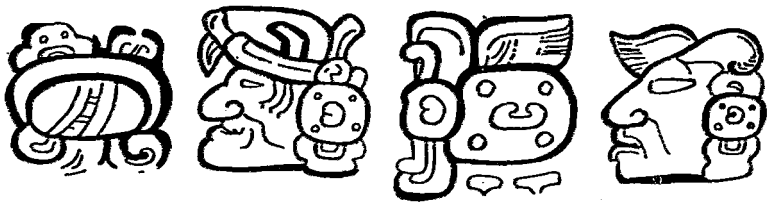

BELIZE VALLEY
ARCHAEOLOGICAL RECONNAISSANCE PROJECT

PROGRESS REPORT OF THE 1992 FIELD SEASON

EDITED BY

JAIME J. AWE

TRENT UNIVERSITY
PETERBOROUGH, ONTARIO

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NOW YOU SEE IT NOW YOU DON'T: THE TRIALS AND TRIBULATIONS OF SETTLEMENT SURVEY AT CAHAL PECH

JAIME J. AWE AND SHAWN M. BRISBIN

INTRODUCTION

As most field archaeologists will readily acknowledge, the recording of settlement pattern data is one of the most difficult tasks of investigations in the tropical Maya lowlands. Besides hot, humid and sometimes wet working conditions, the surveyor must also contend with the occasional breakdown of locally irreplaceable and expensive equipment (transit\stadia, alidade, E.D.M., computers), with uneven terrain, high forest and dense leaf litter, or with the thorny, inhospitable and often impenetrable "uamil" (secondary or tertiary forest cover). Throughout the five years of investigations at Cahal Pech, our survey team has had to deal with these conditions at one time or another. But as indicated above, these are among the traditional conditions that we, as lowland Maya archaeologists, expect and generally prepare for. Research at Cahal Pech, however, has in many ways diverged from the norm, and what has truly affected, constrained and often dictated our investigative approach were previously unforseen factors such as looters, bulldozers, and urban development. This contribution to the 1993 progress report will briefly outline the objectives, problems, methods, and accomplishments of settlement survey between 1988-1992 at Cahal Pech, and it will highlight the future directions of this research objective.

OBJECTIVES OF THE SETTLEMENT SURVEY

The Cahal Pech Project, which subsequently evolved into the Belize Valley Archaeological Reconnaissance Project (B.V.A.R.) in 1992, began its first season of investigations at Cahal Pech in the summer of 1988. During this initial season, the purpose of our survey was twofold: a) to produce the first accurate and comprehensive map of the site core, and b) to survey and demarcate an area encompassing the central precinct for development as a national reserve (Awe & Campbell 1988; Awe, Bill & Campbell 1990).

Having completed the above objectives at the end of the first season, the survey shifted its attention to the immediate periphery of the site core in 1989. At this time (1989) we were primarily interested in recording those settlements which were quickly being destroyed, and those that were obviously slated for destruction as a result of ongoing urban expansion. We were aware that such an approach would provide limited information regarding the traditional problems addressed by settlement pattern studies, but

since a major aspect of our work was concerned with site preservation, the salvage of information, and tourism development, it was imperative that this data be collected before it was completely lost from the archaeological record.

In 1990, the survey continued its salvage operations but added a new dimension to its overall objectives. For the first time we were able to direct considerable energy towards the examination of settlement configuration, the distribution of settlements over the landscape, and the diachronic history of occupation in the sustaining area of the site. Before the end of the 1990 season, however, we realized that although this objective was important to our research interests, a comprehensive survey of the entire site could only be accomplished under ideal conditions. But conditions have never been ideal at Cahal Pech, and the location and continuous expansion of San Ignacio Town has made it impossible to conduct settlement research in the northern half of the site's sustaining area. Given this reality, it was decided in 1990 that the survey would concentrate its efforts in the area to the south of the site core.

From 1991 to the present, our objective has therefore been to reconnoitre and map all settlements and cultural features in an area that is approximately 1 km in width, and which extends southwards for 2.5 km from the central precinct. In addition to plotting cultural features within this area, a concerted effort has been, and is being, made to investigate and test every mound within more than half of the settlement clusters within this large survey transect. Both the reasons and purpose of this strategy are explained in detail by Iannone's (see following paper) contribution to this volume. In brief, we hope that the intensive investigation of several middle-level settlements will provide the information necessary for determining diachronic changes in site function, intra-site social relationships, and socio-political organization of centers in the Belize Valley.

SURVEY METHODS AND PROBLEMS

As previously indicated, during the first season of investigation the survey focused on the mapping of the central acropolis. After clearing the forest cover within the core area, several stations and permanent datums were established along an east\west baseline which cut across the entire long axis of the acropolis. All structures within the central precinct were then plotted from these datums, and a larger zone encompassing the site core was mapped and demarcated for reservation as a national park. The boundaries of the reserve were "tied in" with permanent stations laid out by the Belize Survey Department. All measurement were conducted with a standard transit and stadia and topographic features and contours were taken at one meter intervals.

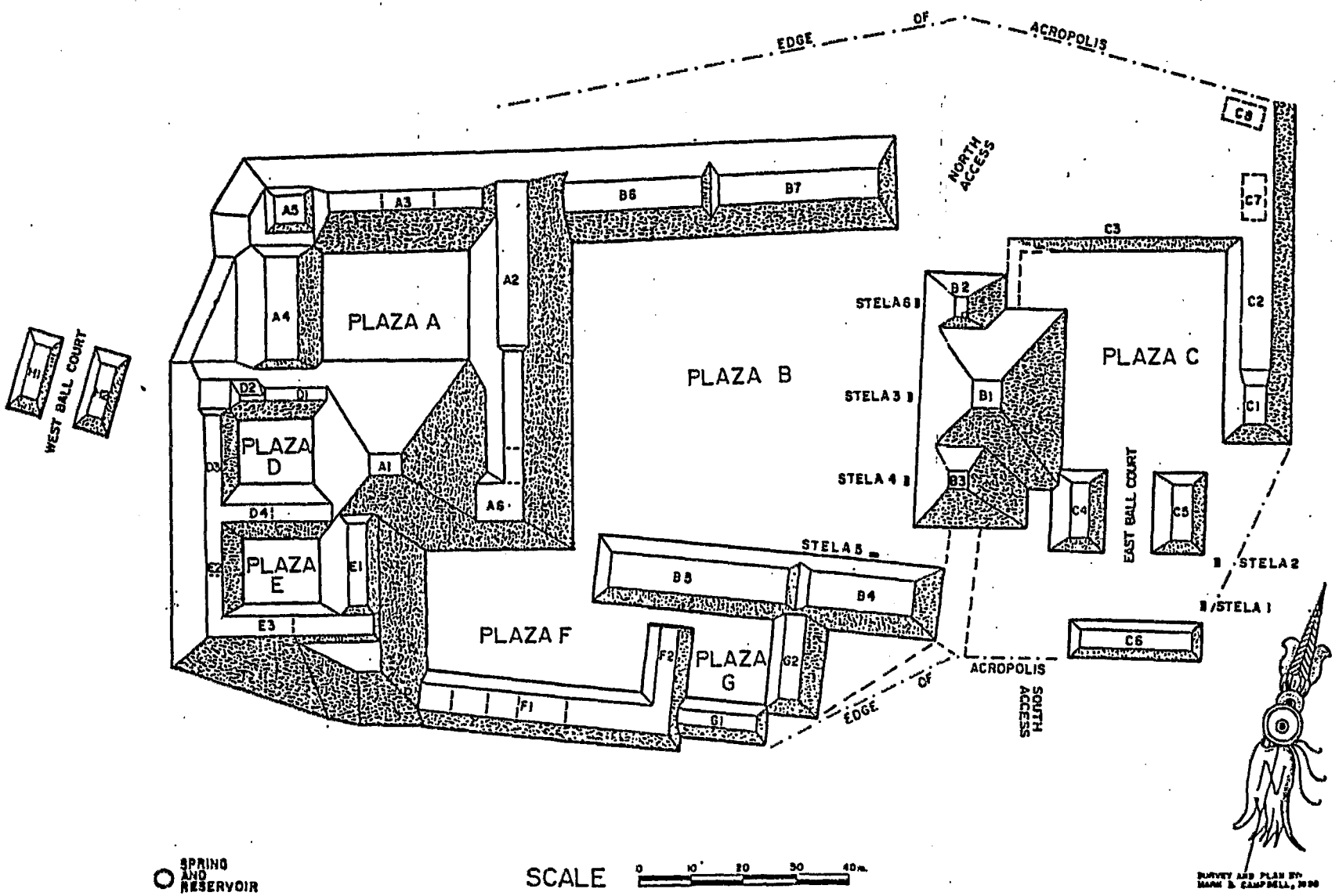
There were two unexpected problems that had to be dealt with

during the site core survey. The first had to do with the determination of altitude above sea level. Prior to our investigation the Belize Survey Department had placed a permanent survey monument atop of Str. A-1 (Fig. 1). In the 1:50,000 scale maps of Belize this station is listed as DOS 69 and reported to be 184 meters A.S.L. During the first week of the survey we were unable to locate this monument and only discovered it several days later amidst construction debris and looters backdirt at the northern base of the structure. The second problem had to do with disappearing stations and datums along our east/west baseline. These stations predominantly consisted of quarter inch rebars that were hammered into the ground and spray painted in fluorescent orange. Quite often when we returned to the site we found that the rebar stations had disappeared and then had to plot over and replace the datums. One day as we trekked up to the site we found a young boy gleefully hacking at some bushes with one of the bright orange rebars and thereafter were able to close the case of the disappearing datums.

When the survey was extended to the immediate periphery of the site core in 1989 the surveyors established four (500 m) new transects that originated from the datums along the original east\west baseline. Two of these transect had a north/south orientation and the others extended to the east and west of the central precinct. Once these transects were completed all the mounds and cultural features between them were then plotted from the stations established along the lines.

Like other operations at the site, this phase of operations also had to contend with unforseen difficulties. Unlike most projects, we were never able to systematically complete one quadrant before moving to another. Quite often surveying in an area would have to be put on hold in order to allow the survey team to take off and map settlements that had been exposed by land clearing for the construction of new homes. The most dramatic example of this situation occurred in June of 1990. While working one day the "normal noises" of excavation were suddenly shattered by the unmistakable sound of a bulldozer in the western periphery. When we took off to investigate the situation our worst fears were confirmed. The machine and construction crew were starting to clear and level a section of land no more than 100 m west of the site core. From previous reconnaissance in the area we knew that there were close to 20 mounds and possibly two reservoirs in the path of the bulldozer. After some impromptu negotiations we were able to reach an agreement with the landowner that allowed us to quickly survey and test approximately half of the mounds and features in what is now known as the Cas Pek Group (cf. Awe et al. 1992); and that would allow the developer to continue his interests with the expensive equipment he had hired. When we returned in 1992 we found that more land clearing had occurred to the south of the Cas Pek core and that several mounds in this area had been destroyed (listed as MS [mound scatter] in Fig. 2).

CAHAL PECH, CAYO, BELIZE



SURVEY AND PLAN BY: MARK D. CAMPBELL, 1990

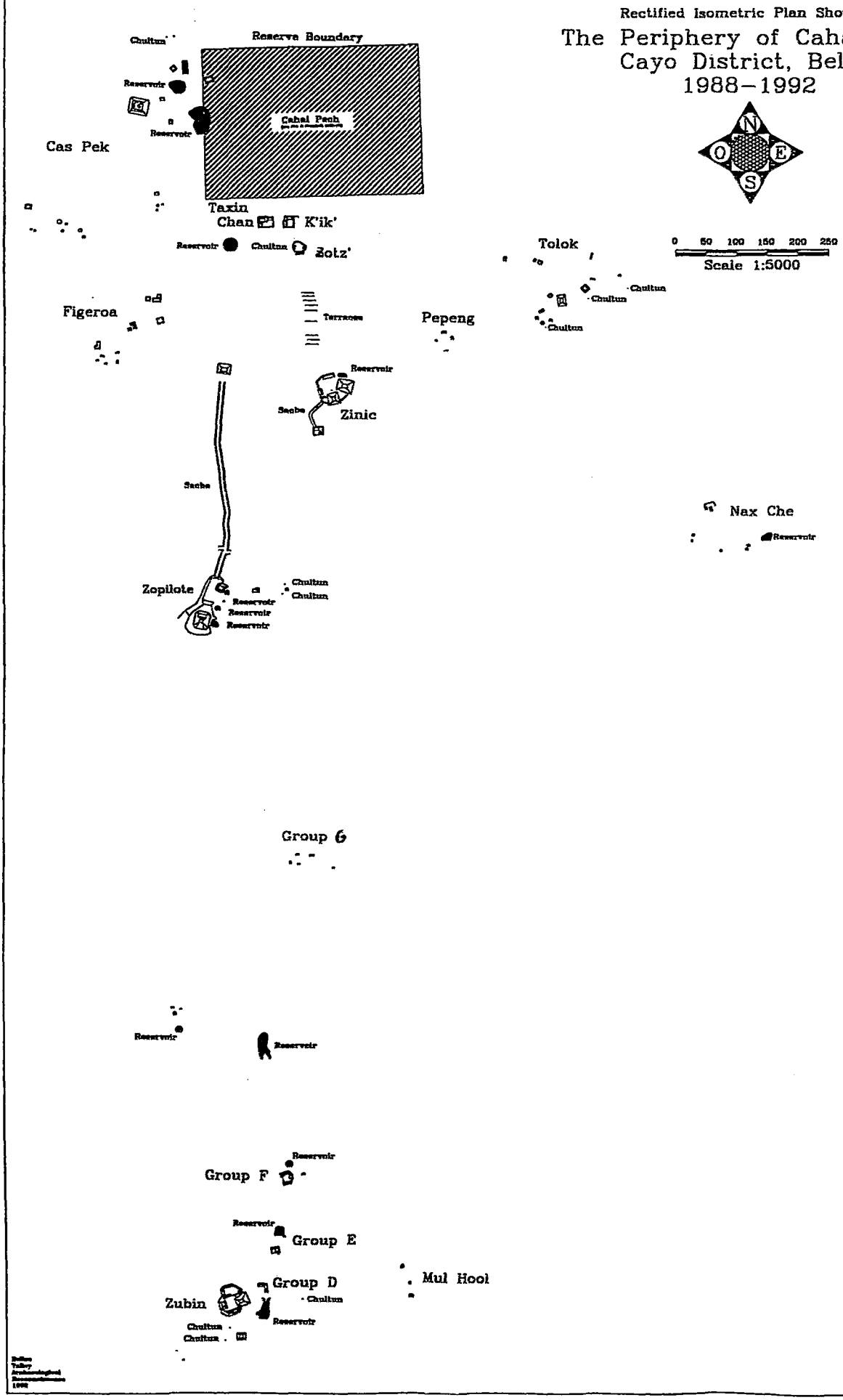


Figure 2: Site Plan of Cahal Pech

The Pepeng Group in the southern periphery had a similar fate to Cas Pek. First discovered in 1990, we had noted that this settlement cluster consisted of four mound arranged around a formal patio at the summit of a small hill. Unfortunately, we were unable to map the group in 1991 and when we returned in 1992 we found that the mounds had been levelled and that there was a modern house at the center of the patio.

Of the five years of investigations at Cahal Pech, the 1992 season probably ranks as the most "normal" season of all. We only had to contend with bulldozers on two occasions (our friend in the western periphery, and a new monster to the east), we only came across 10 large structures that had been looted, our stadia died but we were able to borrow another from a friendly colleague, the chief surveyor overcame his predilection to sunstroke, and only about 25% of our survey stations were lost. The decrease in the latter can only be attributed to the ingenuity of the junior author. In an effort to economize on the disappearing rebars, he began to use outcrops of bedrock as temporary stations. Rather than painting them in fluorescent orange, he also began to mark these stations with small glyphs which he painted on with black indelible markers. But not even these were sacred for one day a young person approached us and presented us with a "stone with Maya writing that they had found down the road". The 1992 season was, nevertheless, a banner year. The mapping of most of the large settlement clusters was completed, the southern transect finally reached its 2.5 km destination, and at its terminus we discovered the Zubin Group.

Accomplishments and Future Directions

Presently, two of the most gratifying, if not most important, accomplishments of the settlement survey at Cahal Pech are that the area demarcated around the site core in 1988 is now officially recognized as a National Reserve, and that we have been able to record many peripheral settlements that are now completely lost from the archaeological record.

The mapping and plotting of settlements in the southern transect is also nearing completion. As Figure 2 indicates, there are still gaps to be filled in our present map of this zone, but total coverage of the area should be accomplished over the next two summers. Prior to the 1992 season, the settlement survey had recorded several settlement clusters in this southern zone. Some of the larger clusters included the Tolok, Zotz, K'ik', Taxin Chan, Figueroa, Cas Pek and Tzinic Groups. The latter included an 8 m high terraced platform with vaulted superstructure and a plain stelae. During the 1992 season, we also recorded the multi-plaza Zubin Group with its numerous dispersed plazuelas, the smaller Pepeng and Nax Che Groups, and the large Zopilote Group with its 11.5 meter high pyramidal structure and a raised causeway that leads to the site core.

The recorded distribution of settlements in the periphery, and the ongoing excavation of a 100 % sample of the mounds in six of the settlement clusters has also began to provide important information regarding the diachronic occupation and the socio-political organization of Cahal Pech. In the first instance, our investigations presently indicate that many of the peripheral settlements were first established during the Middle Formative period, that there was considerable construction during the Late Preclassic, and that the prehistoric population most likely reached its highest maxima during the Late Classic period.

In the second case, the discovery of several large, architecturally complex, and morphologically different settlement clusters indicate that the peripheral inhabitants of Cahal Pech were relatively prosperous, that they had access to elite symbols of power, and that their individual relationship to the paramount chiefs in the site core may have varied from group to group. More importantly, this data has led us to question an interesting hypotheses that was recently suggested by Ball and Taschek (1991). In a very insightful paper which focuses on Late Classic Maya political organization in the upper Belize valley, Ball and Taschek (1991:151-154) argued that the primary role of Cahal Pech was that of a "rural, high-level, elite residence complex". They added that the restricted access into the site core also indicated that the site was "introverted". In contrast, the morphology, settlement distribution, and open access nature of Buena Vista implied that that site's primary role was administrative. Unfortunately, Ball and Taschek's (1991) hypothesis was formulated without any substantial settlement data for Cahal Pech. Given this situation it is understandable why they would classify the site as a rural regal residence. Our present settlement data, however, does not support Ball and Taschek's (1991) hypothesis. Settlements in the periphery of Cahal Pech are as dense and complex as that of any of the major valley centres (i.e Xunantunich, Buena Vista, Baking Pot, Blackman Eddy), and to some degree this complexity dates as far back as the Formative period. The use of Thiesen polygons and central place analysis in regions with major waterways and rivers must also be questioned. For example, and in reference to Pasion Zone sites, Willey (1981:405) cautioned that "A nice polygon of these cannot be drawn" because "the riverine location of all these sites, with its implications for communication and transport, may very well have distorted such ideal central-place arrangement". This caveat also holds true for the upper Belize valley and it needs to be seriously taken into consideration by future settlement studies in the region.

Future investigations on Classic period socio-political organization in the valley also need to more carefully explore the numerous ramifications of characteristics such as site location and settlement configuration. For example, is it possible that location on the alluvial plain (i.e. Buena Vista and Baking Pot) and open accessibility to site cores represent indicators of

commercial function, while location on easily defended hilltops and site cores with restricted access could be related to administrative functions? In her comparison of Monte Alban, Tikal and Teotihuacan, Marcus (1983:211-223) implicitly suggests this possibility. At the same time she (Marcus 1983:242) warns that:

> Our problem is simple: we are trying to define the city so as to satisfy Western social scientists, not Mesoamerican Indians... Until we devise a way to accommodate our cumbersome typology to the Indian's view of the cultural landscape, that is, until we stop trying to treat Mesoamerica as if it were a twentieth-century, secular industrial society, we will find ourselves in the same position as the participants in a symposium on African urbanism described by Horace Miner. "Everyone knows what a city is" said Miner (1967:3), except the experts."

Hopefully, the increasing settlement data for the region, and continual collaboration between colleagues working in the area will eventually lead us towards a better understanding of the political organization of the prehistoric inhabitants of the upper Belize River valley.

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TIME AMONG THE THORNS: RESULTS OF THE 1992 FIELD SEASON AT ZUBIN, CAYO DISTRICT, BELIZE

by

Gyles Iannone

INTRODUCTION

The following report outlines the results of preliminary archaeological investigations at the Zubin Group, undertaken during the 1992 field season. Zubin is located approximately 2 km south of the Cahal Pech site core (see map in Awe and Brisbin, this volume). The group is situated on an east-west running limestone ridge, and is separated from Cahal Pech proper by a small valley. The Zubin site core consists of three definable plazas, comprised of pyramidal, range-type, and other low-lying mounds (Figure 1). Surrounding this focal architectural assemblage are numerous smaller mounds, forming a continuum beginning with small solitary structures and concluding with a number of larger patio and plazuela-type configurations (see Ashmore 1981). Given past site classifications the Zubin group is best categorized as a "minor ceremonial center", or simply "minor center" (e.g. Ashmore 1981; Bullard 1960; Hammond 1975a).

Zubin is a Yucatec Maya term for *Acacia globlifera* (Roys 1931:312). These small trees, with their abundant thorns and resident fire-ants, overlay the entire site core upon arrival of project members in 1992. Having been part of a cattle pasture up until three years prior to the commencement of our investigations, the Zubin group had only recently been reclaimed by the Acacia forest. Although no archaeological work had been undertaken at the site until our arrival, there were indications of looting activity (see Figure 1). However, according to one of the landlords, Alfredo Boiton, the mounds were not looted until three years ago, when a caretaker began clandestine excavations at the site. Before reporting on the results of excavations at the Zubin group we would like to outline the reasons behind our investigations. In doing so we wish to emphasize what we see as major problems inherent in past and present approaches to ancient Maya settlement and social organization. These criticisms provide the rationale for the work at Zubin.

BACKGROUND TO THE ZUBIN EXCAVATIONS

The author initiated investigations at Zubin during the 1992 field season, under the auspices of the Belize Valley Archaeological Reconnaissance project (roughly May 20th to July 15th). Research at Zubin is to form the basis of his Ph.D. dissertation at the University of London, which focuses on minor centers and their social relationships within the ancient Maya

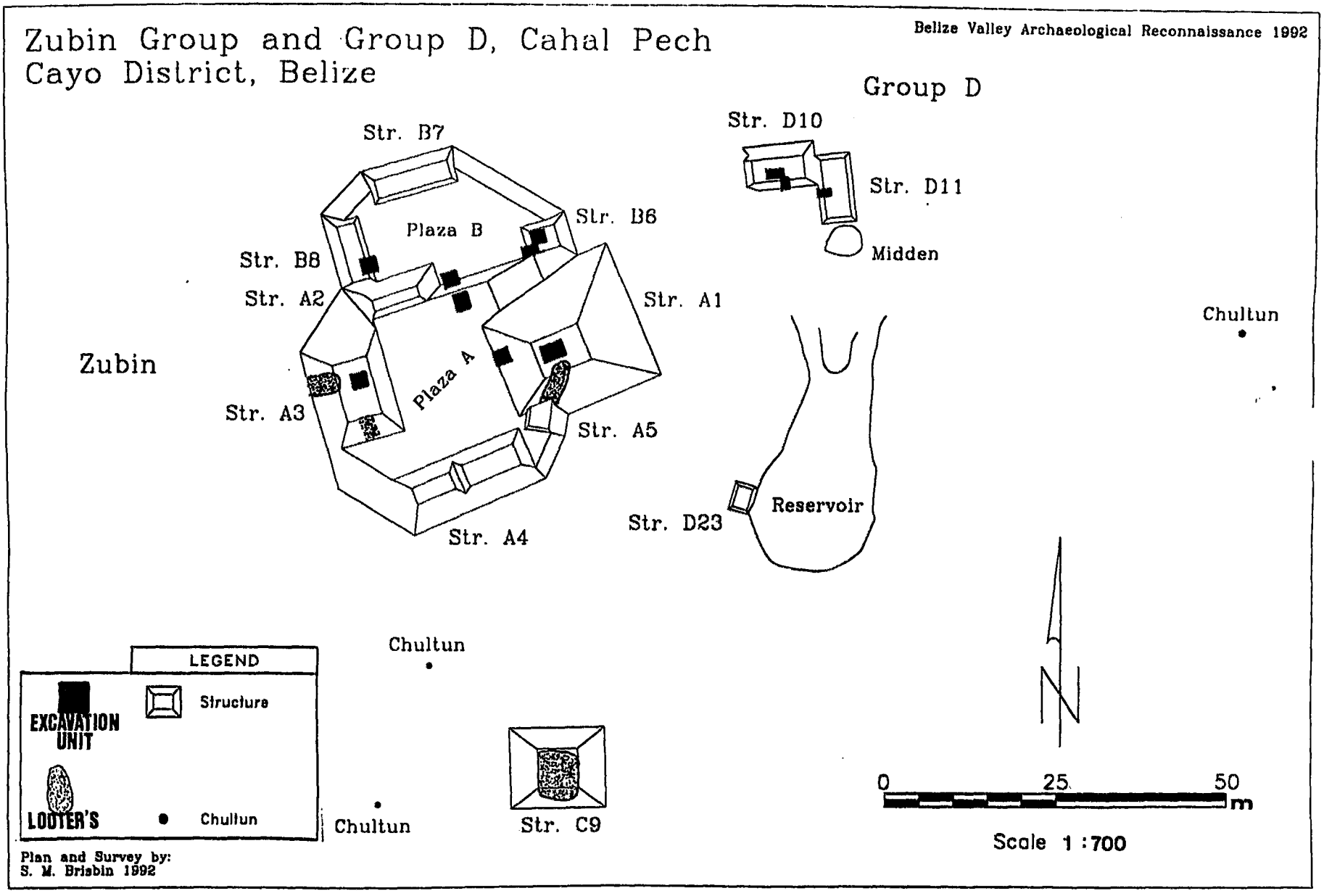


Figure 1. Rectified plan of Zubin showing looter's trenches and excavation units.

socioeconomic and sociopolitical hierarchy. From its outset one of the principal goals of the B.V.A.R. project has been to thoroughly explore all levels of ancient Maya settlement (cf. Awe 1992:173; Awe and Campbell 1992:3-4). Of particular interest to the senior author of this report is the investigation of what he has been termed "middle level settlement units." Middle level settlement units are defined as those clusters of architectural features which form a continuum beginning with the larger plazuela groups (see Ashmore 1981) and concluding with the sites frequently designated "minor ceremonial centers" (Ashmore 1981:41; Bullard 1960; Hammond 1975a, 1975b, 1982:168; Thomas 1981; Willey and Bullard 1965; Willey et al. 1965), or simply a "minor centers" (Ford 1981:57; Hammond 1975b:545; Haviland 1981; Marcus 1983:469; Puleston 1983:2; Tourtellot 1983:52-53; Willey 1981:399). These architectural assemblages are seen to comprise a loose but distinguishable set of settlement units lying, in size and complexity, somewhere between the smaller housemound groupings and the larger major centers. It is the upper portion of this settlement level, the minor centers, which are of specific interest here.

The crux of the problem is that past research in the Maya area has focused too much on "lower level" (housemounds) and "upper level" (major centers) settlement (see comments in Ashmore 1981:58-59; Webster 1980:844; Willey et al. 1965:581; but see work done by Ball and Taschek 1986:27-40, 1991:158; Chase and Chase, in Wilford 1993; Coe and Coe 1956; Conlon 1992; Conlon and Awe 1991; Fry 1969; Green 1970; Haviland 1981; Hendon 1991; Leventhal 1981; Willey and Leventhal 1979). Similarly, settlement research outside of the major centers has all too often included only minimal excavations (e.g. Bullard 1960; de Montmollin 1989; Ford 1981; see comments in Ashmore 1981:61-62; Chang 1983:374; Haviland 1966:43, 1981:90; Hendon 1992; Leventhal 1981:206). We would argue that this emphasis on surface reconnaissance at the expense of excavations masks the dynamics of the settlement system (see comments in Fry 1969:123, 256). This becomes especially clear when the past process of minor center classification is reviewed, with its blatant stress on size, spatial location, and presence of certain morphological characteristics (e.g. Bullard 1960; Ford 1981:57; Fry 1969:248-249; Hammond 1975a:41; Green 1970; Puleston 1983:2, 25; Willey 1981:391; Willey and Bullard 1965:368; Willey et al. 1965). It is quite apparent that the recognition of variation in these groups is impaired by this lack of excavation and the use of uncritical classification schemes (see comments on settlement variation in Ford 1981:57; Fry 1969; Harrison 1981:269; Kurjack 1974:93, 95; Puleston 1983:81; Thomas 1981:105-109; Willey 1981:391-392). It is also worth noting that such programs of settlement research are biased towards the synchronic scale (see comments in Ashmore 1981:62; Awe and Campbell 1992:4 Fry 1969:61), whereas the investigation of social relationships may best be served by a diachronic analysis (see Awe and Campbell 1992:4; McGuire 1992; Shanks and Tilley 1992; in contrast to Webster 1980:844).

A further problem is apparent in that the limited data base produced through the above research program has been used to assign functional roles to minor centers and other middle level settlement units. For example, on the most basic level, functional roles have been ascribed to minor centers based on empirical data alone, wherein excavation and survey data gathered from major centers and house mound investigations are simply combined with morphological, size, and spatial location data derived from the minor centers (e.g. Bullard 1960; Hammond 1982:168; Leventhal 1981:206-207; Willey 1956; Willey and Bullard 1965; see comments in Chang 1983:373-374; de Montmollin 1989:74; Freidel and Sabloff 1984:36; Haviland 1981:90; Leventhal 1981:206; Pyburn 1989:13). On a more abstract level, although the limitations of the data remain the same, minor centers have been provided with functional roles within ancient Maya social organization through the application of more general interpretive schemes (i.e., feudal models, central place theory, ethnohistoric and/or ethnographic models: e.g. Adams and Smith 1981; Bullard 1964; Culbert 1974:67-68; Leventhal 1983:73-75; Thomas 1981:108-109; Vogt 1964, 1968; Willey and Bullard 1965; Willey et al. 1955:24). Once again, this has led to the a priori interpretation of these settlement units, whereby "minor center" size, morphology, and spatial location is combined unimaginatively with the expectations of broad analytical frameworks. A strong argument can be made that due to their position in the middle ground of Maya settlement, minor centers and other middle level settlement units are potentially the most dynamic with regard to function (see Haviland 1981:117; Puleston 1983:25; Rice and Puleston 1981:155; see also comments in Ashmore 1981:54-55; Pyburn 1989:35). The past methodological and theoretical approaches to their analysis have, we believe, prevented the recognition of this variability and presented us with a biased perspective of ancient Maya social organization.

Finally, it is important to point out that past and present approaches to Maya settlement and social organization, with their emphasis on <u>functional</u> interpretation of structures and sites (e.g. Adams 1981; Ball and Taschek 1991:158; Fry 1969; Haviland 1981; Leventhal 1981, 1983; Willey 1953:1, 1981:391-392) and reliance on interpretive frameworks such as cultural ecology and systems theory (e.g. Culbert 1974:58; Ford 1981; Sanders 1956, 1963), may be inhibiting the interpretation of ancient Maya social organization (de Montmollin 1989:8-9; Gilman 1979:65-67; Kurjack 1974:96-97; McGuire 1992:254; Pyburn 1989:22, 146; Trigger 1990:119; Shanks and Tilley 1992:52, 117-119; see for example Hendon 1991).

In summary, our research at the minor center of Zubin, and in other middle level settlement units, has been prompted by the following observations. We see middle level settlement units as potentially very dynamic in terms of architectural make-up and artifact composition. Given this view, we would argue that these settlement units are too dynamic to be classified uncritically based on gross morphological and spatial similarities.

Concomitantly, for too long they have been explained through an interpretive scheme heavily reliant upon data derived from the polar extremes of Maya settlement, thus masking social dynamics. It is time for an influx of data from middle level settlements themselves, data generated through both survey and excavations. A research program which emphasizes these synchronic and diachronic approaches, and which actively seeks comparative data from all levels of settlement, should facilitate the recognition of middle level settlement dynamics. Given the definition provided by McGuire (1992:55), these settlement units may represent the ancient Maya "middle class" (see comments by Chase and Chase, in Wilford; Culbert 1974:67; Haviland 1965:22-23). Thus, the individuals inhabiting these settlement units can be viewed as the articulators between the domestic and ruling populations. They may therefore also be considered as the most dynamic settlement level in social terms. It can be argued, if the above is true, that minor centers and other middle level settlement units are the ideal laboratory for exploring ancient Maya socioeconomic and sociopolitical relationships. Finally, we wish to stress that an emphasis on the social relationships between sites of the various settlement levels may provide more fruitful conclusions than have been produced by past investigations, with their clear bias for functional interpretations and reliance on questionable paradigms such as systems theory and cultural ecology.

EXCAVATIONS AT ZUBIN: THE 1992 SEASON

Given the problems outlined above, it was decided to implement a full scale investigation of a site which could readily be classified as a "minor center". The Zubin group provided just such an opportunity. With its three plazas and numerous special function structures, Zubin easily fits into both loose (Bullard 1960) and rigorous (Hammond 1975a) minor center classifications. The presence of a relatively large peripheral population, consisting of a continuum beginning with small isolated mounds and ending with some larger plazuela groupings, was seen to provide an excellent opportunity to explore the character of social relationships as they existed between the peripheral population and the minor center. Similarly, the question of Zubin's socioeconomic and sociopolitical autonomy remained open for investigation, given its clear spatial separation from the major center of Cahal Pech. Thus, the nature of the social relationships between major center and minor center could also be addressed. In addition, past and present research by project members in the periphery of Cahal Pech has provided us with a good cross-section of settlement data, beginning with some small housemound excavations, and grading through work at larger, more complex plazuela groups and clusters, minor centers, and terminating with investigations within the major center of Cahal Pech itself (see various papers in Awe and Campbell 1988, 1991, 1992; Awe et al. 1990). All of these inquiries provide

valuable comparative data for assessing social relationships. With regard to Zubin, the work at the other minor centers (Tzinic and Zopilote) is especially relevant, as all three groups are similar in size, yet exhibit differences in architectural arrangement and proximity to Cahal Pech proper (see Cheetham, this volume; Conlon 1992; Conlon and Awe 1991). Comparisons of data derived from excavations at these two groups will be invaluable to the interpretation of Zubin. Finally, with its long history of settlement archaeology and abundance of comparative data, the Belize Valley provides the ideal setting for undertaking a project of this type.

The 1992 field season was aimed at initial exploration of Zubin and its periphery. This included some limited settlement survey, and the excavation of some test units. The latter were aimed at gathering information pertaining to architecture type and length of occupation. Both horizontal stripping and vertical test trenching was employed during excavations. The results of these preliminary tests are summarized below. Artifact analysis is still underway. Emphasis will therefore be on architecture and chronology, with the exception of a few significant artifact finds. All relative dates are derived from the Barton Ramie ceramic typology as outlined by Gifford (1976). These dates are only tentative, and they will ultimately be refined following further excavations.

Excavations in Plaza A or Ac

Plaza A or Ac (Male Peccary), the focal architectural assemblage at Zubin, is a highly restricted plaza configuration (see Figure 1). The eastern mound, Structure A1, is a pyramidal structure with at least one small flanking mound abutting its south side (Str. A5). A very low-lying mound, Structure A2, partially closes off the plaza to the North, although there appears to be an access point situated between this mound and Structure A1 at the boundary with Plaza B (*Bac-ha*). An additional, yet smaller pyramidal mound, Structure A3, is located directly across from A1, and defines the western border of the plaza. A long, unvaulted range-type construct, Structure A4 closes off the plaza to the South. Two further, more restricted, access points occur between Structures A3 and A4, and A4 and A5. The dominant mound, Structure A1, rises approximately 5 m above the plaza surface, and roughly 9 m above the normal ground surface to the East. There are no indications that any of the *Ac* Plaza structures were ever vaulted. However, Structure A3, the western pyramidal mound, has evidence for low masonry walls on its summit. This construct rises approximately 2.75 m above the *Ac* plaza courtyard, and substantially above the ground surface to the West of the site core. Four test units were placed in the *Ac* plaza during the 1992 field season (see Figure 1).

Unit A1-1. Unit A1-1, a 2m x 2m unit, was located slightly

off center at the base of Structure A1. This excavation was initiated in order to gather information concerning the architectural make-up of Structure A1 and its associated plaza surface, as well as artifactual data regarding the temporal sequence of structure and plaza construction. Excavations produced the following information (see Figure 2).

Level 1 was 35-55 cm thick, and consisted of humus and fall materials. Sedimentary clast size varied from pebble (0.4-6.4 cm) to boulder size (> 25.6 cm). Compaction was loose to moderate, and roots and rootlets were prevalent in the upper portions of the deposit. Having been formed by natural processes, including erosion, weathering, and the collapse of terminal architecture, with the addition of materials produced by looters, Level 1 was an extremely mixed deposit. Two obsidian blade sections, one proximal (# A1-SF/1) and the other medial (# A1-SF/2), were retrieved from this level. A quartzite hammerstone was also recovered. Lithic debitage, freshwater shells, and ceramic sherds were moderately abundant. The majority of sherds belonged to the Spanish Lookout Ceramic Complex, mainly representatives of the Cayo, Belize, and Dolphin Head Ceramic Groups. A sizable number of Tiger Run Complex sherds, largely examples of the Sotero and Zibal Ceramic Groups, were also present. Given that the temporal distribution of Sotero Red-Brown overlaps the late Tiger Run and early Spanish Lookout phases (Gifford 1976:192, 226; Willey et al. 1965:360, 362), and that Dolphin Head Red is considered an early facet Spanish Lookout phase member (Gifford 1976:226), it is tempting to date the Level 1 deposit to the 700-800 A.D. time range. However, as a result of the disturbed nature of the deposit, only a gross post-700 A.D. date can be provided.

Level 2, varying from 0.5-86.5 cm in thickness, was made up of poorly preserved terminal architecture. A few cobble (6.4-25.6 cm) and boulder sized (> 25.6 cm) facing stones remained roughly in position, although many had slumped downwards towards the plaza surface. A large section of smaller cobble sized materials (6.4-25.6 cm), representing backing masonry, were exposed in areas where the facing stones had slumped away. One broken mano was found in Level 2. Lithic debitage and ceramic sherds were abundant. Within Level 2 Spanish Lookout Ceramic Complex sherds predominated, mainly those of the Cayo, Belize, Dolphin Head, and Mount Maloney Ceramic Groups. Given the presence of numerous Dolphin Head Red sherds, an early facet Spanish Lookout member, a date of ca. 700-750 A.D. for the construction of the terminal A1 architecture seems likely. The presence of the Mount Maloney sherds (a late facet Spanish lookout type) may represent terminal Spanish Lookout occupation and/or structural refurbishing (dating to ca. 800-875 A.D.), following Willey et al.'s (1965:373, 377) and Gifford's (1976:226-227) view that this type "must have been a local manifestation of San Jose V" ceramics.

Level 3 - Floor I was a poorly preserved plaza floor. This

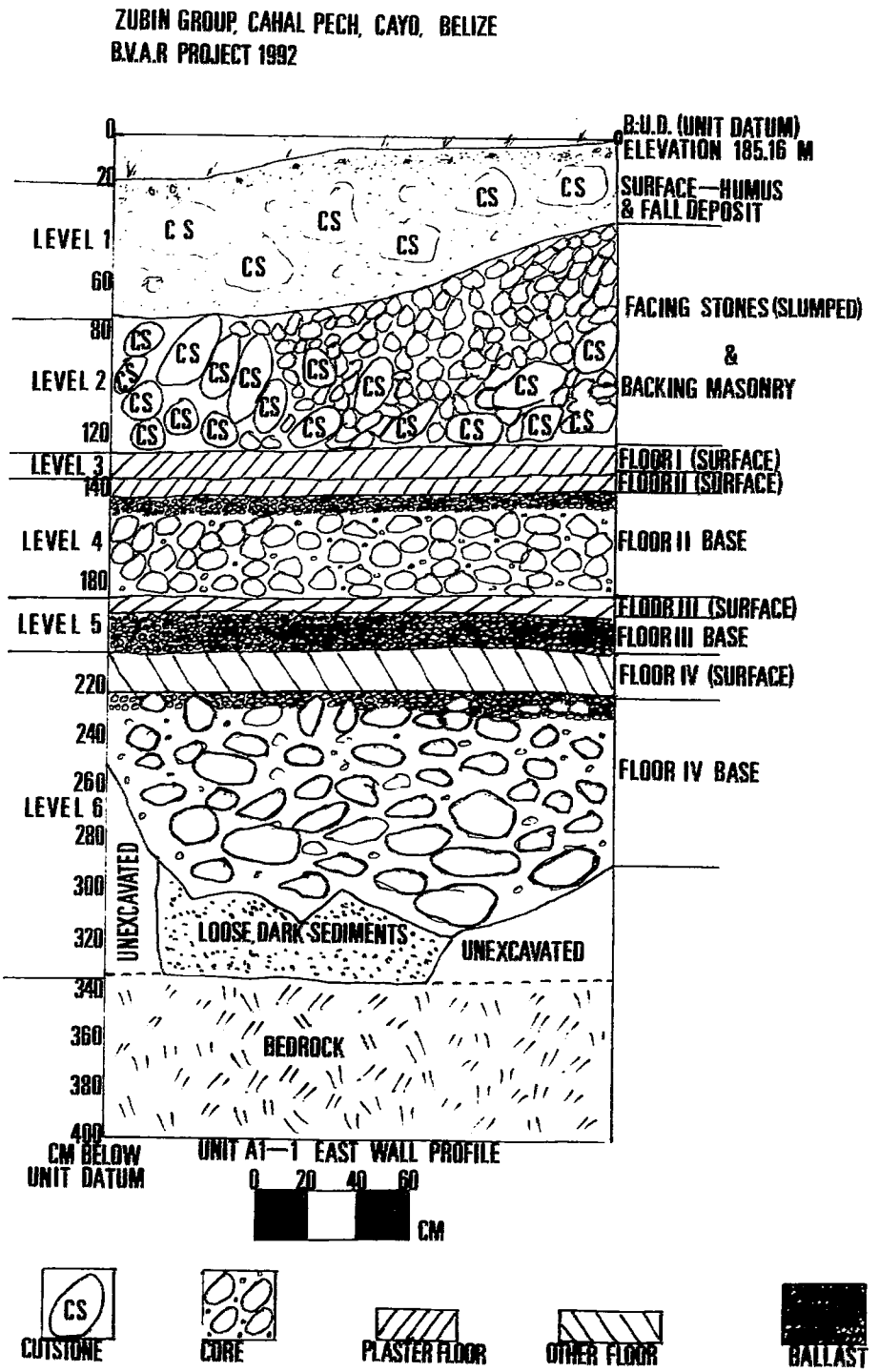


Figure 2. Profile of the east wall of Unit A1-1.

surface, approximately 6.5-11.5 cm thick, consisted mainly of plaster with the addition of a few pebble (0.4-6.4cm) and cobble (6.4-25.6 cm) sized clasts. Preservation was poor across the unit except in the southeast corner. No ballast or core materials had been used to form a base for this floor surface. Floor I was not easily separable from the Floor II surface which underlay it. This implies that the former may best be viewed as a re-flooring event. Lithic debitage and ceramic sherds were abundant. One drilled sherd was also recovered (# A1-SF/21). Sherds from this level were primarily of the Spanish Lookout phase, mainly representatives of the Belize, Dolphin Head, Mount Maloney, and Garbutt Creek Ceramic Groups. Sherds of the Tiger Run phase Sotero Red-Brown Ceramic Group were also present in sizable numbers. Seeing as the latter group overlaps the Tiger Run/Spanish lookout boundary, and that the Dolphin Head Reds and Mount Maloney Blacks represent the early and late facet Spanish Lookout respectively (see above), a date for the terminal plaza re-flooring of roughly 750-850 A.D. is suggested.

Level 4 - Floor II represents the terminal plaza floor construction, which varied in thickness from 35-50 cm . Floor II consisted of a ca. 5 cm thick plaster layer containing some pebble (0.4-6.4 cm) and cobble (6.4-25.6 cm) sized clasts. Preservation of this surface ranges from very well preserved in the southeast corner to moderately well preserved throughout the rest of the unit. The plaster surface overlay a ca. 8 cm layer of fine ballast, made up mainly of pebble sized materials (0.4-6.4 cm), and a ca. 32 cm bed of core, largely cobble (6.4-25.6 cm) and boulder sized (> 25.6 cm) clasts. A quartzite, "general utility biface", and a few bivalve shells were recovered from this level. Lithic debitage was presented in large quantities, as were ceramic sherds. The latter were particularly abundant in the northwest corner of the unit. The majority of Level 4 sherds belonged to the Spanish Lookout phase Belize, Dolphin Head Red, and Mount Maloney Ceramic Groups. Sotero Red-Brown, a Tiger Run/Spanish Lookout transitional type, was also present in moderate numbers. This assemblage suggests a ceramic date for the terminal plaza floor construction of 700-750 A.D. The Mount Maloney sherds may represent the aforementioned post-750 A.D. re-flooring.

Level 5 - Floor III, the penultimate plaza floor construction, was a plaster floor ca. 24 cm thick in total. The fairly rough but consistent plaster surface, ca. 6 cm thick, was made up mainly of a mixture of plaster and pebble sized materials (0.4-6.4 cm), with the addition of a few cobble sized clasts (6.4-25.6 cm). Preservation was better along the east and south walls of the unit. The upper ca. 3.5 cm of the plaster surface consisted of a series of thin re-floorings. Underlying the plaster cap was a ca. 17 cm bed of ballast, mostly pebble sized materials (0.4-6.4 cm). Ceramic sherds and lithic debitage were abundant in this level. Freshwater shells were also recovered, as was the medial section of an obsidian blade (# A1-SF/15). The majority of sherds recovered from Level 5 represented the Late Formative Barton Creek phase.

These were predominantly members of the Sierra and Polvero Ceramic Groups. Also present in Moderate numbers were types of the Savana and Jocote Ceramic Groups, members of the Middle Formative Jenney Creek Ceramic Complex. This ceramic collection indicates that Floor III was constructed sometime around 300-250 B.C.

Level 6 - Floor IV, the final living surface encountered in unit A1-1, was capped by ca. 28 cm of hard-packed clay-rich sediments, containing moderate percentages of pebble sized materials (0.4-6.4 cm). Underlying this surface deposit was a thin ballast layer (ca. 4-5 cm) composed mainly of pebble sized clasts (0.4-6.4 cm), and a thick bed of loose core (ca. 60-65 cm) containing a high percentages of both cobble (6.4-25.6 cm) and boulder sized clasts (> 25.6 cm). Beneath this core layer a ca. 28 cm thick deposit of loose, dark sediments occurred, possibly representing a palaeosol. Artifacts were present in this deposit, indicating that it is not sterile. A fragment of a human maxilla with a portion of canine root and empty premolar socket was found alongside an upper canine. A section of zygomatic arch was also recovered. These materials, derived from the dark sediments near the western boundary of the unit, were designated Burial A1-B/3. It is likely that the remainder of the burial, if these remains constitute such, are located to the west of Unit A1-1. The dark sediments were underlain by hard, sterile limestone bedrock, which was encountered at ca. 335-340 cm Below unit Datum. A medial section from an obsidian blade (# A1-SF/18) was recovered from this floor level. Ceramic sherds, freshwater shells, and lithic debitage were also present. All sherds recovered from this level were types of the Middle Formative Jenney Creek phase. The dominant types included members of the Joventud, Savana, Chunhinta, and Jocote Ceramic Groups. These types indicate that a ceramic date of 600-350 B.C. for the construction of this floor is highly likely.

Unit A1-2. A second unit was placed on the summit of structure A1 (see Figures 1 and 3). This axially aligned unit was 3x2 m in size. It was hoped that unit A1-2 would provide not only architectural and temporal data, but also uncover any burials and dedicatory caches within the A1 summit. Such information is deemed imperative for the study of intra- and inter-group social relations. As the terminal A1 construction proved to be of a large scale and loosely consolidated nature, Unit A1-2 could not be excavated through to bedrock during the 1992 season. Only Levels 1 and 2 could be completed in a safe manner, as the walls of the unit were too unstable to provide proper working conditions. However, a small test pit was excavated in the front of the unit prior to the termination of excavations in order to locate the penultimate floor level. This test also uncovered an earlier floor underlaying the penultimate construction. By opening up a longer axial trench in the future it is hoped that excavations to bedrock will be realized.

Level 1 was a very thin layer of surface humus which capped

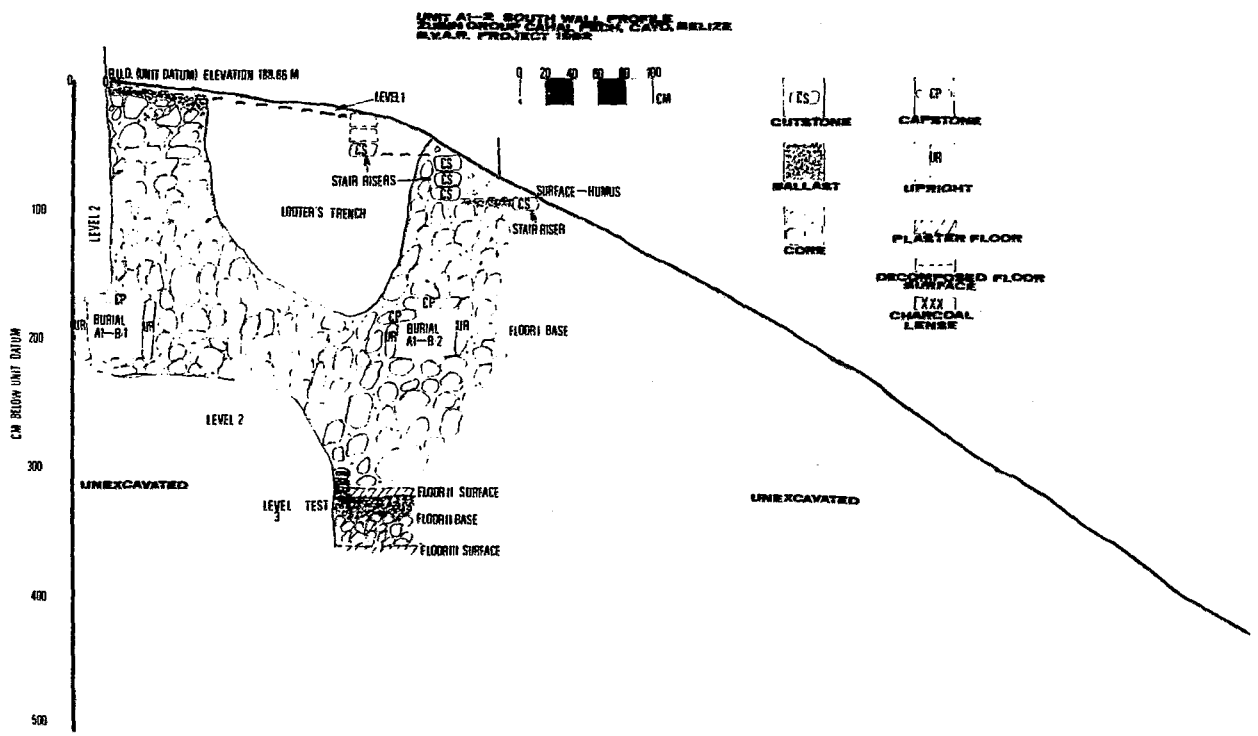


Figure 3. Profile of the south wall of Unit A1-2.

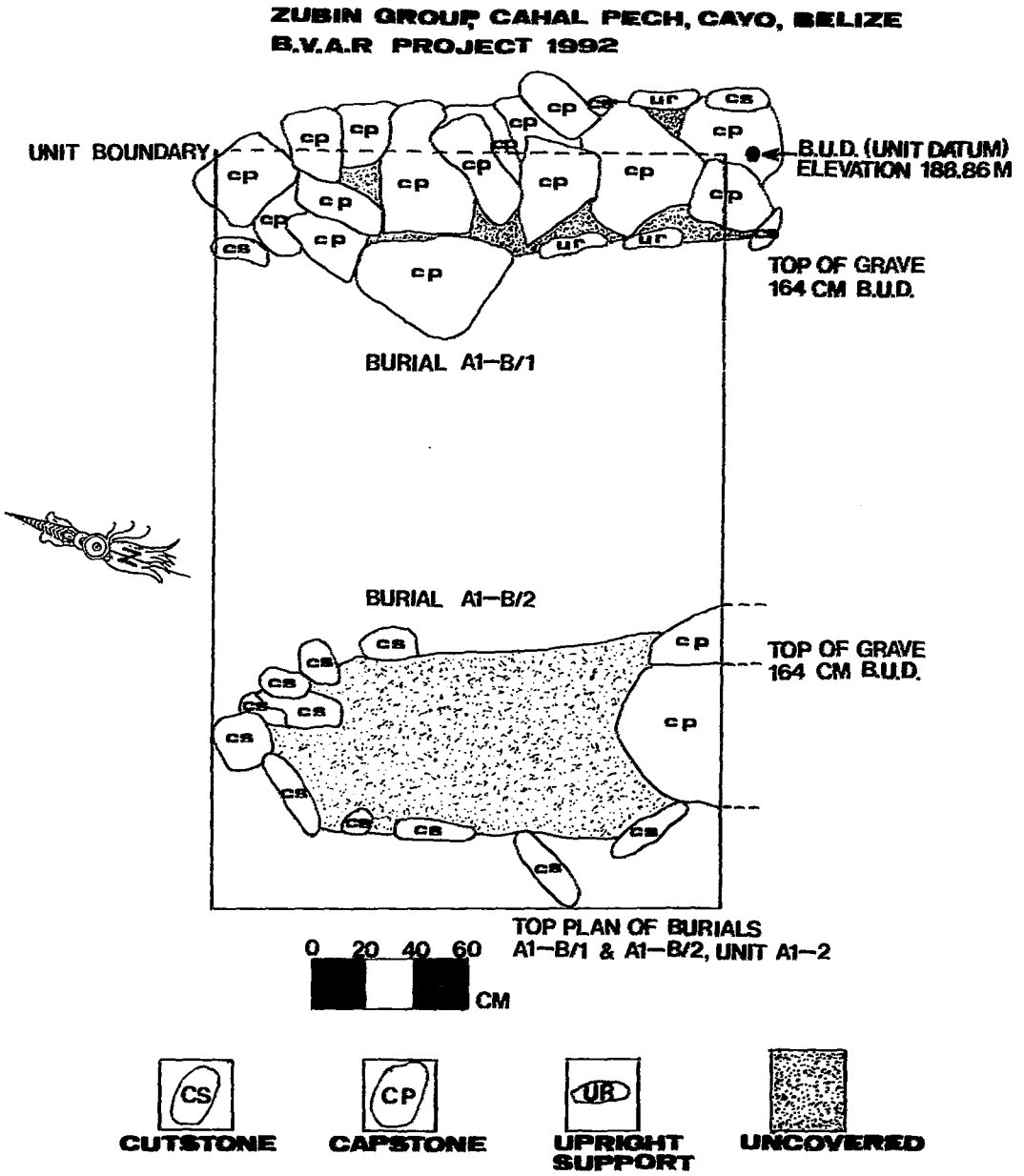


Figure 4. Top plan of Burials A1-B/1 and A1-B/2.

unit A1-2. The paucity of surface sediments probably results from the fact that the site was cleared for cattle grazing up until three years before our arrival. The partial or full denudation of vegetation from the surface of the mound would have accelerated erosional processes, thus much of the original surface cover may have been washed downwards towards the base of the mound in the form of colluvium and gravitational sediments. Ceramics from this level were scarce, but seem to represent late Spanish lookout phase (ca. 800-875 A.D.) occupation. Lithic debitage was also recovered in moderate quantities.

Level 2 consisted of remnants of the A1 terminal architecture. The erosional processes outlined above would have also facilitated weathering of any exposed architectural features, thus explaining the poor preservation of the latter. The terminal A1 platform surface was represented by a thin ballast layer containing mainly pebble sized materials (0.4-6.4 cm in size). This platform surface abutted the nose of a three course stair riser to the west. The remnants of other three course stair risers along with their formerly plastered treads were also recognizable. A possible axially aligned cache, containing three whole obsidian blades (#s A1-SF/3, /4, /5) and one medial section (# A1-SF/6) was recovered from this level. The underlying deposit, consisting of dry-stone core masonry, was made up of very loosely consolidated cobble (6.4-25.6 cm) and boulder sized (> 25.6 cm) limestone rubble. This internal masonry represents a substantial construction event, being over three meters in thickness. Ceramics and lithic debitage were abundant in this deposit, and freshwater shells were also present. The only artifact of note recovered from within the core was a unperforated ceramic disc (# A1-SF/7). Two axially aligned burials were also exposed during excavation of the core masonry deposit.

Burial A1-B/1, classified as a simple crypt following Welsh (1988), was encountered ca. 164 cm below the unit datum. The grave was oriented approximately north-south, and straddled the eastern boundary of Unit A1-2 (Figure 4). A number of large roughly cut capstones (limestone) covered the burial. These had been placed flat upon a series of cut limestone uprights. The uprights formed a ca. 40-45 cm high wall around the burial. The capstones and uprights combined almost completely enclosed the interred individual. A number of smaller cutstones had also been used to outline the grave. A ca. 10 cm layer of chert flakes had been deposited on top of the capstones of the grave. This practice has been identified at other sites in the general vicinity (e.g. Conlon and Awe 1991; Healy 1990), and has been linked to Maya cosmology by Coe (1988). The length of the grave was ca. 220 cm (north-south), and it was ca. 60-70 cm wide. The interment itself consisted of a poorly preserved individual (see Figure 5). Skeletal material was scarce, with the exception of some larger sections of arm and leg bones. The position of these, and the presence of a cranial fragment near the southern end of the grave, indicate that the

individual had been placed in an extended, supine position, with the head to the south. Rodent activity within the confines of the grave was indicated by the presence of numerous rodent bones, particularly prominent in the southern end of the burial. Grave goods included three vessels, one tubular jade bead, a small spondylus shell bead, and two drilled canid canines(?). An Orange-Walk Incised: Orange-Walk Variety bowl (Figure 6a) had been placed adjacent to the head of the individual. Another Orange-Walk Incised: Orange-Walk Variety bowl and a Dolphin Head Red: Dolphin Head Variety dish (Figures 6b, 6c) were situated at the northern end of the crypt, near the individuals feet. It appears that the jade and shell beads (Figures (7a, 7b) were part of a necklace, as they were located near the chest area of the individual. The drilled canid canines? (#s A1-SF/19, /20) were recovered during screening of the sediments from the burial. These may have originated from the same necklace as the jade and shell beads.

Burial A1-B/2, axially aligned and oriented north-south, was situated to the west of Burial A1-B/1 (see Figure 5). It is best classified as a capped pit following Welsh (1988). The grave consisted of a rough outline of cutstones, with the exception of a few cutstone uprights covered over by capstones at the southern end of the grave (Figure 4). The depth to the top of these capstones was 164 cm Below Unit Datum (B.U.D.). Thus, this second interment was level with burial A1-B/1. Due to the lack of capstones, and the size and looseness of the core masonry above the grave, this burial was very poorly preserved. Excavation was further hampered by a week of rain, promoted by an offshore tropical storm, which settled in almost immediately upon discovery of Burial A1-B/2. Preservation of skeletal remains was so poor that orientation of the burial could not be determined with any degree of certainty, although indications are that the head was to the south, as it was in Burial A1-B/1. The remains of four ceramic vessels, all of which were subsequently reconstructed, were recovered from the burial (see Figure 5). These included three Dolphin Head Red: Dolphin Head Variety bowls (Figure 8a, 8b, 8c), two of which were situated in the central portion of the burial and the other in the southern sector, and a Saxche Orange-Polychrome: Variety Unspecified bowl (Figure 8d), also in the southern section. Associated grave goods included five obsidian blades (#s A1-SF/10, /11, /12, /16, /17) and two spondylus shell rosettes (Figure 7c, 7d), all recovered from the south-central area of the interment. Fragments of canid bones were also present within the grave.

Both burials are contemporaneous, and were placed in the dry-stone core hearting as part of the major construction effort which raised the height of structure A1 by 3 m. The vessels from these two interments allow for a more refined date for the construction of the terminal architecture to be posited. Given that types representing both the Tiger Run and early facet Spanish Lookout phases are present, as are some generally believed to overlap the

boundary of these two phases, a date of ca. 700-750 A.D. for the final major construction event seems likely. Although we do not wish to speculate as to the significance and meaning behind these interments at this juncture, it is clearly evident that they will play a prominent role in the future interpretation of intra- and inter-group social interaction.

Level 3, encountered beneath the dry-stone core masonry of the terminal architecture, represents the penultimate occupation surface of structure A1 (see Figure 5). As has been outlined above, excavations were terminated for safety reasons. Level 3 was therefore only exposed in a small test unit placed in the western portion of Unit A1-2. The surface of Level 3 consisted of a north-south running, two course cutstone wall, the top of which was ca. 302 cm Below Unit Datum. This was fronted to the west by an extremely compact, burnt plaster floor (ca. 316 cm B.U.D). The cutstone wall may constitute the terminal stair riser, thus it should border a platform surface situated to the east. A small exploratory test into the Level 3 architecture showed that the plaster surface was ca. 6 cm thick. This surface was underlain by a ca. 14 cm thick ballast layer, and a ca. 25 cm thick core deposit. Between the plaster and the ballast a thin lens of charcoal was encountered. This was collected for C14 dating. Ceramics were scarce, thus a date for this construction level cannot be provided at this time. What appears to be an earlier platform surface was exposed during the exploratory test at ca. 362 cm Below Unit Datum. Unfortunately, further work in the unit became untenable due to the instability of the unit walls. It is hoped that future excavations will clarify and expand on this construction sequence.

Unit AP-1, AP-1a. This plaza unit (see Figures 1 and 9) was placed at the boundary of Plaza A (Ac) and Plaza B (Bac-ha). It was hoped that such a unit would enable us to establish whether this area constituted an access point between the two plazas, or whether in fact a hidden mound was situated at this location. The unit was also deemed appropriate for the investigation of plaza construction near the boundary of the two plazas. Originally laid out as a 2x2 m unit (Ap-1), it was subsequently downsized to 1x1 m (Ap-1a) upon confirmation that no hidden structure was located at this point.

Level 1, a loose to moderately compact surface/humus layer, contained many roots and rootlets and numerous pebble (0.4-6.4 cm) and a few cobble sized (6.4-25.6 cm) sedimentary clasts. This level was approximately 5-10 cm thick. Due to the poor preservation of the terminal architecture, and the inability of excavators to distinguish a boundary between the Level 1 and the underlying Level 2, these layers were removed together. For this reason they will be dealt with together, rather than as separate entities. Level 2, ca. 15-20 cm thick, consisted mainly off pebble sized (0.4-6.4 cm) materials, with the addition of some cobble

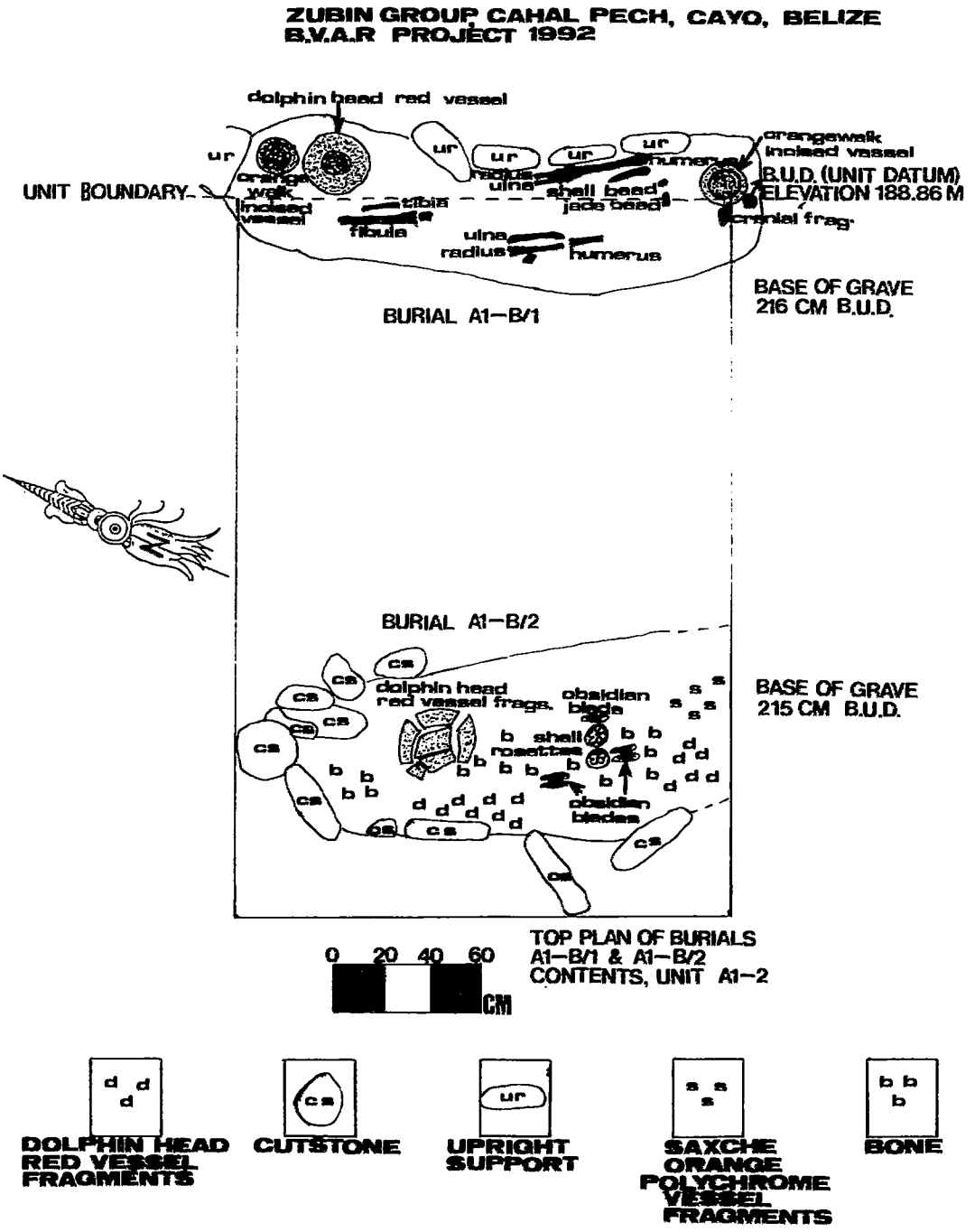


Figure 5. Top plan of Burials A1-B/1 and A1-B/2 grave contents.

