it turns south toward Group D, we recovered a large groundstone *mano* and *metate* set. Formed of the same yellow and black granite, both items exhibit only slightly worn surfaces as if used sporadically, not continually in daily life. Conceivably these grinding implements, like those found in caves elsewhere in the Maya area (Stone 1995:41), were linked with water-associated rites of agricultural fertility as they lie directly adjacent to a possible reservoir (*aguada*) contained by the curve of *Sacbe* I (see above).

As provocative as these materials are, though, without a broader context they remain disconnected suggestions, rather than confirmations, of activity. Clearly, a testing procedure employing broader areal coverage, and the location and excavation of trash deposits was required. As we moved to the *Sacbe* II and Group C investigations, I chose to use a combination of surface collection, manual post hole testing, test pit and clearing excavations. Although at the outset I had only a vague idea what we might find with this sampling procedure, as there are no exactly comparable tests in the Maya area, I was encouraged by John G. Fox's (1996) compelling correlation of feasting activity with ballcourts in the Southeastern Maya Lowlands which relied heavily on similar testing procedures (extensive shovel tests, test pits, clearing excavation). Further, Cynthia Robin's ongoing work at small Classic Period Maya households in the settlement area surrounding Xunantunich using post hole testing, test pits, and clearing excavations (scaled to the nature of the architecture, but otherwise comparable to the recovery techniques used here), have already proven extremely fruitful (Robin 1996). Initially, surface collections (in concert with ground clearing) were conducted east of Structure A-21, and at the edges of *Sacbe* II where we might expect trash to be swept. While no artifacts were found in front of Structure A-21, a small number of sherds were recovered along the north and south margins of *Sacbe* II. These were predominately open dish and plate forms of Late Classic date, indicating food service of some variety.

Next, we blanketed the *Sacbe* II walkway and surrounding area with manually-dug post hole tests (to sterile or 90cm depth) spaced 10m apart, achieving a 100% sample of the area with a 10m resolution (Figure 3). As anticipated, very few artifacts were located along the walkway and the structural terraces west of Structure A-21. In the surrounding area, though, we detected three distinct ceramic refuse areas: (1) a series of diffuse 'high-spots' west of the ballcourt (cf. Fox 1996); (2) a low concentration along a ravine and quarry area northwest of Structure A-21; (3) and a much denser

deposit some 50m south of *Sacbe* II, which appears to be the primary trash dump associated with *Sacbe* II and Structure A-21. These three areas were tested this year, as were two lower density areas along the northern and southern margins of *Sacbe* II (Operation 265). Additionally, portions of Structure A-21 were cleared and tested for datable fill material (Operation 281).

Upon excavation, low density areas (Test Units 265 J, K, L) identified in post hole testing were found to contain small amounts of "trampled" (eroded, small-sized) ceramic debris, and very few lithic items. The higher density areas (Test Units 265 D, F, G) also contained little lithic material, but many more and larger ceramic sherds as would be expected in an intentional trash deposit. Finally, the mid-range densities detected north and west of the Ballcourt (Test Units 265 E, H, I), reflect mixed construction fill material (probed with post holes to sterile) and scattered Late Classic debris above. For comparison here, only use debris from *lots* above construction is analyzed (see Table II for sherd densities recovered in excavation).

Overall, the artifact types and patterns recovered appear dissimilar to usual domestic assemblages. Of identifiable ceramic rim sherds from these excavations (Operations 265 & 281), open forms greatly outnumber closed jar forms, and slipped wares constitute the majority of the sample, while unslipped wares make up only a small minority (see Tables III&IV). As in the Northeast Access area, we found no groundstone items in excavation. Additionally, one jade/jadeite bead was recovered 1.5m east of the front stair of Structure A-21 (Special Find Op281 #P1). We found this bi-conically drilled tubular bead above the level of the plaza/*Sacbe* II floor, apparently unintentionally discarded, perhaps torn from an article of clothing (cf., Table I).

Altogether, the artifact types and patterns discovered on and around Structure A-21 and *Sacbe* II corroborated our interpretation of these as non-domestic and public constructions. Still, the most intriguing finds were statistically small numbers of *special forms*, such as ceramic drum (musical) and incensario fragments (see Table III). Suggesting a discrete activity and/or disposal area, ceramic drum and incensario fragments were only located in clearing units on Structure A-21, and in two spatially associated refuse areas (Test Units 265 D&F, G). Ceramic drum fragments are exceedingly rare at Xunantunich, limited to the site core itself (LeCount 1996). In Test Unit 265 D, probing the highest frequency trash locale, we removed portions of a partially reconstructible red-slipped drum similar to those described from Barton Ramie (Gifford 1976:214-217, fig.130b) (Figure 4). Later, in clearing excavations of Structure A-21 we encountered fragments of three more drums. Considering the rarity of drum forms at Xunantunich, these few are quite compelling. Similarly, the number of censer fragments (7) while not particularly high, indicates activity requiring incensarios centered upon Structure A-21 (Figure 5).

By analogy to modern Maya drum and censer use, and ancient Maya depictions of these (e.g., the murals of Bonampak, México), we can propose that both items were principally used during ceremonies of devotion involving dance, procession, prayer, and sacrifice (McGee 1990:51; B. Tedlock 1992:34; Vogt 1976:49-50,207). Musical instruments are occasionally found in burials and caches (Healy 1988), while incensarios are often found thoroughly smashed on and around buildings conceivably as

termination/dedication offerings, but the *use* locations and significances of these remain unclear.

Overall, materials from excavations on and around *Sacbe* II (Op 265) and Structure A-21 (Op 281) suggest activities involving elite-sponsored feasting (open and slipped forms), devotional rituals (incensarios), music and dancing (drums, jade bead). Moreover, these findings accord well with the original expectations for artifact types and patterning in a ceremonial-use area: few domestic artifact types, a preponderance of serving vessels, scattered fragments of ritual items, and a distinctive spatial patterning of these (cf. Silverman 1994; Sofaer, et al. 1989). Combined with the similarly non-domestic, arguably ritual, artifacts from excavations along *Sacbe I*, these data point to the use of roads at Xunantunich, as stages for diverse ritual/political activities. Using the breadth of XAP research for comparison and context, the continuing artifact analyses should critically address questions of space function and symbolic import, waste disposal/management, and the timing of these.

Operation Summaries, 1997 Excavations

Operation 265: *Sacbe* II / Str. A-21 Artifactual Testing

Operation 265 included all testing intended to locate ceramic and other artifact concentrations related to the use of the *Sacbe* II / Str. A-21 area. As summarized above, the initial testing phase consisted of surface clearing/collection and post hole test probes placed every 10m (avoiding known architecture). Four (4) high ceramic frequency, and two (2) low frequency areas were then selected for excavation (1x2m and 2x2m test units) (see, Figure 3). All test pits were dug to bedrock using arbitrary 10cm levels and/or following natural or artificial stratigraphy.

As noted above, the highest ceramic frequency area was tested with two 1x2m test pits (265D & 265F) in order to obtain a larger sample of ceramic material. Suboperation 265H was expanded north in suboperation 265I to reveal a structural feature which appears to be the edge of a LCII low platform or pavement, portions of which were also revealed in 265E to the south. Finally, suboperations 265K and 265L were opened as larger 2x2m units to encompass the area around a small stela fragment and nearby stones in an attempt to reveal the stela butt location (we did not locate the butt), as well as recover ceramic debris (Figure 6). The sherd densities of these test excavations are listed in Table II, and ceramic form and ware frequencies (of all 265 excavation units combined) are compiled in Tables III & IV.

While much of the Operation 265 work is summarized above, two unusual concentrations of lithic material were not mentioned. Unexpectedly, we encountered two discrete concentrations of debris indicative of small-scale lithic production scattered atop a low (10-30cm thick) pavement or platform west and north of the ballcourt. To the west of the ballcourt endzone (265E), unusually high numbers of chert biface thinning flakes and thin snapped bifaces indicate possible biface manufacture, while to the north (265H & 265I) over 350 obsidian flakes and broken prismatic blade fragments, as well as one small distal prismatic blade core fragment, suggest obsidian blade production. In neither area were other materials particularly numerous, implying the specialized single-use of these areas. In both locales test excavations screened at 1/16" recovered the smaller debitage necessary for a more detailed analysis.

Pending the full review of this analysis, these lithic materials suggest production of thin chert bifaces from preforms, and the striking of obsidian blades from pre-prepared cores; that is, in both areas, only the final stages of lithic production are indicated. Hypothetically, these spatially discrete, single artifact class deposits may represent the artifactual remains of limited lithic production within a formal market grounds (cf., Sheets 1991). Alternatively, they may simply be the debris of haphazard, one-time lithic manufacture and/or lithic debitage disposal.

We also recovered four (4) broken spindle whorls from the surface debris lots in Operation 265, which may indicate spinning activity (Figure 7). In no other excavations in similar open, peripheral areas, public structures, *sacbeob*, and walkways (see Keller 1994, 1995) have we found spindle whorls, so their presence here seems significant, if as yet unclear.

Operation 274: *Sacbe* II Structural Testing

After completing the artifactual/trash testing around *Sacbe* II, we focused on the construction of the roadway, and placed strips of units over its north and south edges. Suboperations 274B, 274C, & 274D were placed up and over the north side of *Sacbe* II, revealing the *sacbe* walking surface and a stepped "side" of the roadway previously identified in surface survey (Figure 8). Similar to *Sacbe* I to the east, *Sacbe* II had two distinct plaster floors, the earliest being slightly thicker and more uneven than the final floor. Overall, the construction here was poorly preserved, and the upper 'steps' of the *sacbe* edge are reconstructed on the basis of a few deteriorated and fallen stones. This northern edge of *Sacbe* II rests on a rise in bedrock which was likely quarried/shaped at some time prior to the construction.

The southern "side" of *Sacbe* II was revealed in suboperations 274E, 274F, 274G, & 274H. While this construction was also in a profoundly deteriorated condition, we identified a narrow parapet (or wall-like) construction resting atop *Sacbe* II plaster surfaces (Figure 9). Here we noted the remains of three distinct plaster surfaces (mere centimeters apart), all poorly preserved. In general form the southern parapet of *Sacbe* II is identical to the *Sacbe* I parapets (see Braswell 1993; Keller 1994, 1995).

No clearly use-related artifacts were found in Operation 274; as expected the *sacbe* appears 'clean' of artifacts. Ceramic fill material dates the construction to the LCII phase. In suboperations 274B,C,&D below the LCII construction fill we encountered a dark (10YR3/2) soil lens with mixed Middle Preclassic (MPC) and later material which may be a buried A-Horizon or a layer of re-deposited trash (see, Figure 8). While this thin layer of material may relate to an earlier occupation, the construction of *Sacbe* II appears to be firmly Late Classic in date.

Operation 281: Structure A-21

Operation 281 was opened in 1997 to include all clearing and probing excavations on Structure A-21. The furthest west structure in Group A, Str. A-21 had received no excavation prior to 1997, and we had hoped that the building might be in a fair state of preservation. To assess the preservation as well as reconstruct the form of Str. A-21, we placed a 2m wide strip of 2x2m excavation units from the base of the east stairs to the western edge of the top of the structure (Figure 10). In all we excavated seven (7) 2x2m units up the east side of the building, skipping one 2x2m unit along the poorly

preserved east staircase. After clearing to the terminal architecture (or what remained of it, see discussion above), we placed a 1x2m test unit within the previous suboperations 281A and 218G (on top of the substructural platform), which we excavated to bedrock. We also continued excavation in front of (to the east of) the structure in suboperation 281B, removing plaza fill and eventually hitting bedrock.

Like Str. A-1 in the center of Group A, Str. A-21 was apparently a single-phase construction dating to our LCII phase. Upon probing excavation in suboperation 281H, we found fill bins -- rough construction walls around rectangular 'bins' filled with white (10YR8/1 to 7/2) *sascab* and limestone rubble -- similar to those used in the construction of Str. A-1. We encountered two stacked levels of fill bins separated by a rough *mescla* layer, but no evidence of an earlier construction within the platform. Of the very few artifacts recovered from the dense, wet-packed fill, all ceramic material dates the construction to the LCII phase. In surface clearing lots we encountered LCII phase sherds mixed with a scattering of later LCIIb and TC phase material.

Interestingly, at the base of the construction directly above bedrock we discovered a darker (10YR6/2 to 6/3) soil lens containing distinctly LCI phase material (e.g., Sotero Red-Brown ware, lateral flanged dishes, and Saxche Polychrome dishes). This re-deposition of broken, or "trash", LCI material was also noted at the base of construction in Structure 2 of the Northeast Complex C-shaped patio (e.g., Silkgrass Fluted vase). While we encountered no formal dedication deposits associated with Str. A-21, the re-deposited "trash" material may have served as a dedication for the building.

Also noteworthy was the use of finely shaped wall and vault stones, some with burned plaster remnants, in the construction of fill bins for Str. A-21. Clearly, one or more vaulted masonry buildings were dismantled, and the cut stones promptly used to erect Str. A-21. Conceivably, the fine facing stones so obviously missing from Str. A-21 were similarly removed for construction on yet another building (see discussion above in "Terminal Classic Disintegration").

Operation 283: Group C Artifactual Testing

Operation 283, like Operation 265 in the *Sacbe* II / Str. A-21 area, was opened to include all testing for ceramic and other artifact concentrations related to the use of the Group C area (see, Figure 11). We began in this southern-most portion of the site core with a large blanket of post hole tests, again spaced 10m apart. We also placed two (2) 'floater' lines of post holes off the grid in order to get broader coverage. All post hole probes were conducted as in Operation 265, and all test locations recorded with the Total Station for artifact density mapping. The resultant artifact contour map in Group C is slightly more 'noisy' than the comparable map of the *Sacbe* II / Str. A-21 area. We had time to test only three of the high concentration areas, and chose to test the line of high ceramic densities to the south of the Group C structures, hypothesizing that it might reflect a trash sweep zone. Importantly, artifact concentrations were lowest around buildings, suggesting regular cleaning of these presumably public spaces.

While the data from these excavations awaits further examination, the density and size of the sherds recovered is comparable to the trash deposit south of *Sacbe* II and Str. A-21. The bulk of the ceramic material dates to our LCII phase with a handful of

later LCIIb and TC diagnostic sherds in surface lots. Suboperations 283E and 283F probed single phase (LCII) debris, while suboperation 283D (adjacent to Strs. C-5, C-6, & C-7) tested what appears to be a multi-phase deposit with LCII to Late and Middle Preclassic (LPC and MPC) components. No structural walls, plaster, or fill were encountered in any of the Operation 283 test excavations.

Upon final analysis, the material from the post hole and test pit excavations conducted in Operation 283, should complement the structure-focused excavations conducted by M.Church (1996) on Strs. C-2 & C-3, and by M.VanderKrift (this volume) on Str. C-1. This year, in addition to analyzing the 283 material, I also completed lithic and ceramic analyses on the material from Church's 1996 excavations.

Conclusion

The 1997 season was a chance to tie-up loose ends and better contextualize previous research for all of the XAP crew. For this project addressing site access and planning at the Late to Terminal Classic Xunantunich core, this meant the use of a new testing and collection technique, gridded post hole probes, coupled with traditional test pitting, surface clearing, and structural excavation. The post hole program was ambitious in scope (over 250 tests in two discrete areas covering over 47,000m^2), but surprisingly simple and efficient in execution (each area required less than 130 person hours). Most significantly, the resultant artifact density maps, when superimposed upon the existing structural map, help to contextualize enigmatic structures and open spaces, as well as indicating possible activity areas and patterns of debris management (see, Figures 3 & 11).

This year's testing project completed four years of work begun in 1993 to document the changing use and form of the Xunantunich site core plan through the excavation of access features, roads, and communication spaces. The site plan is proposed to have had political, social, and symbolic import bearing on the rapid florescence and ultimate demise of the ancient center. Little is really known about the meaning and utilization of ancient Maya centers despite the continued interest of scholars. Often disregarded and piled with backdirt, the roads, access points, and related communication spaces at Maya centers may teach us a great deal about the symbolic and practical issues of site planning.

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The members of XAP, Belizean and North American, have always shown me new paths where I could see no way forward. More importantly, though, they have shared their lives with me. Of all that I have learned digging holes in the ground, greater still is the trust and friendship with which I have been honored.

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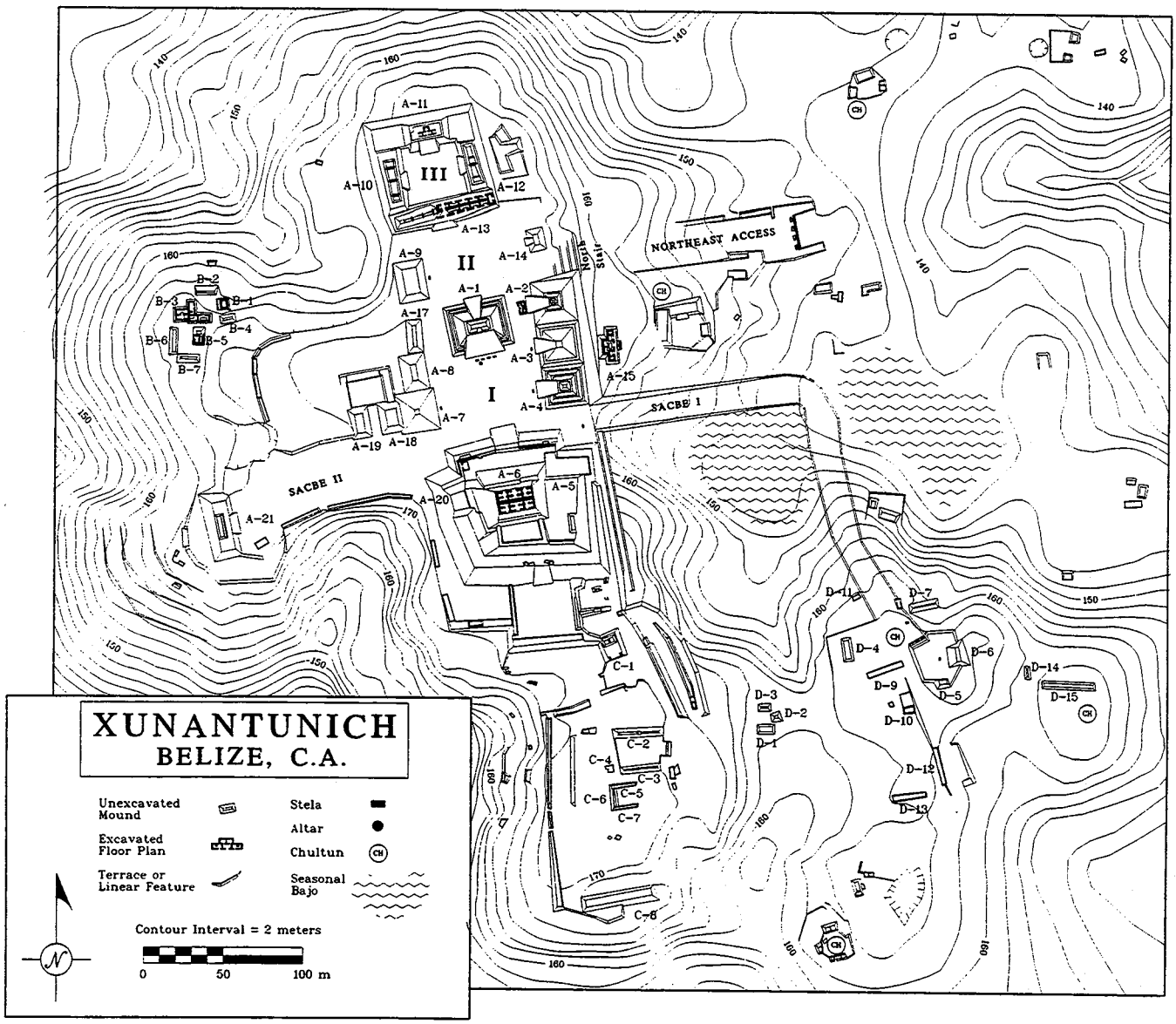
XUNANTUNICH
BELIZE, C.A.
Unexcavated Mound
Excavated Floor Plan
Terrace or Linear Feature
Stela
Altar
Chultun
Seasonal Bajo
Contour Interval = 2 meters
0
50
100 m
NORTHEAST ACCESS
SACBE I
SACBE II
I
II
III
A-1
A-2
A-3
A-4
A-5
A-6
A-7
A-8
A-9
A-10
A-11
A-12
A-13
A-14
A-15
A-17
A-18
A-19
A-20
A-21
B-1
B-2
B-3
B-4
B-5
B-6
B-7
C-1
C-2
C-3
C-4
C-5
C-6
C-7
C-8
D-1
D-2
D-3
D-4
D-5
D-6
D-7
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D-10
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D-12
D-13
D-14
D-15
CH

FIGURE 1

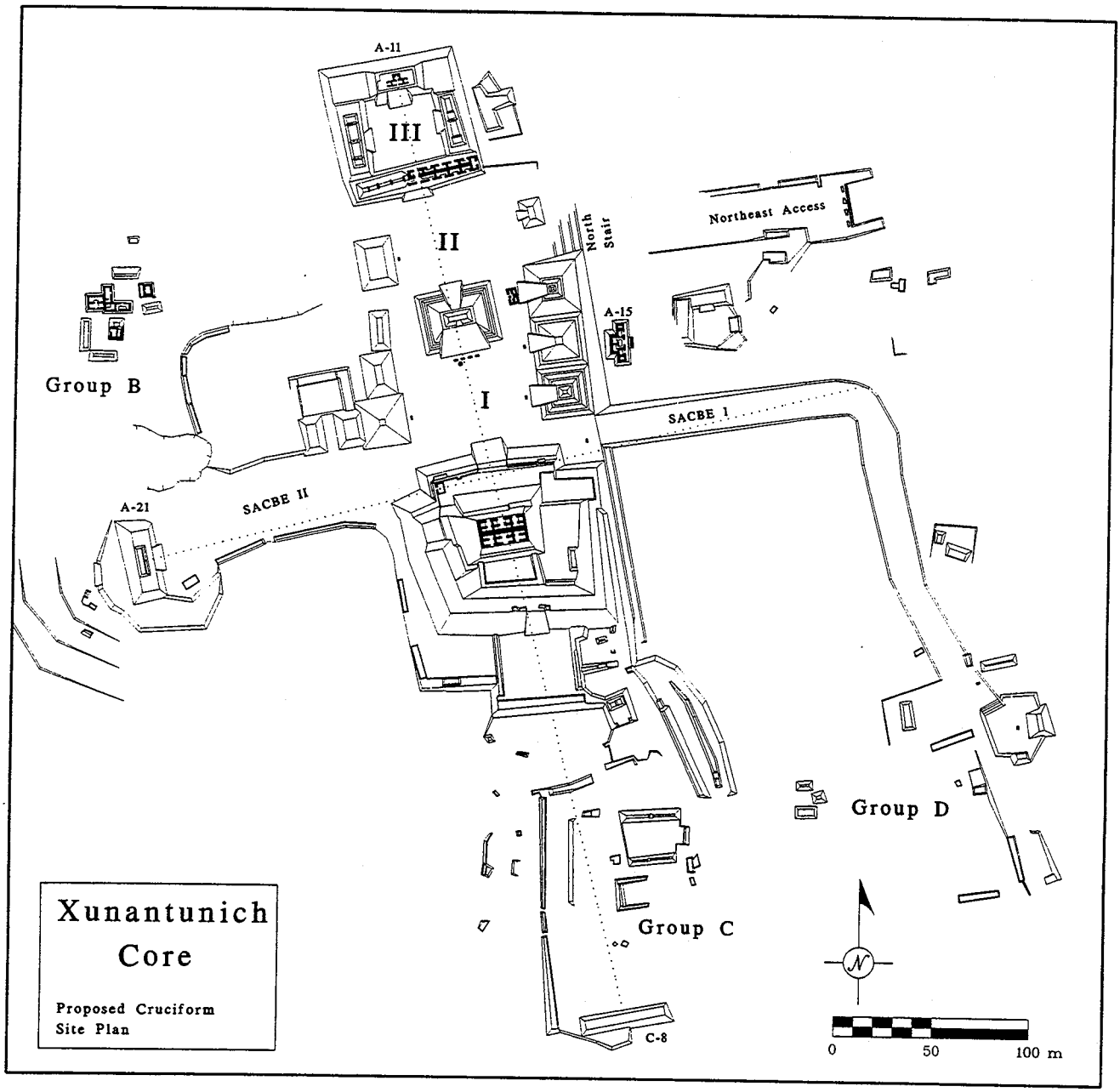

A-11
III
II
I
North Stair
Northeast Access
A-15
Group B
SACBE I
SACBE II
A-21
Group D
Group C
C-8
Xunantunich Core
Proposed Cruciform Site Plan
0
50
100 m

FIGURE 2

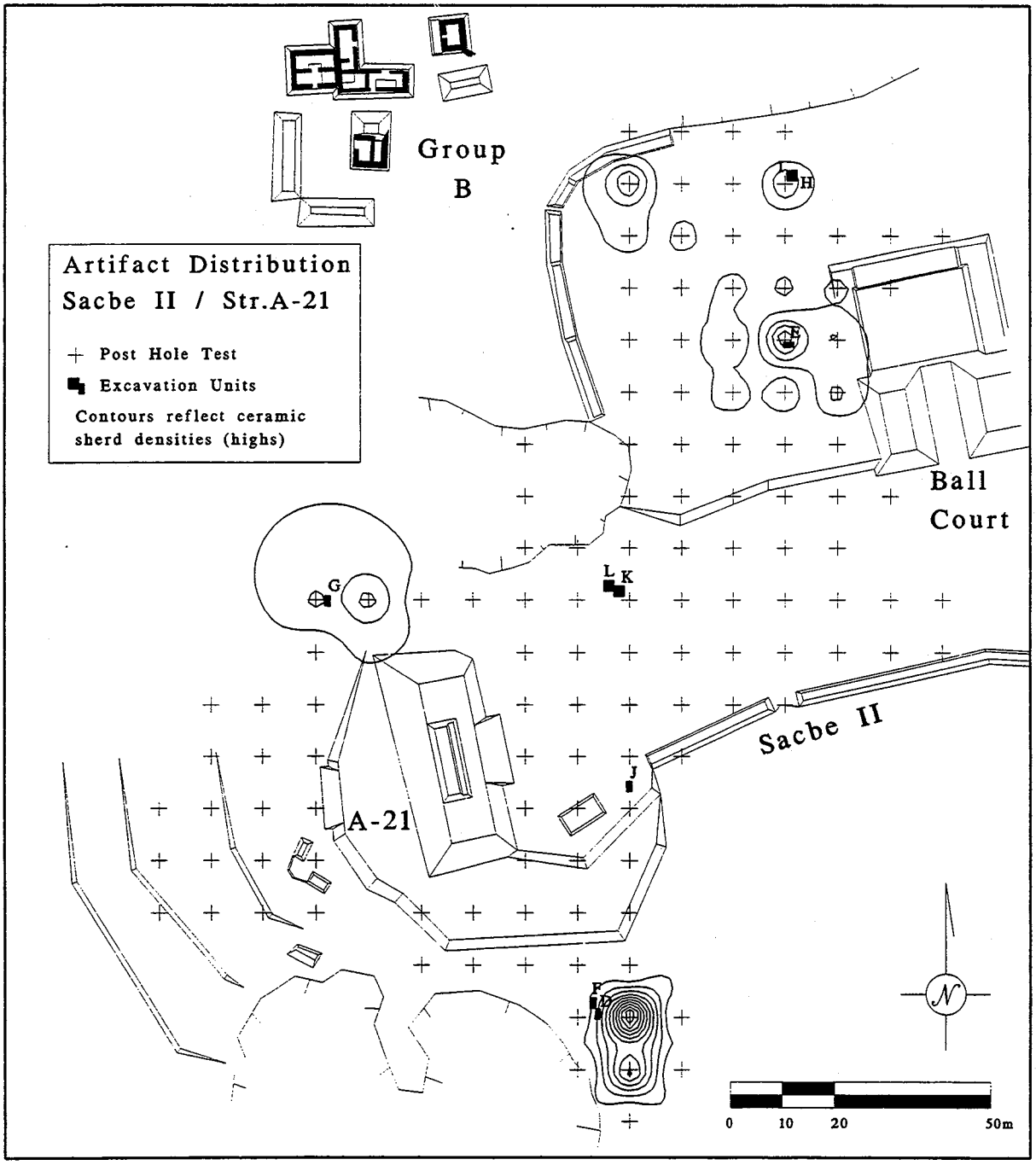

Group
B
Artifact Distribution
Sacbe II / Str.A-21
Post Hole Test
Excavation Units
Contours reflect ceramic
sherd densities (highs)
Ball
Court
Sacbe II
A-21
H
E
G
L
K
J
F
D
N
0
10
20
50m

FIGURE 3

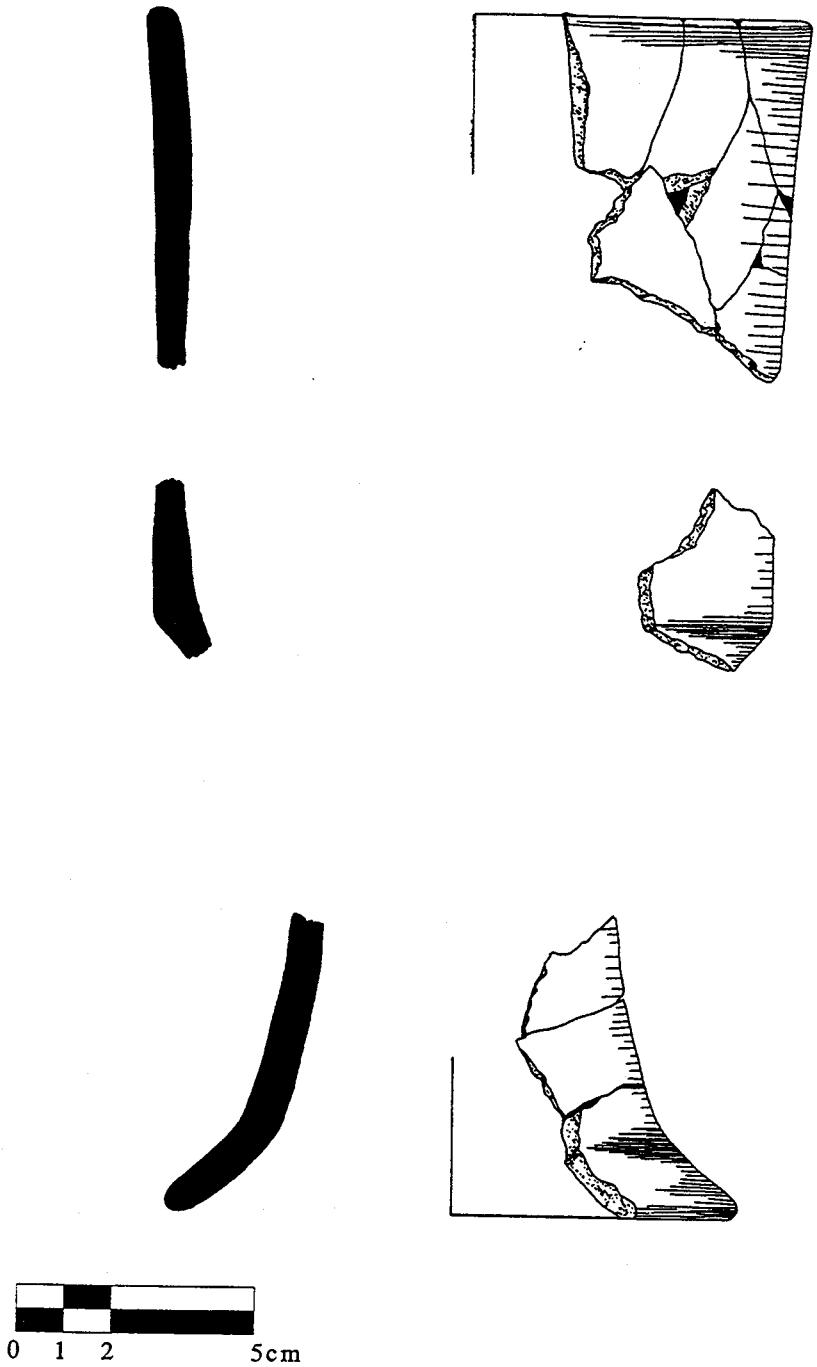


FIGURE 4
MACAL ORANGE-RED DRUM RECONSTRUCTION
(265D/4.32)

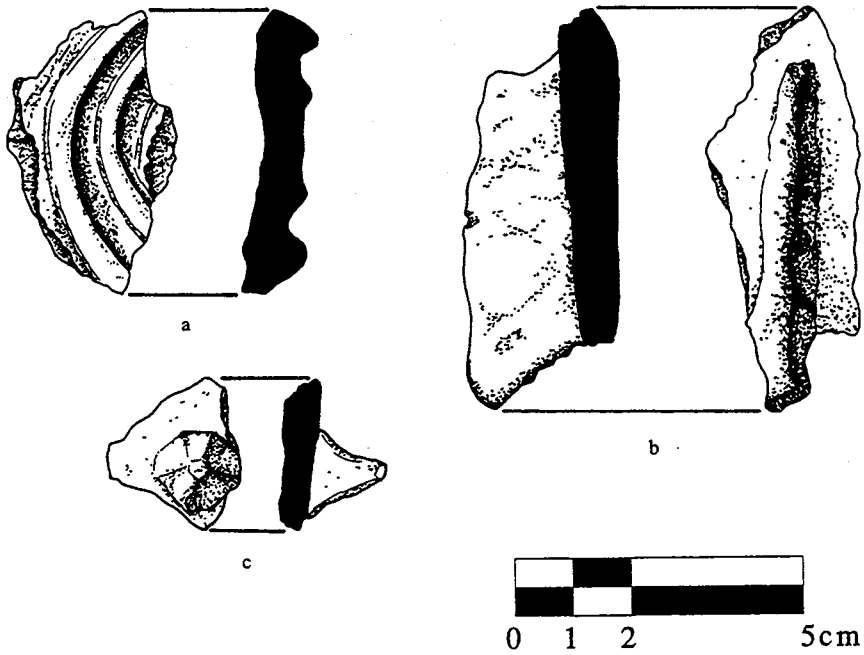


FIGURE 4
CENSER FRAGMENTS FROM STR. A-21 SURFACE LOTS
(a 281F/1.32; b 281E/2.3; c 281E/1.15)

FIGURE 6
SUBOPERATION 265K - STELA FRAGMENTS (OUT-OF-PLACE)

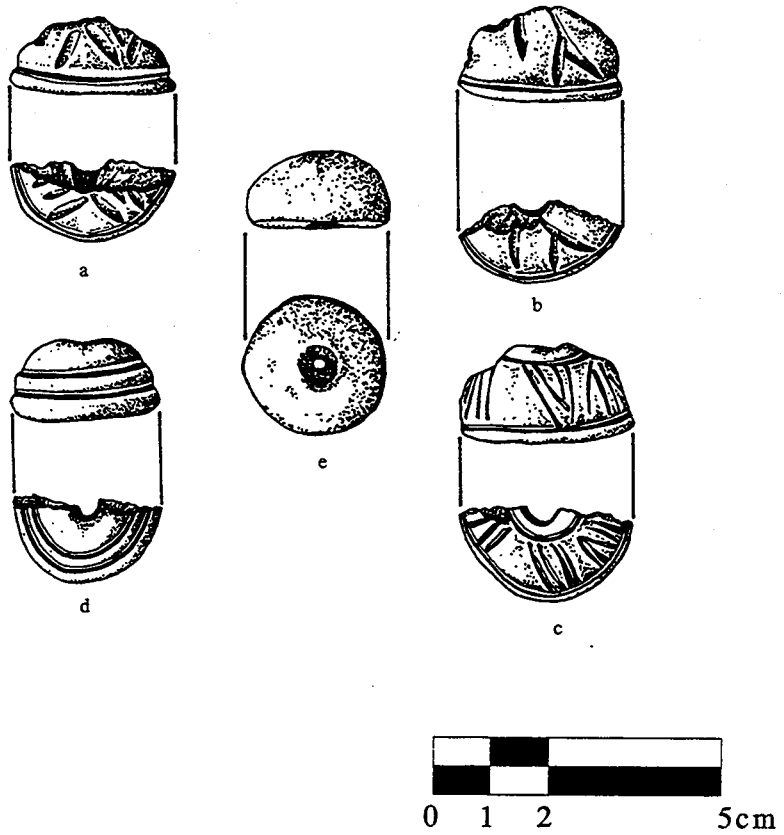


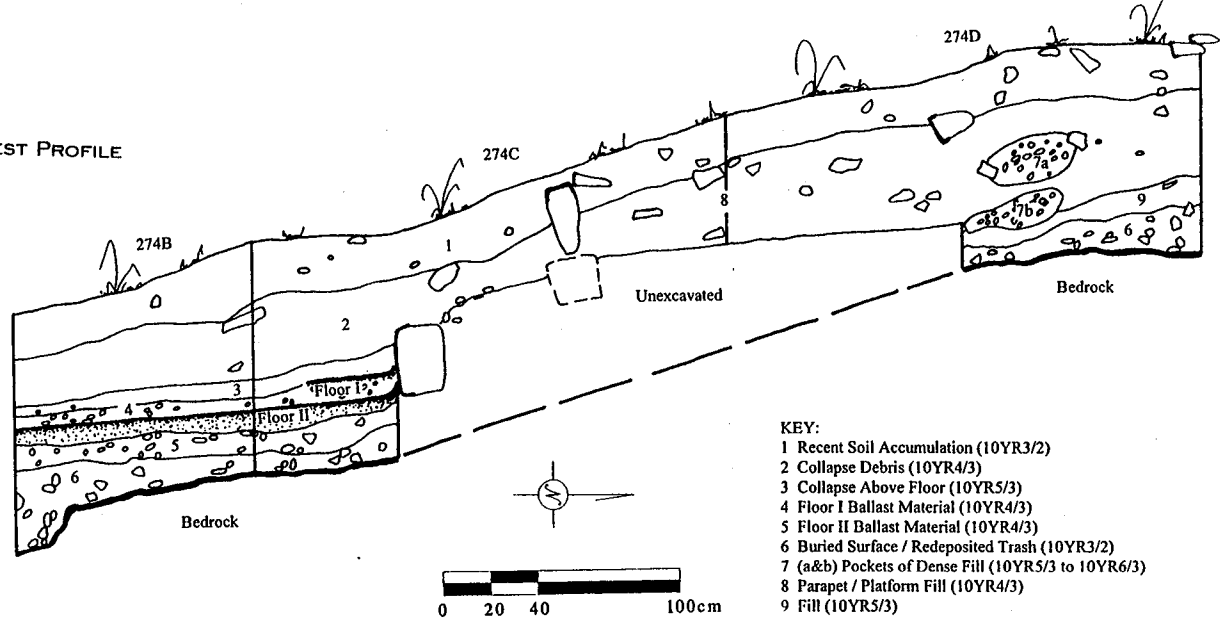
FIGURE 7

SPINDLE WHORLS FROM THE SACBE II / STR. A-21 AREA

(a 265H/1-P9; b 265I/3-P16; c 265I/2-P13; d 265H/1-P10; e 274 F/1-P3

Figure 8

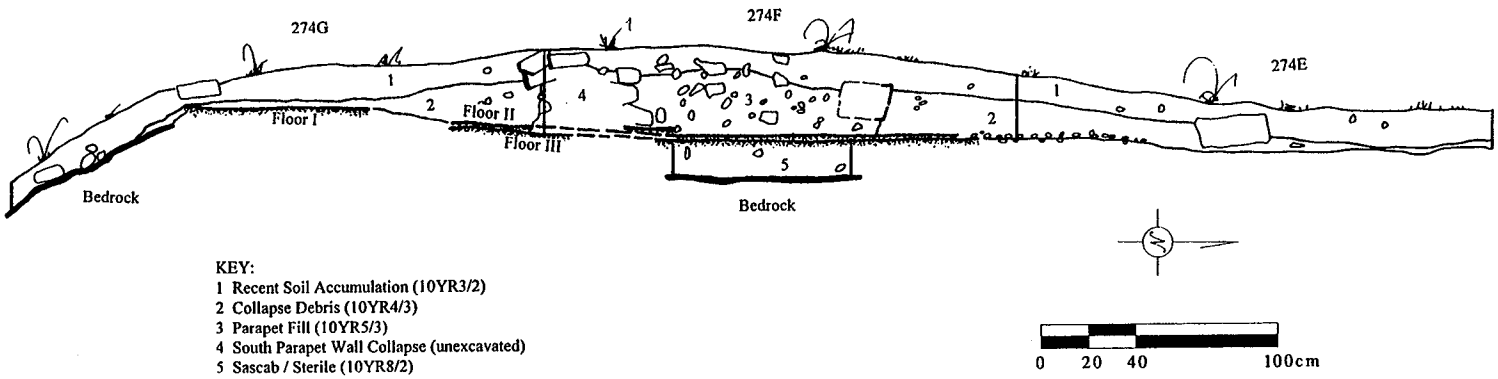
Sacbe II North Side, West Profile



KEY:
1 Recent Soil Accumulation (10YR3/2)
2 Collapse Debris (10YR4/3)
3 Collapse Above Floor (10YR5/3)
4 Floor I Ballast Material (10YR4/3)
5 Floor II Ballast Material (10YR4/3)
6 Buried Surface / Redeposited Trash (10YR3/2)
7 (a&b) Pockets of Dense Fill (10YR5/3 to 10YR6/3)
8 Parapet / Platform Fill (10YR4/3)
9 Fill (10YR5/3)

