

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

ProQuest Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI[®]

**INTO THE DARKNESS:
INVESTIGATIONS OF MAYA CHULTUNOB
FROM X-UAL-CANIL (Cayo Y), BELIZE**

**A Thesis Submitted to the Committee on Graduate Studies
in Partial Fulfilment of the Requirements for the
Degree of Master of Arts
in the Faculty of Arts and Science**

**TRENT UNIVERSITY
Peterborough, Ontario, Canada**

© Copyright by Nadine Laura Gray 2000

Anthropology M.A. Program

June 2001



National Library
of Canada

Acquisitions and
Bibliographic Services

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale
du Canada

Acquisitions et
services bibliographiques

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file *Votre référence*

Our file *Notre référence*

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-57989-1

Canada

ABSTRACT

Into the Darkness: Investigations of Maya *Chultunob* from X-ual-canil (Cayo Y), Belize

Nadine Laura Gray

A *chultun* is a subterranean feature, carved into the limestone bedrock and entered through a restricted, cylindrical orifice. During the 1996-1998 field seasons, four such features were excavated in the periphery of the ancient Maya site of X-ual-canil in the Cayo District of Belize, Central America. The *chultunob* discussed in this thesis date from the Protoclassic and Late Classic times. The functional information gained through excavation and comparative means indicates that *chultunob* from X-ual-canil, and other Upper Belize River Valley chambers were used for short term storage, the interment of human remains, as well as termination and dedicatory rituals.

Acknowledgements

Since this research began, in 1997, so many people have been instrumental in making this thesis what it is today. First, I would like to thank my committee members, Dr. Paul Healy, Dr. Gyles Iannone, Dr. John Topic, and my external examiner Dr. Jennifer Braswell for their insightful comments and critiques which allowed for the ideas in this thesis to be brought out in a clear fashion. The research presented here would not have been possible without the support of the Belizean Department of Archaeology. In particular, former Commissioner John Morris, Brian Woodye and current Commissioner Allan Moore are thanked for their continued support of this project.. Thank you to the various landowners, Douglas Trani and Ingrid Melton, the JANUS Foundation, and Mr. Juan Choj who continually allowed work to be conducted on their land. Dr. Gyles Iannone, the Principal Investigator of the Social Archaeology Research Program (SARP) is graciously acknowledged for his constant support, encouragement and guidance. This thesis would not have been possible if Gyles had not been such a good coach, mentor and friend to his staff and field school students. To my co-excavators, "Dr". Pat Killpack, Jose Martinez, David Valencia and Everaldo Tut gracias for making every day, a great day. I would also like to extend my gratitude to Jolene McMurdo, Jeff Seibert, Colin Agnew, Peter Prince, J. Paige MacDougall, Lazaro Martinez, Beth Young, Mark Hoetzel, James Stemp and the numerous SARP field school students for being such fabulous people to work with. Norbert Stanchly, and Allan Moore are thanked for comments, insights and discussions regarding *chultunob* and the artifact assemblage represented at *X-ual-canil*. I am indebted to Christophe Helmke for the time spent in Chultun 3, as well

as his mapping and drawing expertise. Field students Pia Tohver, Abbie Selzer, Sandi McQuigge and Kieron Rupke are acknowledged for their artifact illustrations. Thanks to Terry Powis and Grant Aylesworth for providing me with their unpublished writings on *Cahal Pech chultunob*. Jason Yaeger is thanked for clarifying the Late Classic dates from Xunantunich. Cameron Griffith, Josalyn Ferguson, David Lee, and Jennifer Piehl also provided me with their unpublished reports on the Chaa Creek and Yax Chan Chultun. Special thanks to Jaime Awe who always listened to my ideas, encouraged my research, and proved to be an invaluable source of support. His enthusiasm for Maya archaeology and Captain Morgan's led to memorable conversations which kept me interested in *chultunob* and this thesis.

In Belize, a special thanks to the Tut family of Crystal Paradise Resort for giving us so much more than a place to stay. To Carlos Ayala for the safe journeys, as well as Bob and Nettie Jones of Eva's Restaurant for always having an open door. The people of the Village of Cristo Rey and San Ignacio Town are thanked for being such gracious hosts over the years.