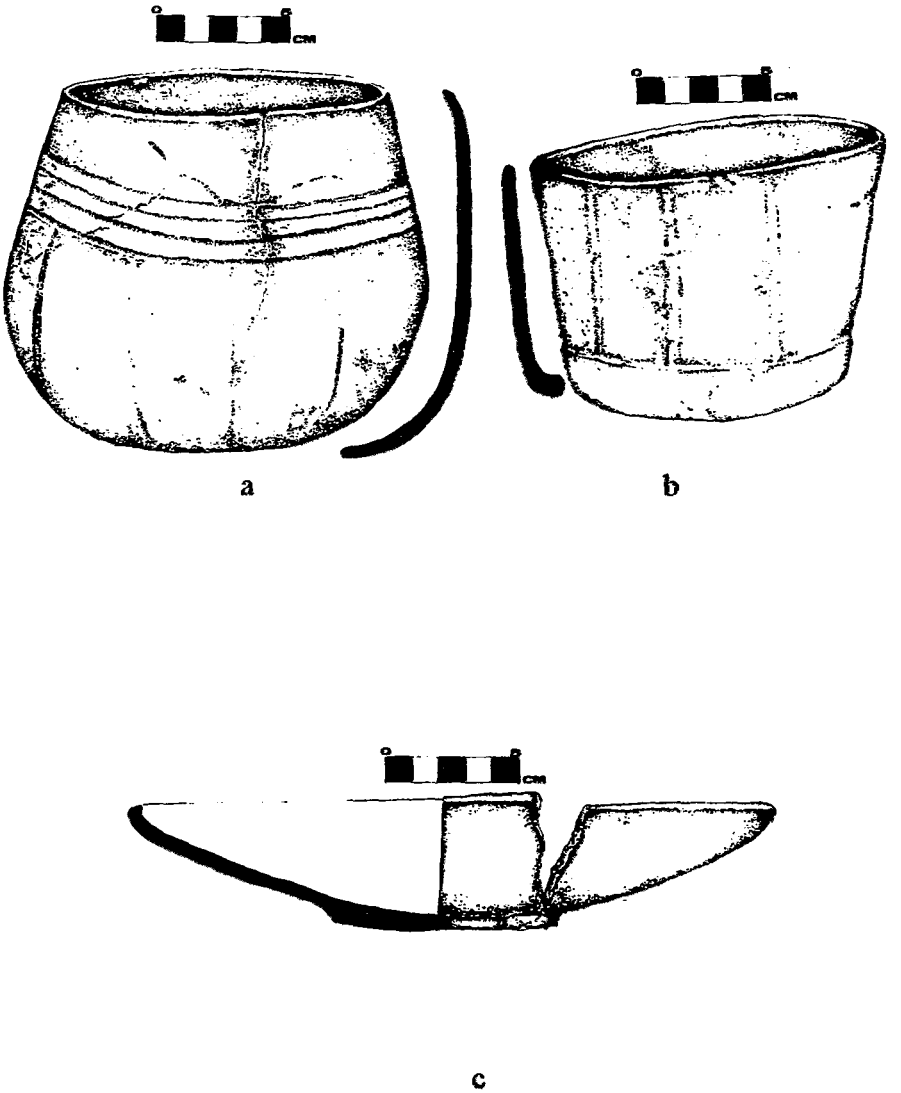


Figure 6. Vessels recovered from Burial A1-B/1: (a) Orange-Walk Incised: Orange Walk Variety; (b) Orange-Walk Incised: Orange Walk Variety; (c) Dolphin Head Red: Dolphin Head Variety (drawings by R. Holder).

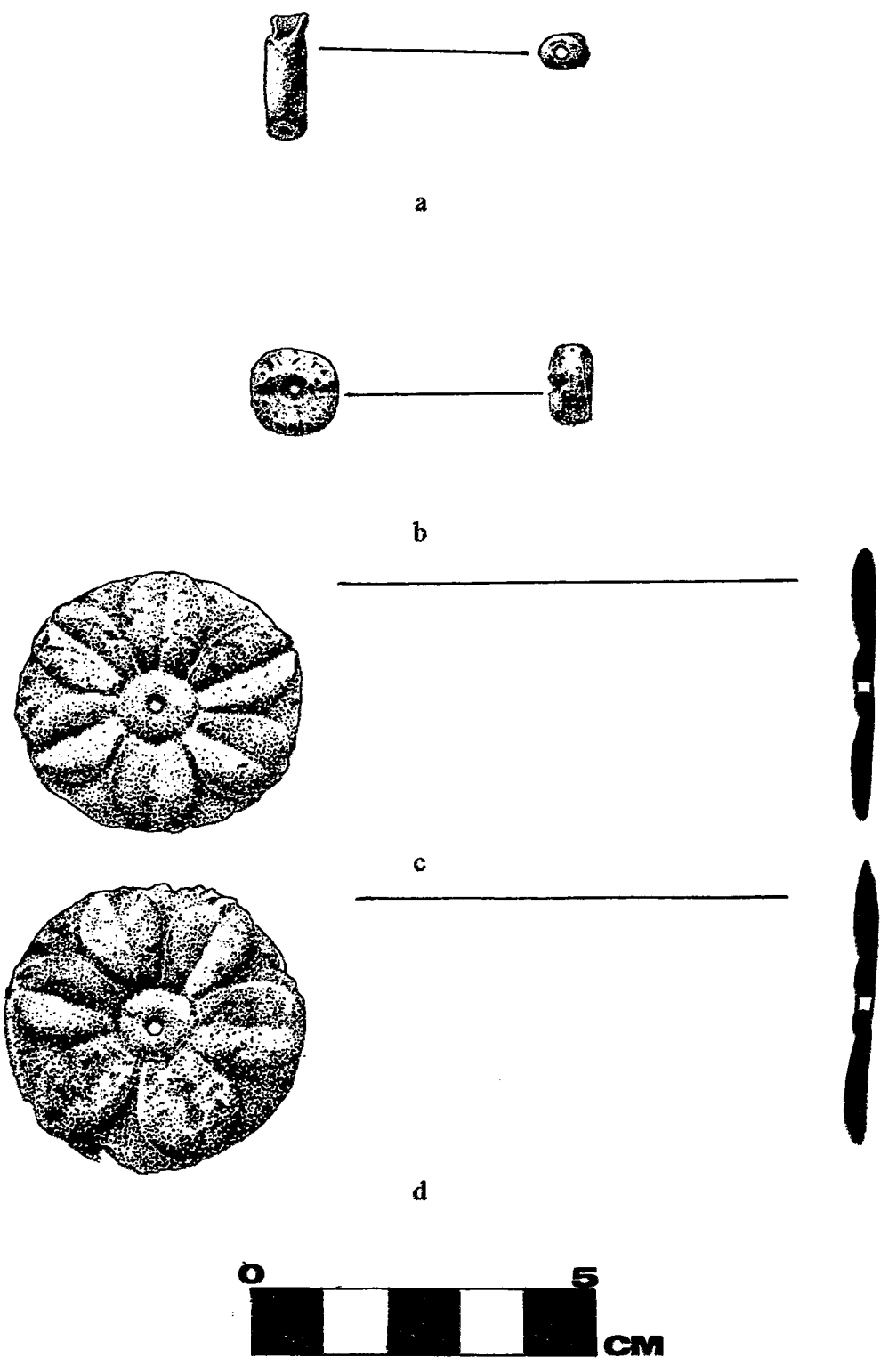
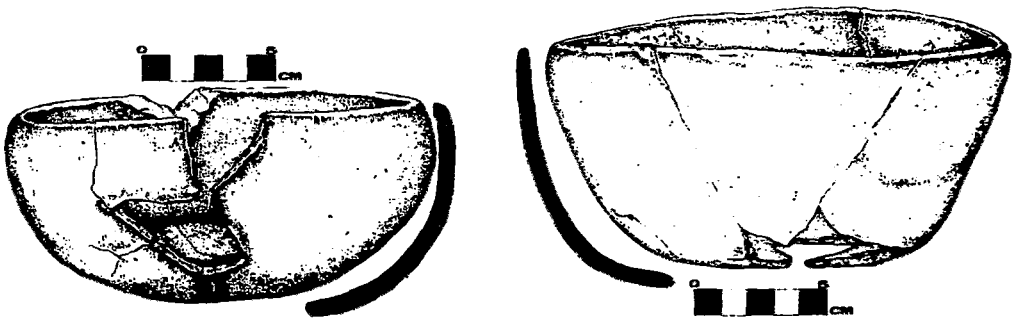


Figure 7. Artifacts from Burials A1-B/1 and A1-B/2: **(a) tubular jade bead from Burial** A1-B/1; (b) *Spondylus* **shell bead from Burial** A1-B/1; **(c and d)** *Spondylus* **shell rosettes from** Burial A1-B/2 (drawings by R. Dickau).

sized (6.4-25.6 cm) clasts. Level 2 is best interpreted as the ballast layer of the terminal plaza floor, Floor I. No evidence for a hidden structure was encountered during excavations (e.g. post-holes). This suggests that the open area tested through this unit was indeed an access point between the two plazas. Ceramics, lithic debitage, and freshwater shells were recovered during the excavation of these two levels. The medial section of an obsidian blade (# AP-SF/1), and a fragment of quartzite mano were also collected from these levels. Sherds from these levels were predominantly of the Spanish Lookout Cayo Ceramic Group, with the presence of moderate numbers of sherds from the contemporaneous Belize and Dolphin Head Red Ceramic Groups. This assemblage suggests a date of 700-750 A.D. for construction and initial occupation of the terminal *Ac* Plaza surface.

Level 3 was excavated within Unit Ap-1a, a 1x1 m sub-unit in the northeast corner of the larger AP-1 unit. The unit was downsized after it was clear that no hidden structure existed at this location, and excavations therefore began to stress plaza construction and temporal sequence. Level 3, a ca 32 cm floor Level (Floor II), was capped by a ca. 2.5 cm thick poor to moderately preserved plaster surface. Underlying this plaster deposit was a ca. 10 cm ballast level, comprised mainly of pebble sized (0.4-6.4 cm) clasts. Beneath the ballast level a ca. 20 cm core layer was present, mainly made up of cobble sized materials (6.4-25.6 cm) interspersed with moderate percentages of pebble sized clasts (0.4-6.4 cm). This level constitutes the penultimate plaza floor. Artifact recovered from this level included freshwater and marine shell, ceramics, and lithic debitage. Ceramics were predominately of the Late Formative Barton Creek phase. Representatives of the Sierra, Paila, and Polvero Ceramic Groups were recovered in large numbers. Members of the Savana and Jocote Ceramic Groups, Middle Formative types, were also present in moderate quantities. A date of 275-150 B.C. is therefore postulated for Floor II construction. This time range is suggested by the total absence of ceramics dating to the following Mount Hope and Floral Park phases, and the 350-275 B.C. date proposed for the stratigraphically preceding Floor III (see below).

Level 4, the final cultural level recognized in Unit AP-1a, consisted of a ca. 70-80 cm floor deposit (Floor III), underlain by a ca. 10-20 cm layer of finer sediments. The Floor III surface was almost completely decomposed, no plaster being present. The upper portion of the presumed floor was composed of a 10-20 cm ballast layer. This lay over a 50-60 cm core deposit. These subfloor deposits were loosely consolidated. The ballast was made up mainly of pebble sized (0.4-6.4 cm) clasts, whereas the core layer was predominately cobble sized (6.4-25.6 cm) materials. Mixed within these deposits were fine, light coloured sediments. The finer sediments underlying the core deposit possibly represent a palaeosol. At ca. 145-155 cm Below Unit Datum hard limestone bedrock was reached. Ceramic sherds, lithic debitage, and



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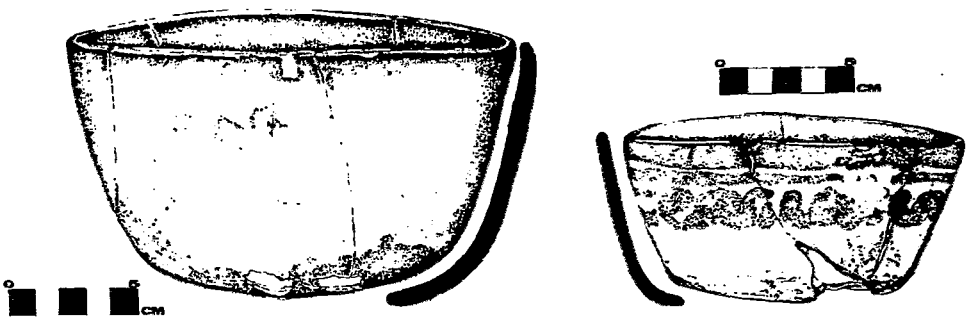

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Figure 8. Vessels from Burial A1-B/2: (a) Dolphin Head Red: Dolphin Head Variety; (b) Dolphin Head Red: Dolphin Head Variety; (c) Dolphin Head Red: Dolphin Head Variety; (d) Saxche Orange-Polychrome: Variety Unspecified (drawings by R. Holder).

freshwater shells were present in large quantities, particularly in the upper levels of the deposit. The distal section of an obsidian blade (# AP-SF/2), a snapped obsidian blade (# AP-SF/3), a figurine leg (# Ap-SF/4), and a figurine hand (# AP-SF/5) were also from the Floor III deposit. Ceramics from this floor level were mainly types dating to the Late Preclassic Barton Creek phase. These types included large percentages from the Sierra and Polvero Ceramic Groups, and moderate numbers from the Paila Ceramic Group. Middle Formative Ceramic Groups were also represented, but only in small quantities. Given the limited presence of Middle Formative sherds, the postulated date for the preceding Floor II deposit, and the need to fit Floor III within the remainder of the Barton Creek or very late Jenney Creek phase, a date of roughly 350-275 B.C. must be suggested for the construction of this living surface.

Unit A3-1. This 2x2 m test unit was placed on the summit of structure A3 near the end of the 1992 field season (see Figure 1). Its purposes were to expose the terminal architecture in order to; (1) assess what type of superstructure had existed on the summit of A3, and (2) aid in recognition of the primary axis. This latter information would in turn facilitate the placement of an axially aligned trench scheduled to be dug during the 1993 season.

Level 1 consisted mainly of humus materials. Both pebble (0.4-6.4 cm) and cobble sized (6.4-25.6 cm) clasts were present in this deposit, as were numerous roots and rootlets. Boulder sized (> 25.6 cm) cutstones and fragments of decomposed plaster were prominent in the northern portion of the unit. The test excavations suggested that A3 supported a small room with a low, three or four course masonry wall. The upper portion of the terminal stairs and a probable platform were also exposed. Future excavations will refine these preliminary observations. Ceramic sherds and lithic debitage were recovered in small numbers. The ceramics have not been analyzed as yet, something which will be done when full scale excavations begin on the structure.

Excavations in Plaza B or Bac-ha

Plaza B or *Bac-ha* (white crane), the northern group of mounds in the site core (see Figure 1), consists of an unvaulted range-type structure on the west (B8), a low-lying mound on the north (B7), and a special purpose building on the east (B6). The *Bac-ha* plaza is substantially lower in elevation than the *Ac* plaza, its courtyard being over 2.25 m below its counterpart in *Ac*. Entry into the *Bac-ha* plaza was achieved via what appears to be a small staircase in the northeast corner of the courtyard. This limited access into the *Bac-ha* plaza further restricted entrance into the *Ac* plaza, which was gained by way of a central staircase located at the boundary of the two courtyards. Four units were opened in the *Bac-ha* plaza during the 1992 field season (see Figure 1). Two of these, Units B6-1 and B6-2, were located within structure B6. They

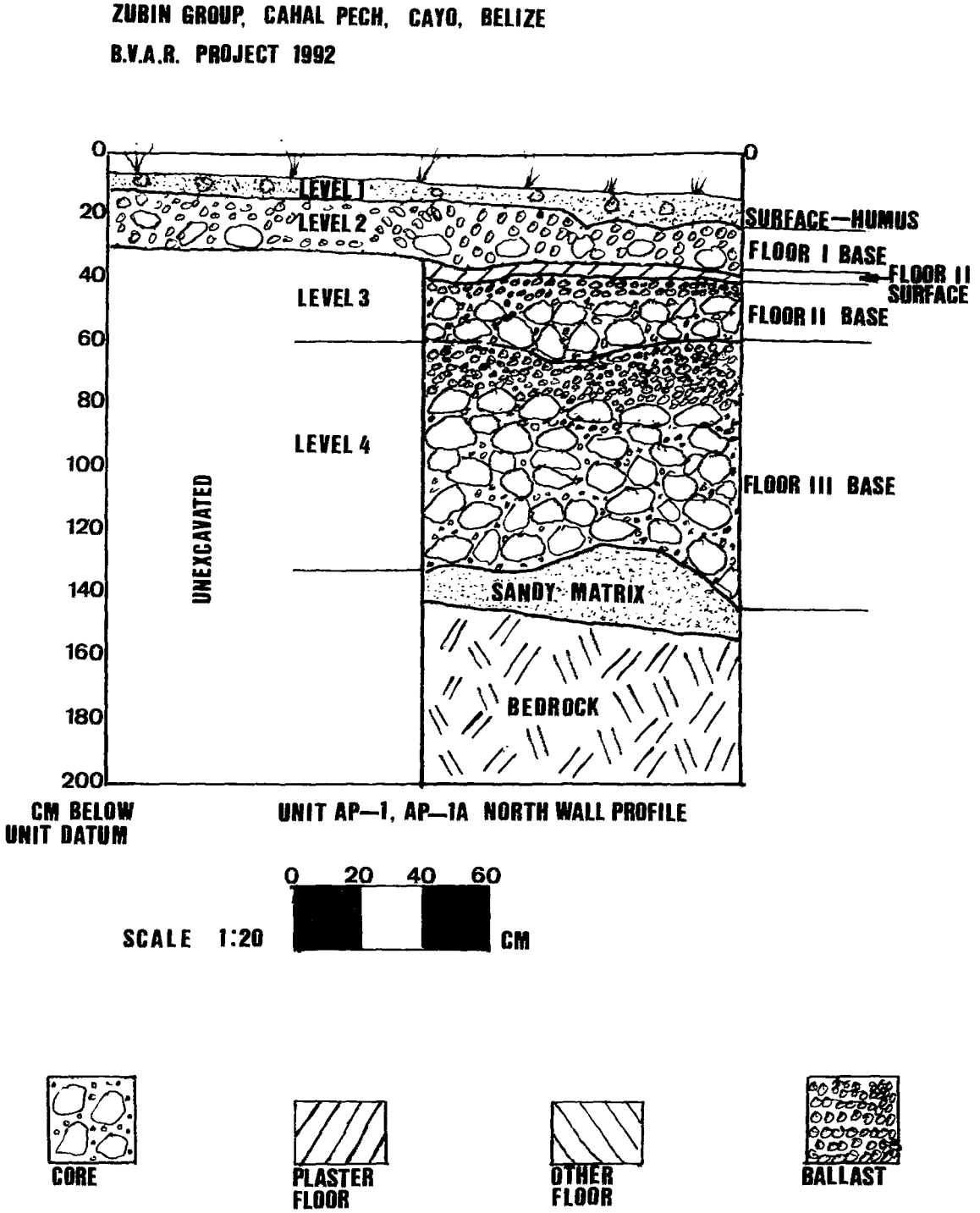

Figure 9. Profile of the north wall of Unit AP-1/AP-1a.

exposed sections of the terminal architecture. There are plans to horizontally strip this entire structure prior to excavating a trench down to bedrock. Similar plans are scheduled for structure B8, where one unit was opened (Unit B8-1) in 1992 in order to expose the terminal architecture. When the horizontal stripping and slash trenching are completed the results of these excavations will be reported in full. The final unit opened in the Bac-ha plaza during 1992, Unit A2-1, was fully excavated. The results of this excavation are detailed below.

Unit A2-1. Unit A2-1, a 2x2 m excavation, was placed at the junction of the Ac and Bac-ha plazas (see Figures 1 and 10). The purpose of this unit was twofold. First, it was to provide data pertaining to the method and temporal sequence of Bac-ha plaza construction. Second, it was placed in a location were it was thought that the western section of the stairway between the two plazas might be exposed.

Level 1 consisted of a surface/humus layer which included some fall materials. This deposit was loose to moderately compact, and contained mainly pebble (0.4-6.4 cm) and cobble sized (6.4-25.6 cm) sedimentary clasts, along with a number of boulder sized (> 25.6 cm) cutstones (fall materials). Roots and rootlets were prevalent. The thickness of the deposit ranged from ca. 2-40 cm. Ceramics and lithics were abundant. A fragment of granite metate and a mano, along with the proximal section of an obsidian blade (# A2-SF/1) were recovered from this level. The ceramics from this stratum were predominantly from the Spanish Lookout phase. The majority of these were types representative of the Dolphin Head, Mount Maloney, Belize, and Cayo Ceramic Groups. Given the presence of the early facet Spanish Lookout Dolphin Head sherds, and the late facet Spanish Lookout Mount Maloney sherds, a date of roughly 750-800 A.D. is suggested for this deposit. A post-750 A.D. date for occupation is therefore implied.

Level 2 included both a substantial fall deposit and a poorly preserved stairside (see Figure 10), the latter representing the western end of the terminal access stair joining the Ac and Bac-ha plazas . This level varied in thickness from ca. 8-74 cm, depending on location in the unit. The fall deposit, mainly present in the western portion of the unit, was predominantly comprised of boulder sized cutstones (> 25.6 cm) interspersed with moderate percentages of cobble (6.4-25.6 cm) and pebble (0.4-6.4 cm) sized clasts. The poorly preserved stairside, situated near the eastern boundary of the unit (see Figure 11), consisted of a series of stacked, boulder sized (> 25.6 cm) cut stones. This stairside was five courses high in the south, were it abutted a retaining wall, the latter not having been not fully exposed by the excavations. From this point the stairs sloped downward toward the plaza floor to the north. The stair face was underlain by backing masonry which included mainly cobble (0.4-6.4 cm) and pebble (0.4-6.4 cm) sized clasts, interspersed with finer sediments. An

apparent dedicatory cache (Feature A2-F/1), lying directly upon the sustaining surface beneath the stairs (Floor I), was discovered upon removal of the stair face and backing masonry (see Figure 10). Feature A2-F/1 contained a number of broken ceramic sherds and three "general utility bifaces" (see Figure 12). Few ceramics or lithics were recovered from the remainder of the level. Ceramics from the dedicatory cache date stair construction to ca. 750-800 A.D., given the abundance of Spanish Lookout types of the Cayo Ceramic Group, and a few sherds representing the Mount Maloney, Dolphin Head Red, and Meditation Ceramic Groups. This date is reaffirmed by the ceramics from Level 2 as a whole, which consist mainly of types from the Spanish Lookout phase Cayo, Belize, Dolphin Head, and Mount Maloney Ceramic Groups.

Level 3 constituted the terminal Bac-ha plaza floor. This floor (Floor I) served not only as the terminal plaza floor, but also as the sustaining surface for the stairs described above. Floor I, a ca. 35-40 cm construction level, included a ca. 8-10 cm plaster surface, underlain by a ca. 10-15 cm ballast layer, and a ca. 15-20 cm core deposit. The Floor I plaster surface was poorly preserved except for in the southeast corner, where it had been partially protected by the stairside. The ballast layer consisted mainly of pebble sized (0.4-6.4 cm) clasts interspersed with fine grey-brown sediments. Cobble sized (6.4-25.6 cm) materials dominated the core deposit, although moderate percentages of pebble sized (0.4-6.4 cm) clasts were also present. Ceramics, freshwater shell, and lithic debitage were recovered in moderate to high percentages. A chert "general utility biface" was also recovered from this level. Ceramics were predominantly from the Spanish Lookout phase. Dominant types included those of the Belize, Dolphin Head, and Mount Maloney Ceramic Groups, indicating that a date of 750-800 A.D. is likely for Floor I construction.

Level 4, the penultimate and final construction level recovered during excavations in Unit A2-1, was a well preserved plaster floor (Floor II). This floor was ca. 15-20 cm thick in total. The well preserved plaster surface was ca. 10-12 cm thick. Underlying this cap was a ca. 6-8 cm ballast layer, composed mainly of pebble sized (0.4-6.4 cm) clasts and finer sediments. A few cutstone boulders (> 25.6 cm), representing a fall deposit, were exposed in the south-central portion of the unit. These lay slightly above the actual floor surface, indicating that they were deposited after the termination of Floor II use. A one course perimeter wall was also encountered (see Figure 13). This wall, comprised of boulder sized (> 25.6 cm) cutstones, ran roughly east-west. It was situated approximately in the center of the unit. The stones making up this wall lay directly on the Floor II surface, indicating that they were in use during the Floor II occupation. Beneath the Floor II ballast layer, at ca. 145-150 cm Below Unit Datum, moderate to hard limestone bedrock was discovered. Finds from this floor level included ceramics, lithics, and freshwater shell. A Late Formative date of 300-200

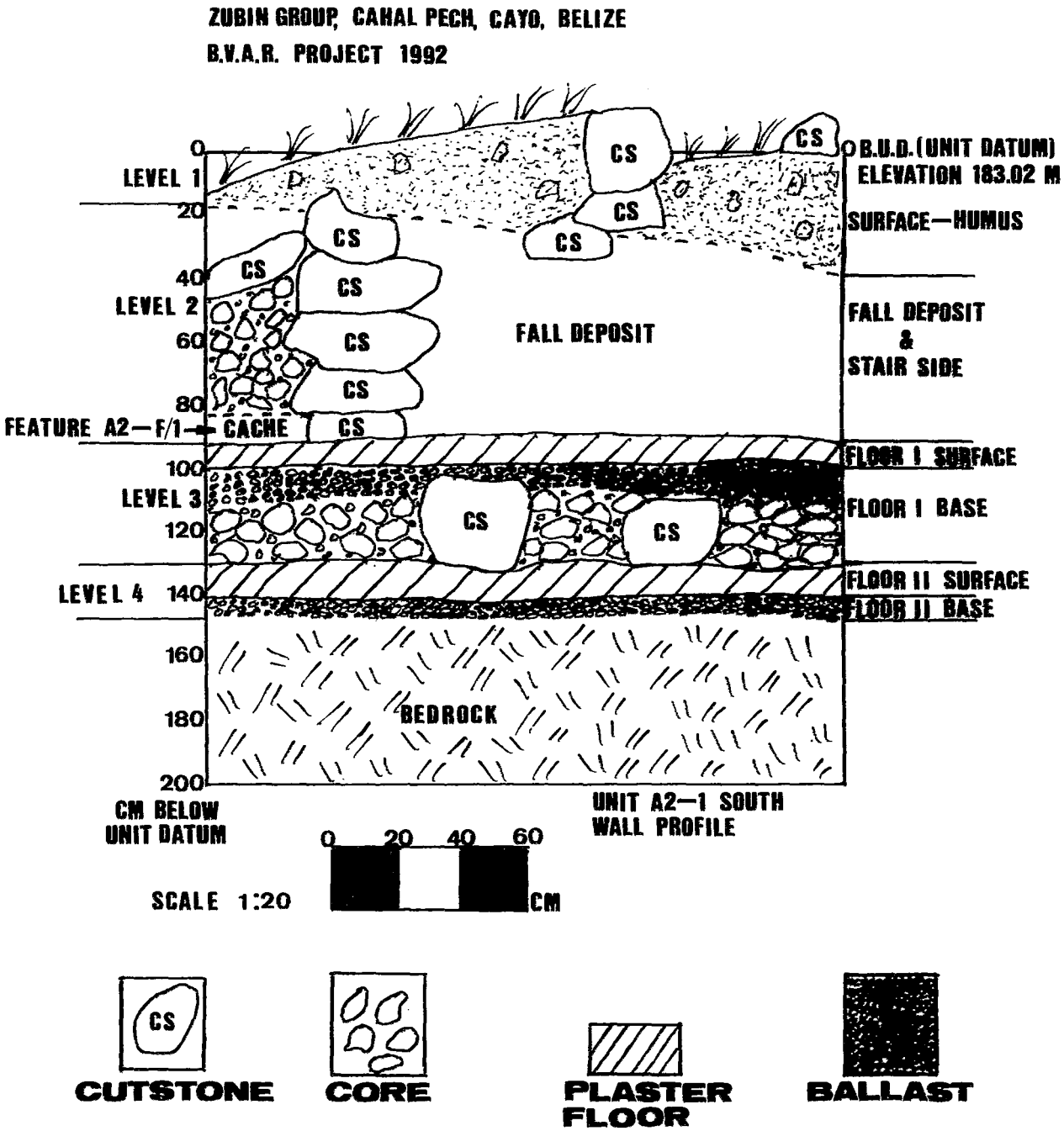

Figure 10. Profile of the south wall of Unit A2-1.

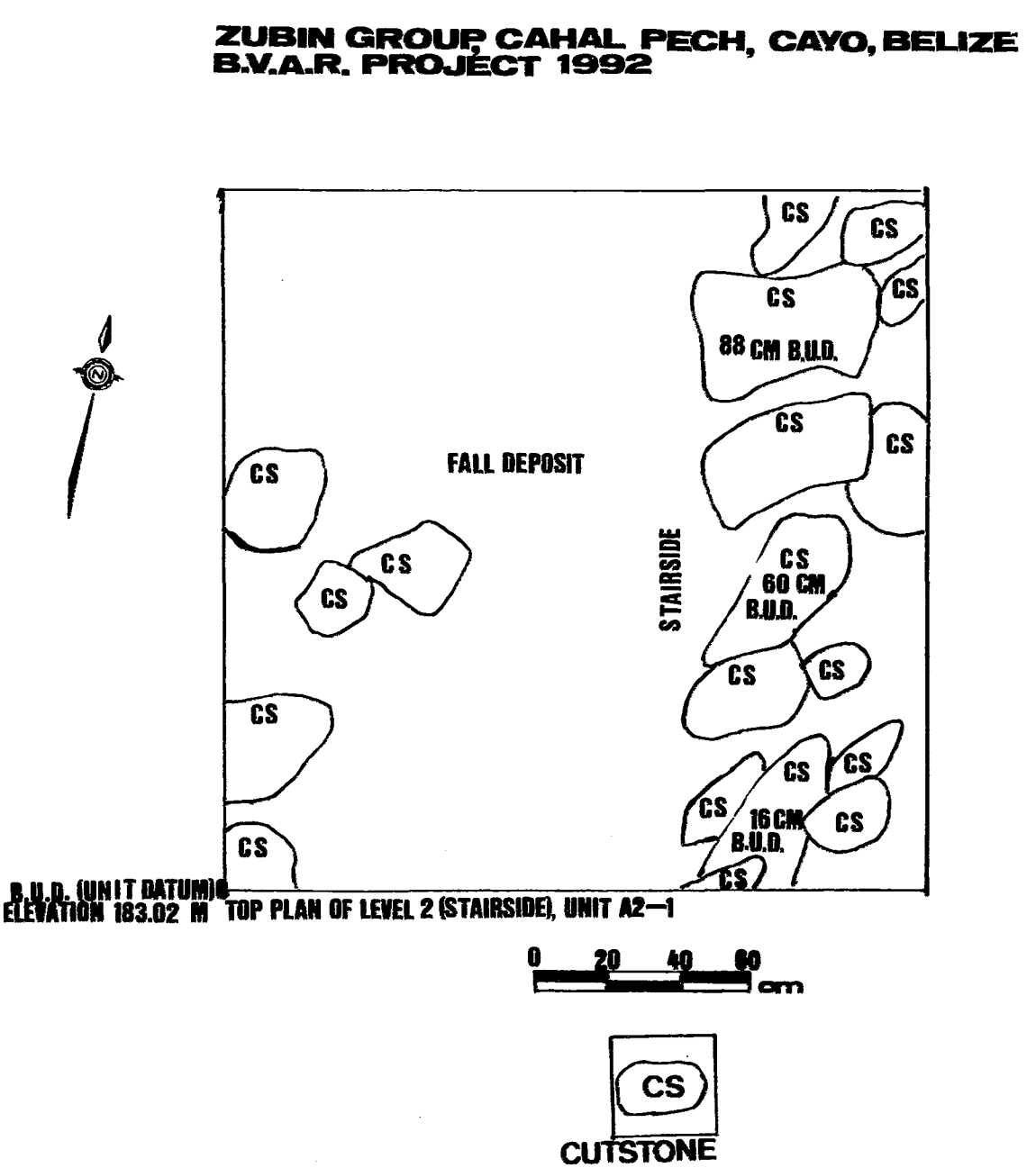

Figure 11. Top plan of level 2, Unit A2-1 (note stairside to the east).

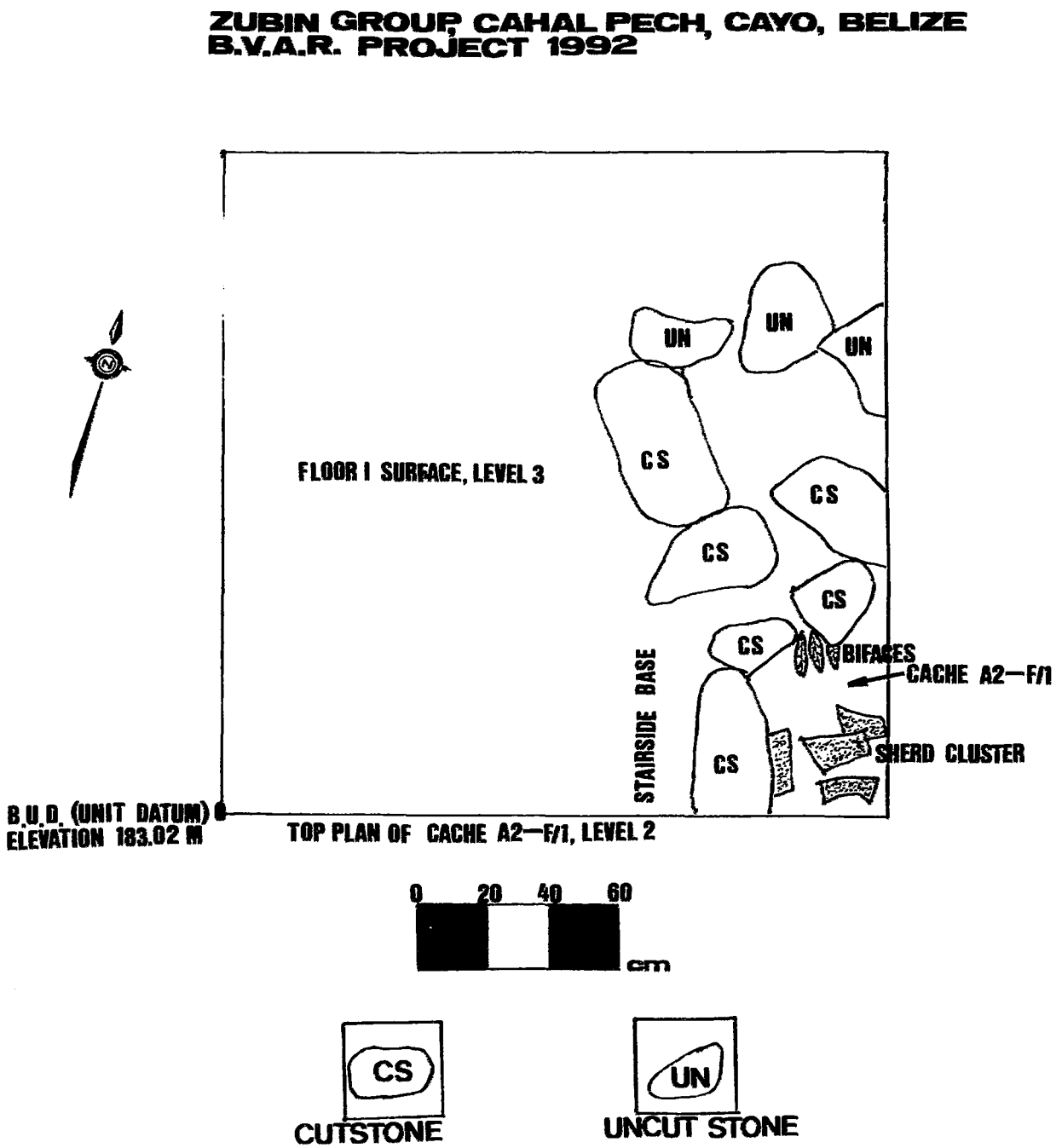

Figure 12. Top plan of cache A2-F/1, Level 2 (Floor I), Unit A2-1.

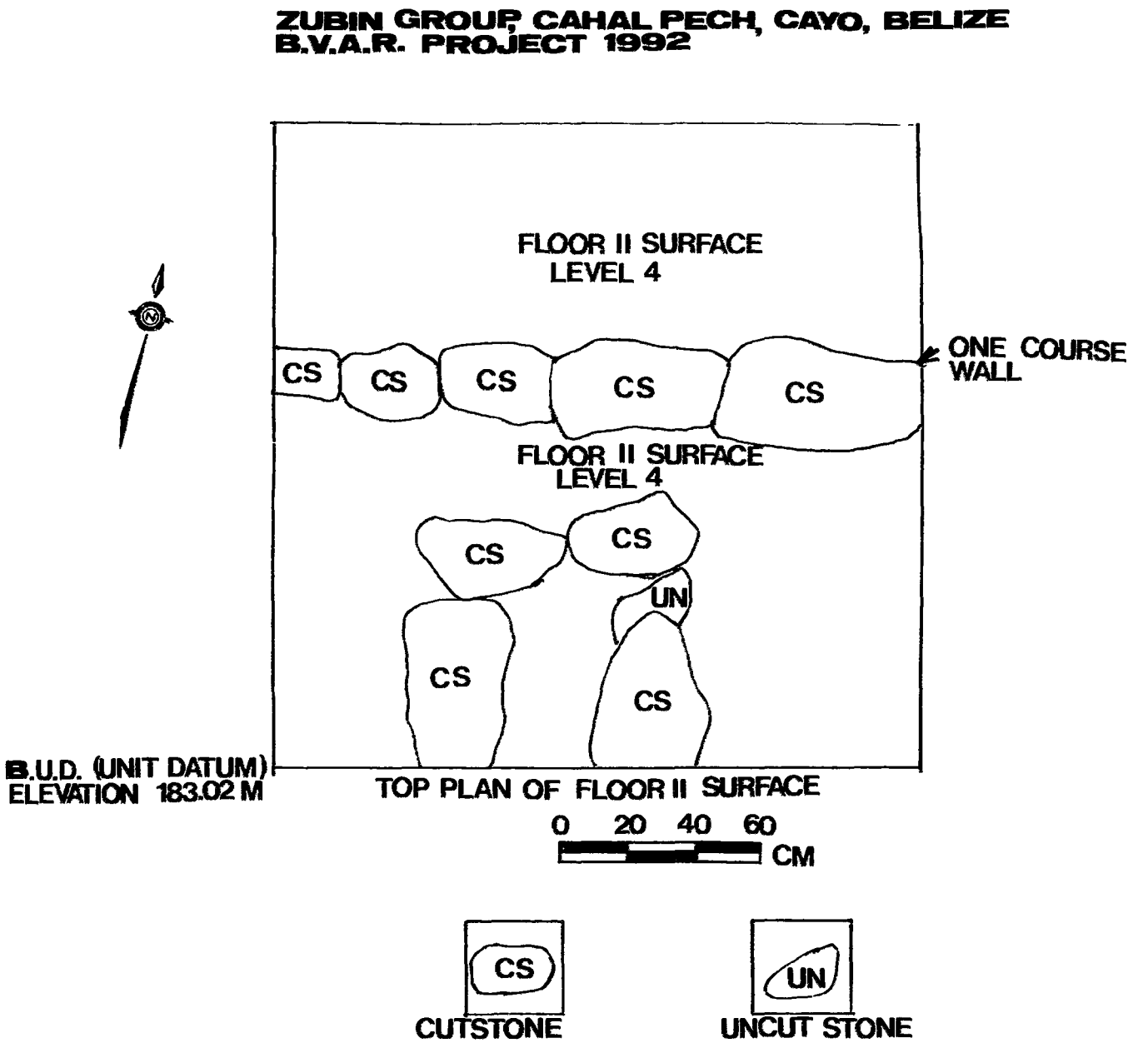

Figure 13. Top plan of level 4 (Floor II), Unit A2-1.

B.C. is suggested for the construction of this floor level, given the dominance of types representing the Sierra (Barton Creek phase) and Sayab (Jenney Creek) Ceramics Groups. The presence of a few Floral Park phase sherds, including types of the Aguacate and Chan Pond Ceramic Groups, suggest occupation of this surface during the Protoclassic time period.

Plaza C or Cutz

Plaza C or Cutz (ocellated turkey), located to the south of the Ac plaza (see Figure 1), consists of a single pyramidal structure (Str. C9). It appears to sit on a raised courtyard which abuts the Ac plaza, although the Cutz plaza is well over a meter lower. No other structures are readily apparent in the vicinity of the lone pyramidal mound. However, it is possible that hidden structures are present. This will be tested in the future. To date no excavations have been undertaken in the Cutz plaza, although they are scheduled for the upcoming field seasons.

Investigations in the Zubin Periphery

A limited program of excavations was implemented in the Zubin periphery during the 1992 season (see Figure 1). Test excavations in Group D or Danta (Tapir), located 50 m to the east of the Zubin site core, are outlined by Sunahara (this volume). Further peripheral excavations were also undertaken in Group F or *Familia* (Family), situated roughly 200 m to the south of the central Zubin Group, and Group G or *Gallo* (Rooster), at the base of the limestone ridge, approximately 750 m to the south of the Zubin proper. The results of these tests will be discussed in future reports. Finally, one reservoir, adjacent to the Familia Group, was also examined (Operation 100 - see Aylesworth, this volume).

CONCLUSIONS

The 1992 field season at Zubin provided us with data pertaining to the types of architecture present at the site, the temporal sequence of site growth, the artifact types existent at the site, and evidence for some of the ritual activities which were undertaken by the Zubin residents. Information was also obtained regarding the density and type of settlement surrounding this minor center. Taken as a whole, such data provides a solid foundation for the planning of future excavations. Forthcoming excavations will obviously flesh out this preliminary data base. This will inevitably permit us to address the question of social relations as they existed between Zubin, the surrounding domestic population, and the larger center of Cahal Pech.

Aknowledgements.

Deepest thanks go out to our leaders and compadres, Dr. Jaime Awe and Jim Conlon, for giving us the opportunity to work at Zubin. Our sincere thanks also goes out to the Boiton family, particularly Alfredo, for not only giving us permission to work at the site, but also for the friendship and knowledge they supplied us with during our excavations. We would also like to thank the local workers who laboured away alongside us. Particularly, we would like to single out the efforts of Jose and Efrain Martinez, and Dave Valencio. They are commended not only for their work at the site, but also for their continued friendship. Our sincere gratitude also goes out to the numerous fieldschool students and volunteers that worked both on the site and in the lab. Finally, cheers to an excellent fieldcrew. Grant Aylesworth, Laura Ludeviks, and Kay Sunahara proved to be excellent members of the Zubin team.

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A Preliminary Report of Excavations at Plaza B, Zubin, Belize

J. Garwood Hodgson

Introduction

Following the B.V.A.R. five year tradition of peripheral settlement investigations at Cahal Pech (cf. Awe 1992), excavations were initiated during the 1992 field season at the Zubin Group (Also see report by Gyles Iannone, elsewhere in this volume). The reasons for the investigations at Plaza B, Zubin (see Fig. 1 in Iannone this volume) are perhaps best defined under the premise that excavations at peripheral groups will provide data on spatial, temporal, and social relationships within these groups, between these groups, and within larger societal elements. It is the author's belief that a better basic understanding of Maya society at micro levels; individual structures, plazuelas, plazas, peripheral groups and the smaller ceremonial centers, will provide the data vital for the development, analysis, and refinement of solid, accurate structural models which are necessary for any correct interpretation of larger Maya social systems.

Description of Zubin, Plaza B

Plaza B is located immediately adjacent and to the north of Plaza A. Plaza B consists of an artificially levelled, plastered area situated approximately one meter lower in elevation than Plaza A. Dimensions of Plaza B are an estimated twenty-five meters in length east-west, and ten meters wide north-south. Access to Plaza B from the north, east, and west appears to have been purposefully restricted by steep vertical grades and structural walls. This observation suggests a primary access from the south, by means of a stair or ramp descending from Plaza A. Associated with Plaza B are three structures: B-6, B-7, and B-8. Structures B-7 and B-8 are small elongated platforms placed at right angles to one another. Structure B-6 consists of a smaller and less rectangular platform. These platforms are constructed in typical Maya fashion with an interior structural matrix of dirt and stone fill with external retaining walls consisting of several courses of fitted and faced stones. The platforms are of the type often attributed as being the base or foundation for wooden upper structures.

Objectives and Methodology

Initial objectives of the first season of excavations at Plaza B were to establish a chronology of site occupation and to infer site function through the analysis of recovered artifacts[1]. The excavation strategy was developed with the hypothesis that, with the consideration of traditional Maya practices of superpositioning in architecture, Plaza A, due to its greater size, should be

considered to predate Plaza B. Excavation units were placed in areas which were determined likely to provide data on Plaza B's temporal and functional affiliations Initially, three 2 X 2 meter units (B-6-1, A-2-1, and B-8-1) were excavated. Later in the field season, with the realization that time would allow for further investigations, an additional unit, B-6-2 (1 x 3 m) was excavated. In addition to these excavations, surface collections from greater Zubin and the immediate area surrounding the site were conducted during the investigations, providing supplementary data for chronological and functional analysis.

Plaza B Units

Structure B-6, Unit One (D-9, D-10)

This unit, B-6-1, was situated at the approximate center of Structure B-6. It was placed to determine the structure's architecture and possible usage. Excavation revealed a grid pattern of low lying walls consisting of several interconnected courses of stone. The majority of stones in these walls were cut to a perfect fit and were also finished or faced on both sides. The walls extended across the northern half of the unit and continued into the eastern, western, and northern limits of excavation. They appeared to be similar in construction to interior dividing walls but seemed too small in enclosure area and too low in height to have served in this capacity. The possibility exists that these grid patterned walls may have acted as a type of anti-shifting construction pen, inhibiting a structure's uneven settling or shifting after prolonged exposure to hillside erosion and direct heavy rain. By acting as a brace, walls also allow for extensive usage of lighter and more easily procured constructional fills such as dirt and small stones thereby conserving scarcer and more labour-intensive building materials. Due to time constraints, rather than continuing excavations and removing these features excavations at B-6-1 ceased pending the 1993 field season.

Structure B-6, Unit Two (D-11, D-12)

In hope of a greater understanding of Structure B-6, another unit was opened to the west of B-6-1. Areas within the placement of this new unit included sections of plaza floor and Structure B-6. The strategy involved excavating into the unknown architecture of B-6 from the known level area of Plaza B. As is often the case within archaeology, strategies designed for producing answers recurrently serve to produce more questions.

B-6-2 excavations exposed more walls running at different or perpendicular angles to the walls observed in Unit B-6-1. With the observation of a continuance of the complicated architecture observed in B-6-1, unit investigations were ceased until larger horizontal excavations can be conducted in the future.

Structure A-2, Unit One (D-13, D-14)

As noted above, observations of the possible means of access to Plaza B suggested a stairway or ramp descending into Plaza B from Plaza A. Unit A-2-1 was placed at the approximate center of the sloping grade separating Plaza B from Plaza A with the hope of detecting such an access point. Excavations at this point gave no indication of access by means of stair or ramp but rather revealed a vertical wall inhibiting access. If primary access is still from the south and Plaza A, it is possible that this access was provided by a stairway or ramp at the east and west extremities of the vertical wall exposed at unit A-2-1. During excavation, three plaza floors were exposed. These floor layers were observed to have different plastered layers at close proximity to one another. This suggests a repairing or replastering of plaza surfaces rather than an expansion of plaza size or height by constructions. This may indicate the desire to only expand outward from the Plaza B area with a conscientious effort to maintain the maximum interior space possible within the plaza, and to maintain the difference between the levels of Plazas A and B.

In addition to these observations, it is of special note that excavations at A-2-1 uncovered a votive cache. This cache contained three different chalcedonic bifacial tools; a 14.6 cm long lenticular (laurel-leaf) blade, an adze 13.5 cm in length, and a 12.7 cm long scraper. The lithic material of these artifacts, when compared to samples of other lithics recovered, is notably higher in quality. The scraper displayed slight fragmentation at its proximal apex. This fragmentation is the only visible indication for any utilization of these tools. Examination of this fragmentation and consideration of its proximal location suggests that the fracture of the apex did not occur during primary utilization (scraping) but rather during the finishing production of the tool or after finishing by other, non-primary utilization processes. The lenticular blade and the adze show no visible indications of wear patterns. These factors would seem to suggest the possibility of tool production specifically for deposit into a cache context. In observance of the artifacts contexts, it could be suggested that these implements are better placed under the category of ritualistic items rather then utilitarian implements. Tristram Kidder {1985:108} mentions that " ...the so called ' Laurel-leaf bifaces... [are, in fact] ...artifacts of a ceremonial nature...". Indeed all of these items could themselves, perhaps, be classified as ceremonial, in the sense that they have seemingly transcended their utilitarian form and usage to become symbols involving something abstract, with identities partially out of secular and practical spheres.

The three bifaces, in cache context, were encountered in a fan type array with proximal ends facing north, away from the retaining wall. This array corresponds with Coe's {1959:78} observations of caches at Piedras Negras. Further examination of Coe's regional cache inventory suggests that the cache contents found at Plaza B

are atypical to his samples. There is no mention of a similar cache with respect to components. The caches which Coe lists seem to have consisted mainly of zoomorphic eccentrics, whole or fragmented pottery vessels, lithic flakes, parts of human bodies, or small luxury items rather then the biface tools excavated at Plaza B.

Structure B-8, Unit One (D-15, D-16)

As mentioned above, Plaza B was hypothesized to postdate Plaza A. To test this, Unit B-8-1 was placed at what was thought to be the point of intersection for Structures A-2 and B-8. The goal of the excavation was to obtain evidence for ascertaining whether Structure A-2 predated Structure B-8. Although the 1992 excavations exposed two distinct phases of construction on Structure B-8 the intersecting point of Structure A-2 and Structure B-8 was not exposed. The two phases of construction noted at Structure B-8 were intriguing. One large wall was located 5 m east of another, but lower wall. These walls consisted of courses of finely cut and fitted stones which were only faced externally towards the Plaza. From this it can be assumed that the interior wall at one time served as an exterior wall for an earlier structure. It is interesting to note that while the Maya left the interior wall intact at the level just below the new construction, the levels of the older wall which would be above the new construction seem to have been removed. Rather then reusing all of the already cut and faced stones available for building, the lower levels of the older wall seem to have been retained for a purpose. The author hypothesizes that, like the constructed low grid pattern walls at Structure B-6-1, the deliberate retention of this older substructure may suggest a construction technique designed to stabilize structures and conserve building materials.

Artifacts

Lithics

Aside from the contents of the cache discussed above, the majority of the lithic collection excavated from Plaza B displays an expected range of common implement variances as found at comparable settlement clusters at Cahal Pech (i.e. the Tolok and Tzinik Groups).

The entire inventory of lithics recovered during the 1992 excavation is listed at the end of this paper. This list provides a quick overview of sample types and quantities recovered from the unit excavations. It will be noted that high levels of tool production associated debitage were recovered and identified. The presence of chalcedonic nodules, preforms, thinning flakes (preforms and thinning flakes are listed collectively under (" Flakes and Angulars "), cores, and hammerstones, suggest local, on site production of chert implements. In addition to these tool production-associated artifacts, several other important and functionally identifiable implements were recovered. Identification

of granite mano and metate fragments not only support hypotheses concerning the nearby cultivation of maize and local preparation of food, but also may indicate a localized trade network structured to provide " exotic " materials2 for utilization as finished implements or as rough blanks for on site tool production. The suggestion of on site finishing of blanks is problematic in that, from the perspective of the "trader" or provider, finished form manos and metates would not only be lighter and easier to transport, but would also be postulated as to having a higher exchange value in a ready to use form. These considerations could suggest that, from an energy expenditure and economic stance, implements of this type were likely to have been traded from the resource procurement zone to the utilization area in a finished form. Expanding upon this hypothesized local exchange, the presence of hafted (notched at proximal base) obsidian blades and the large quantities of volcanic ash tempered pottery suggest a far broader based trade network. The volcanic ash used to temper ceramics and the black obsidian found at Zubin may originated in the volcanic regions of highland Guatemala3 {Simmons and Brem 1979, Hodgson 1993). The observation that such "exotic" materials are found, not totally utilized nor recycled but in refuse and fill contexts throughout the Lowland regions during the Classic periods and, albeit to a lesser extent the periods of the Preclassic and Formative, suggests that the exchange of these items:

1) continued over long periods of time
2) involved relatively large quantities of materials.
3) and that access to these goods , (utilitarian materials and smaller " luxury items "), was not restricted to the large centers.

Level one, B-6-2, produced an interesting artifact in the form of a small spherical stone, approximately 5.9 cm in diameter, which had a groove incised along its circumference. Gordon Willey has suggested these artifacts may have served as net weights {1965:466}. If Willey's observations are accurate, we are provided with another indication of Maya food procurement techniques at this site. Nets may have been used on land and in water to obtain, by snaring or entangling, fish, reptiles, birds, or small animals as supplementary food.

The last lithic item of discussion was excavated from Level 1, B-8-1. This artifact appears to be a small section of cave floor or ceiling complete with numerous small stalagmites or stalactites. It is possible that this ecofact may have been obtained from the many limestone caverns in the foothills of the Maya Mountains to the south. This piece does not appear to have served any utilitarian function and could either represent an item with an unidentifiable religious significance or, perhaps, merely represent a souvenir of some ancient jaunt long forgotten. Regardless of interpretation, I feel that its presence as a regional " exotic " makes it worthy of this brief mention.

Ceramics

No overemphasis can be placed on the importance of ceramics in Maya archaeology. With this consideration in mind it is fitting to note that the majority of conclusions and hypotheses formed in the discussion section of this report derive directly or indirectly from the Plaza B ceramic sample. The statistical evidence provided from ceramic types, frequencies, and consistency give a solid basis for drawing several conclusions concerning diachronic development and status of sites. All classifications of Plaza B ceramics follow Gifford's type/variety system as developed from the Barton Ramie ceramic collection {Gifford, 1976}.

It must be noted that the analysis of the Plaza B ceramic sample is presently ongoing. There is, therefore, a lack of qualitative and quantitative data with regard to the excavated unslipped and striated sherds. Unfortunately, time restraints disallowed for a total inventory and classification of the hundreds of sherds from the two plazas at the end of the 1992 season. In lieu of this, we made a brief, although by no means conclusive, examination of these artifacts. This preliminary analysis indicates that the ceramic assemblage is, by a large majority, from groups within the Spanish Lookout, and to a lesser extent, the Tiger Run ceramic complexes (See end-Tables).

As indicated above, qualitative and quantitative results indicate a notable dominance of Spanish Lookout complex ceramics. Fully 81.5% of all ceramics recovered were placed within this category. Other ceramic complexes are present in much lower frequencies; Tiger Run at only 5.7%, Hermitage at 3.3%, Floral Park at 1.4%, Barton Creek at 5.4%, and Jenney Creek at 2.7% {Hodgson, 1992}.

Although future investigations will add considerably to the ceramic inventory from Zubin, it should be noted that the deviation range between 81.5 and the other percentages is significant. With this consideration, and also that the unrecorded sherds were observed to be largely from the Spanish Lookout or Tiger Run complexes, the assumption can be made that, with incorporation of future data, Classic period ceramics will retain their large quantitative dominance of presence as the overall percentages of occurrence increase for these complexes and decrease for the pre-Tiger Run complexes.

The tables below list a complete inventory of the ceramic groups and complexes identified in the collection recovered from Plaza B. Ceramics are listed by provenience, ceramic type (group), and complex (phase). Quantity recovered refers to the actual quantities of sherds recovered, ie: a value of 1 denotes 1 sherd recovered.

In addition to the sherds of ceramic vessels it should be noted that several other ceramic artifacts have been identified. A

fragment of a Preclassic anthromorphic figurine and a spindle whirl were both excavated from Structure B-8 (Fig. 1). The Preclassic figurine fragment, albeit not likely to be in primary context in structural fill at Plaza B, suggests the incorporation of regional behaviours by area populations. This, in addition to observations of the presence, regardless of artifactual context, of general Preclassic ceramic groups and style traditions, supports inferences that, like other areas of the Cahal Pech periphery, inhabitants of the Zubin area participated in a larger cultural sphere and were intricately a part of a relatively complex society dating back to the Preclassic period. Excavations at the site core, and at other settlement clusters in the periphery of Cahal Pech (D. Cheetham and T. Powis this volume), have recorded substantial evidence of Preclassic monumental architecture and occupation (Awe 1992). Like several of the peripheral settlements, the Preclassic population at Zubin, may therefore represent pioneering groups that probably fissioned from other sections of the site sometime during the Middle Formative period.

Discussion

As stated above, the initial objectives for the first season of excavations at Plaza B in the Zubin Group were to establish a chronology of site occupation and to begin to infer site function through the analysis of recovered artifacts. Although temporal isolation of ceramic complexes by strata has not been recorded at Plaza B, differences in ceramic complex frequencies and consistencies of these frequencies allows inferences to be made regarding the diachronic history and settlement activity at Plaza B. The three most important observations are that:

1) Post-Terminal Late Classic Period ceramics are not present in the structural fill at Plaza B.
2) Terminal and Late Classic ceramics are present in large quantities throughout the excavated strata.
3) Preclassic ceramics are present in low quantities throughout the excavated strata.

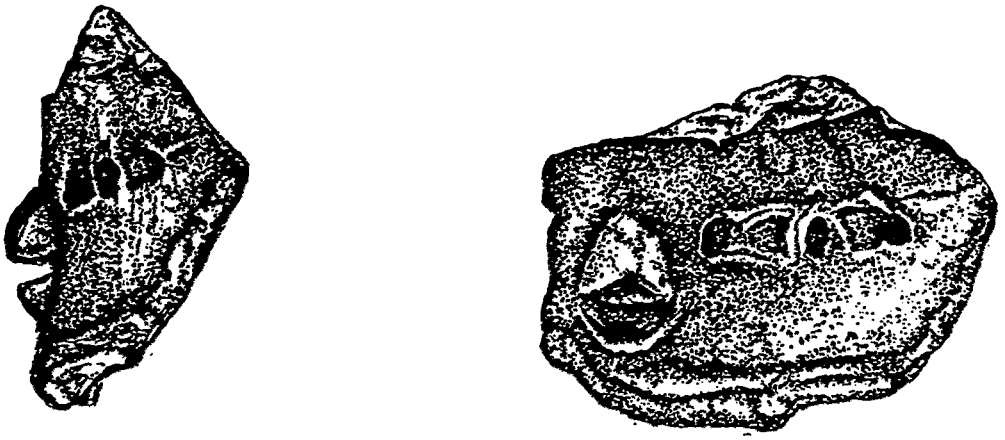
The inventory reveals that, ceramics of the Postclassic period New Town complex do not appear within the constructional fill at Plaza B. If Gifford's temporal division between Spanish Lookout and New Town is correct, then we would be able to infer directly from this that, the terminal constructions at Plaza B do not post-date the Terminal Late Classic period. This observation, though tentative, provides a fairly solid ceiling for chronological speculations with regard to terminal periods of construction and presumable subsequential human occupations at Plaza B.

The observation of the consistent presence of Terminal and Late Classic period ceramics throughout the strata of excavations at Plaza B, especially in structural fill of the penultimate architecture at B-8-1, provides indications of the earliest possible temporal periods for occupation and construction at Plaza

B. Again, if Gifford's chronological divisions between Classic and Preclassic ceramic complexes are accurate, then, the earliest possible period of the constructions, thus far excavated, would date to the Late Classic.

An observation of Preclassic ceramics within the inventory reveals a low quantity occurrence within strata and, when these ceramics do occur, they are always in close contextual association with ceramics from later periods. This suggests that these ceramics are in a secondary context, and their presence in structural fill is due to usage of nearby Preclassic platforms or refuse disposal areas for the procurement of building materials by Late Classic inhabitants of Zubin.

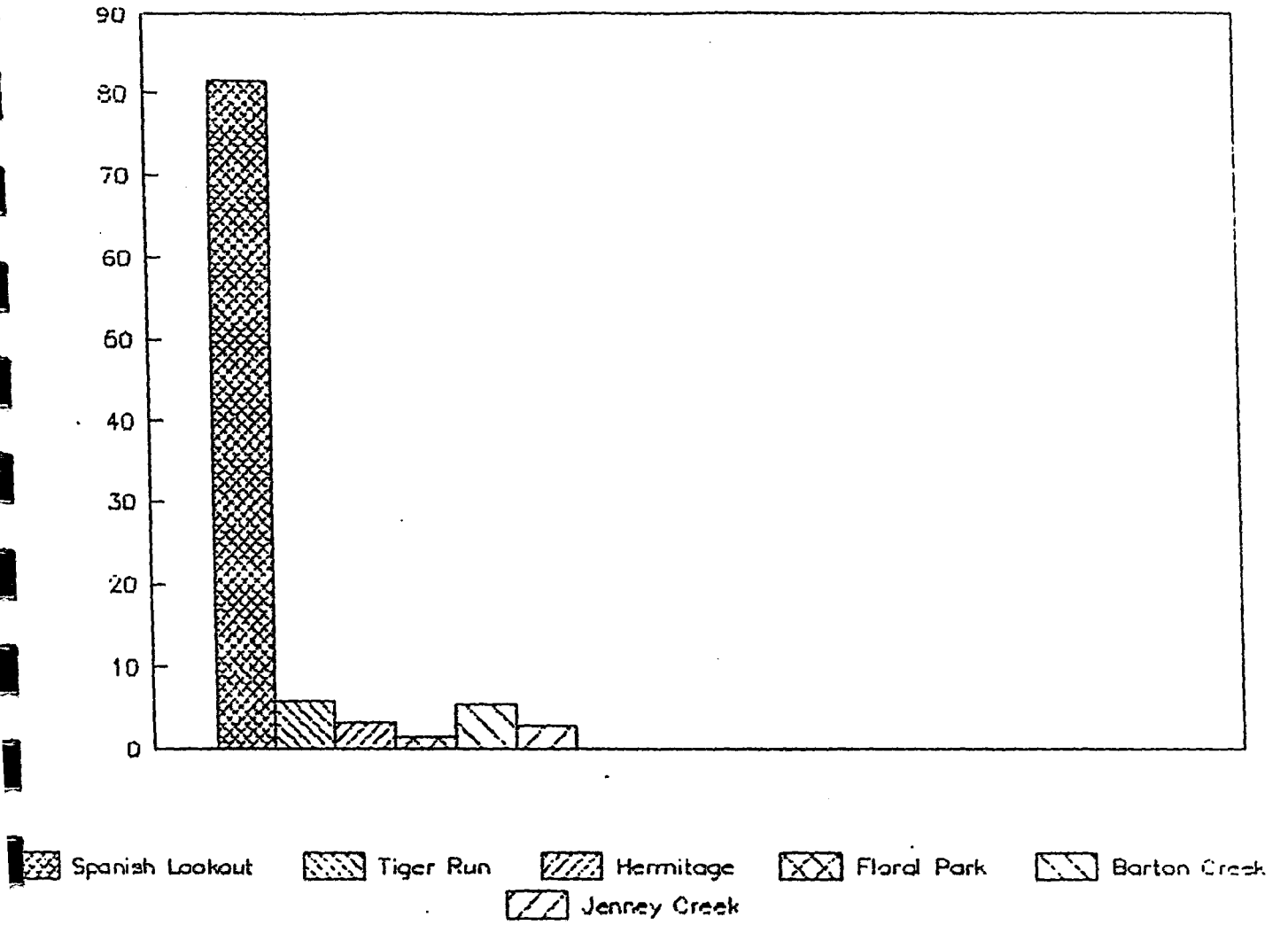
These three points lead to the conclusion that Plaza B was constructed, inhabited, and abandoned during the Late Classic period of Maya prehistory. The author further hypothesizes that, if distribution patterns of Preclassic settlement in the Zubin area evolved through time as Preclassic settlements recorded elsewhere at Cahal Pech (Awe 1992), Barton Ramie (Willey 1965:562) and Cuello (Hammond, 1991:126, 129), then a shift occurs from generally standard, small and spatially distanced platforms during the Middle Preclassic to the Late Classic's structured settlement zones displaying restricted access elite residencies and ceremonial areas, social status divisions in differential architecture and compound size, and a spatial separation of architectural constructions by social class or social function of inhabitants (cf. Awe, Campbell, and Conlon 1989). This may suggest that, over time, as class divisions were established and intensified, societal values and concepts of architecture and, most importantly, spaciality, changed. This may have redesigned the organization of Maya settlement patterns, increasing by multifold restrictive architecture and elite space areas. Space and levels of restrictive access to spaces may have become themselves representative of status. This may have caused the limited hilltop of the Zubin core to become a closed area, one in which only elite and elite-associated individuals were allowed to reside. If this occurred, and the typical patterns of settlement in the Preclassic were present at Zubin, the development of a nucleated elite compound at the Zubin core during the Classic period indicates that there was a major improvement in the status and wealth of the ruling lineage at Zubin, and that differences in architecture and spatial configuration at this peripheral settlement reflects a pattern similar to that observed at the site cores of larger centers (cf. Awe, Campbell and Conlon 1989).



Fragment of a Pre-Classic anthromorphic bottle, Savana Orange ceramic group, Middle Formitive. From Structure B-6, Tzubin, Belize.

Ceramic spindle whorl from Structure B-8, Tzubin, Belize.

Total Percentage of Sherds Recovered, by Phase, From Plaza B, Tzubin, Belize 1992



CERAMICS INVENTORY BY STRUCTURE, UNIT AND LEVEL.

Structure B-6, Unit 1 (2x2 M.).

Level one.

Ceramic type	Phase	Quantity recovered
Platon Punctated Incised	Spanish Lookout	1
Mount Maloney Black	" " "	4
Belize Red	" " "	9
Dolphin Head Red	" " "	7
Cayo Unslipped	" " "	30+
Alexanders Unslipped	" " "	40+
Mountain Pine Red	Tiger Run	1

Level 2

Yalbec Smudge Brown	Spanish Lookout	1
Dolphin Head Red	" " "	6
Belize Red	" " "	4
Mount Maloney Black	" " "	6
Alexanders Unslipped	" " "	*
Cayo Unslipped	" " "	*
Savana Orange	Jenney Creek	1

* Denotes data of quantity not available. All Unslipped wares were present in very large numbers. These were not totally processed in the lab but will be examined and counted during the 1993 field season.

Ceramics Inventory continued.

Structure B-6, Unit 2, (1x3)

Level 1.

Ceramic type	Phase	Quantity Recovered
Mount Maloney Black	Spanish Lookout	3
Garbut Creek Red	" " "	3
Dolphin Head Red	" " "	4
Meditation Black	" " "	1
Belize Red	" " "	17
Cayo Unslipped	" " "	*
Alexanders Unslipped	" " "	*
Sotero Red-Brown	Tiger Run	2
Savana Orange	Jenney Creek	1
Pinola Creek Incised	" " "	1

Level 2

Platon Punctated Incised	Spanish Lookout	28
Belize Red	" " "	77
Mount Maloney Black	" " "	26
Meditation Black	" " "	7
Dolphin Head Red	" " "	12
Alexanders Unslipped	" " "	*
Cayo Unslipped	" " "	*
Tutu Camp Striated	" " "	*
Jones Camp Striated	Tiger Run	*
Meseria Applique	Late Classic	1
Savana Orange	Jenney Creek	1

Structure B-6 Ceramics continued

Level 3

Ceramic type	Phase	Quantity recovere
Meditation Black	Spanish Lookout	8
Xunantunich Black on Orange	" " "	4
Yaha Creek Cream	" " "	1
Gallinero Fluted	" " "	1
Dolphin Head Red	" " "	11
Belize Red	" " "	45
Mount Maloney Black	" " "	42
Zibal Unslipped	Tiger Run	*
Aguila Orange	Hermitage	1
Basil Flange Fragment	Hermitage by form	1
Aguacate Orange	Floral Park	4

Level 3A

Belize Red	Spanish Lookout	2
Dolphin Head Red	" " "	4
Meditation Black	" " "	14
Saxche Polychrome	Tiger Run	1
Zibal Unslipped	" " "	*
Sozotz Striated	Hermitage	*
Hillbank Red	Barton Creek	1
Happy Home Orange	" " "	2
Savana Orange	Jenney Creek	2

Savana Orange category includes anthromorphic bottle fragment.