Figure 9

Sacbe II South Side, West Profile



KEY:
1 Recent Soil Accumulation (10YR3/2)
2 Collapse Debris (10YR4/3)
3 Parapet Fill (10YR5/3)
4 South Parapet Wall Collapse (unexcavated)
5 Sascab / Sterile (10YR8/2)

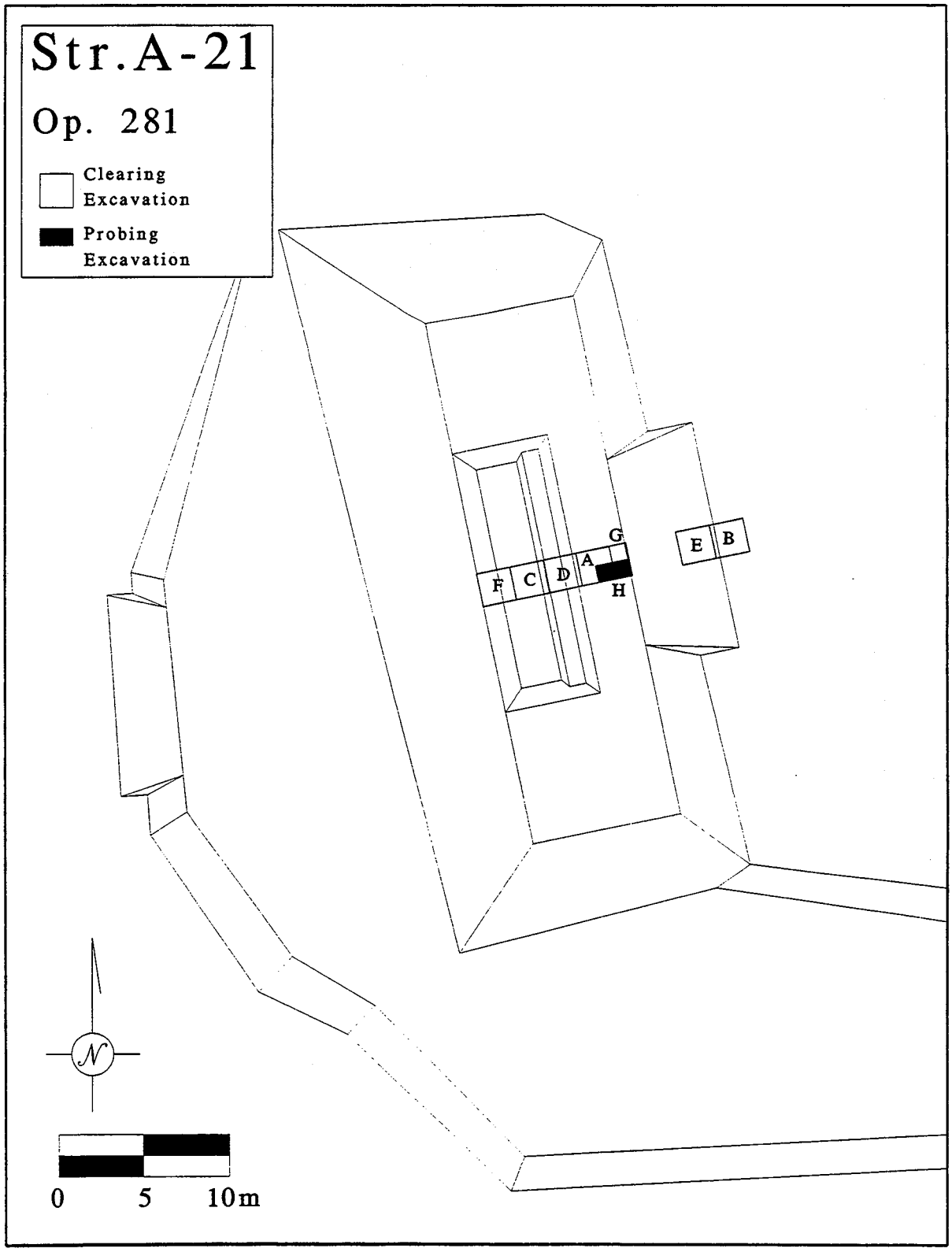

Str.A-21
Op. 281
Clearing Excavation
Probing Excavation
G
A
F
C
D
H
E
B
N
0
5
10m

FIGURE 10

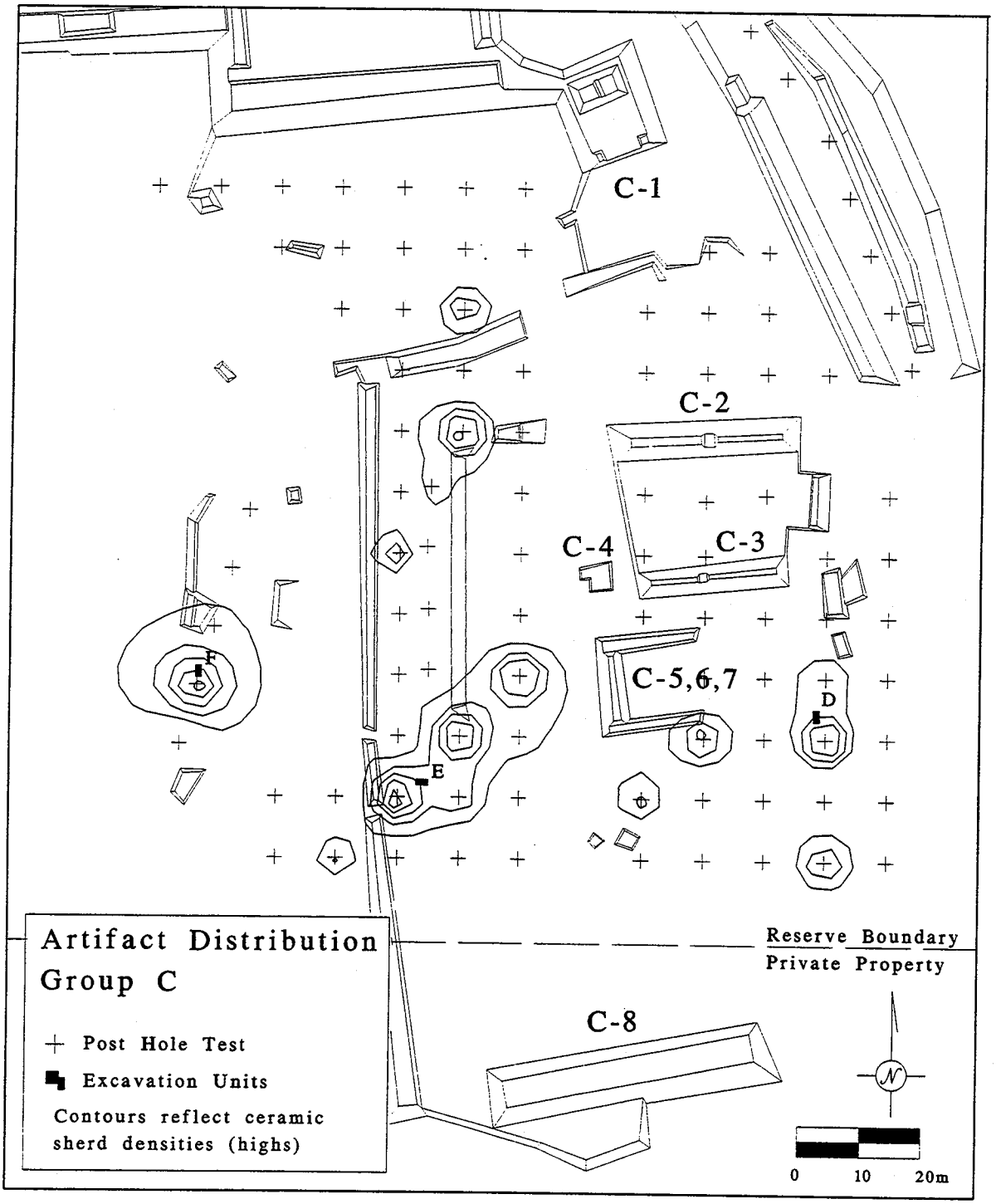

C-1
C-2
C-3
C-4
C-5,6,7
C-8
D
E
F
Artifact Distribution
Group C
Post Hole Test
Excavation Units
Contours reflect ceramic sherd densities (highs)
Reserve Boundary
Private Property
N
0
10
20m

FIGURE 11

Table I: Architectural and Artifactual Indicators of Public Activities at Ancient Maya Centers

Activity	Architecture	Artifacts
Administration/ Adjudication	simple range structures or colonnaded buildings open to public plazas	'wands' or badges of office, writing implements, paper documents
Procession	*sacbeob*, way-side shrines/features	articles of costuming, banners, litters
Ballgame	two parallel structures of similar length and height, possibly some stairways	rubber or other ball, articles of costuming
Bloodletting/ Sacrifice	pyramidal structures, open platforms, altars, interior spaces	obsidian blades, fine bifaces, stingray spines, bark-paper, wide bowls and dishes, wide shallow baskets
Oration/Staged Performance	open platforms, pyramidal structures, plazas, *sacbeob*	articles of costuming
Dancing/Music	any structure or space	musical instruments, articles of costuming
Prayer/Offering	any structure or space	incensario fragments, small bowls and other serving vessels, cached materials
Market/Trade	open spaces adjoining core architecture, formal quadrangles of masonry buildings, "market stall" low platforms in plazas and open areas	spatially discrete deposits of single-class artifacts, exotic materials
Feasting	any structure or space	open serving vessels, food storage and preparation items (e.g., ceramic jars, manos, metates) in non-domestic contexts, food remains (e.g., bones, shell)

Notes: Architectural indicators are *possible* locations for activities. Artifacts listed are some of those that *might* be used/broken in a specific activity, although not necessarily deposited in their use-locations. No combination of indicators is proposed to be a full confirmation of a specific activity in the past.

Table II: Operation 265, Sherd Densities in Late Classic Debris

Test Unit	Total # Sherds	# Sherds per M^3
D	1424	1187
G	1322	1101
F	889	988
I	652	815
H	195	696
E	215	489
L	342	414
J	327	363
K	121	202

Notes: Densities are for levels dated to the Late Classic (LCII Phase) on the basis of ceramic analysis. Only surface debris and trash contexts included (no fill material). Number of sherds per square meter *(# Sherds per M^3)* rounded to nearest whole number. *Operation 265* included test units in trash and surface debris locales around Structure A-21 and *Sacbe II*.

Table III: Ceramic Forms in Late Classic Debris

Form	Operation 265		Operation 281	
	N	%	N	%
Jars	49	21.40	17	23.29
Open Forms	168	73.36	48	65.75
Special Forms	12	5.24	8	10.96
ALL FORMS TOTAL	**229**	**100.00**	**73**	**100.00**

Notes: Rim sherds identifiable to form. Surface debris and trash contexts (no fill material). *Jars* include: constricted and wide necked jars, neckless ollas, and possible pedestal base rims. *Open Forms* include: plates, dishes, bowls, and vases. *Special Forms* include: lids, incensarios, drums, figurines, and worked sherds. *Operation 265* included test units in trash and surface debris locales around Structure A-21 and *Sacbe II*. *Operation 281* included all excavation on and into Structure A-21.

Table IV: Ceramic Wares in Late Classic Debris

Ware	Operation 265		Operation 281	
	N	%	N	%
Pine Ridge Carbonates	156	63.67	51	66.23
Ashwares	38	15.51	8	10.39
Macal/Chial	11	4.49	3	3.90
Fowler	1	0.41	0	0.00
Sotero	1	0.41	0	0.00
Other Calcite Monochromes	7	2.86	1	1.30
SLIPPED WARES TOTAL	**214**	**87.35**	**63**	**81.82**
Uaxactun Unslipped	12	4.89	14	18.18
Micaceous	7	2.86	0	0.00
Sand-Tempered	2	0.82	0	0.00
UNSLIPPED WARES TOTAL	**21**	**8.57**	**14**	**18.18**
PreClassic Wares	10	4.08	0	0.00
ALL WARES TOTAL	**245**	**100.00**	**77**	**100.00**

Notes: Rim sherds identifiable to ware. Surface debris and trash contexts (no fill material). *Operation 265* included test units in trash and surface debris locales around Structure A-21 and *Sacbe II*. *Operation 281* included all excavation on and into Structure A-21.

1997 Research at Chaa Creek

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An eight-month field season of excavations and laboratory research undertaken at Chaa Creek in 1997 was generously funded by the National Science Foundation, the UCLA Latin American Center and the Xunantunich Archaeological Project (XAP). This report will:

1) Place my research into a Xunantunich context and the work of other XAP members;
2) Cover the theoretical and methodological implications of the investigations; and,
3) Provide preliminary results and interpretations.

Introduction

My research seeks to understand ancient Maya sociopolitical developments during the time of the Collapse. I focus specifically on the changing relationships between the outlying community of Chaa Creek and the Classic Maya center of Xunantunich located in the Upper Belize River Valley (UBRV), west-central Belize. By concentrating investigations temporally on the end of the Late Classic and into the Terminal Classic (AD 800-1000), we gain an understanding of why this region was able to persevere. I argue that some formerly dependent secondary centers responded positively to the dispersal of large and unwieldy macro-regional polities such as Tikal and Calakmul. In Belize a small-scale polity developed around the ancient city of Xunantunich. Though likely on the brink of collapse, Xunantunich was bolstered by adjustments made by local elites from the city and surrounding communities.

In conjunction with on-going investigations at Xunantunich, my research at Chaa Creek investigates the proposition that the longevity of the Xunantunich polity resulted from increasing levels of community integration within the UBRV, and, subsequently, the emergence of an autonomous polity. For the last six years, the Xunantunich Archaeological Project (XAP), under the direction of Drs. Richard M. Leventhal (UCLA) and Wendy Ashmore (University of Pennsylvania), has conducted an extensive program of excavation and survey at the Xunantunich site core and its rural hinterlands [Figure 1.]. These on-going investigations seek to characterize the region's developmental history, specifically pertaining to two apparent periods of growth. During the first stage (AD 550-800; Late Classic I and IIa, hereafter LCI-LCIIa), Xunantunich underwent a fluorescence under the apparent control of a dominant center at Naranjo. Then, a second growth period occurred right around the time when other city centers, including Naranjo, were dissolving (AD 800-1000; Late Classic IIb and Terminal Classic, hereafter LCIIb-Terminal). The model presented by XAP (Leventhal and Ashmore 1994) argues that although Classic Lowland Maya society began to decline around AD 800, Xunantunich continued to prosper until well after AD 900/950, significantly later than most other centers in the Peten region. I propose that increasing regional integration of communities such as Chaa Creek explains Xunantunich's continued prosperity and offers a testable model of sociopolitical and economic complexity during a period of significant decline that has yet to be completely understood.

I am primarily interested in archaeologically documenting the processes of this sociopolitical integration. There are three integral questions that must subsequently be answered.

1. **Did a polity develop?** Prior to the 1997 field season, I made an initial assumption that the site of Xunantunich was the central focus of a newly developing polity, and that this polity was spatially delimited by the bounded topography of the valley [see Figure 1.]. I have since come to believe that we cannot utilize only topographic features to argue for political boundaries among the Maya. I was in some sense "jumping the gun", making an unconditional assumption that a political entity was developing with its center at Xunantunich and then only testing the processes of that development. What if the UBRV region was subsumed entirely by a larger political entity throughout the Late and Terminal Classic time periods? This would mean that any interactions between Chaa Creek and Xunantunich could have been subsumed by a larger regional dynamic of interaction. Therefore, it became necessary to expand my investigations in search of comparative data from outside the proposed political boundaries of the new Xunantunich polity. In 1997 intended to obtain representative ceramic assemblages from external sites in order to assess the drop-off in social interactions that would likely occur as one moved outside of the previously proposed boundaries (see Soja 1971). Excavations took place at the site of Dos Chombitos, which lies at the eastern end of Transect #1 (Table 1.). In addition, I supplemented the ceramic analysis of XAP excavations with analysis of ceramics from the site of X-ual-Canil, also known as Cayo Y. This site is being investigated by Dr. Gyles Iannone, and is located on the east of the Macal River, southeast of Cahal Pech (Iannone 1995, 1996). I am also pursuing preliminary data from excavations and survey of the ancient cities of Pacbitun (Sunahara 1995) and Baking Pot. Both Pacbitun, which is 7 kilometers east of Chaa Creek, and Baking Pot, which is 13 kilometers to the northeast, lie outside of the proposed Xunantunich political boundaries [Table 1.]. At both sites there is distinctive ceramic patterning that is not found at Xunantunich thereby suggesting different political affiliations and therefore boundaries to the proposed Xunantunich polity (see below).

2. **If so, why did the polity develop?** Commonly, studies of the development of complexity in secondary contexts have been restricted to expanding empires, such as the Inka or Aztec (Price 1978; Conrad and Demarest 1984; Demarest and Conrad 1992; Hodge and Smith 1994; Demarrais et al. 1996). Less common are tests of the formation of social complexity **during or after** the collapse of large states/empires. External geopolitical conflict and tension stimulates a consolidation of loosely integrated communities that arises out of a shared need for security and survival (Wright 1986, Webster 1975, Price 1978, Carneiro 1970). States rarely form in vacuums; thus this research illuminates geopolitics as a primary force in the integrative process, even when that force is a deteriorating Maya civilization.

3. **How did the polity develop?** The bulk of my dissertation research embraces a conceptual framework that emphasizes changes in sociopolitical integration among the communities of the Xunantunich region (see below).

Background

Research in the Chaa Creek settlement zone began with reconnaissance and survey during short supplementary field seasons in 1992-1994 (Carpenter et al. 1992,

Connell 1993, 1994a). The Chaa Creek settlement zone consists of a series of west-to-east oriented limestone ridges intersected by deep seasonal creek beds, such as the Chaa Creek, that drain into the Macal River [Figure 2.]. Vegetation on the ridges is generally low forest with dense brush in open and untended areas, while meadows and open fields cover the lower flanks of every ridge. My survey investigations built upon the solid Xunantunich Settlement Survey (XSS) base. I utilized their seven-tier, locally specific typology of sites based on: 1) number of mounds, 2) spatial arrangement of mounds (formal (orthogonal) or informal (non-orthogonal), and 3) the height of mounds (Ehret in Ashmore et al 1994) [see Table 1.]. Site typologies partition the landscape into a hierarchy of settlement units. Presumably each level explains a progressively different social, functional or developmental dynamic within communities (Ashmore 1981; Haviland 1981; Tourtellot 1988; Willey and Leventhal 1979; Hammond 1975). This XSS site typology will be critical in standardizing intra- and inter-community comparative analyses within the UBRV.

Chaa Creek is bounded on all sides: to the east by the Macal river, to the south by high sparsely settled ridges, and to the north and west by large tracts of uninhabited agriculturally productive land. These spatial limitations aid in the definition of Chaa Creek as a community (Ashmore 1981, Wilk and Ashmore 1988). Mapping began in 1992 with the four largest sites: Stela Group (CC1), Plantain Group (CC5), Blow-Out Group (CC18), and Banana Group (CC19) [refer to Figures 2. & 3.]. These medium-sized sites have features distinguishing them from standard household groups, such as stelae, immense plazas and five-meter high temple mounds. The rest of the Chaa Creek community was mapped in 1993 to bring the total site count to 65 [Table 1.]. As it spreads across the landscape, the Chaa Creek community is typical of other communities in the region, with the large platform groups (Types VI-VII) and smaller patio groups (Types III-V) arranged along ridge tops, and households flanking below (Types I-II).

Overall, the preliminary survey suggested that Chaa Creek, after experiencing massive population growth in the Late Classic, was an economically and politically valuable community to the rulers of Xunantunich. Three critical variables of location may have helped define the relationship between Chaa Creek and Xunantunich [refer to Figures 1. & 2.]. First, a distinctively large and fertile tract of land bounds Chaa Creek to the west, which has been identified as a well-drained and agriculturally productive paleo-floodplain (Fedick 1989; Birchall and Jenkin 1979). Second, Chaa Creek lies at the nexus of a locally unique portage route between the Mopan and the Macal rivers. Even today Stela Group and Plantain Group overlook the roadway between the two rivers that passes below. Third, Chaa Creek is situated as a possible "gateway" community for the emerging Xunantunich polity (Hirth 1978). Excavations at Chaa Creek in 1995 were designed to assess the potential extent of regional integration vis-à-vis these critical locational elements. As background, these elements do suggest ample reason to include Chaa Creek within a developing Xunantunich polity.

Furthermore, the location of Chaa Creek as an "interstitial" community between large centers within the region likely contributed to its value for Xunantunich (Dunham et al. 1989). To the west of Chaa Creek lie the sites of Pacbitun and Guacamayo. Pacbitun, though it has a strong Preclassic component, was a Late Classic power within

the region. Much of the settlement survey and excavations undertaken at the site have focused on the Late Classic occupation (Sunahara 1995). Guacamayo is a large ceremonial center across the river from the Negroman/Tipu zone of study (Jones, Kautz, and Graham 1986). Though not mentioned in previous research, the site of Guacamayo was most certainly a Late Classic powerhouse whose ruins loomed over the Postclassic settlement of Tipu to the west. These sites and Cahal Pech to the north of Chaa Creek, all play significant roles in the geopolitics of the region. Assuming all the sites were occupied synchronically during the Late Classic, Chaa Creek would have been located at the juncture of their spheres of influence. The interstitial nature of Chaa Creek is highlighted by the work of Ball and Taschek (1991) in their adoption of Thiessen polygons for a Central Place analysis. Ball and Taschek direct their attention to the site of Buenavista during the early part of the Late Classic, but the polygons in their map are similar to those that would surround Xunantunich during the advanced stages of the Late Classic. Chaa Creek lies at a crucial intersection between three political boundaries within the upper Belize Valley region.

Previous Investigations

Preliminary excavations at Chaa Creek uncovered circumstantial evidence reflective of community integration indicating strong direct links between Chaa Creek and Xunantunich during the LCIIb-Terminal, but not in the earlier LCI-LCIIa phase. After establishing distinctive LCI-LCIIa and LCIIb-Terminal periods of construction at Chaa Creek, we began to notice that architecture and artifacts from the latter stage (a time of supposed deterioration) were superior in quality and quantity, and that they were similar stylistically to Xunantunich assemblages (see Connell 1995). In addition, using Computer Aided Design (CAD) software, we documented LCIIb-Terminal architecture at platform groups CC1 and CC5 that aligns with Xunantunich [Figure 2]. These alignments suggested other alignments of a political and/or economic nature. Early research also explored additional specific connections to Xunantunich - ideological in nature - including data on similarities in patterning of ritual activity identified in burials, caches and altars at Chaa Creek (see Connell 1995). Preliminary data supported the suggestion that Chaa Creek may have been integrated into a Xunantunich polity near the end of the Late Classic. A formal methodology was developed to document linkages or connections between communities in order to show the degree of political integration.

Conceptual Framework

How is integration or degrees of connectivity shown in the archaeological record? It is useful to conceptualize archaeological evidence in terms of Durkheim's transition from mechanical to organic solidarity (1993). Applying this perspective to the archaeological record, the documented relationship between Chaa Creek and Xunantunich will change from interactions characterized by a mechanical solidarity to that of an organic polity. The apparent transformation signifies greater regional community integration. We are able to assess this transformation if we separate the material record into **economic** and **ideological** representations (see Connell 1996, 1995 for more discussion, and Table 2.). I propose that during the LCI-LCIIa time period there was economic homogeneity and ideological heterogeneity in the archaeological record. As the Xunantunich polity developed, concomitant with increasing degrees of sociopolitical integration was a change in the kinds of variability seen in both economic and ideological artifact representations. During the LCIIb-Terminal phase there was

increasing heterogeneity in the economic record, and homogeneity in the ideological record [Table 2.]. Within the Xunantunich region the various communities became economically interdependent, while ideologically there arose a unifying social solidarity. Ideological similarity complements economic diversity; therefore, it becomes crucial to isolate and analyze the variables of material culture which represent these dual economic and ideological processes.

Economy

Scholars who discuss craft specialization in general terms (Costin 1991, Clark and Parry 1990) or focus on specific types of production such as lithic (Schafer and Hester 1991; Clark and Lee 1984; Lewis 1995), ceramic (Arnold and Santley 1993; Santley et al. 1989; Rice 1987; Fry 1979; van der Leeuw 1977; Arnold 1985; Connell 1994b), and agricultural (Brumfiel 1991; Harrison and Turner 1978; Muhs et al. 1985) have indicated the importance of the village (community) economy. This is supported by Mesoamerican ethnography (Reina 1963; Reina and Hill 1978; Vogt 1969; Arnold 1991). Yet this previous research has not focused on community-level specialization as a regional integrative force. Commonly, elite sponsored long-distance exchange networks utilizing attached craft specialists have been proposed as the primary economic integrative force. Exchange networks are thought to have integrated the major Peten Sphere centers (Rathje 1971, Reents-Budet 1994), and within each region a redistribution of prestige goods is believed to have been the integrative mechanism (Brumfiel and Earle 1987; Schortman and Urban 1991, 1992; Friedman and Rowlands 1978).

In contrast to these top-down ideas, I maintain that at Chaa Creek, craft specialization on a community level during the LCIIb-Terminal phase was a crucial integrative force for the emerging UBRV polity. According to the Durkheim framework, economic interdependency among communities is an element of the integrated organic state. Thus, methodologically the goal is to build a comparative database in order to identify the rise of community specialization in the UBRV. I planned to assess variability in the archaeological record over time by testing for increasing heterogeneity from the LCI-LCIIa phase to the LCIIb-Terminal phase [Table 2.]. This increasing heterogeneity, both between communities and within communities, indicates a transition from redundant household specialization to community-level craft specialization.

Ceramic and lithic debris, the two artifact classes most commonly found in previous excavations at Chaa Creek, will be utilized for the analysis. These artifacts were recovered by two excavation methods: 1) horizontal clearing in front of and between platform structures; and 2) shovel test-pit (STP) programs. Parts of eight platform areas were cleared with the intention of recovering final phase trash deposition. This method has proven very successful in the XAP region for locating final occupation debris from the LCIIa-Terminal period (Yaeger and LeCount 1995; Braswell 1994; Connell 1995), and elsewhere in the UBRV for locating production debris from the LCI-LCIIa period (Ball 1993). At Chaa Creek in 1995, the STP, commonly used in CRM work, proved to be an extremely quick and easy method for finding large refuse dumps which subsequently provide stratified samples of economic activity through time (see Puleston 1973:168). In 1995 STP programs at six Chaa Creek sites were completed, uncovering five refuse dumps. In 1997, a STP program was performed at

each of the sites slated for excavations. STPs are 0.5m diameter holes dug into sterile soil levels, approx. 5-10m apart, around the outside of a platform and/or structures (Figure 4 of site CC25). Consistent with previous excavations at Chaa Creek, 1x2 m units were dug over each discovered refuse area.

In Mesoamerica, apart from opportunistic field finds, direct contexts of production are difficult to locate using standard sampling methods (Stark 1985; Rice 1987). More commonly indirect methods of regional analysis are employed (Feinman 1985; Santley et al. 1989; Schortman and Urban 1991). To assess the amount of economic integration based on community-level specialization as seen at Chaa Creek and elsewhere in the UBRV, my research will utilize two types of formulas. First, the densities of artifacts will be calculated:

(# of one kind of artifact class)/(total # of artifacts)/(total m^3 excavated)

This formula controls for the total # of artifacts collected and the volume excavated, meaning that particularly dense deposits <u>and</u> relatively empty units are weighed equally. Second, simple quantitative relative measurements will be used to look for variability within the region:

(# of one kind of artifact class)/(total # of sherds from cooking vessels); or
(# of one kind of artifact class)/(total weight of sherds from cooking vessels)

The artifact class is divided by an independent variable, such as a general functional household use item, the per capita frequency percentage of which we do not expect to change synchronically or diachronically. We will also use the number of grinding stone fragments as an independent variable.

These calculations will be completed for Chaa Creek and a sample of UBRV communities, including Xunantunich (see above). Subsequent comparative calculations should exhibit that within an integrated state (LCIIb-Terminal) specialized community production is represented by heterogeneity within and between communities, and that a mechanical economy (LCI-LCIIa) is identified by homogeneity in the material record, which represents redundant household production.

Ideology

I define ideology as the representation of any form of group consciousness. Commonalties of style suggest group interaction or affinity - a collective identity (Longacre 1970; Deetz 1965; Conkey and Hastorf 1990). Furthermore, stylistic homogeneity can represent standardized ideological linkages among communities, which according to the Durkheim framework, is a critical element of the integrated organic state [Table 2.]. It will be shown that LCI-LCIIa distinctive community-level styles ('micro-styles' - Muller 1977) transformed during the LCIIb-Terminal into ubiquitous styles representative of ideological solidarity. Ideological integration will be assessed by identifying trends of increasing homogeneity in regional stylistic patterning of three kinds of artifact classes: 1) architectural styles, 2) caching practices, and 3) ritual ceramic assemblages. The excavation strategy for this ideological data included both horizontal clearing and vertical trenching. Basal architecture was exposed as part of the above-mentioned clearing of five platform groups. Trenching excavations were utilized to explore changes in cache patterning through time within single structures. Investigations focused on Stela Group's 5m high temple structure (CC1, M1), which underwent multiple stages of growth, and on Plantain Group's eastern structure (CC5, M2), as well as on five smaller structures within lower site types - see the descriptions below.

1997 Excavation Methodology:

Overall Gameplan

The critical factor for this methodology was to be able to translate the Durkheim transformation into the material record, which I have broken up into two parts: the economic and the ideological [Table 2.]. I proposed that a homogenous ideological artifact assemblage and a heterogeneous economic artifact assemblage are signatures of an evolving organic solidarity. An explanation of how these specific trends of change are identified in the archaeological record will follow a general overview of the excavation and analytical process.

Excavations collected artifactual data on the economy and ideology from both the LCI-LCIIa and LCIIb-Terminal periods. The excavations sampled 30% of the Chaa Creek community sites, providing a strong representative sample and allowing for excavations of multiple sites of each site type. Out of 65 total sites, 10 had already been tested and 9 more different sites were sampled in 1997. Utilizing the typology of sites, our total sample was stratified proportionally to the quantity of each site type at Chaa Creek. We did not excavate a sufficient sample of Type I sites because too much time was spent on sites CC1 and CC5. Additionally, we did test excavations at the site of Dos Chombitos, on the eastern end of Transect #1. Table 1. outlines the sampling strategy and displays the sites excavated, and Figure 2. displays their location within the Chaa Creek zone.

In The Trenches: Excavation Strategy For 1997

Basing my field strategy on work already completed by XAP, others in the UBRV, and past work done at Chaa Creek, both horizontal exposures and vertical trenches were utilized. Horizontal clearing excavations opened up approximately 4-6 m^2 in front of and between buildings in order to recover occupational debris *in situ,* and to expose basal walls of platform constructions. We conducted trenching excavations that bisected mounds with the intention of defining the last two periods of occupation and to penetrate into the substructure for ritual deposits. Table 1. outlines the proportion of each site type investigated. Sites were chosen to ensure overall coverage at Chaa Creek and to further define the settlement zone as a single community. The community is noticeably divided into two parts, which lie on either side of the Chaa creek [Figure 2]. I call the two areas the East and West zones. Data was collected from both zones in order to gather representative samples for intra-community comparisons. Of the ten new sites being tested in 1997, decisions on clearing or trenching operations were made in the field based upon feasibility assessments. Five previously trained Belizean field assistants who were able to both excavate and illustrate features aided my fieldwork (their names are in the Acknowledgments). Everything was screened on 1/4" mesh size, as it is done for all of XAP work, allowing us both to make comparisons to other parts of the region and to collect complete samples. In select cases a 1/8" mesh size screen was utilized to sample specific volumes of flaking debris.

CC4 - The initial test drive

Site CC4 is a small Type I site surveyed during the 1993 reconnaissance. The site consists of a single low mound placed on a now destroyed platform area. Bulldozers took out the north and eastern portion of the site leaving the housemound (M1) intact. In 1995 surface collections and excavations of chultun recovered deposits from the LCIIb-Terminal time period. The 1997 investigations at the site were designed to refine our sampling strategy and observe the work pace.

The investigations were in three phases - the STP phase, the refuse Test-Pitting phase, and the vertical trenching phase. The STP program uncovered three concentrations of artifacts to the south of M1. All STPs were recorded with a sketch profile of soil stratigraphy. Collections were made of STPs with diagnostic ceramics, otherwise the artifacts were counted.

Artifact concentrations were assumed to be areas of refuse deposition. In most cases in 1997 a 1x2 meter unit was placed near to the most productive STP. If deemed necessary the excavations were expanded to expose architectural features. If not, artifact collections were made in lots which were generally changed every 20cms below ground surface, or when the soil matrix changed. Many test units excavated in 1997 were 30-70cm to bedrock and had no cultural stratigraphy within the deposits. They were primarily single phase scatters of refuse and did not necessarily mark the entire occupation history of a site. Robin (pers. comm.) has labeled these "sheet middens". Two units (181O and T) were single phase deposits from the Late Classic. Alternatively, the 181N, P and Q units were a stratified deposit. Below a solid Late Classic layer an earlier Protoclassic deposit was set into much harder packed matrix. This earlier deposit consisted of Floral Park vessels, such as a tetrapodal dish that likely had mammiform feet (Gifford 1976).

We also uncovered architectural features in areas of vacant terrain, something we should by now come to expect from excavations at peripheral sites (see Robin this volume). Leading off the south side of M1, was a complex architectural ramp feature. The ramp was constructed out of modified bedrock and calcite rubble stones piled along the middle and up a little on the sides forming mini-parapet side-walls. The trash deposits were chucked off the sides of the ramp.

A 4-meter long, one-meter wide vertical trench into the south side of M1 proved to be an enigma as were all the 1997 trenches into these small mounds (181D&M). The objective was to find ritual deposits, and to obtain some sort of temporal sequence of construction. Through trenching we usually were not able to obtain secure dates of occupation, and generally we were relying on the fill contexts. The date of the latest artifact in the fill does not necessarily date the construction, but does indicate occupation of the area during that time period. I made the assumption that most of the ceramics in the fill come from the immediate surrounding area, and in so doing represent occupation in the area at an earlier time - but not the necessarily when the mound was constructed. Time periods of occupation can be defined by comparing the dates from both the fill and the scattered refuse deposits. For example, if there are Late Classic fill sherds, and only Late Classic refuse scattered around the mound then there is a distinct probability that the house platform was constructed and occupied during the Late Classic.

In addition, multiple fill dates are helpful in assessing the time periods of occupation. Fill deposits were collected from behind each successive wall construction when there were two or more construction phases. The difference in the time periods indicates the earliest that either wall could have been constructed, but does not preclude the idea that much earlier ceramic deposits were used as fill, or that the building was constructed later. Lastly, I am considering specific dense sherd clusters found within the fill as ritual fill deposits placed during construction. Again, it is hard to say whether the fill deposits are a form of termination or dedication, and whether the ceramics can be attributed to the period of construction or an earlier time period associated with the previous occupation.

In suboperation 181D the southern basal wall of CC4, M1 was defined by a linear modification of bedrock (Mot-Mot wall) aligned directly with the large cut-block limestone wall found in 181N to the east. This alignment suggests that Mot-Mot wall is the southern wall of the platform. Similar to other sites at Chaa Creek we identified here a phase of very large cut-block limestone construction that we believe is indicative of a particular time period. Throughout the 1997 field season we began to identify this distinctive style of block in walls at Chaa Creek, which argues for a collective affinity for large block construction. Schmidt identified a sequence moving from large to small limestone block wall architecture at Xunantunich (pers. comm), and others have addressed the pattern at XAP (Braswell 1994, Church 1996:54). These blocks tend to erode more rapidly, and might not be the best choice architecturally yet still the style is used throughout the valley. My intention is that of developing a standardized typology categorizing wall construction patterns such as strength, form, height, width, and type of mortar filling if any. The excavations at Chaa Creek have exposed a large number of architectural sequences from 19 different sites, and I am utilizing the XAP archives at UCLA to compare archaeological profile drawings from Chaa Creek to other XAP excavations, including previous projects (Schmidt 1974).

CC17

This is a Type II site, located in Chaa Creek East on a bluff overlooking the Chaa creek. The site consists of a single mound (M1) that was mapped in 1993, and a second low-lying platform (M2) that was found in 1997. The site sits above a complex terrace system which connects with that of CC9 on the next hummock to the east. The STP program discovered artifact concentrations off the west side of the platform, directly south of M2. Test pit excavations yielded a strong Late Classic assemblage scattered on the bedrock. Vertical excavations into the north side of M1 exposed the heavily deteriorated basal wall. No artifacts were sitting on the final occupation surface of the site. Excavations were aimed at identifying final occupation debris sitting on top of the platform. We hoped to see the differences between artifacts sticking out of the fill, and those that may have been left *in situ* on the platform living surface. Excavations removed only the surface humus, as the fill cobbles were only 1-2 cm below the ground surface. Due to the extensive bioturbation, and the apparent collapsing of the side basal walls, it was impossible to tell the difference between the fill material and material that may have existed in antiquity on the floor of M1. The results of these excavations dictated that we stay off the sides of the mounds in order to get at final occupation debris.

CC33

This is a Type I site on the western end of an E-W running ridge within the east zone of Chaa Creek [Figure 3.]. The site is a single mound located on the western end of a low platform. The front of the mound is .75m high, while the western side is 1.5 m in elevation, and overlooks the Chaa creek from a vantage point 400m north of CC17.

Investigations at this site included both the STP program and a "horizontal trench". The 3x2 exposure was large enough to provide an adequate cross-section of the mound but additionally afforded exciting horizontal clearing of architecture. The eastern portion of M1 was evidently extended in the form of a small platform rising 25 cm above the level of the original platform. This second phase of construction was consistently discovered in the small housemounds at Chaa Creek. I speculate that it corresponds to a community-wide increase in wealth during the end of the Late Classic when Xunantunich became an independent polity. In addition, the platform mound was added on to and heightened during this last construction phase. Within this later fill phase was a ritual deposit, which included parts of large Silver Creek Impressed dishes. The deposit was found in the all too common context of "collapsed fill", which is so designated because it is fill that is found slumping off the mound. Laboratory analysis needs to securely date the different fill phases at the site, as there was no final phase occupation debris found directly associated with the mound. The trenching down to bedrock removed earlier fill strata potentially associated with the LCI-LCIIa phase, so that we may be able to compare refuse deposits of LCIIb-Terminal phase to the earlier phase fill.

In addition, the extensive STP program recovered two concentrations of artifacts. 252C was a 2x1 meter unit located just off the platform to the north of the mound. The unit was cleaned to bedrock. 252D was a 1x2 meter unit located 5m off the south side of the platform in another area of artifact concentration we exposed a post hole, which was full of carbon that was collected. The test unit was located off of the platform; the posthole likely represents a supporting pole for a large perishable structure that was located around the platform. The two test units had far fewer artifacts than other refuse units at Chaa Creek, but the recovery 11 obsidian blade fragments in the two test units, and 19 total from the site was an important statistic when compared to the low amount of sherds recovered. The high obsidian to ceramic ratio might indicate an as yet unidentified production activity centered at the site.

CC30

At this Type II site we used a similar excavation strategy as CC33 [Figure 3.]. The site is located in the middle the southern most ridge in the Chaa Creek East zone. It consists of two mounds that were mapped as non-orthogonally arranged. Our excavations demonstrated that the survey team had misread the basal lines of the western mound. The site has two formally arranged mounds, but for sampling purposes this site remains a Type II site. The STP and Test-pit program exposed a refuse deposit that began to give us a clearer picture of economic production. In Ops 253 D, E, G & H we recovered high densities of small micro-flakes. We responded by removing a 0.1x0.1m column sample (253H) and 1/8th inch screening a 0.5x0.5 meter area (253G). Many of the chert flakes were collecting in the depressions within the bedrock. The smaller flakes likely had washed down into the cracks and crevices, because bedrock is close to the occupation surface. In addition, a ceramic concentration

was noted to the north of the platform. Suboperation 253C was a 2x1 meter unit, which cleaned to bedrock, removing moderate to heavy artifact samples.

A 2x2 meter unit that was placed far too far up the face of the northern mound (M1). I had misjudged the location of the basal break on this small mound. The unit was almost entirely within the confines of the basal walls. Fortunately, in the southwestern corner of the unit we discovered the backside of the southern basal wall. The data from this mound provided very good fill contexts but no ritual deposits were located within the fill. On the other hand, an artifact deposit was recovered off the eastern side of the mound scattered on top of the patio/platform occupation surface.

CC5 (Plantain Group)

CC5, also called Plantain Group, is one of the 4 major platform groups in the Chaa Creek community (Figure 3.). Plantain Group is a Type VI site located on the west end of the center of the three E-W running ridges in the Chaa Creek West zone. Site CC5 is an impressive flat platform with two large 2m high structures arranged in an L-shape and connecting in the NE corner of the platform. The intersecting structures are labeled M1 (north building) and M2 (east building). The group was excavated extensively in 1995 (see Connell 1995). The east mound (M2) had a beautifully preserved limestone cut-block stairway. As part of the effort to get at changing patterns of ritual deposits and architecture, the primary objective in 1997 was to trench through the staircase and possibly into the substructure of M2. A 1.8 meter wide trench was laid out along the central axis of the staircase. Prior to removing each stair line of limestone masonry, the facings of the riser stones were drawn in detail, the separate blocks numbered, and the front photographed for documentary purposes.

Directly underneath the stairs we uncovered a well preserved construction staircase five courses high. The basal stair (labeled Iskun wall) was higher and structurally more sturdy, thereby demonstrating that these construction stairs were likely built to support the stairway's fill and not to be used as stairs at any point in time. The construction stairs were documented and removed. Within the construction stairs was a uniform fill deposit that was removed down to the level of a plaster floor (F2), on which Iskun sat. The staircase was built entirely upon F2, and following its construction F1, the final phase platform/plaza floor, was built around the outside of the stairs. Further out into the central area of the platform, the two different plaster floors grade into each other, as if F1 was laid down only in the general vicinity of the new staircase, and then allowed to grade into the earlier and very thick F2.