At Trent, my thesis supervisor, Dr. Paul Healy is also thanked for his continued support of this research. His editorial comments and interest in *chultunob* have helped make this a much better study of *chultunob* than I could have accomplished alone. Mrs. Sandi Carr, a truly fabulous and helpful person has made my time at Trent one to smile about. Paulette Nichols, Janice Eccelstone and Virginia Keating are thanked for looking out for me, making sure I was on track, and for being so patient with my endless questions. Dr. Hermann Helmuth has provided much guidance and encouragement in his

capacity as Graduate Director and I thank him and his wife for their kind gestures during my stay in Peterborough. Dr. Susan Jamieson is thanked for her insights into anthropological theory.

I would also like to express my gratitude to Dr. Richard Lazenby at the University of Northern British Columbia, for his humour, perseverance and friendship over the years. Also, many thanks to my family and friends: Grandma, my brother Michael, and my friends Nina, Chad, Shelley, Terry, and Amanda, who made the distance from home seem manageable. To my parents, Mary and Simon Gray who always believed in me and encouraged my sense of adventure. Thanks for always being there, Mum and Dad. My second family, Carol and Dennis Sakamoto have been an endless source of support and friendship which has affected me in so many, positive ways. The same can be said for Paul Prince, Lisa Rankin, Beverly Killpack. Their friendship, hospitality, and academic advice is much appreciated.

It is difficult to thank someone as giving as Sonja Schwake. She has been the best field director, roommate, proof-reader and Pina Colada pal, one could ask for. Thanks for your constant support, guidance and sense of humour, sparky.

Dedication

This thesis and the research contained within is dedicated to the memories of:

C. Mark Omer

and

Arne and Lesley (Mitchell) Carlson,

Their enthusiastic ways and passion were contagious and influential.

TABLE OF CONTENTS

Abstract.....	i
Acknowledgements.....	ii
Dedication.....	v
List of Figures.....	vi
Terminology.....	1
Chapter One: <i>Chultunob</i>	2
Chapter Two: Overview of the Belize Valley.....	33
Chapter Three: Excavation of <i>Chultunob</i> from X-ual-canil.....	85
Chapter Four: Exploring Ritual.....	151
Chapter Five: Conclusions	178
Bibliography.....	186
Appendix 1: Ceramics	
Appendix 2: Human Remains	

LIST OF FIGURES

Figure 1. Bell Shaped Chamber.....	7
Figure 2. Profile of a lateral (shoe-shaped) <i>chultun</i>	8
Figure 3. Multi-chambered and dual orifice <i>chultunob</i> from Uaxactun.....	10
Figure 4. Map of the Southern Maya Lowlands.....	12
Figure 5. Plan of <i>Chultun</i> C60A, Caracol.....	29
Figure 6. Map of the Belize Valley.....	34
Figure 7. Map of Cahal Pech and its peripheral groups.....	37
Figure 8. The Tolok Group, Cahal Pech.....	38
Figure 9. Top Plan of Level 1, <i>Chultun</i> 2, Tzinic Group, Cahal Pech.....	42
Figure 10. Vessel 3 from <i>Chultun</i> 2, Tzinic Group, Cahal Pech.....	43
Figure 11. Vessel 2 from <i>Chultun</i> 2, Tzinic Group, Cahal Pech.....	44
Figure 12. Vessel 1 from <i>Chultun</i> 2, Tzinic Group, Cahal Pech.....	45
Figure 13. Vessel 4 from <i>Chultun</i> 2, Tzinic Group, Cahal Pech.....	46
Figure 14. Top Plan of Level 2, <i>Chultun</i> 2, Tzinic Group, Cahal Pech.....	47
Figure 15. Map of Zubin Group, Cahal Pech.....	49
Figure 16. <i>Chultun</i> 1, Zubin Group, Cahal Pech.....	50
Figure 17. Structure 12 excavations with <i>Chultun</i> visible, Zubin Group, Cahal Pech.....	52
Figure 18. Top Plan of <i>Chultun</i> 2, Zubin Group, Cahal Pech.....	53
Figure 19. Xunantunich Settlement Survey Region.....	56
Figure 20. Site T/A1-30 from the Xunantunich periphery.....	57