Ceramics Inventory Continued

Structure B-8, Unit 1 (2x2 M.)

Level 1

Ceramic type	Phase	Quantity Recovere
Belize Red	Spanish Lookout	85
Mountain Pine Red	" " "	8
Garbut Creek Red	" " "	2
Meditation Black	" " "	1
Mount Maloney Black	" " "	3
Dolphin Head Red	" " "	8
Alexanders Unslipped	" " "	*
Cayo Unslipped	" " "	*
Tutu Camp Striated	" " "	*
Orange Walk Incised	Tiger Run	1
Jones Camp Striated	" " "	*
Minanha Red	Hermitage	1
Dos Arroyos Polychrome	" " "	1
Aguacate Orange	Floral Park	1
Savana Orange	Jenney Creek	2
Figurine fragment	Pre-Classic	1

Ceramics Inventory Continued

Structure B-8, Unit 1 (2x2 M.)

Level 2

Ceramic type	Phase	Quantity Recovered
Belize Red	Spainish Lookout	18
Dolphin Head Red	" " "	8
Meditation Black	" " "	3
Roaring Creek Red	" " "	1
Garbut Creek Red	" " "	2
Martins Incised	" " "	1
Mount Maloney Black	" " "	9
Gallinero Fluted	" " "	1
Mountain Pine Red	" " "	1
Tialipa Brown	" " "	1
Alexanders Unslipped	" " "	*
Cayo Unslipped	" " "	*
Tutu Camp Striated	" " "	*
Savana Orange	Jenney Creek	2
Sampoperro Red	" " "	3

Notes

1. Chronologically, by ceramic type pending further evidence from C-14 and obsidian hydration dates, function would be determined by artifact and structural interpretation.
2. Pink granites, probably from the Maya Mountains to the south and east of Zubin.
3. Possible sources; El Chayal, San Martin Jilotepeque, and with a lesser likelihood, Ixtepeque
4. Blades used to a point of implausibility, sherds reutilized for grog tempering.

Acknowledgments

Archaeology today is a team effort. Scientific and theoretical methodologies have entered the interpretive fray. The field of archaeology has become so complex, specialists of every type are needed for proper excavations to be conducted. In respect of my colleagues and friends in the field I now offer humble thanks for your efforts and patience.

First to be mentioned are my assistants, for without them the excavations could not have begun: Marion Maar, Barbara Maar, Seana Moorehead, Tina Christianson, and Debra Komar. Your field notes and observations contributed significantly in the writing of this report.

Next, a toast to my friend and director of investigations at Zubin, Gyles Iannone. Gyles provided positive criticism, insight, and motivation for all.

Excavations in the Belize Valley rely heavily on locals for workmen and countless other positions involving the project. In 1992 we were able to secure two experienced bushmen for Zubin, the famous Martinez brothers. Thank you not only for your hard work but also for sharing your valuable insight and knowledge of the local flora and fauna. Thanks also to our talented project artist, Richard Holder for the excellent drawings of site artifacts. I would like to thank Commissioner of Archaeology Mr. John Morris for his time and support of the Cahal Pech project.

David Cheetham deserves mention for his devotion to Maya archaeology. Dave if we had ten more of you there would be nothing left for us to do but stand off to the side and watch, cheers. Map and survey work was done by S. M.. Brisbin.

I would also like to mention the people of the project who are far to numerous to be named here. All of you deserve recognition for your contributions to Maya archaeology and especially to the Cahal Pech project.

Lastly, thank you to Dr. Jaime Awe, your guidance and knowledge shine as a source for our emulation as the new generation of Maya archaeologists

J. G. H.

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A REPORT OF THE 1992 EXCAVATIONS ON STRUCTURES D10 & D11 OF THE ZUBIN GROUP AT CAHAL PECH, CAYO DISTRICT, BELIZE.

By

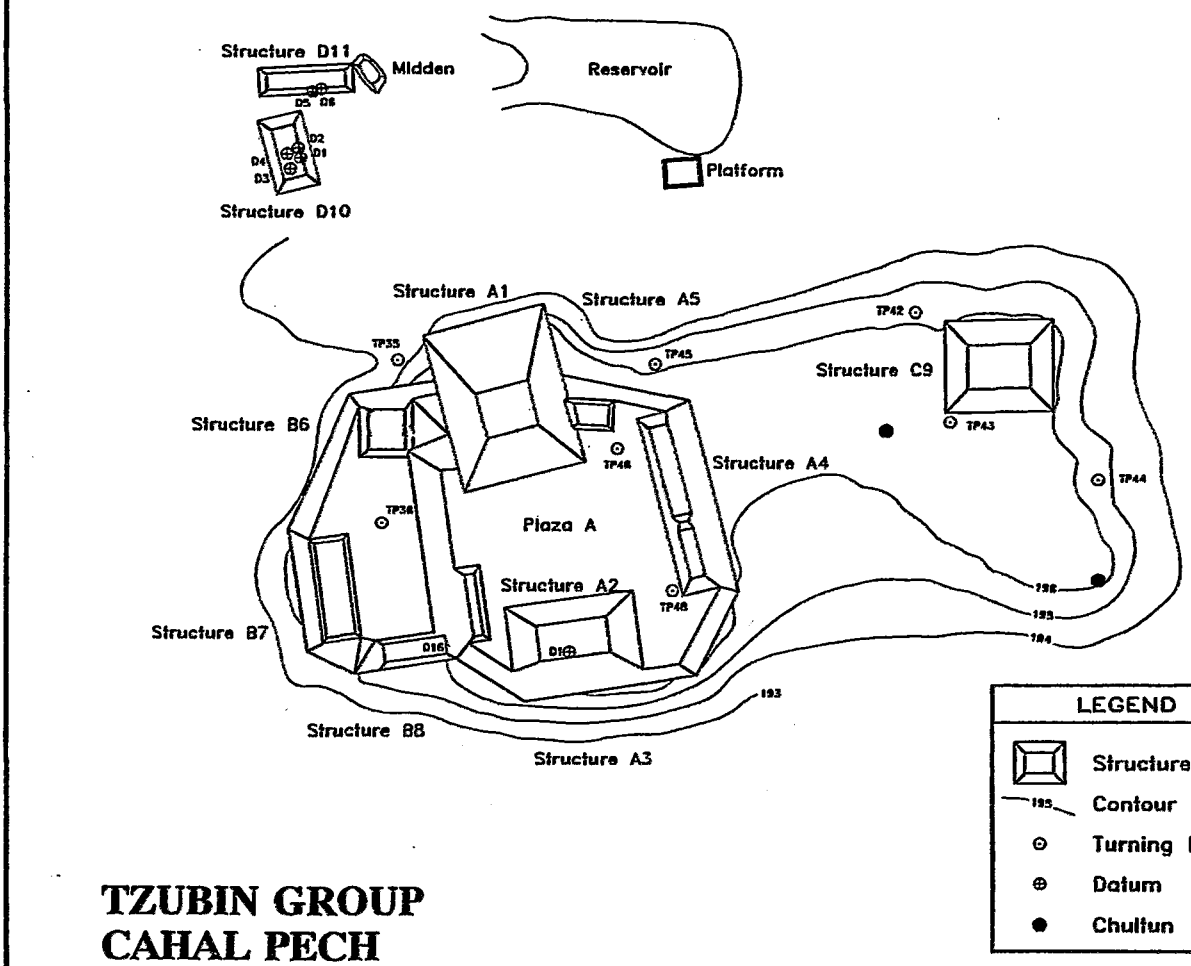
Kay S. Sunahara

INTRODUCTION

This paper provides a brief overview of excavations conducted on Structures D10 and D11 of the Zubin Group during the 1992 field season at Cahal Pech. The excavations were carried out under the auspices of the Belize Valley Archaeological Reconnaissance project (B.V.A.R.), and the Trent University Belize field school. Zubin, which is best described as a "minor" or middle-level centre (see Iannone and Hodgson, this volume), is located approximately two kilometres south of the acropoline center of Cahal Pech, (Awe 1992; Awe and Campbell 1988, 1992). Structures D10 and D11 are low mounds situated on the eastern periphery of Zubin's site core. Most of the mounds in the Zubin Group are located on land currently used for cattle pasture and grazing has kept down the normally prolific vegetation growth thereby allowing excellent definition of prehistoric settlements and the surrounding terrain. The purpose of the 1992 season was to document the architecture, ceramics, faunal remains and lithic material from Str. D10 and D11 in order to determine the chronology and possible function of the structures. The research design of the investigations at Zubin are primarily concerned with settlement pattern hierarchy and inter-site relationship (see Iannone and Hodgson, this volume).

DESCRIPTION & INVESTIGATIONS IN PATIO D

Structures D10 and D11 are rectangular mounds arranged at right angles to one another in an rough "L" configuration that defines a small open patio. Structure D10 is oriented east-west, and structure D11 is aligned north-south (Figure 1). Two 1 m X 2 m units were excavated in D10 and a single 1 m X 2 m unit in D11. The mounds were chosen for excavation because of their proximity to the Zubin site core, a mere 22 m. Additionally, the outlines of masonry features: possible walls, or benches, were discernable from surface examination of the mound and therefore facilitated the delineation of the architecture. This quality of preservation, with cut-stone still in original alignment, would be useful for determining structure function (Figure 2). Other features in the vicinity of the patio included a small reservoir approximately 25 m to the south and a chultun about 56 m to the south-east. Future excavation of the chultun may provide an opportunity to examine Puleston's (1965, 1971, 1974) suggestion that chultuns served as

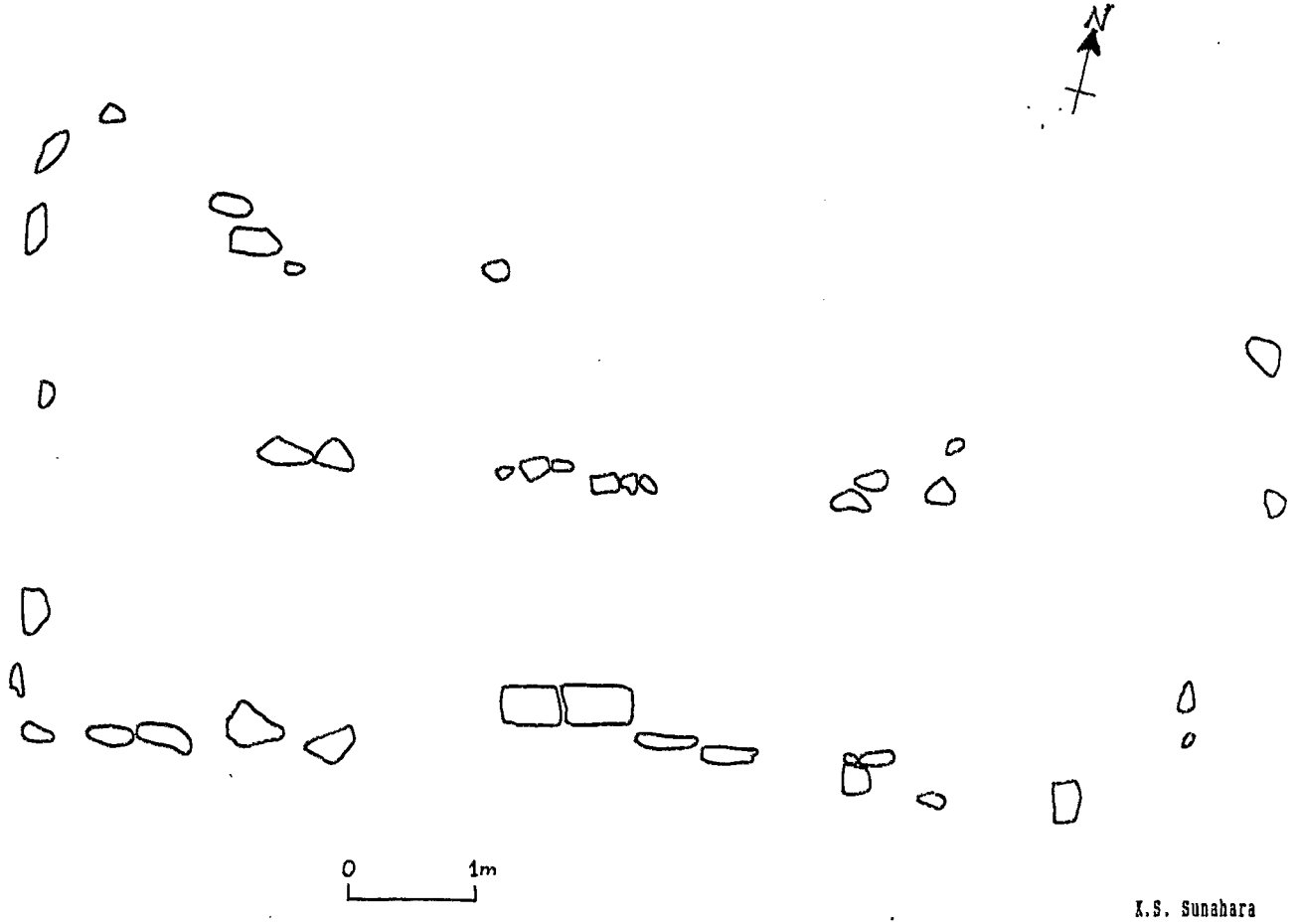


TZUBIN GROUP
CAHAL PECH
CAYO, BELIZE

PLAN AND SURVEY BY S.M. BRISBIN

Fig. 1 : Zubin Group, Cahal Pech

Fig. 2: Top Plan of Structure D10 - Unexcavated, D Group, Tzubin, Belize, 1992.



K.S. Sunahara

food storage chambers, and that they are generally found in correlation with residential architecture. For further discussion on chultuns at Cahal Pech the reader may refer to Aylesworth's article in this volume.

Location on well drained soils is a noted trait in Maya settlement patterns (Willey and Bullard 1965:371) and the Zubin Group certainly conforms to this observation. The location of the settlement atop a large steep hill also provided a commanding view of the surrounding terrain; the site core of Cahal Pech is clearly visible to the north. The upland setting of Strs. D10 and D11, and the Zubin Group in general, contradicts earlier observations made by Willey et al. (1965:571) that settlements in the Belize Valley region were limited to the valley bottoms and that the surrounding hilly areas must have been used primarily for agriculture with sparse settlement. The Zubin data also confirms other studies in the Belize River region which have found similar evidence of settlements in the hilly upland zones (Ford 1991:39).

STRUCTURE D10: ARCHITECTURE

Measuring approximately 8.5 m by 4.5 m, Str. D10 is the largest of the two mounds in Patio D. Two units of 1 m by 2 m were excavated in D10 (see Figures 3 and 4). The lay of the bedrock beneath D10 makes its height quiet deceptive. Approaching the patio from the north, Str. D10 looks to be at least 2 m high if not more. Upon excavation it was found that the actual depth of the mound was some 89 cm, less than a metre of humanly moved material. The foundations of D10 took advantage of the natural terracing in the bedrock. By locating the structures in this manner, the builders saved on the labour costs associated with moving an equivalent amount of construction material to erect a structure of comparable height. This approach is especially significant since lack of stratigraphic layers suggest that D10 was assembled in a single construction episode.

During excavation on the summit of the mound it was observed that well compacted, ballast sized, pebbles or rocks lay immediately below the matted sod layer. Since floors were not found in the excavation, it is suspected that what floor there might have been was just below the present ground surface. Elements such as site transformation factors: wind, rain and sun, would have since eroded any plaster or tamped floor at this level of the stratigraphy.

As indicated above, Patio D is an excellent example of how the Maya used topographic features to their advantage in construction. The natural contours of the bedrock beneath D10 provides a ready made platform on top of which to construct architecture. There is also evidence of slight modification of the bedrock to accommodate the cut-stone foundations of the structure. This practice was recorded in unit D10/1 which exposed a section of bedrock which had been incorporated as part of the foundation of the east-west

Fig. 3 West Profile of Unit D10/1, Structure D10, Tzubin, Belize, 1992.

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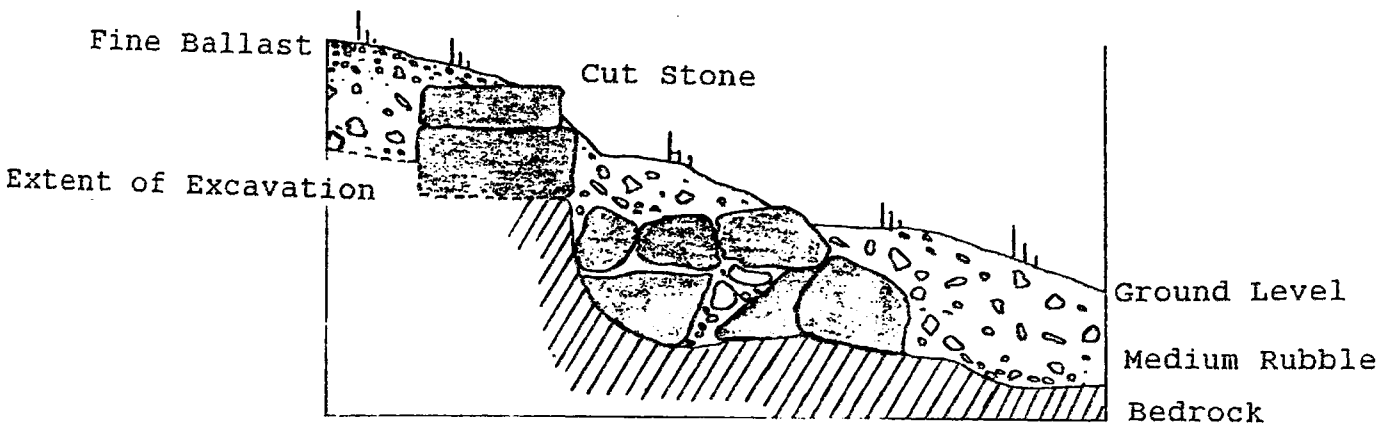

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Fig. 4 :
North Profile of Unit D10/2, Structure D10, Tzubin, Belize, 1992.

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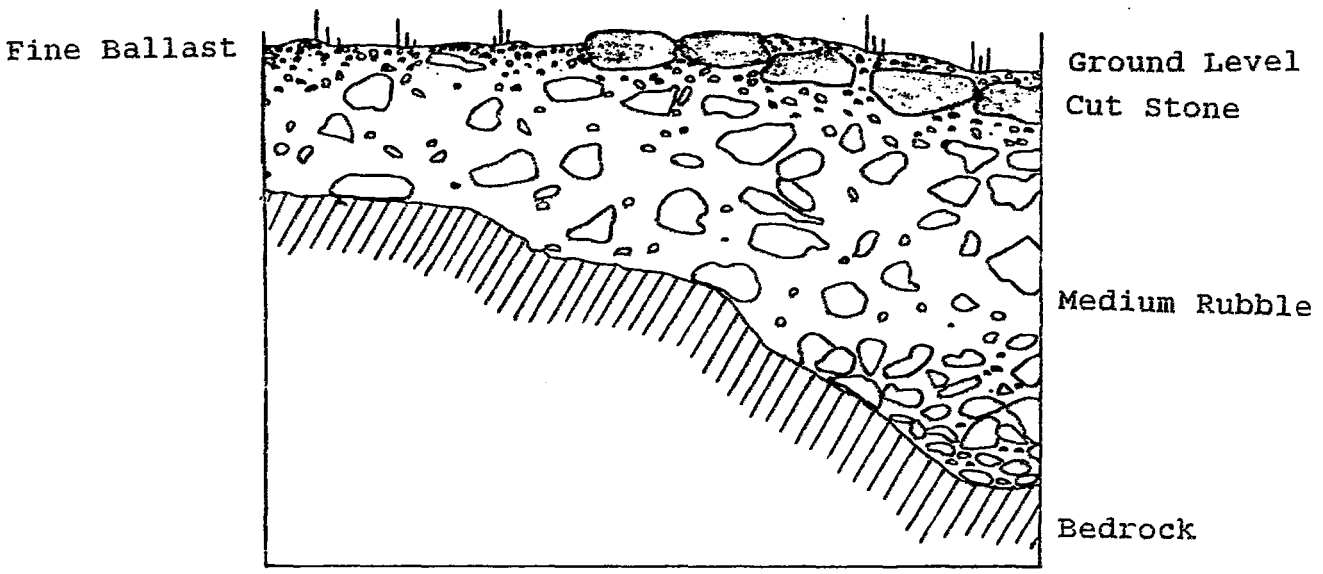

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Fig.5: South Profile of Unit D11/1, Structure D11, Tzubin, Belize, 1992.

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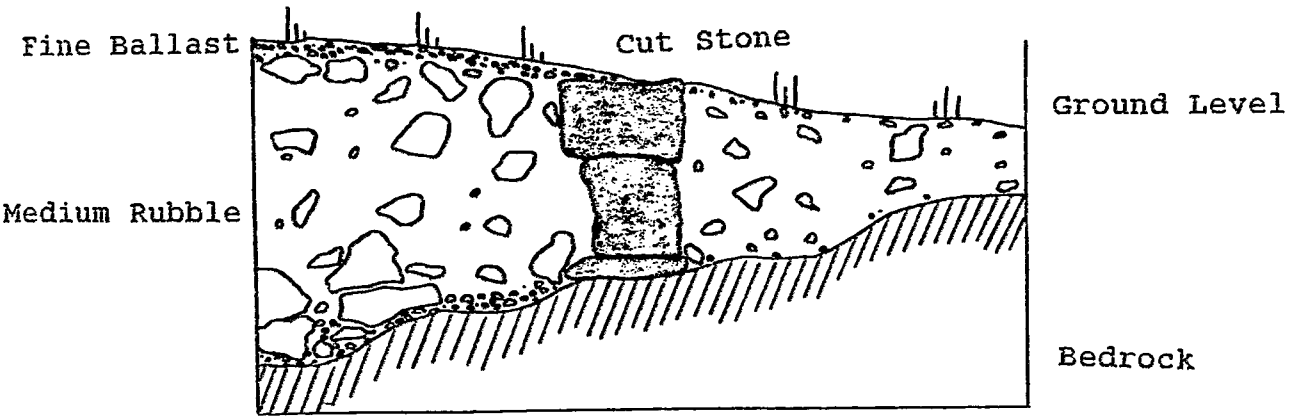

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retaining wall of the platform. Bedrock was also modified in the foundations of what is thought to be part of a step along the central axis of the structure. By chipping off a small section of bedrock the first block of the step stone was snugly fitted in place. The modification of bedrock for architectural purposes has been noted by others such as Bullard (1960:359) in his settlement survey in the northeast Peten, Guatemala.

Interestingly, there was no observable evidence of plaster having been used as floor surfacing or as veneer over the step. Additionally, features such as the step and walls were constructed with masonry retaining stones then the structure was filled with packed rubble and earth. It is possible that poor preservation may account for the absence of plaster but this will have to be determined by future investigations.

The original stone alignments in what would have been the interior middle section of the building resembles a bench. This feature abuts and runs parallel to the northern retaining wall of the platform, and adheres to the east-west orientation of the structure (see Figure).

It should be noted that functional interpretations for Patio D may be problematic because of the construction fill context of much of the recovered artifactual material, however, some tentative inferences may be made. The possible bench feature, located in the interior portion of D10, combined with the preponderance of utilitarian wares within and outside of the structure's retaining wall (ceramics that may not have been part of construction fill) strongly suggests a residential and domestic function for the patio group. Although on a much larger scale of construction, Bill (1987), at nearby Pacbitun, suggests that the presence of benches may reflect a residential function for structure 23.

The overall impression of the architectural features in Str. D10 is that it was constructed quickly, making efficient use of available terrain and materials, and with a minimum expenditure of energy.

STRUCTURE D11: ARCHITECTURE

Investigations on Str. D11 recorded a similar pattern of construction to that noted on D10. The 1 m by 2 m unit excavated into the mound (see Figure 5) revealed that the structure was delineated by a cut-stone retaining wall, then was filled with packed rubble and earth. No floors were recorded above or below the summit of the wall, and the absence of earlier construction phases suggests that D11, like D10, was erected during a single construction event.

The major differences between the two mounds is that no cut-stone step was found on D11, and that unlike D10, the construction of D11 did not incorporate bedrock in the architecture.

CERAMICS

The ceramics from patio D were all recovered within construction fill. Since both structures appear to have been erected during single construction episodes, the ceramic assemblages will be treated as single units and the dates of the most recent pottery types will be considered contemporaneous with the construction of the mounds. Because no whole vessels were found in situ, functional interpretation is made difficult. Modal types, and the frequency of certain forms can, however, be used for determining, in a general sense, structure function. In this context strict artifact to activity correlations, nevertheless, remain tenuous.

Gifford's (1976) ceramic sequence at Barton Ramie served as the major reference for identifying the pottery from patio D at Zubin. The ceramic inventory of Strs. D10 and D11 are presented in Tables 1 and 2. When considering the graphs it is important to note that the sample size from Structure D10 is twice that of D11 since two excavation units were excavated in the former. As a result, I have refrained from comparing the numbers of sherds collected between structures. Percentages have also not yet been calculated, but the overwhelming collection of Tu-Tu Camp Incised, Alexanders Unslipped and Cayo Unslipped greatly outnumbered other ceramic types.

Formative Period

The earliest pottery component in the Patio D assemblage is from the Middle Formative period. Represented by a total of 11 sherds, pottery from the Jenny Creek complex includes examples of Savanna Orange, Reforma Incised, Jocote Orange-Brown and Sayab Daub-Striated. There are 35 Late Formative, Barton Creek complex sherds that include Sierra Red, Hillbank Red, Polvero Black, Lechugal Incised, and Paila Unslipped. The terminal Late Formative ceramics are even fewer in number. There is one example of San Filipe Brown from the Mount Hope complex, and two samples of Aguacate Orange (Floral Park complex).

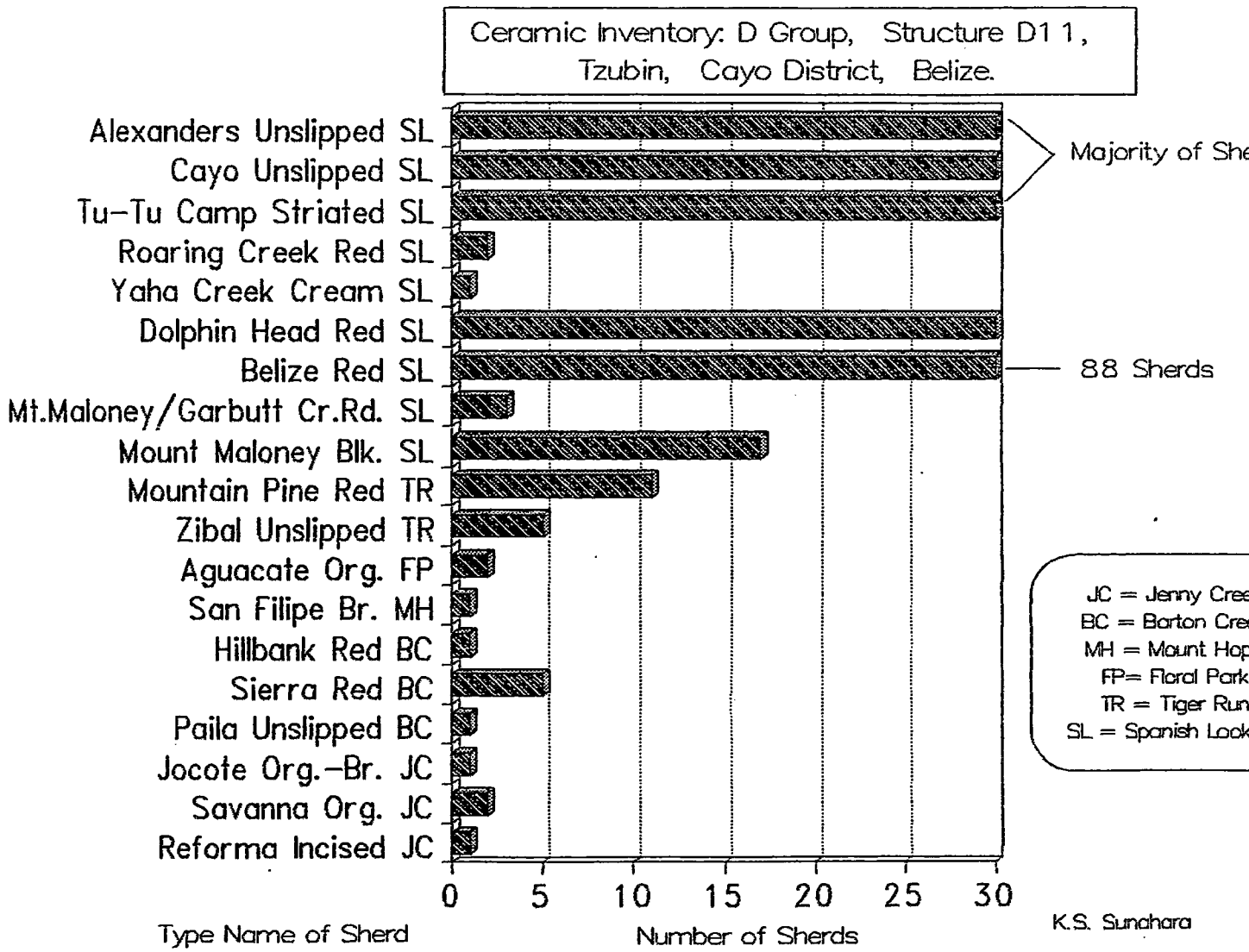
Early Classic Period

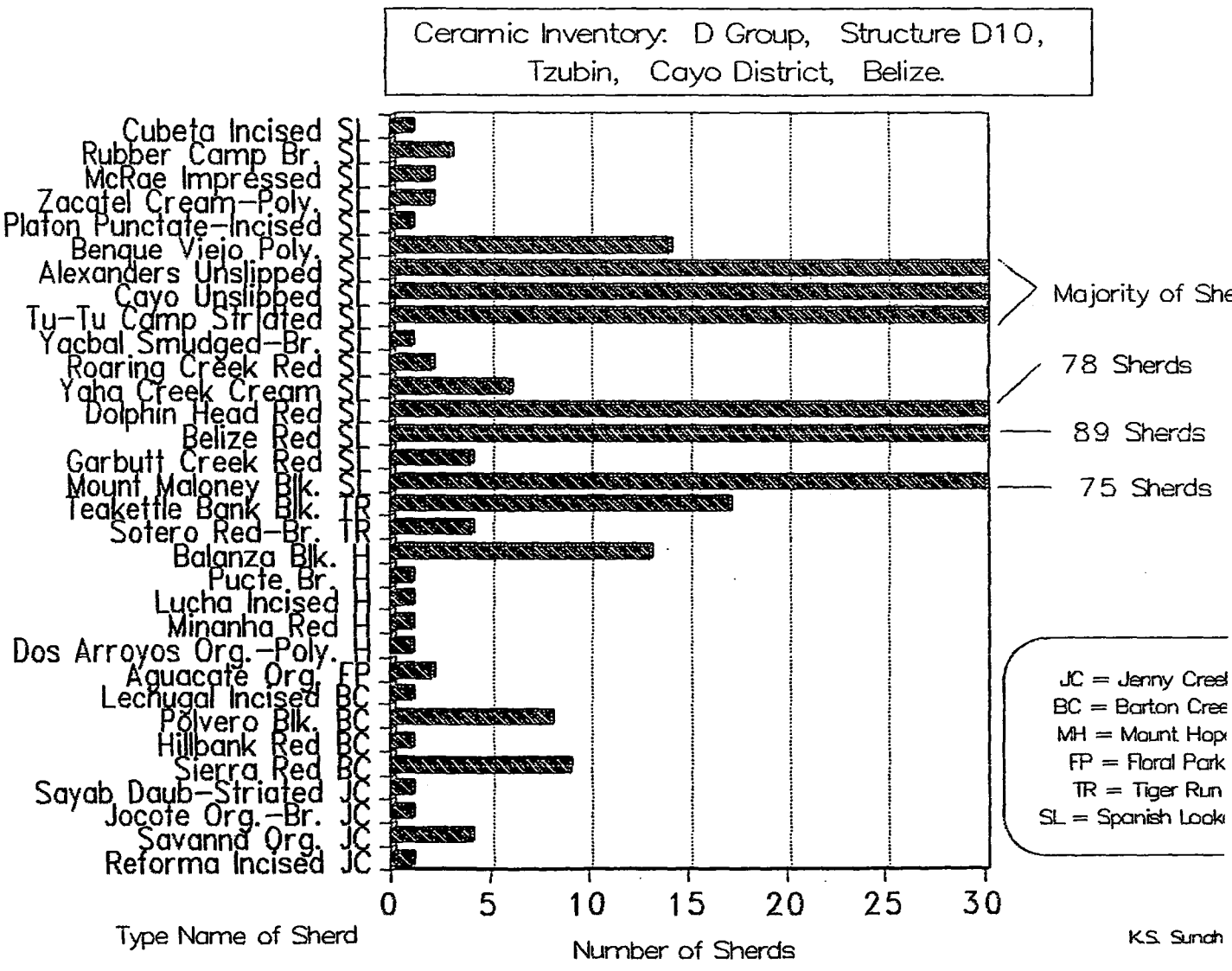
No Early Classic pottery was recorded in the Str. D11 collection, and only 17 sherds pertaining to this period was recovered in the D10 excavations. The latter was represented by Hermitage Complex types such as Balanza Black, Pucte Brown, Lucha Incised, Minanha Red and Dos Arroyos Orange-Polychrome.

Late Classic Period

Although poorly represented, Tiger Run complex material was recovered in both structures D10 and D11. The 37 sherds assigned to this complex included the types Teakettle Bank Black, Sotero Red-Brown, Mountain Pine Red and Zibal Unslipped.

The bulk of the ceramics pertain to the Spanish Lookout complex of the Late Classic period. The heavy, utilitarian types


Ceramic Inventory: D Group, Structure D11,
Tzubin, Cayo District, Belize.
Alexanders Unslipped SL
Cayo Unslipped SL
Tu-Tu Camp Striated SL
Roaring Creek Red SL
Yaha Creek Cream SL
Dolphin Head Red SL
Belize Red SL
Mt.Maloney/Garbutt Cr.Rd. SL
Mount Maloney Blk. SL
Mountain Pine Red TR
Zibal Unslipped TR
Aguacate Org. FP
San Filipe Br. MH
Hillbank Red BC
Sierra Red BC
Paila Unslipped BC
Jocote Org.-Br. JC
Savanna Org. JC
Reforma Incised JC
Majority of She
88 Sherds
JC = Jenny Cree
BC = Barton Cre
MH = Mount Hop
FP= Floral Park
TR = Tiger Run
SL = Spanish Look
0
5
10
15
20
25
30
Type Name of Sherd
Number of Sherds
K.S. Sunahara


Ceramic Inventory: D Group, Structure D10,
Tzubin, Cayo District, Belize.
Cubeta Incised SL
Rubber Camp Br. SL
McRae Impressed SL
Zacatel Cream-Poly. SL
Platon Punctate-Incised SL
Benque Viejo Poly. SL
Alexanders Unslipped SL
Cayo Unslipped SL
Tu-Tu Camp Striated SL
Yacbal Smudged-Br. SL
Roaring Creek Red SL
Yaha Creek Cream SL
Dolphin Head Red SL
Belize Red SL
Garbutt Creek Red SL
Mount Maloney Blk. SL
Teakettle Bank Blk. TR
Sotero Red-Br. TR
Balanza Blk. H
Pucte Br. H
Lucha Incised H
Minanha Red H
Dos Arroyos Org.-Poly. H
Aguacate Org. FP
Lechugal Incised BC
Polvero Blk. BC
Hillbank Red BC
Sierra Red BC
Sayab Daub-Striated JC
Jocote Org.-Br. JC
Savanna Org. JC
Reforma Incised JC
Majority of She
78 Sherds
89 Sherds
75 Sherds
JC = Jenny Creek
BC = Barton Cree
MH = Mount Hop
FP = Floral Park
TR = Tiger Run
SL = Spanish Look
0
5
10
15
20
25
30
Type Name of Sherd
Number of Sherds
K.S. Sunah

Alexanders Unslipped, Cayo Unslipped and Tu-Tu Camp Striated represent the majority of sherds collected from the two structures. Because of their large numerical frequency they were not counted during the preliminary ceramic analyses at the end of the 1992 field season. Other dominant contemporaneous wares include Belize Red and Dolphin Head Red.

LITHIC MATERIAL

Although analysis of the lithic material from patio D has not been completed, preliminary observations were made in the course of the field season. It was noted, for example, that with the exception of two grey obsidian blades and one pink granite mano fragment, all lithic material was produced from chert. (The mano fragment was recovered from building fill.)

Obsidian

Both obsidian blades (Fig. 6) were recovered from Str. D10. The first specimen, D10-SF/1, is a medial section of a blade that measures 2.3 cm by 1.2 cm. It was found in the upper portion of the humus layer. It is possible that this blade was used by the prehistoric occupants of the structure since it was not found in the core of the mound or within construction fill. The second obsidian blade fragment, D10-SF/2, was a distal section measuring 3.4 cm by 1 cm. Close examination of this specimen revealed that the blade exhibited evidence of post-depositional trampling. This blade was also found in similar matrix as that of the first, suggesting that it was redeposited with fill brought in during construction. This is further supported by the fact that no obsidian was found in the architectural fill of the two structures (eventhough all back dirt was screened using 1/4" mesh).

Chert

The chert component of the lithic assemblage consists mainly of debitage. The most complete artifact is represented by half of a chert biface. The identification of pot-lid fractures also indicates that some of the chert may have been heat treated during the production of implements (Iannone pc.).

FAUNAL MATERIAL

Although all excavated dirt was screened with a quarter inch mesh, faunal material was only recovered in Str. D10. These animal remains consisted primarily of bivalve shells, and some freshwater and land snails. The land snails were found on top of, and within, the surface layers and are not of archaeological significance.

The freshwater bivalves were identified as Nephronaias ortmanni and have an NISP of 116 and a MIN of 27. These bivalves were found exclusively in structure D10 and were restricted to the excavation unit that covered the interior portion of the structure. The somewhat concentrated distribution of the shells, particularly close to bedrock, suggests that the shells probably represent a dedicatory cache. This is further supported by the fact that,

despite careful screening of all excavated dirt, not one shell fragment was recovered in areas exterior to the retaining wall, or within Str. D11.

Freshwater snails, locally known as "jute" (Pachychilus sp.), were represented by an NISP of 5 and an MIN of 5. For information regarding the role of "jute" in ancient Maya diet the reader should refer to Healy, Emery and Wright (1990). Further discussion on subsistence, the faunal remains from patio D, and frin the Zubin Group in general, will be presented in the future by Norbert W. Stanchly.

CONCLUSIONS

Structures D10 and D11 of patio D in the Zubin Group may be described as fairly typical of low peripheral mounds in the Belize River Valley region. Their L-shape configuration, location on well drained soils, the use of local terrain to construction advantage, their Late Classic date, their comparable ceramic and lithic inventories, plus their provisional interpretation as domestic or residential architecture, make the mounds in Patio D quite standard in the region.

Patio F, and other mound clusters in Zubin's periphery, were also found to be entirely of Late Classic construction. Inferences can be made that despite being established in the Formative period, significant population growth did not occur at the Zubin Group until the Late Classic period. While the late increase in population at Zubin differs from the pattern noted in the Cahal Pech site core (Awe 1992), and to that of the Tolok (Powis 1992, and this volume), Cas Pek (Awe et al. 1992), and Zopilote (Cheetham this volume) Groups, it is similar to that of the Zotz (Awe 1992), K'ik', and Tzinik peripheral settlements. Other sites in the upper Belize Valley demonstrate a roughly analogous development sequence. Examples of the latter include Xunantunich (Leventhal pc. to Awe 1992), Baking Pot (Bullard and Bullard 1965), Buena Vista (Ball and Tashek 1991), Pacbitun (Healy 1990) and the area north of the Belize River (Ford 1991). Similar Late Classic population increase have been noted in the Peten (Culbert and Rice 1990). Tikal, for example, reached its maximum populations at this time (Haviland 1969).

Further investigations of neighbouring low mound structures, reservoirs and chultuns, as well excavations in Zubin's site core, will undoubtedly produce a more complete perspective on the role of Patio D within the context of middle level centres and settlement hierarchy in the Belize Valley and the central Maya lowlands.

ACKNOWLEDGEMENTS

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CHULTUNS: BURIALS, REFUSE, SOUR WINE, AND ROTTEN FOOD

By

Grant R. Aylesworth

Introduction

Small human made subterranean chambers, known as *chultuns*, are ubiquitous throughout the Maya Lowlands. They are a subject of debate for a number of reasons. The main foci of debate are the assorted ideas posited for *chultun* function. Underlying themes are inherent in the reasoning and methodology of *chultun* researchers. One foundation of *chultun* research is the notion of diachronic functional variation which applies to *chultuns* on the individual level. Generally, it is believed that changes in function were not synchronous on a pan-lowland scale. For example, a *chultun* originally excavated for food storage may have been used later (perhaps hundreds of years) for human interment. This multi-functional, or at least bi-functional, idea is commonly accepted. Presumably, this is an attempt to explain burials which are found in some *chultuns* while not in others.

Despite the occurrence of burials the functional debate revolves around food storage. The idea of a universal subsistence related function remains unchallenged while the type of food stored is the paramount question (cf. Miksicek 1991; Miksicek et al. 1981; Puleston 1971; Reina and Hill 1980). Experiments deal with deciding whether maize (*Zea mays*), ramón (*Brosimum alicastrum*), or yams (*Dioscorea* sp.) were stored, and which one of these is best preserved in the *chultun* environment (Miksicek et al. 1981; Puleston 1971). Although seldom considered, one should realize that *chultuns* have been infrequently explored. Most archaeologists in the Maya area have concentrated on excavating structures or plazas. Furthermore, some ethnohistoric sources are ambiguous at best. The sum of these factors leaves interested researchers with a paucity of data, attenuating functional interpretations.

Archaeologists that appear to have considered *chultuns* in detail have not questioned the assumption that all *chultuns* throughout the southern Lowlands were used by the Maya for the same purpose (although *chultuns* are also found in the north), an idea that must be questioned. An important aspect of this paper is the suggestion that it is not entirely clear that all *chultuns* were originally used for the same purpose. For example, burial chambers may have been the sole intended function of some *chultuns*. Others may have been used for food or water storage, or non-subsistence related activities. This suggestion is innovative in that functional variability is posited to be synchronic as well as possibly diachronic. For about the last twenty-five years the most commonly accepted functional interpretations have been limited to subsistence related activities. There is a need for non-

subsistence related hypotheses to be explored and, moreover, the idea that all *chultuns* had a common "primary" function must be questioned. Previous interpretations have narrowed the scope of inquiry, imposed constraints on interpretation, ignored the variability in *chultun* morphology, and ultimately perhaps overlooked the possible variability in function.

As noted above, there is a paucity of published *chultun* data. Many published reports provide little or no useful information (*cf.* Freidel and Sabloff 1984; Ruppert and Denison 1943), creating an obstacle in the path of *chultun* study. In a few cases, *chultuns* have been the focus of publications (e.g. Dahlin and Litzinger 1986; Puleston 1971). Some degree of scepticism towards the assumptions that currently pervade *chultun* research, nevertheless, needs to be encouraged.

First, this paper will describe and define *chultuns*, and provide specific examples from Cahal Pech and other sites. A subsequent critical discussion of several possible functions will be followed by some concluding comments.

Chultuns Defined

Some of the most readily available *chultun* data and interpretations come from Uaxactún (Ricketson and Ricketson 1937; Smith 1950), Tikal (Carr and Hazard 1961; Puleston 1965, 1983), and Cuello (Miksicek 1991; Miksicek et al. 1981). Recent findings at Cahal Pech, Belize are also very useful (Awe 1992; Powis 1992), and information from Labná (Thompson 1897) provide data for comparative purposes. An exhaustive spatial, temporal, and morphological analysis and comparison would also be very helpful, if not essential, for an increased understanding of *chultuns*. Such a compilation and analysis remains to be undertaken. While this is not at all an exhaustive analysis, some suggestions for future research are provided.

The Maya word for *chultun* is derived from *tsul* 'to clean' and *tun* 'stone' (Puleston 1971:322). In contrast, according to Schele and Freidel (1990) the word *ch'ul* means 'holy', while they agree that *tun* means 'stone'. It is therefore unclear that *tsul* is the correct choice in the etymology of the term *chultun*. The potential importance of a different possible etymology to the study of *chultuns* has apparently not been explored since Puleston's (1971) initial explanation. This is, however, merely a preliminary observation which requires further study.

The term *chultun*, whatever its etymology, has been applied to subterranean chambers in the northern and southern Maya Lowlands. Yet, these features differ both in form and apparent function. The distinction between the two is based in part on morphology. At the simplest level, a *chultun* can be described as a chamber excavated into limestone bedrock. Bullard (1960:Figure 5) and Puleston (1971:Figure 1) illustrate the general morphological categories.

While some generalizations can be made, morphological variation exists among the *chultuns* of Uaxactún (Ricketson and Ricketson 1937), Tikal (Puleston 1965, 1971), Labná (Thompson 1897), and Ash (Bullard 1960), and Cahal Pech (Awe 1992; Powis 1992, this volume). This variation has not been given detailed analysis and quantification in this preliminary paper, but would be an important part of the exhaustive comparison suggested above.

One common feature of *chultuns* found in the southern Maya Lowlands is a round orifice, usually about 50 cm in diameter. This is large enough to permit entry of a person. Carr and Hazard (1961:11) point out the average orifice diameter at Tikal is 50-60 cm (the range is from 37-130 cm, in rare instances). Occasionally the orifice is bevelled for the placement of a capstone, examples of which are seen at Uaxactún (Smith 1950), and at Zubin, near Cahal Pech (Iannone this volume). This type of *chultun* is longer than it is deep, leading Puleston (1971:324) to apply the term 'lateral', or 'shoe-shaped'. Limestone capstones are usually found to have fallen into the *chultun*. They are believed to be capstones as they approximate the diameter of the orifice, and occasionally *chultuns* are found with capstones in situ (Ricketson and Ricketson 1937). *Chultuns* may also consist of more than one chamber (Awe 1992; Powis 1992; Puleston 1971; Ricketson and Ricketson 1937). They lack plaster or stucco lining, except for occasional plaster floors (Powis 1992). Southern Lowland *chultuns* occur at sites such as Uaxactún (Ricketson and Ricketson 1937; Smith 1950), Tikal (Puleston 1965, 1983; Shook 1958), and Cahal Pech (Awe 1992; Powis 1992).

The *chultuns* of the northern Maya Lowlands reach depths of up to 6m. They are deeper than they are wide, and have restricted orifices. These *chultuns* are usually lined with plaster. It was stated by Smith (1950:85): "There is no doubt that in northern Yucatan, where paving and gutters have been found around the entrances and the walls were covered with plaster, in some cases bearing designs of water symbols, chultuns served as cisterns." The chambers at Labná (Thompson 1897) clearly demonstrates these traits, although Smith (1950) provides no reference to them. McAnany (1990), however, provides substantial information of similar *chultuns* in the Puuc region of the northern Lowlands.

The features of the northern and southern Lowlands chambers which fall under the *chultun* rubric are a legacy of nineteenth and early twentieth century research (Puleston 1971:325), yet their similarity is limited to a subterranean nature, and the appearance of the orifice. Excavation reveals differences in morphology that are not visible from the surface. The function of the *chultuns* of the southern Lowlands remains a subject of debate while those of the north are convincingly reported to have functioned as cisterns. Given these differences we could avoid functional confusion by using the term cistern for the northern features and reserving the term *chultun* for those of the south.

Chultuns of Cahal Pech, Belize

The Belize Valley Archaeological Reconnaissance (B.V.A.R.) project, directed by Jaime Awe and James Conlon, has conducted research at Cahal Pech, Belize and its environs for five field seasons (although the B.V.A.R. title has been in use for only since 1992). Progress reports are numerous (Awe, Bill, and Campbell 1990; Awe & Campbell 1988, 1989, 1991, 1992). The B.V.A.R. project has documented the occurrence of many *chultuns* around Cahal Pech. One important outcome of the B.V.A.R. research is that it contradicts the previously held belief (Willey et al. 1965) that *chultuns* do not occur in the Belize Valley. The B.V.A.R. project findings are particularly important as Willey et al. (1965) are frequently cited regarding *chultun* spatial distribution, an important consideration in formulating hypotheses (cf. Dahlin and Litzinger 1986; Puleston 1971; Reina and Hill 1980). One should also note that *chultuns* are found only where bedrock is relatively close to the surface, such as in the karst hills, and are not found on the alluvial plain.

All known *chultuns* at Cahal Pech are associated with peripheral settlements. One of the peripheral groups, designated Tolok, is situated approximately 500m southeast of the Cahal Pech central precinct and contains four *chultuns* (Powis 1992). Powis (1992) provides a description of *Chultun* B, which was excavated in 1991. Powis (this volume) provides the most recent progress report on the excavation and interpretation of this group, including the excavation of *Chultun* C during the 1992 season.

The Tolok Group is situated on a ridge, with *Chultuns* A, B, and C located on its southern downward slope (Powis this volume:Figure 1). *Chultun* D, exposed by a large looter's trench, was discovered beneath Structure 1 (Powis 1992:39). Artifacts which this *chultun* may have contained were probably removed by the looters. Since this feature is slated for further investigation, there is some doubt whether it will prove to be a legitimate *chultun*. Digging by looters may have resulted in a *chultun*-like feature. Puleston (1983) has noted that other features are sometimes mistaken for *chultuns* prior to investigation.

Chultun A had been thoroughly looted while *Chultuns* B and C were untouched prior to excavation. One particularly interesting feature of *Chultun* B was a burial with associated late Classic vessels (Powis 1992). While this late Classic material was found above a plaster floor within the *chultun*, early Classic pottery sherds were found beneath the floor. This suggests that the *chultun* was used throughout the Classic Period (Terry Powis 1993:personal communication). *Chultun* B also contained other artifacts including two obsidian blades, a projectile point preform fragment, chert flakes and core fragments, drilled deer bone (*Cervidae* sp.), and a number of *jute* (*Pachychilus* sp.) and pomacea (*Pomacea flagellata*) snail shells (see Stanchly this volume for faunal analysis). In a preliminary analysis, Powis (1992) suggests

that *Chultun* B may have had a function related to food storage, but there is no evidence to support this statement other than the widely held belief that *chultuns* played a role in food storage. It should be noted that the only certain function for this *chultun* was its use as a burial chamber.

Chultun C at the Tolok Group was excavated during the 1992 field season (Powis this volume). This *chultun* was found to consist of a chamber and antechamber with a total length of approximately 3m and a maximum height of 1.5 m. The orifice was round, approximately 50 cm in diameter. The limestone capstone was found collapsed inside. This *chultun* contained a poorly preserved late Classic cylindrical vase of the Belize Red Variety (Gifford 1976 provides a description of this type). Despite this state of decay, rows of illegible glyphs were visible on the vessel, discernible only in the form of cartouches. Few other artifacts were recovered from this *chultun*.

Another *chultun* was located in the northern periphery of Cahal Pech at the Hospital Group (Awe 1992:60). This multi-chambered *chultun* was closely associated with a plazuela group which was unfortunately destroyed by the construction of the medical officer's residence in the 1960's (Jaime J. Awe 1992:personal communication). Despite remaining unexcavated, it was noted that the *chultun* consisted of three interconnected rectangular chambers. This could be discerned because the *chultun* was not completely filled. According to Awe (1992), the structures at this group may have been occupied between the late Middle Formative and Late Classic periods.

Other *chultuns* at Cahal Pech include one at the Zotz group, one at the Cas Pek group, and three at the Zubin group. The Cas Pek group has yielded evidence of continuous occupation from the late middle Preclassic through the late Classic (Awe, Vinuales, Velasco, and Novela 1992:53). The *chultun* at the Cas Pek Group had been looted, but fragments of human bone found within the chamber suggest that it may have contained a burial. Pottery within the *chultun* ranged in date from the late Preclassic to the late Classic. This material, however, does not provide conclusive evidence as to the exact date of the *chultun*.

The Zotz group, located 100 m south of the Cahal Pech central precinct, is a formal patio cluster on a platform measuring 22 m x 21 m (Awe, Aimers, and Blanchard 1992:119-122). The earliest construction here dates to the early middle Preclassic (Awe, Aimers, and Blanchard 1992:120). Four mounds are present and one *chultun*. The *chultun* at the Zotz group, was inhabited by bats during the 1991 season, and was not excavated. Since it was not entirely filled, some exploration was possible. A recently deposited turtle (unidentified species) carapace and a plastron were found resting on the surface of the fill.

Zubin is a large settlement cluster located about 2 km south of the central precinct of Cahal Pech (see Iannone this volume). The three *chultuns* at Zubin may be excavated sometime during the 1993-1995 field seasons. It was possible to explore the interior of one without excavation, as it was not entirely filled. It is located about 60m east and downhill from peripheral Patio D. There is no visible evidence of any adjacent structure. Notable in the morphology of this *chultun* is its orifice. It exhibits a bevelled edge that would have facilitated sealing of the *chultun* with a capstone. The bevelled orifice does not appear to be common around Cahal Pech, but has been noted at Uaxactún (Smith 1950). Within this *chultun*, a surface find of bones has been identified as an immature cow (*Bos taurus*) (Norbert Stanchly 1992:personal communication). The area around the site has been devoted to cattle pasture for a number of years. The cow likely fell into the *chultun* recently, like the turtle (unidentified species) at the Zotz group. The remaining two possible *chultuns* at Zubin are located within the site core. One is about 8m northwest of Structure C9, the other is approximately 22m west of the same structure. It must be emphasized that these two possible *chultuns* remain to be investigated, and may eventually be found to be natural features (cf. Puleston 1983).

The Tzinic Group (Awe and Conlon 1991; Conlon 1992), also south of the Cahal Pech central precinct, is notable in that no *chultuns* have yet been discovered there, despite their presence throughout the remainder of the Cahal Pech area. This may be due to a number of factors such as the difficulty in locating *chultuns* where capstones remain in place, or because of the dense secondary forest growth around the settlement. Alternatively, there may be no *chultuns* at Tzinic.

Function for most *chultuns* at Cahal Pech remains difficult to assess. First, there is a degree of morphological variation. Second, many remain unexcavated. Third, there is variation in the artifact assemblage from each excavated *chultun*. The only certain function is the use of *Chultun* B at the Tolok group as a burial chamber. It is possible that this may have been its only function. Any food storage interpretation is supported solely by experiments at other sites.

Other *Chultuns*

The Carnegie Institution of Washington conducted reconnaissance and excavation at Uaxactún during the 1920s and 1930s (Ricketson and Ricketson 1937; Smith 1950). Over 50 *chultuns* were mapped at the site. Puleston (1983) has questioned the accuracy of the Carnegie Institution's survey work, calling into doubt the reported *chultun* number. Several *chultun* burials at Uaxactún have been noted by Welsh (1988). Five *chultuns* were discovered and excavated in Group A (Smith 1950:48, 84, Figure 89). Six *chultuns* were excavated at Group E (Ricketson and Ricketson 1937:121-123). Most of the *chultuns* at Uaxactún "were located on high ground in the

area surrounding the site" (Smith 1950:84). They appear in the same general contexts as those at Cahal Pech and Tikal, either close to mounds, or with no evident structures nearby. Smith (1950:84) noted that although *chultun* shape varied at Uaxactún, they generally consisted of a spherical antechamber, and a lower rectilinear chamber. The capstones of *chultuns* A1 and A2 at Group A, had both fallen in. The pottery inside these *chultuns* was a mixture of late Preclassic to late Classic. This led Smith to conclude that these *chultuns* had been intentionally filled.

Tikal, like Uaxactún, is a site where investigators took a significant interest in *chultuns*. Carr and Hazard (1961:11) reported 197 *chultuns* in the central 9 km^2 of Tikal. This figure was updated by Puleston (1983:44), who added 29 and removed 10 reaching a total of 216 mapped *chultuns* at Tikal. There are approximately 300 more *chultuns* along the Tikal survey *brechas* extending from the central precinct of the site (Puleston 1983). The survey that led Puleston to change the figures, provides information about *chultun* survey problems. The *chultuns* removed from the original total by Puleston were found to be simply soil depressions, holes, quarries, or were not found again and were thus viewed as likely to have been soil depressions. Any one of these may explain the features seen as possible *chultuns* at Zubin.

Notable in Puleston's (1983:Figure 17, Figure 18, Figure 19) report is a correlation between elevation, number of structures, and number of *chultuns*. At higher elevations, more structures and *chultuns* occur, whereas at lower elevations, few if any structures or *chultuns* occur. Puleston (1983:23) notes that this demonstrates the Maya preference for higher, well-drained locations for such features. Furthermore, it appears to indicate a proportional relationship between *chultun* and structure numbers. Yet, if *chultuns* are linked to structures there may be no direct link between elevation and *chultun* location. It may merely be the case that well-drained locations are favoured for structures, around which *chultuns* tend to be located.

Another notable feature of the *chultuns* of Tikal is the increase in the *chultun* to structure ratio as distance increases from the site core. Puleston (1983:14) notes that this is particularly marked on the east and south *brechas*. The ratio increases with distance from the epicentre, or central 2 km^2 of Tikal. Puleston (1983) further noted that some areas of the survey had a particularly high incidence of *chultuns* compared to structures. Carr and Hazard (1961:11) had earlier noted this uneven distribution of *chultuns* at Tikal. They observed 22% of the original 197 mapped *chultuns* occurred in groups of two to eight. A more detailed analysis of *chultun* numbers, their proximity to one another and to structures, and the type and magnitude of structures they occur with would be useful in the study of *chultuns*.

There are some contradictions present in the Tikal Reports. Carr and Hazard (1961:11) state that many *chultuns* occur "in enclosed courts or even partially covered by mounds, but an equal number are unassociated or far from visible structures". In many cases at Tikal, as in one case each at the Tolok and Zubin groups at Cahal Pech, *chultuns* occur where there is no visible evidence for structures. Puleston (1983:18, 19, 21) insists that structures must be present but hidden or invisible to surface survey where *chultuns* appear to occur in isolation. In contrast, Puleston (1983:21) also notes that isolated *chultuns* indicate nearby ramón (*Brosimum alicastrum*) cultivation, not the presence of hidden structures. The absence of nearby structures, not simply their invisibility, is also possible.

Despite the extensive Tikal Settlement Survey, the number of *chultuns* counted at Tikal is problematic and must be seen as somewhat inaccurate. Carr and Hazard (1961:11) note the problems in finding *chultuns* that may have their capstones in situ. Moreover, one must realize that the vast majority of *chultuns* at Tikal remain unexcavated. The major problem in using the Tikal numbers is that they are merely a count of what was assumed to be *chultun* orifices. This is compounded by the fact that these orifices, although believed to be *chultuns*, may not be *chultuns* at all. In addition, it has been seen at Uaxactún (Ricketson and Ricketson 1937) that two orifices may lead to the same *chultun*. Despite Carr and Hazard's (1961:11) possible allusion to this inherent problem in the survey of *chultuns*, it has been ignored. The limitations of the Tikal data should be realized and considered by future *chultun* investigators.

Cuello is another notable exception to many sites in that the excavators took an interest in *chultuns* and conducted some experimental archaeology (Miksicek 1991; Miksicek et al. 1981). Two *chultuns*, dated to the late Preclassic period, were excavated and experiments were carried out to test their suitability for food storage. The fill in the two *chultuns* has been interpreted as a relatively rapid deposit of refuse. Miksicek (1991) points out that the fill represents deposits after the *chultuns* had finished serving their primary function.

Although one *chultun* (Feature 87) at Cuello was originally believed to be a cistern, due to what appeared to be a catchment floor around the orifice, water storage was not deemed a viable hypothesis (Miksicek 1991). This *chultun* had two chambers, which adjoined a third through a hole in the wall of the northwest chamber (Miksicek 1991:75). Nonetheless, the other *chultun* (Feature 246), is believed to be a possible candidate for water storage. This is based upon the belief that the water table, at the time the *chultun* was originally dug, was high enough to make the feature a well.

Chultun Function

Debate about the function of *chultuns* has been on-going since John Lloyd Stephens first noted them in the mid-nineteenth century (Stephens 1963 [1843]). While *chultuns* have varied possible functions, it is generally believed that these functions changed throughout the span of the *chultun's* use. To understand why *chultuns* were excavated by the Maya, most archaeologists have made a distinction between original intended function (primary) and subsequent functions (secondary). This entails accepting that *chultuns* were built for the same purpose throughout the southern Maya Lowlands, an assumption which remains unquestioned. Most debate revolves around "primary" function, that is, why did the Maya originally dig *chultuns*?

The list of possible "primary" functions is lengthy. It includes water storage, food storage, burial chambers, ceremonial chambers, and rooms for fine weaving for which high humidity was necessary (Puleston 1971; Ricketson 1925:390). Sweat baths have also been suggested by Ricketson and Ricketson (1937:123).

One of the early primary functions to be posited was water storage. Although the inappropriateness of this function was noted by Tozzer (1912) eighty years ago, the exercise of considering and rejecting it is commonplace in the literature (Carr and Hazard 961:; Miksicek 1991; Puleston 1971:75; Ricketson 1937:123; Smith 1948:85). Besides simply not retaining water, the typical *chultun* morphology, with the orifice over the antechamber would not be practical for retrieving water. If the water level sank, there would be none in the antechamber, presenting the problem of retrieving remaining water from the lower chamber (Smith 1948:85). It was noted above that one Cuello *chultun* may have functioned as a well. If this is the case, perhaps this feature should not be considered a *chultun* but rather a well or cistern.

Another possible "primary" function is food storage. According to Puleston (1971:324), Maudslay was the first to forward the food storage hypothesis in 1883. Since the 1960s the possibility of food storage is now accepted as the most plausible explanation of *chultun* function. The debate concerning the food storage hypothesis is focused on the type of food that may have been stored in *chultuns*. The main contender, around which a rather heated debate has centred, is the *ramón* (*Brosimum alicastrum*) or breadfruit. Puleston (1971, 1982, 1983) argued for the primary role of the *ramón* in Maya subsistence, based partly on analysis of extant trees around Tikal. This analysis has been given some support by Peters (1983), yet discounted by others (e.g. Dahlin and Litzinger 1986; Reina and Hill 1980).

Reina and Hill (1980) have given an interpretation of *chultun* function based on ethnohistoric documents. The ethnohistoric reports relate to agriculture and subsistence in the Alta Verapaz region, just south of the Petén. Reina and Hill interpret their

primary source as indicating the use of *ramón* for tortillas and a spice for colouring drinks. It was also used as a food colouring substitute for saffron by the Spaniards. Reina and Hill believe maize (*Zea mays*), not *ramón*, was stored in *chultuns*. *Ramón* storage would have been unnecessary as it was merely a dietary supplement and commonly available year round. Reina and Hill's (1980:78) interpretation of *chultun* function has important economic implications, particularly in trading maize as a commodity. That is, if maize could be stored for long periods of time, it could have been traded to areas of shortage from areas with a surplus, the surplus also being insurance against future crop failures. Maize aside, the main argument against *ramón* storage in *chultuns* by Miksicek et al. (1981) is that it was only a famine food. Reina and Hill (1980) corroborate this, noting there was a famine among the Maya of sixteenth century Alta Verapaz, forcing them to eat *ramón* which caused stomach problems. A further consideration which complicates understanding the Maya use of *ramón* is Roys (1931) description of it as quite palatable.

One final point to consider in the *ramón* debate is that contrary to Puleston (1971), Miksicek et al. (1981) argued that the presence of *ramón* near sites is due to purely edaphic factors. That is, the soil around sites is particularly attractive to the *ramón* tree. Miksicek et al. (1981:917) note several important soil characteristics around Lamanai, Belize. They believe that any single characteristic could have caused the over-representation of *ramón*. Peters (1983) points out the correlation between *ramón* and archaeological sites may be the result of selection by the Maya, or the result of bats dropping seeds close to the archaeological sites where they often live.

Puleston's (1971) experimental approach was used at Cuello (Miksicek 1991; Miksicek et al. 1981), demonstrating the possibility of storing *ramón* or root crops such as the yam and cocoyam (*Dioscorea* sp.) for periods of up to thirteen or more months. Experimental food storage in *chultuns* simply demonstrates *possibilities*, the possibility ostensibly introduced by Miksicek (1991) being root crops. Dahlin and Litzinger (1986), however, note that Puleston (1971) found the storage of root crops to be of only marginal utility and that they are best left unharvested until ready for use. It is therefore unclear why Miksicek et al. (1981) claim Puleston ignored root crops.

Anotner interesting proposal for food storage in *chultuns* is the possible ripening of fruit in the chambers (Miksicek 1991:80). A Belizean local informant told Miksicek that the wild custard apple (*Annona* sp.) was often picked green and subsequently stored in a pit for several days for ripening. Apparently fruit ripened in this way has a better flavour than that ripened on the tree. With this information as a lead, Miksicek noted that as fruit ripens it gives off ethylene gas. If one were to increase the concentration of this gas by trapping it in a closed space, fruit could be

ripened more quickly. Modern fruit is often shipped green and then ripened upon arrival by exposure to ethylene gas. The fruit ripening theory, however, is nothing more than conjecture, but nonetheless a possibility.

A more recent suggestion for the primary function of *chultuns* is their role in pickling and alcohol fermentation (Dahlin and Litzinger 1986). Dahlin and Litzinger (1986:723) also suggest the possibility that *chultuns* may have had a limited use and life span, indicated by their falling into disuse and being used secondarily as refuse pits or burial chambers. Dahlin and Litzinger (1986:723) note that the only primary *chultun* deposits are at Tikal, where Puleston (1971) found several *chultuns* with intact or fragmented *ollas*. Of particular interest is their reference to the distribution of *chultuns* as a refutation of Puleston's repeated argument in favour of *ramón* storage. Dahlin and Litzinger (1986) cite Willey et al. (1965) as noting that *chultuns* do not occur in the Belize Valley. Recent investigations at Cahal Pech refute this observation and indicate that while *chultuns* are absent in the alluvial plains, they are found in interfluvial areas such as karst foothills. Bullard (1960) also indicates this distribution of *chultuns* in the northeastern Petén. Although there are errors in Dahlin and Litzinger's geographic distribution, their argument warrants some attention.