The trench exposes the central part of the basal wall of the M2 platform, which was dubbed Yuka wall center [Figure 5.]. Within the trench, the platform floor F2 lips up to the base of Yuka center. This indicates that prior to the final phase staircase there was no staircase along the central axis of the east building and that the staircase was built to abut the wall. The central Yuka wall portion consists of uniformly very large sized limestone cut-block masonry [Figure 6.]. These wall stones are much larger than those of either the north or south sections of Yuka wall [for Yuka north see Figure 7]. The difference suggests that the central part of Yuka wall stood prior to the addition of the both Yuka south and north sections. The northern section of Yuka wall abuts Ramon wall of M1, indicating the late date of Yuka north construction. This highlights the idea that wall construction changed stylistically during the Late Classic time period,

from a period dominated by the large block architecture to a more modest, small to medium sized construction technique. Another example of architectural patterning at CC5 is seen in Ramon wall of M1. In this case Figure 8 demonstrates that large block architecture clearly followed a phase of construction of small rounded oval calcite stones. In sum, at CC5, there is a three stage pattern of wall construction: 1) Lower Ramon wall [Figure 8.] with oval rounded cobbles; 2) Upper Ramon wall and Yuka center wall [Figures 8. & 6.] with large rectilinear calcite blocks; and, 3) Yuka north wall [Figure 7.] with medium sized rectangular blocks placed together with a high degree of masonry precision (ie. no chinking stones). This is all very preliminary, but following the development of an architectural typology I will assess the significance of this architectural pattern.

Three more construction stairs were discovered beneath F1 and F2. They were likely associated with an earlier and now dismantled staircase that led to earlier version of M2. The important observation is that these three construction stairs, though badly dismantled, were constructed at a different more northerly facing angle. They run at an N-S angle of 165 degrees, which faces 10 degrees more to the north than the final staircase. This change in alignment links the construction stairs within M2 to the site of Actuncan. Preliminarily this documents a change in alignment from Actuncan to Xunantunich. Of course, there are no secure dates, and most of the data is circumstantial, but the obvious change in alignment is critical.

Ultimately, though there were no features indicative directly of ideology, such as caches, we did see architectural patterning change through time with distinct fill phases. It appears the fill behind the final staircase has a Late Classic *terminus post quem* date, and that the fill behind the lower staircase is Protoclassic. The significance of the relationship between these excavations and those performed in 1995 is still being assessed.

CC7

The investigations at CC7 were designed to achieve the similar goals set for the other Type I-III sites investigated in 1997. Site CC7 was initially mapped in 1993 as an orthogonal patio group of three low lying housemounds connected by small saddles. The site is located on a low ridge southwest of CC5, and south of CC4 [Figure 2.]. It is part of the complex of patio groups associated with the Chaa Creek West settlement zone. The investigations in 1997 were a modest STP program with some test pitting in areas of artifact concentrations.

One 1x2 meter test pit was placed to the north of the connecting saddle between M1 and M2. The saddle was defined by Chencho wall, another example of a wall with constructed from large deteriorating limestone cut-blocks. At the base of the wall with LCIIb-Terminal artifact deposit was encountered. Below an eroded floor of tamped mezcla (mix of sascab and clay to form a hard packed surface - generally what is done ethnographically to make floors of households) was a very dense artifact deposit with scattered pieces of charcoal. Within the refuse deposit was found a fully articulated extended male burial. The human remains were deposited concurrently with surrounding trash deposit. Adams (this volume) will present complete analysis. It is my belief that this is evidence of a lower status individual burial during the later phases of the Late Classic. It is reminiscent of the burial found at Group B, where the body was

covered in refuse/midden (Etheridge 1995). Aimee Prezsiosi analyzed the ceramics, and many were drawn and photographed. The pottery in and around the burial had the distinctive pattern of being intentionally broken in half. The pieces found placed on the cranium were broken in two. One part was placed on the skull, and the other was scattered somewhere in the refuse. The pattern of careful breakage and deposition was also identified in the chultun at CC4, in the termination deposit at CC5 (Connell 1995), and in some of the deposits placed in the fill of smaller mounds (CC33, CC2).

CC67

This site is located on the eastern end of the Stela Group ridge, the long northerly ridge in Chaa Creek West. The orthogonally arranged three-mound platform group, which is open to the south, overlooks the Chaa creek to the east. Additionally, two well-preserved chultuns are located within the platform. The largest mound lies to the east (M2) and it has been severely looted. Excavations in 1994 into the platform, recovered scattered undiagnostic ceramics, and exposed a post-hole cut down into bedrock.

Investigations in 1997 aimed at cleaning up the sidewalls of the looted M2, and, additionally, a STP and test-pit program was undertaken. The sidewalls of M2 demonstrated two distinct large-scale construction phases of the mound. At some point during the Late Classic the structure was widened and heightened. Entirely new basal walls were built, and a new plaster platform floor was placed on a layer of new fill. As yet the ceramic collections from these construction phases are not analyzed, but architecturally there is a shift from oblong medium-sized calcite wall construction blocks to a large calcite block architectural wall style.

The STP program was very successful, exposing some of heaviest refuse in 1997. Both 1x2 meter units collected dense amounts of a single phase of midden (262B&C). Both appear to be strongly Late Classic. This will provide good comparative data both within Chaa Creek and among the sites in the region.

CC25

CC25 is a Type I site located along the northern edge of the Chaa Creek community [Figure 4.]. The site consists of a single low mound on the northern side of a 50 cm high platform located upon a very gentle downslope to the south. 50 meters to the south lies an extensive and as yet unmapped terrace system. Naturally occurring chert nodules are strewn over the ground surface. They have washed out of a red clay stratum that sits on top of limestone bedrock. Original interpretations offered that the terracing served to maintain topsoil, but additionally to clean the fields of cobbles. Excavations at this site included horizontal clearing of the front of M1 (the single mound) and an intensive STP program [Figure 4.]. The STPs circumscribed the small site and located a concentration of refuse along the eastern side of the platform. A 1x2 meter test trench investigated the refuse (subop 267C), and was extended west in another 1x2 (267F). We determined that the refuse was collapsed platform fill. The unit uncovered evidence of two terrace levels, showing the platform to be stepped on the eastern side. Most of the basal walls or risers had deteriorated so the fill overflowed from the platform side. We were surprised at the density of artifacts within the fill, which explains why there was extremely little refuse surrounding the site.

267H was an incredible find. A smashed effigy incensario with a modeled head attached to the side of the chalice-like container was discovered at the level of the platform floor [Figure 9.]. Directly associated with the incensario was another figurine head that likely was attached to a second incensario, broke off, and then was salvaged and curated [Figure 10.]. The spectacular piece (267H/1-P1), excavated with care by XAP archivist Lady Harrington, appears out of place among the housemound architecture found at the site. During the 1997 season only a handful of polychromes and figurines were found, certainly not enough to talk about patterning in the material record. One of the proposal's aims was to interpret the variability found in ideological patterning of ritual artifacts found in similar contexts, but the result has been the recovery of only a few examples, and each is in different contexts. Nevertheless, at Chaa Creek the unexpected contexts of the few ritual deposits do provide useful comparisons to other sites and regions.

The effigy censer was found on what would have been the front patio of the small housemound platform [Figure 9.]. The figure has the likeness of Sak hunal or the Jester God, who is usually represented as a head with the trilobed headgear. Sak hunal is often associated with *ahau* or lord king, and in particular when he is depicted with a headband (Schele and Freidel 1990). He developed during the Olmec times, and was popular up through the PreClassic and Classic periods, but never has it been represented in the Postclassic (Schele and Freidel 1990). Yet the crude paste of the pottery leans one toward a later time period, with possible connections to the Yucatan. In addition, documentation from Postclassic Tipu displays evidence of applique figurines that are incredibly similar in style to those found at CC27 (Jones, Kautz, and Graham 1986:44). The effigy incensario itself was found in association with an LCII Mount Maloney incurving bowl. Despite the temporal wrangling, the incensario does suggest that the Jester God was clearly not the exclusive purview of kingship. At least preliminarily this indicates a strong integration of all peoples in the Xunantunich region, and demonstrates a collective affinity for certain gods within the realm.

Horizontal clearing and trenching into the sole mound at CC25 was informative. In subops 267B, D, E, and G we exposed two phases of construction for the platform and the mound. This coincides with the now apparently secure pattern demonstrating two phases of construction presumably during the Late Classic. The initial construction is a large construction of a platform or housemound, and then in a subsequent phase an additional frontal platform or a heightening of the mound is performed.

An additional important pattern was uncovered. The fill of this platform was dense with artifacts, which were used along with cobbles as building material. I am calling this "displaced midden" or better yet "secondary midden". It has an artifact make-up that provides clues into the nature of the economy at the time this fill was deposited. An equal amount of chert flaking debris was removed as ceramics were collected. Bags and bags of large primary and secondary flakes, cores, and bifaces were recovered. I argue that within the fill of the second platform construction phase, there was an entire displaced midden. This is secondary evidence for some sort of primary core reduction taking place here prior to the final occupation of the site. In this last stage of occupation, we do not have evidence for production debris anywhere at the site.

Biface production at CC25 came as no surprise because the resource of chert cobbles is in such great abundance around the site. 267G was a .5x.5 meter unit screened at 1/8th inch mesh. These lithic deposits will be closely compared to that of CC30, where only evidence of micro-flaking was recovered. If the two sites are synchronous, and at this point I would argue that they are, then we have two distinct stages of chert biface production. At CC25 initial core reduction and maybe crude preform production, and in the case of CC30, final stage micro-flaking or at the very least extensive retouch activity. The two forms of production are complementary. When the construction phases are dated, I believe they will be found to be from the LCI-LCIIa stage. During this time period we would expect autonomous community economies, which were integrated locally but not regionally. Thus the community production of chert bifaces could be done on a small scale and in different stages at different households within a community. This is in direct contrast to the evidence for mass production of chert biface tools found at TA1-3 near the town of Succotz (Vandenbosch n.d.). At this Late Classic site production was on a very large scale and concentrated at one particular site, while at Chaa Creek we see stages of production occurring about 300 meters apart and on separate ridge tops. I believe that the Chaa Creek data from CC25 and CC30 will be from an earlier time period.

CC27

This is a Type V site located along the central ridge of the Chaa Creek East zone. The site consists of one platform group of two formally arranged housemounds and four scattered housemounds all located within 50 meters of the core patio group. CC27 was the only site tested of the three Type V sites at Chaa Creek. An extensive STP program covered the entire area. Three test units were placed near to areas of comparatively high artifact density. 268B was a 1x2 meter unit located 15m to the south of M1, and recovered refuse that was strewn across the ground surface. 268D and 268K investigated the area we labeled the sunken courtyard. It is an area that is apparently cut out of bedrock on the east side, and on the west low irregularly sized mounds lie along the ridge edge. The function of the mounds and of the entire architectural area was unknown. It may have been an aguada or possibly some sort of quarrying operation. The 1x1m unit 268D was placed in the center of the feature. It recovered artifacts within a fine silty clay matrix with few cobbles or calcite rubble. At the base of the unit a crude N-S running wall-like feature was exposed, which we could not associate with anything. 268D was placed alongside the NW corner of 268D, it was a 0.5x0.5 meter unit screened at 1/8th inch. The unit was designed to complement the other 1/8th inch screening operations at Chaa Creek. 268K was a 1x1 meter test unit designed to recover refuse in an area located to the south of the sunken courtyard and north of M5, along the south-western edge of the ridge.

In total 9.5 m^2 of clearing excavations were undertaken on both the north and the west sides of CC27, M1. Excavations on the west side of M1 held to the familiar pattern of two construction phases. A platform was added, extending further westward onto the platform. On the north side the excavations uncovered a final phase occupation trash deposit strewn across the last occupation surface. This deposit preliminarily documented the last phase of occupation at the site at the end of the Late Classic (LCIIb).

CC2

This is a Type I site on the southern flank of the Stela Group ridge [Figure 2.]. An extensive STP program showed an artifact concentration to the south of the platform. Excavation of a 1x2 meter unit (270B) recovered many Late Classic sherds.

CC3

This is a Type II located due south of site CC1 (Stela Group) on the flanks of the ridge on a small natural limestone outcrop that juts out from the ridge. It has two or more non-orthogonally arranged mounds one of which interdigitates with a terrace system. The STP program blanketed the entire site, and focused on emanating out from the three mounds. Test unit 269B was a 1x2 meter excavation off the western edge of M2. It was placed on a gentle downslope far enough away from the mound so collapse debris would not mar the artifact collection. Within the unit we found dense deposits of artifacts down to bedrock. At the base of the unit we uncovered a low retaining wall that runs north-south and was not connected to any architecture. It apparently retained a lower stratum of clay matrix, keeping it from washing down slope. Suboperations 269D and F were part of a test unit located at the base of the outcrop. STPs demonstrated high densities of artifacts. As part of the ongoing comparative $1/8^{th}$ inch screening tests, a 0.5x0.5 meter unit was attached to the southwest corner of 269F (269I).

Investigations of M1 were designed to both trench the centerline of the mound, and expose *in situ* floor deposits to the south of the building. The trench exposed an outer and inner basal wall, which again supports the pattern of two construction phases. These are low lying crudely constructed limestone rubble fill retaining walls. Similar to other excavations, the fill behind each wall was collected. In this manner we will be able to assume that construction could not have taken place prior to deposition. I suspect that there will be a correlation between the last phase construction fill and the refuse found strewn on the occupation surface in front of the outer basal wall.

CC1 (Stela Group)

This is a Type VII site located along the western end of the CC1 ridge. Previously the site has been labeled the ceremonial or divination site at Chaa Creek. Stela group is so-named because two stela have been found at the site. The platform group is open to the north, and has a 5 meter high pyramid located on the east side (M1), a long low-lying platform to the south (M2), and a 3 meter high structure on the west (M3). Excavations in 1997 focused on cleaning up the bulldozer trench in the back of M1 and trenching the front of the temple structure (M1). In 1995 at the base of the last phase stairway we recovered a cache of 8 flint eccentrics just under the last platform floor (F1). This cache of scorpions, lunates, serrated bifaces, and other anthropomorphic figures, is identical to those found at Xunantunich by Graham and Schmidt (see Connell 1995). I felt that if we were to recover more evidence of ideological ties to Xunantunich during the Late Classic, then we should trench the building in search of changes through time in the types of ritual offerings being made.

The 2-meter wide by 4.5-meter long trench ran up the front of the temple mound. A summary of the architectural and ritual features will be provided here. Initial clearing of the final phase staircase (M1-1st) began at the base of the temple. Only

evidence from the lower three steps was discovered. The rest of the stairway was completely collapsed. The large limestone blocks were very soft and easily deteriorated. In the final profiles of the side walls, scattered evidence of some of the large collapse stones from the final staircase is seen. We do not know what these stairs led to, as all the superstructure was completely destroyed by the bulldozer cut in the back of the mound. Stairway M1-1st was built on top of F1, the final plaza plaster floor that would have covered the entire platform area. Unlike at CC5, F1 runs underneath the final staircase.

Within the fill behind M1-1st was the staircase M1-2ndA. This staircase was generally well preserved, but the final one or two steps had been removed in antiquity and a separate fill layer was placed in the void. This likely occurred as part of the construction of M1-1st. Possibly the lower treads were reused in the new staircase. Along the centerline, and on top of M1-2nd Step #5, a cache was discovered (190P/5-D1). Cache #1 was placed within the fill of M1-1st [Figure 11.] It consisted of 172 large chert flakes, and 128 small rounded river stones. The lithics and the stones were of every color imaginable and most of the flakes had no cortex indicating careful removal of large biface thinning flakes. In addition, mixed in the collapse just above the cache was almost half of a Belize Red Platon Punctated-Incised Bowl. We cannot securely associate the bowl with the cache, yet there were no other artifacts of this kind found in this area. Cache #1 was apparently placed on the stairs as termination/dedication deposit. It was either placed during the construction of M1-1st or was placed after its construction.

Three steps above cache #1, the M1-2nd stairwell terminated, but only along the centerline because an approximately 1x1 meter niche was discovered (niche #1 in Figure 11.]. The M1-2nd stairs continued up the temple along the sides of the niche. A person could ascend the temple enter the niche and kneel down, or keep ascending to the top. The floor of the niche had deteriorated. The function of niche #1 was unknown until the top three steps (#6-8) of M1-2ndB were removed. Underneath these steps lay a rapidly deteriorating Patolli board set into a second niche (#2) [Figure 11.]. At a certain point this Patolli was covered up, and a second niche was constructed above that housed a second Patolli board. This was probably done as part of a general heightening and expanding of the entire temple. I hope to be able to work out when exactly these events took place, but unfortunately the limits of the excavations will hinder our expectations. Many Patolli boards have been found in Late Classic contexts at Xunantunich. Patolli boards are traditionally described as an ancient Maya game that was possibly used in divination rituals. Neff (1995) conjectures that the use of patolli boards during the end of the Late Classic to Terminal Classic in the northern lowlands such as Seibal and Becan indicates a larger interaction sphere, which may have included Xunantunich as a polity. She talks about the commonality of the Patollis as indications of not only connections, but the fact that people must follow sets of rules - a higher degree of interaction than simply influence and stylistic assimilation. I offer that at least within the Xunantunich region the Patolli board is an indication of collective affinity. The fact that so few have been found elsewhere, and that at Xunantunich close to ten have been discovered, and now here at Chaa Creek two likely existed, if not a third

associated with a now destroyed final niche that would have been associated with M1-1st, indicates strong ideological connections between the two sites.

Next we removed the lower four steps of M1-2ndA. Below these stairs the fill was decidedly different, it was laid down in sequences of dry core rubble filled with Protoclassic sherds, and then a layer of extremely hard packed mezcla, followed by a stratum of ballast. This sequence continued behind the M1-2nd stairs and up to step #5, underneath step #5, there was a different fill pattern. F1 continued underneath these stairs and finally terminated in front of the M1-3rd stairwell, whose lower first and possibly second tread had been removed. The same plaza floor level (F1) continued underneath the temple from the outside. The floor was covered with evidence marking features that lay below. In an area that would have been directly at the base of M1-2nd was a round worked sherd set into an area of replastering that formed a circle with radius approx. 20 cms. This marked Cache #2, which likely was placed at the foot of M1-2nd just after or during its construction, and quite possibly could have been re-entered many times. The cavity into the floor cut through F2, which was 8 cms below, and went into platform fill another 30 cms. Cache #2 was covered with a dense deposit of carbon. Inside the carved out area six multicolored chert river cobbles were placed that aligned to the cardinal directions. This cache, in conjunction with Cache #1, indicates the importance of multicolored chert stones at this site.

In front of what would have been M1-3rd stairs, a large limestone block sat precariously balanced on its side. It was marking something that lay below. Below was an extended burial face down in Crypt #2. The burial was noteworthy because it apparently displaced another. Along the outside of the burial crypt were strewn bones from an earlier burial. In addition, Cache #3 was discovered outside of the crypt just to the west, but on the centerline - a deposit of small, crudely made lip to lip "finger-bowls" inside of which was found two phalanges. Preliminarily I believe these are associated within the Belize Valley with Protoclassic ritual activity. Though the fill behind M1-2nd, which was above this crypt, was primarily of Protoclassic material, it has not been analyzed completely so we can not assume the early date for this deposit.

Lastly, F1 was completely removed to expose F2, a very hard packed but highly deteriorated plaster floor made entirely out of cemented sascab or mezcla, without ballast. This floor ran the length of the base of the trench, and underneath M1-3rd. It was more eroded towards the front of the building, except in one location that was underneath the area of the last three steps of M1-1st. In this area F2 sunk down in a depression indicating a hollowed out space. Crypt #1 was discovered cut into the bedrock. A single individual lay in an extended position within the crypt. The details of the individual will be available from Bradley Adams. It was surprising that the burial of this individual, which was early in the architectural sequence, happened far out in front of what would have been the associated temple architecture. This might indicate that an altar existed in front of the building, and had since been removed, but the burial remained.

Excavations At Dos Chombitos

Operation 284A was the excavation of a 1x2 meter unit in a dense midden area located just off the western side of the Dos Chombitos platform. The unit was placed on the western edge of a lower platform that juts out from the side of the much large main platform. Ehret (1995) placed a unit in this vicinity, but further to the south. The data from the earlier unit was unavailable thus necessitating a second unit. Excavations exposed the retaining wall of the western edge of the platform. Most of the cultural material was recovered lying at the base of the retaining wall, and on top of the wall. The data will provide important comparative material for our analyses of regional interactions.

Summer Laboratory Analysis

Following the excavation season a two-month lab season was undertaken. Working within the system set up by LeCount (1996) and expanded upon by Yaeger (n.d.) and Preziosi (1996; this volume), I created a ceramic coding strategy that was particular to the needs of the research questions at Chaa Creek. For example, in addition to color and design patterning we concentrated on coding lip and rim forms. These are areas of the vessel where the producer and consumer are making stylistic choices (Rice 1987). The shape of a rim and lip not only yield temporal distinctions, but as well delineate dimensions of interaction - what I term "zones of affinity".

During the lab season 174 separate lots were studied in detail. We primarily examined samples of refuse deposits, and tried to make temporal distinctions of important fill lots. No formal analysis of the data collected has been completed on the ceramic collection from Chaa Creek. I can only make a very intriguing comparison between the material from Xunantunich, Chaa Creek, and X-ual-Canil, the site northeast of Chaa Creek on the other side of the Macal River, which was outside of the proposed political boundaries of Xunantunich [Figure 1.]. Fifty percent of the ceramics were examined from an extremely dense midden found near X-ual-Canil.

During the Late Classic there are distinct geographic differences in the slip color on calcite body sherds. Within the proposed Xunantunich polity there is a significantly higher percentage of black slipped vessels than red, while at X-ual-Canil the reverse is true, there are significantly more red calcite sherds [see Table 3.]. The numbers provided by Preziosi's analysis of Operations 116, 117, & 123 show that at LCIIb-Terminal Xunantunich the black slipped calcite vessels predominated [Table 3.]. This analysis is supported by the data from Pacbitun settlement survey (Sunahara 1995) and personal observations made of the material excavated from Baking Pot in 1997. These two areas are outside of the proposed Xunantunich boundaries. Sunahara collected ceramic data from test pits along the Southwest and Northwest Pacbitun Settlement Survey transects. Documentation of ceramic percentages for the entire sample (which she states is strongly Late Classic) indicates much higher percentages of Monochrome Red (70.3%) than Monochrome Black (6.7%) ceramics (Sunahara 1995, C-13). In addition, excavations in the Baking Pot area which are focusing on the latter stages of the Late Classic and into the Terminal Classic, do not recover black slipped calcite sherds in the same percentages as the Xunantunich region (Awe and Aimers, pers comm. 1997).

At Chaa Creek we see an important shift in the numbers of red vs. black slipped pottery [Table 3.]. A preliminary look at some early Late Classic contexts (LCI-LCIIa)

suggests a mixing of reds and blacks. Operations 252 and 253 at sites CC33 and CC30 respectively have been interpreted as having early Late Classic fill and refuse contexts. Analysis of a representative sample shows roughly equal amounts of the red (55%) vs. black (45%) slip on pottery sherds. Deposits of LCIIb-Terminal Classic material at Plantain Group (CC5) demonstrate a remarkably different pattern, with black slipped calcite sherds rising to 87% [Table 3.]. This pattern now mirrors the data from Xunantunich. When Chaa Creek was integrated into the new Xunantunich polity it adopted the black slipped style.

This red vs. black comparison can be broken down further into a comparison between two different ceramic Type-Varieties as defined by Gifford (1976). Both Mount Maloney incurving bowls, which are black slipped and Garbutt Creek incurving bowls, which are characterized by a dark red-brown slip, have similar forms and rim profiles, including a distinctive lip beveling. According to my brief analysis, these two ceramic Type-Varieties are characterized by different geographic areas. At Xunantunich and in the communities nearby, most notably San Lorenzo, almost no Garbutt Creek is found, but high densities of Mount Maloney are found for all Late Classic phases. Outside of the region I argue on the basis of limited available data that the inverse occurs, with Garbutt Creek types predominating [Table 3.]. Again, at Chaa Creek I believe the proportions will change through the Late Classic. During the early part of the Late Classic Chaa Creek will have a general mix of Garbutt Creek and Mount Maloney, identifying the community of Chaa Creek as an interstitial site (see above). Remember that Chaa Creek lies at a critical juncture between some of the larger cities in the region (Table 1.). During the end of the Late Classic when Xunantunich developed into an independent polity, we would expect a cessation of red Garbutt Creek ceramics at Chaa Creek, as it becomes part of the integrated Xunantunich polity.

It can be argued that political boundaries do not necessarily indicate limitations on trade and exchange. Other factors such as regional economic dynamics might have limited the production and distribution of ceramic goods to certain areas (see Arnold 1985). Nevertheless, a good case can be made for the pressures of social circumscription placing limits on the movement of goods in and out of the Xunantunich political borders during the end of the Late Classic and into the Collapse.

Discussion

Separate lines of evidence are validating my model for political integration of the region during the Collapse time period. We recovered considerable information on stone tool production at Chaa Creek during the two crucial time periods. It appears that during the LCI-IIa time period, the community was producing its own lithic assemblage, while during the LCIIb-Terminal period it was relying upon other workshops to distribute axes, hoes, and household implements to their households. Stone tools were likely exchanged for specialized goods produced at Chaa Creek such as cotton and/or cacao, because of the extremely rich, fertile soil that surrounds the community. Thus at Chaa Creek we see a drop off in household production of stone tools in favor of a reliance upon goods produced by other communities. This indicates in my view the economic integration of the Xunantunich polity.

In addition, we have preliminarily isolated evidence for increased ideological homogeneity during the LCIIb-Terminal Classic -- in the choice of color used for ceramic serving bowls. Prior to the Collapse and the growth of the area as an independent organic polity, the denizens of Chaa Creek utilized ceramics from different political zones. When the Collapse occurred, Chaa Creek only utilized black slipped serving bowls - the signature ware for Xunantunich.

In addition, evidence from 1995 demonstrated that the major structures at the important sites in the community change architectural orientation during the LCIIb-Terminal Classic, becoming aligned towards Xunantunich. These alignments suggest other alignments of a political and/or economic nature. I am also working on cataloguing the entire suite of architectural wall constructions in the region. The resulting architectural stylistic typology is another tool for understanding the range of collective identity within the valley.

Conclusions

Preliminary findings indicate a change in the types of interactions between Chaa Creek and Xunantunich. During the height of the Late Classic time period (AD 550-800) the relationship was characterized by loose ideological and economic connections, while during the "Collapse" era (AD 800-1000) the relationship was characterized by tighter economic and ideological connections, and thus strong political integration.

In sum, this research project does contribute to our understanding of the ancient Maya sociopolitical system. I am trying to show that inter-community integration at the regional level occurred as result of geopolitical collapse of the Maya system. This integration is an example, on a small scale, of how "organic" polities might form. If so, we would expect certain things to happen with the economy and ideology and we can archaeologically test for these changes in the material record. Therefore, not only have we tested a model of Maya sociopolitical change, we have tested whether a new Durkheim framework can be used in order to understand political change.

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Table 1. XSS Site Typology, Distribution of Chaa Creek Sites, and Sites Excavated

Site Designation	Description of Site Typology (Ehret 1995)	Quantity at Chaa Creek	% of N (N=65)	Sample Size (30% sample)	Quantity Excavated (1994, 1995)	Quantity Excavated (1997)	Total Excavated (after 1997)
I	Single isolated mound or platform, less than 2 m in height	24	36.9	7.2	1 (CC15)	4 (CC2,4,25, 33)	5
II	2-4 informally arranged mounds or platforms, all less than 2 m high	13	20	3.9	0	3 (CC3,17, 33)	3
III	2-4 orthogonally arranged mounds or platforms, all less than 2 m high	20	30.8	6	5 (CC9, 63,64,67,70)	1 (CC7); continued at (CC67)	6
IV	5 or more informally arranged mounds or platforms, all less than 2 m high	1	1.5	0.3	0	0	0
V	5 or more mounds or platforms, with at least 2 arranged orthogonally, all less than 2 m high	3	4.6	0.9	0	1 (CC27)	1
VI	1 or mounds or platforms, with at least one 2-5 m high	2	3.1	0.6	2 (CC5,19)	Continued at (CC5)	2
VII	2 or more mounds or platforms, with at least one higher than 5m	2	3.1	0.6	2 (CC1,18)	Continued at (CC1)	2
	TOTAL	65	100	19.5	10	9	19

Table 2. The Durkheim Conceptual Framework

Upper Belize River Valley

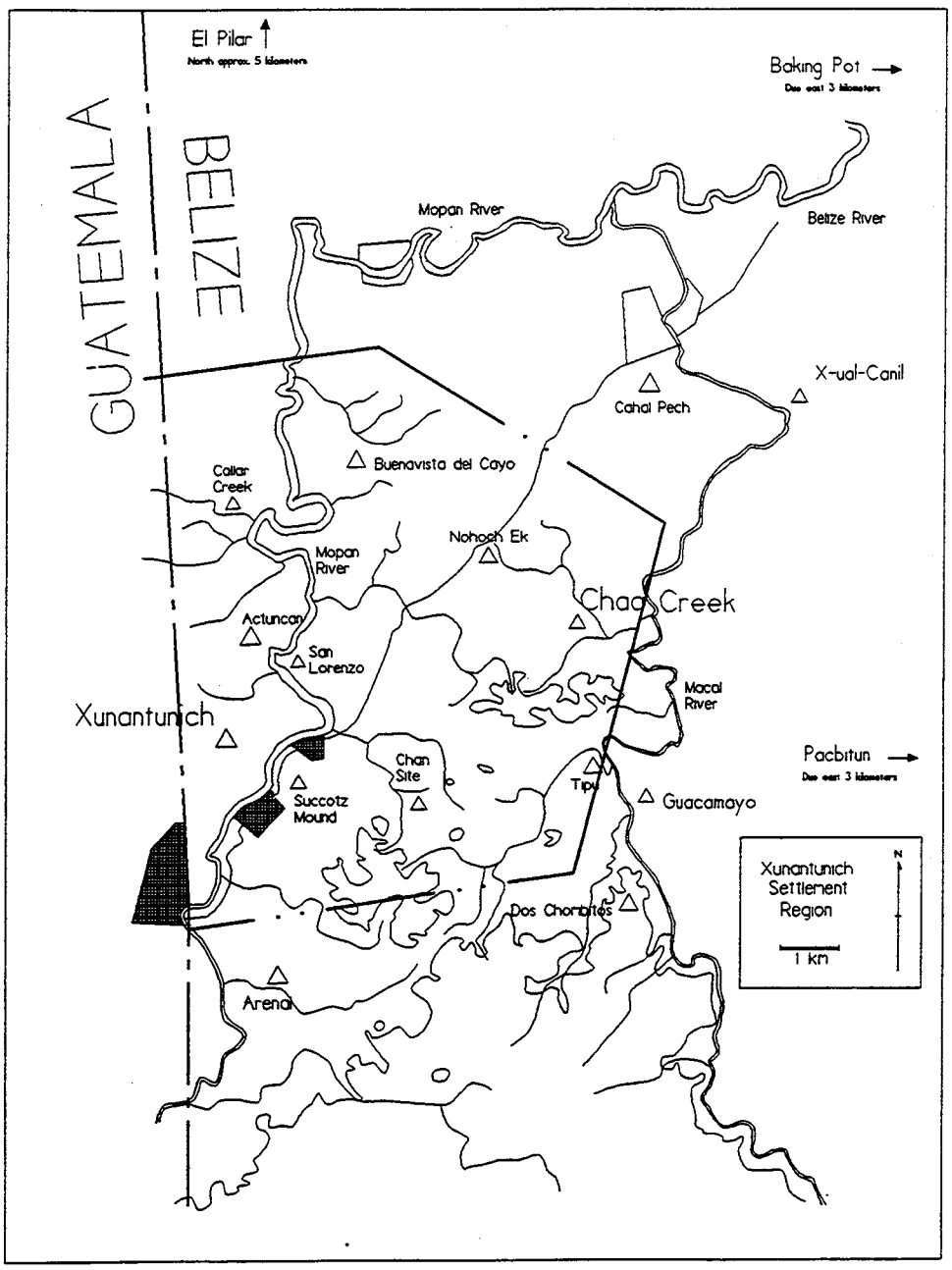
Type of Society	Context of Analysis: *Economic*	Context of Analysis: *Ideological*	Chronology
Mechanical	HOMOGENOUS	HETEROGENEOUS	AD 550-AD 800; LCI-LCIIa
Organic	HETEROGENEOUS	HOMOGENOUS	AD 800-AD 950/1000; LCIIb-Terminal

Amount of Comparative Variability

Table 3. Preliminary Ceramic Analysis

Op #	# Black Slipped Calcite	# Red Slipped Calcite	Total Slipped Calcite	# Garbutt Creek	# Mount Maloney
Late Classic Contexts at X-ual-Canil					
Unit 102-1	11	202	213	44	0
% of total	**0.05**	**0.95**		**1.00**	**0.00**
Late Classic Contexts at Xunantunich, Group A					
116	106	1			
117	55	3			
123	44	21			
	205	25	230		
% of total	**0.89**	**0.11**			
Early Late Classic Contexts at Chaa Creek (LCI-LCIIa)					
253D/2&3	9	11			
252B/19	8	12		0	1
252B/21	7	10		1	0
252B/7	14	3		0	1
252B/5	3	6		0	0
252E/22	0	11		0	0
252D/1	0	1		0	0
252D/3&4	4	2		0	0
	45	56	101	1	2
% of total	**0.45**	**0.55**		**0.33**	**0.67**
End of Late Classic Contexts at Plantain Group, Chaa Creek (LCIIb-Terminal)					
161R/2	60	14		0	8
161M/1-3	93	7		0	27
161Q/7	7	2		0	2
	160	23	183	0	37
% of total	**0.87**	**0.13**		**0.00**	**1.00**

Figure 1. The Upper Belize River Valley (UBRV)