Figure 21. Map of Site T/A1-6 from the Xunantunich periphery.....	59
Figure 22. Survey Transect from the Xunantunich site core.....	62
Figure 23. The Chan Noohol Community in the periphery of Xunantunich.....	63
Figure 24. Ceramics recovered from <i>Chultun</i> 1, T/A1-71.....	64
Figure 25. Map of Dos Chombitos Cik'in	66
Figure 26. Ceramics from <i>Chultun</i> 1, T/A1-153, Dos Chombitos Cik'in.....	68
Figure 27. Ceramics from <i>Chultun</i> 1, T/A1-153, Dos Chombitos Cik'in.....	69
Figure 28. Group D, Xuantunich.....	73
Figure 29. Map of Xuantunich.....	76
Figure 30. Cobble Arrangement from the Zapote <i>Chultun</i> , Xunantunich.....	77
Figure 31. Ceremonial Deposit from the Zapote <i>Chultun</i> , Xunantunich.....	79
Figure 32. Top Plan of <i>Chultun</i> 1 from Group 3, Blackman Eddy.....	81
Figure 33. Profile of <i>Chultun</i> 1 from Group 3, Blackman Eddy.....	82
Figure 34. Map of X-ual-canil.....	86
Figure 35. Map of the X-ual-canil site core.....	89
Figure 36. Map of the Choj Group, X-ual-canil.....	94
Figure 37. Profile of <i>Chultun</i> 1 from the Choj Group, X-ual-canil.....	95
Figure 38. Human Bone Concentrations from the Choj Group <i>Chultun</i>	97
Figure 39. Top Plan of Level 1, Choj Group <i>Chultun</i> , X-ual-canil.....	99
Figure 40. Vessel 1 and Vessel 2 from the Choj Group <i>Chultun</i> , X-ual-canil.....	100
Figure 41. Vessel 3 and Vessel 4 from the Choj Group <i>Chultun</i> , X-ual-canil.....	101
Figure 42. Vessel 5 and Vessel 6 from the Choj Group, X-ual-canil.....	102

Figure 43. Vessel 7 and Vessel 8 from the Choj Group <i>Chultun</i> , X-ual-canil.....	104
Figure 44. Vessel 9, 10 and 11 from the Choj Group <i>Chultun</i> , X-ual-canil.....	105
Figure 45. Top Plan of Level 2a, Choj Group <i>Chultun</i> , X-ual-canil.....	107
Figure 46. Profile of <i>Chultun</i> 2, X-ual-canil.....	111
Figure 47. Top Plan of <i>Chultun</i> 2, X-ual-canil.....	112
Figure 48. Gran Maestro Group, X-ual-canil.....	116
Figure 49. Top Plan of <i>Chultun</i> 3, Gran Maestro Group, X-ual-canil.....	118
Figure 50. Profile of <i>Chultun</i> 3, Gran Maestro Group, X-ual-canil.....	119
Figure 51. Top Plan of Lobe B, <i>Chultun</i> 3, X-ual-canil.....	122
Figure 52. Vessel 1, <i>Chultun</i> 3, X-ual-canil.....	124
Figure 53. Vessels 2 and 8, <i>Chultun</i> 3, X-ual-canil.....	125
Figure 54. Vessels 10 and 4. <i>Chultun</i> 3, X-ual-canil.....	126
Figure 55. Vessel 3, <i>Chultun</i> 3, X-ual-canil.....	127
Figure 56. Vessel 5, <i>Chultun</i> 3, X-ual-canil.....	128
Figure 57. Vessel 7, <i>Chultun</i> 3, X-ual-canil.....	129
Figure 58. Vessel 9, <i>Chultun</i> 3, X-ual-canil.....	130
Figure 59. Vessel 11, <i>Chultun</i> 3, X-ual-canil.....	131
Figure 60. Decorated Pebble recovered from <i>Chultun</i> 3, X-ual-canil.....	134
Figure 61. Vessel 15, <i>Chultun</i> 3, X-ual-canil.....	135
Figure 62. Vessel 14, <i>Chultun</i> 3, X-ual-canil.....	136
Figure 63. Vessel 13, <i>Chultun</i> 3, X-ual-canil.....	137
Figure 64. Top Plan of Level 2, Lobe C, <i>Chultun</i> 3, Gran Maestro Group.....	139