Dahlin and Litzinger demonstrate that if used for food storage, *chultuns* do not occur as often as they should in areas where the Maya were farming. They also do not occur in larger numbers in areas of higher population, as one would expect of storage facilities. Dahlin and Litzinger's (1986) distribution argument, although logical, is weakened by a failure to realize that the Tikal *chultun* numbers reflect merely orifice counts. Nonetheless, they (Dahlin and Litzinger 1986:729) argue that *chultuns* were used for some "economic activity beyond household consumption of staple goods...a common but specialized cottage industry". The outcome of their line of reasoning, with recourse to ethnohistoric information, is that *chultuns* were used in pickling and the processing of alcoholic beverages. The secure, undisturbed *chultun* would have been ideal for fermentation, which requires even temperatures and no disturbances, especially at the outset (Dahlin and Litzinger 1986:730).

Although the *chultun* environment may have promoted the production of unwanted micro-organisms, this could have been dealt with in a number of ways. Adding bundles of certain plants would have limited the growth of some micro-organisms and introduced hallucinogenic properties. It is also possible that toads, since their skin is alkaline, were placed in storage containers with the alcoholic beverages to check the growth of unwanted micro-organisms. Toads may also have been used for their hallucinogenic properties. The use of plants and toads is based on ethnographic and ethnohistoric accounts (Dahlin and Litzinger 1986:731).

Common to many interpretations is the use of soil samples in support of functional theories. Miksicek (1991) analyzed plant remains to provide clues about the function of the *chultuns* at Cuello. It is not clear that comparative analysis of samples from outside the *chultuns* (both nearby and from other parts of the site) were undertaken to aid in determining the nature of the *chultun* fill. Miksicek (1991) did note that the fill in the Cuello *chultuns* was believed to be refuse. This intentional filling calls into question interpretations based on floral analysis, as does the possibility of soil washing in through the orifice by natural erosion. Dahlin and Litzinger (1986), note that almost *all* finds in *chultuns* are believed to relate to secondary function and therefore primary function *cannot* be inferred from these finds. The problems entailed in the analysis of *chultun* soil must be considered by *chultun* researchers.

One of the main "secondary" functions of *chultuns* is their use as burial chambers. Welsh (1988) provides a compilation of data on 1170 graves from 16 sites. Few of the 1170 graves considered by Welsh are *chultun* burials. Despite this small number, the use of *chultuns* as burial chambers has been demonstrated at many sites, such as Uaxactún (Ricketson and Ricketson 1937), and Cahal Pech (Powis 1992). Welsh follows Ruz (1965) who provided information on several *chultun* burials. Welsh (1988:17) designates *chultun* burials as Type II in his nomenclature, and describes them as a "large chamber originally dug out of the soil and/or bedrock for purposes other than mortuary, and with or without a shaft". It is notable that Welsh, as others, subscribes to the primary/secondary function dichotomy. Furthermore, it is notable that some *chultuns* have shafts while some do not. The use of shaft tombs in west Mexico has been noted by Porter Weaver (1981). In west Mexico these tombs were common, particularly during the Preclassic period. Yet, there remains little correlation between *chultuns* and these shaft tombs. A possible *chultun* at Hormiguero (Ruppert and Denison 1943) that most resembles the west Mexican shaft tombs contained no burial evidence.

As noted above, food storage is generally accepted as the most appropriate explanation of *chultun* function. It is not clear, however, why burials are found in these storage chambers. Although it is possible that the Mayas were burying individuals under the "storage room" floor, other explanations are also possible. Further divisions may be made along functional lines. *Chultuns* and cisterns, although originally thought to share the same function throughout the Maya area, are now believed to be quite different features (Puleston 1971). It may also be the case that *chultuns* of the southern Lowlands, and those (cisterns) of the northern Lowlands, had varied functions. That is, not simply varied functions over time, but completely different primary uses. Although the food storage hypothesis remains debatable, I do not suggest its abandonment.

Another possible function of *chultuns* that cannot be ignored is their potential ritual use or symbolic importance. Schele and Freidel (1990) assert that stelae represent "tree stones" and temples represented mountains to the Maya. It is possible that *chultuns* could have been a representation of the underworld or access to it. This is an area that has been little explored due to the favour of subsistence related functions. Pohl (1983:85) notes the ritual significance of amphibians, which were found in great quantities in a Cuello *chultun* (Wing and Scudder 1991). Amphibians found in caves and *cenotes* are closely associated with the underworld and considered sacred since they consort with the Chacs (Pohl 1983). The continued focus on subsistence and the underlying assumptions of the primary/secondary dichotomy appear to be limiting the variety of explored functional avenues.

Conclusions

It is possible that *chultuns* were not all created for the same purpose throughout the Maya Lowlands. The potential for varied original uses exists and demands further investigation. The interpretation of the material culture retrieved from *chultuns* has generally been used as indicators of "secondary" functions. This material, however, may very well be indicative of "primary" function. Very few of the surveyed *chultuns* have been excavated yet morphological variation among those excavated is clear. The reports of excavations at Uaxactún (Ricketson and Ricketson 1937; Smith 1950) Tikal (Puleston 1971, 1983), and Cahal Pech (Awe 1992; Powis 1992, this volume) illustrate a variety of shapes, sizes, and other features. Although it has been noted that there is a high degree of conformity in the shape and size of *chultun* orifices, this does not necessarily entail conformity of function or subterranean morphology. If one is to dig a subterranean chamber, then the orifice would simply have to be large enough to permit entry and not so large as to make the excavation an open pit. Another reason to maintain a small orifice is for the placement of a capstone, which also has functional connotations. The apparent uniformity of *chultun* orifices does not derogate from the importance of the subterranean variation. As a final caveat, one should realize that different generating processes may lead to similar forms. A detailed locational, morphological, temporal, and artifactual analysis may elucidate patterns. These patterns would lead to more substantive functional interpretations.

There are additional problems with excavation techniques, some of which fall outside the realm of the excavator's control. The high-humidity, dark, and cramped environment inside a *chultun* make excavation uncomfortable and difficult. Since it is difficult to see inside a *chultun*, even with a light source, subtle changes in stratigraphy may be overlooked. In addition, *chultun* morphology leads to a tendency to remove the *chultun* fill without sectioning, leaving no profile. That is, one must remove the fill in order to get inside most *chultuns*, yet in removing this fill the stratigraphic profile is destroyed. The loss of a stratigraphic

profile creates a dilemma regarding the nature of the fill. Whether fill is intentional and/or natural is an important question in functional interpretations.

Overall, the available evidence does not allow for straightforward interpretations. There are problems with the various food storage hypotheses, as they remain based purely on circumstantial or experimentally derived evidence. Courbin (1988:139) has pointed out a significant problem with experimental archaeology as "one finds oneself back at the eternal problem of the ethnographic analogy: the persistent imprecision, whatever may be said, of the relationship between past and present". This also serves to point out the imprecision of the ethnographic analogies used by Reina and Hill (1980) and Dahlin and Litzinger (1986).

The term *chultun* is freely and uncritically applied to prehistoric, human-made, subterranean chambers in the Maya lowlands. Interpretations become problematic when functional baggage is carried along with the descriptive term. That is, if the term *chultun* is applied to a feature, an assumption about function tends to be made. The result is the tendency for Mayanists to group all *chultuns* into one functional category, despite any apparent variation in form and spatial association.

To provide more solid evidence for the intended function of *chultuns*, more in situ artifacts and remains must be found. This is a challenging task, since *chultuns* that may remain covered and hidden by intact capstones are difficult to locate. If *chultuns* remain hidden by intact capstones, a more aggressive survey strategy would be required to locate them. Since *chultuns* do not usually play a prominent role in research, it is not likely that many projects would be willing to devote the time or funds necessary for a comprehensive search.

The sum of these problems is tenuous *chultun* interpretations. *Chultuns* warrant further detailed attention. Since *chultuns* do occur at many sites, it is likely that they played some significant role in the life of the Maya. Further field research, excavation, data compilation and re-examination, and experimentation are required. To increase understanding of *chultuns* and the potentially important role they played in the ancient Maya way of life, archaeologists must cast aside the assumptions that currently constrain research.

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BURNING THE CHAMPA: 1992 INVESTIGATIONS AT THE TOLOK GROUP, CAHAL PECH, BELIZE

BY

TERRY G. POWIS

INTRODUCTION

Archaeological investigations at several settlement cluster surrounding the Maya center of Cahal Pech have improved ou understanding of the chronological development and intra-regiona relationship of settlements at this site and within the Belize Valley Continuing investigations at the Tolok Group, in particular, ha provided new insights into Formative period settlement patterns architecture and artifactual assemblages, and Late Classic buria practices.

A major research objective during the past two field seasons at th Tolok Group has focused on the Formative period of development Excavations on Str.1 - Str.9 have demonstrated sequential occupatio dating from the late Middle Formative (600-300 B.C.) through to the Lat Classic period (A.D. 700-900). This long history of occupation at Tolo has provided important information on intra-site chronological an spatial relationships between the site core at Cahal Pech and it peripheral settlement clusters. This paper will briefly review previou investigations at Tolok, and describe excavations conducted at thi peripheral settlement during the 1992 season.

SITE DESCRIPTION

The Tolok Group is located in the southeastern periphery approximately 508 metres from the site core of Cahal Pech. The Group o mounds is situated on a long narrow ridge covering an area of 1. hectares, and is on land owned by Mr. Carlos Habet of San Ignacio Town Cayo. The Tolok Group consists of 12 mounds, 4 chultuns and a surfac midden (Powis 1992) and has a spatial configuration that fits Ashmore' (1981:51) definition of a "Structure-Focused Patio Cluster".

INVESTIGATIONS AND CONSTRUCTION HISTORY

Preliminary survey during the 1991 field season identified 11 mound dispersed across the ridge (Figure 1). All of the mounds were locate as a result of local farmers burning the land for milpa. During th 1991 season, four mounds (Str.1 - Str.4) were randomly tested and preliminary report (Powis 1992) has been published on thes investigations. Each of the four mounds sampled in 1991, varied i size, morphology and location within the Group.

The strategy employed during the 1992 season attempted to investigat a 100 % sample of the Group. After two seasons of investigations mos of the mounds at Tolok, except for a residential unit (Str.10 an Str.11) and a solitary mound (Str.12) discovered in 1992, have now bee intensively excavated. Although the three mounds identified above hav

not been tested, surface collections have been conducted on the thre structures.

The focus of the 1992 investigations was directed towards th examination of a small formal patio (Str.4 - Str.7) located at th southern extent of the ridge. Other excavations were also conducted o isolated house mounds (Str.8 and Str.9) located to the north of Str. and to the west of Str.1, respectively. Additional investigations wer carried out late in the season at Chultun C, situated on the easter slope of the ridge near a large surface midden, and in the plaza area o the small formal patio (see Figure 1).

STRUCTURE 4

The small southern patio is bordered by 4 low-lying mounds (Str.4 Str.7). During the 1991 field season, Str.4 was selected fo investigation in order to determine its possible association wit Chultun B. Of the 5 construction phases identified in Str.4, only th penultimate and terminal phases of occupation (Early Classic and Lat Classic periods, respectively) were determined to be associated with th chultun (Powis 1992:44-45). The earliest architectural phases in Str. dated to the terminal Middle Formative period and consisted of thi floors with construction fill that was primarily composed of compacte soil and small ballast.

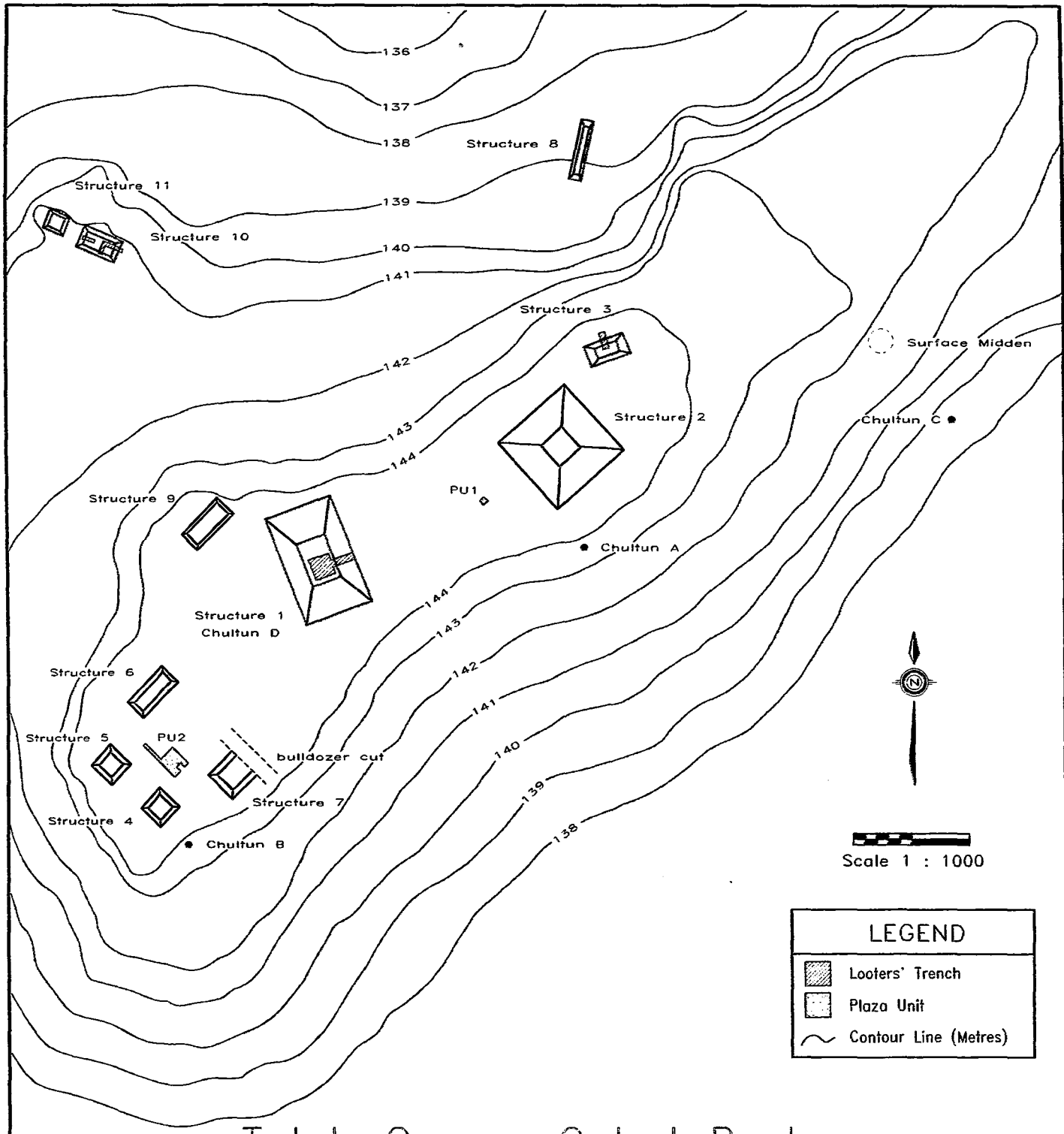
The presence of an Early Classic component in Str.4 at the Tolo Group was an integral factor in our decision to conduct furthe excavations in the small patio in 1992. Tzakol 1-3 sphere ceramics ar not well-represented at Cahal Pech or its immediate settlement clusters and it is believed to be the result of prolonged usage of Chicane ceramics into the Early Classic period (cf. Awe and Campbell 1988 Cheetham 1992; Conlon 1992; Ford 1990). Structures 5, 6 and 7 wer therefore tested in an effort to determine whether the mounds containe an Early Classic component, and in order to relate these findings to th rest of the Tolok Group.

STRUCTURE 5

Str.5 is a low square mound, approximately 1 metre high with a ba measuring 5 m x 5 m, and is similar in morphology to Str.4. The mou is located at the southwestern edge of the patio, at a point where th natural hilltop drops off significantly in elevation (Figure 1). A 2 x 1 m excavation unit was placed at the top of the mound, but was lat expanded to a 2 m x 2 m unit when a large Formative period architectur feature was found just above bedrock.

The earliest construction phase (TG-5/1st) was represented by a 6 thick plaster floor located about 20 cm above bedrock. Sections of th floor appeared to have been destroyed by later architectur construction. Based on ceramic analogy, the floor was assigned to th terminal Middle Formative period (450-300 B.C.).

The architectural feature which superimposed the earliest floor w represented by a retaining wall which was associated with t penultimate phase of construction (TG-5/2nd). The latter has been dat to the early Late Formative period (350-200 B.C.). The position of t retaining wall suggests that the southern portion of the ridge had be artificially built-up in order to expand the level area within the



Tolok Group, Cahal Pech
Cayo, Belize, 1991

Plan and Survey by: S.M. Brisbin & Terry G. Powis

Graphics by: Andrew D. Allan

FIGURE 1

patio. The retaining wall was 70 cm high, running east-west (7° west o
north), and was located a few centimetres above bedrock. The southern
face of the wall was dressed, 5 courses high, and made of large thick
cut stones (approximately 50 cm x 40 cm). The plaster floor associated
with the retaining wall was also broken, and was only partially
preserved across the unit. In view of this, the excavation was expanded
(3.5 metres to the west) in order to determine the extent of the wall.
This operation revealed that the wall continued across the entire unit
(measuring 5.5 m in length), and abutted the same plaster floor found i
the original unit.

The terminal phase of construction (TG-5/3rd) consisted of a Lat
Classic (Spanish Lookout phase) building platform approximately 12 c
above floor 2. The partially preserved platform floor was 6 cm thick.
Two walls which formed the corner of the building platform were als
exposed, including an additional wall which represented a latera
expansion that was constructed during the Late Classic period (Spanis
Lookout phase).

The structural fill used during the earliest levels of occupatio
consisted almost entirely of compacted soil. This pattern is consisten
with Middle Formative construction techniques at the site core an
surrounding settlement clusters (cf. Awe 1992). In contrast, Lat
Formative and Classic period construction phases at Cahal Pech appear t
have employed increasing amounts of ballast and dry core masonry (Aw
1992:221).

Despite the broken and destroyed nature of the cultural stratigraph
(floors) in the unit, we were still able to recover and assign th
artifacts to cultural levels. The majority of these artifacts wer
utilitarian wares, with large quantities of lithic flakes and debitage
Few shell remains and groundstone artifacts were found within eac
level. Artifacts associated with the construction fill in all level
were: 5 obsidian blades, 2 figurine fragments, 1 hammerstone, 1 bifac
fragment and a fragmentary, biconically drilled, perforated slat
pendant (2.5 cm in diameter). Fragmented slate objects, similar to th
specimen identified above (from level 1) have been predominantly foun
in elite contexts in the Maya Lowlands (Healy et al 1993:6-7). Th
presence of the slate artefact in Str. 5 may therefore indicate that th
inhabitants may have enjoyed special status in the community, or reflec
the local availability and open access to this raw material in the uppe
Belize valley.

STRUCTURE 6

Str.6 is a low-lying mound located on the western edge of the pati
group. The mound is approximately 0.5 metres high with a base measurin
9 m x 4 m. The mound is similar in morphology to Str.9, which i
located adjacent to Str.1. A 3 m x 1 m unit was placed at the top o
the mound along the primary axis, facing eastward into the plaza.

Two construction phases were defined for Str.6. The earliest leve
of occupation (TG-6/1st) consisted of a well-preserved plastered floor
4 cm thick, constructed directly on bedrock. The use of bedrock int
architecture at the Tolok Group is common, and is represented in th
earliest levels of Str.3, Str.6, Str.7, Str.8, Str.9 and Str.10
According to Haviland (1985:114) "bedrock alteration may have come abou
as either a way to obtain building material for locally contemplate

construction or to adapt bedrock as a direct member of su construction". The incorporation of bedrock into architecture has be found elsewhere at Cahal Pech and its immediate settlement clusters, particular at Str.B-4 in the site core (Awe 1992:133); Mound 2 in t Zotz Group (Awe et al 1992:133); Str.6 in the Tzinic Group (Conl 1992:76), and Str. 10 at Zubin (Sunahara, this volume).

Although the floor was partially constructed on bedrock, there w structural fill beneath those areas where the bedrock was lower elevation. Based on ceramic data (a few diagnostic forms), the flo was dated to the early Late Formative period (300-100 B.C.). Except f a few pieces of lithic debitage, no other artifact classes we represented.

The terminal phase of architecture (TG-6/2nd) consisted of a wel preserved plaster floor, 5 cm thick. The construction fill beneat these two floors was predominantly compacted soil, similar to t construction techniques used in the earliest levels of Str.4 and Str.

There were few diagnostic artifacts within these two levels, and the included 4 figurine fragments, 2 obsidian blades, 2 conch she fragments (see Stanchly, this volume) and 1 piece of polished greenston (jadeite ?). The polished greenstone was found directly on floor 1. is rectangular in shape with bevelled edges, and its greenish-whit colour possibly indicates poor quality of the raw material.

STRUCTURE 7

Str.7 is a low-lying mound located on the eastern edge of the pati group. The height of the mound is 0.5 metres and it is comparable height to the other mounds in the group. A large bulldozer cut ha bisected the mound at its north end thus making it difficult determine the actual size of the structure. According to the lan owner, the cut was made about 20 years ago, and the limestone materia was extracted for use in local road construction.

Investigations were conducted on Str.7 to determine whether thi mound served a special function such as the "family" or "household shrine for the inhabitants of the small patio. Several Archaeologist (Becker 1971; Coggins 1975; Haviland 1981; Leventhal 1983; Tourtell 1983; and Welsh 1988) have assigned a ceremonial function to easte structures on the basis of certain characteristics. These criteri include: (1) location on the east side of residential plazas; (2) mor elaborate architecture, usually of a high and square shape; (3) bette furnished graves; and (4) their apparent construction for housi burials (Welsh 1988:186-188).

A 2 m x 2 m excavation unit was placed at the top of the mound adjacent to the bulldozer cut. This cut hampered any practica placement of the unit, thus providing no indication as to the locati of the primary axis. Only one construction phase (TG-7/1st) wa identified in Str.7 but it is possible that a terminal phase architecture had been destroyed by the bulldozer. The sing construction phase was represented by a floor which was found direct on bedrock. The floor supported a small building platform whos retaining wall was only one course high. Structural fill was fou beneath the floor in the eastern end of the unit and consisted primaril of compacted soil. The building platform is dated to the late Middl

Formative period, based on relative ceramic chronology of the sherd found in the fill. The number of sherds were few in number and wer represented by diagnostic forms of the Savana, Jocote and Joventu ceramic groups.

Ceramics, lithics and shell remains formed the majority of th artifact assemblage from Str.7. Other than ceramics, no diagnosti artifacts were found below the floor. From above this floor, however nearly one hundred shell remains were identified. These wer represented by a diverse variety of both freshwater and marine specie (see Stanchly, this volume). The large quantity of shell material fr Str.7 is contrasted by low yields at the other mounds excavated in th patio. This distribution may be indicative of a domestic function fo Str. 7, or simply indicate that the fill within Str.7 was probabl obtained from an earlier midden.

No burials were found above or below the building platform in th excavation unit. The lack of burial data may simply be a result of ou sampling strategy which was affected by the bulldozer cut. However, n burials have been recovered from any of the other mounds in the pati group, with the exception of a Late Classic burial found in Chultun (Powis 1992:45-46). The patio group has a long history of occupatio dating from the late Middle Formative period to the Late Classic perio and yet no burials have been found, despite of the fact that all of th mounds have been intensively excavated. It is therefore possible tha the inhabitants of the patio may have been buried elsewhere within th Tolok Group.

STRUCTURE 8

Str.8 is a long low-lying mound, rectangular in shape with a bas measuring approximately 11 m x 2.5 m. The mound is 0.5 metres high an oriented in a north-south direction. Str.8 is a minimal residentia unit (Ashmore 1981:47) located about 28 metres north of Str.3 and abo 57 metres northwest of the surface midden. The isolation of this mou from the "Structure-Focused" area of Str.1 and Str.2, may provide n information on spatial dynamics and intra-site relationships within th Tolok group.

A 5 m x 1 m excavation unit was placed on top of an exposed cut sto wall, running along the north-south axis of the mound. The exposed wa was part of a building platform (TG-9\1st) that lay directly on bedroc There was, however, no evidence of bedrock alteration, which is deviation from the pattern identified with most of the moun investigated in the Tolok Group. The morphology of the mound follow the natural contours of the landscape, indicating that the buildi platform was erected on a low elevated natural ridge approximately 11 x 2.5 m x 0.5 m. The wall was the only construction phase identifi and, based on the ceramic data, the building platform has been dated the Late Classic period (Spanish Lookout phase). The wall was made very long and thin cut stones, approximately 40 cm x 20 cm x 4 cm.

The construction fill throughout the unit consisted primarily of ma and compacted soil. As previously indicated, Awe (1992:221) noted th ballast and dry core masonry were the preferred building materials us by commoners and elites alike during the Late Formative and Late Class periods at Cahal Pech. In general, this information is consistent wi

the architectural record at the Tolok Group, however Str.8 may signal a exception to this rule.

The majority of the artifacts recovered from inside the buildin platform were utilitarian wares, lithic flakes and debitage. We als discovered 2 figurine fragments, 1 obsidian blade and a piece o unworked slate. No shell remains were found associated with thi construction phase.

STRUCTURE 9

This mound is located to the west of Str.1 and has a present heigh of 0.5 m and a base measuring approximately 9 m x 4 m. Investigation were conducted at Str.9 to determine the relationship between this moun and Str.1, and to ascertain its construction history.

A 3 m x 1 m unit was placed at the top of the mound revealed tha the earliest construction phase (TG-9/1st) consisted of a Late Formativ building platform erected directly on bedrock. The bedrock was no physically altered, however 4 successive plastered floors (4 cm to 14 c in thickness) were sequentially laid down to increase the level area o bedrock prior to the construction of the platform. The exposed wall o the building platform was two courses of cut stone high, and appeared t have collapsed across the floor surface. Artifacts associated with thi construction phase were minimal and consisted of ceramics and jut shells.

The terminal phase of construction (TG-9/2nd) was located just abov the collapsed wall of the Formative period building platform. Thi architectural phase also consisted of a poorly preserved buildin platform which dated to the Late Classic period (transition betwee Tiger Run and Spanish Lookout phases). The building platform consiste of alow wall, one course high and oriented in an east-west direction Below this floor, the structural fill was composed of compacted soil ballast and core. The predominant use of dry core masonry for fil during the Late Classic period has been noted by Awe (1992) at Caha Pech, and has been discussed earlier in this report. However, th excavations at nine mounds in the Tolok Group have demonstrated tha although the use of core material in fill is predominantly found in Lat Classic construction, other materials, such as compacted clay and marl which were used during Middle Formative times continued to be used i the construction of some Classic period structures.

Artifacts associated with this construction phase included concentration of unworked slate located approximately 1.5 m from th building platform. Also, eight obsidian blade fragments and tw anthropomorphic figurine pieces (including a torso fragment and buttock fragment) were found within the structural fill.

CHULTUN C

Three of the four chultuns identified at the Tolok Group (Chultuns A B and C) are located on the eastern slope of the ridge. Chultun D wa found beneath Str.1 and exposed by a deep looters' trench which gutte the mound. In the 1991 survey of the Group, no looting was observed a Chultuns B and C and subsequently Chultun B (Figure 2) was excavate during that field season (Powis 1992:44-47). The following season Chultun C was investigated as part of comparative study with Chultun B

Chultun C is located on the northeastern slope of the ridge an adjacent to a large Late Classic period surface midden. When th chultun was first discovered, it was not completely filled in with soi and forest debris. Upon closer inspection, it was noted that th chultun consisted of two domed chambers which were located on the eas and west sides of the orifice. This lateral-chambered chultun (Pulesto 1971: 323) measured 3.40 metres in length and 1.50 metres in height wit the width varying throughout the chambers (Figure 3).

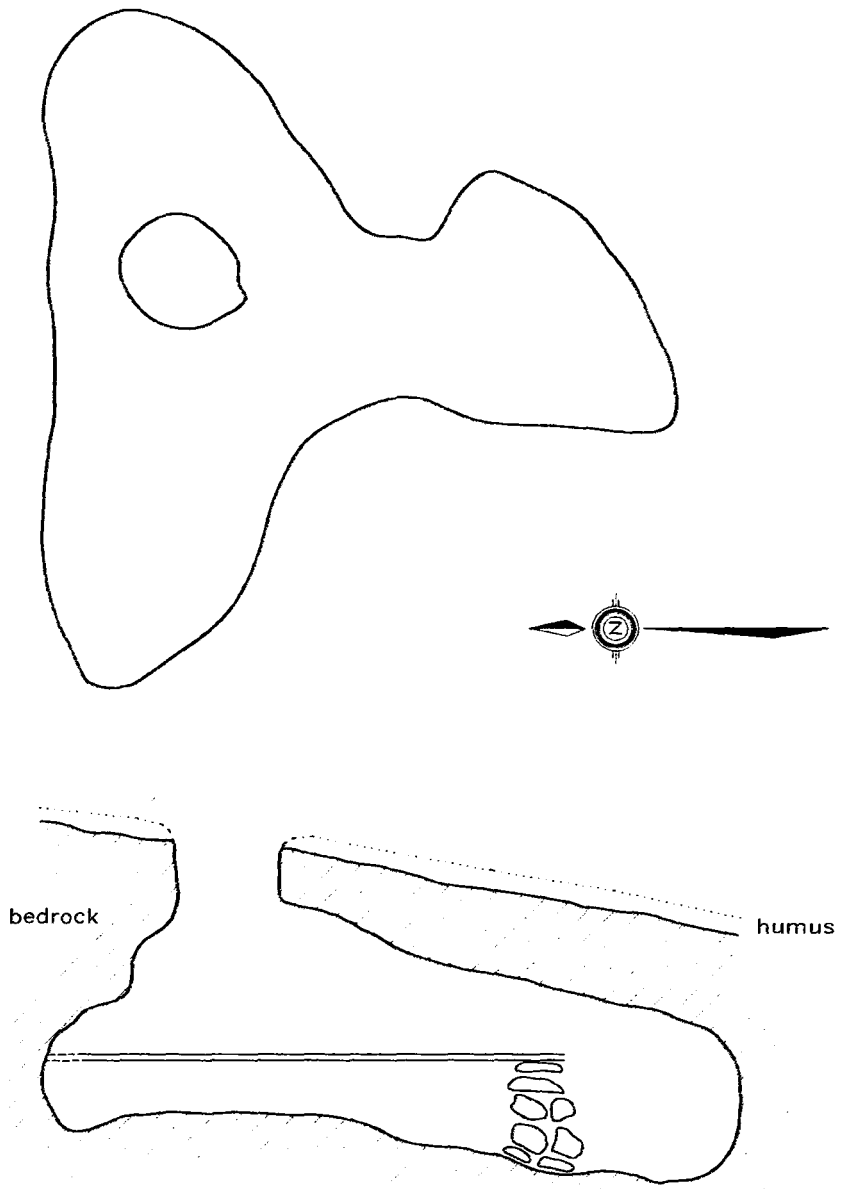
The orifice of the chultun is circular, 53 cm in diameter an centrally located between the two chambers. The covering stone or li was found battered and collapsed inside the west chamber. The diamete of the covering stone was smaller (48 cm x 43 cm) than the orifice o the chultun, and no evidence of a bevelled aperture was detected. Ther were no signs of an antechamber, but the appearance of a sill-lik feature was exposed beneath the orifice of the chultun. The sill wa difficult to define because the soil matrix had become hard as a resul of post-depositional processes. Similar problems were encountered wit a concreted matrix during the excavation of a burial inside Chultun 1 Group D at Xunantunich (Braswell 1992:65-66).

Artifacts associated with Chultun C consisted of broken utilitaria ceramics, lithic debitage and flakes, and shell material (land snails) A single, Late Classic, Belize Red variety, ceramic vessel was found i the west chamber of the chultun. The cylindrical vase had 3 columns an 5 rows of eroded red-slipped hieroglyphs painted down one side, onl readable in the form of cartouches. No other artifacts or human remain were found associated with the vessel and therefore its context in th chultun remains somewhat speculative.

It is possible that the vessel was empty, abandoned in situ an filled up as earth washed in through the orifice. The placement of a intact vessel with hieroglyphs in Chultun C, and similarly with two non domestic intact vessels (1 possibly associated with a Late Classi burial) placed in Chultun B have created somewhat of a problemati deposit within these two chultuns at the Tolok Group. The question wh several non-utilitarian ceramic vessels were deposited in these chultun may be related to domestic religious activities conducted just prior t the chultun's abandonment. It is suggested that some kind c termination ritual was practised during the Late Classic period (Spanis Lookout phase) in the form of votive offerings.

Chultun C has been dated to the Late Classic period based on relativ ceramic chronology (including the Belize Red cylindrical vase), but doe this represent the entire time span of the chultun? This is a difficul question to answer because both Chultuns B and C did not provide ar clear stratigraphic contexts. The ceramics found throughout the fill i this chultun nevertheless suggests it was in use only during the Tige Run (A.D.600-700) and Spanish Lookout (A.D.700-900) phases of the Lat Classic period.

Morphologically, Chultuns B and C share some similar features. The both exhibit a shoe-shaped profile (Figure 2 and 3), there is an absen of an antechamber and possibly a sill, and a lack of any visible plaste on the walls. Differences between these two chultuns exist in the overall size and number of domed chambers. This practice may refle idiosyncratic behaviour amongst different households of the Tolok Gro



LEGEND
plastered floor
cut stone

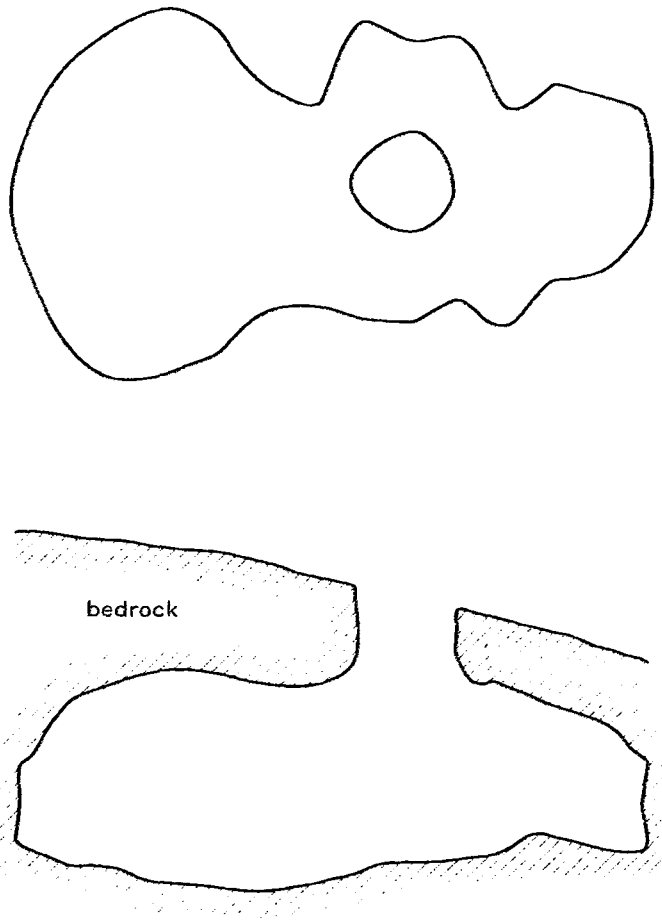
scale = 1:40 cm

Chultun B, Tolok Group
Cahal Pech, Belize (Powis 1993)

Plan and Profile by: Mark D. Campbell & Terry G. Powis

Graphics by: Andrew D. Allan

FIGURE 2



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Chultun C, Tolok Group
Cahal Pech, Belize (Powis 1993)

Plan and Profile by: Terry G. Powis & Grant Aylesworth
Graphics by: Andrew D. Allan

FIGURE 3

during the Late Classic period. However, no housemound(s) were found in close proximity to Chultun C. The problem of locating a housemound or a hidden platform near this chultun was hampered by the extensive soil erosion caused by milpa farming. If the chultun was constructed in isolation and yet contemporaneous with other mounds in the Group, then what possible function did it serve the community ?

The purpose of investigating this chultun was to establish a comparative database with Chultun B and with the other chultuns excavated from the settlement clusters surrounding Cahal Pech. The work reported herein is preliminary in nature until further study regarding the chultun's time span, function, morphology, and artifact classes are analyzed.

PLAZA UNIT INVESTIGATIONS

During the 1991 field season, investigations were conducted between Str.1 and Str.2 to determine whether there was a plaza floor sequence or a sacbe connecting these two mounds. The unit was designated as Plaza Unit-1 (PU-1) and revealed both types of architecture which dated to the Late Classic period (Powis 1992:41-42).

Similarly, Plaza Unit-2 (PU-2) was placed in the plaza of the small souther patio to ascertain its construction history and in order to determine the diachronic development of the group. The unit measured 1 m x 1 m and was placed equidistant between the mounds. Four plaza floors were identified, including two replasterings above the terminal floor (Figure 5). The construction fill between each plaza floor was consistently made of compacted soil and ballast. No dry core masonry was observed in any level within the plaza unit.

The artifact assemblages represented in each level was diverse and included: obsidian chips and blade fragments, utilitarian ceramic wares, lithic flakes and debitage, figurine fragments, and marine and freshwater shells.

The earliest construction phase (PU-2\1st) consisted of a floor located just above bedrock and was erected during the late Middle Formative period (600-300 B.C.). Two sequential Late Formative period plaza floors were recognized, followed by the terminal plaza floor (PU-2\4th) which has been dated to the Late Classic period (Tiger Run and Spanish Lookout phases).

A human skull was encountered during the excavation of the earliest plaza floor. As the burial (labelled as Burial 2) was exposed, it became evident that the human remains were buried across the top of a low circular platform (Figure 4). Three more burials (labelled as Burials 3, 4 and 5) were uncovered when the unit was expanded to a 4 m x 3 m unit. According to Welsh's grave typology (1988:8), the four burials were classified as cist burials (1988:8).

As the unit was extended, it exposed a larger section of the circular platform. However, the depth of the structure (approximately 1 m below the present surface level) restricted any large scale horizontal excavation late in the season. Accordingly, as much information as

possible was collected during the summer of 1992 and futur investigations will hopefully add to our knowledge of late Middl Formative circular platforms.

Presently, the morphology of the circular platform appears to b similar to the architectural type defined by Awe (1992:214) as bein low, circular and generally less than 50 cm in height. The Tolo circular platform is 40 cm high, the retaining wall consists of courses of cut stone, and it has an estimated diameter of 5 m based o the curvature of the structure. These dimensions are very similar t the round BR-1\Str.F at Barton Ramie (Willey et al 1965:53-59) an Structure 2 of the Bedran Group at Baking Pot (Powis 1993). It appear that the platform was placed on top of an existing plaza floor (PU 2\1st) which was recorded during the removal of Burial 2. The buria bisected the wall of the platform indicating that the plaza floo continued underneath it. After the platform was erected, a thick laye of lime plaster, 5 cm thick, was stuccoed on the outside face creatin the rounded corners and walls.

A partial appended ramp or outset stair was uncovered in the sout end of the unit. However, more time was needed to determine its limit and association with the platform. The placement of several cut stone in the shape of a cist burial was detected on the ramp, and it i possible this context is similar to that of the burial found inside th appended ramp of BR-1\Str.F at Barton Ramie (Willey et al 1965:52-57)

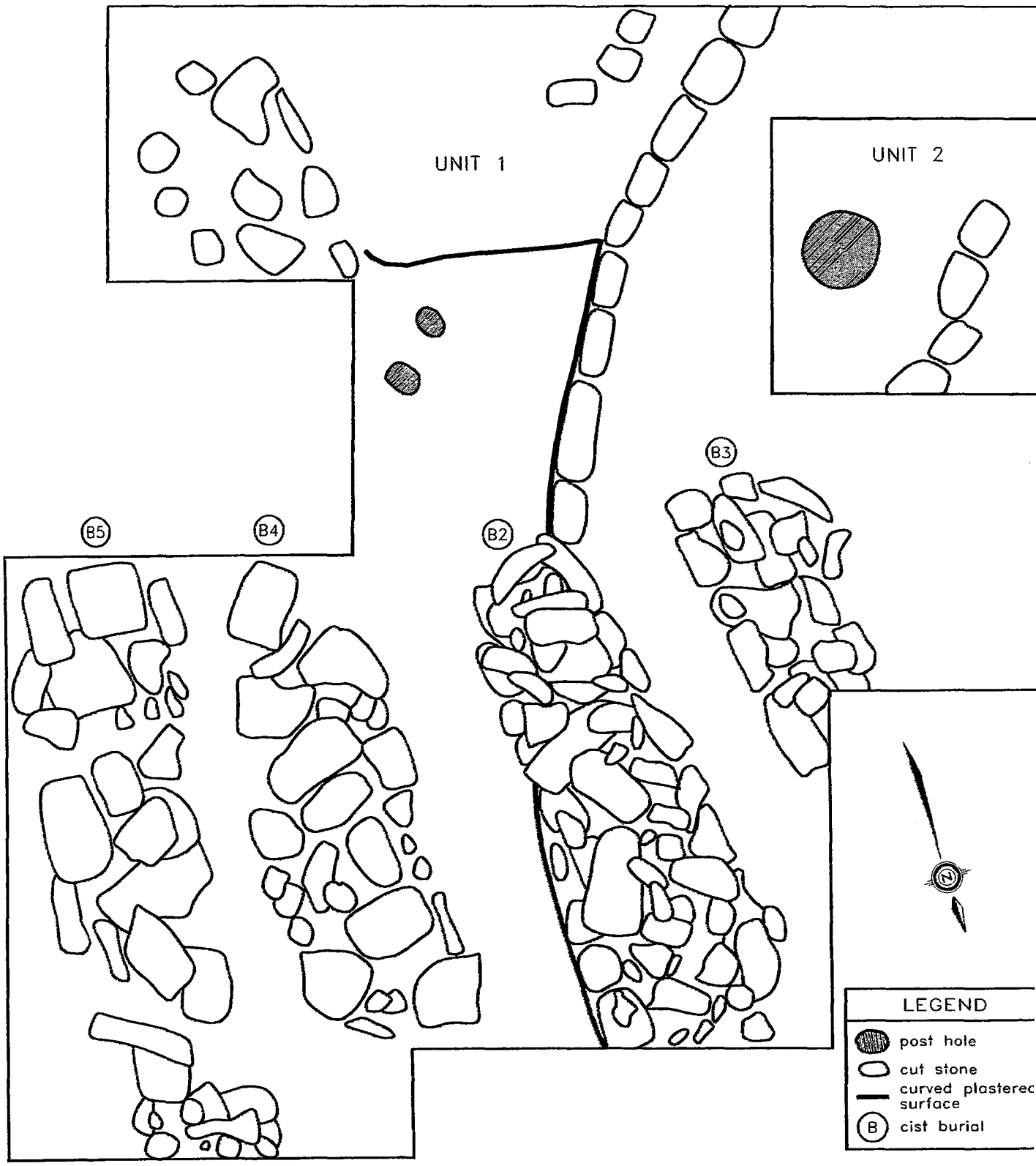
Three post holes were found associated with the circular platform Two of them were small (both 5 cm in diameter) and located in clos proximity to the appended ramp, while a larger post hole (15 cm i diameter) was found on top of the structure. The presence of post hole indicates that a perishable building was erected on top of the circula platform.

To determine the construction date for the circular platform, a 1 x 1 m unit was placed into the structure. The ceramic assemblag recovered from the structural fill included sherds of the Savana, Jocot and Joventud groups and suggests that the platform dates to the lat Middle Formative period (600-300 B.C.). Beneath the floor, an earlie construction phase was exposed and consisted of a low wall oriented i an east-west direction. No floor was found associated with the wall ar therefore the stratigraphic context suggests only that it predates th circular platform.

PLAZA UNIT-2 BURIAL INFORMATION

As mentioned earlier, four Late Classic (Spanish Lookout pha: A.D.700-900) burials were found on the surface of the Formative peri(circular platform. The cist burials were aligned in a north-sou' orientation and measured approximately 2 m in length (Figure 4). Ea(cist burial was placed carefully and sequentially without disturbing th previous grave. This is a similar to what Haviland (1985:152) observ(in Str.4F-7 at Tikal, in which four burials were placed at vario times, without disturbing the previous burials.

Every attempt was made to recover all burial information, howev time became a factor and Burial 3 was only partially exposed befo being covered up for the next field season (1993). A detailed

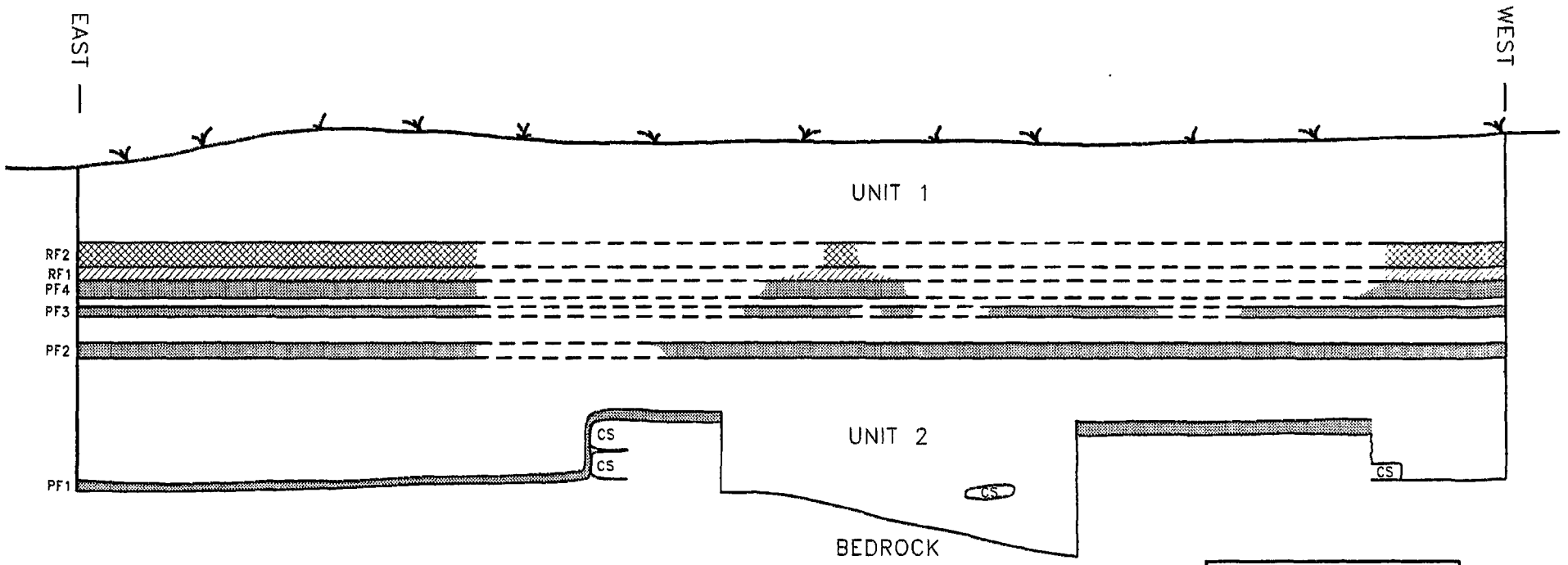


Round Structure, Plaza Unit-2 (PU-2 1st)
Tolok Group, Cahal Pech 1992

Plan View by: Terry G. Powis
Graphics by: Andrew D. Allan

scale 1:20cm

FIGURE 4



LEGEND

- CS — cut stone
- plastered floor (PF)
- replastered floor (RF1)
- replastered floor (RF2)

Round Structure, Plaza Unit-2
Tolok Group, Cahal Pech 1992

Profile by: Terry G. Powis
Graphics by: Andrew D. Allan

scale 1:20

preliminary report of the skeletal remains of Burials 2, 4 and 5 have been prepared by Rhan-Ju Song in Appendix A. Only a brief discussion of the burial practices involved will be mentioned here, including a description of the associated grave goods.

Burial 2 was the only intrusive grave to cut into the circular platform and whether this was intentional or not remains unclear at this time. The individual was placed in a prone position, fully extended with the head oriented to the south, and facing east.

Associated grave goods within the burial included 3 pieces of worked shell and a small jade disk. Two of the shell artifacts were quadrangular in shape and made from the nacreous interior (pink in colour) of a conch shell (Strombidae?). One of these artifacts was located beneath the right scapula and the other was found in the pelvic region. Related artifacts have been found in burial 130 from the site of Cuello (McSwain et al 1991:186), however, these shell artifacts were produced from the nacreous interior of the freshwater bivalve *Nephronaias ortmanni*. The other shell artifact associated with Burial 2 was located beside the skull of the individual, and included an entire bivalve of *Nephronaias ortmanni*, perforated at the hinge. Similar specimens have been found in burial 34 at Cuello (McSwain et al 1991:186) and at Barton Ramie (Willey et al 1965:Fig.309 1,m). Another grave good found with this burial consisted of a flat, polished jade disk 2 cm in diameter, and was located in the cervical vertebrae region of the individual.

Burial 4 was actually comprised of two individuals (see Song, this volume) interred on top of each other. Both were placed in a prone position, fully extended and their heads oriented to the south. The head of the individual on the bottom (Individual 2) was facing west. However, the skull of Individual 1 (located on top) was fragmentary, but may have also faced this direction(?). There was a difference in grave typology between both individuals within Burial 4, because Individual 1 was buried with a separate head cist. Interestingly, few burials with this particularly unique grave type morphology (cist and a head cist) have been identified in the Belize Valley (W.B.M. Welsh, personal communication 1993).

There were two miniature ceramic vessels of the Belize Red variety group found with these individuals. One vessel was found on each scapula of Individual 2 with the vessel located on the right side still intact. The vessel located on the left scapula was fragmentary, likely as a result of the placement of cut stones over the bodies. Many of these "miniature" vessel types were found in Tepeu 3 contexts at Uaxactun (Smith 1955: Fig.66a-2; Fig.67a-4; b-2,b-3,b-4,b-5,b-6; c-2,c-3,c-4; d-1,d-2,d-3).

The individual in Burial 5 was also placed in a prone, fully extended position with its head oriented to the south, and facing east. A small slate pendant was recovered from beside the 12th rib (floating rib) on the right side of the body. The pendant was flat, 2 cm in diameter, and biconically drilled. It is similar in form to two other slate pendant fragments found in the structural fill of Str.1 and Str.5 at the Tolo Group.

Detailed analyses of the bone material and artifact assemblages will be conducted in the future. The information will be useful in comparing intra-site burial practices between the site core and its surrounding settlement clusters.

SUMMARY AND DISCUSSIONS

During the past two field seasons, 9 mounds have been investigated at the Tolok Group. Based on ceramic chronology, the majority of the structures were first constructed during the late Middle Formative period and were continuously modified and occupied until the end of the Late Classic period. The Early Classic component at the Tolok Group is minimal, and this is tentatively reflected within the site core and the other peripheral settlement clusters. It is possible that this situation may actually represent a persistence of Late Formative ceramics into the Early Classic period, and it is hoped that future investigations at Cahal Pech will clarify this situation.

During the relatively long history of occupation at Tolok several changes occurred within this peripheral settlement. There were substantial changes in construction techniques, architectural types and artifact assemblages. Most of these changes have already been discussed above, but the use and alteration of bedrock in the earliest construction phases, and the utilization of (and absence of) core material as structural fill during the later periods are strong examples of how the Maya innovated their construction technologies through time.

An interesting question arises with the discovery of the Middle Formative circular platform at the Tolok Group. Why have so few of these structures been recorded in the central Maya Lowlands ? It is quite possible that their assumed rarity may simply reflect a sampling problem, but hopefully, the realization that round structures are being found in close proximity to the surface and in different spatial contexts (plazas, housemounds) such as the case at Cahal Pech, may eventually increase our knowledge of these presently rare forms of architecture.

The circular platform exposed in Plaza Unit-2 produced the most burials found to date at the Tolok Group. These burials all date to the Late Classic period and are contemporaneous with the burial found in Chultun B. It is also likely that more Classic period burials may be located beneath the plaza area. However, it has been demonstrated that several mounds were occupied during the Formative period at the Tolok Group, but excavations into these structures have produced no human remains. The question therefore arises as to where the inhabitants of the Formative period occupations are buried. It may be possible that cremation was the preferred Middle Formative method for disposing of the dead (Awe personal communication 1992), but this will only be answered by future investigations at the site.

The location of the Late Classic burials in the plaza suggests that the Classic period inhabitants of the southern patio knew the general location of the circular platform. They could have buried the dead below a floor or adjacent to a wall in their houses, yet no evidence exists for this to date. Also, they could have buried them below any of the plaza floors, so why did they bury them on top of this particular platform ? It is suggested that the tradition of ancestor worship may

have been a determining factor in the placement of the dead in this specific location, and that this platform continued to have religious importance to the community throughout the history of the Tolok Group. Much of this discussion remains speculative, particularly because of the preliminary nature of the investigations so far conducted on the circular platform and its associated burials. In 1993, further work will be conducted on the circular platform and perhaps some of the questions addressed above may be answered in the future.

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APPENDIX A

A REPORT OF THE HUMAN SKELETAL REMAINS FROM THE TOLOK GROUP, CAHAL PECH

By

Rhan-Ju Song

INTRODUCTION

During the 1992 field season, excavations within the plaza of the small southern patio at Tolok revealed four Late Classic burials. The primary burials had been deposited next to a low circular, Preclassic platform measuring approximately 5.0 m in diameter and 40 cm in height (see T. Powis, Fig. 4, this volume). Of the four burials, which contained a minimum of five individuals, only three (Burials 2, 4, and 5) were recovered. Due to time constraints, the retrieval of the fourth burial (Burial 3) was postponed until the next field season (1993).

Considering the state of human remains at other groups at Cahal Pech, overall skeletal preservation of these burials was excellent. Due to poor weather conditions, however, recovery proved difficult and many of the bones broke during retrieval. In addition, the placement of large cut stones in all of the cist graves resulted in skeletal damage prior to excavation, especially in the case of the skulls. The following report describes the results of the preliminary field analysis of the skeletal remains from the small southern patio at Tolok.

Burial 2:

This burial consisted of a capped cist grave (Welsh 1988) and contained one fully extended individual, positioned face down. Head orientation was to the south, facing eastward and both arms were slightly flexed, with hands under the pelvis. As with all of the Tolok skeletons, approximate stature was determined by measurements of the bregma region of the skull to the inferior surface of the left calcaneus. In this individual, skeletal length was approximately 134 cm.

Preservation of the long bones were generally very good and included epiphyses which were well articulated in their joints. However, cranial, vertebral, sacral, pelvic and rib bones were very fragmented and /or poorly preserved. In the case of the pelvic and rib/vertebral bones, poor preservation may have resulted from rodent and other animal activity. Opportunities for rodent burrowing would have arisen from the creation of air pockets by placement of large stones in the cist, and in this case the depth of the cist would have been appropriate. It must be noted, however, that close inspection of the bones to determine the

presence of rodent gnawing has not been done. Other recovered bones included maxillae fragments, mandible, hands, feet and patellae.

While no initial recognition of skeletal pathology was noted for this adult individual, complete skeletal analyses for this burial, including sex determination, were not completed by the author.

BURIAL 4 - Individual 1

This individual was found placed on top of individual 2 in a simple cist grave and with a head cist evident around individual 2. Interment of both individuals within the cist grave suggests burial at the same time, and in this case, both were fully extended, positioned face down, and with heads oriented southwards. Approximate length of this individual was 134 cm.

In the case of individual 1, overall skeletal preservation was mediocre to good. This individual was represented by several calvarium fragments (no facial bones), a mandible, poorly preserved rib and vertebral fragments, fragmented long bone shafts (lacking preserved epiphyses), hand and foot bones, and poorly preserved innominate fragments. The sex of the individual could not be determined from the state of preserved remains. Of particular interest was the mandible which consisted of the body minus the ramus portions, the right coronoid process, and partial right mandibular condyle. Only three incisor sockets were present and they were later associated with their teeth. However, the rest of the mandible had undergone alveolar resorption. This would suggest that tooth loss occurred a long time prior to death, perhaps as a result of poor dental health and disease. In the case of poor dental hygiene, the pattern of tooth loss usually involves the loss of molar teeth first. Canines and incisors are usually the last teeth to be lost and this is characteristic of individual 2. With such substantial tooth loss, proper mastication in this individual would have been greatly affected. One result of this cessation in chewing ability would be bone resorption, and in this individual it seems to have taken place over many years. This would account for the reduced size and thickness of the mandible. Importantly, this pattern of tooth loss and mandibular bone resorption can be used to suggest an old age for this individual (M. Maar, P. Stuart-Macadam, personal communication 1993). This could be interpreted to represent any age older than 45 years. However, as cranial and post-cranial bones from this individual were poorly preserved, specific age ranges cannot be given at this time.

Lastly, to support the conclusion of poor dental health in individual 2, one can examine the few teeth recovered from the burial. In total, at least six teeth, all permanent incisors, could be associated with this individual. Two incisors only had partial crowns, and there was evidence of major carious destruction in most, or all, of the teeth.

BURIAL 4 - Individual 2:

Unlike Individual 1, this skeleton's completeness allowed for the recognition of head direction, was facing west. The left arm was slightly flexed at the elbow and its left hand was placed under the pelvis. Length of this individual was 147 cm. Overall, this skeleton proved to be an interesting contrast to its gravemate, individual 1. Other than differences in preservation, which can be attributed to differential positioning in the grave, distinct disparities in skeletal health were observed. In the case of individual 2, very well-preserved skeletal remains included all long bones and most of their epiphyses (tightly articulated in their joints), both innominates, which unfortunately lacked pubic symphyses, scapulae, clavicles, most or all of the vertebral column, fragmented ribs, patellae, hands and feet. The mandible was complete except for the tip of the right mandibular condyle, and it seemed that the right coronoid process was thinner and less rounded (more pointy) than the left process.

Teeth and Dental Health: Examination of individual 2 revealed the presence of a full complement of teeth. This included the mandibular right M3, which was fully erupted, and would, according to Schour and Massler (1941) indicate an age from 21-35 years or older. This molar had a small carious lesion in the centre of the crown surface between cusps, and appeared as small pit. However, the lower left M3 was impacted horizontally within the mandible, with its crown pointing medially toward M2. Similarly, all maxillary teeth were present and fully erupted, including both third molars, and there was slight to medium shovelling in the central incisors. One lateral incisor (side undetermined) could not, however, be positively associated with individual 2. With this tooth, a half to three quarters of the root portion directly under the crown was totally destroyed by carious destruction through the nerve and pulp. As a result, the root of this tooth only had a lingual surface.

With respect to dental calculus, examination of individual 2 revealed deposits on all teeth, ranging from slight to medium (cf. Brothwell 1981: Fig. 6.14). Specifically, it was noted that there were slightly more lingual deposits on the crown-root lines of the lower left M1 and M2, than the right molars. This could possibly be related to the impacted lower left M3. While the degree of calculus deposits on teeth can be used to infer subsistence, it is often not representative of overall dental health and hygiene. In fact, calculus deposits on dental remains are often times only associated with illnesses just prior to death (P. Stuart-Macadam, personal communication 1993). Specifically, they would be indicative of changes in hygiene and subsistence resulting from the state of being ill, rather than the result of diet or poor hygiene throughout one's lifetime. Calculus deposits associated with illnesses causing death might result from a failure to maintain proper hygiene due to lack of strength or ability, lack of proper food intake, or improper mastication (P. Stuart-Macadam, personal

communication 1993). Therefore, regardless of calculus deposits, a statement of good dental health can still be applied to individual 2.

Dental attrition of individual 2's teeth was also examined. Enamel on all cusps were still present and there was generally very little wear on all teeth. This lack of much wear could suggest a relatively young (adult) age, since the gritty nature of the Maya diet (from food processing on stone manos and metates) tends to readily wear away dental surfaces. One would expect enamel wear to be more extensive in an older individual.

Sex: Based primarily on innominate evidence, a male sex can be assigned to individual 2.

Age: Considering the pattern of tooth eruption, and epiphyseal fusion times of the femoral head and ischial tuberosity (cf. Brothwell 1981: Fig. 3.4), an age range of 25-35 years can be suggested for this individual. With the little amount of wear present, one could also suggest an age in the lower end of the scale (i.e. 25-30 years).

Burial 5:

Burial 5 consisted of a simple cist grave (Welsh 1988), and like Burials 2 and 4, contained a fully extended individual positioned face down, with head to the south. Like Burial 2, its head was facing east, and, like Burial 4 (individual 2), had its left hand under the pelvis. Length of this individual was approximately 149 cm. Skeletal preservation was good in this individual and long bones were present. Other preserved bones included cranial and maxillae fragments, scapulae, clavicles, fragmented ribs and vertebrae, sacral fragments, innominates (lacking pubis and pubic symphyses), hands, feet and patellae.

While skeletal analysis of this burial was not done by the author, initial observation by Bobbi Hohmann in the field indicated an old age for this individual. This was determined by the nature of the mandible, which was similar to that of individual 1 of Burial 4. Like Burial 4, this mandible only had sockets for the incisors, and possibly canines (although these teeth were not recovered). The rest of the mandible had undergone complete bone growth over the sockets, and there appeared to be extensive alveolar resorption. While an older adult age can tentatively be assigned to this individual, sex was not determined by the author.

Lastly, based on B. Hohmann's observation in the field, there may have been cranial deformation in this individual. The occipital region of the skull appeared flattened, and was perhaps the result of purposeful manipulation. However, the determination of this type of deformation may be hindered by the nature of the skull remains, which were crushed postmortem and prior to excavation.

Conclusion

With respect to burials and human remains, the 1992 excavations at Tolok proved to be a very productive field season. Excavations in the plaza of the small souther patio not only uncovered four burial, but also exposed another Preclassic platform at Cahal Pech. Further investigation of this structure in 1993 will hopefully reveal more burials so that a larger skeletal sample can be examined for population health purposes. Such studies will obviously be aided by the state of the skeletal remains, and given the quality of preservation this past season, we hope that this will be the case in the future. The completeness of the skeletal remains recovered in 1992 has allowed some analyses of health status, age and sex. Further examination of these and other remains should also shed more light on Late Classic Maya population and disease ecology.

In terms of burial practices, a consistent pattern of interment has so far been observed. All burials were on a north-south axis, with heads to the south, and were deposited in simple cists. In addition, all individuals were fully extended and placed face down, with hands under the pelvis. This pattern of head orientation to the south and extended, prone skeletal position is consistent with common interment practices at the nearby sites of Baking Pot, Xunantunich, and Barton Ramie (cf. Welsh 1988).

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A PRELIMINARY ANALYSIS OF THE HUMAN SKELETAL REMAINS FROM STRUCTURE B-2 OF THE ZOTZ GROUP, & STRUCTURE A-1 OF THE ZUBIN GROUP, CAHAL PECH, BELIZE

BY

Marion Maar & Tamara Varney

Introduction

This paper provides a preliminary report of the human skeletal remains recovered from the burials excavated at the Zubin and Zotz Groups, Cahal Pech, Belize during the 1992 field season. The archaeological context of these burials is discussed elsewhere in this volume and in Awe, Aimers and Blanchnard (1992). Seven burials were excavated from within Str. B-2 at Zotz. They yielded the remains of nine individuals. Two burials were recovered from Str. A-1 at Zubin, but the extremely poor quality of these very fragmentary remains precluded any detailed analysis. We wish to emphasize that this analysis is preliminary in nature, and further study may yield more detailed information. This is particularly true for the relatively well preserved burial 2-B/3.

Materials and Methods

Zubin Group Burials

Details regarding information recorded during excavation is not included in this section, as the authors were not involved in the excavation of the Zubin group burials.

Burial A1-B/1

The recovered bone material from this primary burial is extremely fragmentary with many pieces of less than 2 cm length. Due to this fact no information on health status or gender is possible. A right humerus shaft was recovered, with part of the distal epiphysis intact. Complete epiphysial union was observed, indicating and age of over 15 years (Krogman and Iscan 1986:66).

Burial A1-B/2

This secondary burial consists of very poorly preserved bone fragments of approximately 1-2 cm in length and diameter. Both cortical and trabecular long bone fragments, as well as cranial fragments were found. A fragmentary metatarsal showed complete epiphysial union, an indication that the individual was older than age 15 (Krogman and Iscan 1986:66). The recovered dental material is limited to a maxillary left lateral incisor and a fragmentary molar (M1 or M2). The degree of attrition was scored as medium (cf. Brothwell 1981:155). A moderate amount of dental calculus deposits were found on both teeth (cf. Brothwell 1981:155).

Extensive erosion of bone surfaces precludes pathological examinations. Several small fragments of articular surfaces were examined for age related degenerative changes, yet none are present.

There is no evidence that this secondary burial represents more than one individual.

Zotz Group Burials

These burials were found towards the end of the field season, which prevented complete excavation of all discovered burials. The authors were involved in the excavation of burials 1 to 5.

Burial 2-B/1:

A poorly preserved but relatively complete skeleton of an adult was positioned lying ventral side down in an fully extended posture, with arms extended beside the body. The hands were just in front of the pelvic girdle, with the palms against the body. It lay in a north-south axis with its head to the south.

The permanent dentition is completely erupted, and the distal fibular epiphysis is completely fused, indicating at least early adult age (Krogman & Iscan 1986:70). No other indication of age is present, so refinement of this estimate is not possible.

The left talus is well preserved, and the measurements necessary for Steele's 1976 sex discriminant function analysis (in Krogman & Iscan 1986:243-4) were taken in an attempt to make a rough estimate of gender. Three discriminate function equations yielded sex estimates that fell into the male range, but they were too close to the sectioning point (83-89% accuracy) to be applied with any confidence. The long bone shaft fragments were not especially robust. No confident assessment can be made with respect to this individual in the absence of any more reliable indicators of sex.

The bony elements do not show any sign of pathology. None of the several intact articular surfaces show any sign of age-related degeneration which is consistent with young adulthood. In accordance with Gustafson's 1950 (in Krogman & Iscan 1986:363-6) ranking the teeth exhibit slight calculus build-up and attrition that often reached the dentin. One small carious lesion (0.5mm diameter) was present on the occlusial (distal-buccal) surface of a right third molar.

Burial 2-B/2:

Very poorly preserved, fragmentary remnants of an adult skeleton of indeterminate sex were recovered.

The left lateral skull was preserved and consists of the portions of the frontal, parietal and temporal bones. The calotte was taken out in a block of dirt, as the bones were judged too fragile and fragmentary to have withstood extraction. The fragment spans the left lateral supraorbital area back to the mastoid process, with absence of the zygomatic and squamous temporal regions (See Figure 1). The frontal bone of this skull rises quite steeply, and the shape of the remnants of the cranium do not appear to be natural. This prompted a comparison with a reconstructed skull that exhibits artificial shaping, excavated during the 1988 field season. The shape comparison confirmed the suspected presence of artificial shaping of the B/2 cranium. This shaping can be classified as tabular erect following

the 1936 classification system of Imbelloni and Dembo (in Comas 1960:391-5).

The dentition is covered with a slight calculus build-up (Krogman & Iscan 1986:363-6). The two maxillary premolars have carious lesions at the neck (1.5mm diameter).

Burial 2-B/3

Out of the seven burials excavated at Zotz during the 1992 field season, burial 3 was most well preserved. Nevertheless, excavation was hampered by days of heavy rain fall which softened the bony matrix and destroyed the remnants of the pelvic bones and most of the distal and proximal epiphysis of the major longbones. The individual was buried in an extended position, face down with hands positioned underneath the pelvic region.