Original Map Created by J. Yaeger in 1993

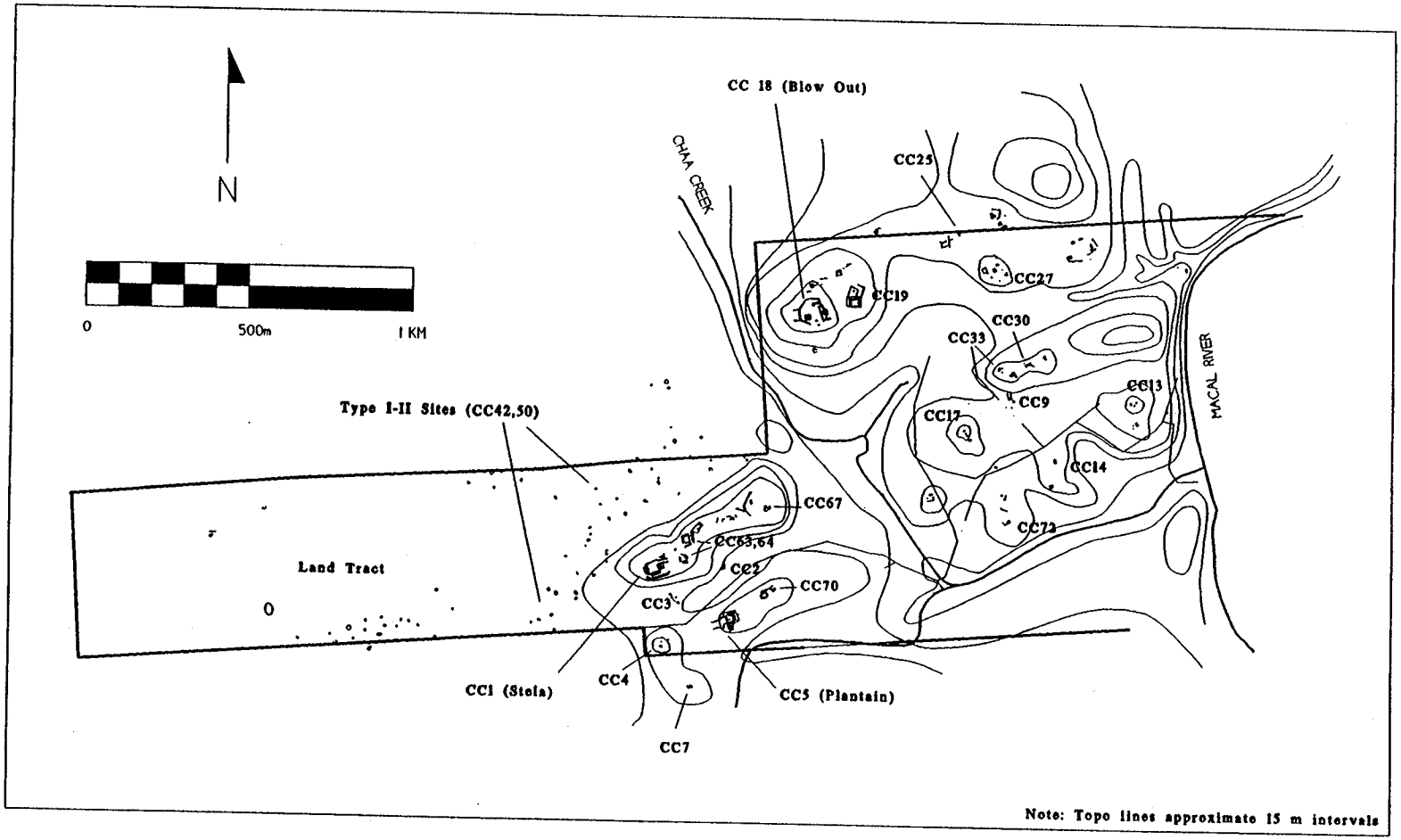


Figure 2. Chaa Creek Settlement Zone

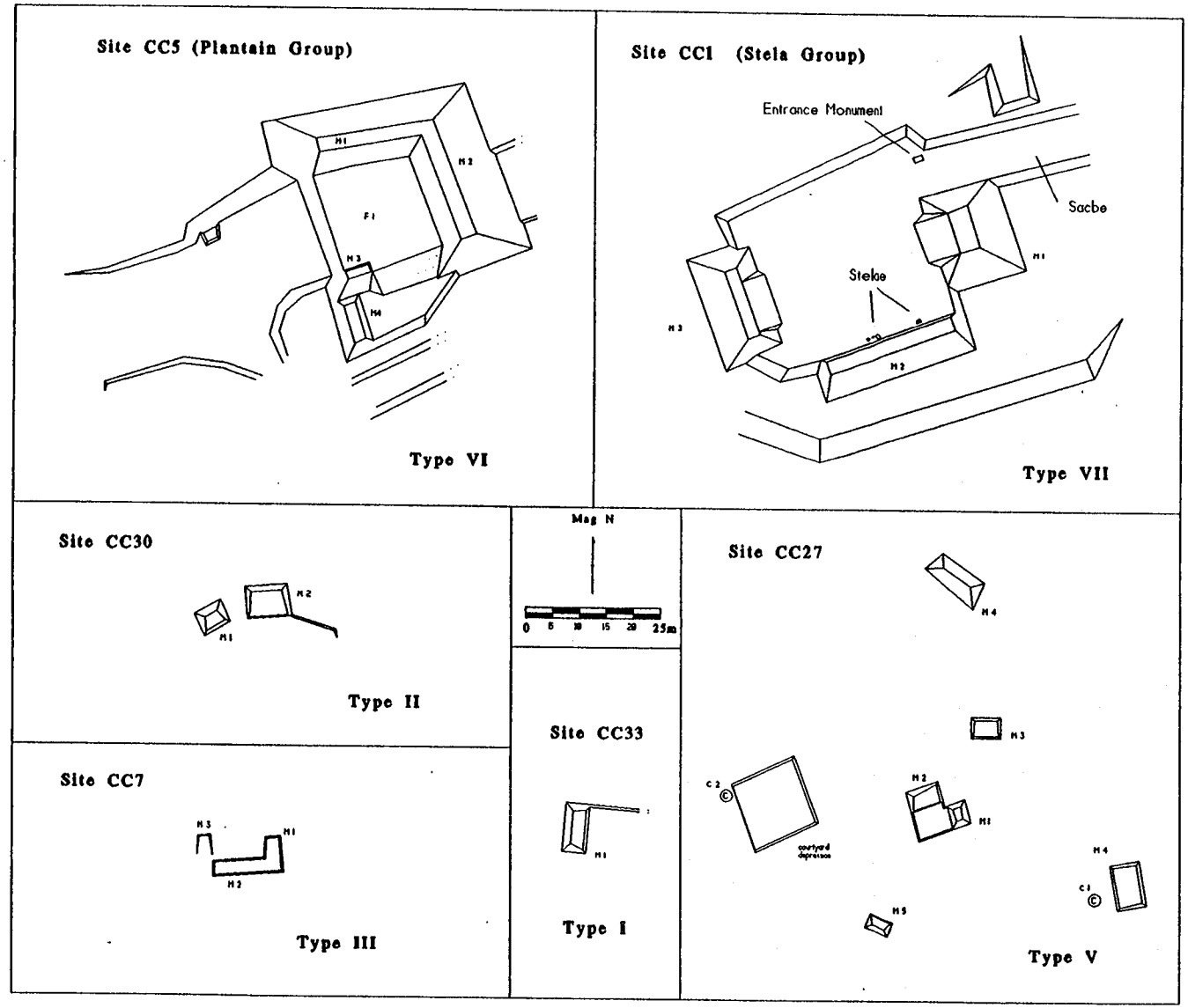


Figure 3. Chaa Creek Site Types Excavated

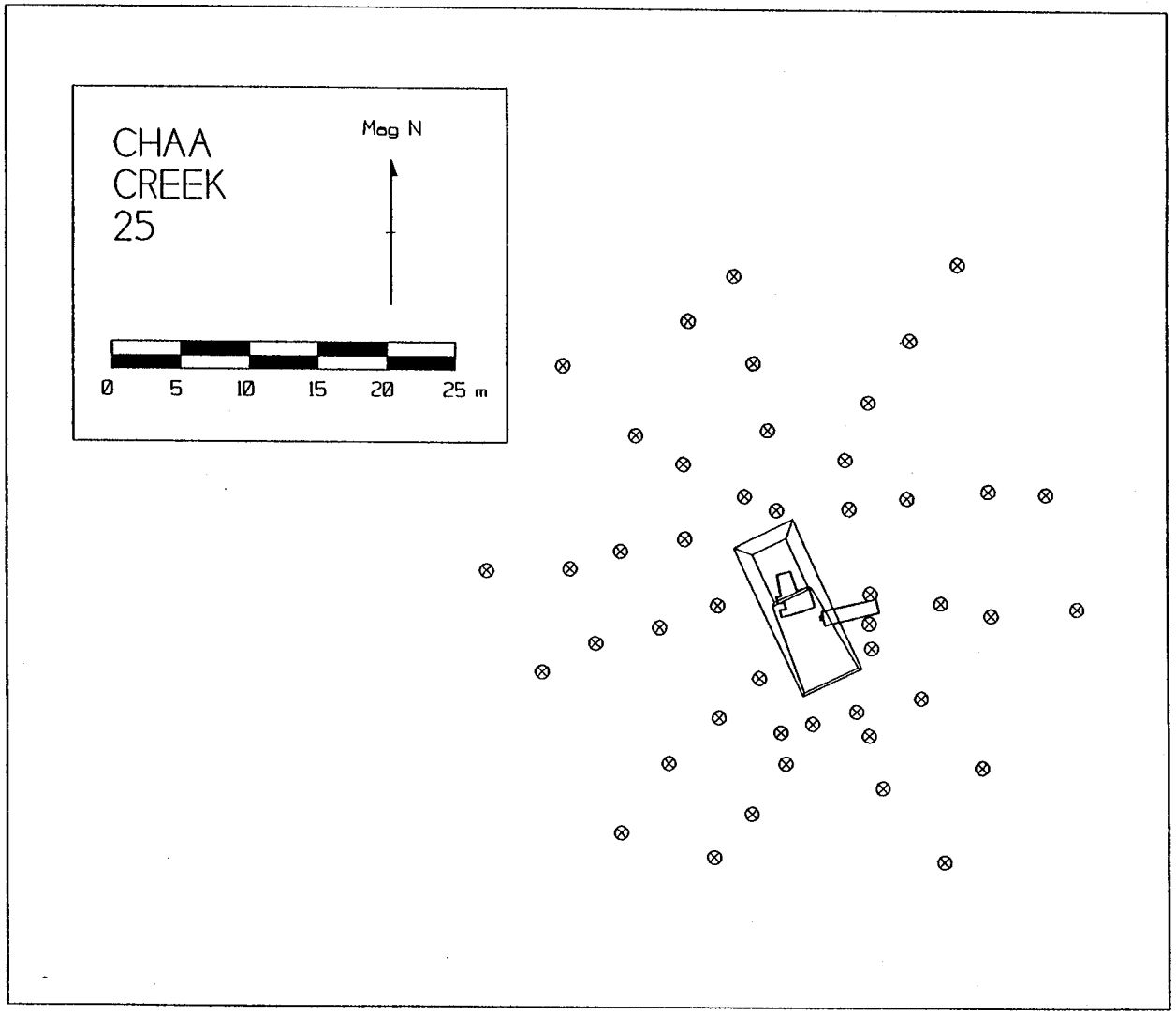


Figure 4. Site CC25: Excavations and STPs

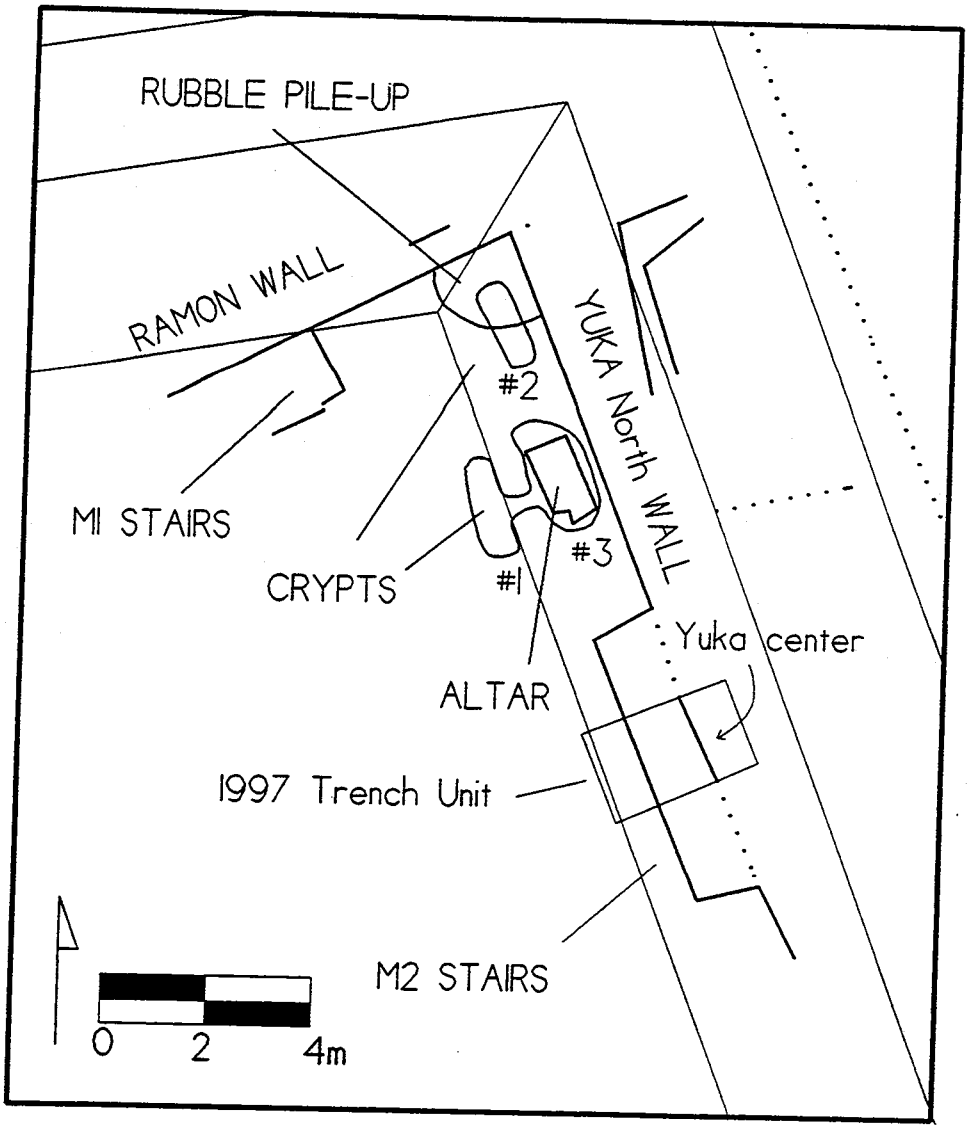


Figure 5.
Architecture at Plantain Group (CC5)

Figure 6. Yuka wall center

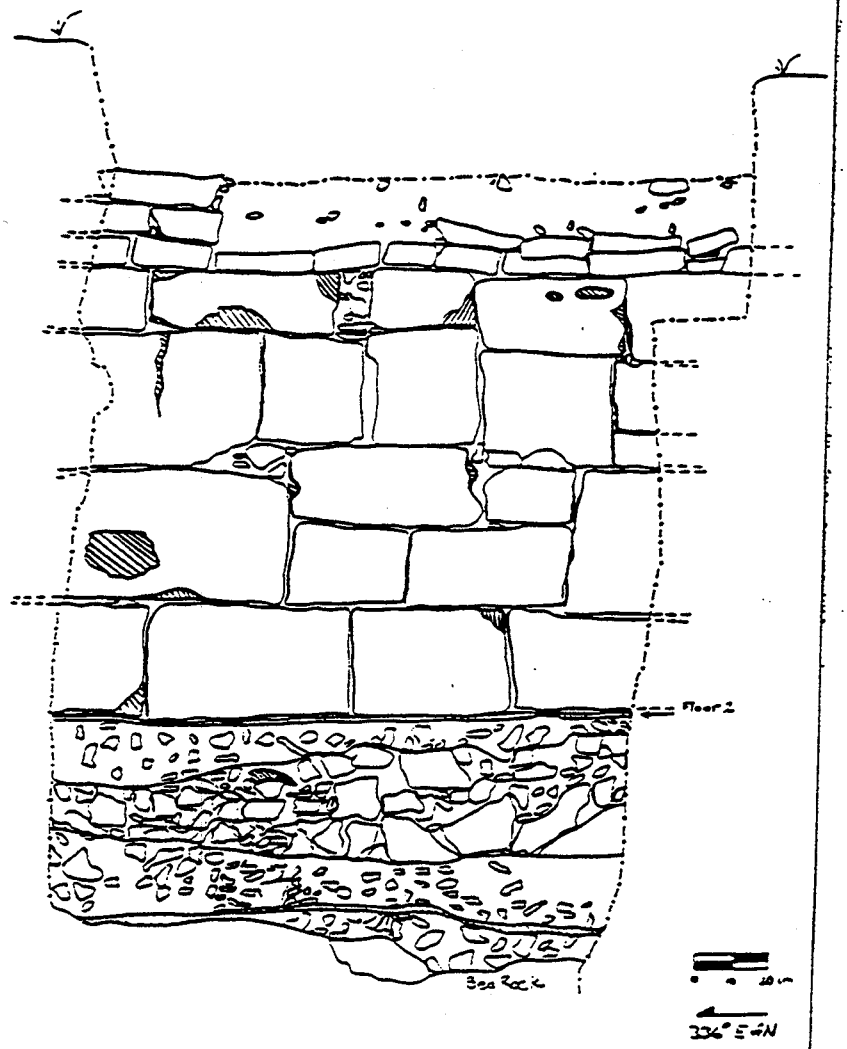
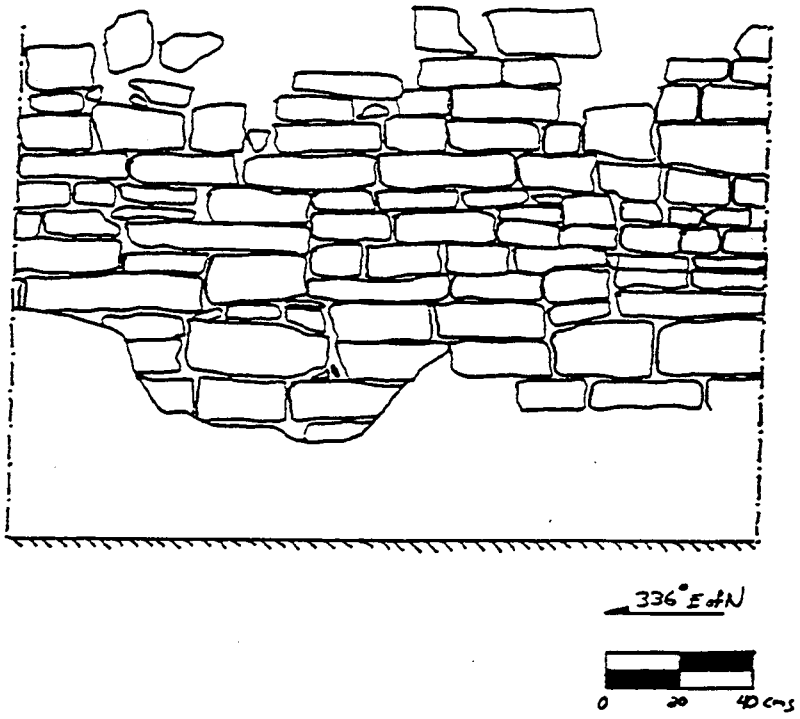


Figure 7. Yuka wall north



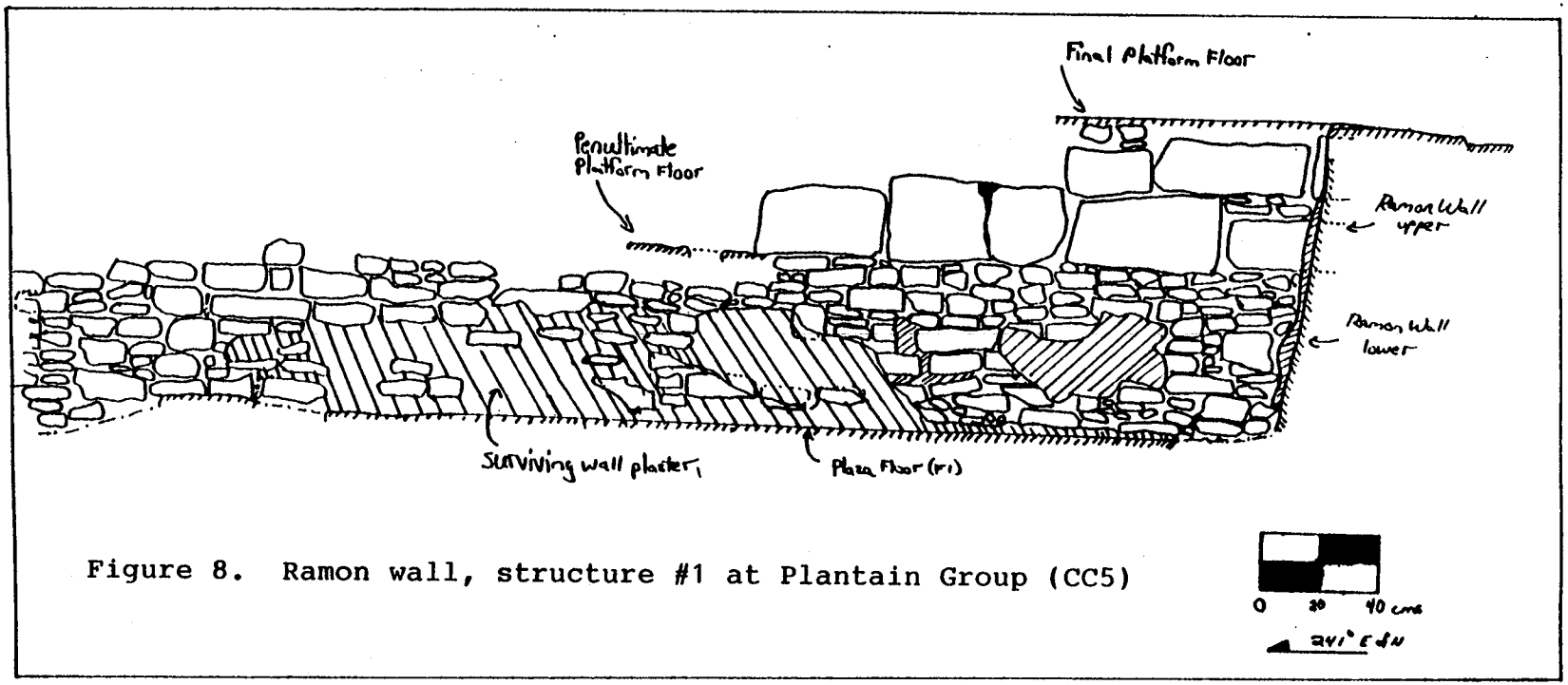


Figure 8. Ramon wall, structure #1 at Plantain Group (CC5)

Figure 9. Effigy incensario

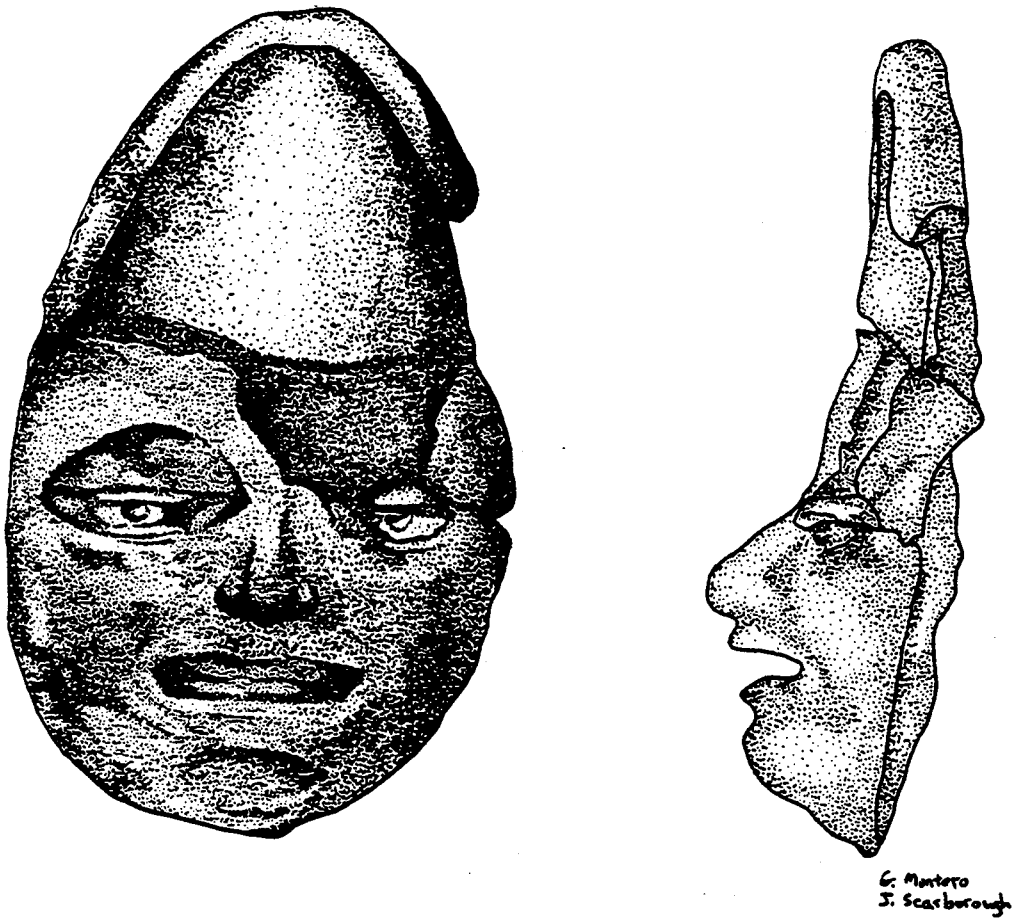


Figure 10. Applique figurine

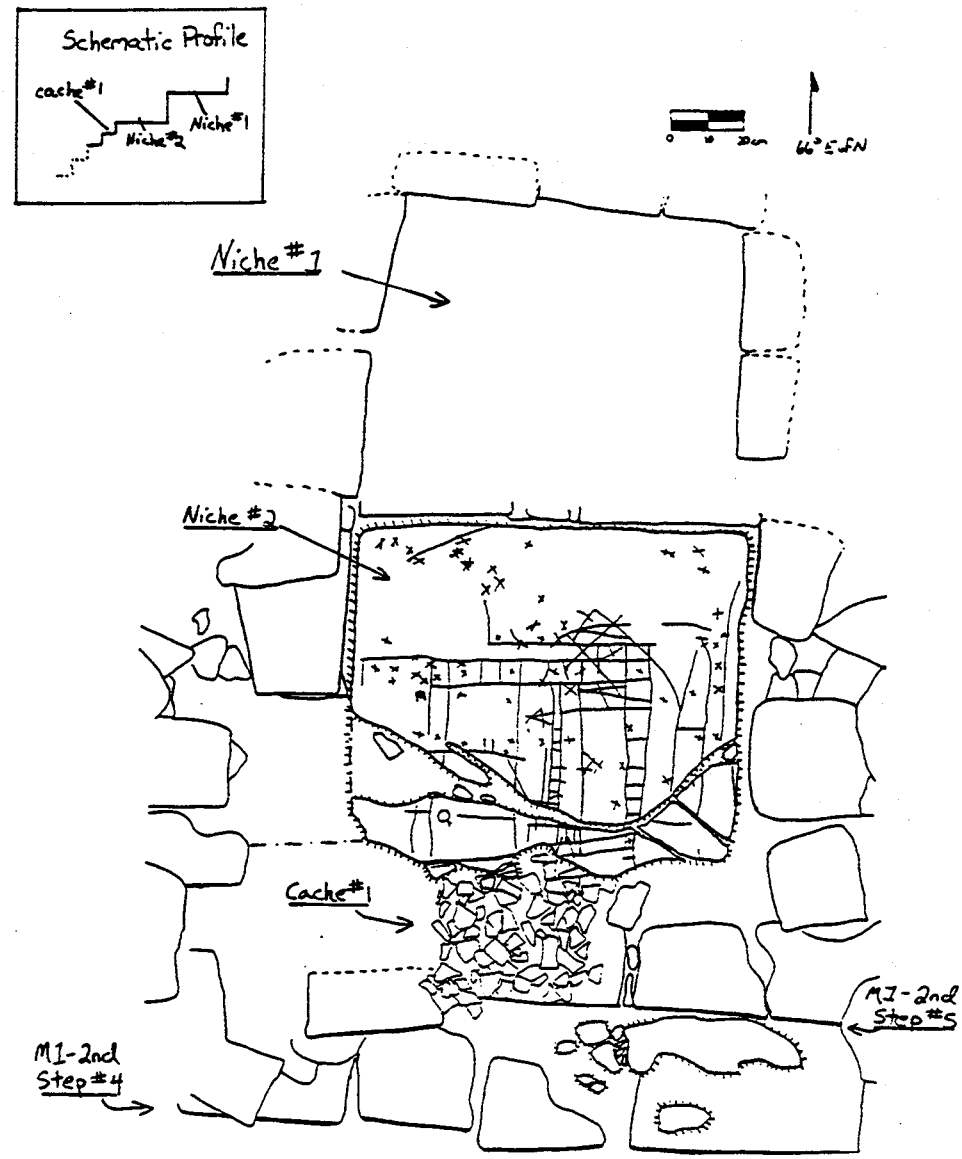


Figure 11. Plan view of two niches and patolli board found at Stela Group (CC1)

Xunantunich Rural Settlement Project 1997

Cynthia Robin
University of Pennsylvania

Introduction

The 1997 season of the Xunantunich Rural Settlement Project marks the final year of a two year dissertation project planned to explain the social principles underlying small rural household and community emergence and contraction in the Xunantunich hinterland through the Late and Terminal Classic. Work this year consisted of a 17 week excavation season supported by the National Science Foundation and Xunantunich Archaeological Project (XAP), running from late January to early June 1997. Field research was followed by a six month artifact and soil analysis season supported by a University of Pennsylvania Dissertation Grant and XAP, running from early June to early December 1997.

Dissertation research combines large-scale mound-based and vacant space excavations to tests a model of rural household and community development proposed based on survey data from the Xunantunich hinterland (surface morphology, spatial patterning and surface collected ceramics). The survey data was collected by the Xunantunich Settlement Survey (XSS), a two-year NSF project directed by Dr Wendy Ashmore. The model upon which the present research rests is summarized below and in the Robin 1996. Greater detail on XSS can be found in previous XAP reports (Yaeger and Ashmore 1993; Yaeger and Connell 1993; Ashmore 1994, 1995; Ashmore et.al. 1994; Ehret et.al. 1995; Neff et.al. 1995; Robin 1995). In addition my research draws upon the settlement test pitting programs conducted in 1995 by Ehret (1995) and VandenBosch (pers. comm.).

This report is designed to present the reader with an understanding of the current state of my research and interpretations, written two weeks after returning from the field. I will outline the theoretical and methodological background of my research, focusing on the use of vacant terrain artifact and phosphorous distributions to identify household and community spaces and activity areas. This is largely adapted from a paper present at the 1997 SAA meetings (Robin 1997). Specific details on 1997 excavations, stratigraphy and artifact analysis will be forthcoming in conference papers and my dissertation.

Theoretical and Methodological Background

The integration of rural populations within society is a key relationship for understanding the organization of complex societies. Research is designed to examine the implications of the Late to Terminal Classic expansion and contraction, or flux, in rural communities in the hinterlands of Xunantunich, a mid-sized civic center in the Belize river valley (Fig. 1).

Questions of household and community organization were developed based on two data-sets, survey and excavation. The survey area consists of a 400-meter wide transect (Fig. 2) which extends 8 km southeast of Xunantunich, and cuts through two local centers, Chan and Dos Chombitos. These three centers have been defined by nearest neighbor analysis by VandenBosch in Ashmore (1994) and Robin (1995). Excavation data consists of 1996 and 1997 research at two rural communities, Chan Noohol and Dos Chombitos Cik'in. These are representative of the types of rural

communities that emerged here in the Late Classic period. They are defined by spatial clustering, topography and proximity to waterways.

Through the complementary analysis of the survey and excavation data-sets, I hope to illustrate how archaeological methods can be allied with theoretical questions. Settlement survey data consists largely of mounds, the remains of raised human constructions, and other additive features, which are clearly visible. Yet it is the intangible issues of people, activities and interactions that archaeologists often seek to understand. As households and communities are more than aggregates of mounds, alongside our theoretical interests in social organization, excavation methodologies should focus on the areas around mounds, where the vast majority of household and community activities and interactions likely occurred.

Rural household and community flux in the Xunantunich hinterland

Settlement along the transect first occurs in the Middle Preclassic. Subsequent occupation is continuous in time, though heterogeneous in scale and distribution, reaching a population maximum in the Late Classic. What is new in the Late Classic is a marked expansion of small agrarian households, as indicated archaeologically by small mounds, and rural communities. This expansion is akin to what Rice (1988) calls "filling in" processes and similar to the Late Classic pattern of movement into less desirable land documented by Ford and Fedick (1992), among others, elsewhere in the Maya lowlands. In the Xunantunich hinterlands, like the pattern seen nearby in the Upper Belize River Valley, but unlike the centralized, structured settlement at such centers as Caracol, Tikal or Seibal, 75% (Fig. 3) of regional settlement in the Late Classic is composed of dispersed clusters of isolated and informally arranged mounds. As is common elsewhere, the Late Classic climax is short-lived, as indicated by a dramatic decrease in occupied sites during the Terminal Classic. This expansion and contraction in Xunantunich regional settlement is contemporaneous with the course of growth and constriction at the Xunantunich civic core.

To interpret the observed settlement flux I invoke Goody's and Fortes' (1958) developmental model. A developmental model suggests that the growth of families is an aspect of household and community development. Household and community variability, though, is not constrained by the developmental cycle of families, but reflects the activities and interactions of inhabitants.

Following a developmental model, I interpret isolated individual mounds, as developmentally young or the visible remains of new family house-lots (such as those of younger siblings or newcomers) and platform groups, as developmentally old or what McAnany (1992) describes as economically tied compounds of extended or more heterogeneous family groupings. As an initial test of this proposition (Fig. 4), I examined the relationship between time span and mound group variability. Like Tourtellot's (1988) similar study at Seibal, I found that formally arranged platform groups containing more than two mounds have extended chronologies, while groups of one or two mounds have shorter chronologies, the latter largely restricted to the Late Classic. The observation from Xunantunich hinterland settlement that 75% (or 196) sites consist of groups of one or two mounds runs counter to a common Late Classic settlement pattern dominated by multiple mounded platform groups based on which we view the Late Classic as a period of fully developed domestic cycling. The

Xunantunich hinterland pattern therefore suggests either a truncation of the developmental growth cycle, or perhaps a change in preferred residence-group composition, from extended to other family forms.

Extending a model of developmental growth to the community level, communities grow through the addition of new families. Pre-existing communities, similarly defined by Yaeger (1996) at San Lorenzo, which I call mature communities, grow through the addition of new families within and around existing family compounds. These are represented archaeologically (Fig. 5) as morphologically complex clusters of platform and patio groups and single mounds and surrounding cultural spaces and natural features. New communities, which I call emergent communities, are formed when new families move beyond established community spaces. These are similar to the *kahtal*, translated as " becoming a town", described by Redfield in Yucatan. They are represented archaeologically (Fig. 6) as clusters of isolated mounds and informally arranged mounds and surrounding spaces and features. The defining settlement signature in the Xunantunich hinterland during the Late Classic expansion is a predominance of emergent communities. Yet it is among these same emergent communities that we see the greatest contraction of settlement in the Terminal Classic. This leads me to inquire - what led to the expansion and truncation of rural households and communities in the Xunantunich hinterland?

From Mounds to Activity Areas and Space Use

What excavation data is needed to collect information on to answer these questions. A problem, often encountered, in identifying even such things as the function of mounds on the smaller end of the spectrum, is that traditional excavation in or beside a mound often yield little functionally diagnostic material.

Maya archaeologists now recognize that the issue is not a lack of archaeological remains associated with small mounds, but a traditionally limited methodological focus on the excavation of mounds. Where Maya archaeologists have looked for social units such as households and communities, they have generally examined a single architectural facet of these units, mounds and aggregates of mounds. This focus neglects traces of the vast majority of economic, social and ritual activities which were conducted in the areas around and between mounds. Though many of these activities offer little in terms of visible surface remains, they often leave behind material and physical correlates which can be recovered through the investigation of what we often call "vacant" space.

My rural community excavations adapted the full-site coverage methodology developed at Sayil (Killion et al 1989; Smyth and Dore 1992; Smyth et al 1995) combined with Braswell's (1994) vacant terrain study at Xunantunich. The first step of investigation involves conducting post hole tests. Post hole tests are distributed over a posited community space (Fig. 7). Figure 7 shows the distribution of post hole test across the Chan Noohol community. Each black dot represents a post hole placed at a 4 meter interval. Post holes cover the area between all surface visible cultural and natural features. Soils, artifacts and stone are collected from each post hole. Spatial distribution of these items is used to locate surface invisible structures, features and activity areas and to generate a model of space use based on surface invisible remains, which I subsequently tested with formal excavations.

I will use work at one household level single mound site in the Chan Noohol community to exemplify the results of this terrain-focused methodology. Here, what was mapped on the surface as a rectangular mound (Fig. 8), was shown to be a composite bi-level structure with an axial step, which likely supported a pole and thatch super-structure. Two rectangular structures, identified in post holes and invisible on the surface, are found adjacent to the mound. These three structures, along with a small waterhole and chultun occupy a modified bedrock outcrop. A domestic assemblage is associated with these structures, including lithics, quartz, slate, groundstone, shell and a range of ceramic forms, from serving vessels to storage containers.

Artifacts are distributed across household terrain in a bi-modal pattern (Fig. 9) in relation to visible and invisible structures. Low densities of artifacts (5 to 14 artifacts per post hole test) are found adjacent to visible and invisible structures, the chultun and agricultural terraces. Within a 15-to 20- meter radius of the three structures, except right next to them, the terrain is largely artifact free (0 to 4 artifacts per post hole test). At a 15- to 20- meter radius artifact densities increase. Localized moderate (15 to 34 artifacts per post hole test) and high (35-145 artifacts per post hole test) densities along this perimeter, yielded rich primary and secondary refuse deposits. In a subsequent 5- to 15- meters terrain is largely artifact free.

Soil phosphorous levels show a complementary but dissimilar pattern in relation to visible and invisible structures. During the 1997 analysis season ring chromatography, following the methodology outlined by Edit (1977, 1984), was utilized to determine relative quantities of phosphorous from over 1400 soil samples collected across the Chan Noohol and Dos Chombitos Cik'in communities[1]. Rating of 1 to 5 are given to relative phosphorous levels with one being the lowest and five being the highest. At a general level, phosphorous testing indicates elevated levels associated with settlement areas. A series of "off-site" soil samples (outside of settlement areas, i.e. slopes where there was non evidence of mounds or terraces for over a 400 sq. m area) were taken and 100% of these fall into low phosphorous levels (1 and 2). Of my "on-site" archaeological samples (including vacant terrain between the constructed features which comprise a household) approx. 80% fall into phosphorous levels 3 to 5. Samples taken from the completely eroded surfaces of mounds (considered to be the primary dwelling in a household) are low 1-3. Samples taken from the completely eroded surfaces of surface invisible structures, considered to be ancillary, range from 1-5. Those surface invisible structures with higher phosphorous levels may be interpreted as kitchens[2]. Within the 15- to 20- meter radius around visible structures that is largely artifact free, on two to three sides of the visible structure higher phosphorous levels (3 to 5) are found and on one or two sides lower phosphorous levels (1 to 3) are found. The differences in phosphorous levels in artifact clear spaces around visible structures match up with cleared/cleaned entryways/front yards/greeting places in households (low phosphorous levels) and house-gardening and cooking activities[3] (high

[1] In 1998 a sample of these will be sent for laboratory extraction to determine absolute quantities of phosphorous and other element. Currently laboratory extraction methods are being assessed.
[2] This type of interpretation will be strengthened by the future laboratory testing of absolute quantities of multiple elements and analysis of spatial distributions of artifacts from excavations.
[3] Again interpretation of activity areas and structure function are preliminary based on the analysis of post-hole artifact and phosphorous distributions. Final interpretation await future chemical and excavation artifact analyses.

phosphorous levels). At approximately 15- to 20- meters from a visible structure phosphorous levels are largely restricted to levels 4 and 5. These high phosphorous levels are associated with terraces and middens, and large areas with few artifacts. High phosphorous levels associated with terraces and middens meet expectations, and high levels associated with largely artifact free areas distant from visible structures, can be interpreted as orchards, forest gardens, or some other type of non-delineated agriculture.

These distributions accord well with Killion's (1992) house-lot model, in which the house is seen as one architectural aspect of a yard area in which domestic activities occur. A similar pattern is documented at other household level sites I have excavated. The picture which is emerging based on an excavation methodology which focuses on terrain as well as mounds, is one of a complex domestic compound at the heart of an intensive and extensive gardening network.

From Mounds to Landscapes

Just as a focus on landscapes writ-small, i.e. house-lots, leads to a more extensive view of domestic space use, a focus on landscapes writ-large, i.e. the position of communities on the landscape, will lead to a more extensive view of the social landscape. This is the next step that my research will take, and here I provide a brief example. I suggest that the location of rural communities on the landscape provides individuals and communities resources through which they articulate with larger regional entities. Landscapes, cultural uses and perceptions of land, provide two types of resources, ritual and economic. Landscapes provide ritual resources through which rural communities are established, empowered and integrated. As economic resources these same landscapes become sources of inequality between the rural and the central.

Examining the relationship between rural communities, waterways and terrain, I suggest that water and land provide a ritual and economic basis for community location and integration. Emergent rural communities are situated beside intermittent streams and associated with waterholes. They are located away from alluvial flood plains, generally prime locations for settlement due to higher agricultural potential, as these are occupied by pre-existing communities. Intermittent streams supplemented by waterholes seem to have been the next move for expanding rural populations. One reason for the close association between waterholes and emergent communities, is water-management needs in association with drinking and agriculture. Additionally, waterholes can hold ritual and symbolic meaning for a group, as focal landmarks integrating new communities and representing the ancestral founding of a place.

Evidence from excavations of the chultun next to the waterhole in the Chan Noohol community seems to support the interpretation of waterholes as ritual/ancestral founding loci. This excavation revealed a locally unique ceramic assemblage including only bowls and dishes and a single small jar (Fig. 10). Such an assemblage of serving bowls is interpreted by LeCount (1996) as the remains of small-scale ritual feasting. This ritual feasting deposit associated with a waterhole in the rural Chan Noohol community provides evidence for ritual integration of rural community members, linking them socially to other groups in the region who were hosts and participants of ritual feasts. Water and land seen as economic resources provide one

means of explaining site location, also, water and land are ritual resources. People create ideological landscapes through their inhabitation and ritual use of space.

Water and land, as a sources of ritual power, provided positive integrative mechanisms for emergent rural communities. These same resources, intermittent streams and less desirable land, as sources of economic power, may have placed emergent communities at a disadvantage. Again, invoking the developmental model, I hypothesize that the families most likely to move beyond their natal communities, in an agriculturally based society, are those of less wealth and lower status, with presumably fewer rights to land. People moving into previously uninhabited areas may be moving onto land not controlled by local heads of mature communities. Based on in-field assessment, masonry architecture and artifacts such as jade, obsidian eccentrics and carved shell which have proved to be markers of wealth and status in mature communities in the Xunantunich region, are missing from the mounds excavated in emergent communities. Though the self-sufficiency of agrarian households is often a mechanism through which these individuals survive larger regional and political changes, in the Terminal Classic in the Xunantunich hinterlands it is these households that do not survive. With fewer historically accumulated rights and resources, members of emergent communities were less able to survive in 9th and 10th centuries.

Conclusion

I would like to conclude with two remarks. First, position on the landscape provides rural communities critical ritual and economic resources. These resources both integrate rural communities to larger regional systems as valued and equal participants, while simultaneously constructing inequalities. Second, if integration, individuals, activities and interaction are our archaeological questions, at the household, community, or regional level, a methodological focus on landscape-wide inquiry and excavation is crucial.

Acknowledgments

I would like to thank the project directors, Richard Leventhal and Wendy Ashmore for their advice and support. My advisor, Wendy Ashmore, has been a continual source of support both in and out of the field. The Department of Archaeology, under Archaeological Commissioner John Morris facilitated my research. Field work would not have been possible without the hard work of Belizean excavators Ishmael Chan, Bernabe Camal, Ventura Cocom, Gil Chuc, Jose Lopez, Nasario Puc Jr., Rudy Chuc, and Ifrain Chan. Artifact analysis would not have been possible without the hard work of Belizean research assistants Marta Mai and Gliss Penados. Aimee Preziosi and Terry Powis provided assistance in ceramic analysis. Oscar Montero, Jennifer Scarborough, Michael Bletzer and Ellie Harrison are responsible for artifact illustrations. Jason Yaeger, Jennifer Braswell, Jon VandenBosch, Jennifer Ehret, Ted Neff, Julia Miller, Lisa LeCount, Sam Connell and Laura Villamil provided advice in methods and interpretations.