Figure 65. Profile of <i>Chultun 4</i> , Gran Maestro Group, X-ual-canil.....	141
Figure 66. Plaster sections from Level 1, <i>Chultun 4</i> , X-ual-canil.....	143
Figure 67. Top Plan of Level 2, <i>Chultun 4</i> , X-ual-canil.....	145
Figure 68. Vessel 6, <i>Chultun 4</i> , X-ual-canil.....	146
Figure 69. Top Plan of Human Remains, <i>Chultun 4</i> , X-ual-canil.....	148
Figure 70. Diagram illustrating the types of offerings.....	154

Brief Comment on Terminology

The Yucatec Maya language uses the suffix *ob* to denote plural endings (Freidel et al. 1993:19). The plural of *chultun* is *chultunob* in Yucatec, although anglicized (*chultuns*) and hispanicized (*chultunes*) variations also appear in the literature. The proper Maya plural of *chultun*, *chultunob*, will be the term employed throughout this thesis, except where the hispanicized and/or anglicized variations occur in a citation.

Chapter 1

CHULTUNOB

Introduction

This chapter provides a broad discussion of Maya *chultunob* (underground chambers) through the definition and analysis of the term, what functions they may have served, as well as their spatial and temporal distribution. A review of the functions suggested by archaeologists is offered with the aim of providing a critical examination of the range of possible uses for *chultunob*. These functions include: water and food storage; alcohol production; the ripening of fruit; sweat houses; and burial chambers. The following discussion illustrates the difficulties of assigning a single functional interpretation for all *chultunob*, as there are problems encountered when the aforementioned functional interpretations are applied. While some previously postulated functions cannot be dismissed entirely, a ritual model is presented as a new perspective that increases our understanding of the function of Maya *chultunob*. This new model will be explained in the fourth chapter, and is only introduced here as a new contextual perspective on the changing function of *chultunob* in the prehistory of the Upper Belize River Valley.

Early Explorations

John Lloyd Stephens appears to be the first European to examine and report in any detail the *chultun*-like features at the sites of Uxmal and Labna (see von Hagen

1962). These investigations led him to suggest they were water cisterns despite the fact that a local landowner explained they were for food storage (Puleston 1971:322). The uncertainty about *chultun* function persists to the present day. Since the time of Stephens' journeys, there have been many expeditions to Mesoamerica which investigated archaeological sites and explored these carved chambers.

As one is being lowered by rope down through the narrow well-like opening into the darkness beneath, there is always the charming uncertainty as to whether a viper's head will thrust into one's face on the way down; whether the whirl of a rattlesnake's rattle or the skurry of a nest of tarantulas or scorpions will be the first greeting on touching the chamber floor (Thompson 1897:80).

The first true archaeological investigations of these subterranean chambers began in 1888 with the excavation of 60 chambers by Edward H. Thompson (1897) at Labna. His report proposes that *chultunob* were primarily used as *zahcab* (marl) extraction sites which subsequently became cisterns for rain water as well as depositories for human remains. Incidentally, although Thompson's work at Labna was recognized as the first archaeological excavations of northern *chultunob*, it was Alfred Maudslay who first conducted limited excavations of a chamber at Tikal in 1881 and 1882. While he did not carry out a complete or systematic excavation, he remarked that "it seems probable that they were used for the storage of food . . ." (Puleston 1971:324). Beginning with the initial excavations of *chultunob*, their function was enigmatic. The function of these chambers continues to be a source of debate because no series of artifacts recovered from *chultunob* have been found to provide clear-cut evidence for a simple answer (Puleston 1965:24).