Bones of a possible secondary burial are associated with burial 3. A third femur was located slightly east of the left fibula of burial 3. This femur is 3-4 cm shorter and less robust than the femur of the primary burial. A left calcaneus was found on the top of the left femur of Burial 3, around mid shaft. A left talus was found near the proximal end of the right femur of burial 3. Due to the poor preservation of these three 'extra' bones, it is not possible to determine whether they may have belonged to one individual.

The crown of a deciduous second molar was excavated several centimeters above the posterior surface of the cranium of burial 3. The molar shows complete absence of wear facets on the cusps. The root of this molar seems to have not yet formed, a developmental condition typical of about age 9 to 12 months (Krogman and Iscan 191986:362). If this tooth indeed represents an infant burial it is not surprising that no skeletal remains were recovered due to the fragile nature of infant bone and low degree of ossification. This tooth is not associated with the isolated leg and footbones, which showed completely fused epipyses of the femur. Complete fusion of theses epiphyses does not occur until late adolescence.

The partial remains of what appeared to be a scapula of an animal was found located between the femora of burial 3. The maximum length of this bone is estimated to be 10 cm. The species could not be determined in the field and is presently being analyzed by the project's faunal osteologist.

The skull of the complete skeleton is moderately well preserved. Despite waterlogged conditions during excavations it was possible to reconstruct much of the neurocranium. The facial bones are unfortunately damaged, although the entire dentition and parts of the bony matrix were recovered.

The strongly pronounced supracillary and supraorbital arches, large mastoid process, pronounced mental trigonum and rugged muscle attachment sites for the masseter and the temporal muscle allows us to positively identify the individual as male. The robusticity of the postcranial skeleton strongly confirms this estimate. The preserved first element of the sacrum is large with a wide transverse diameter.

The linea aspera of the femur and the deltoid tuberosity of the humerus is found to be especially strongly developed. The clavicle is also very robust, with a deep groove for the attachment site of the subclavius muscle as well as the deltoid muscle.

Much of the dental arch is preserved. The maxillary incisors, canines and first premolars are decorated with jadeite inlay. A description of the dental decoration will follow below. The mandibular dentition consists of the incisors, canines and left first premolar and right second premolar. The remaining premolars and molars were lost several years before death, as evident by the extent of alveolar resorption of the corpus mandibulae. Possible exception is the second molar which is missing due to perimortem loss.

Artificial changes:

The labial surfaces of the incisors, canines and premolars of the maxillary dentition are decorated with an inlay of jadeite. A single circular piece of jadeite is encrusted in the center of each crown and can be classified as type E1 after Romero (1970:51). No alteration of the crown contour was observed.

The skull of burial 3 shows evidence of artificial cranial shaping of the tabular form. Although the occipital bone was the only parietal recovered it was evidently sloping posteriorly. The cranial shaping is therefore classified as tabular oblique (See Figure 2).

Burial 2-B/4:

This burial consisted of a jumble of five long bones of the leg, probably representing a secondary interment. The articular surface of the right tibia was free from any age-related degeneration. The left fibula has a small region of mild non-specific periostitis. The material was so fragmentary that little can be determined from the remains, except that the individual was probably an adult.

Burial 2-B/5:

The material recovered from this burial included an almost complete mandible with dentition, and very little other poorly preserved fragmentary pieces. Most of this burial was outside of the delimitation of the excavation unit under a large tree. Only the head region of the individual was readily accessible, although a few other upper body elements were recovered. Further excavation was deemed too costly and possibly dangerous with the time available.

Very little could be assessed concerning this individual, other than adult status. The permanent dentition is fully erupted and exhibits little to slight attrition, mainly on the incisors. The canine has a slight build-up of calculus on its neck. All of the incisors are shoveled.

Burial 2-B/6:

Little can be assessed from these remains except their adult status. Most of the material from this burial was in such a poor state of preservation that the identity of the bone of origin was not possible. The long bones were wet and terribly crushed, and exhibited erosion of the cortical surfaces.

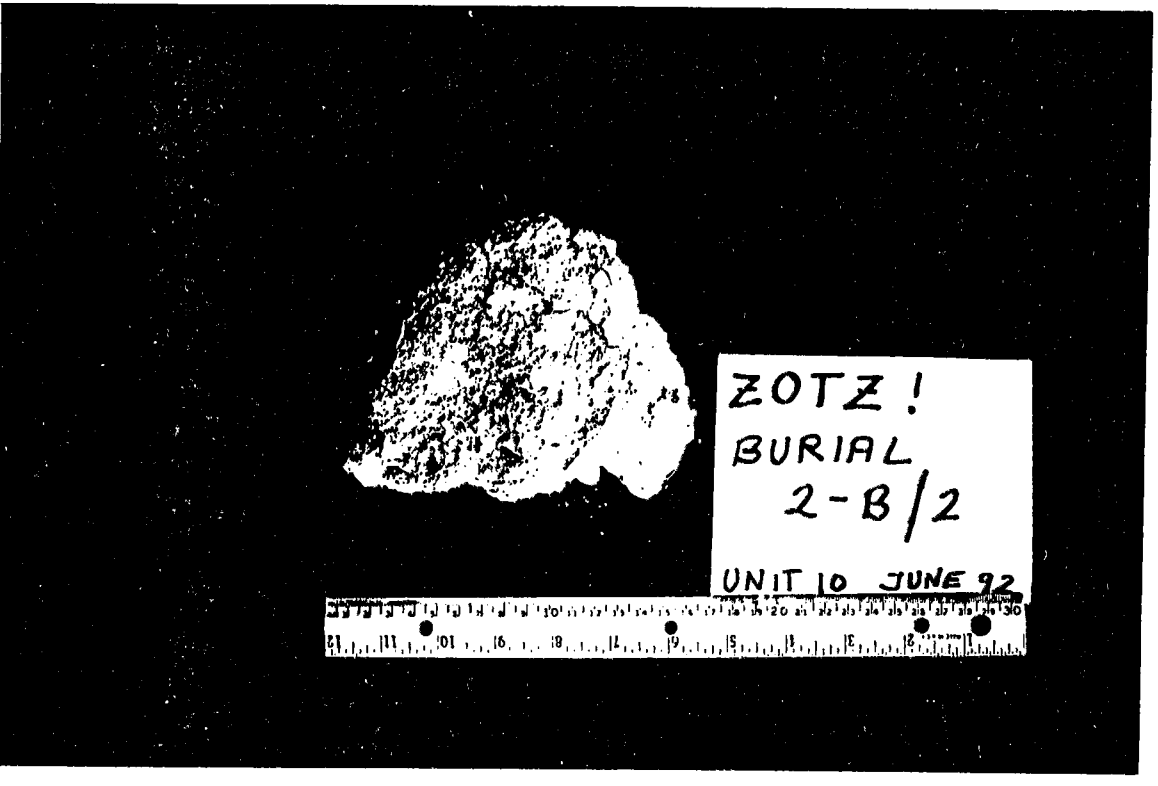

Figure 1: Cranial Fragments,
Burial 2-B/2

Note steeply rising frontal bone

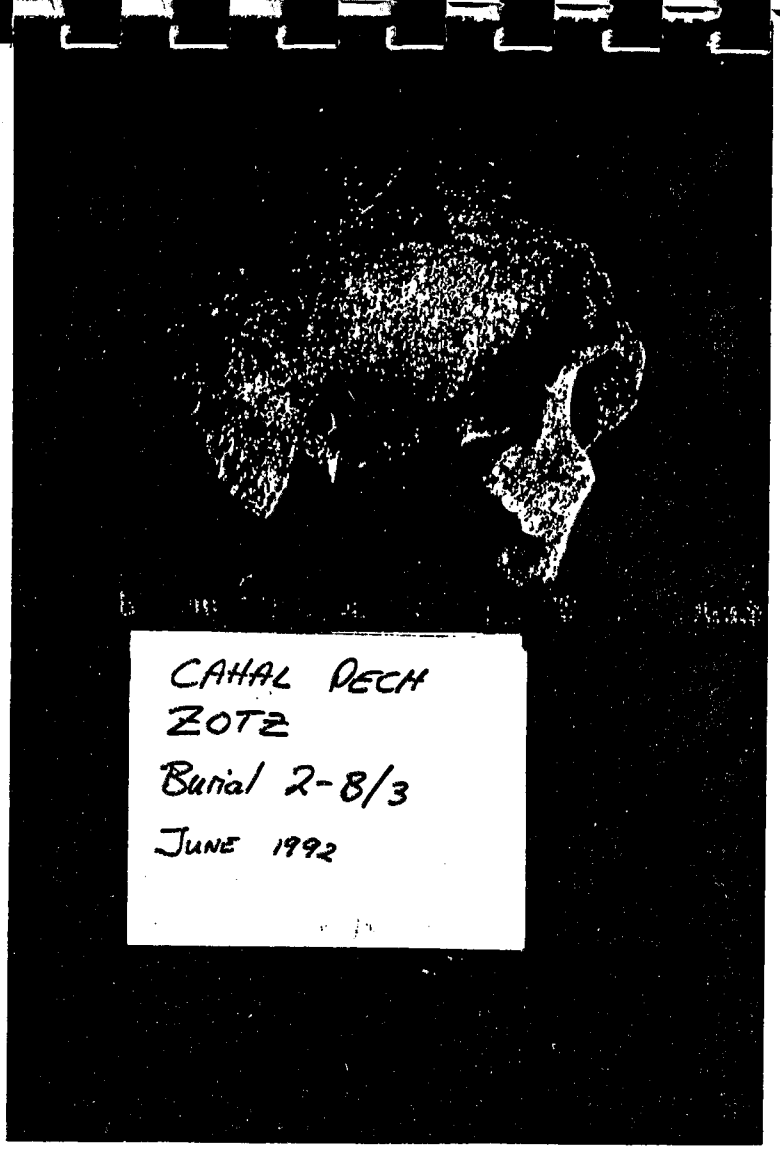

Figure II: Cranium, Burial 2-B/3

Six permanent mandibular teeth, all from the left side with the exception of one right incisor, were recovered. All exhibited moderate attrition and calculus build-up. The incisoral occlusial surfaces were worn in an incline that sloped towards the labial side.

Burial 2-B/7:

This burial, recovered beneath half of a ceramic vessel, represents an adult individual of indeterminate sex. The mental region of a mandible and seven permanent teeth (2 maxillary, 4 mandibular and 1 indeterminate) were recovered, as well as a few small cranial and post-cranial fragments. The mandible fragment extends back far enough on each side to include both mental foramina. There was antemortem loss of all of the molars some time before death as the root sockets were almost totally resorbed. This had progressed more quickly on the left side than the right. The maxillary incisors are shoveled and display linear enamel hypoplasia on the labial surface at the mid-crown level.

Results:

As is typical of skeletal material from the Maya Lowlands, the bones of the Zotz and Zubin burials are very poorly preserved. This made not only excavation and extraction difficult, but placed limitation upon osteological analysis. Cortical bone surfaces commonly displayed evidence of post-mortem changes caused by soil erosion and invasive plant growth. A large tree was located at the south end of the unit, and had infiltrated much of that end of the unit with roots, causing some disruption and damage to the remains. Heavy rainfall during the excavation of the Zotz burials presented added difficulties. Progress in extracting the remains was impeded as bones became waterlogged and coated with decomposed limestone mixed with the clay soil. This coating presented a major obstacle in preparing the fragile bones for curation.

The most commonly recovered skeletal elements were dental, reflecting the resillient chemical composition of teeth. The teeth were often found to be relatively undisturbed by intrusion of roots or rodents, and still laid out in the pattern of the dental arcade. The burials 2-B1 and 2-B3 yielded three well preserved tali, a surprising fact considering the other foot and ankle bones had either decayed away or were in fragments. Many of these fragments were disturbed and so small that assignment to the bone of origin was not possible.

Composition of the skeletal sample:

The two burials at Zubin, unfortunately, yielded only small bone fragments for analysis. There is no evidence indicating that the two burials represent more than two individuals, but this possibility can not be ruled out.

The seven excavated burials at Zotz yielded the remains of at least 9 individuals (minimum count based on postcranial elements and dentitions). In total, 8 adults, 1 male, 7 indeterminate and 1 immature individual (represented by a single deciduous molar) is the minimum number of individuals represented by the recovered bones.

Although the remains were in poor shape, it can be confidently concluded that they fit the literature descriptions of ancient Maya population biology. This description represents a population that is often characterized by such traits as a high degree of dental wear, dental calculus, shovel-shaped incisors, cranial shaping and decoration of the anterior dentition (Saul & Saul 1989:287-302).

Dentition:

A total of 74 teeth were found, and exhibit traits that are in agreement with Saul and Saul's (1989:294) assesments of prehistoric Maya remains. Both the upper central (n=4) and lateral (n=7) incisors are shoveled, a trait characteristic of Amerindian populations (Hillson 1986:259). Slight to heavy calculus build-up was present on the majority of the teeth (cf. Gustafson's 1950 ranking in Krogman & Iscan 1986:363-6). This high degree of dental tartar deposit is characteristic of high dietary starch intake from maize consumption. Carious lesions were found at relatively low frequencies, partially due to the fact that the heavy tarter build up inhibits tooth decay. The common antemortem tooth loss, especially of the posterior dentition is likely also associated with heavy tartar build up, which can lead to periodontitis with subsequent alveolar resorption and tooth loss (Hillson 1986:309-311).

The dental calculus build up of the dentition of individual 2-B/3 is considerable, covering most of the dental crown, except for the occlusial surface. The degree of attrition is moderate. The enamel is worn on the occlusial surface resulting in exposure of the dentin. A carious lesion was found on the right first premolar. The left mandibular incisors and canine are represented as roots, whereas the crowns have apparently been fractured. This type of fracture is consistent with the complete colapse of the dental crown due to extensive carious lesions (H. Helmuth, personal communication, 1993). The presence of abscess located in the apical region of the left canine supports this conclusion.

The maxillary incisors of one individual (2-B/7) had mild linear enamel hypoplasia lesions at the mid-crown. These lesions are indicative of enamel growth arrests due to malnutrition and/or other disease stress during early childhood. According to the Massler's charts (in Hillson 1986:135) this stress was induced in this individual at 2-3 years of age. This may correspond to the age of weaning, which has been recorded as occurring between the ages of 3-4 years at the time of European contact (cf. Saul and Saul 1989:299). Enamel defects are a common occurrence at this age interval, and have been suggested to be related to the nutritional and immunological stress patterns associated with weaning (Clarke 1980:82; Larsen 1987:375). However, the relationship between enamel defects and weaning, as well as the determination of age at the time of stress has been questioned (cf. Skinner and Goodman 1992).

One individual had teeth that had been artificially modified in a decorative manner. This individual (2-B/3) had circular jadeite encrustations in the anterior maxillary dentition as detailed in the burial description.

Pathology

A joint disease that is commonly found in archaeological as well as modern bone is osteoarthritis. It is most commonly found in the spinal column. The causes of this disease is still far from being completely understood, yet factors that seem involved include previous trauma, dietary intake, severe working conditions and age related degenerative changes (Brothwell, 1981:146).

Although most bony surfaces show varying degrees of diagenic alteration, a partial cervical vertebrae was recovered from 2-B/3, which was examined for pathological changes. The vertebral body is characterized by porosity and it is surrounded by marginal osteophytes. The articular facets are also noticeably involved, including extensive osteophyte production in a shelf-like protrusion around the cortex and possible eburnation of the joint margin. The spondylarthrosis of the cervical vertebrae was scored as moderately severe (after Sage, 1969). The lack of articular surfaces of the apendicular skeleton for comparative purposes makes it difficult to asses whether this degenerative processes is primarily age related or stress induced.

Conclusion

Several extra bones were recovered in Burial 2-B/3. Additional skeletal material was visible under rocks at the north-west edge of the unit, and under the tree at the south end of the excavation. As noted previously, further excavations were not feasible during this field season and the remaining burials remained unexcavated. It is apparent from these observations that a larger number of individuals than those that have been recovered during past excavations are interred within this structure.

These facts favour the interpretation that Str. 2 of the Zotz group was used as a community or family shrine, into which successive burials were deposited, often intrusively, above previous interments (Awe, Aimers and Blanchard 1992). Unfortunately, it was not possible to explore familial relationships of individuals through morphognostic methods. Advances in the application of recombinant DNA technology may provide a future avenue for determining genetic relationships among these people. In this light it is interesting to note that at least two individuals showed evidence of intentional cranial shaping of the tabular oblique (2-B/3) and tabular erect (2-B/2) type. These were the only two crania that were intact enough to note the presence of cranial shaping. Also as described above, the individual of burial 2-B/3 also possessed a decorated dentition. These traits may testify to the social importance of their bearers and structure 2 as a family shrine.

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A PRELIMINARY ANALYSIS OF THE FAUNAL REMAINS FROM THE TOLOK AND ZUBIN GROUPS, 1991 AND 1992 FIELD SEASONS

by Norbert Stanchly

Introduction

Archaeological investigations conducted at the site of Cahal Pech, Belize, have focused on both the site core as well as several peripheral settlement groups (see Awe and Campbell 1992). Excavations carried out at two of these groups, Tolok and Zubin, have produced a large number of both vertebrate and invertebrate faunal remains. A preliminary analysis of these remains has been completed and is reported on below.

Initial analysis of the faunal material presented for analysis suggests widespread use of local shell species for food by both the Tolok and Zubin inhabitants. Both freshwater snails and bivalves are present. Land snails were also recovered though at this point it is unclear whether or not these represent intrusive elements. A few marine shell specimens are also noted.

Bone remains were recovered from both groups, though in fewer numbers than shell. This may be the result of differential preservation due, mainly, to soil conditions. The majority of the vertebrate faunal assemblage recovered from the Tolok group is midden material, while vertebrate remains recovered from the Zubin group were all found within a burial context. The majority of the Zubin remains are intrusive rodent species (see discussion below).

Interpretations made within this report are limited and very preliminary in scope and are intended only to provide a general idea of the composition of the faunal assemblage recovered to date from the Tolok and Zubin groups. Furthur archaeological investigations at these sites are planned and expected to be carried out over the next few years. It is therefore likely that more faunal remains will be recovered in the upcoming seasons which will undoubtedly add to and possibly alter any interpretations made at this point. For this reason this report will be descriptive in style and concentrate on data presentation rather than interpretation. Cultural data has, for the most part, not been integrated into this report.

The Tolok Group

Introduction - Investigations at the Tolok group were initiated during the 1991 field season and continued during the summer of 1992 under the direction of Terry Powis (Assistant Field Director, Belize Valley Archaeological Reconnaissance Project). A total of 12 structures have been identified and investigated to date. Faunal remains have been recovered from the majority of these, as well as from a plaza unit and chultun contexts (see Table 3). For a detailed review of the Tolok group the reader is referred to the article by Powis in this volume and Powis 1992.

General Observations - A total of 937 faunal remains were presented for analysis. This includes remains of both local and marine shells, freshwater fish, bird, crab, and mammal species. The majority of these (n = 495 or 52.8%) were recovered from within the midden located in Structure 1.

Shell remains account for 767 specimens or 81.9% of the total sample (see Table 2). Representatives of the genera Pachychilus, Nephronaias, Euglandina, Orthalicus, and Strombus have been identified. Identification to species has as yet not been possible for Euglandina and Orthalicus remains. Both of these are land snails and may indeed represent intrusive elements. A small number of Pomacea or apple snails have also been noted by the author. However, their identification is now considered questionable. Remains identified as Pomacea may actually be members of the genus Orthalicus. Until these can be re-examined in the field they are listed as Pomacea for the purposes of this report.

The remaining 170 remains (18.1%) are vertebrate elements recovered from the Structure 1 midden. These are discussed in more detail below.

For each structure, a brief description of the faunal material examined and identified is provided. Quantified data for this material is provided in the tables listed at the end of this report.

Structure 1 - Two units were excavated yielding a total of 549 remains. This represents 58.6% of the total faunal assemblage recovered during the 1991 and 1992 seasons. As mentioned earlier, most remains were recovered from a midden dated to the late Middle Formative period (Powis 1992:39). A wide range of taxa are present within the midden. This diversity is expected and indicative of midden material.

Shell remains account for 325 specimens found within the midden. The freshwater bivalve Nephronaias ortmanni is the most frequent taxon and is represented by 273 specimens (84% of shell total). A minimum of 133 individuals are present. Other shell remains include jute (Pachychilus spp.), apple snail (Pomacea flagellata), and marine conch fragments (Strombus). Two crab claws (Brachyura) and one possible piece of coral (taxon unknown) were also noted.

Although a large number of vertebrate remains (n = 170) were also recovered from within the midden, only 33 (ca. 19%) are considered identifiable to order or lower zoological taxon. To date, white-tailed deer, paca, dog, human, bird, and mice remains have been identified. Minimum number of individuals for each of the above is one. All fish remains (n = 109) are believed to be local small freshwater species representing a minimum of 4 fish, based on size and the number of skull elements present. One catfish (Family Ictaluridae) element may be present. Due to the lack of adequate reference collections the majority of the fish remains could not be identified to a lower taxon than class.

Structure 2 - Only 32 shell specimens were recovered, the majority of these (n = 25) from the second of two units. Jute remains were most common.

Structure 3 - Thirteen shell remains representing 1.4% of the total sample were recovered.

Structure 4 - Twenty specimens are present. Of these, 19 are N. ortmanni valves (MNI = 10). One jute (Pachychilus glaphyrus) snail is also present.

Structure 5 - Sixteen shell remains are represented and include N. ortmanni valves (n = 8), 4 jute remains, and 4 specimens identified as Euglandina sp..

Structure 6 - At least four shell taxa are represented by the 20 remains presented for analysis.

Structure 7 - This structure yielded quite a large number of shell remains in comparison with others (n = 102). Both freshwater and land snails were present as well as bivalve remains (mostly fragmented in nature). Marine conch shell was also present.

Structure 9 - A total of 80 remains were recovered. As with Str. 7, both freshwater and land species are represented.

Plaza Unit 2 - Excavations conducted within this unit resulted in the recovery of several Late Classic intrusive burials (see Powis this volume and Song this volume). A total of 59 shell remains were found from within the surrounding construction fill and included freshwater bivalves, and both freshwater river snails and land snails.

Chultuns - Non-human remains recovered from within Chultun B and C included only snail species (Pachychilus spp., Orthalicus spp., Pomacea flagellata, and Euglandina spp.).

The Zubin Group

Introduction - Excavations at the Zubin group were initiated during the 1992 field season and are expected to continue through the summer of 1995 under the supervision of Gyles Iannone (Institute of Archaeology, University College, London). Faunal remains were recovered from within the majority of structures excavated during the 1992 field season (see Iannone this volume for a progress report on excavations conducted at Zubin).

General Observations - The majority of the faunal remains recovered are local shell species (see Table x). Vertebrate remains were found in far lesser amounts and are dominated by rodent bones, all of which were recovered from burial contexts and are believed to be intrusive (but see Pohl 1983).

A total of 955 faunal remains recovered from the following groups were presented for analysis. Within the core, structures A-1, A-2, A-3, A-P (Plaza), B-6, and B-8. Peripheral structures producing faunal remains included D-10, F-14, and G-8. Faunal remains were also recovered from a reservoir (designated Op-100).

Shell remains account for the majority of the sample (n = 508). The remaining 47 specimens were bone remains, all of which were

recovered from within a burial in Str. A-1. Tables 5 thru 8 provide a list of faunal remains recovered from the Zubin group.

As with the Tolok group, brief descriptions of the faunal remains recovered from various structures and features at Zubin are given below.

Structure A-1 - A total of 235 specimens were recorded for this structure. Both shell and bone remains are present. By far, the majority are shell (n = 188 or 80%). See Table 8 for taxon represented. As mentioned earlier, most of the vertebrate remains are considered intrusive and include representatives of the rodent family Cricetidae (mice/rat). Only four remains are cultural in origin. These are all tooth elements identified as domestic dog (Canis familiaris). Two of these (a canine and incisor) are drilled laterally in the root portion. Two dog molars are also present. Neither has been modified (see Iannone this volume).

Plaza A - This area produced the largest amounts of animal remains recovered at the Zubin group to date. A total of 446 (46.7%) specimens included freshwater bivalves (N. ortmanni) and the river snail jute. Some land snails were also recovered. It is possible that the large numbers of faunal remains recovered from this area represent construction fill material used to build the plaza floors.

Other Structures - The remaining structures and units excavated during the 1992 season produced fewer remains (n = 284). Only structure D-10 produced a significant quantity of remains (n = 142). A total of 116 N. ortmanni valves representing a minimum of 27 individuals were recovered from within the structure. These were all apparently confined to one area within the structure and may represent a cache (Sunahara, personal communication). A complete list of faunal remains recovered from all areas at Zubin is provided in Table 8.

Discussion and Summary

Initial analyses carried out on the faunal material recovered from the Tolok and Zubin groups has concentrated on identification of taxa present. At least seven shell species have been noted although not all have been identified to the genus or species level to date (listed as "others" in tables). The unidentified shell material is not believed to have held any significant dietary value for the Mayan inhabitants at these groups. It appears that the N. ortmanni and jute shells were the main food items sought in terms of invertebrate remains. It is probable that these supplemented the traditional maize staples as well as animal proteins such as deer, dog, and paca (Agouti paca).

Few vertebrate remains have been found to date. This may be due to preservation factors. In support of this is the fact that those which have been recovered are either mainly recent intrusive rodent bones or are from a well protected midden (see Powis 1992:39 for depth measurements) which in turn allowed for the excellent preservation of faunal materials. Other factors (ex. cultural) affecting the number of vertebrate remains recovered can however not be ruled out at this point.

It is hoped that future excavations at these groups will provide a larger faunal sample for analysis to provide more information on subsistence, especially in lieu of any diachronic changes which may be evident. Cultural data, although not integrated into this report, should allow for a more complete understanding of subsistence practices at these peripheral groups. As well, we may be able to ascertain a great deal of information pertaining to the role that fauna played in every day Mayan life throughout the occupation of these groups.

Acknowledgements

I would like to thank Terry Powis and Gyles Iannone who entrusted me with their faunal samples and provided me with background site information.

The identification of the faunal material was carried out with the aid of the reference materials housed at the Howard G. Savage Faunal Archaeo-Osteology Laboratory, University of Toronto, and the Department of Vertebrate Palaeontology, Royal Ontario Museum. For their assistance I wish to thank Dr. Howard G. Savage and Kevin Seymour.

Finally, I must thank Jaime Awe who has continuously supported and fueled my interest in Maya zooarchaeology by allowing me to participate in the B.V.A.R. Project. His trust and confidence in my abilities is greatly appreciated and not forgotten.

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Table 1: Faunal Remains by Class - Tolok Group

Class	NISP	% of Total
Pelecypoda	395	42.2
Gastropoda	370	39.5
Osteichthyes	109	11.6
Mammalia	60	6.4
Crustacea	2	0.2
Aves	1	0.1
Total	937	100.0

Table 2: Faunal Remains by Taxon - Tolok Group

	NISP (%)	MNI (%)
Shell Remains		
Nephronaias ortmanni	395 (51.5)	169 (35.0)
Pachychilus indiorum	120 (15.6)	120 (24.8)
Pachychilus glaphyrus	94 (12.3)	94 (19.5)
Pachychilus sp.	33 (4.3)	31 (6.4)
Conch	11 (1.4)	2 (0.4)
Pomacea flagellata	20 (2.6)	20 (4.1)
Crab	2 (0.3)	1 (0.2)
Euglandina sp.	65 (8.5)	20 (4.1)
Orthalicus sp.	25 (3.3)	25 (5.2)
Others	2 (0.3)	1 (0.2)
Total	767 (100.1)	483 (99.9)
Bone Remains		
Osteichthyes	109 (64.1)	4 (33.3)
Mammalia	48 (28.2)	1 (8.3)
Aves	1 (0.6)	1 (8.3)
Odocoileus virginiana	5 (2.9)	1 (8.3)
Agouti paca	1 (0.6)	1 (8.3)
Homo sapiens	1 (0.6)	1 (8.3)
Rodentia	3 (1.8)	1 (8.3)
Canis familiaris	1 (0.6)	1 (8.3)
Unknown	1 (0.6)	1 (8.3)
Total	170 (100.0)	12 (99.7)

Table 3: Faunal Remains by Feature - Tolok Group

Feature	NISP	% of Total
Str. 1	549	58.6
Str. 2	32	3.4
Str. 3	13	1.4
Str. 4	20	2.1
Str. 5	16	1.7
Str. 6	20	2.1
Str. 7	102	10.9
Str. 9	80	8.5
Chultun B	14	1.5
Chultun C	32	3.4
Plaza	59	6.3
Total	937	99.9

Table 4: Shell Distribution by Feature - Tolok Group

Feature	A	B	C	D	E	F	G	H	I
Str. 1	290	66	8	13	2	-	-	-	379
Str. 2	4	26	1	1	-	-	-	-	32
Str. 3	2	11	-	-	-	-	-	-	13
Str. 4	19	1	-	-	-	-	-	-	20
Str. 5	8	4	-	-	-	4	-	-	16
Str. 6	1	14	-	-	-	-	4	1	20
Str. 7	45	41	1	-	-	3	11	1	102
Str. 9	6	43	-	-	-	26	5	-	80
Chultun B -	10	-	4	-	-	-	-	14	
Chultun C -	-	-	-	-	30	2	-	32	
Plaza	20	33	1	-	-	2	3	-	59

A = *Nephronaias ortmanni*
B = *Pachychilus* spp.
C = Conch (Strombidae)
D = *Pomacea flagellata*
E = Crab (Brachyura)
F = *Euglandina* sp.
G = *Orthalicus* sp.
H = Others
I = Total

Table 5: Faunal Remains by Class- Zubin Group

Class	NISP	% Total
Pelecypoda	581	60.8
Gastropoda	327	34.2
Mammalia	33	3.5
Amphibia	4	0.4
Class Unknown	10	1.0
Total	955	99.9

Table 6: Faunal Remains by Taxon - Zubin Group

	NISP (%)		MNI (%)	
Shell Remains				
Nephronaias ortmanni	581	(64.0)	143	(42.4)
Pachychilus spp.	69	(7.6)	69	(20.5)
Euglandina sp.	122	(13.4)	58	(17.2)
Orthalicus sp.	96	(10.6)	33	(9.8)
Conch	5	(0.6)	3	(0.9)
Others	35	(3.9)	31	(9.2)
Total	908	(100.1)	337	(100.0)
Bone Remains				
Rodentia				
(cf. Cricetidae)	29	(61.7)	4	(66.7)
Canis familiaris	4	(8.5)	1	(16.7)
Amphibia				
(cf. Ranidae)	4	(8.5)	1	(16.7)
Others	10	(21.3)	-	-
Total	47	(100.0)	6	(100.1)

Table 7: Faunal Remains by Feature - Zubin Group

Feature	NISP	% of Total
Str. A-1	235	24.6
Str. A-2	4	0.4
Str. A-3	1	0.1
A-Plaza	446	46.7
Str. B-6	13	1.4
Str. B-8	23	2.4
Str. D-10	142	14.9
Str. F-14	38	4.0
Str. G-8	2	0.2
Op-100	51	5.3
Total	955	100.0

Table 8: Shell Distribution by Feature - Zubin Group

Feature		A	B	C	D	E	F	G
Str. A-1	38	31	3	49	62	5	188	
Str. A-2	4	-	-	-	-	-	4	
Str. A-3	-	-	-	-	1	-	1	
A-Plaza		413	21	-	4	-	8	446
Str. B-6	1	-	-	12	-	-	13	
Str. B-8	3	-	1	11	3	5	23	
Str. D-10	116	5	-	10	-	11	142	
Str. F-14	6	12	1	12	7	-	38	
Str. G-8	-	-	-	-	-	2	2	
Op-100		-	-	-	24	23	4	51

A = Nephronaias ortmanni
B = Pachychilus spp.
C = Conch (Strombidae)
D = Euglandina sp.
E = Orthalicus sp.
F = Others
G = Total

A REPORT OF THE SECOND (1992) SEASON OF INVESTIGATIONS AT THE CAS PEK GROUP, CAHAL PECH

by

David T. Cheetham, Julian Vinuales, Melena Bisquett and Cathrine Holgate

The second season of excavations at the Cas Pek Group, Cahal Pech confirmed the previously established sequence of occupation (late-Middle Preclassic to terminal-Late Classic [750 B.C - A.D. 900]) for this peripheral settlement cluster. Salvage operations were conducted on three residential structures (Str.'s 7, 9 & 10) as well as the central platform (Str.1). The fortuitous discovery of a sequence of three superimposed "hidden structures" (Str.9) also provided an opportunity for examining the implications of this data to demographic and settlement issues within the Cahal Pech community, and by extension, to the Belize Valley as a whole.

INTRODUCTION

The Cas Pek Group (Yucatec Maya for "ugly dog") was first noticed when the area to the west of the site core of Cahal Pech was cleared for milpa in 1990. Salvage excavations and preliminary mapping were undertaken the following season (Awe et al. 1991; Vinuales 1992) when we became aware that the area was slated for residential development.

Despite vigorous bulldozing activity in 1991, the large central platform (Str.1) was tested, and on the basis of ceramic analogy it was determined that the structure had been utilized and enlarged during at least seven construction episodes dating from the late-Middle Preclassic to terminal-Late Classic Periods (750 B.C. - A.D. 900). Because of its concentration of burials and its morphology, it was tentatively suggested (cf. Awe et al. 1992) that the central platform represented the primary structure within the Cas Pek Group, and that it possibly functioned as the principal residence for the lineal head and family of this settlement cluster (Awe et al. 1991). Given this preliminary assumption, and the early date of occupation on Str. 1, a decision was made to continue investigations of this mound in 1992.

A second low-lying (presumably residential) mound (Str.5) was also tested prior to its destruction in 1991. Although the operation had to be hastily conducted, ceramics indicated initial construction of the mound during the Protoclassic period and of continuous occupation to ca. 900 A.D.

Towards the end of operations in 1991, additional bulldozing activities approximately 75 meters north-east of Str.1 revealed a sequence of three plaster floors below featureless, flat land, indicating non-mound, or "hidden structure" occupation within the Cas Pek Group. Upon resuming excavations in 1992, it was decided to extensively test this structure (Str.9), as it was the only one of its

kind to have been uncovered by the B.V.A.R. Project, and because it was in immediate danger of total destruction.

Two other small structures were tested (Strs. 7 & 10) in May-June of 1992 and were subsequently bulldozed. An attempt was made to test the primary reservoir, however, bulldozing also cut this effort short.

SITE DESCRIPTION

Situated approximately 100 meters west of the Cahal Pech site core, the Cas Pek Group occupies the lower, western extension of the limestone hill on which the central precinct was constructed (Fig.1). A total of 12 mounds were mapped, of which three were terminal-Classic Period superstructures atop Str. 1. The majority of mapped structures are concentrated to the immediate north-east of structure 1, although a small structure-focused patio cluster was located in the bush approximately 100 meters south-east of structure 8. In addition, isolated structures (many of which have been recently razed to bedrock by land clearing activities, see Fig.1 [MS = "mound scatter"]) are common as one moves south and west of Str.1.

In addition to the mapped structures, a large reservoir was located approximately 25 meters north-east of structure 1, with a possible second reservoir further to the south.

EXCAVATIONS

Structure 1 A large 2 X 2 m excavation unit (Fig.2) was placed in the southern summit of what remained of this structure (the northern two-thirds had been bulldozed in 1992). As previous excavations (Awe et al. 1991, Vinuales 1992) revealed late-Middle Preclassic (750-350 B.C.) occupation just above bedrock, it was decided to increase our ceramic sample and hopefully uncover additional architectural data for this time period. Although the previous chronology was largely confirmed, time constraints prevented excavations below the sixth floor, which was dated through ceramic comparison to the late-Middle Preclassic/early Late Preclassic transition (approx. 350 B.C.). Despite the lack of post holes throughout this stratigraphy, a low (30 cm) building platform was uncovered on top of floor 6.

No burials were recorded by the excavation but several artefact classes were discovered. Notable here was the presence of obsidian (fragments of blades and debitage) which, although present throughout the sequence, was most abundant during the transition period from Middle to Late Preclassic. Slate also makes its appearance at this time, and it is possible that it was brought in from upriver near Vaca Falls (Awe personal communication). A small, smoothed stone ball (game piece?) similar to early-Middle Preclassic specimens recovered within the site core (Awe 1992; Cheetham 1992) was also recovered from the lower level. In addition to the above, a perforated circular (possibly bichrome) ceramic pendant was unearthed along with numerous fragments of conch and fresh water "jute" shells (*Pachychilus glaphyrus*).

Other significant finds within the constructional fill of this uni

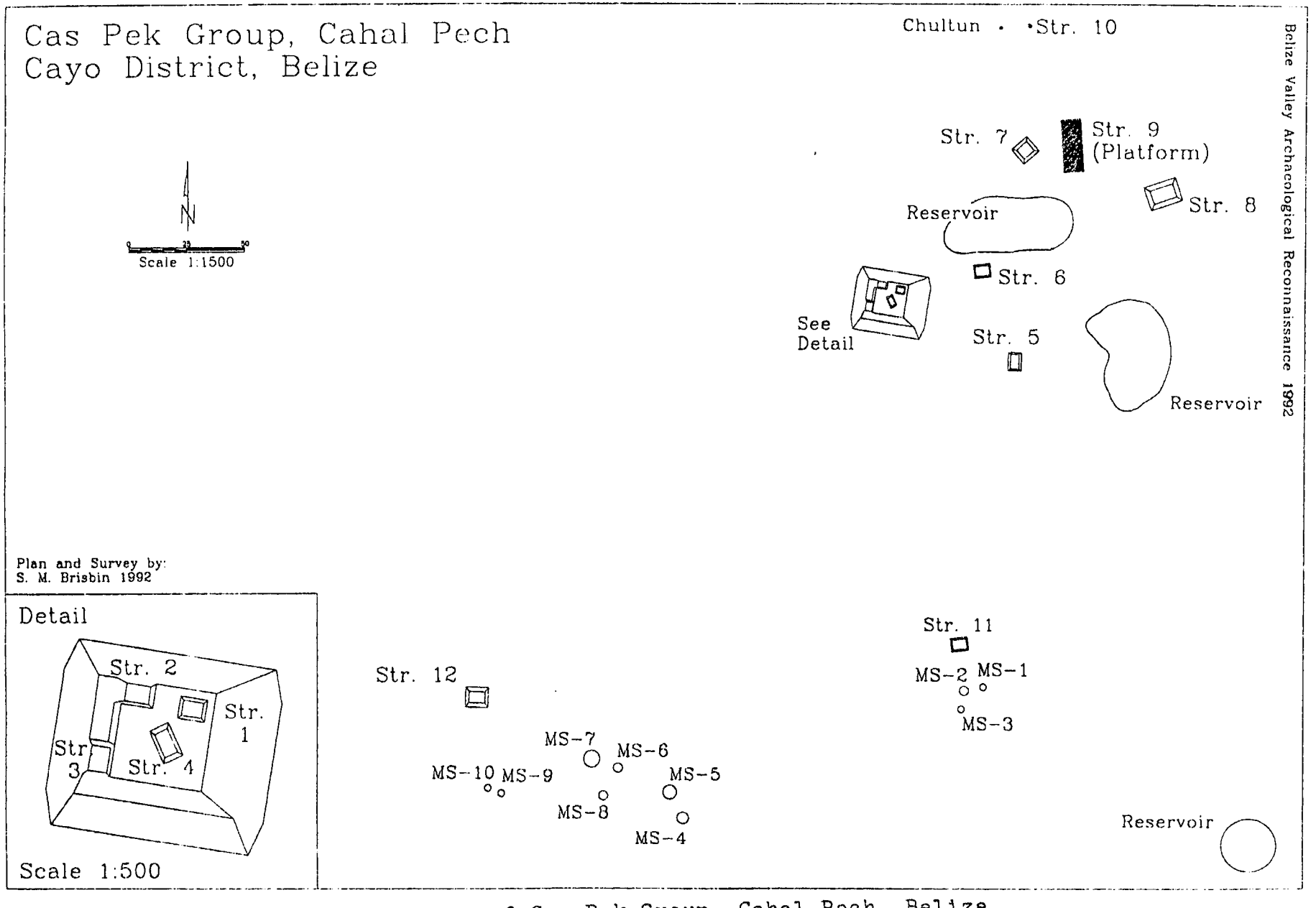


Fig. 1: Map of Cas Pek Group, Cahal Pech, Belize

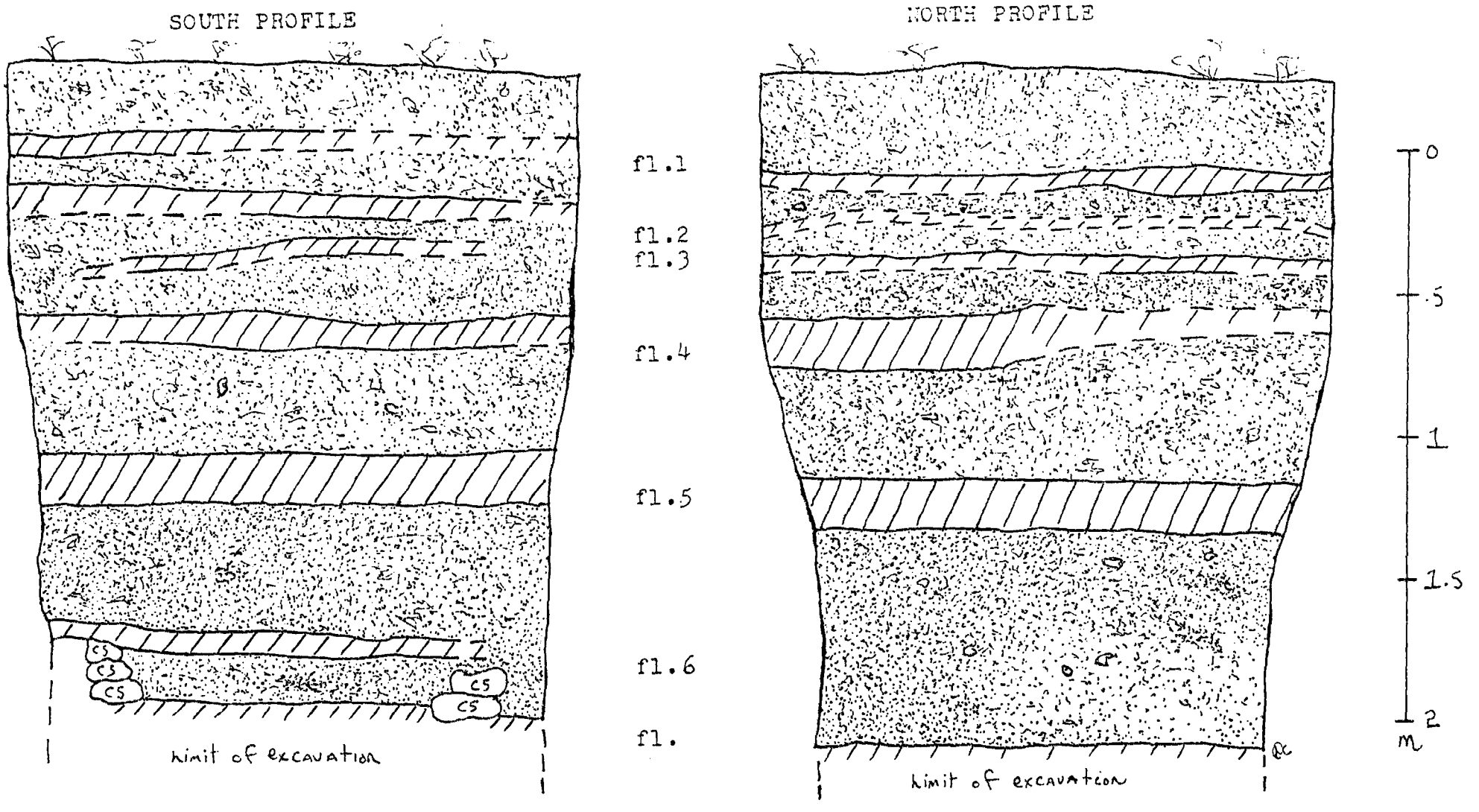


Fig.2 : Stratigraphic profile,
Cas Pek Str.1, Unit 3
1992

CS denotes cut stone

denotes plaster floor

denotes poorly preserved plaster floor

included a large animal (dog?, jaguar?) canine pendant (Level 1, terminal-Late Classic), a small ceramic disc with central perforation (Level 1), a Preclassic figurine leg (Level 2, terminal-Late Classic) as well as numerous fragments of obsidian, marine and fresh-water shell.

Structure 7: Located on a small rise approximately 10 meters west of structure 9, this small mound consisted of four superimposed sub-structural platforms spanning the Late Preclassic through Late Classic Period (350 B.C. - A.D. 900). As bulldozing activity was swiftly encroaching the site, it was decided to place a small (1 X 1 m) unit into the top of the structure in an effort to acquire whatever data possible prior to its destruction (Fig.3).

During the course of excavations, a secondary sub-structural platform (.55 meters in height) was located atop floor 4 (Fig.3). This architectural phase was dated via ceramic analysis to the Late Preclassic Period. A small conch shell pendant was recovered from within the sub-structural fill. During the ensuing Classic Period, floors 3 and 2 were constructed, abutting the western edge of the Late Preclassic platform. The terminal-Late Classic addition of mortar and large ballast covered the previous three phases of architecture, resulting in a building platform (approx. 20 square meters in surface area) which presumably supported a perishable superstructure.

Structure 9: Structure 9 consists of three superimposed, plastered, platform surfaces spanning the Late Preclassic through the terminal Classic Period (0-900 A.D.). As a result of bulldozing, a clear north-south profile was exposed (20 meters in length). Plastered floors were evident within 15 meters of this profile, of which, 10 meters were excavated horizontally into the adjacent terrain atop floor 1 (Units 1 & 6). In addition, three excavation units (2, 3 and 4) were placed east of the bulldozer cut in order to define the extent of the platforms. These, as well as Unit 6, were excavated to bedrock (Fig.4).

The initial phase of occupation (floor 3) was evident in all but Unit 2, indicating an approximate surface area of 35 sq. meters for this occupation floor. Unfortunately, because of the limited extent of our vertical excavations, we were unable to locate any post holes. Nevertheless, subsequent floors (1 & 2) revealed post holes, indicating that floor three most likely also supported a perishable structure.

Ceramics from beneath floor 3 consisted of a mixture of Jenny Creek, Barton Creek, Mount Hope and Floral Park Phase material (Gifford 1976), indicating a terminal-Late Preclassic date for its construction. In addition, an anthropomorphic figurine torso with male genitalia was recovered. Although considerable effort was extended towards identifying on-floor habitational refuse, with the exception of a highly fragmented vessel of the Sierra Red type, no data of this sort was obtained.

Floor 2 was located 12 cm above floor 3. It was represented by a thick, well smoothed plaster surface which has been dated to the Late Classic Period. Floor 2 was evident in all excavation units, and had an overall shape which is best described as circular. Total floor space is estimated at 40-50 sq. meters. A single post hole (25 cm in diam.) was

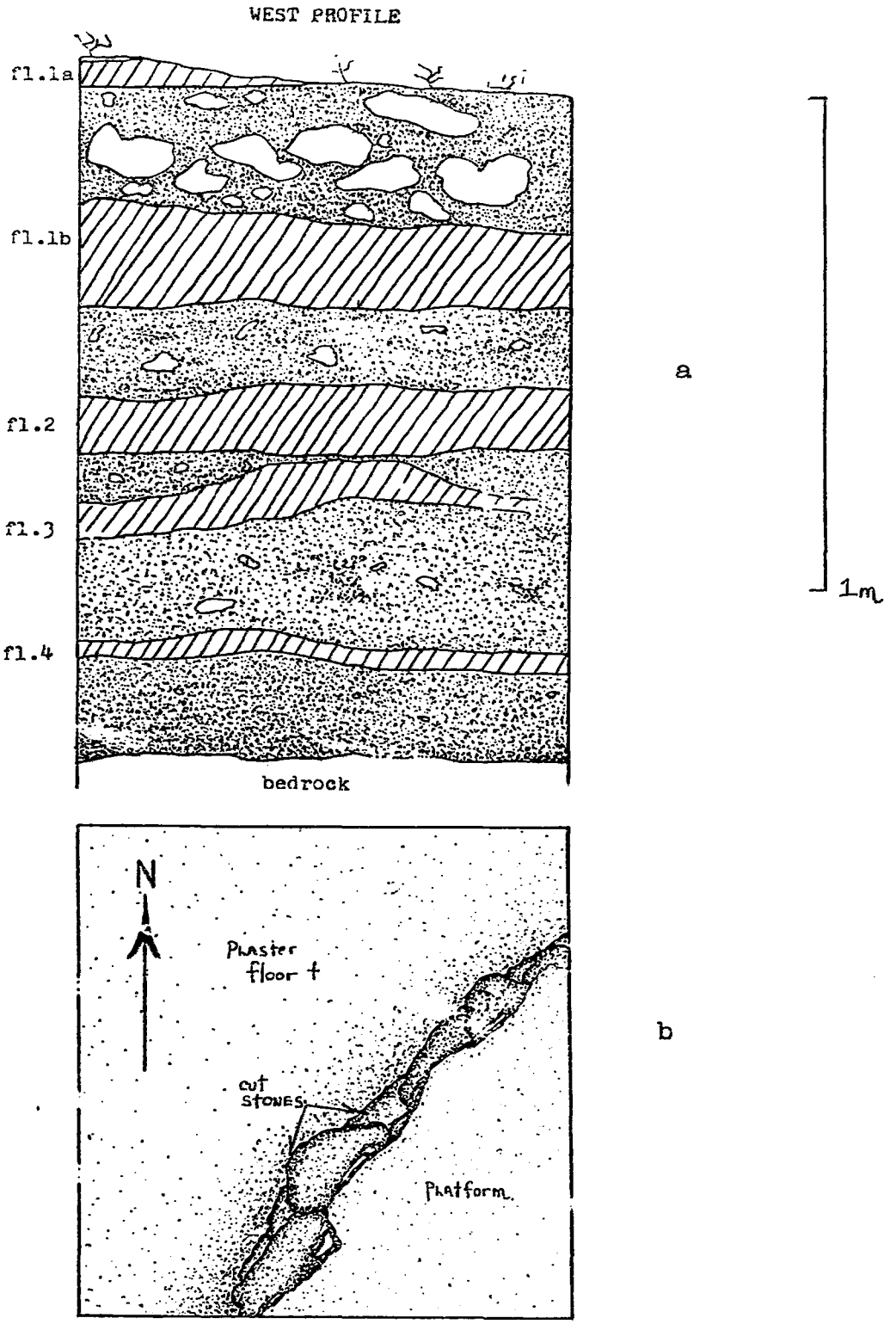
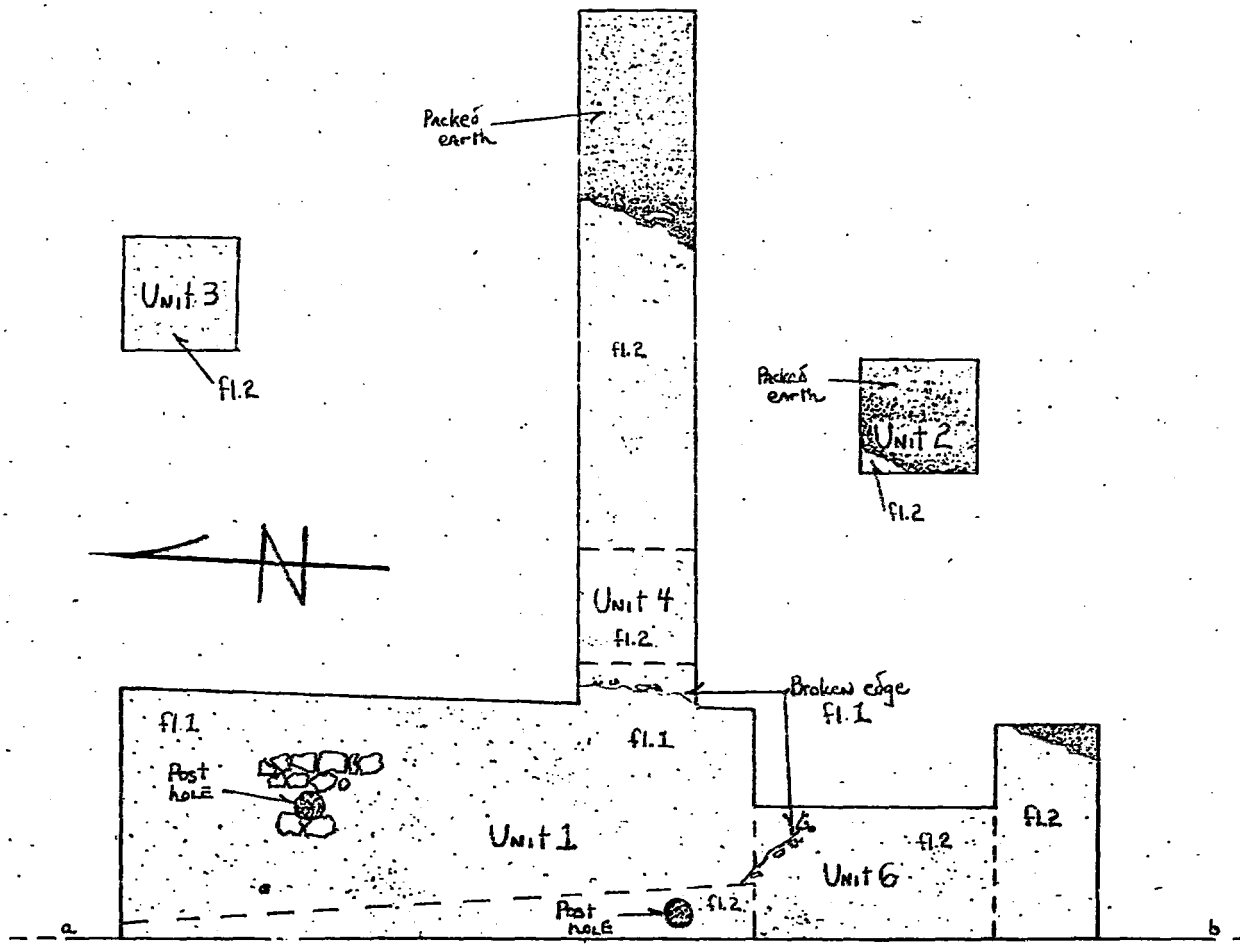


Fig. 3: a, West profile; b, Top plan, floor 4 (Cas Pek Group, Str.7, 1992)



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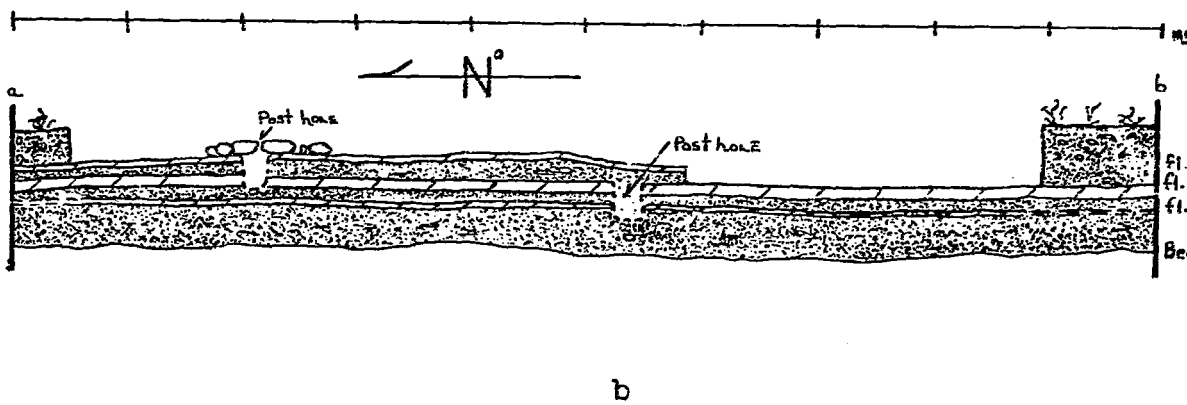

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Fig. 4: a, top plan; b, north-south profile
(Cas Pek Group, Str.9, 1992)

discovered along the central face of the bulldozer cut. Once again, despite careful excavations there were no indications of any habitational refuse or activity areas atop this floor. Beyond the immediate edge of the floor it appears that the surrounding terrain was comprised of hard packed soil, as no discernable features were located. It is possible, however, that the platform was ascended from the east, as there is a gentle downward slope in the bedrock from west to east.

The final construction phase was erected during the terminal Classic (A.D 700-900), Spanish lookout Phase (indicated by the presence of ceramics from the Belize ceramic group). During this stage of occupation, floor 2 was utilized beyond the edges of floor 1, which merges with floor 2 to the east. A single post hole (25 cm in diam.) was discovered within Unit 1. The remnants of a low (single course) retaining wall of cut stones were discovered surrounding the post hole; the missing cut stones perhaps being utilized elsewhere after the abandonment of structure 9. Several fragments of obsidian blades were discovered on this floor.

A hard limestone artifact was embedded into floor 1 just west of the post hole and retaining wall (Fig.5). Although precise function remains unknown, its "grooves" were found to be in line with the cardinal directions. In addition, a burial was located in the vicinity of the north-west corner of the floor. Unfortunately, the burial was "uncovered" by a bulldozer, precluding any contextual relationship with the structure. Nevertheless, it is a safe assumption that this burial was placed below one of the platforms.

Structure 10 - Structure 10 was located approximately 40 meters north of Str.7. Unfortunately, a new home was being constructed next to the structure, resulting in two-thirds of the mound's destruction. Nevertheless, a small eastern portion of the mound remained. Here, a test-pit was placed into the exposed profile in order to ascertain the chronology, as well as to recover any artefactual and architectural information that still remained in situ (Fig.6).

Although massive damage precludes a definitive statement as to overall dimensions of any construction phase, Str. 10 appears to have been a medium-size residential platform (approximately 30-35 sq. meters). During the Classic Period this platform most likely supported a pole-and-thatch superstructure as evidenced by the presence of a low retaining wall of cut stones atop the terminal floor. Ceramic remains also suggest that four sub-structural platforms preceded the terminal phase of occupation, with the initial phase of construction occurring during the Late Preclassic. Several fragments of obsidian were also recovered from the penultimate and terminal phases of occupation.

In addition to the mound, a small chultun was noted to the immediate west of Str. 10 (Fig. 6b). Unfortunately, it was located (completely empty) in the center of a garage adjacent to the new home previously mentioned. Nevertheless, the owner had kept a small collection of ceramics from within the chultun which, upon examination, proved to be exclusively Late Classic (Spanish Lookout) in date.

Reservoir Excavations - In an effort to chronologically place the construction of the primary reservoir, a lateral excavation unit was placed abutting the north-east perimeter so as to sample any accumulated material. Although our excavation revealed the presence of early-Late Preclassic utilitarian wares at a shallow depth along the interior retaining wall, bulldozer activity utilized the adjacent field (along with Str.7) to completely fill in the north section of the reservoir, thereby immediately halting our excavations. Nevertheless, it is possible - given the limited data recovered - that this reservoir was in use as early as the Late Preclassic Period.

"Mound Scatters" - Reconnaissance to the south of structure 1 revealed the presence of numerous bulldozed mounds, or what we termed "mound scatters" (Fig.1). Because these mounds were flattened prior to being mapped, we cannot estimate their size, or indeed, any aspects of their morphology. Given the proximity of the individual concentrations of sherds to one another, it is believed that these "mound scatters" represent small clusters of residential structures.

A surface collection was conducted in the area of MS-1, 2 & 3, where fragments of elaborate polychrome ceramics as well as a greenstone or jadeite stone were recovered. The overall collection indicates a Classic Period occupation, although the extent of bulldozer activity precludes definitive chronological statements. Clearly, however, the inhabitants of the MS-1-3 area enjoyed some access to the precious commodities that were utilized at the Cas Pek nucleus, or Str. 1.

DISCUSSION

Throughout this report references to particular structures have often been in the past tense. While it is true that much of the Cas Pek Group has now been flattened to facilitate new residential construction, several prehistoric structures were tested, and, on the basis of ceramic analysis, determined to have been functional throughout much of the group's occupation history. Perhaps as a result of fissioning from the site core of Cahal Pech, the initial settlers appear to have first occupied the large principal mound (Str.1) during the late-Middle Preclassic . With the ensuing centuries, settlement expanded into the surrounding area, where smaller domestic structures were constructed. With the possible exception of the "mound scatters" to the south, all mounds tested were found to have been initially occupied by the Late Preclassic Period; attesting to previously documented evidence for demographic expansion at this time at Cahal Pech and its sustaining area (Awe 1992), as well as in the Belize Valley (Willey et al. 1965; Ford 1992)

Because of the unusual "hidden" nature of Str. 9, the bulk of our time was expended in assessing its chronology as well as any other additional architectural and artefactual data we could amass. The possible presence of these "hidden" or non-observable structures has always been a bone of contention when reconstructing prehistoric Maya settlement patterns (see Ashmore 1981:61 for a brief synopsis of the problem). While it is clear that a great number of structures (domestic and otherwise) were constructed atop low sub-structural platforms, less

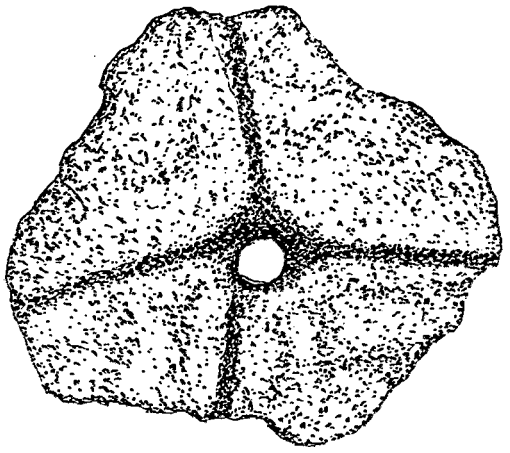
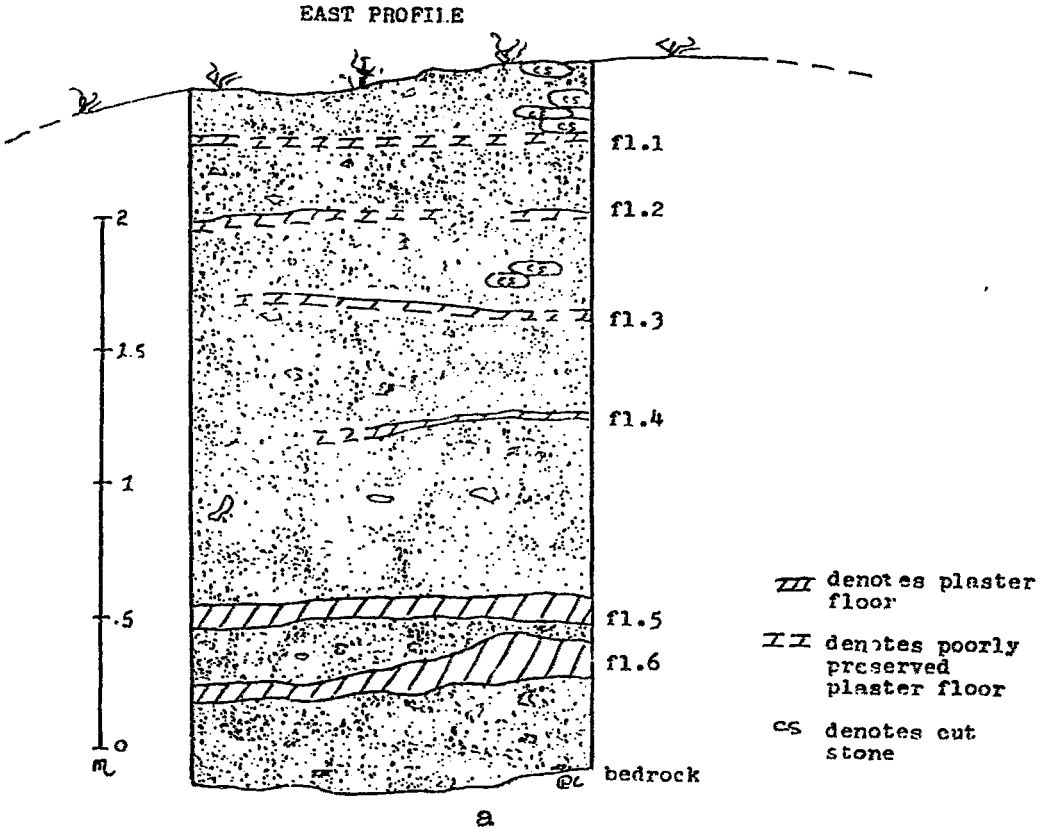


Fig. 5: Limestone artefact (Cat. no.102), Cas Pek Group, Str.9, 1992)



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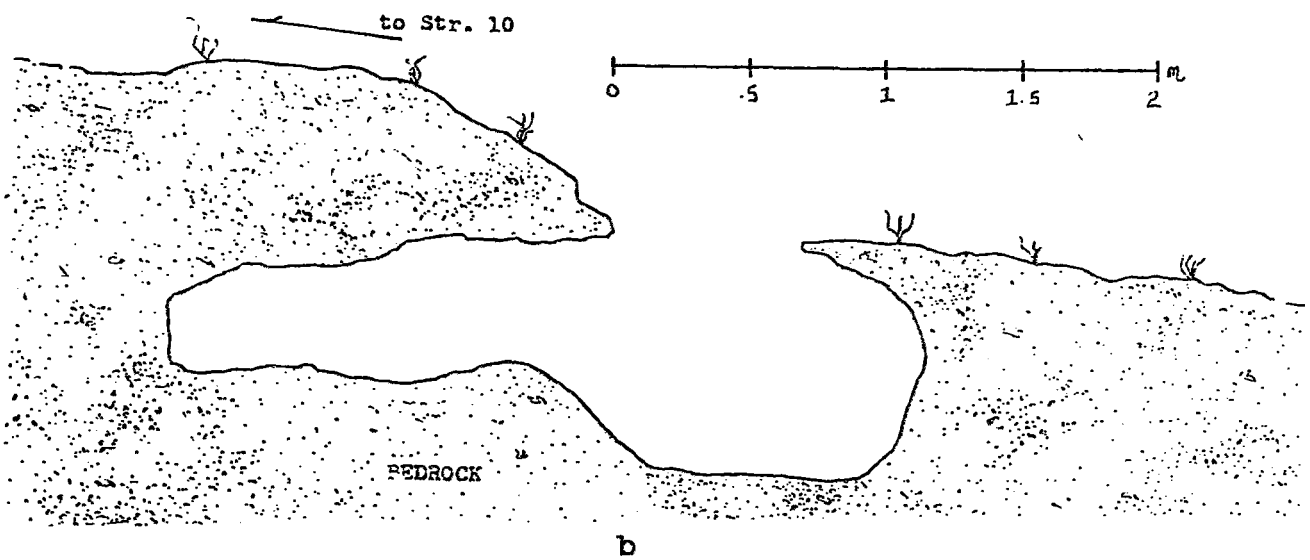

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Fig. 6: a, east profile (Str.10); b, chultun, east-west profile (Cas Pek Group, Str.10, 1992)

clear is the extent to which perishable structures were constructed directly on the ground surface. Although only a single example of this occurrence, Str. 9 clearly demonstrates the variability within the archaeological record as it pertains to the dispersal of the resident occupation across the landscape.