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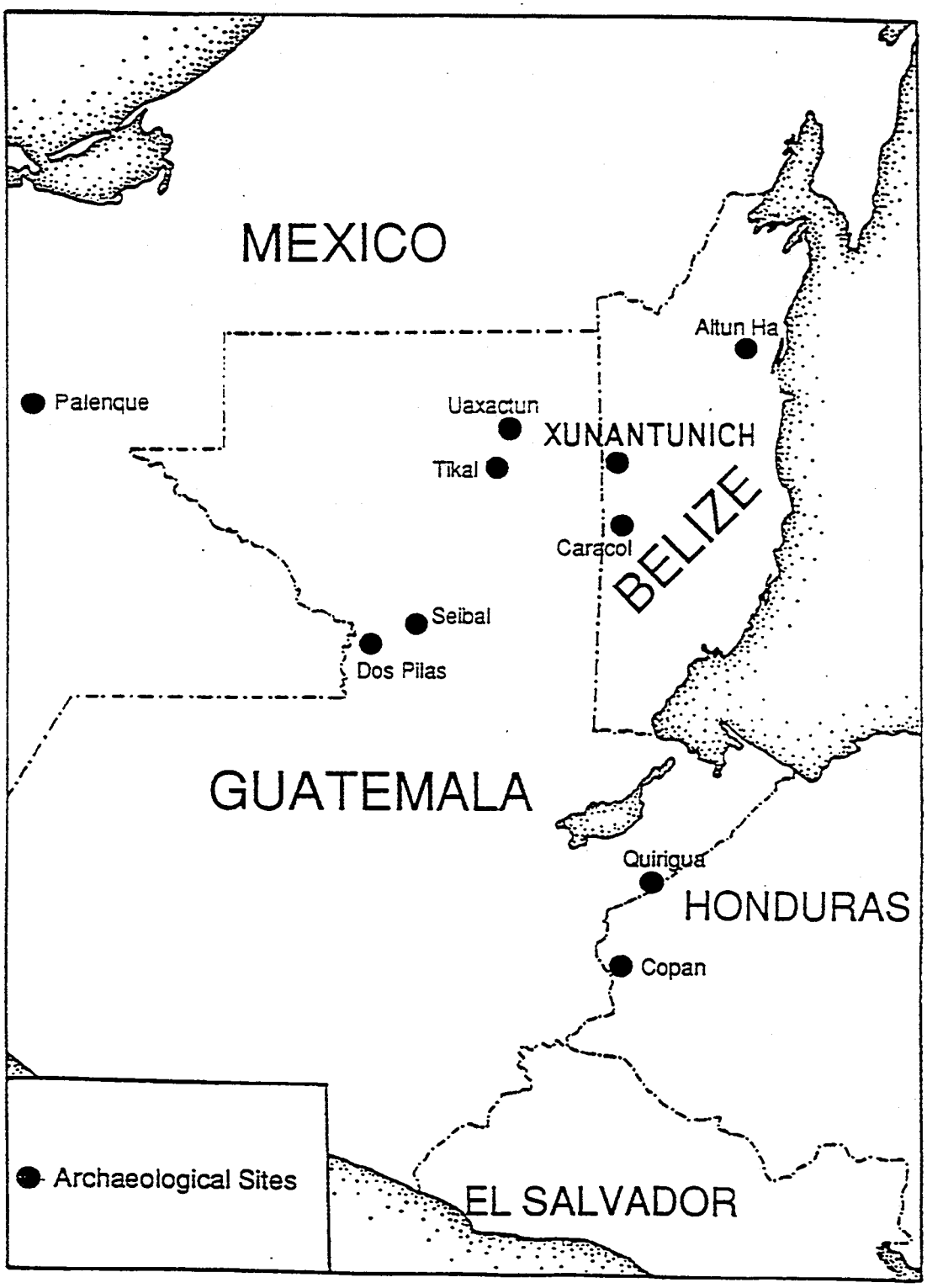

MEXICO
Altun Ha
Palenque
Uaxactun
XUNANTUNICH
Tikal
BELIZE
Caracol
Seibal
Dos Pilas
GUATEMALA
Quirigua
HONDURAS
Copan
Archaeological Sites
EL SALVADOR

Figure 1

TRANSECT ARCHAEOLOGICAL No. 1 (T/A1)

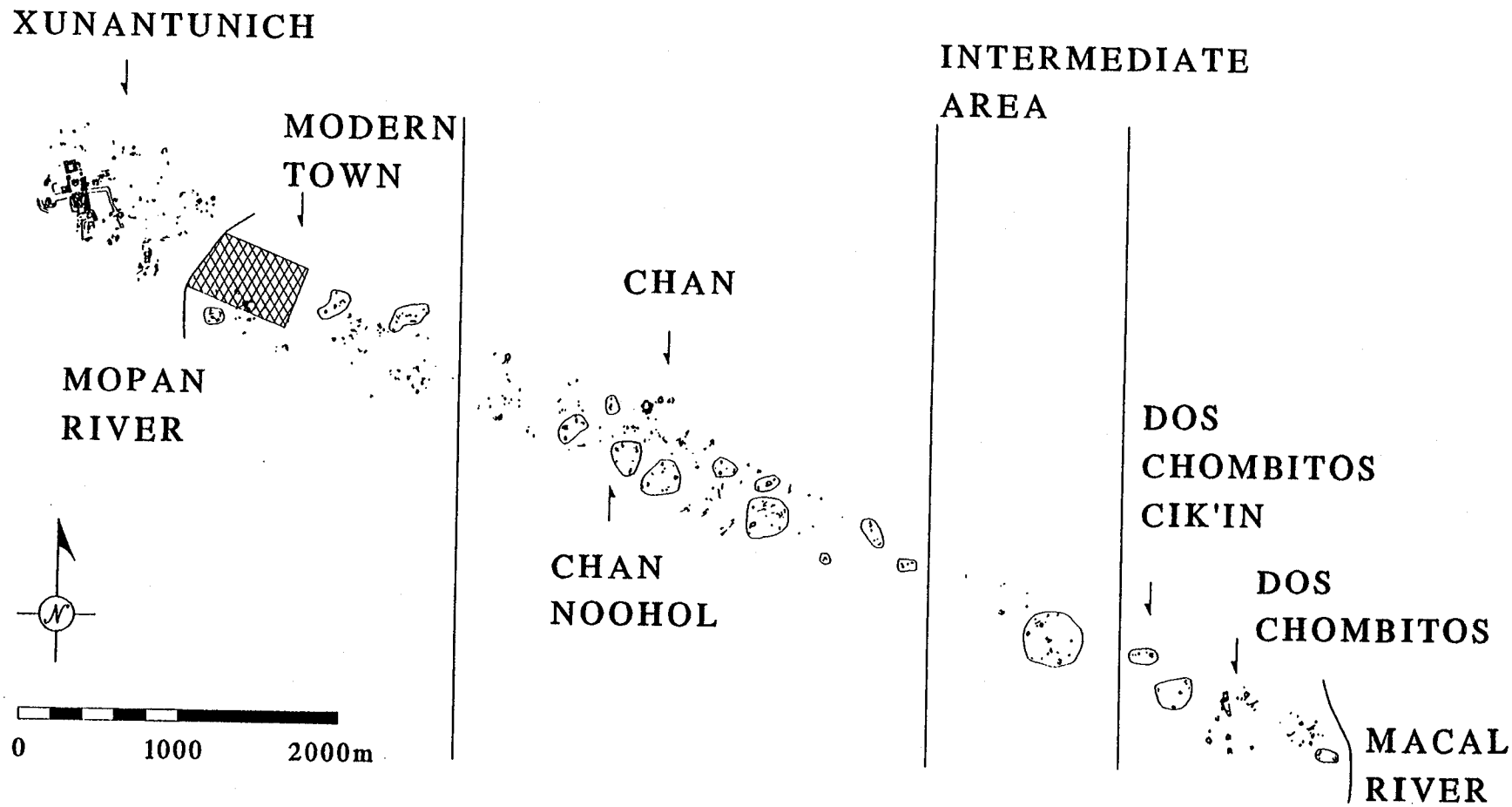


Figure 2

XUNANTUNICH HINTERLAND SETTLEMENT

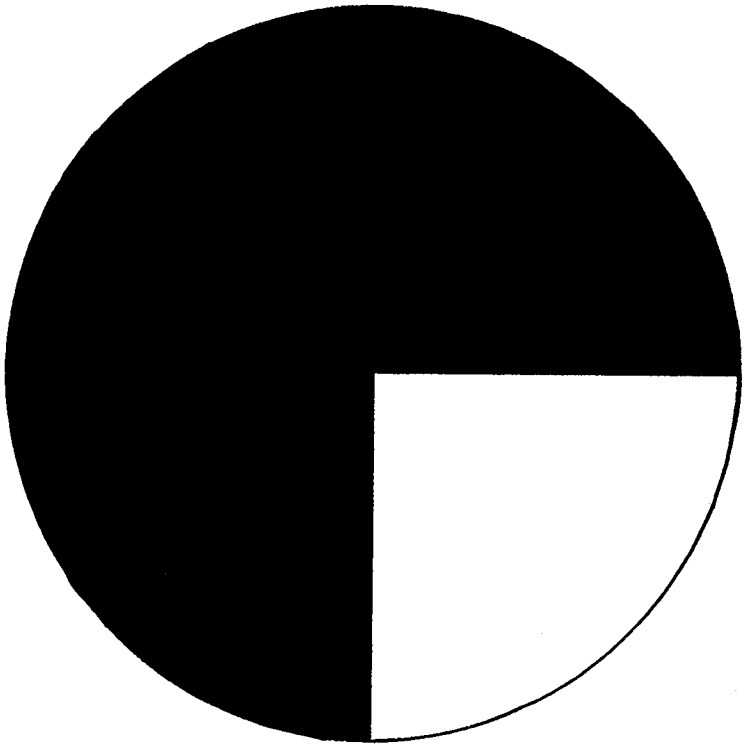


Figure 3

XUNANTUNICH HINTERLAND SETTLEMENT

LENGTH of OCCUPATION	ISOLATED and INFORMALLY GROUPED MOUNDS n = 196	PLATFORM and PATIO GROUPS n = 64
LATE CLASSIC ONLY	61%	27%
MULTIPLE PHASES	39%	73%

Figure 4

MATURE COMMUNITY

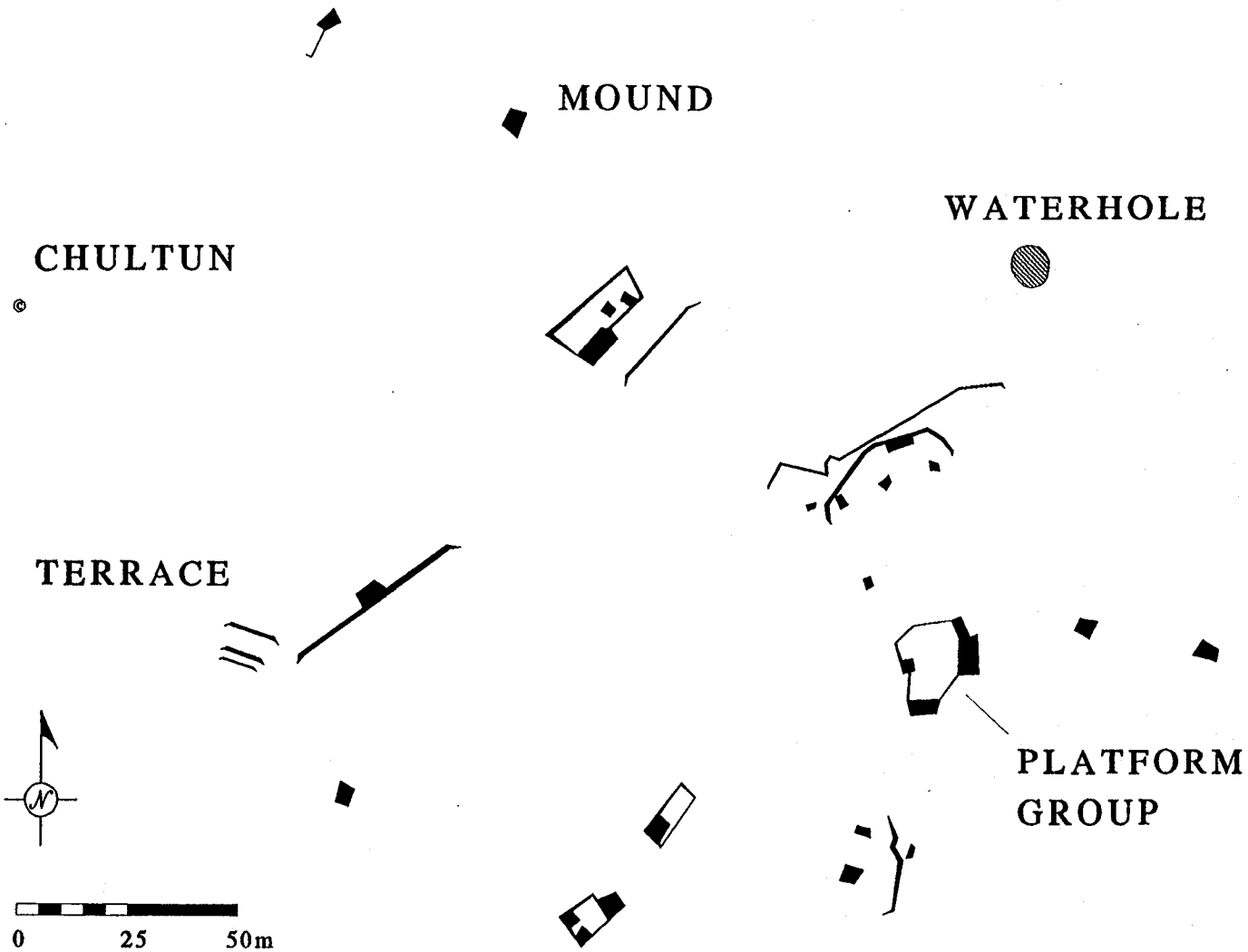


Figure 5

EMERGENT COMMUNITY
CHAN NOOHOL

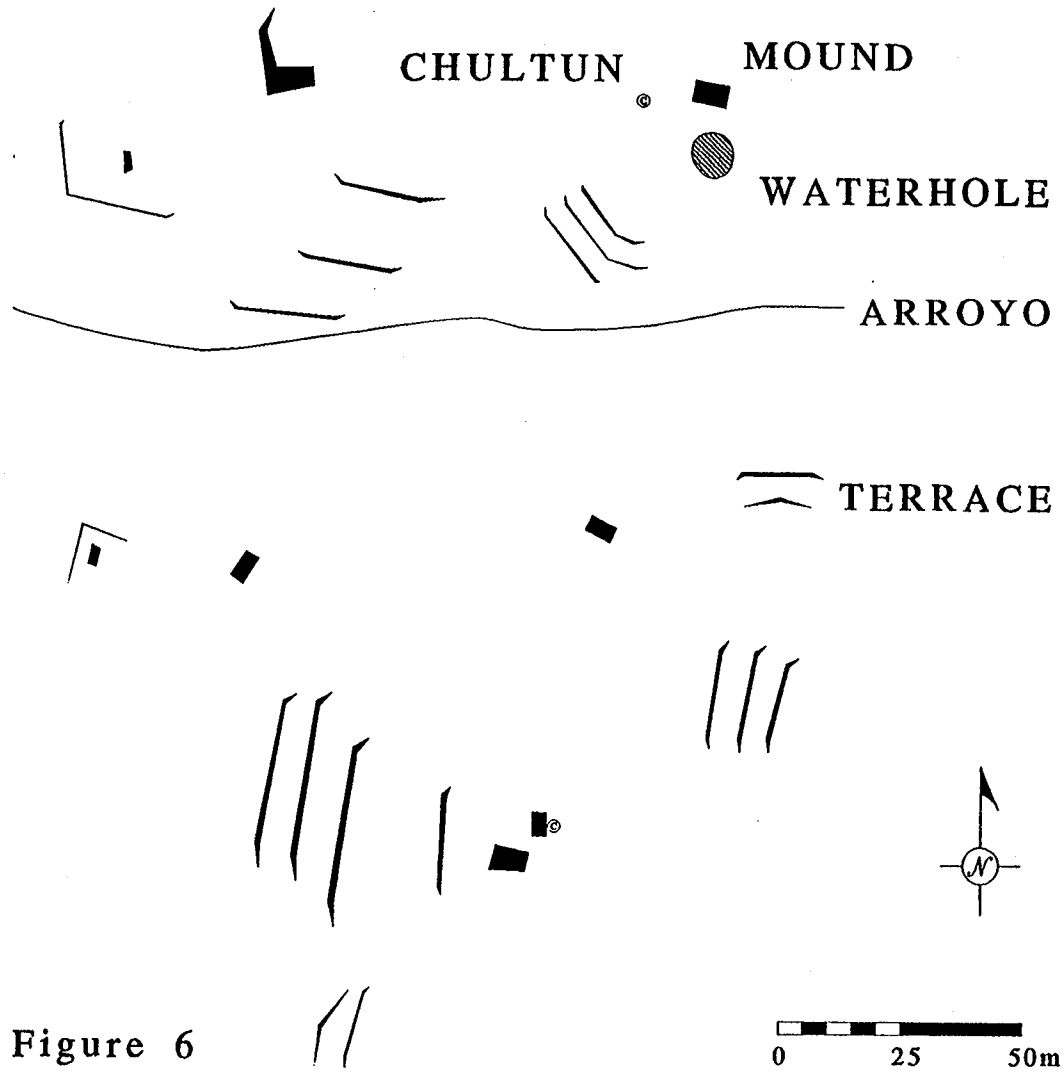


Figure 6

COMMUNITY WIDE POST HOLE TESTING at CHAN NOOHOL

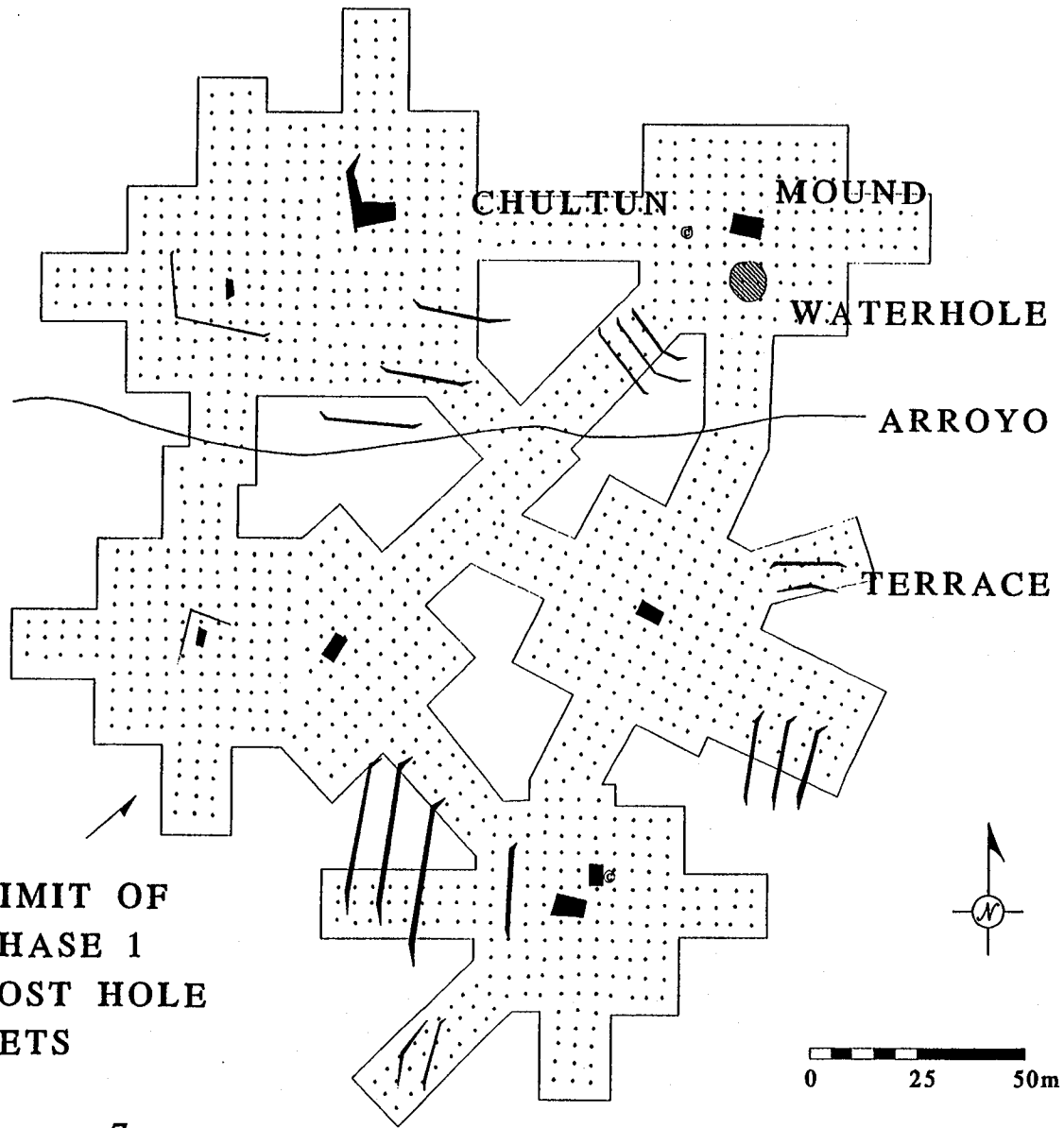


Figure 7

SINGLE MOUND SITE (T/A1-071)
at CHAN NOOHOL

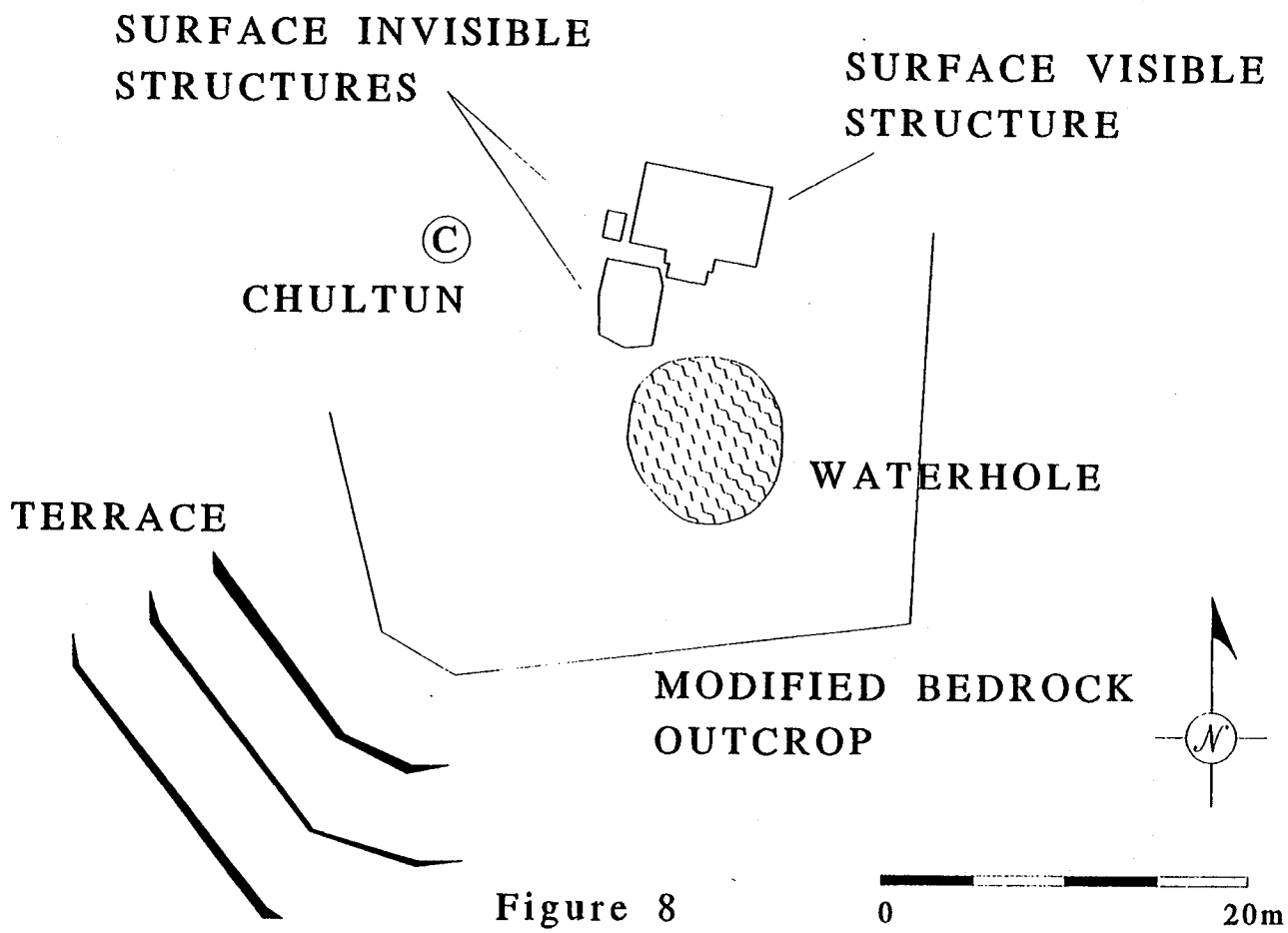


Figure 8

ARTIFACT DENSITIES AROUND SINGLE MOUND SITE (T/A1-071) at CHAN NOOHOL

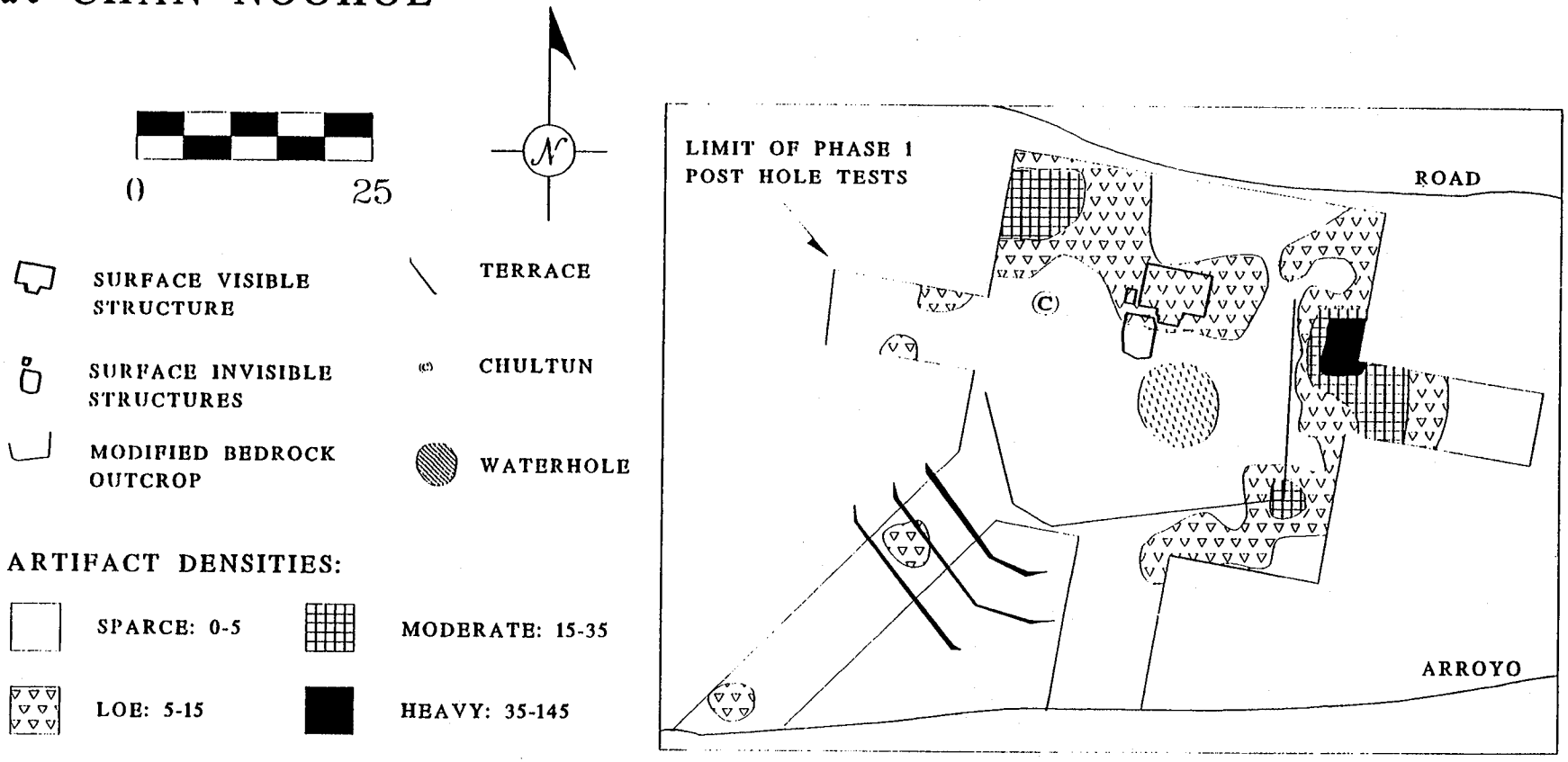
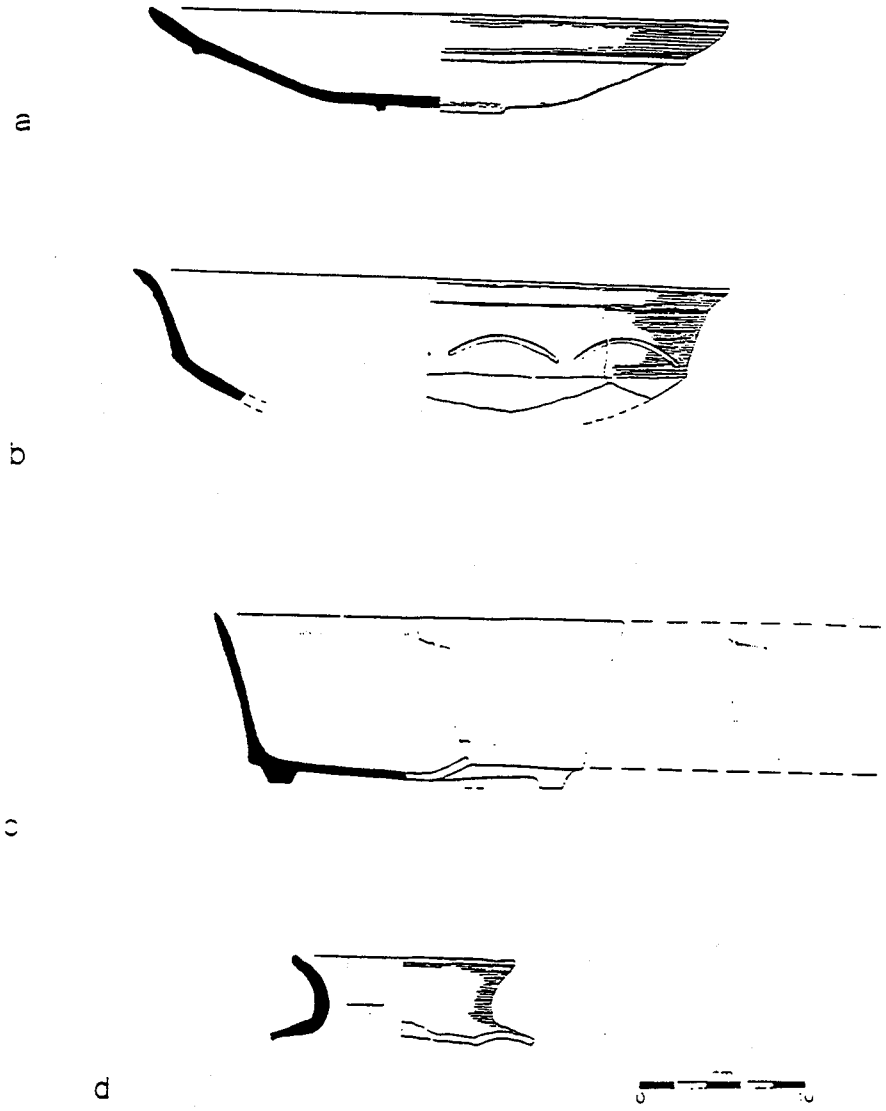


Figure 9



Select plates. dishes. bowls and minature jars from chultun (C1. Op 224D). site T/A1-071. Chan Nòohol
(a) Mountain Pine Red: Mountain Pine Variety
(b) Platon Punctated-incised: Platon Variety
(c) Benque Viejo Polychrome: Variety Unspecified
(d) Minature jar

Drawn by Ellie Harrison

Figure 10

Pre-Columbian Agricultural Terraces In The Dos Chombitos Area

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University of Pennsylvania
The Navajo Nation Archaeology Department

Introduction

This is a brief interim summary of dissertation field research focused on pre-Columbian agricultural terracing in the Dos Chombitos area of Belize, Central America. The research was implemented as part of the Xunantunich Archaeological Project (XAP) under the direction of Richard Leventhal and Wendy Ashmore with a permit granted by the Department of Archaeology, Belize, Central America. Time constraints since the cessation of fieldwork in June, 1997, have precluded the presentation of a more in-depth summary at this time. A more comprehensive summary and initial interpretation of the fieldwork will be presented at the Society for American Archaeology meetings in Seattle at the end of March.

Background

Overlooking the Macal river near Negroman/Tipu in Cayo District, Dos Chombitos and vicinity were documented archaeologically by the Xunantunich Settlement Survey (XSS) during broader systematic survey and test excavation in 1994-95 (Figure 1; Ashmore et al. 1994; Ehret 1995; Neff et al. 1995). As part of that fieldwork, abundant remains of ancient terracing were encountered, part of the extensive terracing noted more than 70 years ago as continuing from this area south to the Maya mountains (Ower 1927). Despite awareness of these features, and despite greatly expanded interest in terracing more generally, within the Maya area and beyond (e.g., Donkin 1979; Dunning and Beach 1994; Fedick 1994; Healy et al. 1983; Turner 1974, 1983, 1993), documentation in this vicinity has been sporadic and minimal. XSS terracing finds are important not only for their broad extent, but also in their wide variation of form and settlement associations (Gifford, in Ashmore et al. 1994; Neff, in Neff et al. 1995; Neff 1996; Neff and Gifford 1996).

Investigations in 1997

To provide firmer understanding of this variability, I proposed four months of archaeological investigation, during the final XAP field season (Neff 1996). Focusing on terrace sets (TS) within a single zone of high observed variability around Dos Chombitos, I addressed the following three principal goals: First, I sought to clarify the relationship of surface and subsurface remains, to detail more fully the range of terrace forms, and establish whether some of the more subtle terracing might actually be natural bedrock formations. Second, I investigated developmental histories of particular terrace sets, to document the age, construction techniques, and uses of the features. Third, I collected numerous flotation, pollen, phytolith, and soil samples toward a more complete description of terracing from the perspective of paleoethnobotany and soil chemistry. The resultant information is considered in the context of XSS and other XAP data on ancient settlement distribution, form, and growth, toward improving our understanding of ancient occupation and community development in the vicinity of Xunantunich, and especially around Dos Chombitos (cf. Ashmore et al. 1994; Ehret 1995, n.d.; Neff et al. 1995; Robin this volume, n.d.).

Field and laboratory work on the terracing program took place from February to June, 1997. Excavations were conducted at two terracing loci located to the east-southeast (the TS 191-192 area) and west-northwest (the TS 110 area) of the minor pre-Columbian Maya center of Dos Chombitos (Figure 2).

Fieldwork consisted of clearing and excavations to gather information concerning terrace surface and subsurface morphology, stratigraphy, and artifact assemblage variation. In addition to artifact recovery via screening through 1/4" wire mesh, soil, pollen, phytolith, and flotation samples were also taken. The washing and general sorting of artifacts and the processing of flotation samples were carried out at the XAP project laboratory. Linda Neff carried out the ceramic and lithic analysis. The light fractions from flotation samples, as well as the soil, pollen, and phytolith samples were exported to the United States under permits from the Department of Archaeology, Belize, and the United States Department of Agriculture.

Analysis

Four wood charcoal samples derived from flotation light fractions have been submitted to the University of Arizona Accelerator Mass Spectrometry facility for radiocarbon dating. All soil samples collected have been sent to the Rock River Laboratory in Watertown WI, for analysis. Efforts are currently underway to secure analyses for the pollen and phytolith samples. Additionally, initial sorting of the flotation light fractions has begun.

Discussion

The 1997 investigations in the Dos Chombitos area yielded important results regarding issues of terrace surface-subsurface relations, terracing extent, and sub-surface terracing complexity and size.

Surface-subsurface Relations

Excavation of terraces in the Dos Chombitos area yields insights into whether or not surface indications identified as terraces are in fact the result of primarily pre-Columbian Maya cultural behavior, or, reflect natural processes or situations. Put another way: are we correct in calling these features terraces at all, let alone attributing to them agricultural activity and use? Excavations in the Dos Chombitos area indicate that entities noted on the surface as being terraces are indeed terraces. Furthermore, some surface traces not noted as terraces during the initial survey were reconsidered during a pilot project in 1996; excavation showed these to be artificial terraces as well. The Dos Chombitos area terrace excavations, then, suggest the settlement survey as a whole has underestimated the amount of terracing extant in the surveyed area, to a degree yet to be established quantitatively. Agricultural function is likely, but confirmation (or refutation) still awaits results of botanical and other analyses.

Terracing Extent

From initial discovery and sketch mapping during survey in 1994-1995, to additional clearing and mapping during a pilot project in 1996, and intensive clearing and mapping in 1997, each successive stage of terrace investigation in the Dos Chombitos region has revealed additional complexity in scale and extent. In the end, I realized systems of terracing need to be treated with the same methods and relative intensity (i.e., substantial clearing and compass and tape mapping) used for recording mounds and platforms, to achieve a good understanding of surface-visible terrace remains. Because of the sheer aerial extent of terracing, this is neither feasible nor appropriate during initial reconnaissance and survey, due to the great amount of clearing that would be involved. However, as with efforts typically expended on

mounds and platforms, a smaller sample needs to be more completely cleared (as this dissertation research has done) to achieve a more complete picture of the spatial relationships extant between individual terraces, as well as between terracing and associated domestic and civic-ceremonial architecture.

Sub-surface Terracing Complexity and Size

In the set of cross-channel terraces chosen for excavation, TS #110, a single terrace exhibited a far greater terrace-wall height (3 m) than visible on the surface, and fully 4 phases of construction. Ceramic artifacts recovered from the fill within the walls of all 4 phases suggest Late Classic (A.D. 550 – 900) construction.

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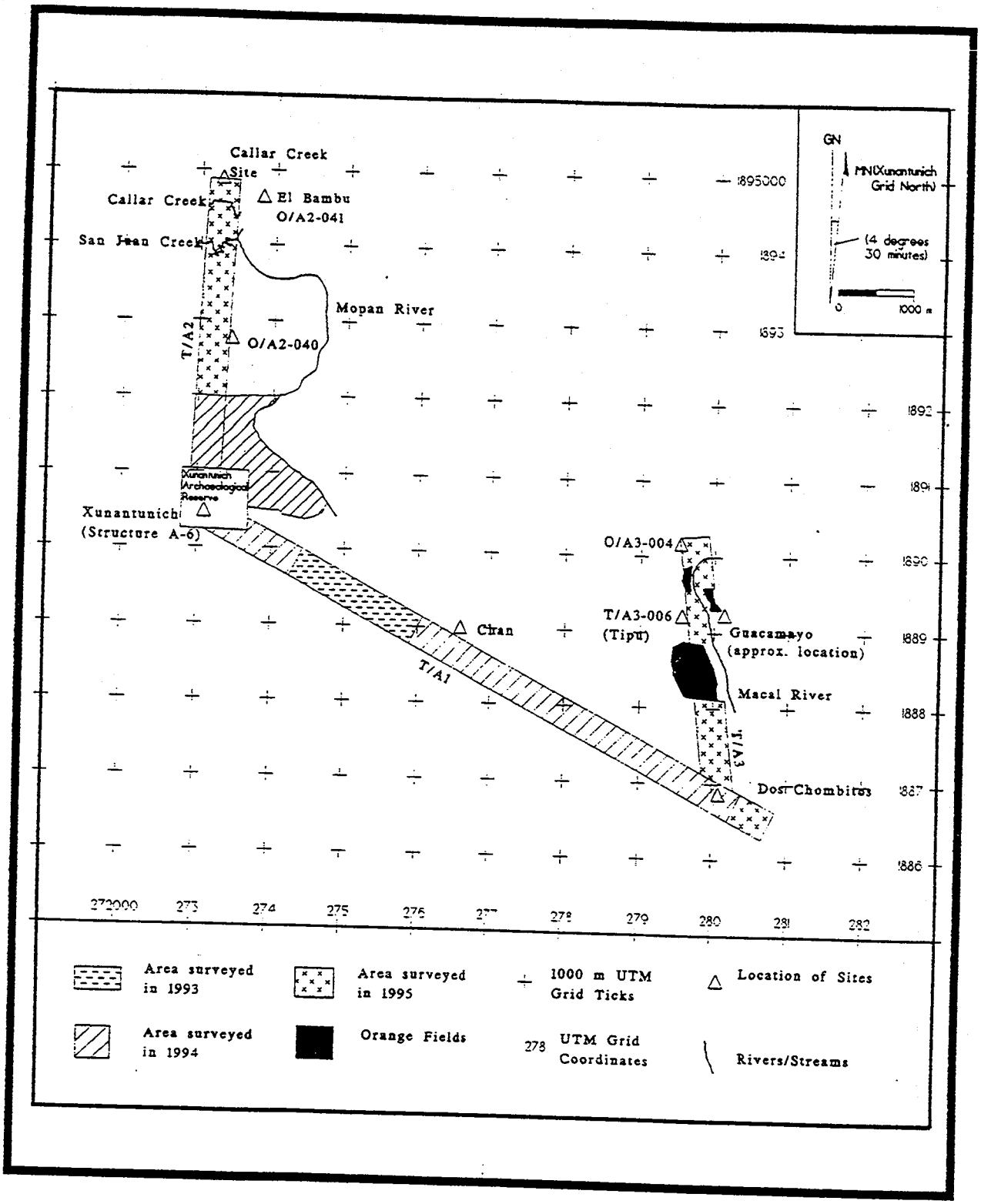

Figure 1. Xunantunich Settlement Survey Area documenting work accomplished in 1993, 94 and 95. Survey areas, sites and natural features referenced to the Universal Transverse Mercator grid system.

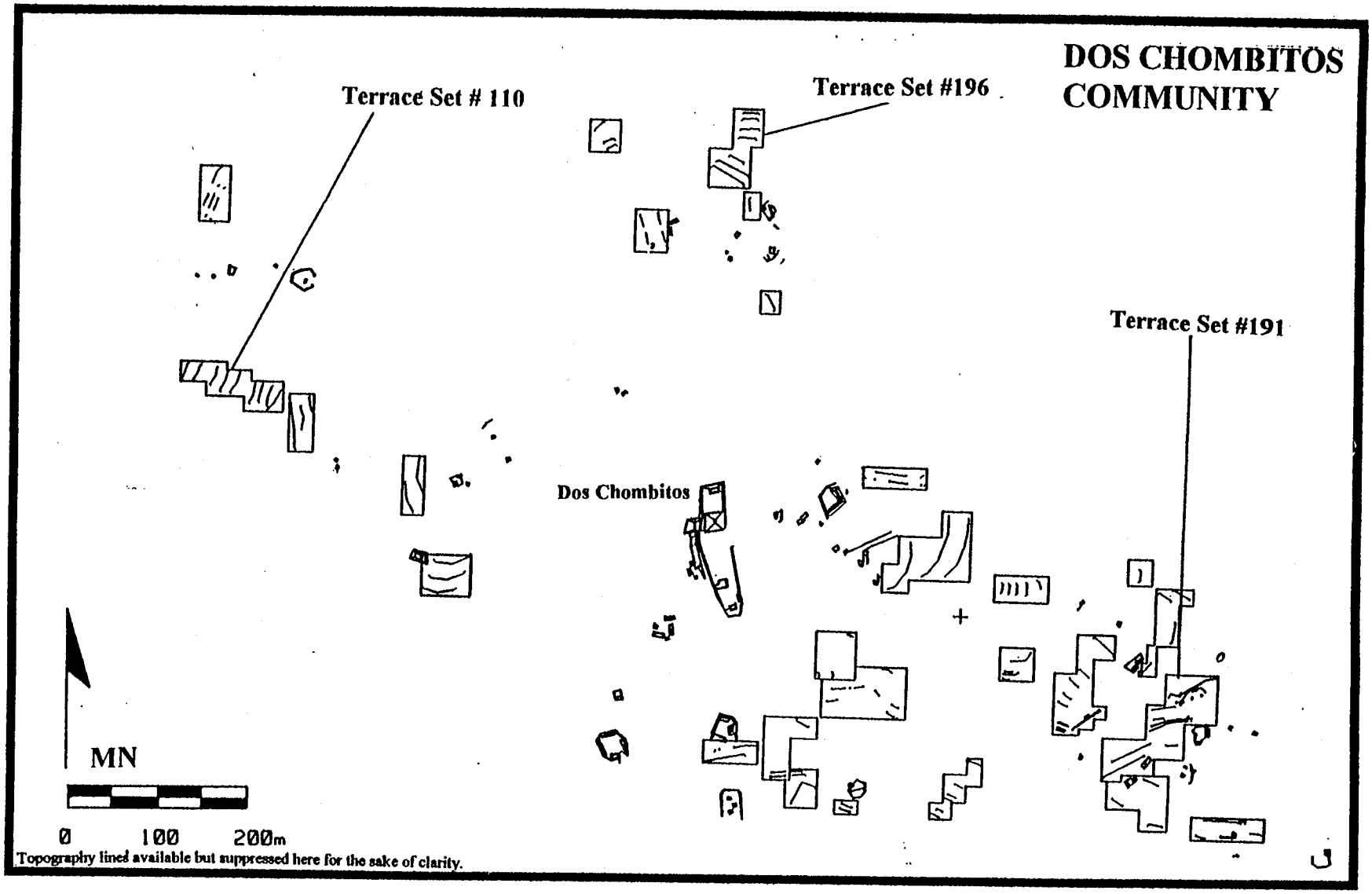

Figure 2. Overview of the Dos Chombitos Community.