Thompson (1897:80) wrote that it is "desirable that these curious structures should be investigated, and that their contents, whether detritus or material intentionally placed by man, should be preserved and studied". Researchers have responded to Thompson's suggestion and, as a result, there is an on-going functional debate within *chultun* research. However, it seems that as more *chultumob* were encountered, mapped and excavated, the postulated functions of these chambers grew. Various researchers have suggested that they were used as sweat baths (Maudslay 1889-1902, Vol. 2:25 in Puleston 1971:326), food cellars (Tozzer 1913:191; Gann 1918:83) for maize (Miksicek et al.1981: 918; Reina and Hill 1980:78) or ramon nuts (Puleston 1971:331-332), rural alcohol production silos (Dahlin and Litzinger 1986:729-70), fine weaving areas or ceremonial chambers (see Ricketson 1925:390), drains or refuse pits (Pollock 1956:540 in Puleston 1971: 326), and even some form of outdoor plumbing (Haviland 1963:505 in Puleston 1971). The present debate continues to centre around the functional interpretation of *chultun* chambers as they may have had different uses through time, and from region to region (Powis 1999:1).

Defining *Chultumob*

John Lloyd Stephens' travels in 1841-42 offered scholars the first introduction to the word *chultun*. He was provided the term by Maya peoples living around the ruins of Tikal and he believed these "circular holes in the ground" were similar to those he previously encountered at Uxmal (von Hagen 1962:186). Later, an excavation report by Thompson (1897) at Labna used the term *chultun* to refer to this site's sub-surface

chambers. Tozzer (1913:190) offers the first translation of the term *chultun* when he explained that it meant "excavation in stone" derived from the Maya word *tsul* meaning 'to clean' and *tun* meaning 'stone'. Decades later, Dahlin and Litzinger (1986:721) mistakenly suggested that Puleston (1971) translated *chultun* as deriving from *chul* meaning either 'wet' or 'becoming wet,' and *tun*, meaning 'rock' or 'stone', giving *chultun* the meaning of "wet rock" or "rock that becomes wet". Schele and Freidel (1990) agreed with the translation of *tun* but they suggested the Maya word *ch'ul* meant 'holy', giving the definition of "holy stone". While archaeologists may not fully comprehend the derivation of the term applied to these structures, investigations are bringing researchers closer to understanding how these chambers served people in the past.

Chultunob

A *chultun* is best described as a subterranean chamber, carved into the limestone bedrock and entered through a narrow opening. The point of entry, usually a single orifice, serves as the entrance to the chamber(s) and often represents the only means through which natural light can enter. Covers for the orifice include; fitted, circular capstones, rectangular limestone slabs, or forest materials such as large leaves or woven mats. These are found either *in situ*, within the chamber fill, or they are sometimes absent. It is probable that the occurrence of a bevelled edge on the *chultunob* orifice facilitated the use of the fitted capstone. This type of covering was evident in the Choj group and *Chultun* 3 from X-uul-caniil. Another example of a *chultun* cover is offered by Thompson (1897:9) who described large square stones covering the chambers at the site

of Labna. While these fitted or slab capstones represent one type of non-perishable covering, forest materials, such as large leaves or woven mats also could have been utilized. The use of this latter style of orifice cap may account for the absence of stone covers at some features. A woven mat was recovered by Ricketson and Ricketson (1937) from within a *chultun* at Uaxactun. This discovery led the Ricketson's to postulate that the chamber was utilized as a weaving area, whereas, the woven material may, in fact, represent a type of orifice cover.