Given periodic fluctuations of the resident population resulting in the continuous movement of at least a small percentage of people, "temporary" occupations of perhaps a generation or two may not have been uncommon. Although we presume that a number of these occupations would be placed directly on ground level (without plaster floors), the difficulty in locating and identifying such habitation rests squarely in developing a sampling strategy to locate these areas in seemingly unoccupied terrain; clearly a difficult task. Moreover, long-term occupation involving substantial resource expenditure in the creation of plaster floors set directly, or slightly above sterile ground would also make surface observation a daunting task.

Within the Belize Valley, this problem was first recognized by Willey et al. (1965:12):

> ...it is not certain that all Maya domestic structures were built on such mounds [raised platforms] it is quite possible that important settlement evidence has been passed over in many instances...

Although they note (Willey et al. 1965:279) that the majority of Jenny Creek Phase (750-350 B.C.) perishable buildings at Barton Ramie were placed directly on the original ground surface, they were initial occupation levels superimposed beneath later structures observable as mounds. Despite Willey's "flat test" excavations between these structures, no occupational floors were unearthed. This absence is also noted north of the Mopan River where extensive test excavations around residential structures failed to identify any non-mound occupational floors (Anabel Ford, personal communication 1993).

Clearly, the nature of the problem lies in the significance and purpose of raising structures higher than the surrounding terrain. Adequate drainage would be of prime concern -and perhaps a motivating factor - for the construction of raised building platforms, although in the case of alluvial bottomlands, the Maya were clearly cognizant of periodic flooding, which they circumvented by constructing their households atop sub-structural platforms. Such necessity is noted along the Valley floor where mounds are found at a minimum elevation of 7.00 meters, or just above normal seasonal or occasional-seasonal flood height (Willey et al 1965:31, 572). This, however, was largely unnecessary beyond the bottomlands, as adequate drainage would have been less of a problem along the adjacent foothills where flooding did not occur. Given the fact that a large number of sub-structural platforms exist within the foothills, other criteria perhaps dictated the necessity and size of such constructions. In particular, the prestige and permanence of individual and extended families appears to have played a key role in this cultural practice, as indicated by the presence and variable wealth of the burials frequently located beneath the superimposed floors.

While we do know that Str. 9 was in use during the Late Classic Period, we are less certain as to exactly when, or indeed, why it was abandoned. It seems quite certain, however, that Str. 9 was abandoned prior to the Cas Pek Group as a whole: the intentional removal of the cut stone retaining wall and post-abandonment accumulation of soil (50 cm) seems to indicate this. In relation to the latter point, the accumulation of soil (humus) atop small domestic structures in the vicinity of Tikal proved on average to be 10-15 cm in depth (Anabel Ford, personal communication 1993).

While we believe that it would be presumptuous to extend the estimated population of the Cahal Pech sustaining or periphery area based upon a single example of a "hidden structure", the presence of Str. 9 clearly indicates that the settlement pattern is more complex than surface observation indicates. Given that this structure type was utilized alongside sub-structural platforms of significant stature from the Late Preclassic until shortly before the groups abandonment in the tenth century A.D., also demonstrates that there is great temporal diversity within the entire settlement system.

Acknowledgements

Excavation at the Cas Pek Group was conducted under the overall direction of Jaime J. Awe. The authors wish to thank Trent University for their support. In addition, we appreciate the assistance of Diego Fernandez, Mercedes Velasco and Joe Martinez during the process of excavation.

Gratitude is also reserved for Dr. Anabel Ford for her suggestions and assistance, and a special thank you goes out to the Belize Dept. of Archaeology (Commissioner John Morris, Alan Moore) for their support and permission to conduct the above

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LIFE IN SUBURBIA: PRELIMINARY INVESTIGATIONS OF THE ZOPILOTE GROUP, CAHAL PECH, BELIZE

by

David T. Cheetham, Julian Vinuales, Johanna Carlsson, Tara Wallis & Piers Wilson

ABSTRACT

Peripheral excavations in 1992 at the Zopilote Group, Cahal Pech, Belize have revealed a sequence of superimposed pyramidal structures spanning the late-Middle Formative through terminal- Late Classic Periods (750 B.C. - A.D. 900). With the advent of the Classic Period (A.D. 250-900) this structure, as well as two smaller temple structures, were incorporated into an elaborate ceremonial platform/sacbe architectural grouping connected to the centre of Cahal Pech. A richly furnished burial (approx. A.D. 600) was recovered within the primary structure (Str.1), indicating considerable political and ancestral development outside the immediate site core of Cahal Pech.

INTRODUCTION

With the inception of peripheral investigations in 1990 (Awe et al. 1990, 1991), the Belize Valley Archaeological Reconnaisance project began to investigate intra-site diachronic development, covering a broad range of topical issues including social/political development as exhibited in settlement patterns, architectural complexity, subsistence and artefact analysis. These efforts proved especially rewarding, as their development could be extended, in most circumstances, to late-Middle Preclassic (750-350 B.C.) times (Awe et al 1990, 1991; Awe 1992; other papers, this volume). Clearly, the Belize Valley region exhibited considerable Preclassic development which, at Cahal Pech, presently appears to have surpassed other sites in the valley. This development is especially marked during the early-Late Preclassic (350 B.C.-0 A.D.) when large temple structures were being erected in the site centre and periphery of Cahal Pech.

Albeit on a somewhat smaller scale, Late Preclassic (350 B.C.- A.D 250) occupation has been noted elsewhere within the Belize Valley and its immediate environs; with architectural evidence at Nohoch Ek (Coe & Coe 1956), Barton Ramie (Willey et al. 1965), Pacbitun (Healy 1990) and north of the Mopan River, where Preclassic deposits have been isolated within the large majority of tested domestic structures (Anabel Ford, personal communication, 1993). In addition, James Garber (personal communication, 1993) has uncovered late-Middle Preclassic and Late Preclassic ceremonial structures of significant stature at the central Belize Valley site of Blackman Eddy.

Although extensive excavations are now being carried out at Xunantunich (the largest Classic Period valley centre), evidence of Preclassic occupation within the site core is nil or absent thus far

(Richard Leventhal, personal communication 1992). Nevertheless, Thompson (1942:8) noted the presence of late Middle Preclassic pottery in mixed provenience from within Structure A-8, demonstrating the probability of Middle and Late Preclassic occupation somewhere in the Xunantunich site core. Recent excavations at the small peripheral site of Actuncan have confirmed this notion, and it is possible that the seat of power may have shifted to Xunantunich proper during the Classic Period (Leventhal 1993).

Admittedly, the previous paragraphs have largely been a summary of the distribution and complexity of Preclassic architectural manifestations within the Belize Valley area. However, with the exception of Willey's Belize Valley settlement Project (1965) and Ford & Fedick's (1992) efforts north of the Mopan, excavations in the Belize Valley have largely concentrated within the various site cores. Along with several ongoing projects (ie. Xunantunich, Blackman Eddy) the B.V.A.R. project has attempted to redress this disparity of data, with systematic excavations within the immediate periphery, or urban center of Cahal Pech.

Although of particular importance because of its Preclassic component, the Zopilote Group also exhibited the most complex Classic Period architectural arrangement located thus far within the periphery of the site core of Cahal Pech. Because of time constraints, much of the 1992 season focused on the Classic Period component at Zopilote; in particular its intra-site significance as displayed through the complexity of its architectural arrangement and burial data.

SITE DESCRIPTION

The Zopilote Group was brought to the attention of the B.V.A.R. staff in 1992 when Gyles Iannone and John Hodgson were informed by local landowners of a large looted mound located on a small limestone ridge approximately 1 km south of the Cahal Pech site core (Fig.1). Initial investigations confirmed the presence of a large, north-facing mound (Str.1) at the south end of an artificial platform 143 meters a.s.l. A second pyramidal structure (Str.2) was located 35 meters north of structure 1 at the south edge of the platform. In addition, three "depressions" initially believed to be reservoirs were located immediately adjacent to the platform.

A few weeks after the initial discovery of Zopilote, clearing operations were begun in the area surrounding the platform. Diligent observation by one of the field assistants (Joe Martinez) revealed a causeway, or sacbe, extending 281 meters north from the platform. A third pyramidal structure (Str.3) was located at the terminus of the sacbe. In addition, two smaller structures (4 & 5) were discovered east of the platform.

EXCAVATIONS

Platform - Initial reconnaissance in the immediate area of the platform indicated a slight drop in the terrain approximately midway between structure 1 and 2. It was decided to place an excavation unit (Unit 4) at this point in order to define the architectural relationship

between the two levels.

A sequence of three plaster surfaces were revealed in the profile of this unit (Fig.2). In its final stage (Spanish Lookout Phase, 700-900 A.D.) the platform consisted of two levels, being .50 meters higher on the south side (floor 1, the area in front of Str.1). Although floor 1 is severely deteriorated, it terminated just above a line of cut stones delineating the north edge of floor 2. From here, one either stepped down to floor 2, and ultimately, to floor 3 which extended north towards structure 2. Admittedly, though, no cut stones or concentration of mortar existed above floor 2, thereby indicating a possible single step or terrace.

Earlier construction activity consisted of a two-level platform, the upper portion of which was ascended via a .20 meter step defined by an east-west row of roughly-cut stones. Middle and Late Preclassic Ceramics located beneath floors 2 and 3 indicate contemporaneity, both floors being associated with floor 2 as revealed at the base of structure 1 (see below).

During the clearing operations atop the platform an odd concentration of cut stones were located (feature 1, 4x4 meters). Although no excavations were undertaken, it is believed that this feature represents a small platform (approx. 30 cm in height).

Martinez Sacbe - As previously noted, the Martinez Sacbe extends 281 meters north from the platform towards structure 3. Its width varies from 6.5 to 4 meters. Its height also varies from 1 to .25 meters. This variation in height reflects the builders decision to take advantage of a natural north-south, low lying, undulating limestone ridge upon which to construct the causeway. Consequently, the eastern edge of the sacbe displays less relief than the western edge which straddles the natural ridge.

With the intention of clarifying chronological aspects as well as construction methods and materials, a large east-west excavation unit was placed so as to sample both the surface and adjoining (western) area of the sacbe (Fig.3). This excavation was located approximately 100 meters north of the platform. The western portion of the excavation (section 2) revealed a well defined wall of carved natural limestone bedrock capped with cut stones, the majority of which had fallen from their original position atop the bedrock edge of the sacbe. Nevertheless, a few cut stones remained *in situ* - demonstrating the intentional capping and definition of the road edge.

It was initially thought that excavations in this area might reveal a number of artefacts which presumably would have been discarded alongside the sacbe. Although a portion of a small pestle or mano was recovered, the remaining finds consisted of a small collection of Late Classic sherds (Mountain Pine Red, Garbutt Creek Red) which were located just above sterile levels.

The remainder of excavation was carried out atop the road or sacbe surface (section 1). Humus level (level 1) is consistent to a depth of approximately 10 cm, whereupon a level of medium sized ballast and

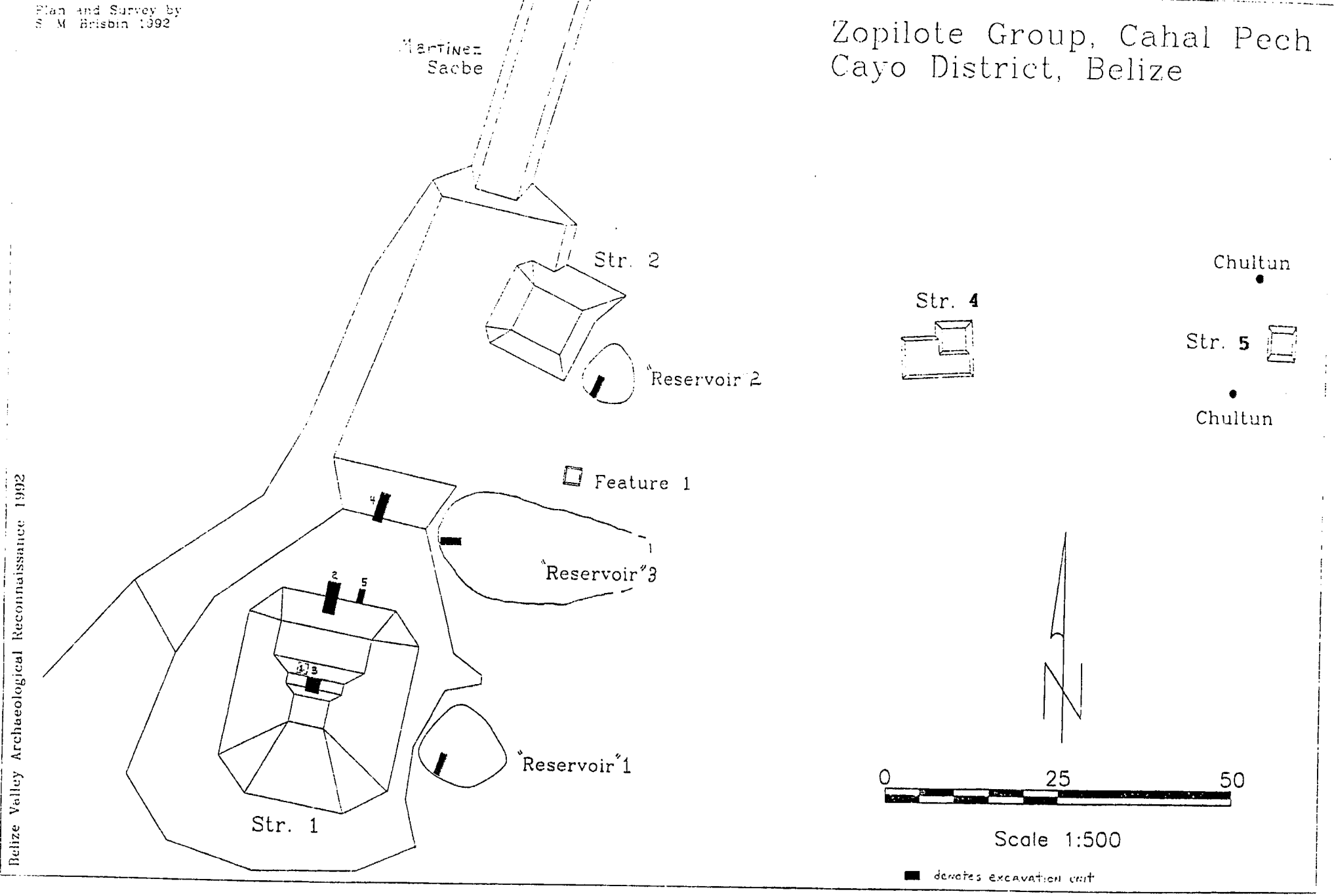
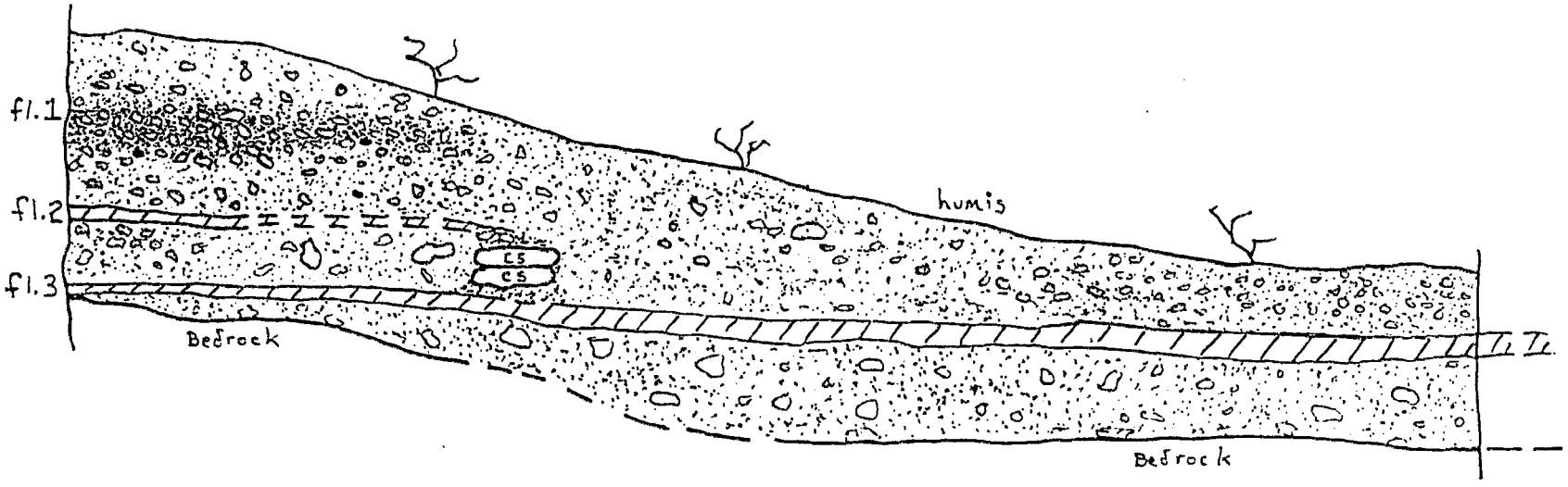


Fig. 1: Map of Zopilote Group, Cahal Pech, Belize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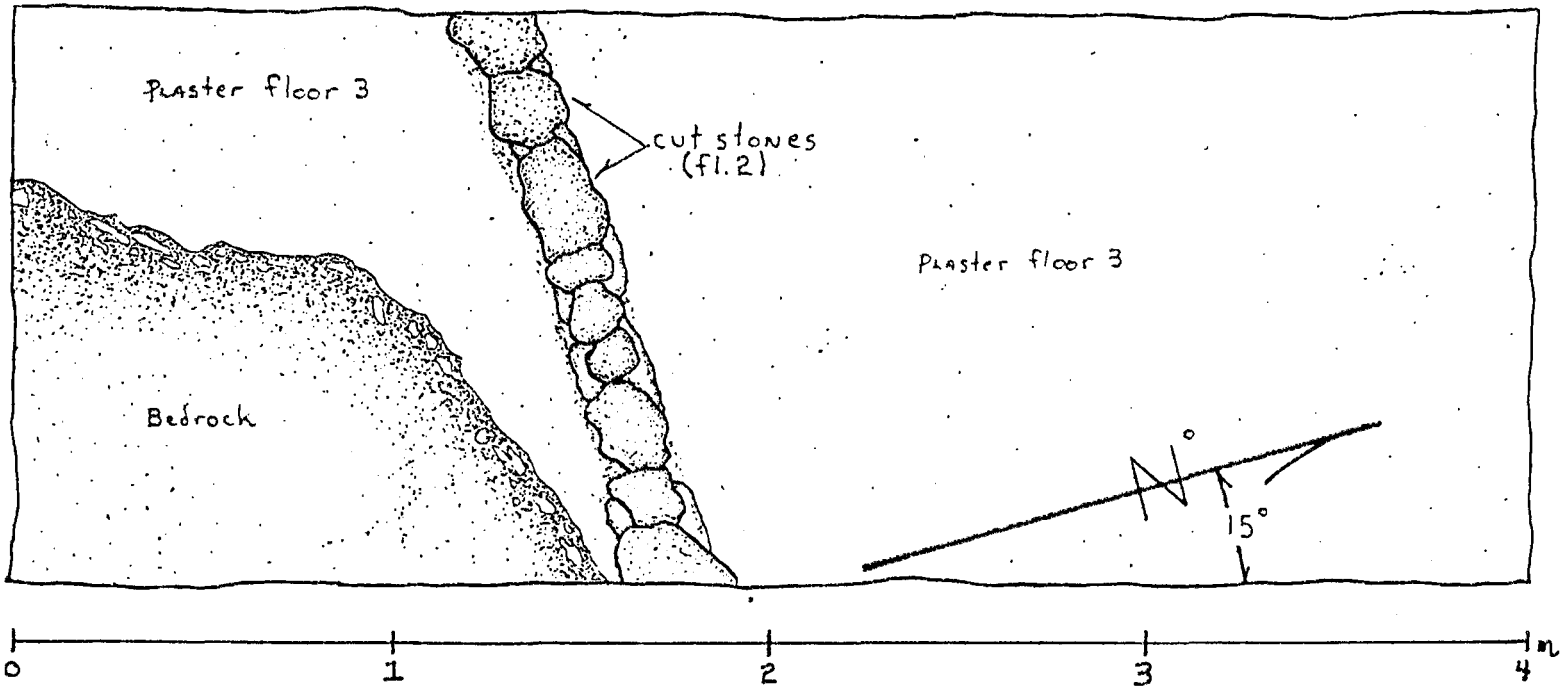
Plaster floor 3
cut stones
(fl.2)
Plaster floor 3
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N°
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0
1
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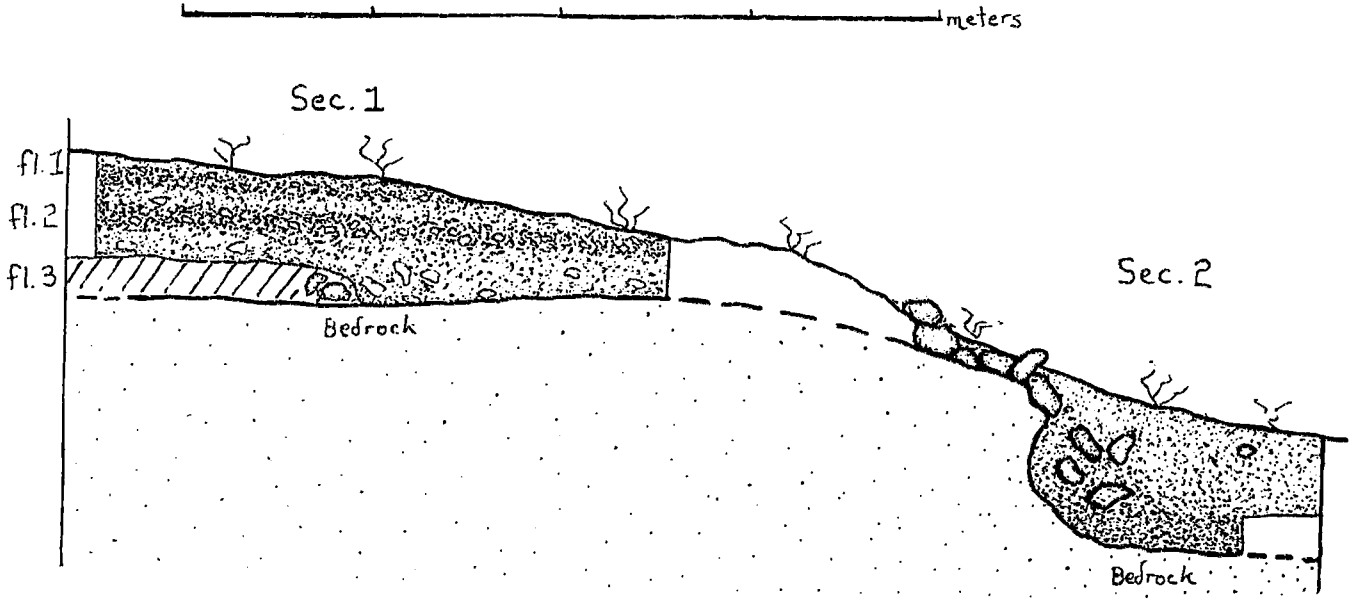


Fig. 3: East-west profile, Martinez Sacbe
(Zopilote Group, Cahal Pech - 1992)

smaller stones interspersed with isolated patches of limestone plaster was revealed (6-13 cm). Root and water action appears to have largely destroyed the terminal sacbe surface, although bits of plaster and numerous small (.5-2 cm) pebbles (temper?) seem to be consistent with the presence of a plastered surface. Below this level larger ballast and earth fill predominate to a depth of 40 cm (level 2) whereupon the profile levels out again with the presence of small stones and pebble fill. Although no plaster remains were unearthed, there exists a distinct separation in the stratigraphic profile. At a depth of 56 cm a poorly preserved plaster floor (10-20 cm in thickness) was constructed directly on bedrock as revealed in the east end of the excavation unit. This plaster surface is contemporary with a low lying (10-15 cm), north-south retaining wall of mortar and roughly hewn cut stones approximately 1 meter to the west. Ceramics immediately above bedrock were exclusively Preclassic in date. A Preclassic zoomorphic figurine head was also recovered from this level. At a depth of 40-20 cm, Classic Period ceramics, although few in number, begin to appear.

Initial investigations confirm three phases of construction. Initially, the natural limestone ridge may have been utilized as a domestic area, perhaps supporting a perishable structure as indicated by the plaster surface and retaining wall atop bedrock. Nevertheless, it could also be the case that a smaller pathway or sacbe existed by the Late Preclassic, being somewhat narrower and lower than subsequent Classic Period constructions. This would appear to be consistent with the presence of Str.1 during the Late Preclassic (7.75 meters in height). Such antiquity has been noted at Tikal, where it has been suggested that the eastern and western causeways were built in the first century B.C. as formalizations of the old entrance trails into the site center (Jones 1991).

Following the stratigraphic profile, it appears that two plastered surfaces were constructed during the Classic Period. Although the poorly preserved penultimate surface consists of a lens of small stone and pebble fill, its morphology is consistent with the final surface which, although badly eroded, retained small portions of plaster.

"Reservoirs" - Initial exploration in the immediate vicinity of the platform revealed the presence of three depressions (Fig.1). Similar depressions adjacent to other groups (Tzinic, Zubin) proved, upon excavation, to be small reservoirs likely to have been utilized by the residents of the immediate area. With this in mind, it was decided to place lateral excavation units in each of the aforementioned depressions at Zopilote, hopefully uncovering the ubiquitous water storage vessel fragments which would indicate the presence of reservoirs. This, however, proved not to be the case, as virtually no ceramic or artefactual material was uncovered.

Although precise function is difficult to determine, it would appear that these depressions represent extensive, expedient quarrying activity at, or near, the end of the Classic Period - presumably for construction of adjacent structures 1 and 2. We posit this because there was no accumulation of midden material at the bottom of these depressions. Also, as evidenced at the Tzinic Group (Conlon 1991), the bottom of the depressions were not plastered, consisting rather of

decomposed, undulating sterile marl.

Structure 1 - Rising 11.5 meters above a basal platform, this pyramidal mound is the largest structure thus far discovered in the periphery of Cahal Pech, (Fig.4). Initial examination revealed severe looting, with large tunnels penetrating both the east and west sides of the structure. The eastern tunnel (looter`s trench #2) was dug into the upper portion of the structure, revealing floor 3 (terminal Late Preclassic). A second, larger tunnel penetrated the western face, revealing a sequence of seven floors (4 through 10) spanning the late-Middle Preclassic through terminal-Late Preclassic Phases (750 B.C. - A.D. 250).

The initial phase of occupation was revealed in Unit 2 at the base of the structure, where bedrock had been purposely carved to create an inset and step (Fig.5). Ceramics located directly above bedrock included a mixture of Jenny Creek and Barton Creek Phase material, indicating a range of 750-100 B.C. for this stratum, which is contemporary with floors 2 and 3 of Unit 4 (platform). This does not, however, date the initial "bedrock" occupation which is most likely associated with floor 10 as revealed in looter`s trench #1. Here, ceramics were exclusively late-Middle Preclassic in date (750-300 B.C.). A Middle Formative figurine torso was also recovered from this level. Bearing this in mind, it is possible that the initial occupation predates the Jenny Creek Phase, as accumulated material was no doubt periodically swept from the immediate area of occupation.

It is not until the advent of the Late Preclassic that a plastered platform/plaza was constructed (see above). This surface serviced architectural phases 2 through 9 - or until the terminal Classic Period (Spanish Lookout Phase) when a final plaster surface was laid down.

A sequence of eight superimposed Preclassic structures follow the initial occupation of the area. Although no post holes were noted along the walls of looter`s trench #1, the Preclassic structures presumably supported perishable superstructures similar to those noted within the site core (Awe 1992; Cheetham 1992). The remains of a north-south cut stone superstructure platform (.8 meters in height) was noted abutting a secondary platform atop floor 9b. This architectural phase was dated by ceramic comparison to late Middle Preclassic/early Late Preclassic times (approx. 300 B.C.).

A flurry of construction activity occurred during the Late Preclassic, with four additional structures being erected prior to 4-Sub: a very thick, well used two-level platform structure (6.35 meters in height) also dating to the terminal-Late Preclassic. A thin stratum of burnt material separates the initial surface of 4-Sub from the final re-plaster, possibly indicating the termination ritual of a perishable superstructure. A final terminal Late Preclassic structure (3-Sub, 7.75 meters in height) was utilized until the middle of the Classic Period.

During the Classic Period two additional architectural phases were constructed. The first Classic Period addition occurred at the close of the Early Classic, or terminal Hermitage (Tzakol) Phase. Str.1 2-Sub was constructed, and used, in two phases. Initial construction

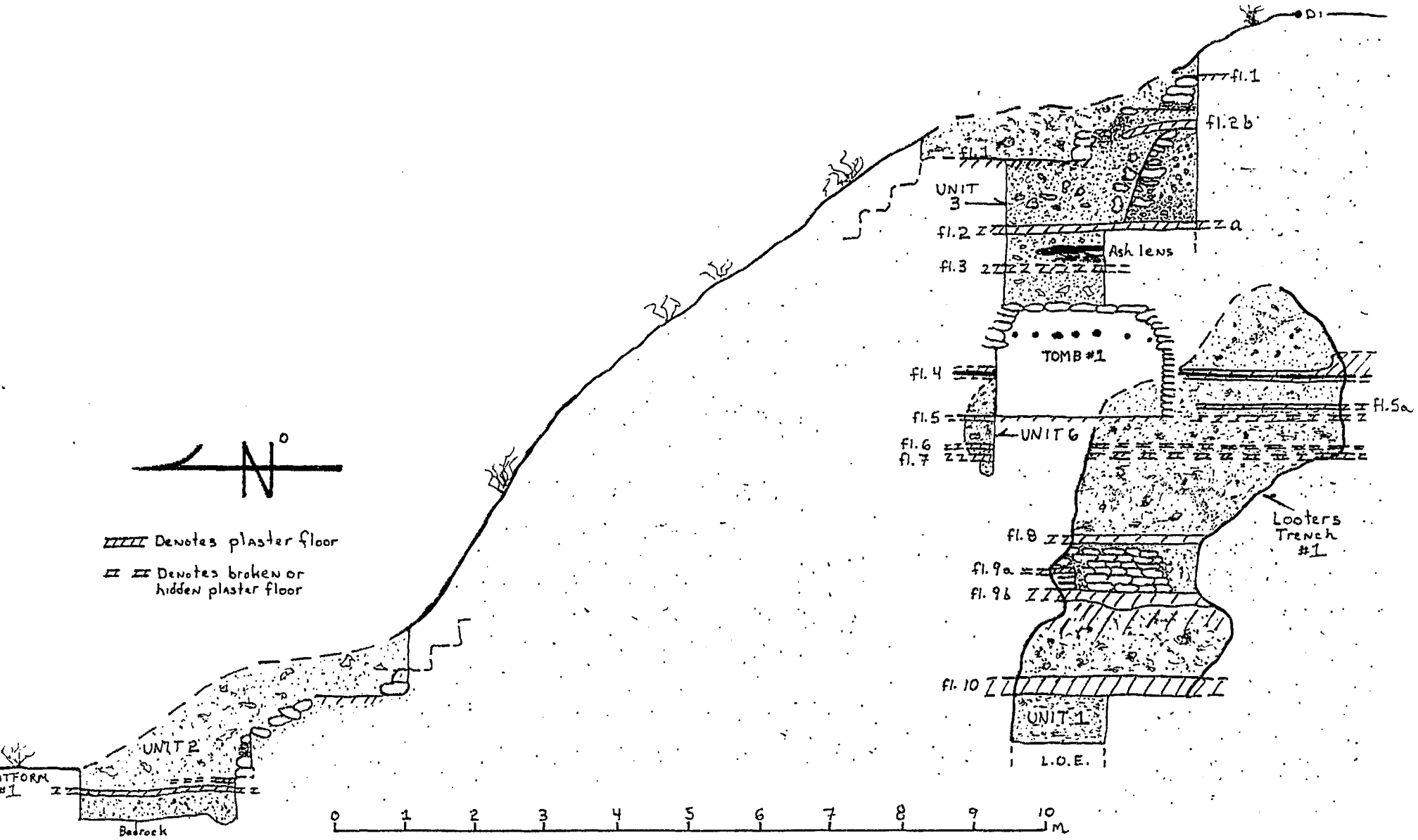


Fig. 4: North-south profile of Structure 1, Residete Group

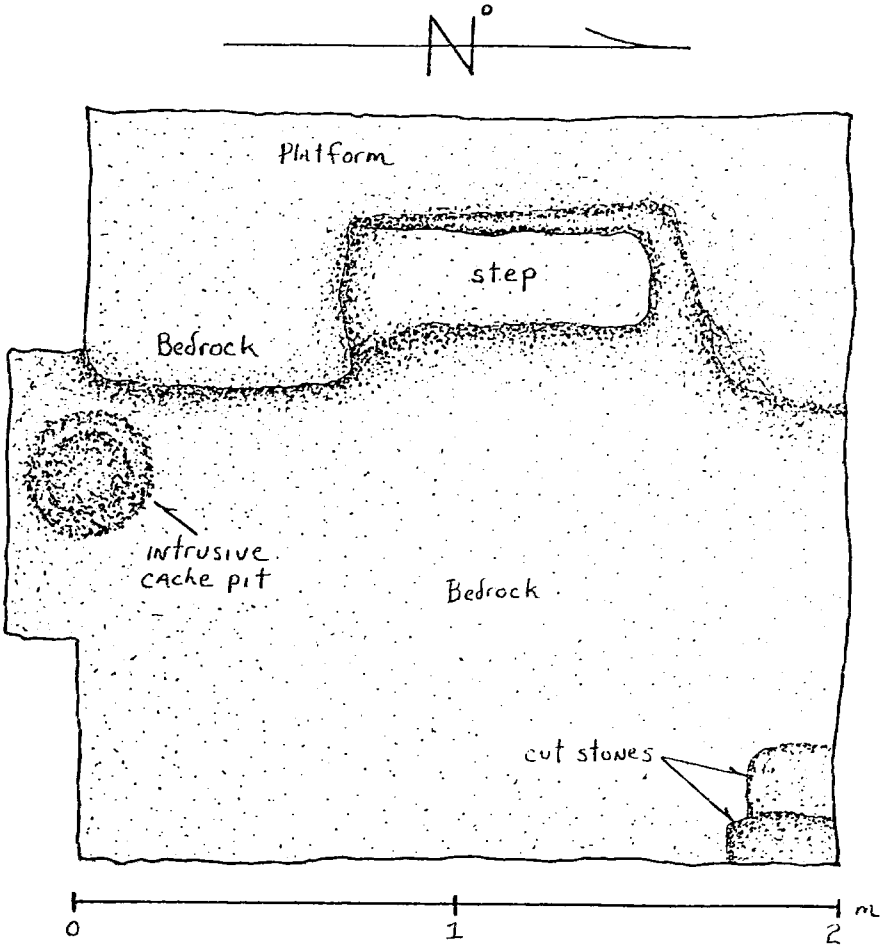


Fig. 5: Bedrock occupation, Unit 2, Structure 1 (Zopilote Group, Cahal Pech - 1992)

consisted of a flat topped structure (fl.2a). At a later date, a thickly plastered masonry superstructure (2.2 m in height) was added, either supporting a perishable superstructure or being flat-topped. A plaster floor (fl.2b) covered the summit of structure 1 at this time. Unfortunately, the central area of this addition (along the primary axis) was destroyed prior to the construction of the final phase of architecture, hampering the location of its stairway. It is possible, however, that the masonry superstructure was ascended via its east and west sides.

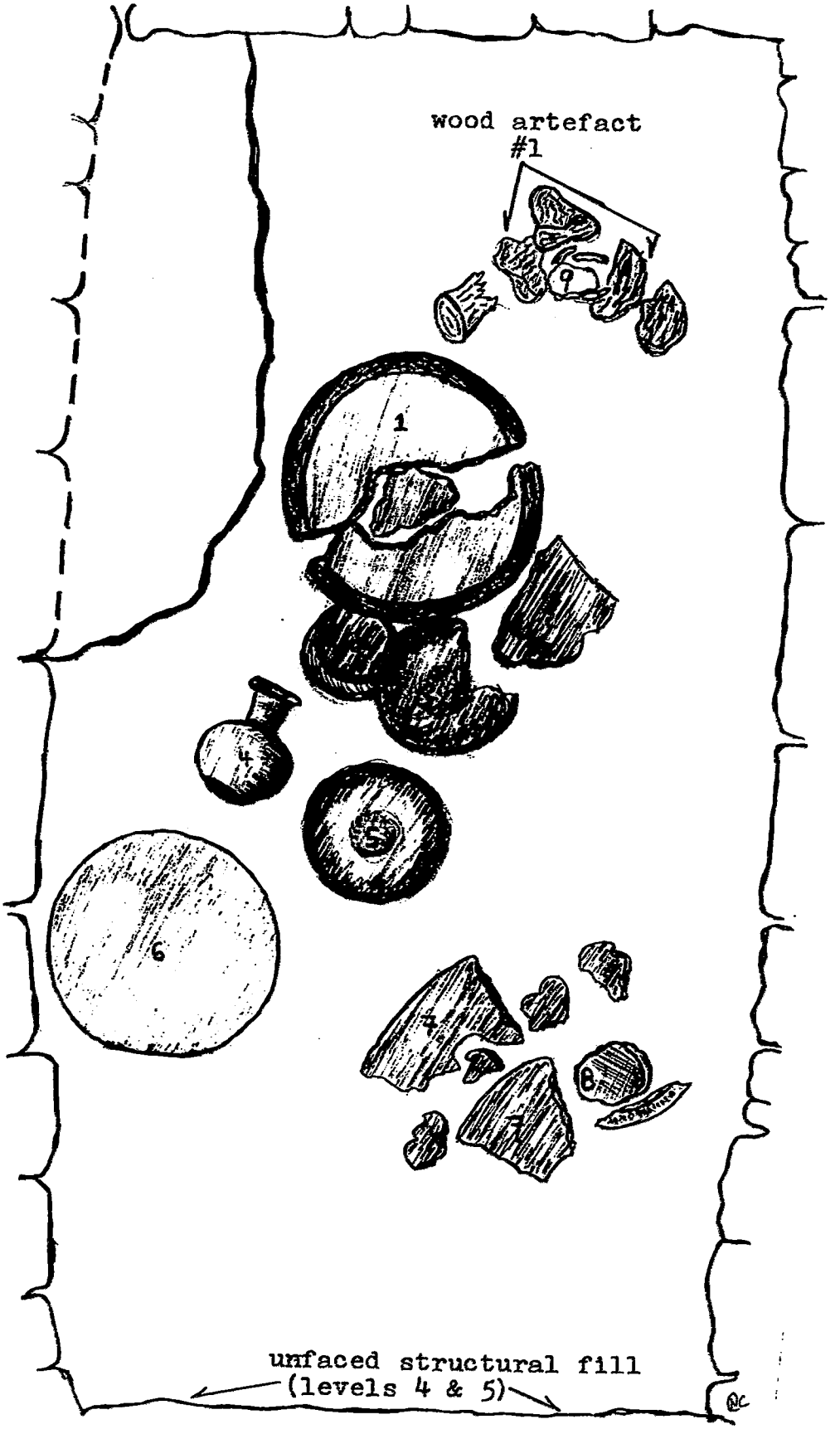
During the construction of 2a-Sub, a large pit was dug through floors 3 and 4, halting on top of floor 5. Here, a tomb was constructed using a rough vault and capstone technique. A series of seven vault beams were built into the vault itself, which was left unplastered. The unplastered walls of the tomb (.9 meters in height) were built of finely-cut stones with the exception of the north wall, which utilized the hard packed Late Preclassic construction fill for vault support.

Tomb contents included two burials (Fig.6); the first being extended (head to the south) along the west wall, the second consisting of a cranium within a dish - a second, inverted vessel covering it. Preliminary osteological examination (David Glassman, personal communication 1992) of cranial and dental remains from burial #2 indicated a young adult (possibly male), while burial #1 proved more difficult to sex because of the paucity of bone material: mice and bats had been nesting within the tomb and had caused some disturbance of the human remains. Nonetheless, the primary internment involved a young adult with no visible sign of pathology or manner of death. It is believed that the primary individual was a male (see below). In addition, several incisors associated with the primary burial were found to have jade inserts.

Artefacts within the tomb include a small jade human effigy pendant, two jade beads, a stingray spine, two *spondylus* shell ear-flares, a disc-shaped shell (adorno?), a large fresh-water shell, two small stone balls, a stone bead and numerous thin, multicoloured and elaborately decorated stucco veneer fragments. In addition, two large concentrations of wood were located at the north and south ends of the tomb. It is believed that these were once wooden artefacts, as they are too big to be portions of the vault beams. Samples were taken for radiocarbon dating.

In all, nine pottery vessels were recovered from the tomb (Fig.7). Vessels 7 & 8 were both halved prior to internment with burial #2. Seven other vessels accompanied the deceased, two of which were elaborate polychromes of the Dos Arroyos Orange and Saxche Orange types (vessels 1 & 2, respectively).

Vessel #1 consists of a large, slightly burnt but richly decorated polychrome plate with a small medial ridge (for comparison see Gifford 1976:176-178, fig.96 a,d, fig.98 1; Smith 1955b, fig.35 a5; Holley 1987:191 & fig.3,1). Internal design includes three personages (visible from the waist down) carrying a deer, stylized serpent/jaguar and an as yet unidentified species of waterfowl. The design is executed in black, light orange and dark orange on cream. A stylized rim band encircles


wood artefact
#1
1
4
5
6
7
8
9
unfaced structural fill
(levels 4 & 5)

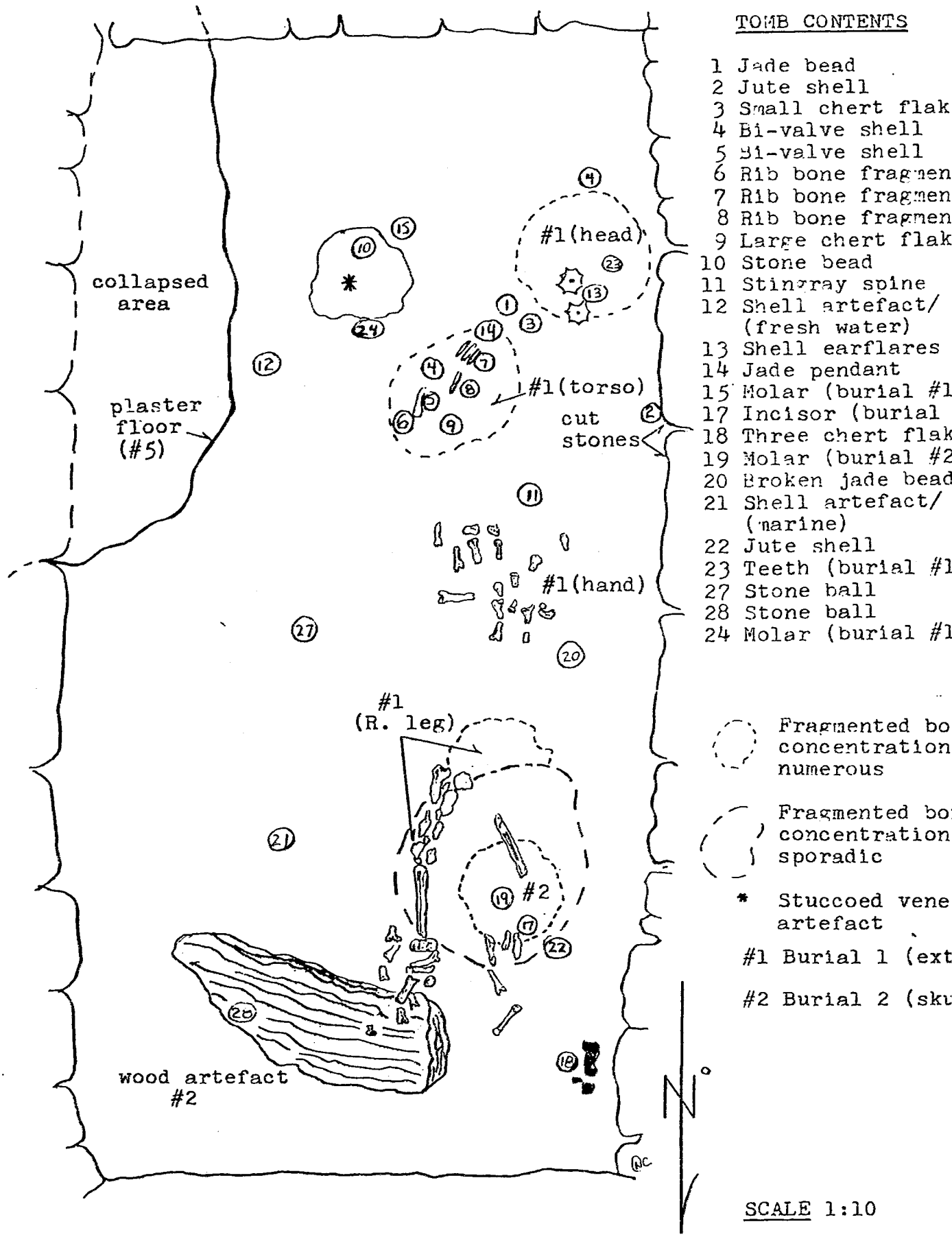


Fig. 6: Floor plan, tomb #1, Structure 1 (Zopilote Group, Cahal Pech - 1992)

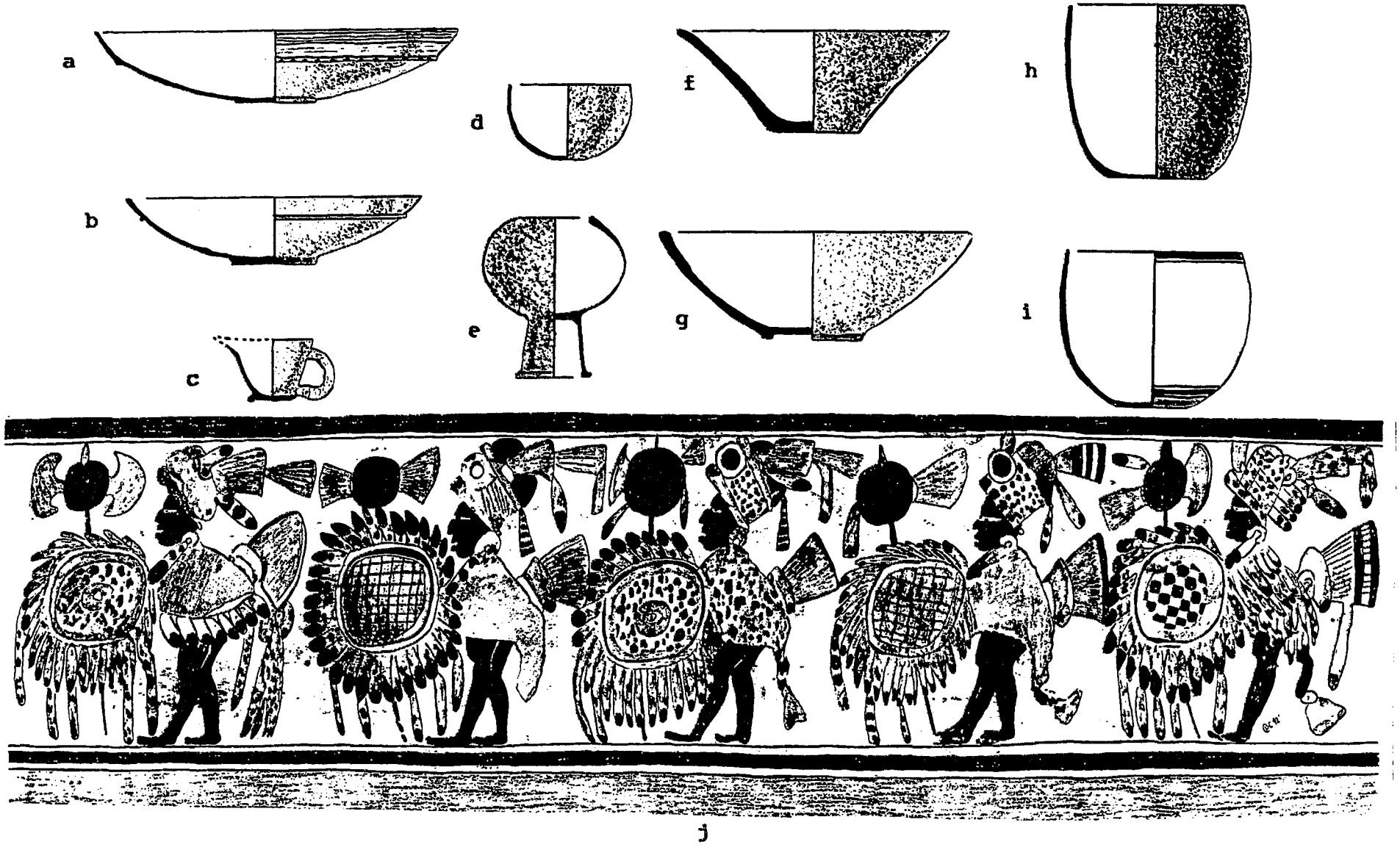


Fig. 7: Pottery vessels from tomb #1, Str.1, Zopilote Group (Cahal Pech). a, (vessel #1), Dos Arroyos Orange-polychrome; b, (vessel #6), Minanha Red; c, (vessel #9), Pucte Brown; d, (vessel #3), Pucte Brown; e, (vessel #4), Pucte Brown; f, (vessel #8), Hewlett Bank-unslipped; g, (vessel #7), Hewlett Bank-unslipped; h, (vessel #5), Balanza Black; i, (vessel #2), Saxche Orange-polychrome; j, roll-out illustration of vessel #2

the interior design, while thin lines of black and light orange encircle the vessel exterior from the rim to the medial ridge, which is "notched" with small triangles of black paint. The vessel was left unslipped below the medial ridge.

Although vessel #1 lacks a true basal flange, Gifford (1976:179) notes that several vessel fragments of Dos Arroyos Orange-polychrome from Barton Ramie (variety K) include a basal flange which is flattened or square in cross section. Because of the presence of the basal ridge and the presence of a Saxche Orange-polychrome vessel within the tomb, it is believed that this vessel is a late variant of Dos Arroyos-polychrome - just prior to the dropping of basal flanges (approx. 600 A.D.).

Vessel #2 is a striking example of the Saxche Orange-polychrome type (Fig.7 i,j [for comparison see Gifford 1976:205-208 & Smith 1955a:165-169]). The vessel is executed in black, brown, and red/orange on cream. Five distinct individuals dressed in elaborate feathered and animal skin costumes are depicted on the vessel exterior: all individuals bear elaborate headdresses and carry shields and spear/axes. The overall design indicates a formal militaristic procession (along the sacbe?).

Five other monochrome vessels were recovered from the tomb, including a basal ridge dish of the Minana Red type (vessel #6), a large, slightly "barrel shaped" vase of Balanza Black (vessel #5) and three vessels of the Pucte-Brown type. The latter three Pucte Brown vessels include a small bowl, a pedestal-tecomate and a small, "cream pitcher" (for comparative examples, [vessel #6] see Gifford 1976, fig.82 f; [vessel #5], Gifford 1976, fig.86 e; [vessel #3, small bowl], Gifford 1976, pp.167-168 & Smith 1955b, fig.6 d, fig.10 q; [vessel #4, pedestal-tecomate], Chase & Chase 1987, fig.6 b; [vessel #9, "cream Pitcher"], Smith 1955b, fig.6 c & Laporte and Fialko 1987, fig.20 forma 31).

The final phase of construction occurred during the Spanish Lookout Phase (A.D. 700-900), when a flat-topped temple pyramid -with a central stairway and secondary platform a few steps above plaza level - was constructed. This architectural configuration appears to be a less grandiose version of the terminal phase of structure 1 within the site core (Middle Classic), where the lower platform was vaulted (Awe & Campbell 1988, Pendergast 1981). Such "replications" are noted during the Classic Period elsewhere in the lowlands (von Falkenhausen 1984:115).

An intrusive cache of two monochrome vessels was discovered along the primary axis beneath the platform at the base of the structure. No burial(s) were discovered which would be attributable to this phase of architecture, attesting to the expedient nature of its construction (see above, "reservoirs").

Structure 2 - At a height of 4 meters, structure 2 occupies the northern edge of the aforementioned platform. Unfortunately, 2 meter deep crater-like looter`s pit completely gutted this structure. Although the unstable nature of the loose ballast and looter`s backdirt precluded any deep test pitting, a sequence of six floors was revealed

along the north wall of the looter`s pit. Effort was directed towards extracting a sample of ceramics from this sequence of stratigraphy: all levels dated exclusively to the Classic Period (250-900 A.D.).

Although structure 2 is located at the north end of the platform, it is not directly opposite structure 1 as initially thought - being slightly offset, instead, to the east. Its purpose seems to be ancillary to the sacbe, which enters the platform directly adjacent and west of structure 2. A careful examination of the profile indicates that structure 2 was ascended from the west (and hence the sacbe), although the presence of north-south oriented cut stones along the east wall of the looter`s pit may indicate a south location for the stairway. Future excavations will hopefully answer these questions.

Structure 3 - Also a small pyramidal structure (3.5 meters in height), this building is located at the terminus of the Martinez sacbe. Unfortunately, it is also severely looted, appearing much the same as structure 2. Proximity to the sacbe is also similar to structure 2, being adjacent and slightly offset to the east. Because of time constraints, excavations were not undertaken here.

Initially discovered in 1989, structure 3 was thought to have been associated with the Tzinic Group (Conlon & Awe 1990) because the sacbe was not noted. This, however, may be the case, as close proximity between the Tzinic and Zopilote Groups may indicate a formal association (see below).

Structure 4 - Located approximately 40 meters east of the platform, structure 4 is the smallest non-domestic structure at the Zopilote Group (1.75 meters in height). A small platform/patio was located adjacent to the south and east sides of the structure. Although floor/surface area would have been extremely limited, it may in fact be a domestic or ancillary structure, as no excavations were undertaken.

Despite extensive looting activity which destroyed much of the central portion of this structure, several thick plaster floors were noted within the looter`s pit. The small collection of recovered ceramics all dated to the Late Classic Period (600-900 A.D.). It must be noted, however, that this was a very cursory examination of the structure.

Structure 5 - Also discovered near the close of operations, structure 5 consisted of a .25 meter high mound (presumably domestic) located on a small ridge approximately 100 meters east of the platform. Two chultuns were discovered in the immediate vicinity of the structure.

DISCUSSION

Given the current state of data within the Belize Valley, Cahal Pech appears to have exerted significant power within the political climate of the precocious Preclassic Period (most likely because of its strategic location near the confluence of the Macal & Mopan Rivers), beginning with occupation as early as 1000 B.C. within the site core (Awe et al. 1990, Awe 1992). This initial settlement develops small-scale ceremonial and domestic architecture, both within the site centre

and periphery, by the late-Middle Preclassic, demonstrating the antiquity of the widespread, multi-faceted settlement pattern as we see it today (for a discussion of late-Middle Preclassic domestic structures at Cahal Pech see Powis 1992 & Powis, this volume).

The considerable antiquity exhibited within Str.1 at Zopilote - with an uninterrupted sequence of ten architectural phases spanning over 1600 years - demonstrates the longevity and permanence of ceremonial architecture outside the Cahal Pech core. It must be noted, however, that with the exception of Str.5 (and possibly Str.4) domestic architecture is lacking at Zopilote. In addition, the Classic Period enclosed patio arrangement noted elsewhere within the periphery is absent, indicating that the power base represented at Zopilote came from outside the *immediate* platform area. Precluding the future location of "hidden structures" (see Cheetham et al., this volume), we posit that Zopilote functioned as a formal structure-focused ceremonial platform/sacbe grouping throughout the Classic Period, and perhaps earlier. Proximity with the Tzinic Group (Awe & Brisbin, this volume) may indicate a formal relationship during the Classic Period, although this is purely speculative given the current state of data.

Clearly, the builders of the Zopilote group exhibited considerable control, being able to co-ordinate massive labour efforts into the construction of Preclassic temples, and ultimately, the Classic Period ceremonial platform/sacbe grouping. That this control was wielded by a "king" from the Cahal Pech core, or by a peripheral noble of some stature, remains enigmatic. Similar sacbeob, however, have been located elsewhere in the Belize Valley area (Healy 1990; Ricketson 1929) and at Naranjo (Graham & Von Euw 1975), where epigraphic evidence indicates that the platform/sacbe (D Complex) may have been constructed as a monument to Ruler 1 during the early seventh century A.D. (Schele & Friedel 1990:177). Unlike the Zopilote Group, the above sacbeob form a distinct, integrative function; linking architectural complexes within the site cores. Nonetheless, the Zopilote Group, although less elaborate, appears to "mirror" Complex D at Naranjo both in date of construction and overall appearance. Because of the tendancy of platform/sacbe groupings to be associated with the monumental architecture of site cores, it is logical that the Zopilote Group at Cahal Pech was constructed and maintained via a powerful hereditary lineage(s) of some antiquity; being, at the very least, intimately associated with the lineage(s) represented within the site core.

Given the current epigraphically based position (Mathews 1985; Schele & Friedel 1990) that the Classic Period lowlands were ruled via a number of City-states with, in the case of the Belize Valley, the local seat of power being Naranjo; Cahal Pech most likely represents a site on the tertiary level, with Xunantunich being an intermediary centre of sorts. This position, however, remains speculative, as Xunantunich may have reigned supreme within the valley during the Late Classic Period (Richard Leventhal, personal communication 1992), perhaps gaining prominence as the political power of Naranjo waned in Middle Classic times. Irrespective of ultimate political control, the Classic Period leaders of the Cahal Pech core and its immediate periphery were most likely cabals, or high ranking nobles acting on behalf of their "kings" with whom they were politically allied. Born out of the

precocious social/political events of the Preclassic Period, these alliances would have augmented as the demographic situation intensified through time.

Current research has also indicated a multi-faceted, integrative role for the political leaders of the Classic Period lowland Maya region (Schele & Freidel 1990:64-65), including domain over issues of religion, economics and warfare. This would appear to be congruent with the Middle Classic erection of Str.1 2a-Sub at Zopilote, where monumental effort was directed towards the veneration of the individual interred therein: an personage who, based on the graphic scene depicted on vessel #2, appears to have been involved (along with four other *cahals*) in warfare at some level.

From here, we may ask what degree of social/political independence the peripheral Groups at Cahal Pech represent. While this question is admittedly difficult to answer, two approaches are forwarded. First, although isolated structures and small patio groups are common throughout the entire periphery, the overall distribution of settlement outside the site core is graded, with the largest peripheral groupings a short distance from the core (within 1 km), and the smaller groupings still further out. The resulting settlement pattern is aptly described by Von Falkenhausen (1984:114, italics ours);

> ...having entered the realm under an urban center's control, the Maya traveller would have passed through simple villages and minor centers before arriving at its fringes; and within the *urban center*, he would have had to proceed through a rural-urban periphery and then through *suburban zones* reminding him of minor centers, before finally reaching the site core.

This is in accordance with Willey et al.'s (1965:579-580) observation of a ascending hierarchy of community units and political organization, with the Zopilote Group being located in the suburban zone of the *urban centre* of Cahal Pech: the site core forming the nucleus of this urban centre. This, however, does not preclude a certain amount of autonomy within the suburban center, as the antiquity of settlement would appear to indicate long-standing lineage ties between these levels of settlement.

Our second approach deals with the accessability of sumptuous goods: specifically those involved in the internment of important personages. Given the presence of richly furnished burials at both the Zopilote and Tzinic (see above & Conlon & Awe 1990) groups, one would expect tombs of a grander scale within the site core. If found to be true, this would demonstrate differential wealth between the site core and suburban zone of Cahal Pech.

Along with the endemic warfare of the "hiatus", the sixth century A.D. witnesses considerable building activity within the site core, Zopilote, and Tzinik, which in the case of structure 1 at Zopilote and structure 1 within the core, covered late Preclassic pyramidal structures of some antiquity. Two elaborate burials are recorded within

the site core during this time period (Awe & Campbell 1988); the first in a small cist within the terminal phase of Str. B-2, the latter most likely in the terminal phase of Str. A-1 (looter's had been apprehended in the vicinity of A-1 with a slab-footed Teotihuacan vessel).

Although extensive looting precludes a definitive answer to the aforementioned question of differential wealth, it appears that the individuals interred within the periphery had equal access to the sumptuary goods which accompanied the inhabitants of the site core. It must be remembered, however, that the sheer quantity and exclusivity (Awe et.al 1991) of Classic Period architecture within the site core indicates differential wealth, or at the very least, differential control over where labour and construction materials were allocated.

Perhaps the most striking fact of this inter-site community arrangement is its antiquity as displayed through architectural remains: with the presence of sizable ceremonial structures by the early-Late Preclassic demonstrating the precocious social/political and religious development which would resound in the centuries to come. Research at the Zopilote Group has demonstrated intimate Classic Period ties between specialized ceremonial architectural groupings and social/political power as manifest in warfare. That this testimony occurs beyond the site core is particularly informative, as it indicates an intimate, cohesive network of interaction between the core and its suburban population.

It is hoped that future excavations at the Zopilote Group will extend our current understanding of Classic Period inter-site relationships into the Preclassic Period, in order that we may attain a more in-depth view of the formative development of social/political and cosmological aspects of the ancient inhabitants of the Cahal Pech urban center. Among other things, the sizable Preclassic ceremonial structures within Str.1 will afford us the opportunity to examine the substructure terraces for stuccoed-masks.

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THE 1992 SEASON OF INVESTIGATIONS AT BAKING POT: ON THE OUTSIDE LOOKING IN

By

James M. Conlon

This paper shall briefly outline the reasons for the initial season of investigations at Baking Pot by the Belize Valley Archaeological Reconnaissance (BVAR) Project.

The ancient Maya site of Baking Pot is located approximately "5 kilometers in air-line distance" upstream from Barton Ramie (Willey et al 1965:301). Many researchers have exlpored the ruins of Baking Pot and these investigations are succinctly presented by Willey et al (1965:302-309). These investigations shall not be discussed in detail here, however, some comments are warranted.

First, investigations at Baking Pot have been mainly exploratory in nature and much work still remains to be done. The excavation results have indicated little more than Classic period occupation although ceramic indications of an earlier period of habitation are evident (Willey et al 1965:309). The investigations at Cahal Pech suggest that a longterm, persistent investigation, can bring about successful results when aiming to explore the Formative Period of occupation (Awe 1993). BVAR archaeologists expect to explore such possibilities at Baking Pot in the future.

For purposes of the 1992 season it was decided to continue focussing upon peripheral settlement since this was such a successful endeavor at Cahal Pech (Iannone 1993). The survey by William Bullard, Jr. of the immediate vicinity of Baking Pot recorded numerous housemounds representing a high density of settlement (Figure 1). But rather than begin investigations relatively close to Baking Pot it was decided to begin at a recognizable unit, such as a plazuela group, and subsequently close in upon the site core of Baking Pot in following seasons of investigations.

Following this introduction is a paper by the author which examines in depth the reasons why investigations were begun at a plazuela group designated the Bedran Group. Such interim articles are never meant to be definitive. There main purpose is to relay to readers not only the goals of the research but also the reasons why these goals are relevant to that which is being investigated. Another reason for producing such a paper is to disseminate the excavation results so that other archaeologists working in the area can have access to something more than a polished, terminal diatribe.

As has been the case in past operations a high degree of collaboration among BVAR staff have enabled us to produce some excellent and timely studies focusing upon excavation results from each season. This year is no exception. Terry Powis presents a somewhat more in depth description and analysis of MOund 2 from the Bedran Group that could not have been afforded other than seprately from the group as a whole. Gyles Iannone again is called upon to analyse the 1992 eccentric flint collection and does so admirably. As operations expand in the coming years additional sections pertaining to such aspects as faunal remains can be expected.

To close this introduction I would like to recognize those individuals which have made this past season at Baking Pot a success. Year in and year out the Department of Archaeology has provided invaluable support of our endeavours. My hearty thanks go out to Commissioner John Morris and a congenial welcome to the new Commissioner Alan Moore.

Dr. James Garber was gracious enough to share a portion of his laboratory and I look forward to further collaboration with him. Special mention must be made of Dave Driver and Gyles Iannone for their brief but welcomed assistance on site. Logistical support was also provided by Captain John Dingley, British Forces. I must also thank Senor Adib Bejos for entrusting another house with us for another season. Also, to those that have contributed in some way to aid in our meeting, eating or sleeping I look forward to your services in the future. These establishments include the Western Bar, Eva's Restaurant, and the Venus Motel. We look forward to many more years of top rate service.

There are always more people who should be recognized then can be acknowledged. To those that feel slighted by their ommission I apologize. Before I present the list of crew memebers from the 1992 field season let me take this opportunity to express my heartfelt gratitude to Senor Abdela Bedran without whom this seasons success would not have been realized.

The Belize Valley Archaeological Reconnaissance Project
Bedran Group at Baking Pot, 1992

Directors:

Jaime J. Awe	University of London Institute of Archaeology
James M. Conlon	University of London Institute of Archaeology

Assistant Director:

Terry Powis	University of London Institute of Archaeology

Field Supervisors:

Grant Aylesworth	University of Toronto
Joseph Dantona	University of Massachusetts - Boston
Bobbi Hohman	University of New Mexico

Assistant Field Supervisor:

Kirsty Cameron	University of Edinburgh

Project Surveyor/Cartographer:

Shawn Brisbin	University of Calgary

Local Work Crew:

Marcos Martinez
David Valencio

Field Crew:

Mark Czekaj	SUNY - Buffalo
Marianne Goodwin	McGill University
Gregory Katz	University of Virginia
Bonnie Morris	SUNY - Buffalo
Scott Riddick	University of Florida
Jason Sanders	University of Illinois - Champaign
Leigh Sebastien	Vassar College
Charles Wade	University of California - Berkeley
Elizabeth Wade	Princeton University
Marshall Wiseheart	University of Florida

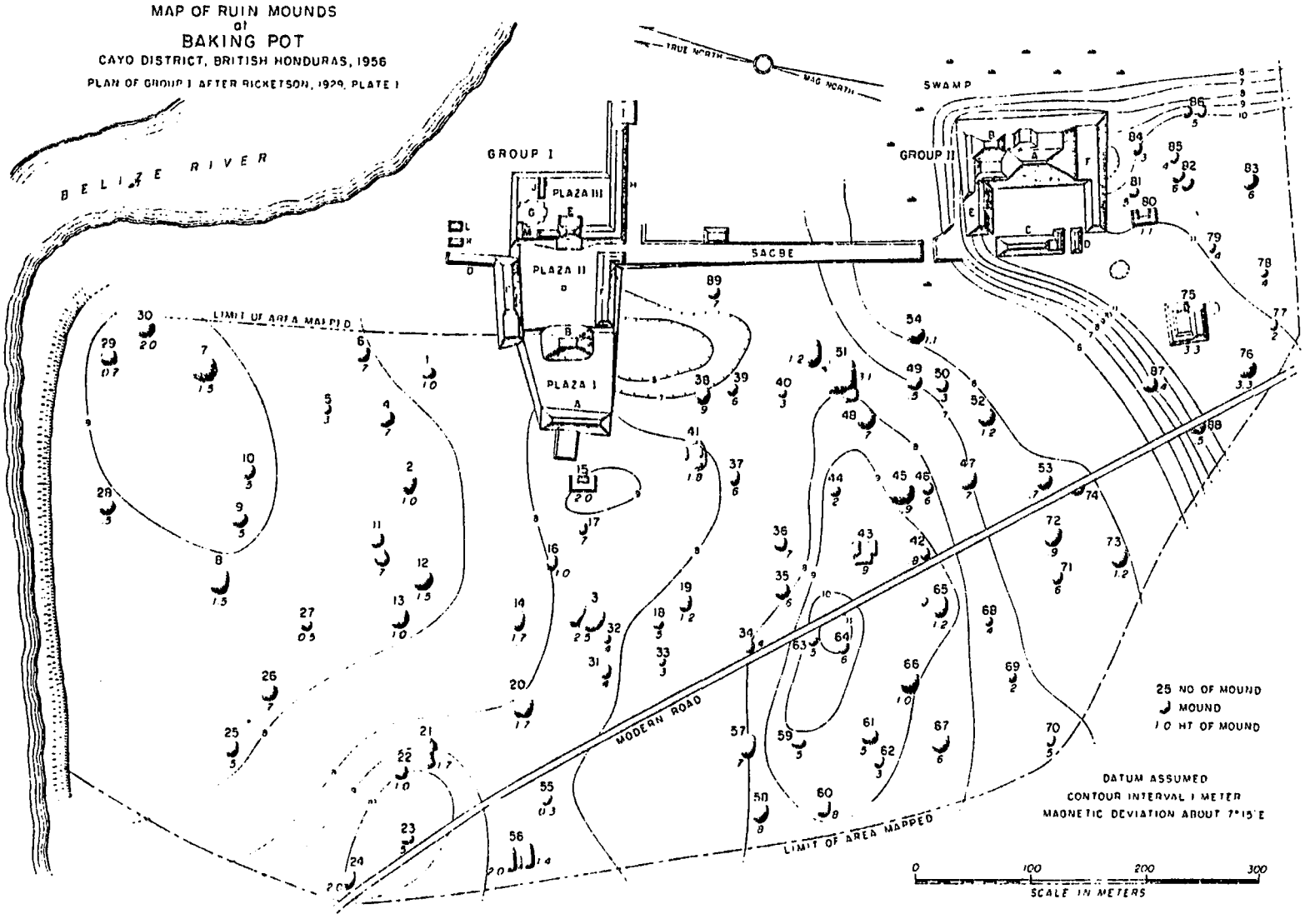

Figure 1: Baking Pot site plan (after Willey et al 1965:302).