Ceramic Research in the Xunantunich Settlement Region

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Introduction

Ceramic analysis for the past two years has focused on two issues related to ceramic variability at Xunantunich. First, how and why some styles are maintained over time. Second, why stylistic tradition may be reinvented in the face of a changing social and political environment by incorporating elements of both old and new ideas and values. These issues are explored from the perspective that styles function as powerful symbols and markers of social groupings and alliances.

I propose that the ceramic assemblages of the Xunantunich region demonstrate a continuity of traditional forms from the Preclassic through the Terminal Classic periods. However, when new political, ideological, or material influences are introduced into the area, they might be reflected in the ceramic assemblage as well. New influences are incorporated into the ceramic assemblage in a reorganized and reproduced form, by combining old and new elements that will mirror the existing social relations.

I expect the ceramics within the Xunantunich polity to exhibit the following: In the earlier periods, at the polity level, heterogeneity of forms and types will be common due to a loosely integrated settlement pattern in the region (Ashmore et al 1994). By the Late Classic, there will be a higher concentration of homogenous forms, as authority becomes centralized (LeCount 1996). Underlying this homogeneity are multiple levels of social negotiation. Both horizontal and vertical groupings will be reflected by a degree of heterogeneity in the ceramic assemblage. During the Terminal Classic, a period of social collapse, there will be a marked call upon traditional elements of the ceramic assemblage, in order to secure continuity with the local past. Traditional elements that had been reproduced in a innovation and external ideas emerge in this time period.

Within the ceramic assemblages, I expect to find the greatest variability in ceramic stylistic elements in the earlier time periods. Some aspects of style will continue through all the time periods. When innovation and external influences are present, the local ceramic styles will be combined with the new influences to produce a new style.

The 1997 ceramic analysis was focused primarily on the data collection for this research. A list of operations and suboperations recorded during the 1997 field season is provided in Appendix A. This report will present the research from the 1997 field season. I will also present what still needs to be accomplished in terms of this research.

1997 Field Research

The current ceramic project will examine material from the Preclassic through the Terminal Classic periods, with the major emphasis on the Late and Terminal Classic. The focus on the analysis is on ceramic design and vessel form. These variables are important because they can be changed by the group or the individual to express identity and alliance. In addition, effective social and political communication must be visible and design on ceramics is among the most visible to others within a group and to those from other groups. The material for the detailed analysis comes from primary

cultural contexts from each of the four sites representing a cross-section of temporal and socio-economic spheres.

The data come from the secondary Maya center of Xunantunich, the mid-level communities of San Lorenzo and Chaa Creek, and the rural community of Chan Noohol, all located in the Xunantunich settlement region (Figure 1). The sample as stated last year (Preziosi 1996) included the Preclassic center of Actuncan. Actuncan has been eliminated from the data set due to the shift of the major focus in the research to the Late and Terminal Classic periods.

Xunantunich

There are three sample areas for this ceramic project from the site core of Xunantunich: 1) Structure A-6, the main pyramid of the site; 2) Group A, the royal residential compound; and 3) Group B, a residential complex associated with elites attached to the royal lineage. Group B, located approximately 100 meters to the west of Group A, consists of several structures situated around small plazas. Material from this group is still to be analyzed for this project. The sample will be from suboperations 211C, E-H, K-O, T (Etheridge 1995). The other two sample areas are nearly complete as of this season.

Structure A-6

Structure A-6, the Castillo, is a large stepped pyramidal structure with northern and southern stairs and a vaulted superstructure with multiple rooms. The Castillo is the ancestral shrine of Xunantunich's ruling family. Excavation of this structure by XAP have been undertaken to examine the complexities of the construction, function, and meaning of this monumental structure (Leventhal et. al. 1992; Sanchez 1993; Robin 1994; Neff 1995; Miller 1995, 1996; Church 1996; Hays this volume; Clancey this volume). The earliest construction of the monument at present dates to the early part of the Late Classic period (Miller 1995:37). The Castillo was in use into the Terminal Classic period.

There are four operations that I examined from the Castillo which represent different constructions of A-6: Op. 147, 247, 266, 276. Operation 147 was assigned to the excavations on structure A-26, the lower southern terrace of the Castillo (Robin 1994; Hays this volume). Operation 247 of structure A-32 is a range structure situated mid-way up the Castillo on the northern side of the monument (Church 1996; Clancey this volume). For this project, the north side of the structure requires further sampling, particularly Terminal Classic deposits. Operation 266 of structure A-28 is on the southern medial terrace (Hays this volume). Operation 276 consists of structure A-33 and the area between structures A-26 and A-33 of the Castillo's lower terrace, west of structure A-26 (Hays this volume).

The ceramics from the operations on the southern side of A-6 overwhelmingly date to LCII. This finding corroborates the hypothesis that there was a major shift in the orientation of the site core of Xunantunich in the end of the Late Classic period (Leventhal et. al. 1993). The focus of this shift was plaza A-1 and a northern orientation. The northern side of the Castillo has evidence of continued use into the Terminal Classic period. The ceramics from Op. 247 date to LCII and TC. The ceramics from inside the structure A-32, the relatively few present, date to LCII. The refuse deposit between the structure and the terrace had ceramics dating to LCII and TC.

The composition of the ceramics from the Castillo is approximately 24% ash ware and 76% calcite wares. The north and the south sides showing the same constitution. Of the identifiable forms, 75% are open forms, predominantly bowls. Closed forms only make up 17% of the assemblage.

Not surprisingly, the ceramic assemblage from the contexts explored from the Castillo is ritual in nature. Ritual forms include censers, drums, and miniatures as well as lip to lip vessels, none of which have been found at Xunantunich to date. A number of censor (incense burners) fragments have been discovered from Op. 147 and Op. 247. Parts of a ceramic drum were also recovered from Op. 247 and a figurine from Op. 276.

The most popular decorative technique found on ceramics from the Castillo is painting followed not too closely by incising and then texturing. Abstract-geometric designs are the predominant stylistic depictions found on these ceramics. The next popular representation is simple repetitive geometric elements.

Ahau glyphs are found on two separate Chunhuitz ceramic group polychrome bowls. These vessels are from Op. 266, a Late Classic context (Figure 2). The *ahau* symbol pertains to the Maya definition of central authority, referring to kings and lords (Freidel 1992). These symbols indicate Xunantunich's association with the pan-Maya cultural affiliation.

This season three effigy spouts were recovered from the Castillo. All three spouts are in the form of a monkey (possibly a Howler monkey) and on closed forms. These spouts appear to very similar to each other with only minor variations; the effigy spout vessel from Op. 247 GG/2 is from the Belize ceramic group, while the one from Op. 266 B/3 is from the Chunhuitz ceramic group and slightly smaller in size. The vessel with the effigy spout from Op. 147 QQ/6-P1 is also from the Chunhuitz ceramic group but is the only one with cut obsidian inlayed for the eyes. A similar effigy spout has been recorded prior from Group D, structure D-7 (LeCount 1996:Figure E.27c).

Group A, Royal Residence

The royal residential compound north of structure A-6 is comprised of four linear structures around plaza A-III. Plaza A-III is composed of a basal platform with a steep drop off. This area appears to have been intensely occupied in the Late Classic with a reduction of use in the Terminal Classic. Based on the construction sequence, it appears that the ruling elite residence was initially a more open, public space and near the end of the Late Classic period the area was closed off creating a more private space (Harrison 1996).

Operations 116, 117, 118, and 123 represent a set of platforms east of the royal compound. It has been suggested the group may have functioned as a food preparation area for the royal family as well as a service area for events in plaza A-II (Jamison and Wolf 1994:39-40). I only examined the diagnostic ceramics from these contexts. These operations have been previously analyzed by Lisa LeCount (1996) and the undiagnostic sherds have been separated out.

I found a high proportion of domestic vessels as also seen by LeCount (1996:267) which include open forms and jars represented predominantly by Mount Maloney incurving bowls and Cayo Unslipped Jars.

Again, as seen on material from the Castillo, the predominant surface decorative technique on the ceramics from the royal residence was painting, followed not to distantly by incising. Impressing was the third most frequently used decorative technique. Single geometric elements were the dominant design recovered from this area.

San Lorenzo

San Lorenzo is situated approximately 1.5 kilometers northeast of Xunantunich. The area consists of spatially distinct settlement cluster of mounds. San Lorenzo is the southernmost of four hamlets, consisting of a cluster of seven patio groups, one informal group of two mounds, and eight isolated mounds. The principle goal of the research at San Lorenzo is to reconstruct the social and political organization of this community (Chase 1992, 1993; Yaeger 1994, 1995, 1996). The research is also a part of understanding how surrounding sites were integrated into the Xunantunich polity.

Household

Operation 146, SL-24, (Yaeger 1994, 1995) consists of two structures with a formal patio, interpreted as a domestic occupation. Suboperations 146 J, L-N, P, R, and S were analyzed as the sample representative of a household at this site. The ceramics show a domestic assemblage dominated by open forms and jars. The open forms are predominantly Mount Maloney bowls and Belize ceramic group bowls and dishes while the majority of the closed forms are Cayo Unslipped Jars.

The predominant decorative technique found on ceramics from this household is incising. This is followed in descending popularity by decorative appliqué, texturing, impressing, painting, and carving. Geometric designs either simple, repetitive, or abstract elements adorned 95% (N=147) of the sherds exhibiting decorative techniques. Five percent of the decorated sherds were Pabellon Modeled-carved depicting scenes.

Administrative Center

Operation 243, SL-13, consists of six structures enclosing two connected patios. It is one of the largest groups in the area in terms of mound height and construction volume (Yaeger 1996:133). Yaeger (ibid.) has interpreted this group as a local administrative center. The sample of this administrative area is from the north patio, suboperation 243 F, and structure 2, suboperation 243 H which abuts suboperation 243 F. Suboperation 243 F has been completed this season and suboperation 243 H still needs to be analyzed.

Op. 243 has a slightly greater proportion of ash wares to calcite tempered wares in contrast to Op. 146. Also, the administrative center has fewer closed forms in relation to open forms than seen in Op. 146. Mount Maloney and Belize Ceramic group bowls are the dominant open forms. Censor pieces were recovered from the plaza area, while there was no evidence of censors in the household. Incising is the dominant decorating technique, followed by texturing, carving, and decorative appliqué. One

percent of the design elements at this administrative center are pseudo-glyphs and 3% are Pabellon Modeled-carved. The remaining designs are geometric.

Chaa Creek

Chaa Creek is located approximately 5 kilometers northeast of Xunantunich. The Chaa Creek community is typical community in the region, with the large platform groups and smaller patio groups arranged along the ridge tops and households below. There are four platform groups and many smaller patio groups. Chaa Creek research focuses specifically on the changing relationships between the outlying community of Chaa Creek and the center of Xunantunich. Connell argues for increased regional community integration during the collapse of the Classic Maya (Connell 1993, 1994, 1995, this volume).

The ceramics from a household, Op. 254, were analyzed this season. The ceramics from a administrative area, Op. 161, are to be analyzed this next year. Op. 161, located in the Plantain group, is associated with a "L" shaped structure containing an alter and burials (Connell 1995).

Household

Operation 254, CC7, (Connell this volume) consists of three structures on low platforms. Op. 254 was investigated as a sample community for the area through horizontal clearing. The sample, suboperation 254 B, is a saddle between two structures. Artifacts first appear below 50 cm. This is a trash deposit on a deteriorating highly-eroded sascab floor. Under the floor is a midden with a large variety of artifacts into which a burial was placed. The burial is a male, placed face down and in an extended position. The lowest levels of this deposit contain Preclassic material. The rest of this suboperation is predominantly LCII.

The ceramics from Op. 254 represent a domestic assemblage, dominated by Mount Maloney group and Belize Ceramic group bowls and Cayo Ceramic group jars. There was no evidence of any ritual ceramics. Incising is the dominant decorative technique followed closely by painting, then impressing and tooling. Only geometric designs appear on the ceramics.

Chan Noohol

The Chan Noohol community consists of six household level isolated mound sites. The community cluster is situated approximately 3.5 kilometers southeast of Xunantunich. This area was excavated by Robin as part of the Xunantunich rural settlement project in order to examine rural household and community development (Robin 1996). The purpose of her work is to understand how households and communities are organized both internally and externally as part of a regional settlement system.

Rural Household

Operation 224 refers to a single site, T/A1-071, and its associated terraces and vacant terrain. It is the northeastern most site of six sites in the Chan Noohol community cluster. T/A1-071 consists of a single mound, a small water hole, a chultun, and associated terraces. The excavations targeted all surface features including mounds, a water hole, a chultun, and terraces (Robin 1996:157-164).

The structures are suboperations 224 C, E, G-L, N, O, T, X, AA-GG. Structure M1 is a two phase composite bi-level rectangular substructure with a two step axial stair along the south face. There are also two non-mound platforms, NM1 and NM2, both 35 cm above bedrock at their highest point. NM1 is south of M1 and NM2 abuts the west lower level of M1 (Robin 1996). The ceramics represent predominantly a domestic assemblage, there are however a very few pieces of a censor present. The only evidence of censors from this site is in association with the structure and one fragment in the refuse area, suboperation Q.

The dominant decorative techniques used on the ceramics associated with the structures are incising and texturing. Incising is the most prevalent decorative technique used on ceramics from this site. Geometric elements are the design of choice from all contexts within this site.

The water hole or aguada, suboperation 224 M, is a sub-circular concave depression. No artifacts were recovered in the upper 80 cm. Artifacts were only in the lower 25 cm (Robin 1996:161). Suboperations 224 R and S were placed along the southeast edge of the water hole where a channel-like concavity was observed on the surface. The ceramics from these area reflect a domestic assemblage of open forms and jars.

The refuse areas are suboperations 224 Q and W. 224 Q has been interpreted as a primary deposit (Robin 1996:161). The ceramic sherds from this area are large with eroded surfaces. 224 W is interpreted as a secondary or tertiary refuse (ibid.), it contained small highly eroded ceramic sherds, leaving little for stylistic analysis. The material form these refuse contexts date predominantly to LCII and LCIIb with some LCI and LCIIa. The ceramics point to a domestic refuse. Incising was the dominant decorative technique on the ceramics from these contexts.

The double mouth chultun with two chambers is suboperation 224D. The chultun fill consists of the best preserved sherds form this site and is interpreted as a primary deposit. Ceramics date predominantly to LCII with LCI material found at the base of one of the chambers. The primary vessel forms encountered are bowls, dishes, and plates (e.g. Robin 1996:Figure 17). Mount Maloney group bowls constitute the largest percentage of bowls. The only polychrome encountered from this site comes from this chultun context: a Benque Viejo Polychrome bowl.

The terrace excavations are suboperation 224Z, located along the southwest facing on the middle terrace. Here there was a small number of highly eroded, highly fragmented sherds all those remaining were of calcite temper. There was no original surface left on sherds from this context for stylistic analysis.

Conclusion

This report is a preliminary summary of on going work with the ceramics from the Xunantunich settlement region. I realize there is still much more to be done. There are a number of issues I am currently examining. This includes 1) understanding the distribution of different geometric designs within and between areas; 2) examining the phenomenon of in households, red slipped sherds make up a larger percent of the

assemblage in contrast to black slipped sherds. The reverse is true in the administrative center (Op. 243), where black slipped sherds are predominant over red slipped; and 3) interpreting the significance of the households of San Lorenzo (Op. 146) and Chaa Creek (Op. 254) containing no evidence of ritual ceramics while the Chan Noohol household (Op. 224 C, E, G-L, N, O, T, X, AA-GG) has censor fragments.

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Appendix A: Provenience of the 1997 Ceramic Data

List of operations and suboperations collected for detailed ceramic analysis during the 1997 field season. All screened lots with occupation (aside from collapse debris), midden or refuse cultural contexts are included.

Op. 116 A,D,E,I,K
Op. 117 F
Op. 118 C
Op. 123 A,F
Op. 146 J,L,M,N,P,R,S
Op. 190 P
Op. 196 J
Op. 224 B-H,J-GG
Op. 239 A
Op. 243 F
Op. 247 GG, KK
Op. 254 B
Op. 266 M
Op. 276 A

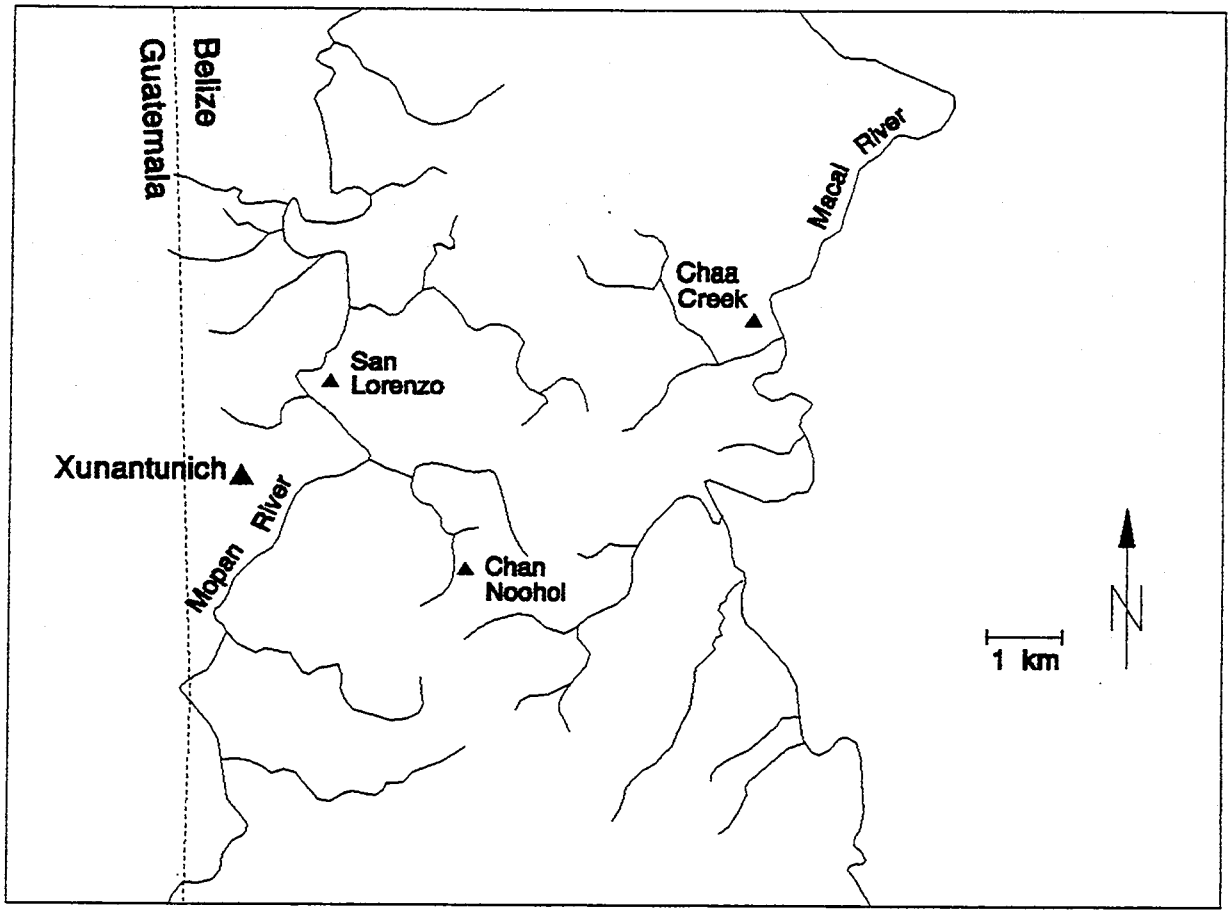

Figure 1: Xunantunich Settlement Area, showing sites which comprise the ceramic research sample.

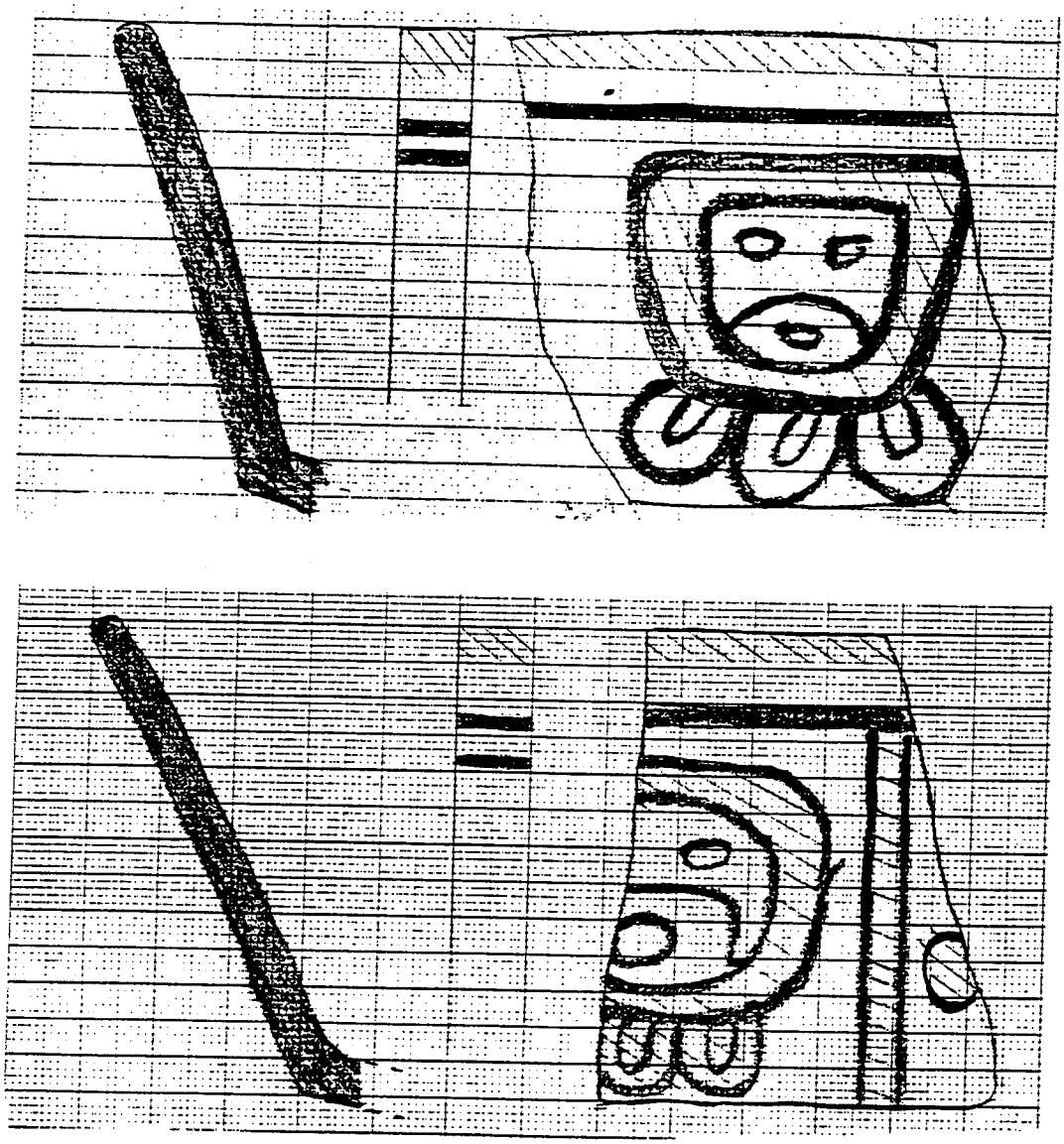

Figure 2: Ahua symbols, upper 266 M/29.A2736 and lower 266 M/32.A2854. (Scale 1:1)

Geology and Hydrology of the Lower Mopan and Macal River Valleys

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Introduction

Between February 1 and June 15, 1997, I studied ~100 square kilometers of western Belize around the site of Xunantunich (Figure 1) with the goal of understanding any major landscape changes that might have occurred within the recent past. To that end, this study investigated the current hydrology of the Mopan and Macal Rivers, and embarked on a survey of the Quaternary and pre-Quaternary geology and the landforms of the entire region. Understanding the contemporary hydrology, i.e., how the rivers behave given the current climate regime and landscape, is not always the key to understanding the paleohydrological system, but it is at least a reference, an indicator of one set of possibilities from which the past may be extrapolated. Modern flow data shows trends in seasonality of flow, variability of flow, and magnitudes of maximum flows: these trends are functions of precipitation, modified by the particular morphology of the drainage system, and can be used to make generalizations about the response of the rivers to given situations.

The pre-Quaternary geology is important for the region in that it governs distribution of lithic resources, and also often exerts a powerful influence on subsequent surficial processes. Reviewing the stratigraphy of western Belize and revising the existing geologic map (Cornec, 1986) indicates what rock units occur in this region and where they are exposed. An examination of the geologic structure of the area, which records the deformational processes that have altered the rock units after their deposition (e.g.; folding and faulting), aids in understanding the potential for recent seismic activity. Also, deformation of a region, by creating planes of weakness in the bedrock, can provide an important control on later landform generation, i.e., valleys and depressions will tend to form along pre-existing planes of weakness as weakened rock is much easier to erode.

It is, however, in the Quaternary geology and the landforms of the region that the record of the recent past is contained, and as such, those subjects were the focus of this study. The bulk of the work consisted of defining and mapping Quaternary geologic units and landform unitsprimarily from field observation, but also by inspection of aerial photographs. These units were then considered in terms of mode of origin, and of potential for archaeological site preservation.

Hydrologic Setting

The primary surface drainage system in the area around Xunantunich consists of the Mopan and Macal Rivers, which have very distinct differences despite their proximity as they approach their confluence at Branch Mouth. Much of the difference can be explained simply by looking at the respective watersheds of the two rivers; the Mopan flows almost exclusively over limestone throughout Belize and Guatemala, while the Macal flows primarily on igneous and metamorphic rocks until crossing onto limestone just south of Negroman (Figure 2). This difference in the lithology of the two watersheds is responsible for the significant difference in the chemistry of the rivers' water: the Mopan is carrying enough carbonate dissolved from the limestone bedrock that it can precipitate travertine in the form of small (2-3m maximum height) cross-channel dams, such as those at Clarissa and Paslow Falls. The Macal, however, never accumulates enough dissolved carbonate to deposit any travertine because of its much shorter course over limestone. The Macal, then, being far from saturated with respect

to calcium carbonate, has much more of an ability to dissolve the limestone bedrock it flows over; thus the Macal has a narrower, deeper gorge than the Mopan.

Few of the tributaries of the two rivers are perennial; during the height of the dry season, only some of the Mopan tributaries within the area mapped were flowing, and none of the Macal tributaries were. Those that flowed (San Juan Creek, Callar Creek, the creek immediately south of Callar Creek, the creek just north of Santa Rosa, and the creek nearest Clarissa Falls) had larger watershed areas than the those that ran dry, and were associated with significant spring activity. Many of the other tributaries contained small ponds of water in areas of their channels, but were not actively flowing. Some of the creek beds, especially in the southern part of the mapped area, bear witness to the powerful flows they experience during the rainy season by the large boulders they contain. These boulders and cobbles are often covered by a thin skin of travertine; it is likely that this travertine was deposited during the last few weeks or even days of creek flow, when the carbonate is most concentrated. Later floods, more depleted in carbonate during the rainy season, will probably abrade and dissolve this carbonate skin off, leaving bare boulders until the creek begins to dry out again.

Seeing a river system only during the dry season (from February to early June) does not give an adequate representation of the true range of behavior possible. In order to get a clearer picture of the rivers both year-round and over time, hydrologic records were obtained from the National Hydrological Service for the Mopan and Macal Rivers at Benque Viejo and Cristo Rey, respectively. Daily stage and flow data were recorded for the years 1981-1997 (ending in May). Of the 15 full years encompassed by these data, 10 on the Macal and 11 on the Mopan are complete, with data for every day of the year. This is not really enough of a record to do much in the way of flood prediction; however, the data can yield a preliminary picture of the general yearly behavior of the rivers. As can be seen in Figure 3, the average monthly flow for both rivers is at a minimum during the months of April and May, while the Mopan has a pronounced double peak, in July and October, and the Macal shows one maximum in August. The average flow trend for the Macal is somewhat misleading, as most individual years do show two peaks through the summer and winter. However, the time of the peaks is much more variable on the Macal than on the Mopan (Figure 4), and so the average trend is blunted, with one broad peak though the summer and early fall.

The low-flow times correlate closely with the precipitation data from San Ignacio and Benque Viejo. Certainly, precipitation data from farther upriver would prove a much better match: the amount of rain at San Ignacio is not going to do much to affect the Mopan at Benque Viejo. Moreover, the precipitation records from Benque Viejo and San Ignacio are not from the same years as the river data. Nevertheless, as overall trends are what's of interest here, these rain gauges are used as a proxy for the whole region over the last 40 years, and they show rain minima between February and April. The precipitation records also show the double peak evident in the Mopan flow data, with high flows in June-July and September-October (Figure 3).

The Mopan and the Macal have relatively similar average annual flows, the Mopan's being consistently slightly higher. The Macal, however, has a greater range of flows; its annual maxima are higher than the Mopan's, and its annual minima slightly

lower (Figure 5). The Macal's greater propensity towards larger floods is likely a result of the large proportion of its watershed on igneous and metamorphic rocks; there is ordinarily much less subsurface storage and much greater surface channelization of precipitation in an igneous/metamorphic-dominated watershed than there is in a limestone-dominated watershed. Potentially, difference in rainfall patterns in the two watersheds also contributes to the disparity in flooding behavior between the Mopan and the Macal, but precipitation data are currently insufficient to test that hypothesis adequately.

How much of this river behavior can be extrapolated back over an interval of a few thousand years? Certainly any extrapolation would have to assume a similar precipitation regime, an assumption which is unfortunately quite difficult to test, as the dominant influence on pollen records in the region is often anthropogenic, not climatic (Hodell et al., 1995). Oxygen-isotope and mineralogical studies on lake cores in the Yucatan (Hodell et al., 1995) suggest that the climate was fairly wet from ~7000 B.P. to ~2000 B.P., followed by a time of increasing dryness, reaching minimum precipitation 1,100 - 1,300 B.P. (Late Classic), and then finally returning to wetter conditions. If this same regime were present in the area around Xunantunich, the Late Classic Mopan and Macal Rivers would have likely carried significantly smaller annual discharges with less-pronounced seasonality.

Changes in the rivers' watershed over time would also invalidate extrapolating back present fluvial behavior. River systems on carbonate bedrock are particularly susceptible to very rapid shifts in flow due to collapse of subsurface chambers, or piracy of subsurface flow [see White (1988) or Ford and Williams (1989) for a review of karst hydrology]. Such occurrences would be difficult to document. Flooding behavior also could have varied; Muhs et al. (1985) present evidence from soil development on the Negroman floodplain that the areas around the Macal have not experienced catastrophic flooding, at least since the Late Classic (600-800 A.D., or ~ 1400-1200 B.P.), while Holley et al. (in prep) propose that catastrophic flooding occured on the Mopan in the Early or Middle Classic (250-600 A.D., or 1750-1400 B.P.). This is the opposite of what occurs today: over the last 16 years, the Macal has had 4 annual maximum flood discharges over $400m^3/s$ (including a flood in 1994 with an estimated discharge of $3200m^3/s$ a few miles upriver from Negroman; Kevin Nance, pers. comm.), while the Mopan has never topped $300m^3/s$. All of this information suggests that the Mopan and Macal Rivers have undergone significant changes in flooding behavior and average annual discharge over the last few thousand years.

Pre-Quaternary Geology

> Some difficulty was encountered during the survey due to almost total lack of well defined contact areas, dense vegetation, thick weathered hardpan and tufa concealing lithologic features, extreme scarcity of fossils, and lithologic similarity of formations involved regardless of age.
>
> (Flores, 1952a)

Mapping carbonate rocks in a humid climate is as challenging a task at the end of the 20th century as it was in the middle. Perhaps because of this, Flores' (1952a) work

on the northern half of Belize remains the most comprehensive regional geologic study of this area. The current provisional geologic map of Belize (i.e., Cornec, 1986) is a compilation of previous maps of portions of Belize, combined with Cornec's field work in unspecified regions. Flores'(1952a) map is the only reference for the western central area of Belize (Cornec, 1985). Flores (1952a) mapped at a larger scale than did Cornec (1986), who also lumped several of Flores' (1952a) mapping units together. Unfortunately Flores' (1952a) map has been lost from the Geology and Petroleum Office in Belize, and there would appear to be no other extant copies. The map presented in Figure 6 is essentially an enlargement of Cornec's (1986) map, with some modification. Contacts were fine-tuned based on field work and examination of aerial photographs.

Stratigraphy. (See Figure 7)

(?) Pennsylvanian - Triassic. The Paleozoic-Early Mesozoic strata of Belize (which crop out beginning 2 km south of the southeastern edge of the mapped area, and continue south from there) represent the only local source for igneous and metamorphic rocks used in making grinding stones. If a given non-sedimentary rock doesn't come from the Maya Mountains, the next closest potential source is ~250 km southwest of Xunantunich (Weyl, 1980). The Paleozoic units consist of metasediments and volcanic rocks combined as the Santa Rosa Group, (Bateson and Hall, 1971), while the Triassic is made up of three major batholiths: the Mountain Pine Ridge (granite), the Cockscomb (granodiorite) and the Hummingbird (granodiorite) (Kesler et al., 1974). The Mountain Pine Ridge batholith is the only one of these units that crops out in the watershed of the Macal, and has been shown to consist of three different granitic suites, the oldest of which is possibly late Paleozoic (Jackson et al, 1995). The metasediments of the Santa Rosa Group represent a wide variety of lithologies, including argillites, shales, schists, phyllites, gneisses, sandstones, and conglomerates (Bateson and Hall, 1977). The Bladen Volcanic Member of the Santa Rosa Group, dated at ~300mya, is comprised of rhyolitic lavas and pyroclastic rocks (Bateson and Hall, 1977).

Jurassic-Cretaceous. The Jurassic rocks of Belize are limited to a narrow band of shaly sandstones (Margaret Creek Formation) exposed along the Northern Boundary Fault of the Maya Mountains (Cornec, 1986). The Cretaceous strata consist of a series of limestones and dolomites, usually subdivided into the Coban (Early-beginning of Late Cretaceous) and Campur (middle to end of Late Cretaceous) formations (e.g., Vinson, 1962). Flores (1952a), mapping in northern Belize, saw only Late Cretaceous rocks, which he called the Barton Creek Group. Flores (1952a)showed that the Barton Creek Group conformably underlies the Paleocene-Eocene Cayo Group, indicating continual deposition through the end of Cretaceous time. Vinson (1962) recognized a hiatus during Campanian time, followed by deposition of the Verapaz Group during Campanian-Maastrichtian time. The Lacandon Formation, a sandy limestone, would be the appropriate member of the Verapaz Group to crop out in northern Belize, though Vinson (1962) noted that the Lacandon is often missing due to post-Maastrichtian, pre-Eocene erosion. Cornec (1986) simply mapped all Cretaceous rocks as undifferentiated. As Flores' (1952a) nomenclature is followed in all other cases here, the Cretaceous rocks found in the area mapped will be called the Barton Creek Group.

The Barton Creek Group includes both limestone and dolomites. The limestone is a dense, hard, tan to cream, micritic limestone with pockets of coarse recrystallization.

Bedding is usually tabular: individual beds are 30-40 cm thick. The dolomites are off-white to buff, occasionally chalky and porous, and thin-bedded (Flores, 1952a). This unit was seen only at the south end of the mapped area.

Flores (1952a) noted two breccia zones within the "lower central" part of the stratigraphic column, and suggested that they are collapse breccia, formed by dissolution of evaporite layers. What breccia was seen in the region, however, falls primarily within the area mapped as Tertiary by Cornec (1986). Furthermore, these breccia units do not match the breccias described by Reeder et al. (1995) in the Cretaceous limestone of the Vaca Plateau (just to the south of the mapped area). Those breccias were sparite and micrite clasts in sparite and micrite matrices (Reeder et al. 1995). The breccias observed in this study generally consist of chert and limestone clasts in a flour-like lime-mud matrix. Some researchers have ascribed a brecciated zone near the top of the Cretaceous limestones to the K-T boundary impact at Chixculub (e.g. Ocampo et al., 1996 and Rampino et al., 1996). In some areas, the brecciated zones extend well into the Tertiary section, making them at least in those regions unrelated to any boundary event. The contacts in this area are difficult enough to pin down that, given a generous margin of error, the breccias observed could in fact be at or near the K-T boundary. While a cataclysmic tidal-wave origin certainly cannot be ruled out for all instances of the limestone breccia observed, it does not seem a likely generation mechanism for much of the breccia. At a few of the breccia outcrops in the Negroman area, the closest breccias stratigraphically and geographically to the mapped K-T boundary, some of the clasts were a higly non-resistant carbonate clay, unlikely to have survived a tidal wave in chunks of ~8-10 cm diameters. These clay chunks are more likely to have been generated by a less violent brecciation proccess, perhaps by collapse due to solution of underlying layers of rock.

Tertiary. Flores (1952a) recognized a number of Tertiary deposits, and it is these which underlie most of the region from Benque Viejo to San Ignacio. The oldest of these, the Paleocene-Middle Eocene Cayo Group, is similar to the Barton Creek Group. It consists of light buff to white, hard micritic limestone with medium to fine bedding and secondary dolomite, frequently porous (Flores, 1952a). This unit is also chert-bearing. Cornec (1986) who mapped the Cayo Group together with the Middle Eocene Doubloon Bank Formation, makes no mention of dolomite in the Cayo Group, but does include marls. The Doubloon Bank Formation was described by Flores (1952a) as a massive whitish to buff to yellow hard limestone, "associated with" large (up to 1m in diameter) chert nodules. The Doubloon Bank Formation is not well exposed;; Flores (1952a) mentions that he mapped it often by the abundance of chert nodules littering the ground. Chert nodules are abundant within the area mapped as Cayo Group/Doubloon Bank by Cornec (1986) (indicated by T_{cd}). However, in almost all occasions the chert was accompanied by vein quartz and metaquartzite, indicating that the clasts littering these areas do not represent a simple weathering product of a chert-bearing limestone. The clasts have to have been reworked and transported by a drainage system that is connected to some source of vein quartz and metaquartzite, most likely the Santa Rosa Group. Though stratigraphically it does make sense that there would be Middle Eocene rocks in this region, chert nodules at the ground surface do not necessarily indicate the presence of the Doubloon Bank immediately underlying them.

The Eocene-?Oligocene Iguana Creek Formation, crops out only in a small region in the Clarissa Falls area. This unit is a limestone, dolomite, and chert conglomerate in a partially silicified lime matrix (Flores, 1952a). The clasts are subangular to subrounded, 6-8 cm in diameter. The mapped contact of this unit with the Cayo Group?Doubloon Bank Formation is rather problematic, as the area is predominantly covered in Quaternary alluvium. Similarly, the contact between Cayo/Doubloon Bank and the Miocene-Pleistocene Red Bank and Orange Walk Groups falls almost completely under the floodplain deposits of the Mopan River, and as such, must be taken with a grain of salt. The Red Bank Group, described by Flores (1952a) as "red, grayish green and bluish, mottled yellow-brown or orange bentonitic clay admixed with fine to medium clear and frosted quartz sand, finely divided glass laths of volcanic origin, and rare nodules of lime" does not crop out anywhere within the mapped area. The Red Bank Group, however, is important as a potential source of volcanic ash, widely used in Mayan pottery. Several chunks of unworked clay tentatively identified as coming from the Red Bank Group were found by Cynthia Robin in this year's excavations; indicating that this unit would seem to have at least some use to the Maya. The Red Bank Group crops out farther east along the Belize River, and would be well worth petrographic investigation.

The northernmost portion of the mapped area consists of the Louisville Formation of the Orange Walk Group, a series of soft, limy marls. Flores (1952a) noted that the Louisville Formation unconformably overlies the Doubloon Bank Formation along the Orange Walk-Progreso road, and it would seem that the same occurs here. The greatest difficulty with these soft limestone deposits is distinguishing a primary lagoonal marl such as the Louisville Formation from a secondary, redeposited carbonate weathered regolith. Unfortunately, Flores' (1952a) descripitions are of little help, as he himself recognized that "these [Louisville] marls are rather widespread and greatly resemble a powdery, weathered limestone" (Flores, 1952b). This issue will be discussed as part of the Quaternary geology section. If all of the lime muds seen were Quaternary, then the underlying bedrock could be anything, though stratigraphically, Tertiary rocks are most likely to occur in the areas overlain by the lime muds (assuming no drastic deformation).

Structure.