The interior morphology of the *chultun* may display a single, bell-shaped chamber, multiple chambers of varying shapes, or exhibit a single lateral (boot-shaped) profile. Some chambers have plaster floors or plastered sections, but the walls are generally devoid of any plaster or stucco lining. This unplastered chamber morphology is intended to differentiate the *chultun* from the cistern, as both structures are present in the Southern Maya Lowlands. There is a need to distinguish between a *chultun* and a cistern at this point because this study applies only to *chultunob*. The Oxford Dictionary (1993:147) defines a cistern as a "tank for storing water", or, an "underground reservoir". The difficulty stems from the fact that some researchers have used the terms *chultun* and cistern interchangeably, resulting in the assumption that all *chultunob* stored water. For the purposes of this discussion a cistern and a *chultun* are defined by their architectural features, not their functions (see Figures 1 and 2). Architecturally, cisterns of the Maya Lowlands exhibit a bell or bottle-shaped chamber, measure up to 6 meters in depth, and have a plaster lining, gutters, or associated water symbols (Aylesworth 1993:80). *Chultun* architecture, in contrast, consists of chambers which have greater length than

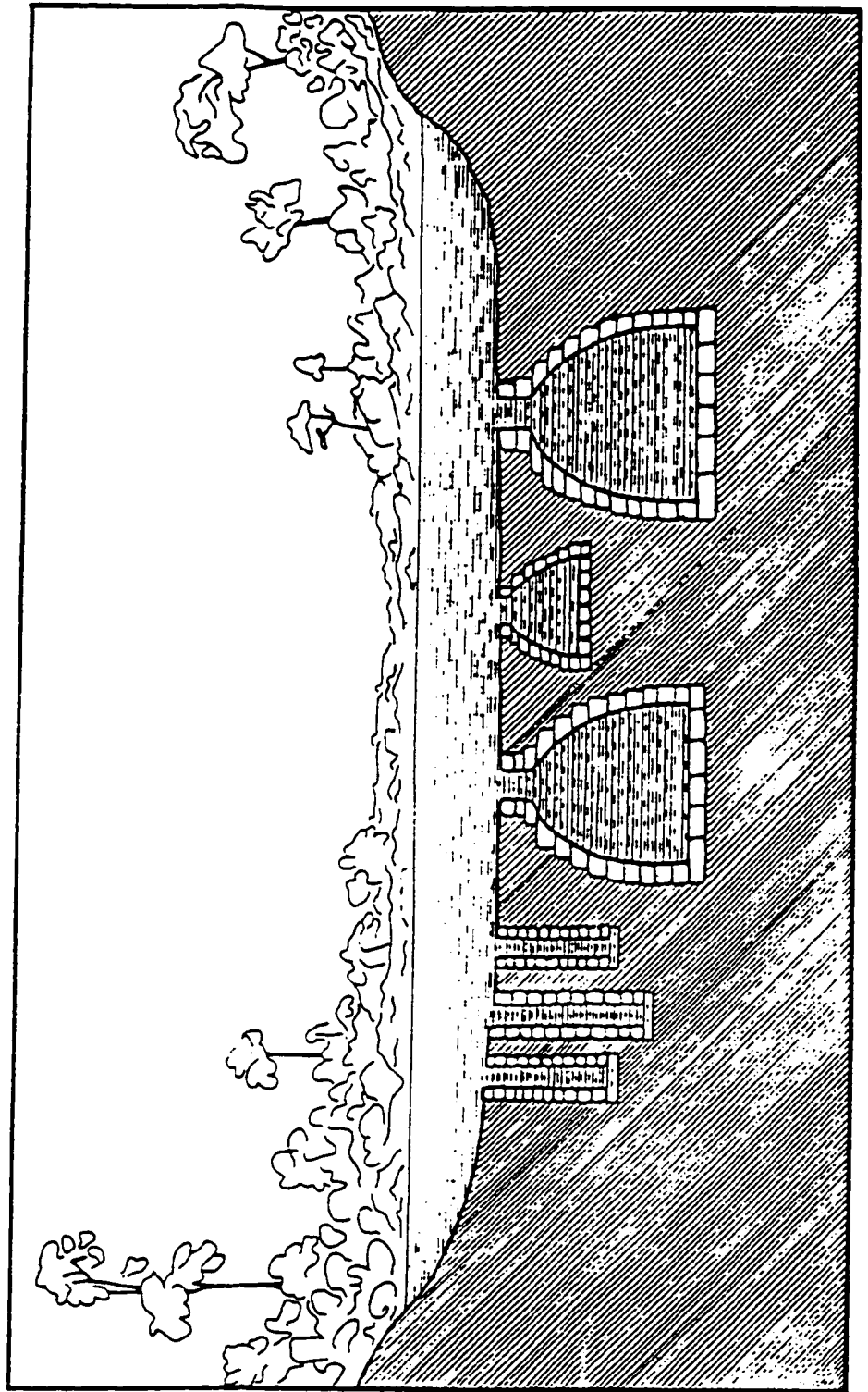
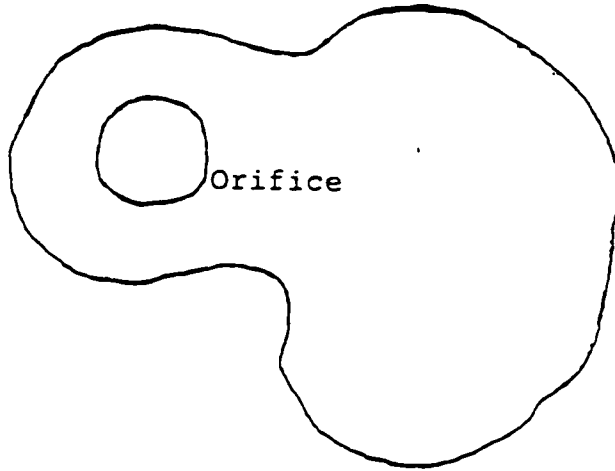