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Special thanks also to Gyles Iannone and David Driver for their participation/assistance. ...and Jim Garber for dropping by...etc etcetcet.

CORPORATE GROUP STRUCTURE AT THE BEDRAN GROUP, BAKING POT, BELIZE: PRELIMINARY COMMENTS ON EXCAVATION RESULTS FROM THE 1992 SEASON OF INVESTIGATIONS

By

James M. Conlon

INTRODUCTION

The primary purpose of this paper is to report on excavations undertaken during the 1992 season of investigations. Like the preceding reports in this volume there is also an attempt to make some preliminary observations regarding group dynamics based upon the excavation results. Investigations concerning settlement at Baking Pot are expected to continue in the summer of 1993 but I shall discuss at some length the aim of research as it pertains to this project. This shall provide the reader with a basis to assess both the methodology employed and conclusions provided in this report.

The best place to begin may be to state the obvious, that is, there is yet a standardized method for studying settlement patterns which concern prehistoric Maya urbanism at any level of investigation (Chase and Chase 1987:49). Arguments as to scale and focus of such studies is central to just about any research into this area and is also pertinent here. It is becoming increasingly evident that Maya sites offer too much diversity locally to be ascribed a common denominator regarding their organization (Chase and Chase 1987:58; Iannone 1993). Variability within Maya sites may be of greater significance than the various assumptions regarding regional generalizations (Iannone 1993). Regional generalizations may allow one to classify sites with regards to such comprehensive variables such as polity affiliation (de Montmollin 1988), or designate a subregion as part of a larger culture area, but may offer little with respect to answering questions regarding how these associations developed.

The realization that Maya sites offer a diversity of community patterning is the result of years of attempts to find a single settlement model applicable for all prehistoric Maya communities. In light of the apparent stalemate in debates regarding this subject it would be beneficial to very briefly

examine what the roots of settlement research were based upon.

Settlement had been investigated by researchers on various scales but it was not until Gordon Willey, under Julian Steward's prompting, attempted to define what a large scale settlement study should entail in the Viru Valley of Peru (Willey 1953). Settlement pattern study has been referred to as "human ecology" (Sanders 1956:115) but the primary concern was the reasons (my emphasis) for the distribution of population over the landscape. Reasons were to be understood in terms of relationships between various parts of a site, or community, and it also was considered important how these various parts were grouped (my emphasis) (Willey 1956:107). The "human ecology" reference led researchers on a quest to investigate development from an ecological viewpoint. In itself it was an important perspective but one which came to dominate research in the field. Eventually an overemphasis upon survey data and spatial patterning resulted in analytical gridlock.

How did this stagnation occur? It was considered important that community units, or groups, were readily observable and reflected an ascending hierarchy that reflected a societal hierarchy (Willey et al 1965:579). However, the majority of projects focused upon large Maya centers and their immediate sustaining areas. As excavations tended to concentrate upon monumental architecture within the centers there was little data to test the hierarchy hypothesis.

Archaeologists tended to apply the hierarchical model on a regional scale with little more than survey data. Fortunatley, more and more investigators began to incorporate at least some excavation data into their sustaining area surveys. Social hierarchy is now a primary focus of most settlement research and is most often operationalized by factors such as proximity, wealth, status, and even labour investment in architecture (Ford 1981:158). Sometimes status analysis have led to heated debate about what was actually being interpreted (Arnold and Ford 1980; Folan et al 1982; and Haviland 1982). Part of the reason for such debates is the lack of a substantial excavation component, but in most cases the relative subjectivity of the data itself (i.e. site limits/zoning, status designators, indicators of labor, and gross estimates to name a few) allows for numerous interpretations. It is important to note that hierarchical models are better for "guiding" analysis of settlement distributions (de Montmollin 1988:156) and are not an end to be pursued in themselves.

Hierarchies can aid in analysis because they are comprised of observable groups of mounds and thus provide a basis for unit of study (which I shall discuss shortly). Since populations are dynamic and thus "reflect the changing demands of the population" (Ford 1981:151) such changes should be evident by

the structures they built, artifact assemblages, mortuary customs, spatial patterns, and associated features. Changes provide archaeologists with "important indices for comparative purposes" (Scarborough and Robertson 1986:169). The collection of comparative data for use in analysing intracommunity group dynamics has guided investigations in the Belize Valley Archaeological Reconnaissance (BVAR) project.

TYPOLOGICAL CONSTRUCTS AS ANALYTICAL FRAMEWORKS

I shall briefly discuss settlement typologies since they form the basis for hierarchical models of society. For the Belize Valley, Willey et al (1965:561) proposed a typological framework which included major ceremonial centers, minor ceremonial centers, and house-mound groups. This relatively simplistic typology may, initially, appear to be influenced by the dichotomous priest-peasant societal model which prevailed at this time. Since it was an initial construct attempt it was only logical that future researchers would develop other typological constructs for analysing settlement.

Ashmore (1981) has been one of many to refine settlement unit terminology, including such groupings as "minimum residential unit," the "group residential unit," and the "cluster" (in Fash 1983:262). Constructs also began to grow in number of types and could range from 6 ranked types (Scarborough and Robertson 1986), up to 9 levels of differentiation (Hammond 1975), and even 12 different types of group configurations at Caracol (Chase and Chase 1987). All of these are an attempt to provide a data base regarding function of structures or even groups of structures. More recently it has been suggested that such typological constructs can demonstrate "general function" (Chase and Chase 1987:54).

These typologies are simply progressively complex subtypes of the initial three tiered typology proposed by Willey et al (1965). BVAR researchers have used terminology related to number of different types of groups but the main focus of classification has always been to provide comparative data between various groups at any given site (Iannone 1993). Since hierarchies are typologically based it follows logically, and bears repeating, that they are "aids" which "guide" settlement analysis.

UNIT OF ANALYSIS

To this point it has been established that typological hierarchies can aid in guiding settlement studies concerned with examining intracommunity dynamics. Trigger (1984:286) provides the understanding for choosing a unit of analysis:

> ".... a sober analysis of networks of social, political, and economic interaction calls into serious question the idea that societies or cultures are more significant units of analysis than are a whole series of other units. The entity to be studied is determined by the problem that is being investigated."

There is no doubt that household and community level studies are important foci of research but these are already recognizable analytical units (Hayden and Cannon 1982:136) which have undergone considerable investigation. It is arguably undeniable that where the problem orientation is agricultural practices that the farming household is the "primary unit of analysis" (Fedick and Ford 1990:20). However, in order to study community interrelationships it is necessary to segment the community into analytically manageable units:

> "....assessment of interaction, economic, and demographic factors are probably more accurate at the community level. However, for studies of intracommunity differentiation, such assessment is probably most reliably made at the level of corporate groups rather than at the level of the household" (Hayden and Cannon 1982:140-141).

In order to guide corporate group analysis in the BVAR research program this has entailed designating the series of units encompassed between household and community as Middle Level Settlement Units (MLSU's) (Iannone 1993). The primary benefit is one of accuteness since groups may have been the cognizant units of the Maya (Becker 1982:112 in Chase and Chase 1987:54) and thus the "articulators" between all levels of society (Iannone 1993). At this level of settlement research bridging arguments are more readily constructed (de Montmollin 1988:165).

The group investigated this season has a "recognizable residential coherency" (Hayden and Cannon 1982:134-135) which was dealt with seperately following Hayden and Cannon's (1982:147) suggestion. It should be kept in mind that the Miami and West Palm groups are presently considered part of a cluster of mounds associated, and affiliated, with the Bedran Group and thus form a larger corporate group that shall continue to be a focus of investigations in the future.

EXCAVATION STRATEGY

It has always been an aim of BVAR researchers to include an excavation component which attempts to test, by pitting initially, all mounds within any given group. This procedure is based primarily on the premise that "similar surface forms can represent different developmental sequences" (Haviland 1981). There is little doubt that in order to define structure form detailed excavation is best employed (Chase and Chase 1987:54). Without detailed excavation confusion can arise as exemplified when attempting to apply the Caracol structure-focus designations to the Bedran Group. It is not readily apparent whether the Bedran Group is a South, East, or South and East structure-focus group. Only after excavating was it reasonable to assign it to a South and East structure-focus type group.

On the other hand, if excavations had concentrated upon only one structure at Bedran it would have provided little in the way of comparative data except between periods wihtin the same structure. Lack of data from the other mounds in the group may have been overcome by applying the claim that "smaller groups mirror larger groups with similar composition and layout" (Chase and Chase 1987:54) but this is further confused when considereing Haviland's warning regarding developmental sequences.

No one has ever argued that pitting operations can result in comparable horizontal sample sizes. Webster and Gonlin (1988:188) though, equate increased sample size, from horizontal excavations, with increased reliability. Yet, in the paragraph preceding this statement they suggest:

> "Our rural excavations abundantly confirmed the hypothesis that the "principle of abundance" operated at Copan. Seven of our rural sites produced similar artifact assemblages of convincingly domestic character" (Webster and Gonlin 19888:188).

It is difficult to understand how sample size can effect reliability when rural domesticity can be predicted by the principle of abundance (Willey et al 1965:11) without even excavating. For corporate group analysis the principle reason for excavating is to establish a chronology with which to ascertain a diachronic development for a given group of mounds as well as assess the data for clues regarding special function buildings. Initial pitting also allows more mounds to be tested in a given area over a given period of time then could be accomplished by trying to excavate completety every mound within a group.

The excavation strategy employed by BVAR researchers has not been limited to pitting (Goldsmith 1992; Awe et al 1992). If micro-analysis of domestic activities is desired then more complete horizontal exposure is warranted. Ultimately the excavation strategy employed by BVAR researchers is meant to provide a balance between survey and excavation which complement settlement pattern studies to "reveal greater internal variation within residential sites" (Hendon 1991:896). Test pitting has proven beneficial in aiding comparative analysis at Cahal Pech (Iannone 1993) and shall continue to be employed as investigations at Baking Pot ensue.

THE EARLY CLASSIC ENIGMA

A continued discussion of excavation strategy is warranted since the pitting strategy controversey persists. It is suggested that pitting may "present a skewed representation of dates of construction and function (Chase 1990:51). As an example, functional determination was unaffected, but, three test pits into an approximately 20 meter long range structure (Mound 5) at the Tzinic Group (Figure 1), 450 meters south of Cahal Pech, produced conflicting chronological results (Conlon and Awe 1991). Two units produced Mount Hope to Tiger Run transitions while a third unit evidenced Hermitage sherds mixed with a predominantly Mount Hope assemblage. Profiles revealed a minor platform modification during late Hermitage times. This was the only Hermitage ceramic evidence from over 20 units in 6 structures and is not an uncommon occurrence at Cahal Pech (Awe 1989:30; Conlon 1992:80), nor does it seem unparalleled in the lowlands (Gifford 1976:111; Lincoln 1985). This phenomena suggests that a revision of ceramic phase assignation may be required and that no methodological impropriety in test pit excavation has been demonstrated.

Confusion regarding settlement distribution can result in erroneous hypothesis concerning population movements such as might be perceived in the Belize Valley (Ford 1990:171), especially if ceramic reports are adhered to rigidly. In the Tayasal-Paxcaman Zone it is suggested that a shift of 50 years downward to A.D. 550 eliminates the perception of a population decline (Chase 1990:151). This is of major significance since there is a perceived construction stagnation around the same period at the Bedran Group.

It should be abundantly clear that the elimination of the apparent population decline by the arbitrary shift of the beginning of the Late Classic down to A.D. 550 suggests an error in temporal assignation was made with regards to the ceramic analysis as opposed to any faulty excavation methodology. If excavation methodology skewed the ceramic data then the arbitrary temporal shift could not have properly eliminated the perceived population decline. Reexcavation would have been necessary to

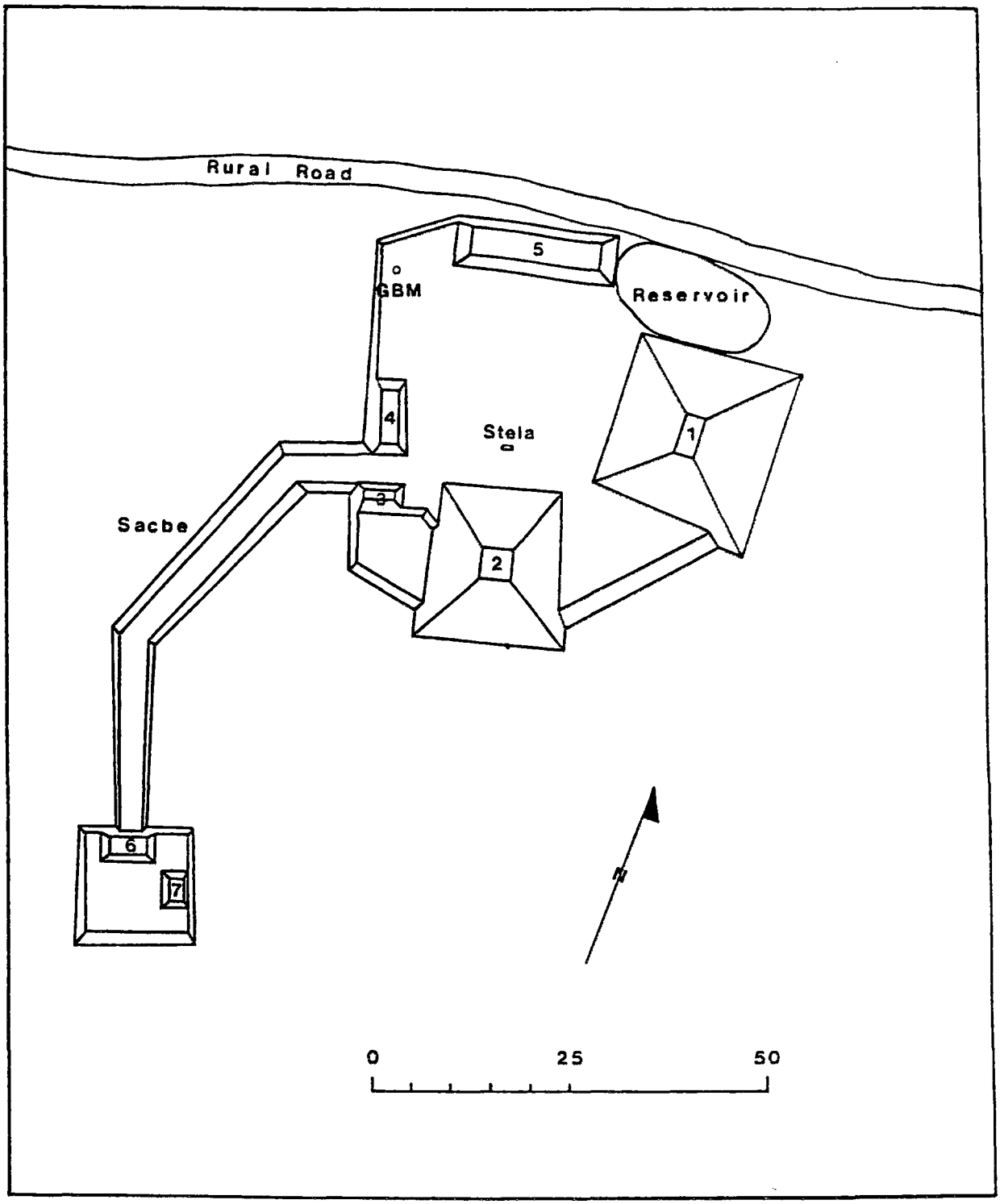


Fig. 1: Rectified plan of the Tzinic Group, Cahal Pech, Belize.

correct previous excavation shortcomings. The argument may be moot since continued excavation should work to eleviate any discrepencies in older ceramic chronologies. As more data is available these chronologies shall be refined, both through better excavation and analytical techniques.

The main purpose of this section is to establish a point where the Early Classic can be said to end and the Late Classic begin. While a shift downward eliminated a problem in the Tayasal-Paxcaman Zone, and may have relevance for Bedran as well, for the moment I would like to leave the shift open. The main reasons for this is that there is some discrepency to what degree Tiger Run is seperate from Spanish Lookout (Willey et al 1965:360-365). Pulling down Tiger Run may mean an associated downward pull for Spanish Lookout. Therefore, to try to leave a mininum of disruption I shall indicate the end of the Early Classic as A.D. 500/600 and the beginning of the Late Classic as A.D. 600 until such time that it can be demonstrated that Tiger Run ceramics can be shifted downwards or Hermitage, and maybe even Mount Hope, can be pulled upwards to A.D. 600.

SITE SURVEY

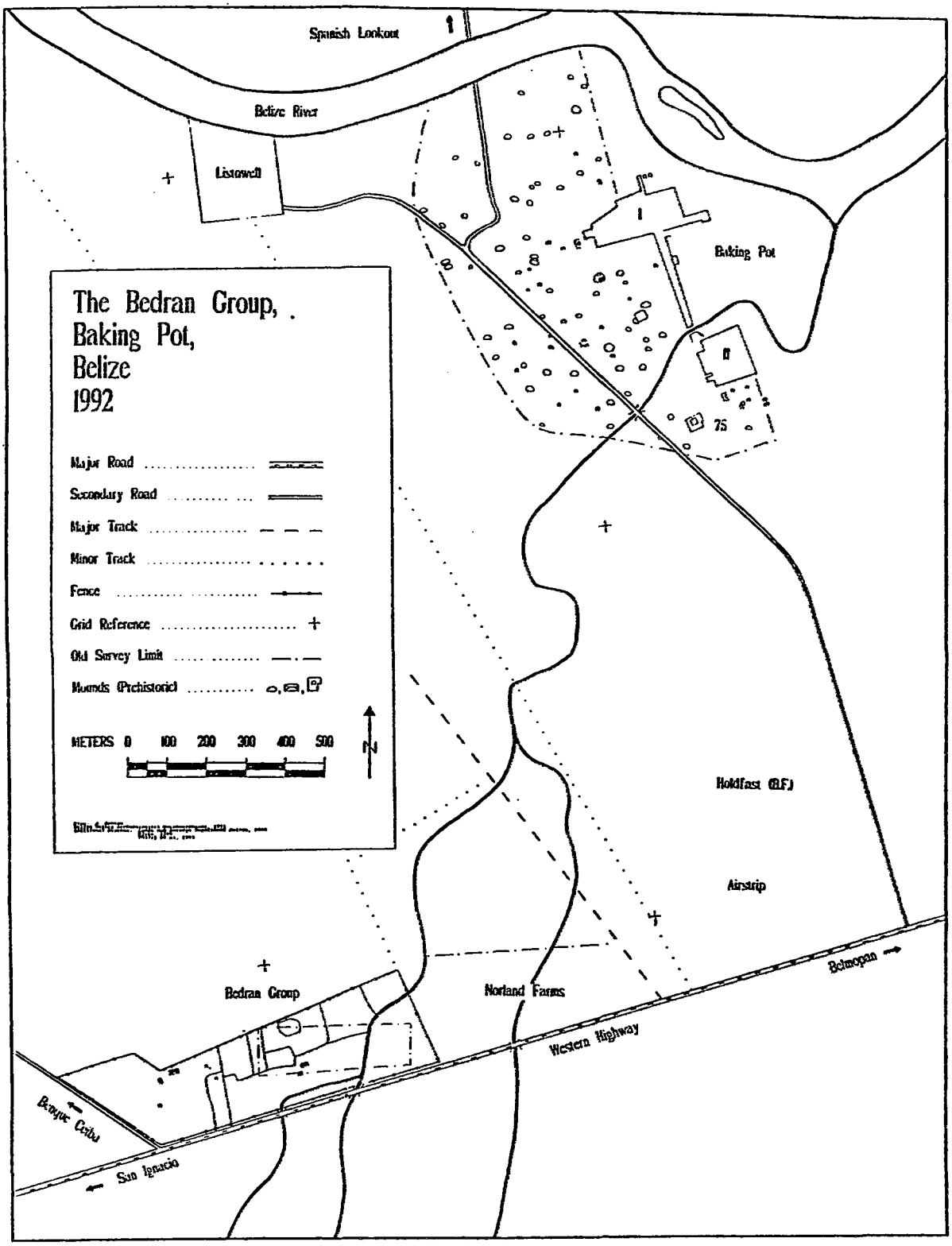
The first record of the Bedran Group mounds is from a pace and compass map produced in the late 1970's in order to investigate linear depressions in the otherwise flat pasture land (Kirke 1980). As part of our investigations a more accurate plan of these mounds and depressions using a transit was prepared. The fence which encloses the mounds was chosen arbitrarily as the defining limit of the survey for 1992.

SITE DESCRIPTION

The Bedran Group is located approximately 2 kilometers southwest of Group II at Baking Pot on land presently owned by Senor Abdela Bedran (Figure 2). Senor Bedran not only graciously granted permission to access the prheistoric mounds on his land but actively encouraged investigation for which we are deeply indebted.

The survey limit eventualy encompassed an irregular shaped plot approximately 750 meters by 250 meters (Figure 3). The actual area surveyed is roughly 170,000 square meters (0.17 square kilometers) or close to 40 acres. The plot is bordered on the east by Norland Farms, the south by the Western Highway and on the west by a secondary road leading past Benque Ceiba, and on the north by more pasture land.

The phrase "the Bedran Group" actually refers to the mounds which encompass a small plaza in the north-central section of the


Spanish Lookout
Belize River
Listowell
Baking Pot
The Bedran Group,
Baking Pot,
Belize
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Major Road
Secondary Road
Major Track
Minor Track
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Grid Reference
Old Survey Limit
Mounds (Prehistoric)
METERS 0 100 200 300 400 500
N
Holdfast (B.F.)
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Bedran Group
Norland Farms
Belmopan
Western Highway
Benque Cebu
San Ignacio

Figure 2

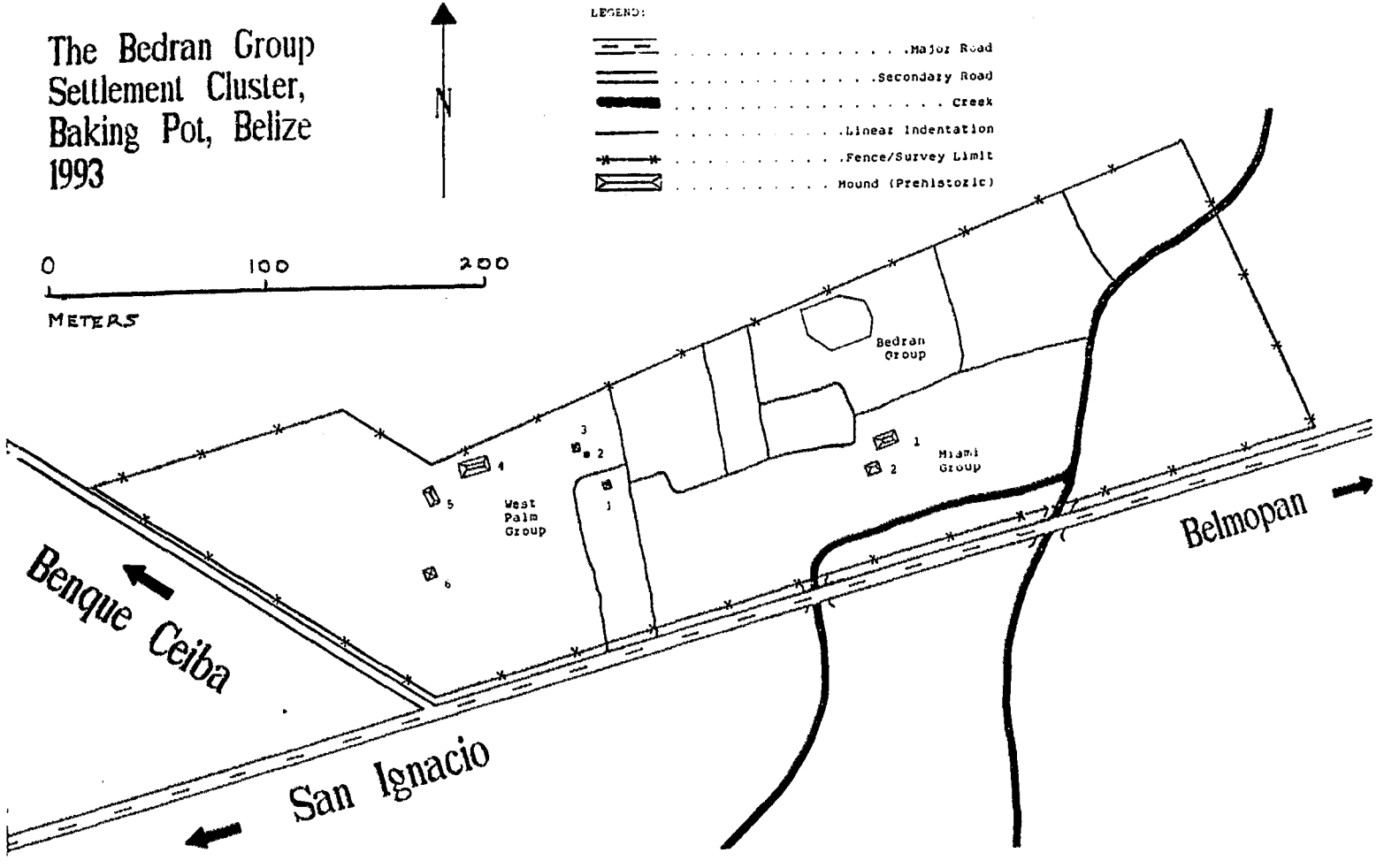


Figure 3: Survey limit of the Bedran Group Settlement Cluster.

survey (Figure 4). The plazuela is roughly 40 meters N/S by 50 meters E/W for an approximate area of 2,000 square meters. The plazuela is similar to configurations such as Plaza Plan II at Tikal (Becker 1983:169) and South and East Structure Focus Group at Caracol (Chase and Chase 1987:55).

To the south of the Bedran Group are mounds 1 and 2 of the Miami Group and further west are the six mounds of the West Palm Group. Together these groups form the larger settlement unit designated as the Bedran Cluster. Several other mounds not included in the 1992 survey are observable in the adjacent northern pasture and likely constitute another segment of the Bedran Cluster. Subsequent research shall include their investigation.

The pasture in which the Bedran Group is located is almost completely level. The only relief is afforded by portions of two creeks which run north through the eastern section of the surveyed plot and some shallower, dry, linear depressions.

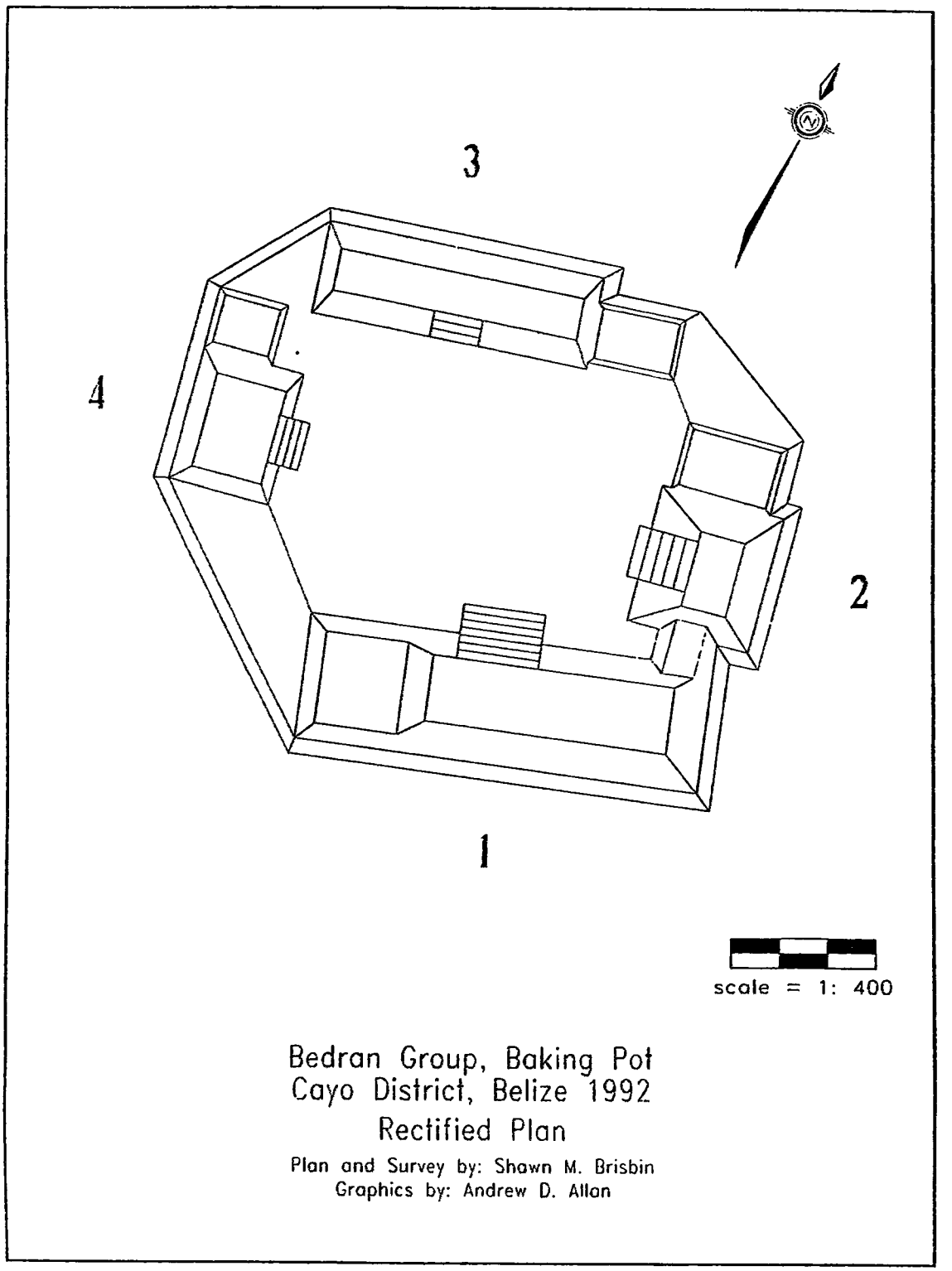
EXCAVATIONS

The primary goal of the 1992 excavations was to acquire data that would aid in first, building a diachronic development for the plazuela group and second, provide a basis for intragroup comparison. The mounds themselves were in almost pristine condition and appear not to have suffered any damage from looting, although some minor disturbance on the east face of Mound 2 is evident, as is a small depression in the plaza surface near the northeast base of Mound 1. All four mounds within the group were purposely sampled. A vertical excavation strategy was employed since these were the intial investigations at the group. This assured the full range of occupation was recovered in the first research season.

Mound 1

This range type mound is the tallest (3.14 meters) and largest volumetrically at the Bedran Group and is located on the southern edge of the plazuela (Figures 5 and 6). A small protruberance on the north face of the mound was assumed to conceal an outset stair. This guided placement of the 2m(E/W) X 8m(N/S) unit along the presumed primary axis.

Altogether there were 11 constructions and modifications (cf. Loten and Pendergast 1984). Little is known about the architectural style of the construction sequence. The construction fill begins as medium ballst type fill in the Early Classic and eventually converts to a more clay based fill with some minor use of small rubble just underneath the plaster surfaces as the Late Classic construction begins. This mound also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Bedran Group, Baking Pot
Cayo District, Belize 1992
Rectified Plan
Plan and Survey by: Shawn M. Brisbin
Graphics by: Andrew D. Allan

Figure 4

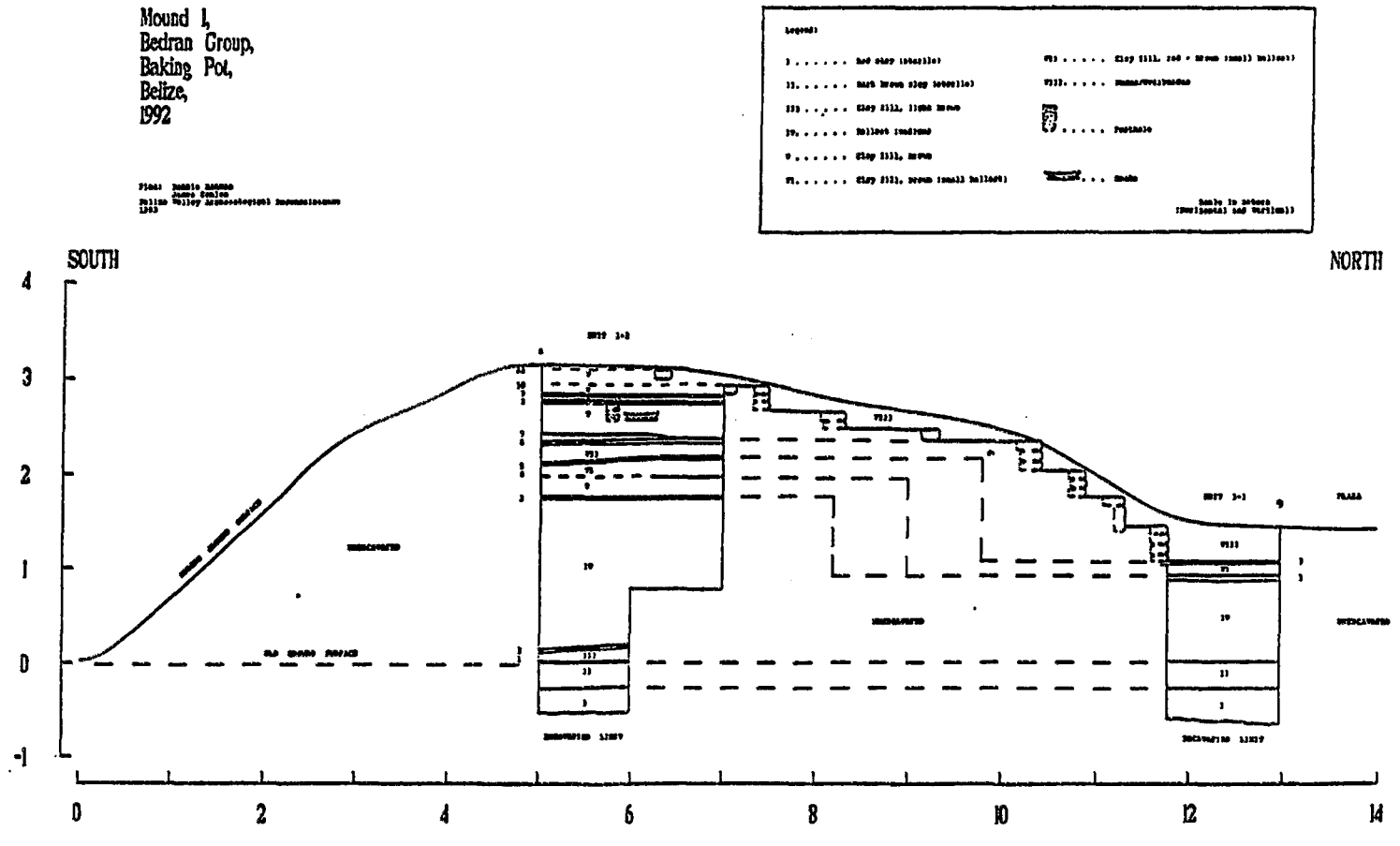

Figure 5: Profile of Mound 1, Bedran Group, Baking Pot, Belize.

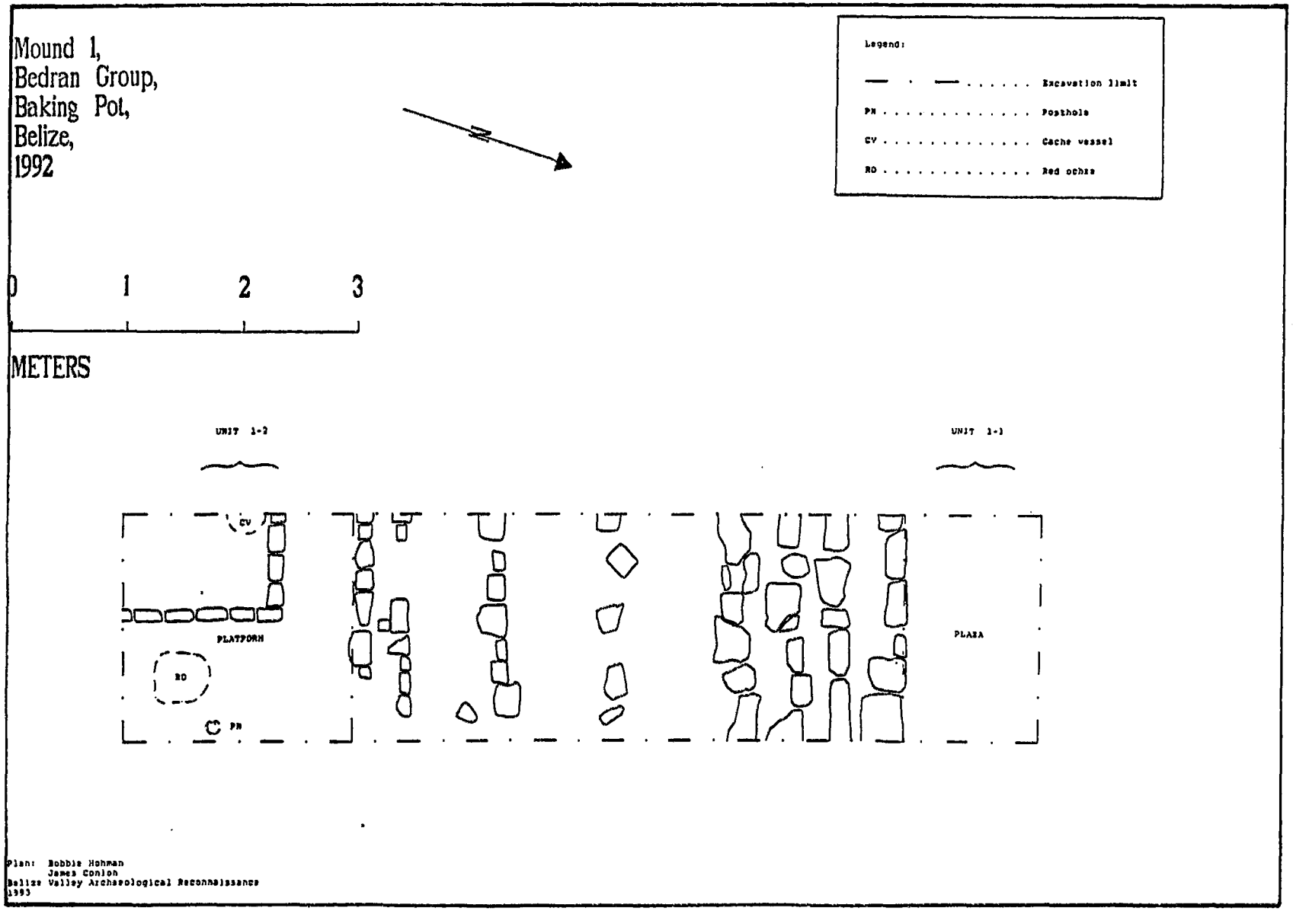

Figure 6: Plan view of terminal phase Mound 1, Bedran Group.

continues to use a greater proportion of plaster for surfacing platform areas than the other three mounds in the group. Cut stones used to construct the terminal phase stairs are somewhat larger than those revealed at any of the other three mounds, but no finer in quality.

Little in the way of ritual activity was recovered except a Late Classic dedicatory cache (c. A.D. 800) below Structure 1-8th and a red ochre stain on this same platform. The lack of excavation into the terminal stairs may account for a lack of ritual activity since caches may remain there intact. A metate fragment was recovered form the Early Classic (A.D. 500) plaza section and red clay briquettes (16 in total) were recovered from almost all levels of construction.

Mound 2

This was the focus of a seperate investigation by Terry Powis (1993). However, I would like to sumarize some of the more pertinent points here to facilitate discussion later in this paper.

Located on the eastern edge of the plazuela it is of similar height to Mound 1 (3.07 meters) and, significantly, is joined to it (at least in the terminal phase of their construction) by an ancilliary platform. The physical attachment to Structure 1 could represent a symbolic unity between the two structures greater than the plazuela affiliation. Mound 2 is also squarer than the other three mounds (Powis 1993), and coupled with the eastern locale, was likely a special function structure. This is partly supported by the initial, Early Classic, round structure construction and also the high concentration, in comparison with other mounds in the group, of Late Classic burials and caches (Powis 1993).

One last note to make here is the half vessel cache similarity of Cache 2 to that of Cache 1 in Structure 1, again showing an affiliation between the two mounds.

Mound 3

Located on the north side of the plazuela this mound is a range type mound almost as long as Structure 1 but lesser in total height at about 2.30 meters above the old ground surface (Figures 7 and 8). A 2m(E/W)X 5m(N/S) unit was opened near the estimated primary axis.

Excavations revealed that we had missed the central stair. It appeared in the western balk of the southern end of the unit and precluded testing the central stair for ritual deposits in

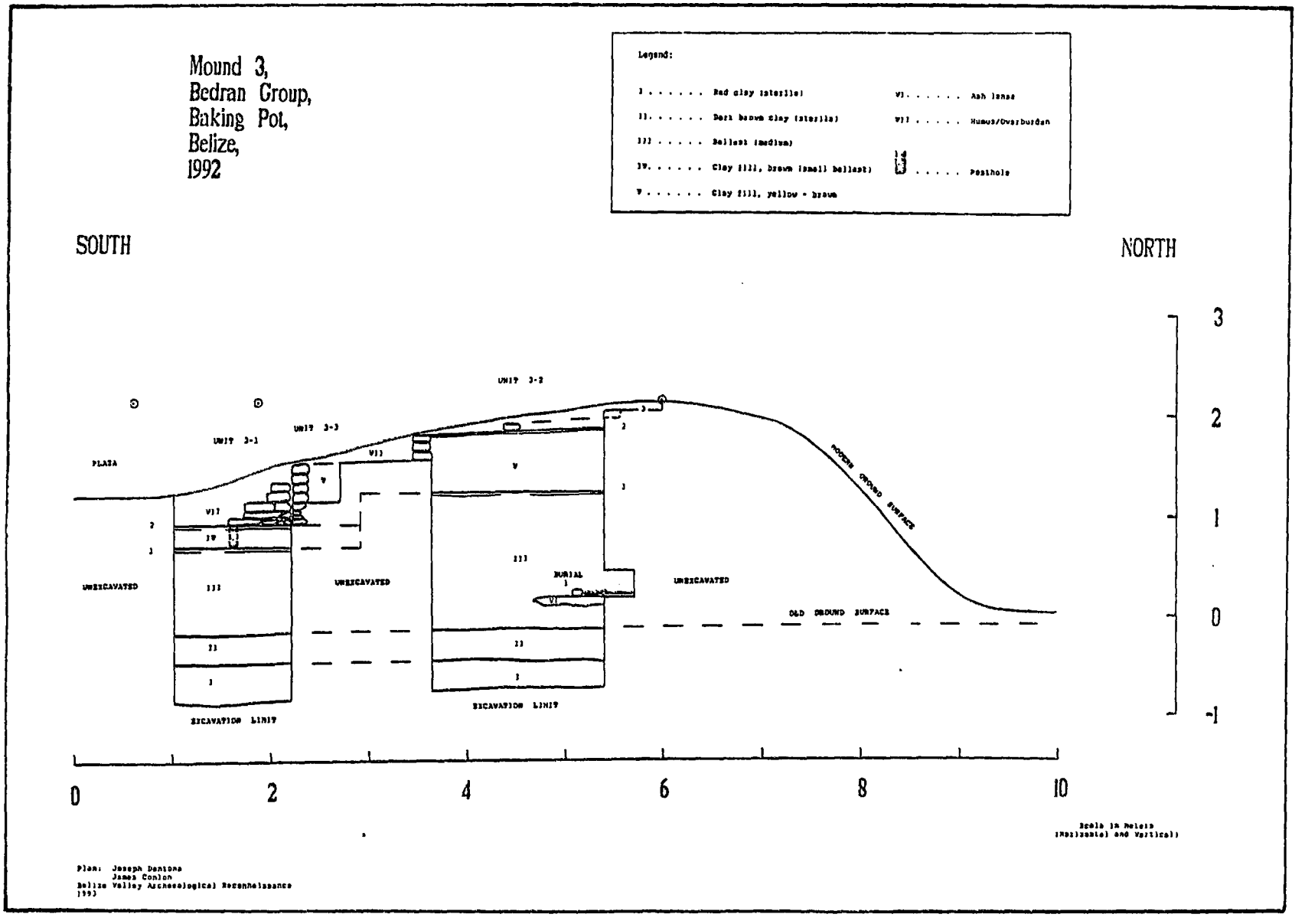

Figure 7: Profile of Mound 3, Bedran Group, Baking Pot, Belize.

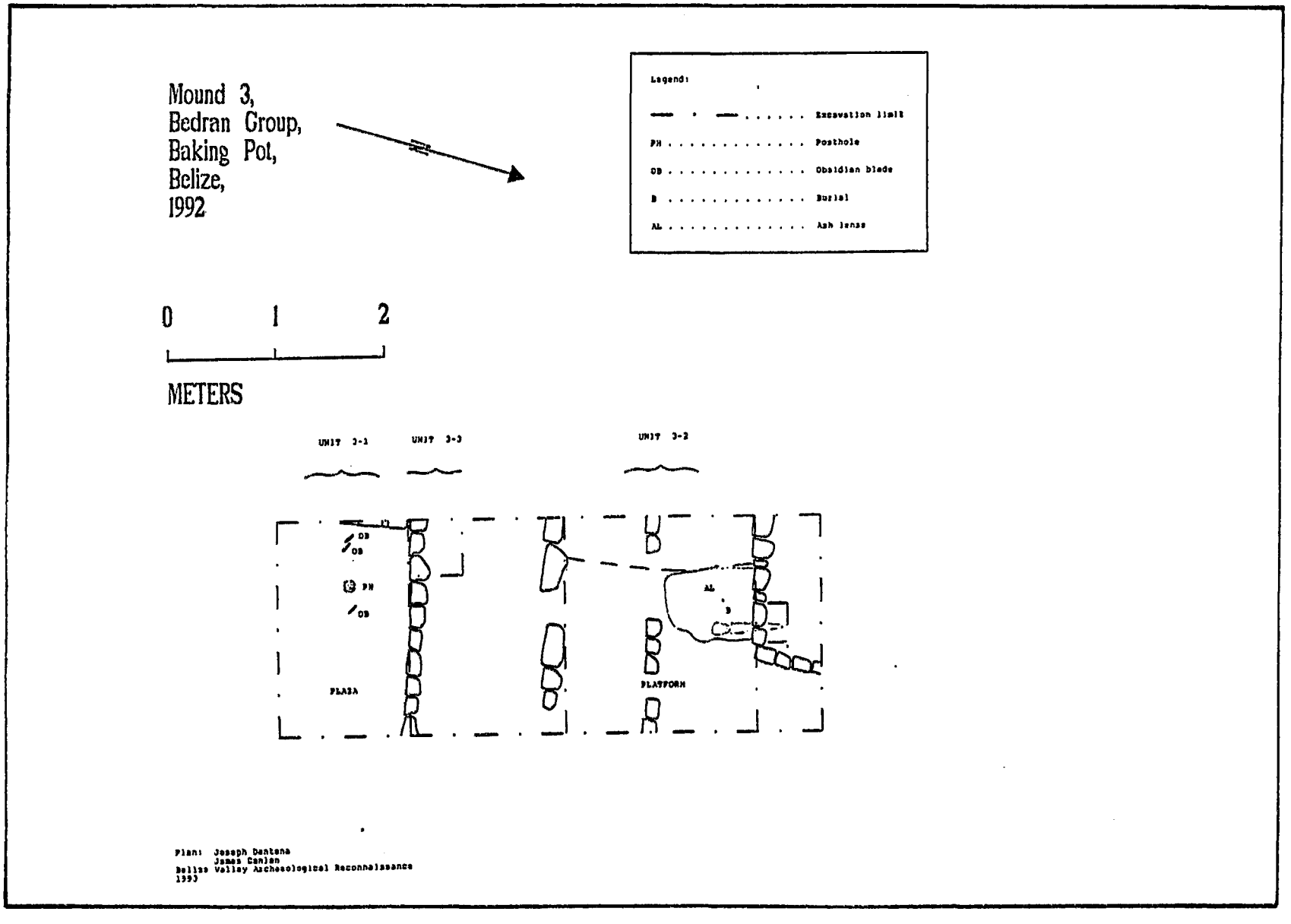

Figure 8: Plan view of terminal phase Mound 3, Bedran Group.

this area. However, an intrusive interment of an adolescent (c. A.D. 850) was located in the platform section of the mound and an undetermined feature (hearth or midden?) was uncovered in the terminal plaza area (c. A.D. 900).

Only two construction phases are evident with one or two platform modifications. The first construction was a plaster platform around the same time the first plaza floor was built (c. A.D. 500). The next (and last) plaza floor was constructed without an accompanying platform construction, effectively lowering the platform by 20 centimeters.

Close to A.D. 800 the terminal platform and stairs were built. The final one, or two, platform modifications were added to the summit of the platform shortly after A.D. 800, raising the final platform height above the terminal plaza to about 1.20 meters. Late Classic construction fill was clay, distinguished from the Early Classic medium ballast fill (similar to Structure 1's Early Classic construction fill). A total of 74 briquettes were retrieved form this mound and this was split relatively evenly between levels and units.

Uncovered in the southern end of the unit was a well constructed retaining wall of the primary, or basal, platform. All the stones in the wall were layed flat except one near the middle of the excavation unit. This is similar to the facade of BR-147 (cf. Figure 63-bottom in Willey et al 1965:139) and may have some significance beyond architectural aesthetics.

Mound 4

This is the smallest of the mounds in the plazuela (Figures 9 and 10). At about 1.90 meters in total height it is located on the western edge of the group. Construction consists of one platform and two modifications, all in the Late Classic period (c. A.D. 700-900). There is no Early Classic construction in this mound and only the western limit of the terminal plaza floor is evident in excavations (c. A.D. 600-700).

No deposits of ritual significance where encountered. Notable is the clay fill used for the entirety of construction. Mound 4 also has intermediary platform terraces, like Mound 3, although they are somewhat smaller in area. It also has a slightly outset central stair. A large metate fragment was found near the central stair and a total of 13 briquettes were retrieved from all levels with the majority coming from the plaza unit.

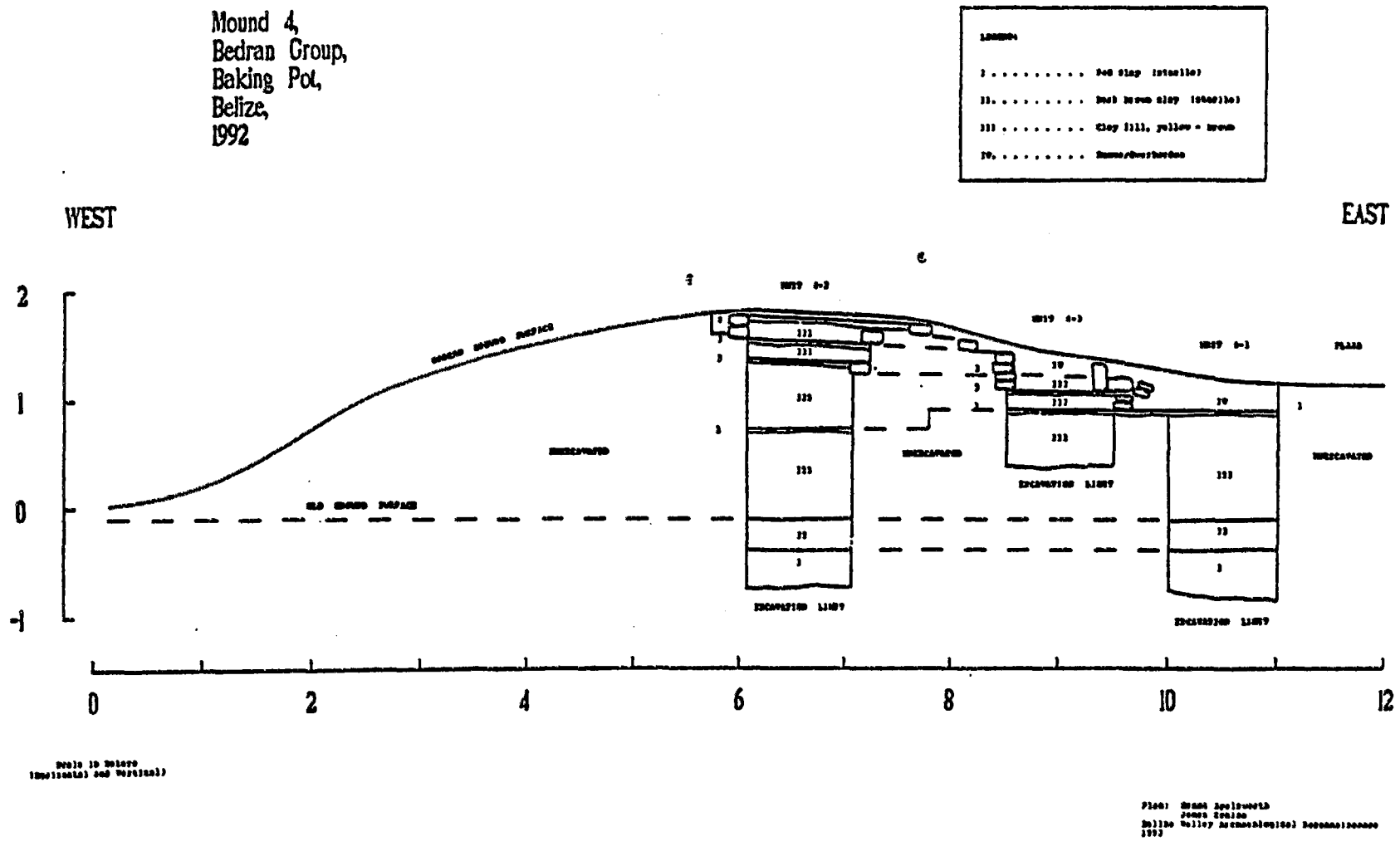

Figure 9: Profile of Mound 4, Bedran Group, Baking Pot, Belize.

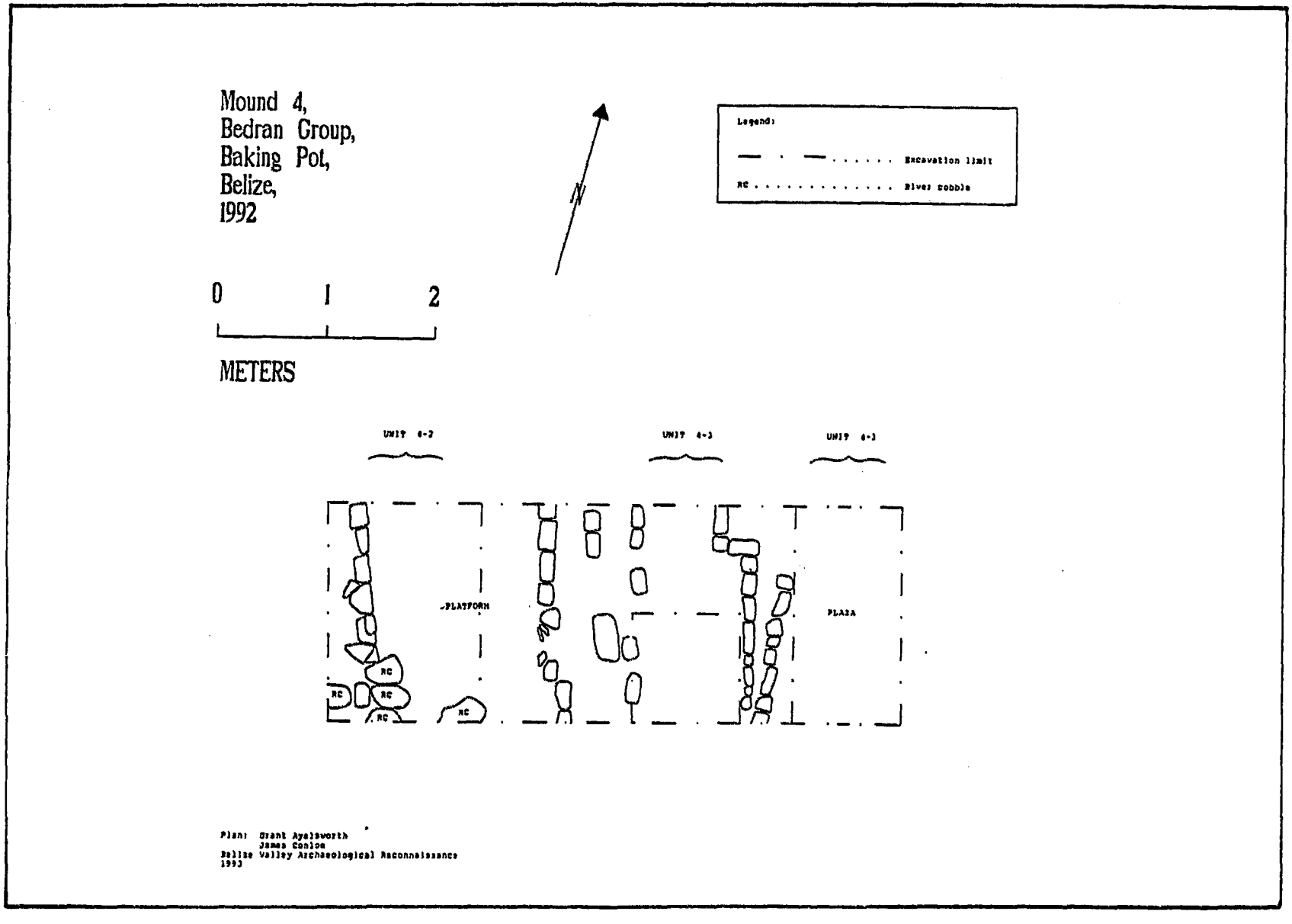

Figure 10: Plan view of terminal phase Mound 4, Bedran Group.

Plazuela

The plazuela has been mentioned in some of the previous mound excavation summaries but I would like to summarize the construction history and make some preliminary observations. The first plazuela was constructed about A.D. 500 consisting of medium ballast fill. It likely extended westward no farther then the eventual terminal phase of Mound 1. The approximate height of this platform was 90 centimeters above the old ground surface and included Structures from Mounds 1 through 3. During the Tiger Run phase another, final, plazuela construction was undertaken, raising it another 20 centimeters. This fill was more consistent with the clay fill found in all of the Late Classic platform building.

The old ground surface was determined to be uniformly level throughout the plazuela constructions and is likely to be so for almost the entirety of the surveyed area. Survey of the plazuela itself indicates a slope from west to east of approximatley 10 centimeters. Water from rainfall was apparently runoff towards the northeast end of the plazuela and away from the southwest where the widest point between two mounds is located, likely indicating that this was the primary access to the plazuela.

Finally, the estimated area for the terminal plazuela is just over 700 meters square. Assuming that all mounds in the surrounding groups were habitation mounds, the plazuela area of the Bedran Group would be sufficient to allow all residents of the Miami and West Palm Groups to congregate comfortably should something or someone require them to do so.

LINEAR INDENTATIONS

The term "linear indentation" applies to shallow indentations in the Norland Farms area, two of which are thought to have been artificially constructed, as well as to avoid other terminology (i.e. raised fields) which had been hotly debated (Kirke 1980). Type A indentations are small, irregular depressions that are found primarily at Norland Farms. Reconnaissance could not locate these indentations in 1992. These features are not unlike the rut-like ones encountered at Cahal Pech between the Zopilote Group and the Zubin Group. The apparent lack of larger associated Type B indentations at Cahal Pech suggests that they may be the result of either gilgai formation, or, persistent traversing between a creek and a shady area by grazing cattle.

Type B indentations were transferred from aerial photographs onto a tape and compass map (Kirke 1980). The 1992 survey reveal a somewhat more extensive Type B network and none of the Type A indentations originally recorded. A total of 1,300 meters of

Type B linear indentations were accounted for but most of the lines ran outside the survey area and need to be further chronicled before the entirety of the system is known. Kirke (1980) was fairly exhaustive in attempting to determine their origin and it was concluded that they were not of modern conception. I had the priveledge of meeting Mr. Frances Norris, the grandson of the previous owner of the land, and it was learnt that in the first half of this century the land had been forested before it was cleared by logging operations. Today the land is cattle pasture and it is perplexing why drainage ditches would be required for such an operation.

None of the linear indentations were tested by excavation. However, if they are prehistoric it is arguably reasonable to assume that the present ground surface mirrors closely that of the prehistoric landscpae. Spot elevations along these indentations indicate an average depth of between 30 and 50 centimeters. Such depths may have been sufficient to penetrate down to the underlying clay deposits as evidenced in the plazuela excavations. This clay may not have been viable agricultural soil and thus would best be used in construction fills. The Late Classic (c. A.D. 600) inception date is hypothisized for these linear indentations. Further support for this prehistoric provenience hypothesis comes from the exact horizontal alignment of the north/south indentations with the medial axis of Mound 2 at the Bedran Group.

There is likely to be a debate over whether these are irrigation ditches or drainage ditches. If they were simply drainage ditches then it would be unnecessary for these indentations to do anything but drain toward a lower lying creek such as exists in the eastern portion of the survey. It is true that the indentations that connect directly to the eastern creek drain from their extreme western end to the creek in the east. However, the other indentations display a complex circulatory drainage routes, that is, they do not all flow directly to the larger "outlet" ditches. The small square plot formed by the indentations south of the Bedran Group could work as a valve system, redirecting water back towards the indentations to the west, diverting water away from the outlet ditch. This scenario requires further documentation and study before this can be considered more conclusively then simply drainage ditches.

Finally, it should be apparent that if these were agricultural fields then only about half of the 17 hectares would need to be under cultivation to support an estimated population of 50-65. There is a potential for another 8 or 9 hectares of arable land with which to produce commercial crops, including cacao, cotton and copal, to name only a few. There also remains the possibility that excess production in this area was intended to feed those in the higher density areas nearer Baking Pot.

DIACHRONIC DEVELOPMENT SUMMARY

A period by period developmental sequence is presented here with comments provided where applicable.

Early Classic I (c. A.D. 300 - 400)

Structure 2-1st, a 1.50 meter high round structure, was built in this period and likley had a patio section evidenced by the thin plaster surface directly on the old ground surface in Unit 1-2. Some time shortly thereafter a 15 centimeter plaster platform was constructed (Str. 1-2nd) but it is unclear whether this was simply a raising of the patio of Str. 2-1st or a habitation mound. Due to our limited excavation data then it is unclear whether Str. 2-1st was a lone building at this time. It is known that a possibility of some form of ritual activity had occurred at this structure evidenced by the burning of a section of the plaster platform (Powis, 1993).

Early Classic II (c. A.D. 400 - 500/600)

This was a period of intense building. Structure 1-3rd was a plaster platform raised almost 1.75 meters above the old ground surface. Actual height was about 80 to 85 centimeters above the coevally constructed first plaster plaza floor and Str. 2-1st was 60 to 65 centimeters above this plaza. Structure 2-2nd was about 1.00 meter above the plaza. The first, and only, evidence for maize consumption was a metate fragment recovered from the plaza.

All construction was comprised of medium size ballast fill with some mixture of a red to brown soil or clay. The plaster surfaces were relatively well preserved and averaged about 4 to 8 centimeters in thickness. Almost nothing is known of any masonry construction since we only encountered plastered surfaces in the excavations.

The plaza extended north to the newly constructed Structure 3-1st, a 50cm high platform. To the west, the plaza extended no further than the yet to be constructed Structure 4. At this point it is quite evident that the development of the Bedran Group actually mirrors the Tzinic Group developmental stages (Conlon 1992). The Tzinic Group similarly began with two roughly coeval east and south buildings eventually evolving into group focus structures with later a north, and then west, range type structures added. This may indicate a prescribed order of group construction development. The only evidence of ritual activity to report from this period is the half vessel dedicatory cache (Cache 2) from Structure 2-2nd (Powis 1993).

Late Classic I (c. A.D. 600 - 700)

Structures 1-4th and 5th were the beginning of a series of relatively small platform modifications/constructions which eventualy raised the height of Structure 1 to 1.10 meters above the terminal plaza floor (see below). Plaster surfaces remain relatively good but diminish in average thickness to 3 to 6 centimeters. Ballast fill also decreases in Structure 1 to small ballast, or rubble fill, just under the plaster surfaces. The rest of the group utilizes clay fill exclusively.

Structure 3 remained the same but a new plaza floor was constructed about 20 centimeters above the old one, likely covering a basal step and effectively lowering the height of Structure 3-1st to 30cm above the terminal plaza floor. The plaza floor was also extended westward.

Clay fill surfaces are very lightly covered in a thin plaster, almost less than 1 centimeter in thickness in some areas. This is not necessarily evidence for a decline in abiltity to obtain construction materials. In fact, it may be significant in aiding to date the inception of the linear indentations surrounding the Bedran Group. It is merely representative of the prudent use of resources in the immediate vicinity. The clay was particularly dense fill and only needed a thin plaster surfacing while looser ballast fills required thicker plaster surfaces to withstand cracking from settling.