Most of the southern central portion of Belize consists of the Maya Mountains horst, described by Bateson and Hall (1977) as an ENE-trending, westward-dipping synclinorium, bounded by roughly E-W striking faults to the north and south, with its eastern boundary obscured by Quaternary coastal sediments and its western by Cretaceous -Eocene limestones. These limestones are themselves gently folded nearest the Maya Mountains, and flat-lying to gently dipping off the mountains farther away (Bateson and Hall, 1977). Bedding measured in the field varied significantly (strikes: m=212.6∞, s=115.4∞; dips: m=20.7∞, s=8.4∞), with the mean trend representing shallow dipping away from the mountains, but the variability suggesting that this area is still within the deformed zone closest to the mountains. However, difficulty in finding good bedding planes resulted in relatively few and unreliable measurements. The folding of the Maya Mountains Paleozoic rocks occurred in late Permian to early Triassic time, while the faulting of the block began in Middle Cretaceous time and continued through mid-Tertiary time (Bateson and Hall, 1977).

The faults mapped by Cornec (1986) throughout this region shows two major trends; NW-SE and ENE-WSW (only the NW-SE trend shows up in Figure 6; ENE-WSW faults occur just to the south). These roughly perpendicular fault systems occur in the western portions of Belize around the margins of the Maya Mountains and are related to the Maya Mountains uplift. Photolineament mapping also demonstrates clear trends in those same directions (Figure 8). The youngest displacement associated with any of the faults is Miocene-Pliocene, probably related to the last Maya Mountains uplift event, which Bateson and Hall (1977) date as mid-Tertiary. There is no geomorphological evidence for recent reactivation along any of the mapped fault lines.

If the Xunantunich area were to experience significant seismicity, it would likely come from outside the immediate area. Rumors abound concerning a turn-of-the-century 6.5 Richter scale quake with an epicenter right under where the Mollejon Hydroelectric plant has placed a dam along the Macal River, supposedly documented by the U.S. Army Corps of Engineers (Kevin Nance, personal communication), but no evidence of this could be found. Significant recent seismicity has been associated with the Middle America Trench, along the west coast of Central America (related to subduction of the Cocos Plate under the North American and Caribbean plates) and with the Cayman Trough, running slightly north of east from the Gulf of Honduras to Cuba (left-lateral slip between the North American and Caribbean plates) (Weyl, 1980). Quaternary faulting has been shown to have occurred along the reefs of the Belizean coast; how much effect that would have had inland is unknown (Dillon and Vedder, 1973). The likelihood of a significant quake being felt in the Xunantunich region during Quaternary time is very high. The likelihood of one originating in the area is nowhere near as great, as this region is not on or particularly near a plate margin, where seismic activity is usually concentrated.

If any earthquake vibrations originating from either of the aforementioned seismically active regions were severe enough to have caused destruction in the Xunantunich area, they would have laid complete and total waste to the areas near their epicenters. In the Guatemalan earthquake of 1976, located along the Motagua fault zone, areas proximal to the epicenter felt a modified Mercalli scale intensity of IX (Weyl, 1980), which translates to considerable damage, with buildings shaken off their foundations (Lundgren, 1986). Fifty km northeast of the epicenter, the intensity had dropped to VI (Weyl, 1980), which represents only slight damage such as fallen plaster (Lundgren, 1986). Xunantunich is another 170km northeast of the intensity VI zone, and would have experienced little damage, though certainly the quake would have been felt. Any earthquake originating in the region of the 1976 quake strong enough to produce even an intensity of VI at Xunantunich should have left some evidence of utter destruction all over southern Guatemala.

Quaternary Geology

I mapped the Quaternary geology of the Xunantunich region at a scale of 1:50,000 mainly by systematic surveying and prospecting of the area on foot, with reference to aerial photographs of the region. In addition, test pits were dug for clarification of the sedimentology and stratigraphy in the San Lorenzo area. I used The United Kingdom Ministry of Defense's 1990 1:50,000 topographic map as a base, and a Garmin 78 GPS (using the 1927 North America Carribbean datum) for additional postion data while in the field. The initial differentiation of units was made primarily

by grain size and composition, though once a stratigraphy had been determined, most of the mapping was done by topography.

The major difficulties encountered during mapping were assigning ages to strata and identifying the nature of the ubiquitous soft clayey carbonate. Absolute dating proved impossible in this study, as little in the way of fossil remains or organic matter was preserved in most settings. The non-resistant carbonate rocks presented a problem because it could be interpreted as Cayo Group (Cornec, 1986) or Orange Walk Group (Flores, 1952a) marl, as a more or less *in situ* weathered product of resistant Cretaceous and Early Tertiary bedrock, or as transported and redeposited weathered products of any of the above deposits. The latter case could represent such varied depositional environments as karst depressions, lakes, or floodplains, potentially Quaternary in age. The extreme susceptibility of the non-resistant carbonate rocks to weathering leads to the obliteration of bedding in outcrop, which would be the quickest and easiest way of telling the different types of deposits apart. A similar problem was presented by the occurence of a thick (~1m), dark gray to black clayey A horizon over every fine-grained deposit. This soil layer was often the only thing visible over large regions. In these areas, topographic and stratigraphic relationships were used to extrapolate from whatever outcrop could be found, with the realization that the dark soils could be covering a multitude of sins.

Mapping Units. (See Figure 9)

Creek alluvium. The "creek alluvium" unit encompasses a wide range of grain sizes, from boulders ~1 m in diameter in the creeks draining into the Negroman area, to clay in most of the floodplains of the creeks draining into the Mopan. There tends to be more alluvium associated with the creeks draining into the Mopan than those that drain into the Macal; they are generally flowing over less resistant rock and as such are able to carve themselves out relatively broad valleys, which they then fill with sediment. This sediment is usually dark olive to light gray and very fine-grained, as opposed to the brown silts, clays, and occasional sands of many of the Macal tributaries. The color difference is attributable either to a greater amount of iron in the Macal area bedrock, or the more waterlogged conditions in the Mopan area, or both. Iron, once oxidized, would give the Macal sediments a reddish tinge, whereas waterlogged conditions around the Mopan would create a reducing environment, which would result in grayer sediments.

It is certainly possible that the creek floodplains contain buried cultural remains. They are currently active depositional sites; if it can be assumed that the creeks were flowing at some time during times of occupation, and that subsequent creek erosion has not removed all of the remains, there is a good chance of preservation. Mayan cross-channel dams on some creeks justify the first assumption in certain cases; the second would have to be evaluated on a creek-by-creek basis. Whether erosion, deposition, or both have occurred due to creek action, the areas mapped as creek alluvium should show little in the way of surface remains, except for structures built to modify or utilize the creeks themselves.

Alluvial fans. The "alluvial fan" unit is extremely restricted. It consists of sands and gravels, primarily carbonate rocks with some chert, and forms conspicuous mounds along the major creek drainages into the Negroman area at the slope break

between the carbonate hills and the floodplain deposits. These are the only well developed fan deposits (with one possible exception, to be discussed later) seen in the area, probably because the gradient change along the streams at the edge of Negroman is one of the most drastic in the area, or because the streams in whose valleys the fans occur are carrying some of the most resistant bedrock in the area. While fans have been observed in the western part of the Mopan valley (Holley et al., in prep), they are considerably more subdued topographically and on a smaller scale laterally than those near Negroman.

The alluvial fan unit is not likely to have preserved much in the way of coherent archaeological sites. An alluvial fan is generally a bad place to build, because of its propensity for debris flows and because of constant sediment influx. Debris flows, however, may not be as much of an issue on alluvial fans in the tropics as they are in arid regions; vegetation acts to stabilize slopes and prevent mass movement of soils- see Miall (1996). If there were any settlement there, though, it would likely be preserved, as the fan is primarily a depositional environment. However, the fans are more likely to preserve a garbage dump-like collection of whatever isolated artifacts the creeks were able to erode out of a variety of settings, instead of a coherent settlement.

DuPlooy's alluvium. This deposit, named for the large sand and gravel bar at DuPlooy's resort, represents the most recent coarse-grained Macal alluvium. It encompasses grain sizes from sand to bouldesr, and clasts of extremely variable composition. Most of the range of the Paleozoic Santa Rosa group metamorphic rocks are represented in the pebble- to boulder-size fractions; slates, phyllites, schists, and quartzites, as well as granites and vein quartz from the Maya Mountains intrusions. Limestone and chert clasts are also present. The sand fraction is primarily quartz, with some carbonate rock. Much of this alluvium occurs directly adjacent to the current channel as point-bar deposits on the inside of river bends. Some of the sands farther from the channel may represent older point bars.

There is, of course, a great potential for isolated artifacts to be found in these deposits. Anything the river itself eroded or that was carried into it by any of its tributaries could end up in the gravel bars. The more distal flood-deposited sands could potentially be burying structures that were built on the banks of an earlier channel of the Macal River, but it is likely that many structures built in the area covered by the Duplooy's alluvium would have been eroded away by the river action subsequent to the time of construction. These deposits, however, are exceedingly important as they are the only source of resistant igneous and metamorphic rocks in the immediate area.

de la Fuente alluvium. This alluvium, named for exposures on the de la Fuente ranch (between Duplooy's and Negroman on the Macal), represents recent floodplain deposits. At the surface, it consists mainly of strong brown to yellowish brown quartz and carbonate silts and clays. South of the Duplooy's area, these floodplain sediments overlie older channel and floodplain deposits, preserving the older floodplain topography; to the north, they lap on to the considerably steeper valley walls and lie directly over bedrock.

These deposits are very likely to contain buried cultural remains, as they represent a primarily depositional environment. Sherds (unfortunately nondiagnostic) were found about 15 cm below the surface in a small trail cut about 250 m from the current river channel on de la Fuente's farm, indicating that sedimentation was occurring in this area at some point after the time of Mayan occupation. Furthermore, Muhs et al. (1985) excavated "field walls" from this unit at Negroman, which were associated with Late Classic ceramics and buried by a meter and a half of sediment, indicating that there may be significant cultural remains at depth.

Negroman alluvium. This deposit, restricted to the area around the current Negroman citrus groves, is the oldest evident Macal alluvium (with the exception of the eastern portion of the Buena Vista unit, to be discussed later). The Negroman alluvium is bounded to the north and west by overlying alluvial fans coming off the bedrock hills and by the bedrock hills themselves, and on the south and east by an abrupt increase of slope down toward the younger floodplain. The higher topographic position and greater degree of soil development (Muhs et al., 1985) of this unit when compared to the de la Fuente alluvium indicate that it is of greater age. The sediments consist of light yellowish brown silts and clays, potentially coarsening with depth to channel sands and gravels in places.

The Colonial Period ruins built at the surface (e.g. Graham et al., 1985) unfortunately indicate only that any structures older than Colonial Period could be buried in these sediments. If there were enough flood events over the last 3,000 years severe enough to reach the level of the Negroman alluvium and deposit significant amounts of sediment, it would be possible to have buried settlements within this unit. The settlements are not likely to occur at depths greater than 1-2m; if Late Classic remains are buried .

Succotz alluvium. This unit, the youngest Mopan River alluvium, is strikingly different from its counterpart on the Macal in that it contains only limestone and chert clasts, and that the modal grain size is much smaller (i.e., fine sand- coarse silt instead of gravel and cobbles). Cobbles occur rarely, nost notably in the San Lorenzo area (on both sides of the river) and occasionally in river-bank cuts. The ratio of carbonate to quartz clasts in the Mopan sediments is much higher than that in the Macal. This increased proportion of the less resistant carbonate clasts is very likely the reason for the decreased average grain size of the Mopan sediments. The Succotz alluvium includes two distinct sets of floodplain deposits; the topographically lowest Mopan deposits (point bar and floodplain sediments), and those one level higher (floodplain and older channel sediments), approximately 3-4 m above current river level. The lowest deposits are discontinuous, and occur in patches too small to map at 1:50,000. These lowest areas are subject to yearly flooding, but in many places, where the river banks are > 3m above baseflow, the Mopan has not overtopped its banks in the memorable past (according to local residents). The Succotz alluvium unit also encompasses the broad floodplain of the Mopan and the Macal as they approach their confluence at Branch Mouth. The composition of the alluvium does change toward the Macal, becoming more iron- and quartz-rich, but this is a gradational change, involving the interfingering and intermixing of Mopan and Macal flood deposits. Rather than pick an arbitrary boundary, I lumped the deposits together. Mapping this northernmost region as one unit is certainly an oversimplification, but given both the

increased population density in the region (which obscured the geology as well as complicated access to private land), it is considered warranted.

The Succotz alluvium has already been shown to contain buried sites in the San Lorenzo area (Holley et al., in prep), and likely has others along the length of the Mopan. Holley et al.'s work (in prep) shows that it is within this alluvial unit that the variation in river channel position over the time of human settlement is documented. Thus, the areas with potential for significant variation in channel location are these where the Succotz alluvium is most extensive; around Succotz, in the Callar Creek area, and along the E-W trending portion of the river. These areas were not necessarily subjected to the abrupt change in channel position (avulsion) proposed for the San Lorenzo area (Holley et al., in prep); the regions of Succotz alluvium could be the result of the gradual widening of the river meanders.

San Lorenzo alluvium. This unit, restricted to the San Lorenzo and Paslow Falls areas, represents an alluviual deposit older than the Succotz alluvium. It is known only from one test pit (~1 m deep), and consists of reddish brown to brown silts and clays with little observable structure other than a hint of horizontal bedding. The topographic difference between the top of the San Lorenzo alluvium and the Succotz alluvium is on the order of 1-2m, and is not always pronounced. These surficial deposits are interpreted as a floodplain, potentially active while the Mopan channel occupied the "paleomeander" described by Holley et al. (in prep). Few artifacts were found in this test pit, and what little was found was nondiagnostic, so unfortunately no further light can be shed on the age of this surface.

Though nothing was discovered in the one test pit, there certainly could have been recent enough deposition on this surface to have buried settlements. The western edge of this unit would have been very near the paleomeander of Holley et al. (in prep). However, the amount of deposition of floodplain sediments would depend on the length of time the channel occupied its easternmost path, and the hydrologic regime during that time. This surface was perhaps the most difficult to interpret of any in the area, as there were relatively few cuts through it, most associated with a creek that was depositing its own alluvium, further obscuring the picture.

Callar Creek alluvium. There is no topographic break between this unit and the Succotz alluvium, yet the surficial deposits change abruptly (within a meter) from the Succotz brown sands and silts to dark gray clays. As the mapping was done during the dry season, the transition was made quite obvious by the appearance of 3-5 -cm wide desiccation cracks in the surface of the clay. The only profiles available of this unit were in creek cuts that showed nothing but fairly homogeneous gray clay. The clay may be a weathering profile over some kind of bedrock, or may represent a floodplain sediment. The lack of topographic differences between this unit and the Succotz alluvium, definitely a fluvial deposit, suggests that the Callar Creek alluvium is probably not overlying bedrock. The clay could certainly be a floodplain deposit, though it does not resemble any of the other Mopan deposits. Perhaps these clays are often waterlogged because of their relatively low topographic position, and as such exhibit the gray tones of a reducing environment instead of the reds and browns of an oxidizing, aerobic environment. If these deposits indeed are floodplain sediments, they

certainly could be the right age to contain buried sites, but the shrinking and swelling clay would do much to disturb any remains.

Nabitunich alluvium. This unit represents the coarse fraction of a series of alluviual deposits that occur at significantly higher elevations than the younger San Lorenzo and Succotz alluviums. Channel deposits consisting of clasts up to 30 cm in diameter crop out on the northwestern edge of the hill on which Nabitunich is situated. These clasts are both more weathered, and show a higher chert-to-limestone ratio than do the Succotz clasts, reinforcing the idea of age relationship between the two determined from topographic relations. The chert probably comes ultimately from the main chert- bearing stratum in the area , the Eocene Doubloon Bank Formation (Flores, 1952a), which once presumably overlay the Barton Creek limestones of this region, but has since been stripped away. When these channels were active, there was probably still some Doubloon Bank Formation around to be eroded. Chert is also considerably more resistant than limestone, and it would be expected that in older deposits, which have undergone weathering for a longer time, there would be an increased proportion of chert with respect to limestone. Thus, the existance of a higher chert-to -limestone ratio in the Nabitunich alluvium than in the San Lorenzo alluvium would suggest that the Nabitunich alluvium is indeed older. The other outcrops of this deposit, at the sand and gravel quarry to the south of Clarissa Falls, and just north of Clarissa Falls, have smaller average clast sizes, but do have the high chert to limestone ratio and topographic position of the San Lorenzo hill outcrop.

The Nabitunich alluvium is almost certainly too old to contain buried settlements. If the Mopan during the Preclassic was already down at the level of the buried settlement discussed by Holley et al. (in prep), then it was not depositing channel gravels 30 m above that in the recent past. Thus, there should not be sites buried within the Nabitunich alluvium deeper than the A horizon unless they were purposefully dug into the deposits.

Buena Vista alluvium. This, one of the more extensive deposits mapped, is comprised of clays and silts which range from yellow at Buena Vista, to yellowish brown near San Lorenzo and Chial, to yellowish red along the road to Duplooy's. Mapping this all as one unit is somewhat arguable, as the eastern end of the unit has certainly had an input of sediment from the Macal, whereas the Buena Vista area deposits have probably only seen influx from the Mopan River. The deposits, however, occupy one topographic level, and the change in color is gradational, so that any boundary would be arbitrary. The best exposures of this unit occur at the landslide at Buena Vista, and along the Western Highway just north of Chial. In both of these profiles, there is a suggestion of horizontal bedding, on the order of a few centimeters thick, with slight variation in average grain size from bed to bed, with texture ranging from primarily clay to clay with silt.

The specific interpretation of this unit is an interesting challenge. In the area around Nabitunich, it seems obviously to represent floodplain deposits, associated with the channel deposits of the Nabitunich alluvium. The small exposure of Nabitunich alluvium north of Clarissa Falls directly underlies the Buena Vista fine sediments, and consists of 10-15- cm clasts of chert and limestone. It is possible that this is the only exposure of a W-E running channel that eventually joined the Macal, but its proximity

to the current Mopan and similarity to other exposures of Nabitunich alluvium suggest that it might also have been a part of the paleo-Mopan, trending roughly S-N. The limestone and chert clasts are assumed to have come from the current Mopan drainage area, hence, W-E running channel. An E-W trending channel would be expected to contain clasts of Santa Rosa Group metasediments, similar to the current Macal. If, however, there was a channel flowing northwest from the Macal drainage early enough so that the river had not yet eroded down to the metasediments, that channel could conceivably have been carrying only limestone and chert. If there are indeed channel deposits running underneath the broad flat plain near Chial, the fine sediments at the surface would represent this channel's floodplain. If not, these deposits could represent a more distal floodplain, in which the Mopan channel was located just ~500 m to the east of its current path (and ~30m higher). At that time the Mopan might have consistently flooded into a pre-existing basin, formed perhaps by faulting, or collapse of subterranean drainage (See hypothesis 4, Willis and Behrensmeyer, 1994). In times of flood, the Macal also would contribute fine-grained sediments from the east. If the Macal were depositing sediments consisting of relatively iron-rich granites and metamorphic rocks then as it is now, the observed W-E color gradient from yellow-browm to reddish-brown in the Buena Vista alluvium could be explained by the tendency of iron-rich sediments to weather red. It is possible that the area near Chial could have existed as a swamp or floodplain lake; floodwaters, upon post-flood lowering of the rivers, could have become trapped in the basin, to remain for potentially extended periods of time. These alternative explanations are also available for the area of Buena Vista alluvium near Buena Vista itself, as no channel deposits were found associated with the fine sediments.

As with the Nabitunich alluvium, there are probably no buried sites within this unit unless they were dug into it. The construction of the site of Buena Vista as well as some mounds in the San Lorenzo area on top of the alluvium indicate that the surface was already stable prior to human occupation times.

Beekeeper's clay. This dark to light gray clay occurs in topographic depressions throughout the region. This clay is commonly over a meter thick, and was seen in a few localities to directly overlie the clayey carbonate rock. This deposit is likely a weathering product of the clayey carbonate rock, which in these low areas is probably redeposited from the surrounding hills. The clay, then, would also be subject to input of sediment eroded from the local highlands. The low areas would probably become ponds after the rainy season was well underway.

The clay has probably not been accumulating fast enough to have buried any settlements; cultural debris can be seen in the Buena Vista area both at the surface and a few cm into the subsurface. Archaeological material buried in this unit would be disturbed by the shrinking and swelling action of the clay. Cracks of 8-10cm width and over a meter in depth were observed in this unit at the height of the dry season; the amount of vertical mixing related to this process would effectively destroy the any horizontal stratification of sediment and artifacts.

Beekeeper's clay B. The areas mapped as "Beekeeper's clay B" are covered at the surface with the Beekeeper's clay, but in occasional areas where desiccation cracks are big enough or the region has been plowed, yellowish brown clays are evident,

usually at least 30cm below the surface. Since no good cuts though any of these areas were found, it is possible that here a thin layer of Beekeeper's clay (slope wash from the nearby hills) either overlies the Buena Vista alluvium, or is interfingered with it.

Chial conglomerate. These deposits are characterized by large (up to 30cm) chert and vein quartz cobbles. The exposure for which the unit is named, at the gravel quarry just south of Chial, shows a coarse, red-stained, quartz-sand matrix, whereas the other exposures only show a gray-white, clayey matrix. The cobbles and sand near Chial could represent an alluviul fan, while the more northern outcrop could be channel deposits (no vertical profile was seen in the northern area). Dating this exposure is very difficult; its relatively high topographic position compared to the other alluvium suggests that it is older than most of the deposits previously mentioned. It does seem to be deposited in incisions in the non-resistant, often brecciated limestone deposits, however, making it at least younger than these units. So is the unit then Quaternary? It is capped in one instance by a very non-resistant carbonate, unlike any of the aforementioned Quaternary deposits. The most striking oddity about this unit, however, is the presence of vein quartz. The closest current source of vein quartz is in the Mountain Pine Ridge granites, 20 km to the southwest. Nothing of the sort is carried in the current Mopan , while a little vein quartz is carried in the current Macal. This indicates, then, that either the drainage system was quite different from the current one when these sediments were deposited, or that these chert and quartz cobbles are many times reworked. In the latter case, a long period of intense weathering would have reduced most surficial limestone beds (probably the chert- bearing Eocene Doubloon Bank Formation, now completely gone from the area south of Chial) to chert, and the granites and metamorphic rocks to vein quartz, and then any number of cycles of fluvial erosion and deposition would have moved these cobbles around until they came to be deposited where they are currently exposed. This certainly could have occurred within the last 2 million years, but, unfortunately, no definitive age can be put on this unit at this time. The primary importance of this unit for the time of human occupation is that it has concentrated very large amounts of chert in relatively small areas, and as such must have provided a valuable resource.

Paslow Falls unit. It is certainly possible that much of the presumed "bedrock" in the area is in fact Quaternary in age. The non-resistant carbonate rock which underlies much of the area west of the Mopan and east of Ramonal could be a remnant of a once more extensive deep weathering profile from which the Chial conglomerates were derived. A road cut near Santa Rosa shows that this clayey carbonate rockindeed can contain deposits of chert and vein quartz (cherty areas within this unit are indicated on Figure 9 by stippling). Near Cristo Rey, in areas mined by the San Felipe Development Corporation, there are exposures of a homogeneous, relatively non-calcareous white clay, presumably kaolinite, as well as an orange and red mottled non-calcareous clay, potentially bauxite. These smaller, discontinuous exposures of the Paslow Falls unit probaby reflect deep weathering occuring over irregular karst topography. Material would be eroded from limestone bedrock, transported, and redeposited in depressions. Once the material was deposited, it would undergo intensive leaching as precipitation, naturally concentrated in the depression, flowed through the sediment to the subterranean drainage system. Through this process, complex and unstable mineral structures would be broken down to leave kaolinite, an aluminum silicate, and then finally bauxite, an aluminum oxide. These predictions of

the mineralogy of these deposits will be tested by X-ray diffraction studies, which will determine the actual mineralogy of the clays.

Can we be sure that these deposits are not relatively unaltered Tertiary carbonate rocks? Cornec (1986) included marls, lagoonally deposited lime muds, in the Cayo Group, and Flores (1952a) recognized them in the Orange Walk Group, both underlying the areas where the soft carbonate rock is found. One would not expect significant macroscopic difference between the Tertiary and Quaternary carbonate rocks, though microscopic work is underway to look for either soil structure (indicative of a weathering profile) or fossilized foraminifera (indicative of a lagoonal environment) to rule out one of the options.

When sinkholes form or caves collapse within a karst regime, karst breccia can be formed. These deposits consist of the angular broken pieces of the limestone in which the cave or sinkhole was formed, cemented by fine carbonates and clays. Clasts can be anywhere from millimeters to tens of meters in diameter. The age of these breccias is difficult to pin down. The hypothesis (discussed above) that they are related to the K-T boundary event was shown not to account for all of the breccia deposits. The non- K-T breccias could be anything younger than Cretaceous. Similar deposits with more rounded clasts of limestone in a soft carbonate matrix have been proposed to be debris flows related to the Tertiary uplift of the Maya Mountains (B. Holland, pers. comm.).

I have mapped all areas of either soft or brecciated carbonates have then been mapped as potentially Quaternary (see Figure 9). The brecciated zones are indicated simply as "B"s within a larger area mapped as the Paslow Falls unit; in many instances brecciated areas are too small to map, and in others the clast density gradually falls off until there is a homogeneous soft carbonate rock, making a boundary difficult to define. The hypothesis that these deposits were generated by weathering over a karst terrain implies that their distribution will be random, as irregular as the karst that produced them.

Whether or not there are sites buried within this unit obviously depends upon the unit's age. If the carbonate rocks are Quaternary, there is no reason why there shouldn't be cultural remains at depth. No matter what the age, many of the areas of this unit as well as the non-Quaternary bedrock are covered by an organic-rich soil, typically less than a meter thick. The depth of this soil seems to depend primarily on current land use; where the land is kept clear, there can be only a patchy 1-2 cm of soil , with an estimated 30% of the land surface being bare carbonate rock (e.g.; a few km W of the Macal between Cristo Rey and Chaa Creek, there is a large clear area with little soil). The depth of burial of cultural remains in this unit, then, is dependent on the history of vegetation in the area.

Landforms

I mapped landforms mainly by inspection of aerial photographs, but the mapping was, of course, greatly influenced by field work on the Quaternary and bedrock geology. Many of the contacts on the landform map are the same as those on the Quaternary geologic map, especially for the various alluvial deposits. In other cases, I lumped different units on the geological map together on the landform map.

Mapping Units. (see Figure 10)

Floodplain levels 1-4. Each of these units represents a channel/floodplain level of a different age, numbered from youngest to oldest. (Floodplain level 1 on the Mopan actually represents 2 levels; it includes the discontinuous and limited current floodplain level, in addition to the next step up.) Ages are based on topographic position, the oldest being the highest. There is very little topographic variation within the individual levels, except where creek incision or slumping has taken place; the undissected surfaces of these landforms are flat. The vertical distances between the levels vary (and are extremely hard to determine accurately because of the 40-m contour interval of the topographic map and the great inaccuracy of the GPS altitude readings). Between levels 1 and 2, there is only about 1-2 meters difference, whereas between 2 and 3 there is about 20 meters difference (Graham et al, 1985). The distinction between levels 1 and 2 is made primarily because of the persistent topographic break between the two; however both are subject to flooding, though level 2 does not flood on a yearly basis. Floodplain level 3 is taken as distinct from level 4 simply because it is lower; the sediments are fairly similar (as one would expect from deposits created by the same processes). This altitude difference between levels 3 and 4 is difficult to determine, as the two levels are nowhere in contact, but is probably on the order of 10 meters.

The different floodplain levels are usually created when the river systems equilibrate with a change in base level, most often the result of a change in sea level, or in the altitude of part or all of the watershed due to tectonic uplift or subsidence. The Mopan and Macal floodplain levels are more likely tied to a sea level drop; the Maya Mountains uplift ended in the mid-Tertiary (Bateson and Hall, 1977), while sea level has fluctuated repeatedly throughout the Quaternary (e.g., Droxler et al., 1993).

Floodplain level 4-thin. This unit represents a thin skin of floodplain deposits (of the same age as level 4) resting on top of bedrock hills. These area mapped as Floodplain level 4-thin are the largest hills within the floodplain deposits. These, then, are regions that were not eroded by the river channels, but instead experienced only deposition of fine-grained floodplain sediments, and then were left emergent by subsequent channels.

Creek valleys and floodplains and **Alluvial fans.** Creek valleys consist of relatively small valleys with some alluviual fill representing erosion and deposition by the creeks. Valleys draining into the Mopan tend to be broader and shallower than those draining into the Macal, on account of the less-resistant bedrock underlying the Mopan region. The alluvial fans are low (15-20m), round hills sloping down from the large limestone hills in the Negroman area.

Large depressions. This landform unit is flat to gently rolling, except for the occasional deeply incised gully. The smaller regions of this unit in the southern portion of the mapped area are almost closed depressions; they are breached only by one creek each. They are primarily depositional landforms that have accumulated sediment from the surrounding highlands. The larger region of this unit, stretching from west to east across the mapped area, is completely open to the west, though it might not have been so prior to the erosion and deposition associated with floodplain level 4. This larger

region could, however, also have been a fluvial valley; the east-west trend of the depression roughly coincides with the major ENE structural lineaments seen throughout the area. Toward the center of the larger depression, there has not been extensive recent deposition (or there has been significant subsequent erosion), as the Chial comglomerate is exposed at the surface. As the greatest amount of sediment input is coming from the valley margin, and the greatest amount of erosion is occurring along the valley axis in either direction, it follows that the older material of the Chial conglomerate would be exposed in the middle of the depression.

Slope wash. Obviously, slope-wash deposits exist in many more places than where this unit is mapped; the regions in which slope wash is the primary control on landform genesis are mapped as such. These areas slope gently out from the hills toward the flat floodplain level, with no abrupt topographic break between the two. The boundaries of the slope-wash unit were thus determined by change of surficial color (dark gray/black to yellow-brown) instead of topography.

Low, rounded hills. No matter what the origin of the clayey carbonate rock, it weathers in all cases to low (<160m), broad hills. The low mechanical and chemical resistance of the carbonate rock is primarily responsible for the morphology of these hills. The dominant process in these areas is creek erosion.

High, rounded hills. This landform unit is comprised of hills of lithology and shape similar to the low, rounded hills, but of greater height (peaks >160m). Though higher than or lower than 160m may seem like an arbitrary distinction, the regions do appear quite distinct on aerial photographs (and can easily be determined from a topographic map with 40m contour interval). The greater resistance of this unit to erosion is probably attributable to the brecciated areas, which contain clasts of the dense, crystalline Cretaceous and Tertiary limestones, and to greater degrees of case hardening on the weathered limestone. As the breccia matrix is most often the soft carbonate rock and the case hardening is spotty, the high, rounded hills are not sufficiently more resistant to erosion to be able to maintain steeper slopes than the low, rounded hills, so the overall hill morphology in the two units is the same.

High, angular hills. Where the dense limestone and dolomite bedrock crops out, the hills are not only higher (up to ~260m) but also form sharper ridges. Where creeks are incised into the limestone, the walls of the creek valley are considerably more competent than in the softer carbonate rock, and are able to hold a steeper slope. Thus, the more angular ridges survive.

Small depression. Surprisingly enough for a karst region, closed depressions are extremely rare in the area; in fact, only one was seen. Though such features are often generated by collapse, according to Miller (1987) those on the Cretaceous limestones in Belize are purely solutional features, lying directly on bedrock. This one, then, was probably generated by solution as well.

Cobble mounds. The cobble-mound features near San Lorenzo occur within the Floodplain level 1 unit. Test pitting along a N-S transect across the cobble-mound area on the east side of the Mopan showed clast size in the top 30-40cm of sediment gradually increasing as the cobble mounds were approached, reaching a maximum

within the cobble-mound area, and then decreasing again with greater distance from the mounds. This would support Holley et al.'s (in press) assessment of these cobbles as roughly *in situ*, and representing a channel lag deposit. Their greater resistance to erosion than the finer-grained sediments (based solely on their greater mass) results in their expression as a topographic high. Though the cobbles were deposited as a channel lag and the fine-grained ssediments as floodplain deposits, the subsequent preferential erosion of the lighter floodplain sediments leaves the former channel-bottom sediments standing above the floodplain deposits (Figure 11). The question that remains is whether the arrangement of the cobbles as isolated mounds can be explained as simply a geologic phenomenon. Discontinuous regions of cobbles and even boulders certainly are within the realm of natural fluvial processes, though the most obvious mode of generation, as gravel bars, is not compatible with the interpretation of these sediments as the result of "catastrophic flooding" (Holley et al, in prep). The cobble mounds are certainly not easily identifiable as purely natural phenomena, but it can be said that fluvial processes could probably produce something quite similar, which would need only little human modification to yield the cobble mounds as they are today.

Major slumps. These features, which occur on Floodplain level 4, seem to be a result of the shrinking and swelling action of the clays in the floodplain deposits. Certain clay molecules are capable of accomodating varying amounts of water within their crystalline structures, and will take in water when it becomes abundant, thereby increasing their volume. When the clay's surroundings become drier, the clays will lose their water and shrink. This reduction in volume causes vertical desiccation cracks to form within the clay and propagate, creating planes of weakness. If there is a steep slope of this clay, when it rains again, and the wet clay expands, the outer sheets of silt and clay simply slide off the existing scarp or slope edge (Figure 12). Both the shrinking-and-swelling clay and an steep to vertical slope would seem necessary for slumping to occur; the slump near Clarissa Falls and the southernmost slump near Buena Vista are associated with Mopan River cuts, while the other Buena Vista slump is associated with gully erosion. Some association with groundwater seeps is also possible; the areas near the bases of the slumps were consistently wet, even in the dry season. It is somewhat surprising that the road cut along the Western Highway near Chial as well as the banks of Chaa Creek are not more susceptible to slumping than they seem to be; they may have somewhat less clay content, or at least less shrinking and swelling clay, as desiccation cracks observed in the ground surface in these areas were not as pronounced as those near Buena Vista. Or, perhaps the groundwater association is necessary for slump formation; these areas were relatively dry.

The southernmost of the Buena Vista slumps is the most extensive; it occurs at the outside of a meander on the Mopan, and has probably been doing a lot of the Mopan's erosive work for it. Instead of the Mopan having to erode through a 40-m bluff in order to move east, it merely has to carry away the debris from the slump, which retreats before it. It is possible that the slump originated by the Mopan undercutting the floodplain sediments, and it has merely outpaced the meander. As this slump is actually big enough to be seen on aerial photographs, some idea of the rate of wasting can be determined from measuring the extent of the slump on photographs of different age.

Slump areas were measured on aerial photographs from 1992 (RAF) and 1977; in approximately 15.5 years, the slump increased in area by 1864 m^2. Using this figure, the rate of wasting can be extrapolated back to give an approximate estimate of the age of this feature. Certainly, the slumping does not occur at a constant rate per day, or even per year, but this 15-year average rate hopefully accounts for some of the variability. (Local people have said that there is active slumping almost every time there is heavy rain, so it can at least be sure that the slump represents more than one or two catastrophic events.) The "age" determined using these data depends on the function used to connect the two known points. The simplest is to assume a linear increase in area with time; this, however, seems improbable, as the early slump would have a much smaller scarp, and so would likely lose less material per until time. Instead of assuming a linear rate of increase, then, one could assume an exponential increase. Projecting the exponential rate of increase into the future would have to be done with caution, as the rapid increase in rate predicted would soon reach physically improbable levels.

One other consideration is that the evolution of the slump may not be strictly a simple function of area. A set of calculations was made to determine the age of the slump keeping constant the rate of slump perimeter advance; in order to keep it simple, the slump was modelled as a half ellipse. Length/width ratios were constrained to remain constant at values measured from the aerial photographs. In all calculations, slump area at t_0 (origin of the slump) was taken to be zero or at most few square meters. Results of the various methods are presented in Figure 13. The linear function gives an age of roughly 200 years, the constant perimeter model an age of ~450 years, and the exponential growth model an age of ~2,000 years. Without any other data, it would seem that the linear and exponential ages can be taken as lower and upper boundaries on the age of the slump. (Another data point from an older set of aerial photographs would do much to show which, if any, of these models are accurately describing the growth of the slump. Such photographs exist, but the office in which they were kept was being renovated during the end of the field season, and I was unable to study the photographs.) It is highly likely that there exists some dependence of slumping rate on precipitation; whether on total amount of precipitation per year, or on number of rain days, or storm intensities, but it would take more thorough records of precipitation and more aerial photographs to develop a more accurate model.

Summary

Approximately 100 square km of western Belize were investigated as to hydrology, Quaternary and pre-Quaternary geology, and geomorphology. The current hydrologic regime consists of spring to early summer low flows on both the Mopan and Macal Rivers, followed by two maximum flow peaks, commonly in July and October. The Macal River is much more variable both in timing of annual maximum and minimum flows, and in the magnitudes of those extreme flows. Though the average annual flows of the Mopan and Macal are similar, the Macal exhibits flood discharges up to 10 times greater than the Mopan. Caution should be used in extrapolating these differences in behavior back to times of Mayan occupation, as other studies (Muhs et al., 1985, Holley et al., in prep) have indicated that the relative flood magnitudes of the Mopan and Macal might have been reversed.

The bedrock underlying the area around Xunantunich is primarily Upper Cretaceous and Tertiary carbonate rock, gently folded, with a regional dip to the NW. These limestones and dolomites are generally tan to white to pink, hard, and dense. Chert is associated primarily with the Middle Eocene Doubloon Bank Formation, but is also present infrequently in the older limestones. Clasts of the Paleozoic Santa Rosa Group metamorphic rocks, as well as the Triassic granites, dominate the gravel bar deposits of the Macal River, though those units do not in fact crop out within the mapped area. Valley and ridge axes and river segments are predominantly oriented either ENE-WSW or NW-SE, following the primary fault systems associated with the Maya Mountains horst. Seismic activity is likely to have occurred frequently in this region at low intensities over the past few thousand years, but a major earthquake in the region is not highly probable.

The Quaternary geology of the area is dominated by the floodplain deposits of the Mopan and the Macal Rivers. It is only primarily the lowest 2 levels of alluvium that contain a record of change during the time of Mayan occupation. These floodplains are almost always less than 1 km wide (distance measured perpendicular to the current channel), except along the E-W trending segment of the Mopan from Bullet Tree Falls to Branch Mouth, indicating that there have been few shifts in channel position greater than 1km while that level has been occupied. Extensive subsurface work would need to be done at depths exceeding 3 m to pinpoint channel movements precisely within this level.

The major landforms of this area consist of 4 floodplain levels associated with the Mopan and Macal Rivers, in addition to a series of limestone hills which show decreasing relief and angularity from the southeast to northwest. In addition, the landscape has been shaped to a lesser extent by the erosional and depositional action of the Mopan and Macal tributaries. Some common karst processes are evident in the formation of depressions, and the redeposition carbonate material within them. This region qualifies as "fluviokarst"; the carbonate-poor water of the Macal, largely derived from a watershed on non- carbonate rocks, has incised a deep gorge through the limestone bedrock; this steep-sided valley is not typical of karstic regions. Also, the large proportion of silicate rocks in the Macal sediment make for more resistant, coarser grained fluvial deposits. Overall, fluvial surface processes play a much greater role in landscape formation here than they commonly do in karst areas; hence, I call it fluviokarst.

The relative importance of fluvial surface processes in this area makes it a particularly convenient place to live when compared to other karstic regions. Not only do the rivers represent reliable sources of water, but they also provide a potential mode of transportation. In addition, the transport of large clasts of useful, resistant igneous and metamorphic rocks into this area by the Macal River significantly reduces the effort needed to procure the needed rocks. Thus the inhabitants of this area would have had the benefits of easily accessible resistant rock as raw material for grinding stones, while actually living on limestone bedrock, on which more fertile soils develop than is the case over granites. All in all, the combination of carbonate bedrock near igneous/metamorphic highlands creates a particular landscape and resource distribution that is extremely conducive to human settlement.