Ritual activity is restricted to Structure 2 but it is unclear whether the burials and caches with associated Tiger Run materials are to be considered deposits of early Spanish Lookout (c. A.D. 700+) (Willey et al 1965:360-365).

Late Classic II (c. A.D. 700 - 900)

Structure 4 is added to the western edge of the plaza and undergoes several platform modfications during this period. The final heights of Structures 1, 2, 3, and 4 are approximately, respectively, 2.03, 1.96, 1.20, and 0.70 meters above the terminal plaza floor. Clay fill continues to be used in all construction capped with thin plaster surfaces.

Aside from the burials and caches discussed by Powis (1993) this is the first period that evidence for activity outside of Structure 2 is recorded. A half vessel cache, similar to Cache 2 on Structure 2 was recovered beneath a platform modification in Structure 1. On this platform, which was later sealed by another platform modification, was a small patch of crushed red ochre. There was also a posthole identified with platform 1-9th.

In Structure 3 an intrusive burial was encountered. This burial penetrated the initial construction phase where an adolescent, not older than 8 years of age, was interred upon a bed of ash with no associated grave goods. In the plaza area abutting the stairs there was recovered several obsidian blades underneath some burnt rubble (hearth?). There was also a posthole discovered in this area and may be support for the hypothesis that "the main vertical posts were usually set outside of the areas of the prepared plaster-gravel floors" (Willey et al 1965:17).

Willey et al (1965:17) were unable to identify any postholes in their Barton Ramie investigations. The apparent uniqueness of the posthole impression in Structure 1-9th may be an interior support used to divide the inner space of Strucutre 1 at this time. Such inner division could be taken to represent restricted access to certain areas within Structure 1 and thus indicate a function other than domestic in nature (Hendon 1991:906).

Mano and metate fragments were recovered from Structures 3 and 4 and surpass in number the single metate fragment found in the Early Classic II plaza (c. A.D. 400-500/600).

No Postclassic sherds of any kind were recovered and it is likely that the group was abandoned shortly after A.D. 900. However, some large river cobbles are found on top of the plaster platform of Structure 4 and display evidence of burning. It is possible that this was a temporary station or camp of some kind in post-abandonment, though its prehistoric provenience remains questionable.

DISCUSSION

Before I make concluding remarks it would be beneficial to discuss some previous research for comparative purposes, as Trigger (1984:293) states:

> "....The first responsibility of archaeologists therefore seems to be to recover evidence about the past and to use every analytical device and every scrap of knowledge about human behavior at their disposal to interpret this record as evidence of prehistoric human activity."

Extended families are hypothesised to have inhabited plazuela groups since structures are added as time elapses (Haviland 1968:106). When special function buildings are

associated with such groups a clan may be represented. The social integration of residential unity developed sometime during the Early Classic at Tikal (Haviland 1968:109).

Some caution should be taken when attempting to apply this scenario to the Belize Valley. Apparently groupings in the Belize Valley tend to more singular concentrations and may be different from elsewhere in the Maya area (Haviland 1968:114). For example, the West Palm and Miami groups together may represent a clan cluster. If clan affiliation can represent a political affiliation then how was this clan related to the larger community political sphere? There must have been some need for political unity in the community and this unity must have indications somewhere (Willey, 1953:381).

Fortunately, at Bedran we have an added feature which aids in assessing unity. These are the linear indentations. In the Viru Valley, where the irrigation system is larger and more complex than known for the Belize Valley, Willey (1953:361) suggested that such systems of irrigation "required group participation and coordinated effort for their construction." At Bedran there is the potential to explore the relationship of land and labor. As Haviland (1968:112) notes:

> "Among settled subsistence cultivators, where descent groups exist, in the majority of cases such groups control the land.....Thus, at Tikal, the ruling class may have taken over some of the functions formerly vested in clans and/or lineages."

It is possible that the Bedran Group was established by the Baking Pot ruling class to function as a state authority directing agricultural production by exploiting The Miami and West Palm group clans labor. This shall be discussed further but now I would like to explore some aspects related to control and power.

Control of such basic resources as land and labor indicates a power based upon descent and kinship (Hendon 1991:896). The seperate shrine at the Bedran Group is evidence for elite status and qualifies the group as an "elite compound" which were generally "...organized in corporate groups, probably lineages" and likely represented "50 to 65 pepole" (Chase et al 1990:500-501). It is apparent that The Bedran cluster could easily represent this population once the 4 mounds visible in the adjacent pasture are accounted for. However, the "virtually continuous settlement...along the alluvial flats..." (Willey et al 1965:561) prevents me from conclusively defining the extent of the cluster.

The arbitrary limits of the 1992 survey exclude the probabiltiy of accurately defining the Bedran Cluster limits. This may or may not be important for the present data may be sufficient to begin analysing group dynamics. Significance can be measured by:

> ".....what any sort of settlement pattern indicates with regard to intergroup and interpersonal relationships; not population of a certain size, but the degree of concentration of population, and what this meant in the lives of the people; not the percentage of craft specialists in the society, but the links between specialists and others in the community, and the significance of such ties to the maintenance of a viable social system" (Pendergast 1979:25).

Similar concerns have been expressed by Collier (1982:346) regarding "gross magnitude of labor" as opposed to "how the Maya recruited and deployed it." It is significant that the Bedran Group represented ruling elite controlling land and labor. How much land and labor are indefinite. What is important to note is that such a system of indentations could have extended the cropping cycle and improve soil fertility (Fedick and Ford 1990:22). Land was a critical resource and was a "major determinant of lineage strength..." (Hayden and Cannon 1982:150).

CONCLUDING REMARKS

The linear indentations at the Bedran Group are key to understanding relational developments of social organization. If competition is a recurrent theme that runs through the whole of society, from the "familial level and culminating at the political level" (Ford 1981:151), then at what level was competition evident at the Bedran Group? The answer is complicated but one aspect which has been purported to have received little attention in the past is economic in nature (Culbert 1977:511).

How archaeologists could ignore economics when discussing population pressure, agricultural intensification, and warfare is perplexing. That economics forms a basis for discussion of any of the above suggests that it would be useful to examine the role economics may have played in the development of the Bedran Group. Freidel and Scarborough (1982:133) suggest intensive agricultural production has a "pecuniary motive." Furthermore,

not only did this allow for a degree of "subsistence autonomy" but also commercial production of such products as cacao, cotton or copal, all of which provide the basis for trade commodities (Freidel and Scarborough 1982:152). The Bedran Group may have been a political-kinship appointment, but ultimately the goal was to monitor agricultural production for trade purposes:

> "The Maya developed a dispersed pattern of civic and household clusters which allowed the control and regulation of state institutions ... Although the Cerros data might be construed as somewhat equivocal, the need to define and monitor the hinterlands, even those in close proximity to the central precinct of a small center, is a necessity with respect to any socially-complex population." (Scarborough and Robertson 1986:174).

There are two, seemingly conflicting, relationships in evidence here. One in which affiliation with the larger center of Baking Pot suggests autocratic control, yet, there is also a degree of autonomy with respect to subsistence production. Autonomy of such groups is argued for by Hendon (1991:904) and a degree of economic self-sufficiency defines corporate group cohesion (Hendon 1991:911). The balance between state control and corporate group autonomy may have been "maintained through close and loose kinship ties" (Awe et al 1991:29) and likely played a role in establishing the Bedran Group in the locale it inhabited.

FUTURE INVESTIGATIONS

Throughout this paper I have referred to the study of population dynamics through group interrelationships and intracommunity relationships. The key factor in assessing such relationships was the collection and employment of comparative data. This paper outlined some of the more pertinent comparisons relating to the Bedran Group. However, owing to editing restrictions I was unable to provide comparative data in its entirety. One such comparison I would be remiss not to alert the reader to is the similarity of the Bedran Cluster to the Melhado Site at Cahal Pech (Willey and Bullard 1956:31). Perhaps this omission shall be remedied after subsequent research at the Bedran Cluster is reported upon.

In terms of future research there are several areas which need attention. Some testing of the Miami and West Palm Groups is necessary to establish their diachronic development. This shall enable correlation with the Bedran chronology. Survey

should encompass not only the wider Bedran area to determine cluster limits but also linear indentations should be surveyed completely in order to understand the breadth of the system. Some testing of the indentations should also be undertaken in order to record their construction. Ceramic evidence may also be recovered, as at the Tzinic terraces (Conlon 1992:76), and may confirm their Late Classic inception. Finally, data from the similarly configured plazuela designated BP75, near Group II at Baking Pot, would provide data with which to assess status differences between it and the simialr sized Bedran Group. These future investigations should prove beneficial for the continued examination of intracommunity relationships at Baking Pot.

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SPECIAL FUNCTION STRUCTURES WITHIN PERIPHERAL GROUPS IN THE BELIZE VALLEY: AN EXAMPLE FROM THE BEDRAN GROUP AT BAKING POT

BY

TERRY G. POWIS

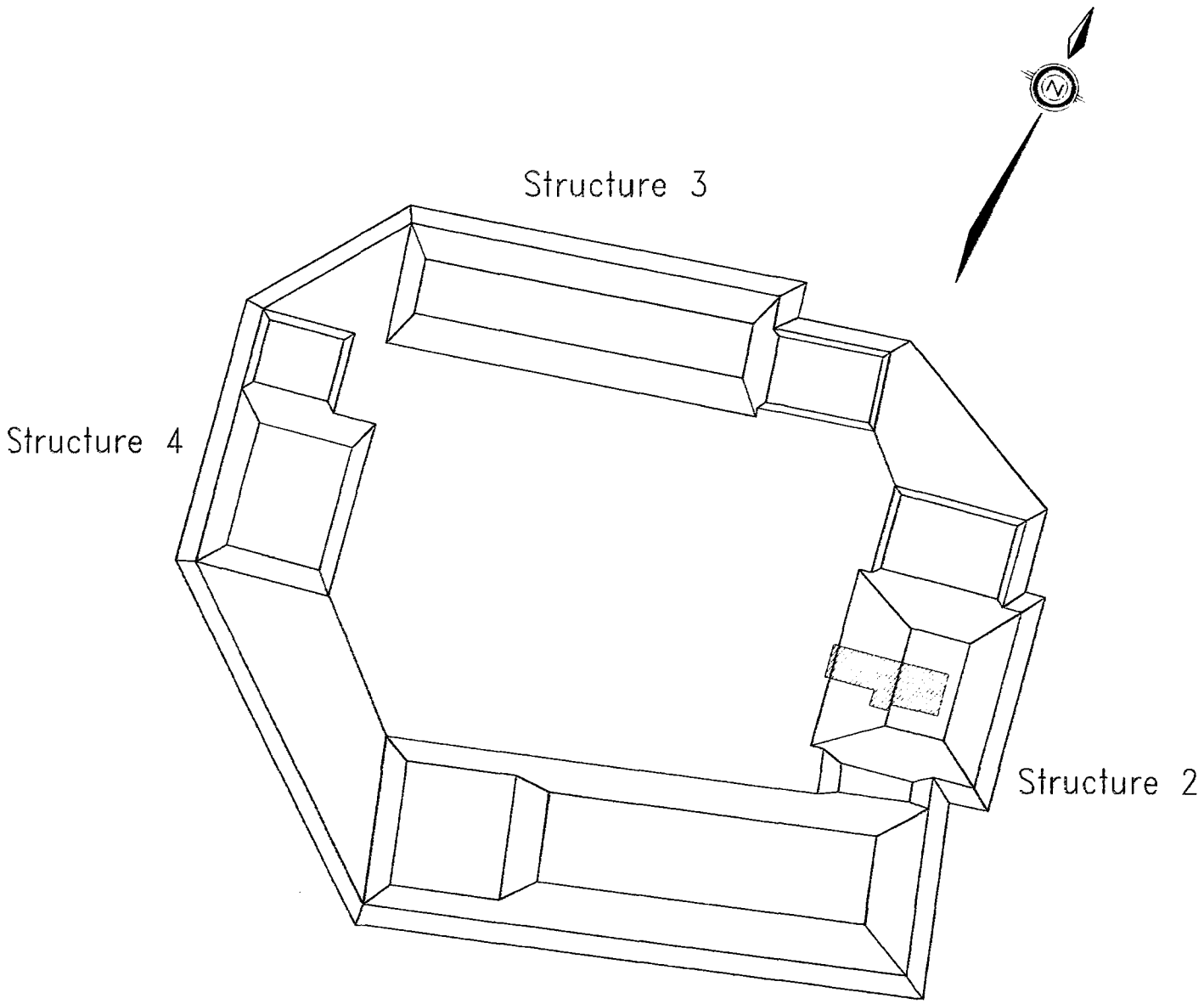
INTRODUCTION

Recent investigations in the archaeology of the Belize Valley have concentrated on regional analysis and Formative period development of both large and medium-size Maya centres, and small residential groups (Awe 1992; Awe and Campbell 1991, 1992; Ford 1990; Garber 1992). One of the primary goals of the Belize Valley Archaeological Reconnaissance (B.V.A.R.) project during its 1992 field season was to continue this line of research and also to further develop intra- and inter-site chronological and spatial relationships. As part of this research design, some investigations were directed towards the examination of the Bedran Group in the southwestern periphery of Baking Pot. The Bedran Group is a large settlement cluster or "minor center" consisting of a formal patio and several peripheral mounds. The central patio has four structures arranged around a relatively large rectangular courtyard (Conlon 1993). The entire settlement is located on the highest, but fairly flat, alluvial terrace of the Belize River approximately 1 km from the Baking Pot site centre.

The focus of the investigations reported in this paper was to determine whether Str. 2 (BG-2), which is located on the eastern perimeter of the central patio, may have functioned as the ancestral or family shrine of the Bedran Group. The concentration of burials and caches along the primary axis of the structure and the minimal occurrence (see Conlon 1993) of such features in the other mounds of the Group, lends support to this contention.

This paper will describe the configuration, construction history, and architectural features of Str. 2, and it will provide detailed information on several caches and burials which were recovered by the investigations. Evidence supporting the functional interpretation of the mound will also be presented, including comparative data from other sites in the Belize Valley and southern Lowlands.

It should also be noted that "caches" will be described as either "dedicatory" or "non-dedicatory". Dedicatory caches are defined as being deposited within a structure during its construction and are considered to be the result of ritual activities associated with the sanctification and animation of the new or remodelled building (Garber et al 1992:8 Attachment 1). Non-dedicatory caches are intrusive features deposited during the occupation of the building and may have functioned as a reaffirmation of the dedication objectives (Garber et al 1992:8 Attachment 1).



Bedran Group, Baking Pot
Cayo District, Belize 1992
Rectified Plan

Plan and Survey by: Shawn M. Brisbin
Graphics by: Andrew D. Allan

FIGURE 1

INVESTIGATIONS AND CONSTRUCTION HISTORY

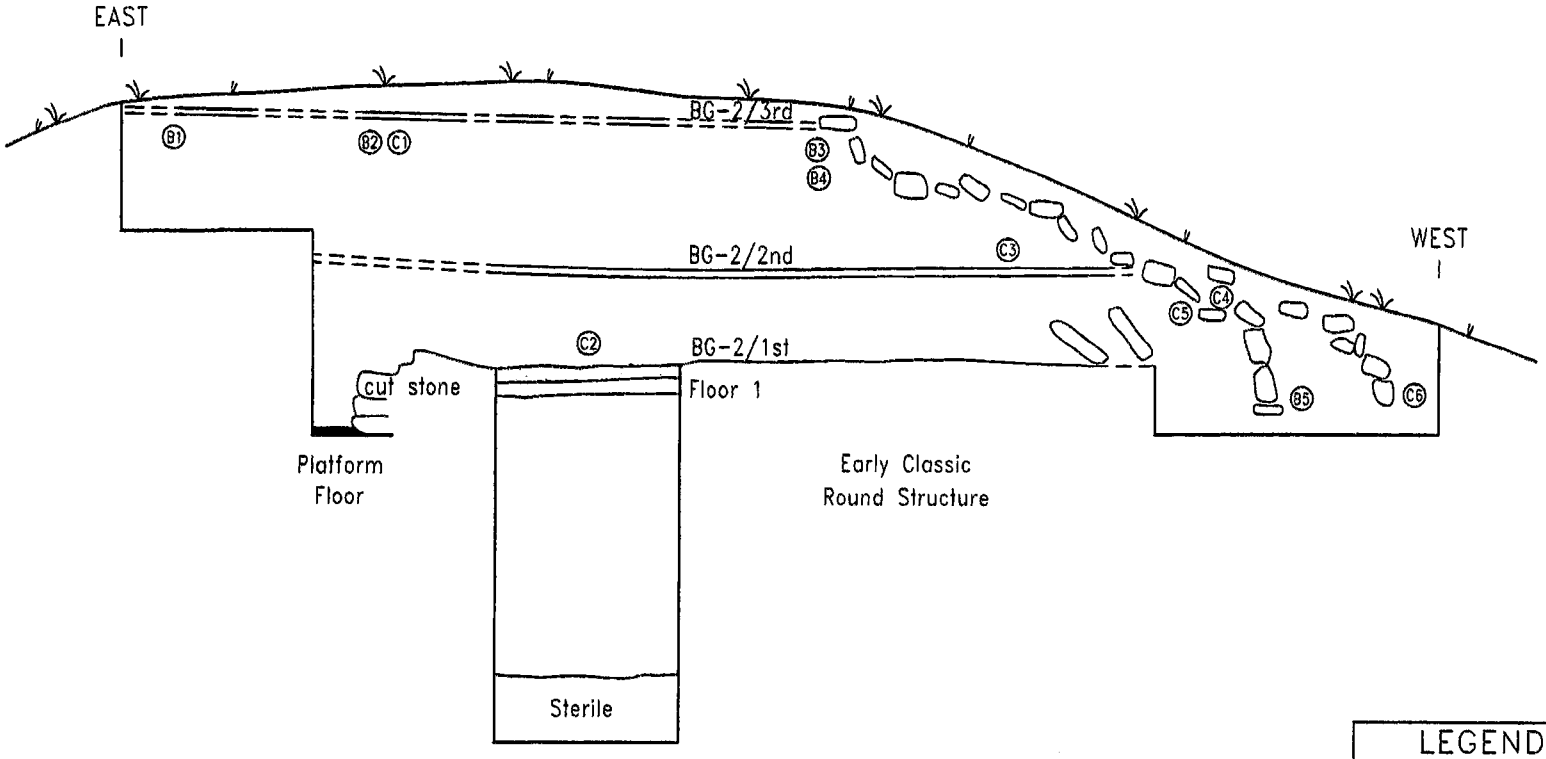
Measuring approximately 10 m X 10 M at its base, Str. 2 is practically square in plan. Two small platforms flank the structure on its north and south sides, and with a present height of 3.07 metres, the mound is comparable in height with Str. 1 (3.14 m) to the southwest.

A 7 m x 2 m excavation trench was placed along the primary axis of Str. 2 (Figure 1). The purpose of this excavation was to record architectural and constructional changes through time, and to gather information which could be used to determine the function of the structure relative to the other mounds in the Group. This data, combined with artifact assemblages and other cultural features, would also provide information about the political, social and economic relationship that may have existed between the occupants of the Bedran Group and those in the site core at Baking Pot.

Three construction phases were defined in Str. 2 (Figure 2). They range in time from the Early Classic (Hermitage phase c. A.D. 300 - 600) to the end of the Late Classic period (Spanish Lookout phase c. A.D. 700 - 900). In association with these architectural phases, five burials and six caches were uncovered.

The earliest phase of construction (BG-2/1st) in Str. 2 was represented by a round or circular platform (Hermitage phase) discovered at 160 cm below the summit of the mound (Figure 3). The circular platform was 40 cm high and capped by a well-preserved plastered floor. The retaining wall of the platform was constructed of three courses of cut stone, and the lower course abutted a 6 cm thick floor. The surface of the round platform had been replastered and had a large burnt area which encompassed most of the excavation unit. It is possible that the burnt surface was produced by either a hearth or by the burning of incense (cf. Awe, Aimers and Blanchard 1992:132).

Based on the curvature of the wall in the eastern end of the unit, an estimated diameter of 5 metres was determined for the round platform. Unfortunately, the western edge of the structure had been destroyed by Late Classic burials and caches, so only an approximation of its size was made. The dimensions of this round platform (5 m diameter; 40 cm high) are similar to BR-1/Str.F at Barton Ramie (Willey et al 1965:52,56), Str.6G-29 at Becan (Ball and Andrews 1978:78), Mound 2 in the Zotz Group at Cahal Pech (Awe, Aimers and Blanchard 1992:120) and PU-2/1st in the Tolok Group, Cahal Pech (cf. Powis this volume). The cm thick floor, which abutted the lower course of the platform, was not completely excavated, thus it was difficult to determine whether it represented an appended ramp or outset stairway similar to that of BR 1/Str.F at Barton Ramie (Willey et al 1965:52), Mound 2 in the Zotz Group, Cahal Pech (Awe, Aimers and Blanchard 1992:120) and C-13/3rd at Altun Ha (Pendergast 1982:186-187). The absence of post holes on the floor also indicates that no superstructure had been erected on the platform. The lack of superstructures on the round Str.C-13/3rd at Altun Ha (Pendergast 1982:186-187), Str.79 at Seibal (Willey et al 1975) and Mound 2 in the Zotz Group, Cahal Pech (Awe, Aimers and Blanchard 1991:136) has led previous investigators to suggest that these circular platforms had a ritual/ceremonial function rather than a domiciliary one.



LEGEND

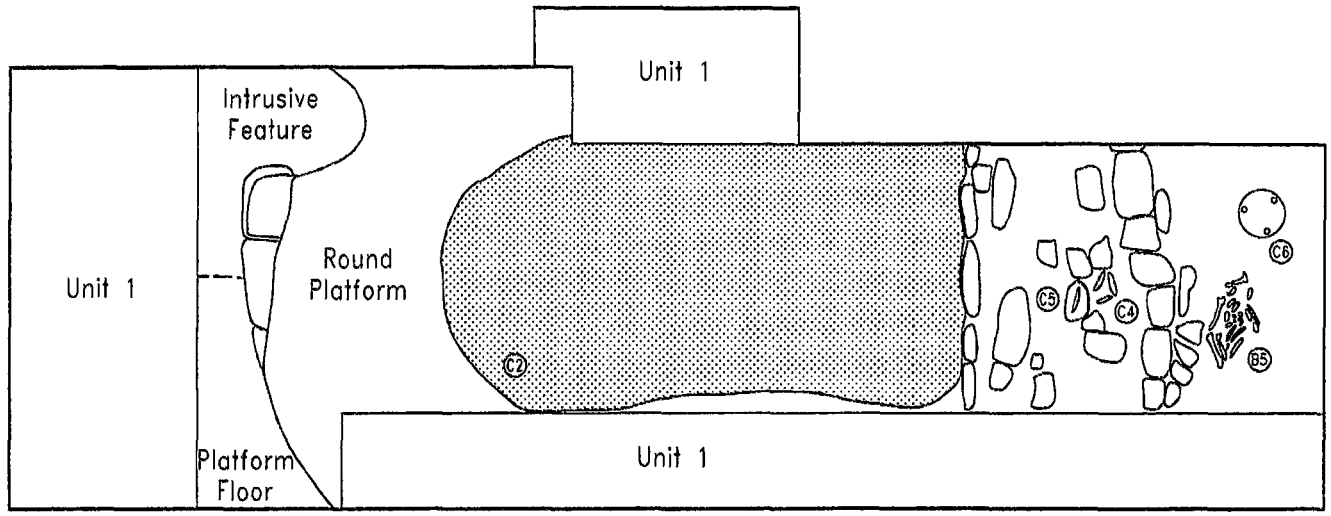
- B1 burial
- C1 cache
- cut stone
- replastered floor
- destroyed floor

scale = 1: 40cm

Structure 2, Bedran Group
Baking Pot, Belize 1992
Rectified Profile

Profile by: Terry G. Powis
Graphics by: Andrew D. Allan

FIGURE 2



LEGEND

- B1 burial
- C1 cache
- cut stone
- burned floor

Structure 2, Bedran Group
Baking Pot, Belize 1992
Rectified Plan of Round Platform

Profile by: Terry G. Powis
Graphics by: Andrew D. Allan

scale = 1: 40cm

FIGURE 3

The replastered floor which capped the round platform had eroded away, exposing the wall and both the replastered and initial floor surfaces. In the southeast end of the unit, an intrusive feature penetrated the round structure to a depth of 40 cm (Figure 3). Ceramics recovered within the feature produced a mix of both Early and Late Classic sherds. No cache offerings were found inside the feature.

To determine a construction date for the round structure, a 1 m x 1 m unit was placed into the platform (Figure 2). The unit was excavated to sterile soil approximately 156 cm from the top of the replastered floor. The matrix inside the round structure consisted of a reddish-brown clay loam mixed with construction ballast. This type of fill is similar to that used in Mound 1 and 3 during the Early Classic period (Conlon 1993). Cultural remains within the unit were few in number and consisted primarily of ceramics and a few lithic flakes. The pottery was represented by sherds of Aguacate Orange: Privaccion Variety, Dos Hermanos Red, and Balanza Black (cf. Gifford 1976 for type descriptions). On the basis of this ceramic typology the round structure was assigned a construction date within the first half of the Early Classic (Hermitage phase c. A.D. 300-400) period.

The second architectural phase (BG-2/2nd) in the Str. 2 sequence was represented by a partial plaster floor, 46 cm above the round structure. This 4 cm thick floor was not preserved at either the eastern or western limits of the axial trench. The eastern edge of the floor had been destroyed as a result of the intrusive feature that descended to the level of the round structure. Similarly, the western edge of the floor was destroyed during the deposition of subsequent sub-stair caches. No evidence of a perishable or masonry structure were found on this floor.

Approximately 15 cm above the round structure, but associated with the penultimate phase of architecture (Figures 2 and 3) was a dedicatory cache (Cache 2 [Cache 1 will be discussed later]). The cache contained half of an Aguacate Orange (Privaccion Variety) bowl (Hermitage phase c. A.D. 400-600) lying inverted in the clay fill. The other half of the vessel was not recovered and there were no associated artifacts within the bowl. The location of this vessel, in the fill directly above the burned surface of the round platform, may be significant and perhaps indicative of the ritual importance of the structure.

The terminal construction phase (BG-2/3rd) was poorly preserved. It appears to have been represented by a small terraced platform with an outset stairway. The platform floor was almost entirely absent due to natural erosion, and the stairs were only slightly better preserved. Due to time constraints it was not possible to expose the plaza surface associated with this final construction phase, but the excavation uncovered five burials and five caches beneath the architecture of BG-2/3rd.

The first cache (Cache 3) had been placed below the terminal phase stairway, just above the floor of BG-2/2nd, and covered an area of approximately 1 square metre. This location strongly suggests that Cache 3 was a dedicatory offering which was deposited at the construction of the terminal phase of architecture (BG-2/3rd) (Spanish Lookout phase c. A.D. 700 - 900). The cache contained 48 chert and obsidian eccentrics, 8 broken vessels, 1 marine bivalve (Family

Cardiidae), 1 obsidian prismatic blade and a mano fragment. Forty-two of the eccentrics were made from dull red, whitish-grey and honey coloured chert, while the remaining six were made of black-banded obsidian. The forms of the eccentrics were diverse and included such shapes as crescents, tridents, laurel-leaf bifacial blades, notched crescents, "s" shapes, serrated blades, stemmed blades, disks and zoomorphs. These eccentric modes have been found throughout the southern Maya Lowlands and they are particularly reminiscent of those found in a cache in Room 2 of Str. II-A at the Baking Pot site core (Bullard and Bullard 1965:17, Pl. XIX,XX). The latter cache contained 27 chert eccentrics and 7 obsidian eccentrics of similar shapes and sizes, including several scorpion and centipede zoomorphs. The large concentration but diverging quantity of eccentrics in these caches also supports Iannone's (1993:252) suggestion that "...no recurrent number of eccentrics appears to be significant on a general level" in the Maya Lowlands.

The chert eccentrics in Cache 3 were well shaped and chipped and probably produced from single chert nodules. In contrast, the obsidian specimens were worked from exhausted cores or thick flakes and had traces of chip-scars on their surface. Similar scarring was found on obsidian eccentrics from Cache A-31 at Uaxactun (Kidder 1947:19). The majority of the chert eccentrics exhibited patination on their surfaces, probably as a result of the alkaline nature of their context.

The eight ceramic vessels in Cache 3 were all of Late Classic date (Spanish Lookout phase c. A.D. 700 - 900). They included two Platon-punctated incised vessels, one Dolphin Head Red, one Garbutt Creek Red, one McRae Impressed, one Belize Red (special), one Montego Polychrome and one Xunantunich Black-on-Orange Polychrome (Gifford 1976). Vessel reconstruction was difficult due to their poor state of preservation.

One puzzling feature about Cache 3 was the inclusion of a mano fragment. Its association with whole vessels and eccentrics, plus exotic items such as obsidian, jade and a marine shell is anomalous, and makes it difficult to determine whether the fragmented artifact was intentionally deposited with Cache 3 or if it was mixed in with construction fill.

Burials 1 and 2, and Cache 1 were located immediately below the terminal phase floor (BG-2/3rd) at the eastern extent of the unit. Burial 1 was deposited in a simple grave (cf. Welsh 1988:16) on top of cist Burial 2 (Figure 2). The bones were poorly preserved and fragmentary, and identification was limited to a few phalanges, long bones and a patella. The human remains were aligned along the north-south axis of cist Burial 2. Due to poor preservation it was impossible to determine the orientation of the head. Associated grave goods included a poorly preserved Saxche Orange Polychrome dish (Tiger Run phase c. A.D. 600 - 700), 2 pieces of jade (a bead and fragmentary ear plug) and the proximal end of a chert biface.

Burial 2 was represented by a rectangular shaped cist grave (Welsh 1988:17) that was approximately 210 cm in length and 180 cm in width. Within the grave were several fragmentary remains of long bones, phalanges, ribs and cranium. The location of cranial fragments and a tooth indicated a head orientation to the south. Associated artifacts

included 4 Tiger Run phase vessels, a large chert eccentric (16 cm x 14 cm) and 2 small jade beads. The chert eccentric had a notched crescent form (found with associated debitage) and was positioned along with the jade beads near the skull fragments. An isolated Mount Pleasant Red vessel (Tiger Run phase) was located east of the long bones, and vessels 2 through 4 (2 Sotero Red-Brown bowls and a Saturday Creek Polychrome dish - Tiger Run phase) were placed at the feet. The Sotero Red-Brown bowls were placed inside one another and nested within the Saturday Creek Polychrome. The smaller Sotero Red-Brown bowl had a single band of incised hieroglyphs which encircled the exterior midsection of the vessel.

A preliminary analysis of the glyphs (by Dr. Stephen Houston of Vanderbilt University) suggests that " the vessel text began with a version of the Primary Standard Sequence, beginning with an early version of the Initial Sign, God N, Wing Quicunx (the vessel), itz, te, kakaw (the flavouring of the drink), and then ending with the name of the owner of the vessel". The latter is indicated by the K'inich title at the end of the text (Stephen Houston, personal communication 1993).

Cache 1 was located adjacent to the south end of cist Burial 2. It contained a Teotihuacan-style, slab footed, cylindrical vase with a single glyph band below the rim. The form and black slip on this Early Classic period vessel is in the general tradition of Peten Gloss wares (Gifford 1976:161-162) and has been identified as a Balanza Black type of the Hermitage complex (A.D. 400 - 600). The vessel is also similar to specimens found in Burial 15 in Mound G at Baking Pot (Ricketson 1931:16), vessel 5 in tomb 19 at Rio Azul (Hall et al 1990:Fig.1) and to several vessels from caches and burials at Uaxactun (Smith 1955:Fig.1 m, Fig.4 f, g, j, Fig.6 i-p, Fig.8 i).

The glyphic band on the Balanza Black vessel is similar to that noted on the Sotero Red-Brown bowl from Burial 2 (Figure 4). Dr. Houston states that " the glyph texts have the same sequence including the K'inich title at the end, whereby the name may be repeated on both vessels, but the text was unclear at this point". He also informs us that " based on certain glyphic details it is possible that the same artist made both vessels".

Although Cache 1 was designated as being separate from Burial 2, based on its location outside the cut stones of the cist, similarities in the artifact assemblages of the two features suggests that they may be contemporaneous and therefore part of the same burial offering. This is not an issue of distinguishing between caches as burials or burials as caches (cf. Welsh 1988:15,169-170; Haviland 1985:154-159; and Becker 1988:117-142), particularly since Cache 1 did not contain human bone. Of interest was whether or not the vessels from Cache 1 and Burial 2 were deposited at the same time? Houston's (personal communication 1993) suggestion that the same artist could have scribed the glyphic texts on both the Balanza Black and Sotero Red-Brown vessels indicates contemporaneity of the two features, but typologically the Balanza Black vase slightly predates the Sotero Red-Brown bowl. If we assume contemporaneity, which the contexts of the features suggest, it is therefore possible that the Balanza Black vessel in Cache 1 was an heirloom which was not ritually disposed of until sometime after its initial production.

Figure 4: Hieroglyph Band on Balanza Black Cylindrical Vase from Cache 1, Mound 2, Bedran Group, Baking Pot.
Scale: 1/3 Actual Size.

Burials 3 and 4 were found beneath floor 3 (BG-2/3rd), just below the topmost section of the terminal stairs. These two burials duplicated the contextual pattern of Burials 1 and 2 in that Burial 3 was a simple grave placed over cist Burial 4. The juxtaposition of fragmentary long bones, phalanges and a tooth from Burial 3 made it difficult to determine head orientation and whether or not the burial was a primary or secondary interment. Cist Burial 4 was markedly similar to cist Burial 2 in form, dimensions and bone preservation. Only fragmentary human remains of femora, humeri, ribs, scapulae, cranium, mandible and teeth were found. The cranial fragments and mandible were located at the south end of the cist, indicating a head orientation similar to Burial 2. The major contrast between the two sets of burials was that no artifacts were found associated with either Burial 3 or 4.

Sub-stair Caches 4 and 5 were located about halfway up the terminal stairs (Figure 3). Cache 4 consisted of 3 chert eccentrics in the shape of laurel-leaf bifacial blades (10 cm x 3 cm). The blades were on their side and rested against one another. They were not associated with any ceramic vessels. Cache 5 was found in close proximity to Cache 4 but located 6 cm deeper and between two cut stones. This non-dedicatory cache contained 1 chert eccentric inside a half intact Mountain Pine Red dish (Tiger Run phase c. A.D. 600 - 700). The laurel-leaf bifacial blade was indistinguishable in colour, form and reduction technique to the 3 blades found in Cache 4. Also, the deposition of an incomplete vessel in Cache 5 reflects a similar practice to that observed in Cache 2, (which also contained a partial vessel). Sub-stair Caches 4 and 5 may have been associated with one another and deposited to commemorate the terminal phase of architecture.

Burial 5 was placed above the terminal plaza floor and adjacent to a cut stone wall; possibly a subphase associated with the penultimate construction phase. The plaza floor sequence for Str.2 was extrapolated from the preserved floors at Str. 1 (Conlon 1993). The state of bone preservation was better and included ribs, long bones, clavicles and a scapula. No cranial fragments were found to indicate head orientation. The long bones and ribs were the best preserved and indicated that the individual was interred in a prone position. No grave goods were found associated with this burial. Cache 6 was also located above the terminal plaza floor, but not associated with Burial 5. This sub-stair dedicatory cache contained a single inverted McRae Impressed bowl (Spanish Lookout phase c. A.D. 800 - 900) with hollow round feet. No artifacts were found inside the vessel.

DISCUSSION

Five burials and six caches were associated with the three construction phases of Str. 2. A functional role for this mound as a "family shrine" is indicated by rare architecture in the form of a round platform, the number of associated features, and the quantity and quality of ritually deposited artifacts.

The large number of burials and caches with exotic artifacts (i.e. obsidian, jade and marine shell) and the large concentration of chert and obsidian eccentrics in axial deposits strongly suggests a non-domestic function for Str. 2. According to Kidder (1985:108), it is evident that eccentrics played a large role in Maya ceremony and that

they were often the favoured artifact for inclusion in dedicatory building caches. It has been suggested that eccentrics served as either portable power symbols for the elite (Kidder 1985:108) or that they were part of an ancestor cult depicting gods and/or ancestors (Ianonne 1992:253). If eccentrics indeed represent ritual objects, and if they were deposited in ceremonial context during the Late Classic period, then their concentration in Str. 2 may very well be indicative of the high social status of the residents of the Bedran Group.

Much has been written on the function of "family shrines" in the southern Lowlands (Becker 1971; Coggins 1975; Haviland 1985; Leventhal 1983; Welsh 1988), and Becker (1971), in particular, devised a model based on architectural form for these "family shrines". He stated that these structures were the smallest buildings within a plaza group and located on the east side of the plaza. Structure 2 of the Bedran Group confirms Becker's model and comparative data tabulated by Welsh has indicated that a number of sites in the Belize Valley and southern Lowlands reflect this pattern (Str.4H-4, Str.7F-30, Str.7F-31, Str.2G-59 at Tikal; Str.A-30e at Seibal; Str.F at Holmul and Str.B-1 at Xunantunich) (Welsh 1988:202-203). In addition to the recently excavated example at the Bedran group, two other special function structures have been excavated in the Belize Valley at the sites of Cahal Pech and Blackman Eddy. Structure 2 in the Zotz Group, Cahal Pech (Awe, Aimers and Blanchard 1991) and Str.1c in Group 1, Blackman Eddy (Garber et al 1992) have been identified as family shrines based on multiple burials and caches and rare architecture.

However, the location of "family shrines" on the east side of plazas does not always confirm Becker's model. Several sites have non-domestic structures located on another side of the plaza (Mound N & M at Mountain Cow; Str.X at Holmul; Str. 6E sub-1 at Tikal; Str.E-1, Str.E-7, and Str.C-6 at Altun Ha and Str.A-30e, Str.4E-10 at Seibal) (Welsh 1988:203-204).

Leventhal (1983) has also demonstrated that the function of residential mounds can be determined by architectural differences. He argues that lateral construction of mounds in a plazuela group, represented by long low platforms, were created for residential or domestic purposes and possibly for the inclusion of extended family members. In contrast, the mounds identified by a square-like plan provided a non-domestic function. Thus, "the individuals didn't develop religious structures laterally to provide more living space but rather to increase its height in order to emphasize its religious importance and significance" (Leventhal 1983:161). In addition to Leventhal's argument, the circular, Early Classic, platform within Str. 2 suggests that from its initial construction, this edifice served some kind of ritual function.

Based on ceramic chronology, the construction history of the Bedran Group indicates that Str. 2 (BG-2/1st and BG-2/2nd) was the dominant architectural feature during the Early Classic period. Subsequent architectural modifications, comparable to those in Str. 1 during the Tiger Run and Spanish Lookout phases, further suggests that this special role remained constant throughout the Late Classic period.

It is also suggested here that Strs.1 and 2 served different functions during the Late Classic period. Structure 1, with its long range-type configuration may have served as a residence for the lineal head and family of the Bedran Group. In contrast, Str. 2 served as a special function architectural unit, dedicated to ritual activity and burial place for the individuals of high status in the community. This observation is based on the fact that given the number of Late Classic burials in Str. 2, and their relative absence in other mounds, it is quite possible that all lineage heads of the Bedran Group may have been buried in this location. It is hoped that further excavation of the Bedran group in the summer of 1993 will shed more light on this preliminary functional interpretation.

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ECCENTRICS AND THE MAYA MIDDLE CLASS: INSIGHTS FROM THE BEDRAN GROUP AT BAKING POT

by

Gyles Iannone

The deposition of eccentric lithic artifacts within a settlemen unit not characteristic of their archaeological recovery poses a comple problem. One must assess whether the peculiarity of the context result from idiosyncratic behavior, or whether the current data base is biased If the latter is true what might be interpreted as an abnormal o outlying case by archaeologists may in fact have been a perfectly norma occurrence among the ancient Maya. The recent recovery of a large cach of eccentrics at the Bedran group (see Figures 1-5), a large plazuel type configuration in the periphery of Baking Pot, poses such a problem

Within this commentary I will argue that the Bedran context appear uncharacteristic simply because our data base is skewed. Specifically because past and present settlement analysis has focused too muc attention on the polar extremes of Maya settlement, the housemounds an the major centers, and relied too much on settlement survey and limite test excavations outside of the major centers, our knowledge of th artifactual content of the settlement units located in the middle leve of the settlement continuum is severely limited. Thus, our ability t recognize whether we have an example of idiosyncratic behavior, or th result of normal activity, is minimal. Such knowledge has wide rangin implications for the study of ancient Maya social organization.

THE BEDRAN GROUP ECCENTRICS

The Bedran group, previously discussed by Conlon (this volume) i a large plazuela group located in the periphery of Baking Pot. As Powi (this volume) has outlined, the eccentrics were recovered from a shrin structure located on the eastern side of the plazuela group. The appear to have been placed as part of a dedicatory cache, concurren with a construction phase. The cache itself contained 48 eccentrics i total, 46 of which were chert (Figures 1-4), the remaining 6 beir obsidian (Figure 5). Almost all of the chert items exhibit partia patination. Although an exhaustive analysis of the forms has not bee undertaken to date, it is still clear that the assemblage includes mar types found throughout the Maya Lowlands. Even more importantly, it i evident that some of the more complicated and rare morphological forn are present in the Bedran collection. For example, the "ax" fr Bedran (Figure 4 g) is identical to specimens recovered from Piedra Negras (Coe 1959: Figure 26 g - see also Figures 23 p and 36 d f comparable forms), and Altar de Sacrificios (Willey 1972: Figure 176 a A similar form has also been recovered from San Jose (Thompson 193 Plate 28 a). The "ax" form has been described by Coe (1959:27) "unique". The occurrence of such a rare yet formalized eccentric ty implies that the individuals who deposited the dedicatory cache at

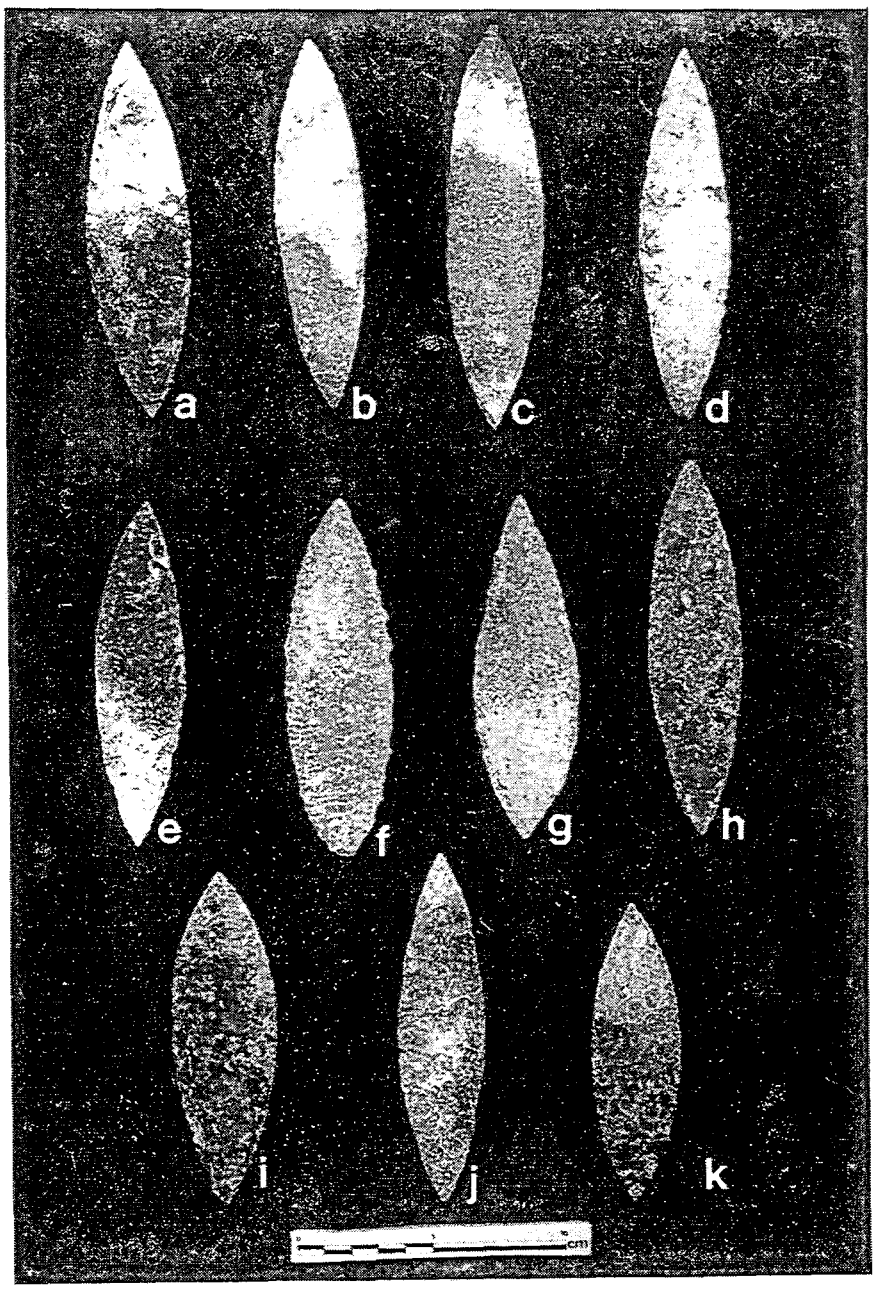

Figure 1. Chert eccentrics from the Bedran cache.

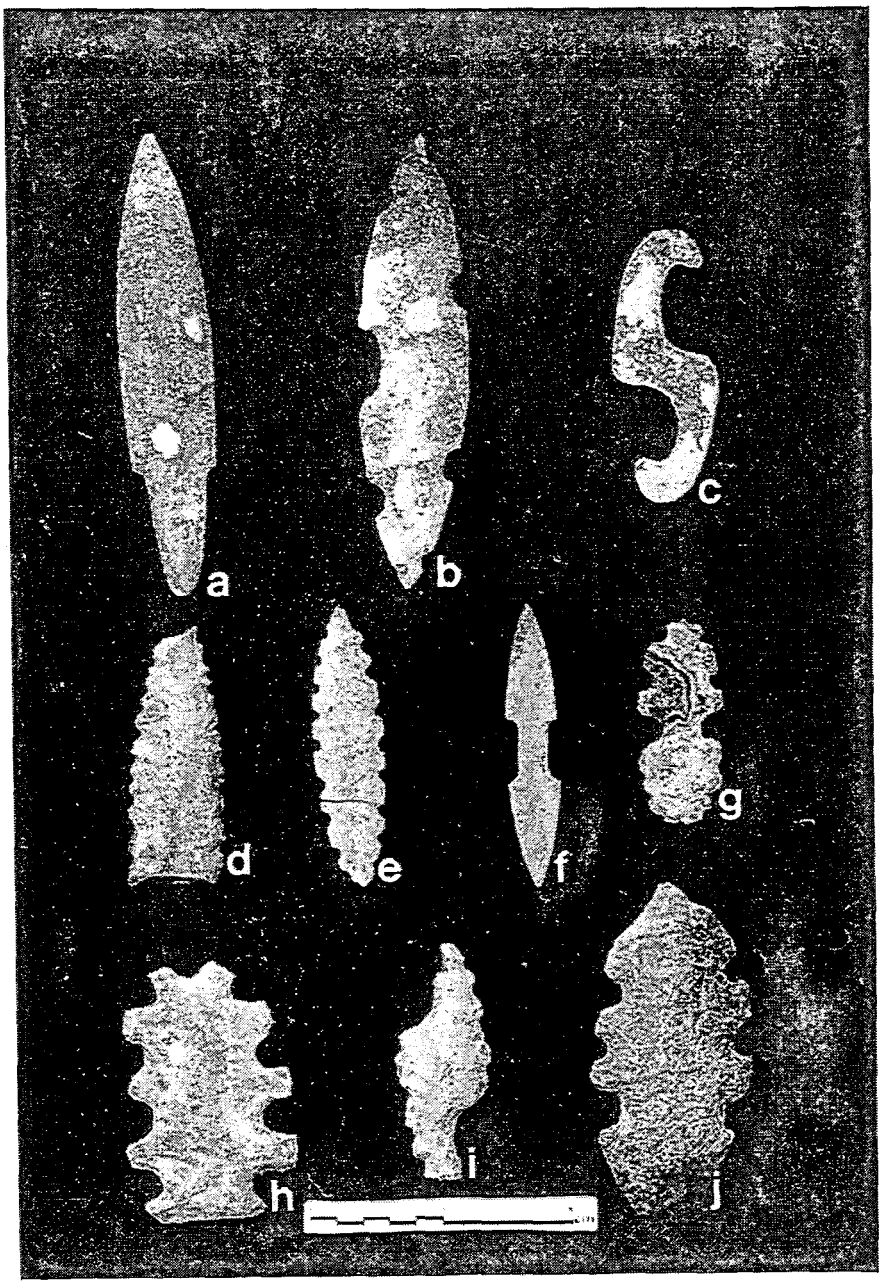

Figure 2. Chert eccentrics from the Bedran cache.

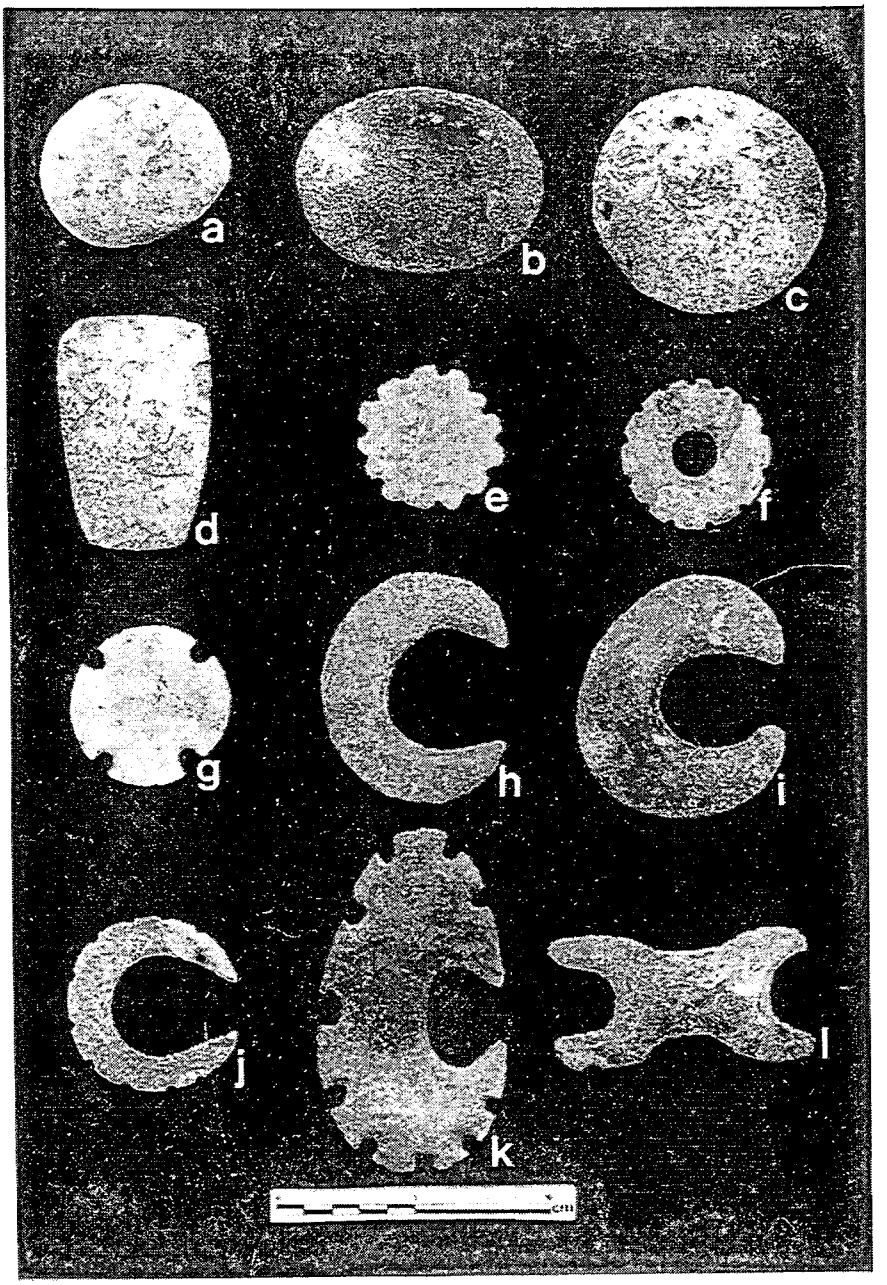

Figure 3. Chert eccentrics from the Bedran cache.

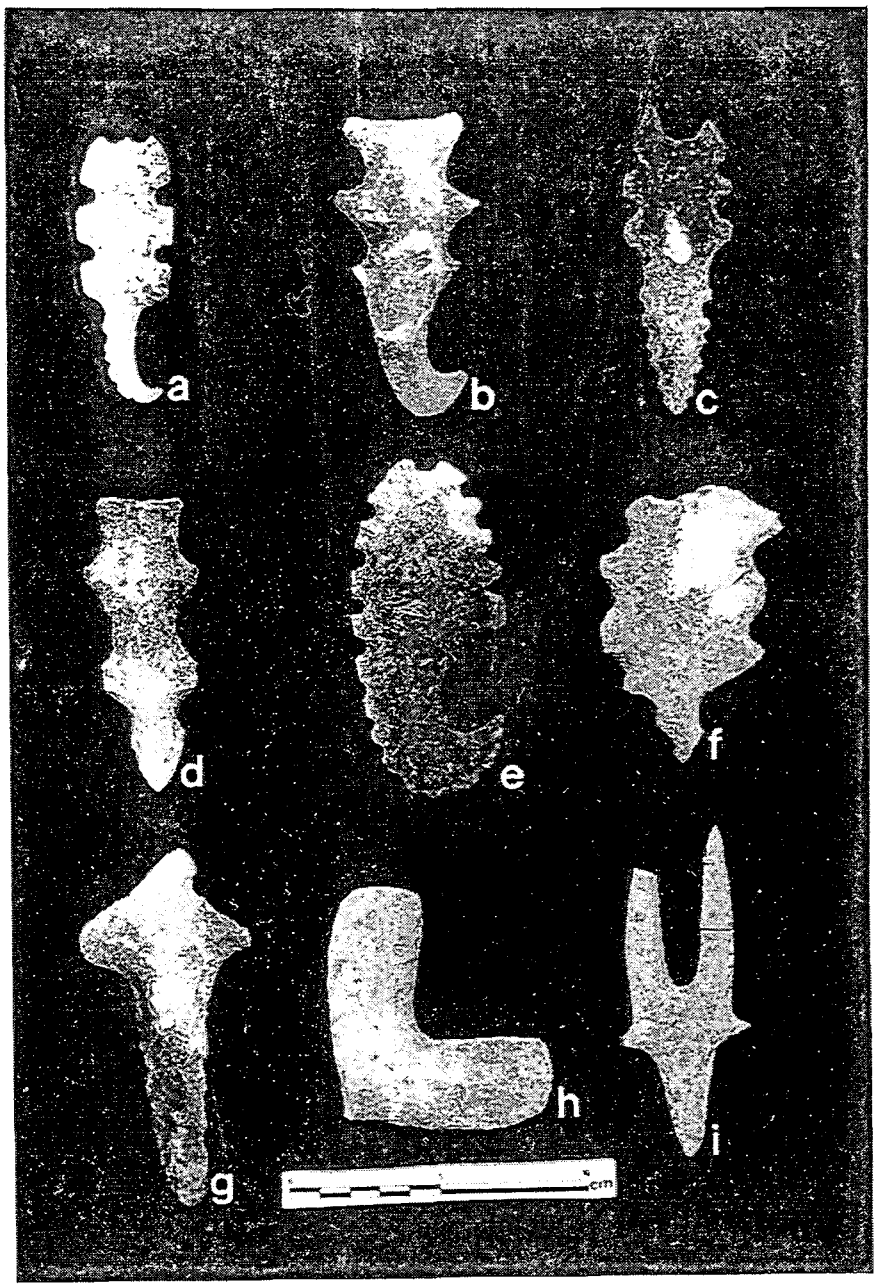

Figure 4. Chert eccentrics from the Bedran cache.

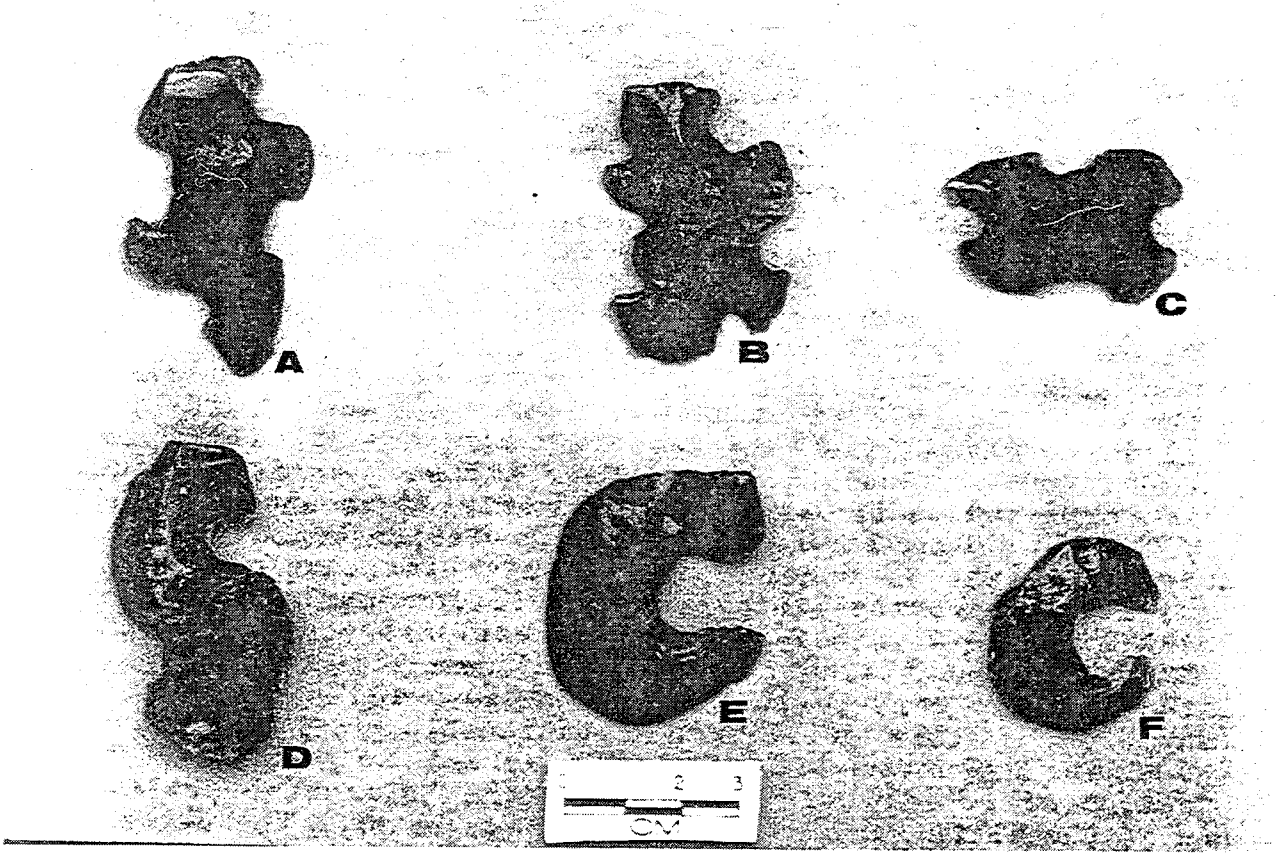

Figure 5. Obsidian eccentrics from the Bedran cache.

Bedran had a solid grasp of eccentric morphological forms. Befor proceeding with the assessment of the Bedran cache, a brief overview o eccentric use

BACKGROUND

It has been argued on one level that Maya eccentric lithics wer employed within a sociopolitical relationship that linked the rulin elite inhabiting the larger Maya centers (Gibson 1989:117; Iannon 1992a; Iannone and Conlon 1993; see also Shafer and Hester 1983:538) A review of the current data suggests such a conclusion. The presen evidence indicates that eccentrics have been predominately recovere from dedicatory caches within the ceremonial sectors of the larger May sites, in association with temples, altars, and stelae (Iannone 1992a) It is also clear that identical morphological forms are recovered fro these far flung Maya centers (e.g. Coe 1959, Tables 1 and 2; Iannon 1992a:181, 1992b). Given this data it can be postulated tha eccentrics, along with other material culture components such as stela and altars, were manipulated by the ruling elite within a peer polit type sociopolitical relationship (cf. Freidel 1986; Sabloff 1986) These items are considered to have been part of what Freidel (1986:93 has called the Maya elite "charter" of power (see also Iannone 1992a Iannone and Conlon 1993). Specifically, these material culture item can be interpreted as having been components of an ancestor cult whic was utilized to define the ruling elite's relationship to the ancestors and hence the gods, in order to solidify their privileged position i the ancient Maya sociopolitical and socioeconomic hierarchy (Iannon 1992a:250-251, 253-254). Within this hypothesis eccentrics are viewe as symbolic representations of both gods and ancestors, and are thu deposited in association with temples, altars, and stelae as a concret manifestation of this privileged relationship. This interpretatio implies that eccentrics were also involved in the production an reproduction of social relationships on the horizontal scale, betwee members of the elite, and on vertical scale, between the elite and non elite.

THE BEDRAN CONTEXT REVISITED

Given the current understanding of eccentric artifacts outline above, it is apparent that Bedran's small size makes it an unlikel candidate for the recovery of the cache in question. Little else doe not fit the overall pattern of eccentric lithic contexts in the May Lowlands. Not only does this context fit the general pattern o eccentric deposition, being a dedicatory cache recovered from a smal temple/shrine, but as outlined above, the forms present in th collection are identical to those found at far flung Maya sites. In th end, the sole aspect which does not fit is the deposition outside of major center. For this reason one possibility which must be address is whether these objects may have been scavenged from a disturbed cach one originally placed within the confines of a major center such Baking Pot, and subsequently redeposited at Bedran. It has been impli by some that the patina prevalent on portions of the Bedran eccentri indicates exposure to sunlight (names withheld to protect the innocent Thus they might reflect a disturbed assemblage which was recovered a

re-deposited at Bedran. However, the literature on patination suggests that the Bedran eccentrics exhibit a patination not unlike one that would form in an alkaline solution (see discussions in Clark and Purdy 1979; Curwen 1940; Purdy and Clark 1979; Rottlander 1975; Schmalz 1960). Such a patination does not have to form on the surface, but may in fact appear in a subsurface context where carbonate-rich groundwater is present (e.g. Curwen 1940). Such an environment is satisfied by the interior of the Bedran shrine, especially near the surface and adjacent to the limestone construction blocks. Thus, the deposition of the eccentric cache just below the limestone construction elements, near the surface, and in the presence of an alkaline groundwater solution, probably explains the rather light and differential patination on the eccentrics (see Hester et al. 1982:32). Therefore, there is little to suggest that the Bedran eccentrics represent a scavenged, redeposited assemblage.

With the widespread use of eccentrics in the Maya Lowlands, and the ritual involved in their placement in stelae and other dedicatory caches, it is unlikely that the inhabitants of Bedran did not have knowledge concerning the proper use of these items. Similarly, they appear to have had an understanding of the eccentric morphological forms utilized by the Maya elite (although this does not mean that they produced these items on-site). Nonetheless, this does not explain how these objects ended up at the Bedran group. Another hypothesis must therefore be formulated. I would like to suggest that the Bedran context is not abnormal. As has been outlined, every aspect of this cache fits the overall pattern except the deposition within a group this size. Might such an anomaly, the site being rather small compared to the usual context of eccentric recovery, not reflect an overemphasis on the excavation of the polar extremes of Maya settlement? I believe that this is highly likely.

DISCUSSION

Given the previous statements concerning eccentric lithic distribution within the ancient Maya social hierarchy, it seems likely that a minimal understanding of the meaning and proper use of eccentrics extended beyond the confines of the major centers and ruling elite interaction. One must therefore question whether the distribution of eccentrics reflects rigorous elite control over redistribution, or a skewed data base. I do not wish to argue that eccentrics were not part of an ancestor cult, nor that they did not symbolize ancestors and gods. Similarly, it is not my contention that eccentric lithic production and redistribution was not highly controlled by the ruling elite (cf. Iannone 1992a:154-184; Iannone and Conlon 1993). However, I would like to suggest that there was a certain amount of vertical redistribution (cf. McAnany 1989:2) of eccentrics along with the more evident horizontal linkages. This conclusion is suggested by the presence of a limited number of eccentric caches recovered from within the confines of sites much smaller than those usually labeled "major centers." For example, along with the Bedran example, eccentric caches have been recovered at Uolantun (Fry 1969:104), Seven Hills (Gann 1918:100-101; Hammond 1975a:275-276), Barton Ramie (Willey et al. 1965:446-449), 1981: 102-105), and the Tzinic group, Cahal Pech (Conlon 1992; Iannone 1992b).

These smaller settlement units, which I have defined as "middl level settlement units" (see Iannone and Hodgson, this volume), consis of a continuum beginning with the larger plazuela groups (see Ashmor 1981) and terminate with the sites called "minor ceremonial centers (e.g. Ashmore 1981:41; Bullard 1960; Hammond 1975b; Willey and Bullar 1965; Willey et al. 1965), or "minor centers" (e.g. Ford 1981:57 Haviland 1981; Puleston 1983:2), amongst other terms. Following th definition outlined by McGuire (1992:55), it is my position that thes sites represent the remains of the ancient Maya middle class (Iannon and Hodgson, this volume; see also Chase and Chase, in Wilford 1993 Culbert 1974:67; Haviland 1965:22-23). Thus the presence of eccentric in these sites implies a vertical linkage between the ruling elite an the middle class, whereby components of the charter of power wer available for acquisition by the middle class in special circumstances If this is so, it may be that within the rigid boundaries of socia organization as defined by kinship, some limited social mobility wa permitted. That this has not been evident before, I believe, result from the past and present focus upon settlement research within th polar extremes of the Maya settlement hierarchy, the housemounds and th major centers. This focus has promoted the reification of a two class "Elite-Peasant" model for the ancient Maya social hierarchy. It is als a blatant reflection of the normative approach to Maya socia organization which has prevailed in past research. It can be argue that this emphasis has biased the data base, forcing the conclusion tha eccentrics were only redistributed amongst the ruling elite.

CONCLUSIONS

In conclusion, I am inclined to view the Bedran cache as indicativ of dynamic social interaction between the Maya elite and a middle class as opposed to being the result of idiosyncratic behavior. Its anomalou appearance is thus a reflection of the biased data base which has bee produced through past settlement research. I would also argue that th eccentric caches recovered from these contexts suggest that these group were consuming the symbols of power that the elite had to offer. The are in a sense displaying their belief in the ruling elite and it "charter of power." As more middle level settlement units are excavate it is my belief that more eccentrics will be recovered. Our curren sample remains too small to evaluate this possibility, but future wor amongst middle level settlement units should provide evidence which wil permit the appraisal of this hypothesis. This data, which can only b obtained through excavation of these sites, will facilitate th recognition of the proposed Maya middle class, and promote a fulle understanding of all levels of the social hierarchy.

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