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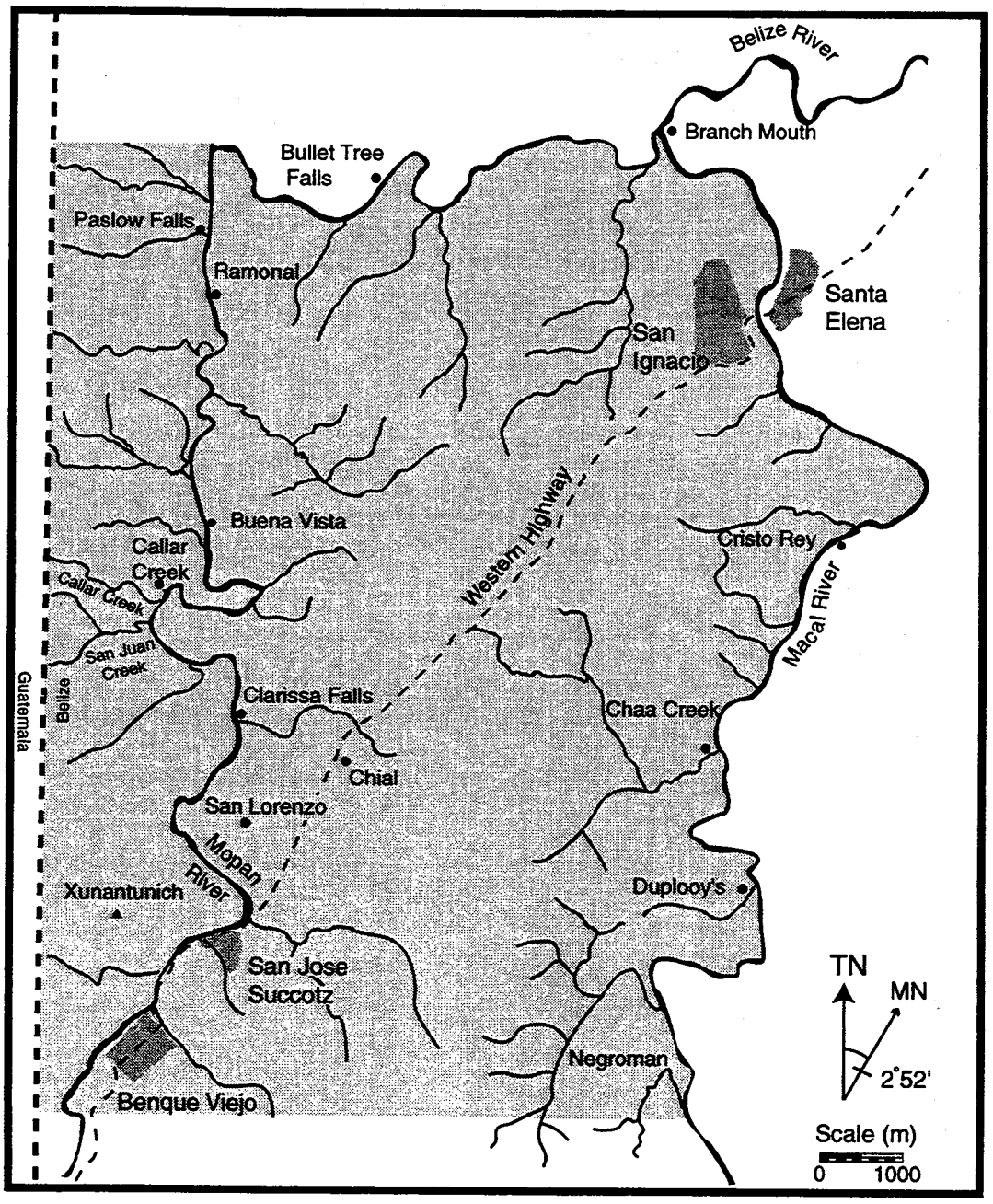


Figure 1. Xunantunich area, Cayo District, Belize. Light grey area indicates extent of mapping. Darker grey areas represent ubrban development.

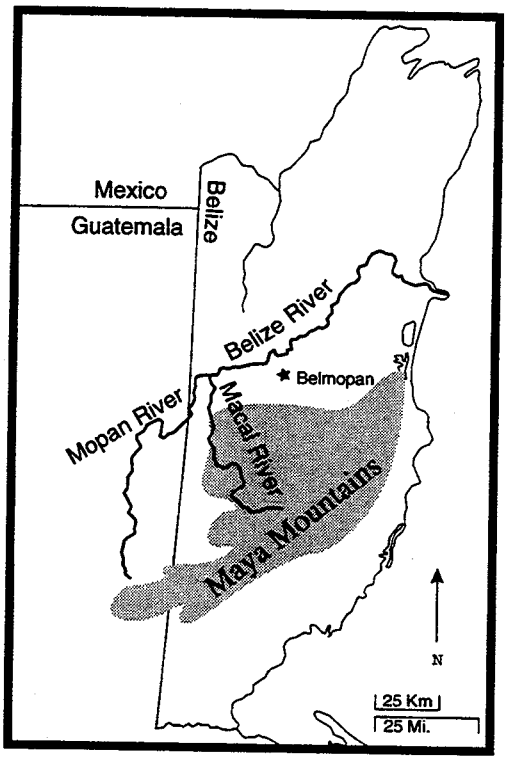
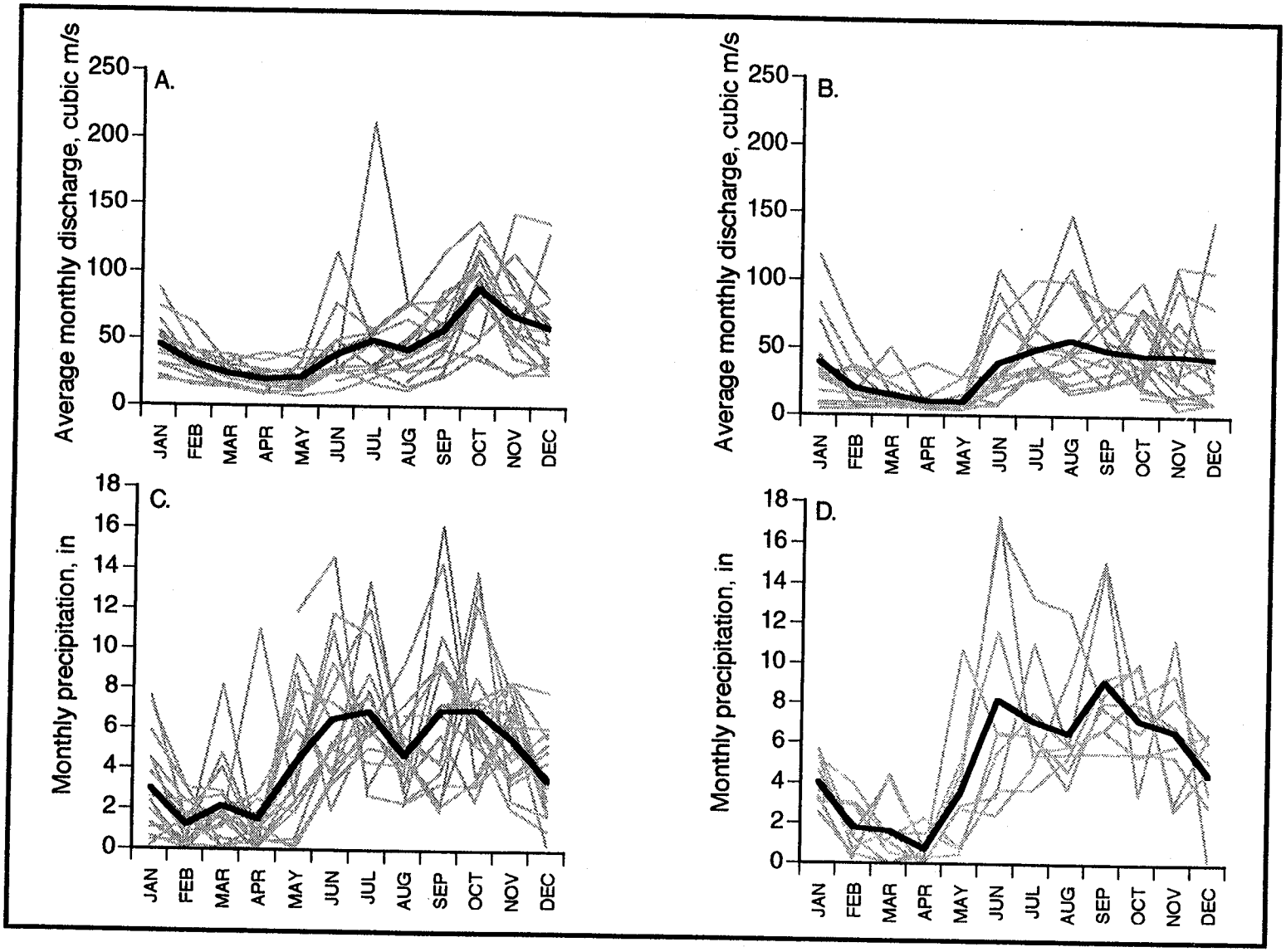


Figure 2. Courses of the Mopan and Macal rivers. Shaded area represents the outcrop of igneous and metamorphic rocks in the region. The unshaded area is primarily carbonate, with some clastic sedimentary deposits. (Igneous/metamorphic boundary from Cornec, 1986)

Fig. 3 Average monthly discharge for the Mopan (A) and Macal (B) Rivers, and total monthly precipitation for Benque Viejo (C) and San Ignacio (D). Data for individual years is shown in gray, with the average trend in black. Discharge data from the National Hydrological Service, Belize City, covers the years 1981-1996. Precipitation data from the Department of Meteorology, International Airport, covers the years 1951-1970 for Benque Viejo, and 1945-1948 and 1964-1970 for San Ignacio.


A.
B.
C.
D.
Average monthly discharge, cubic m/s
Monthly precipitation, in
0
50
100
150
200
250
0
2
4
6
8
10
12
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JAN
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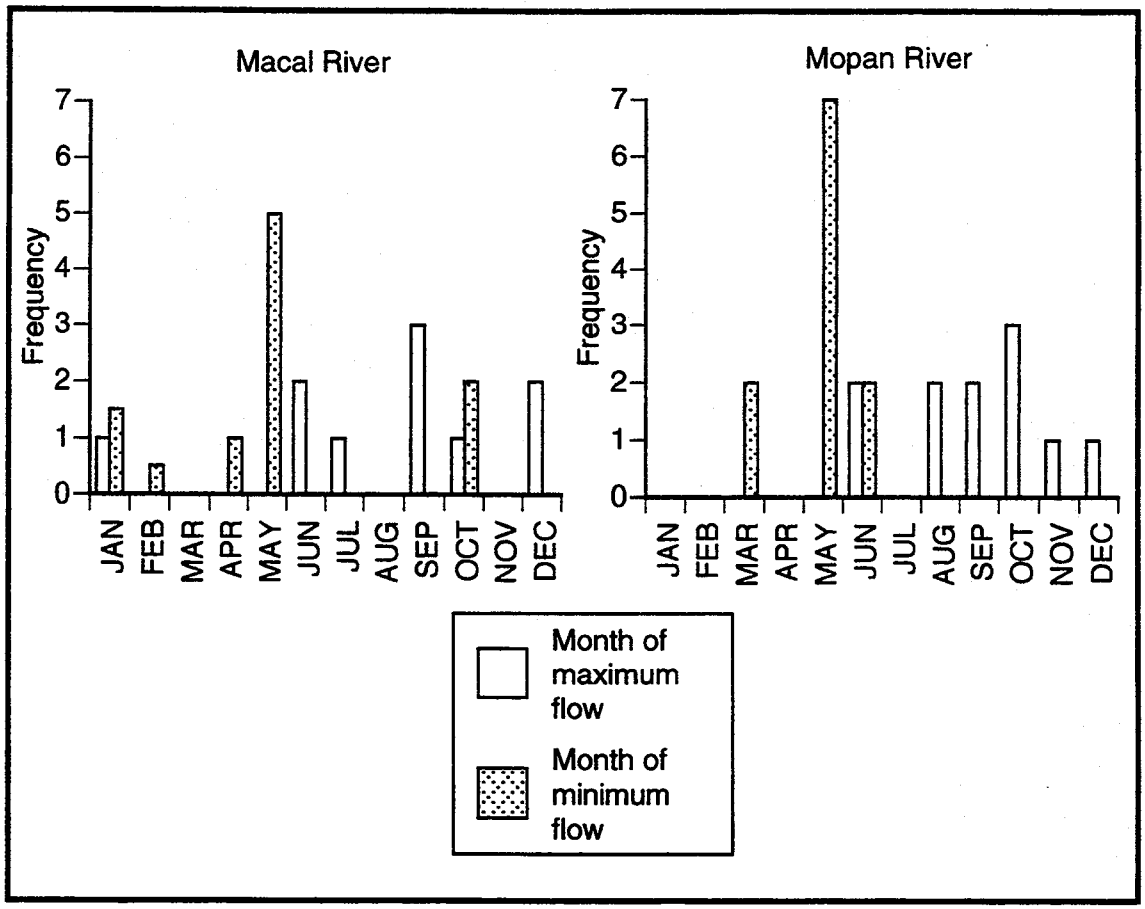

Fig. 4 Frequency diagram of time of year of extreme flows. The Macal river shows much more variability in the timing of its maxima and minima, but both rivers show an overall tendency towards lowest flows in May and highest flows in the late summer-fall.

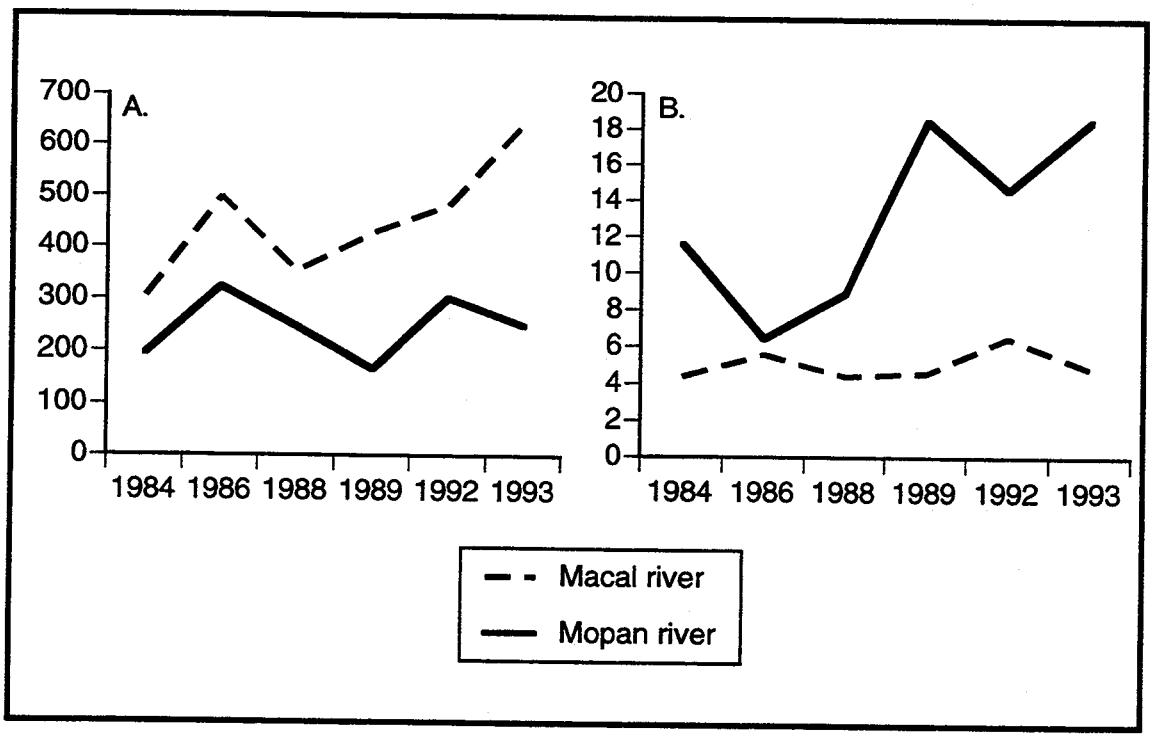

Fig. 5 Annual maximum (A.) and minimum (B.) flows on the Mopan and Macal rivers, in cubic m/s. The Macal exhibits much wider range of flows than does the Mopan. Note scale discrepancy between the two graphs.

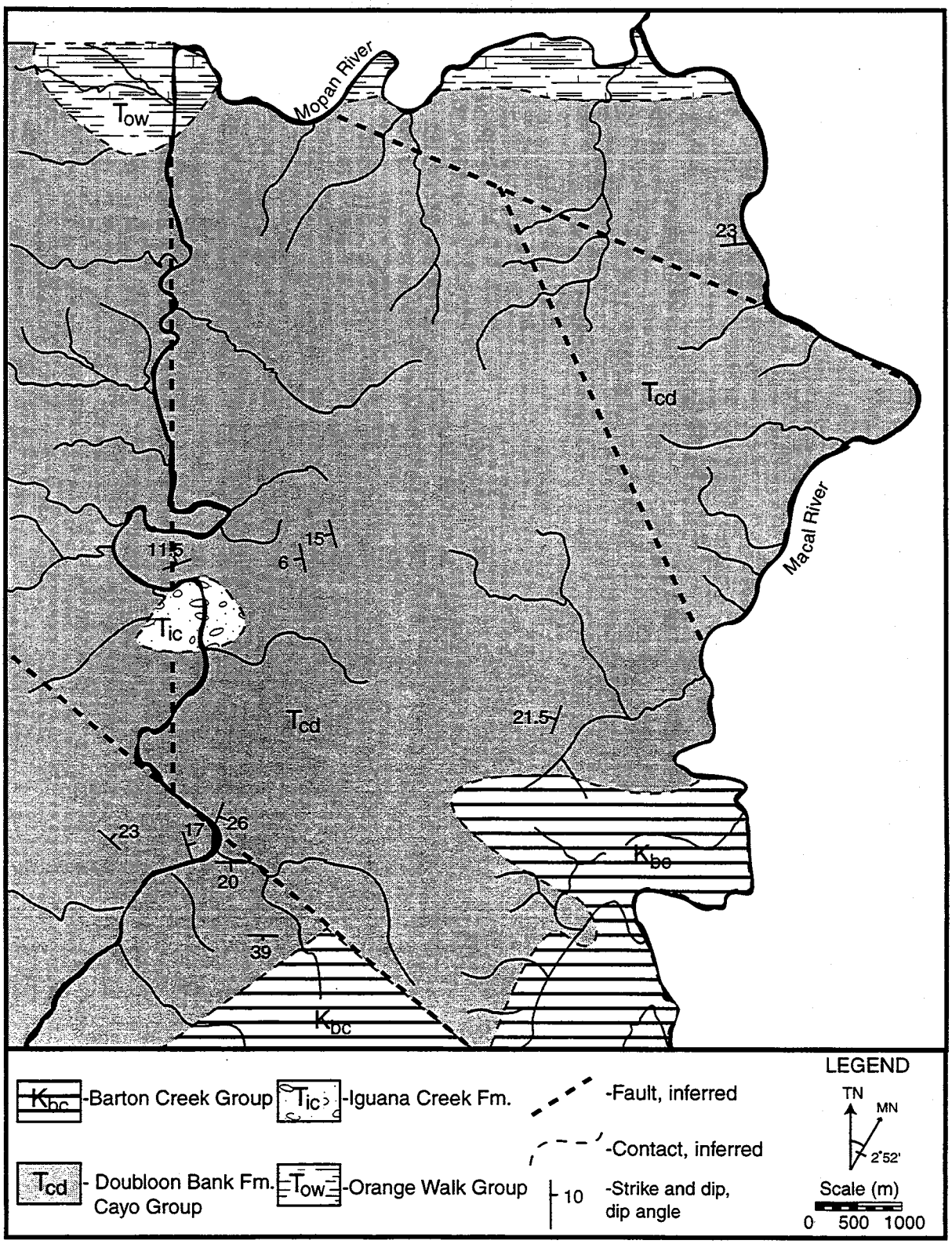

Figure 6. Pre-Quaternary geologic map , modified from Cornec, 1986.

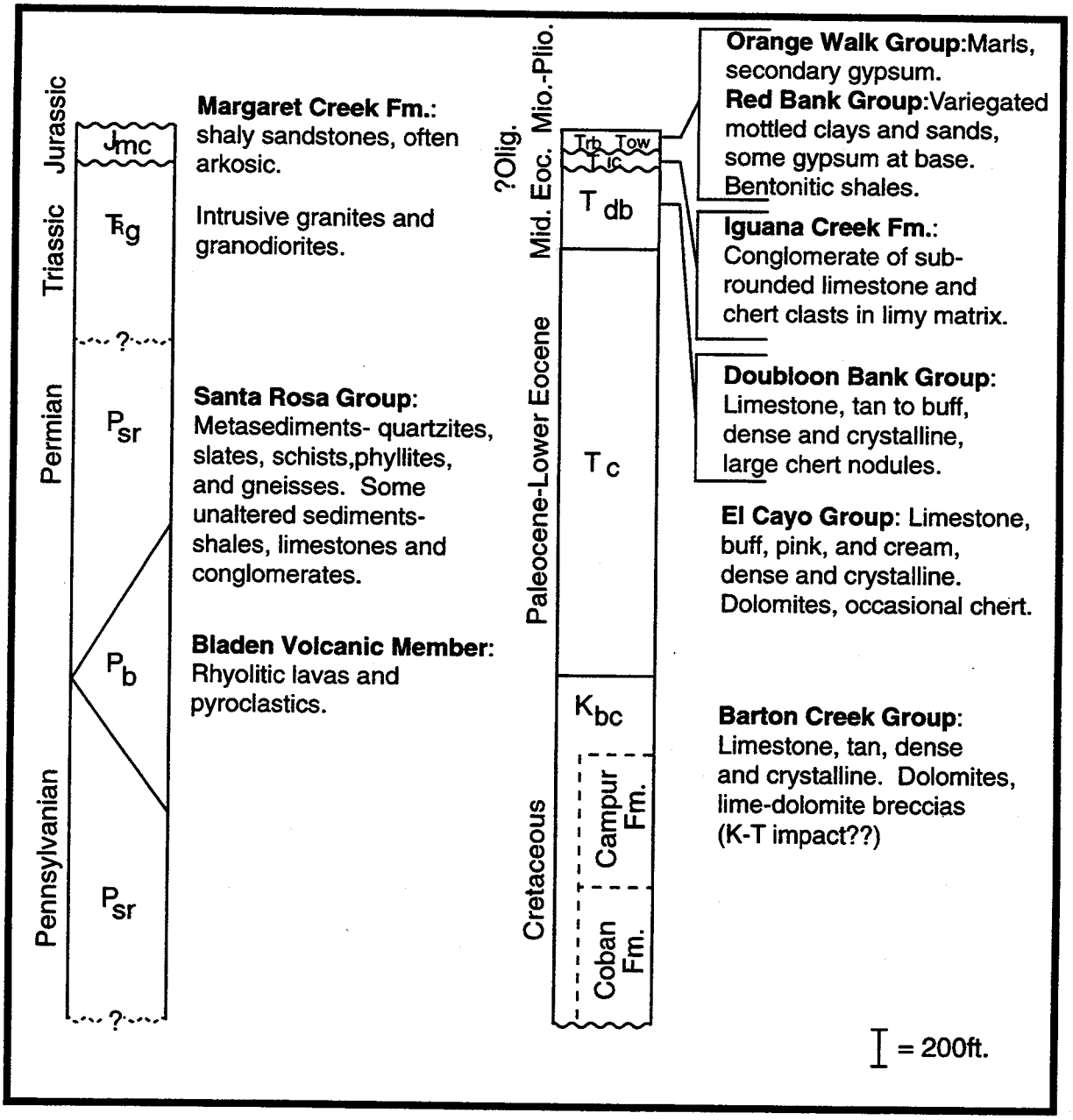

Figure 7. Pre-Quaternary stratigraphic column for northern Belize. Cretaceous stratigraphy within dashed lines from Vinson (1962). All else from Flores (1952a), Cornec (1986), Weyl (1980), and Jackson et al., (1995).

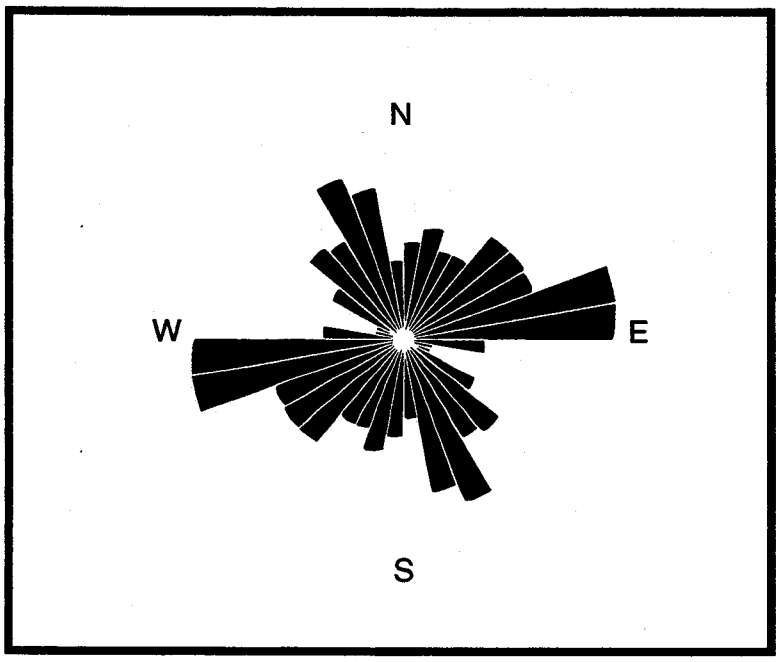

Figure 8. Photolineament orientation (n=107). A primary ENE-WSW and a secondary NW-SE trend, roughly at right angles, are clearly visible.

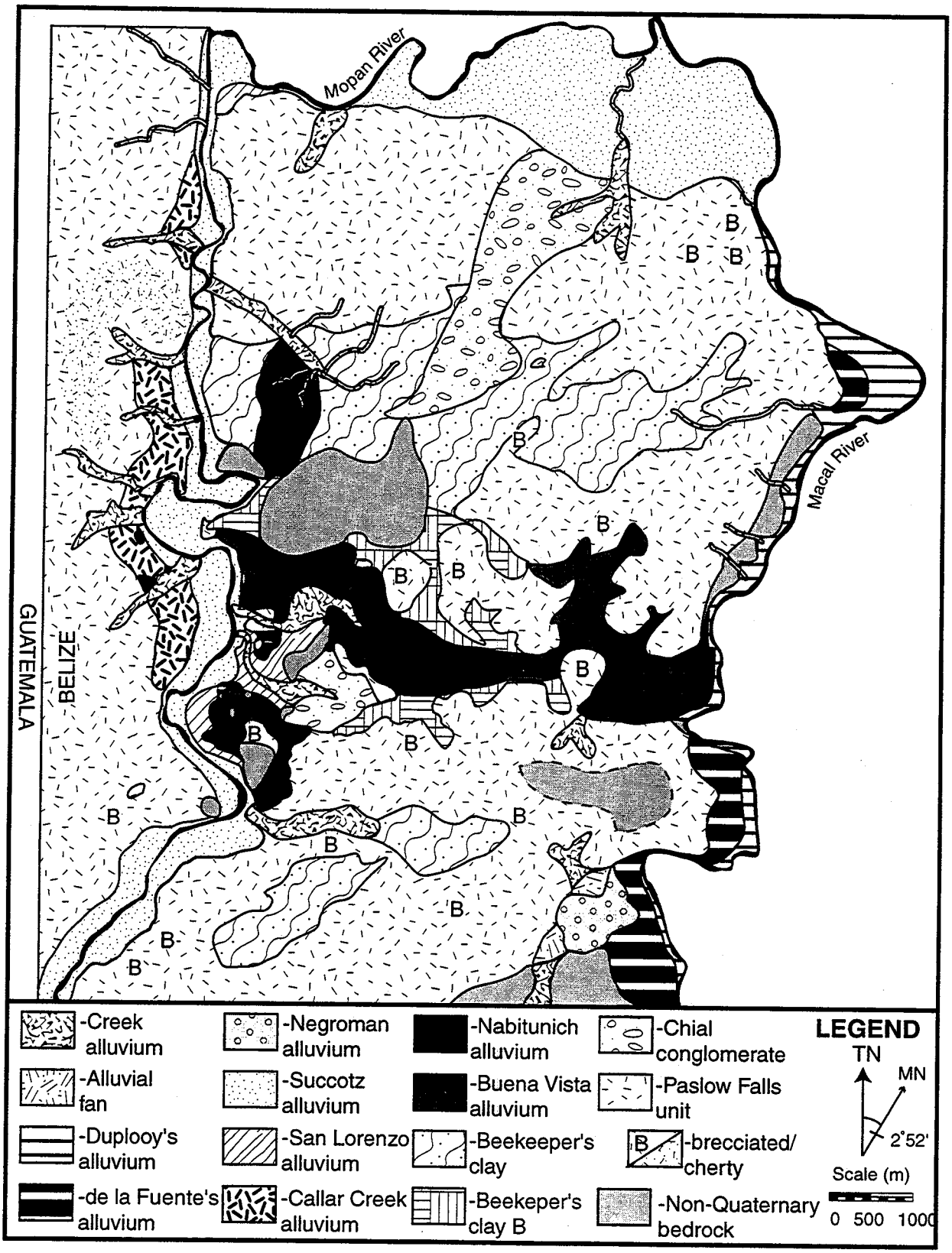

Figure 9. Quaternary geologic map.

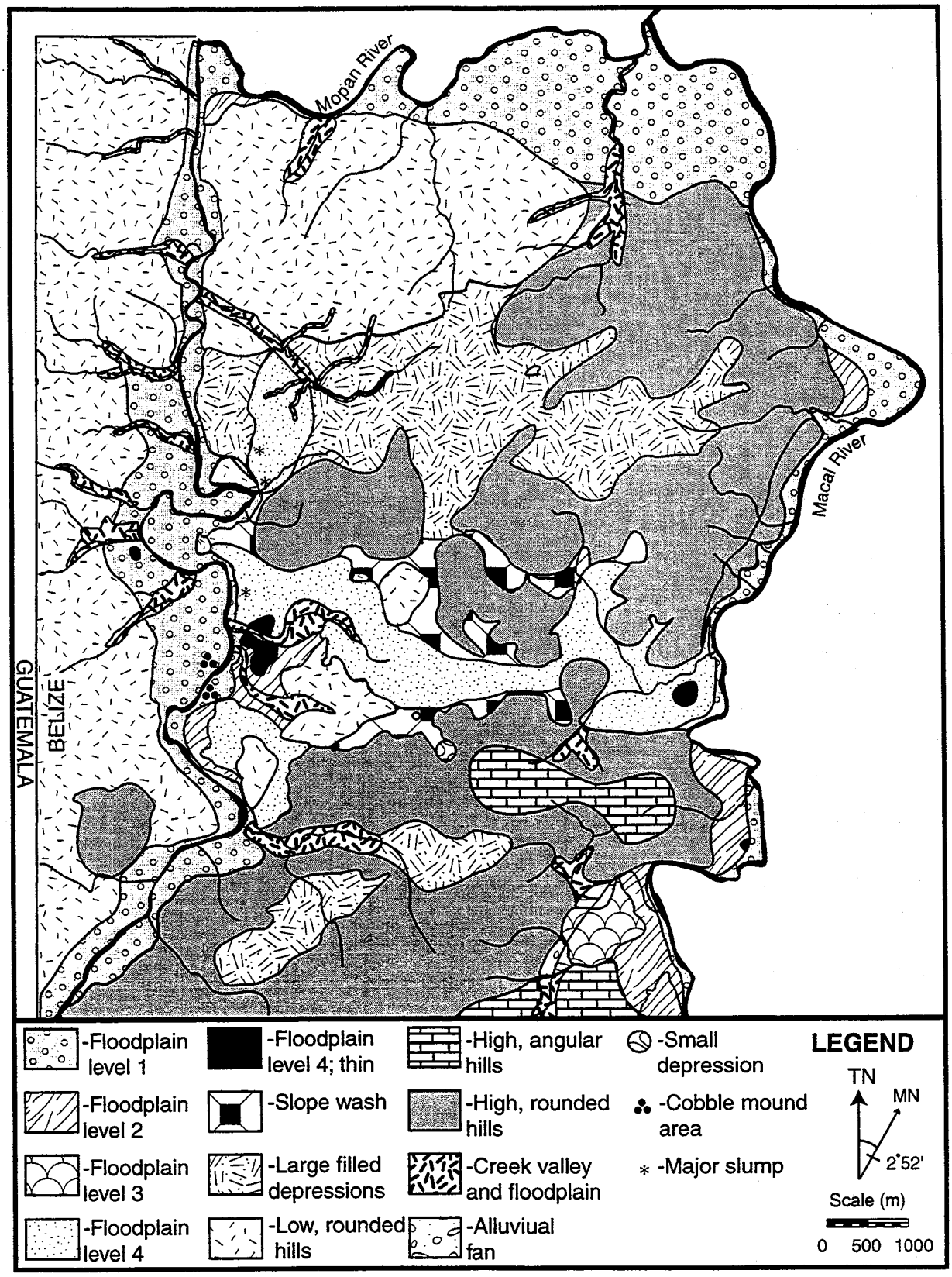

Figure 10. Landform map.

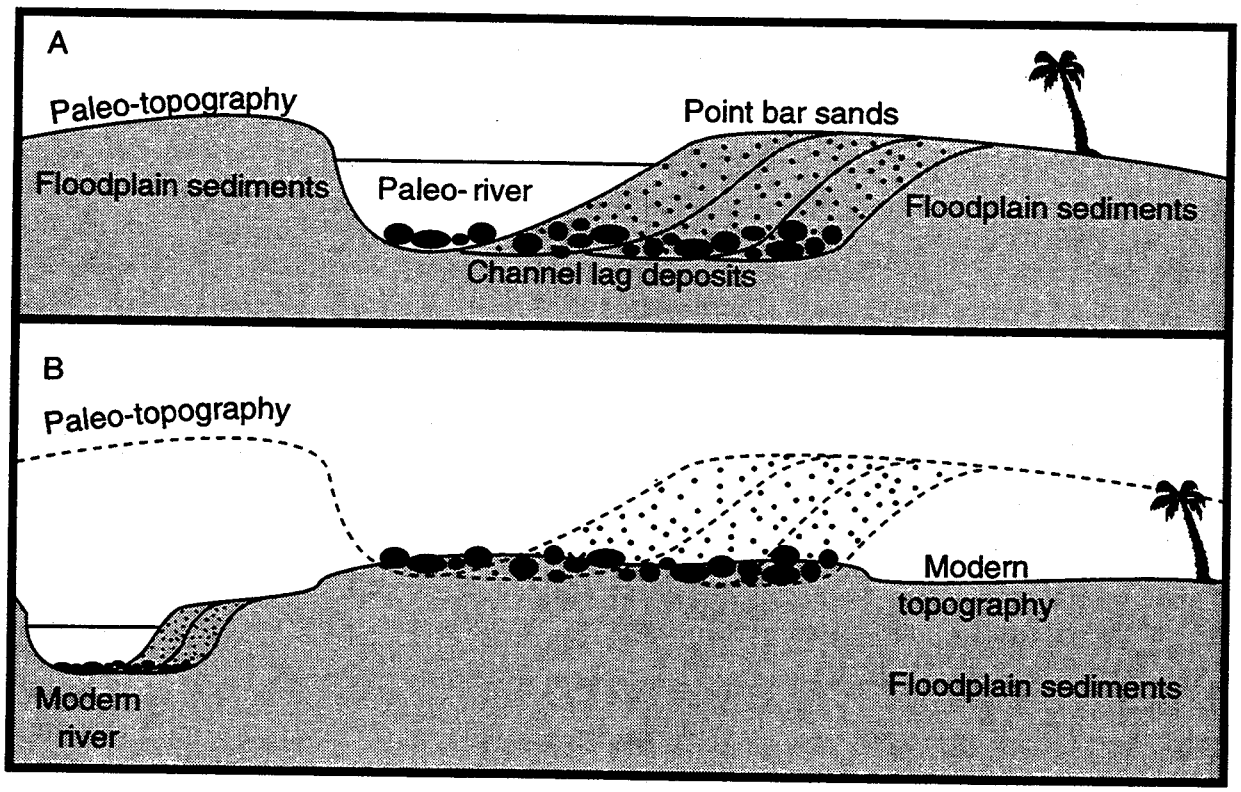

Figure 11. Coarse-grained channel lags, though deposited in low points on the paleotopography (A), become topographic high points on the modern topography due to preferential erosion of the finer-grained sediments surrounding them (B). Diagrams are cross-sections, with river flow into the page.

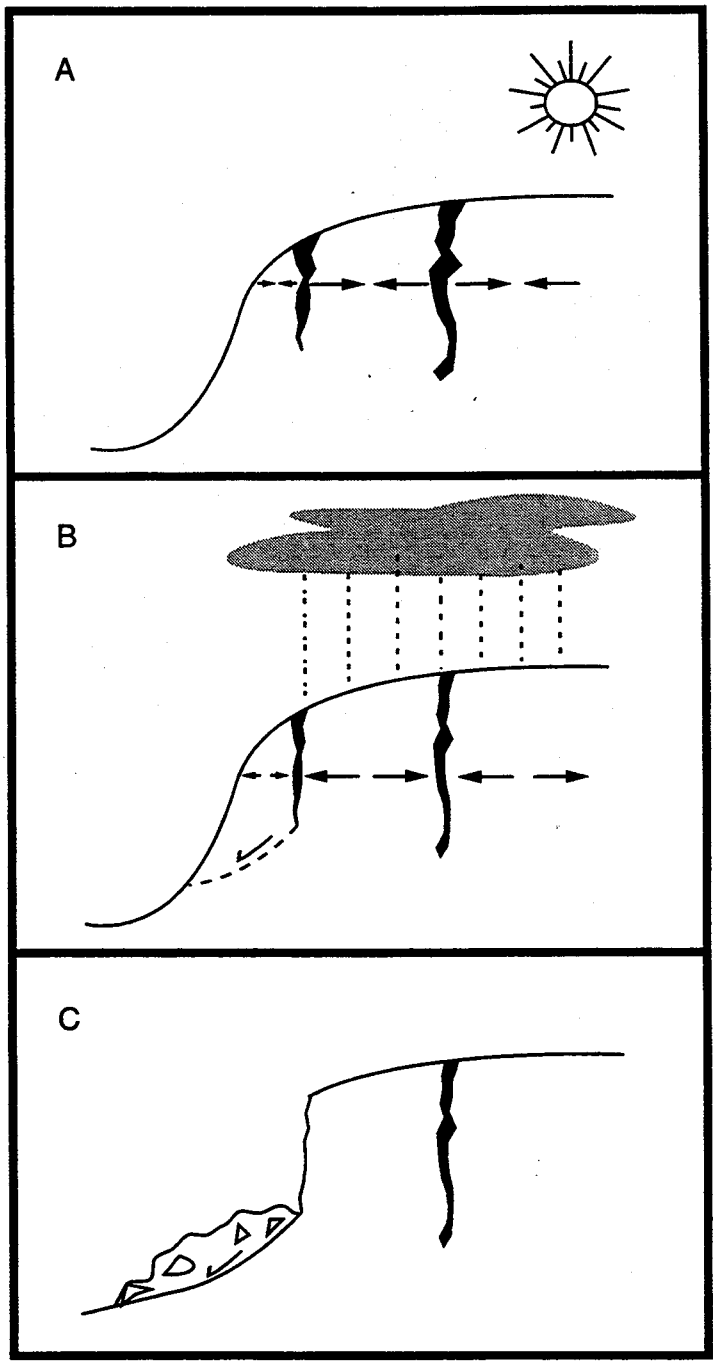

Figure 12. The process of slump development. Dry weather causes clay to contract, opening up large desiccation cracks (A). When water becomes available(B), the clays expand, and the outermost layer slumps off. A steep scarp is left (C), which is highly susceptible to continued erosion. Arrows indicate expansion and contraction of the clay.

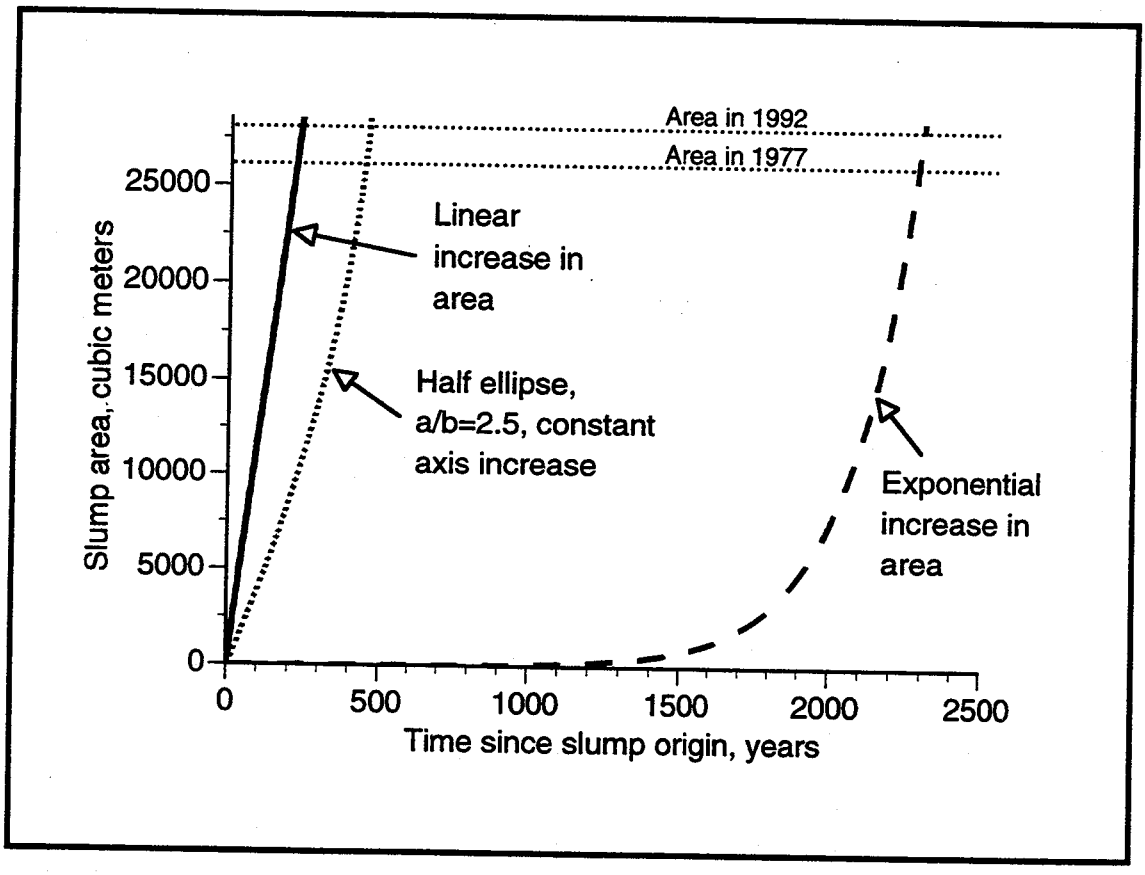

Figure 13. Different models of slump evolution showing the range of ages obtained. The x-axis value for the intersection of each curve with the horizontal line of slump area in 1992 gives the approximate age for that model.