Figure 1. Bell Shaped Chamber

From: Folan et al. 1983

Top Plan of Chultun



Profile of Chultun

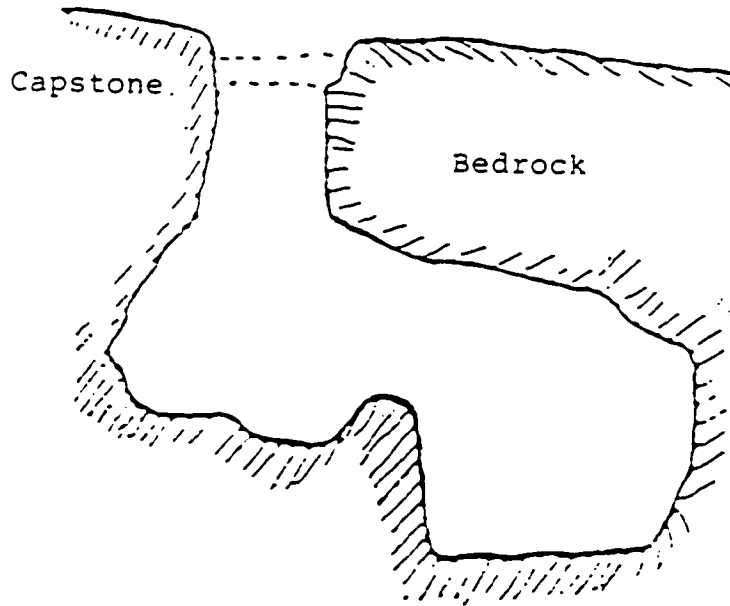


Figure 2. Profile of a lateral (shoe-shaped) *chultun*

From: Puleston 1971

depth, and are usually devoid of wall treatments. *Chultunob* may also exhibit an antechamber, something which is absent in cisterns (see Puleston 1971:323). Despite a similar restricted orifice, it is the subsurface chamber design that differentiates these features. Therefore, the terms cistern or *chultun* refer to different features, based on morphological attributes. The bell-shaped, stuccoed chambers may be cisterns for water, and some *chultunob* may have been utilized for water storage, but researchers should exhibit caution when defining the feature.

The category of *chultun* includes several varieties of chamber style in the Southern Maya Lowlands. First, there are small, bottle shaped chambers (similar to those in the northern Yucatan) which lack wall treatments (Tozzer 1912:669). A second type is the lateral, or "boot-shaped" chamber, initially described by Tozzer (1913:192) and later used by Puleston (1971) to differentiate these features from the northern Yucatan variety. A third chamber style is the multi-lobed *chultun* which has several small chambers with a single or dual orifices as the point of entry (Figure 3). In terms of the multi-lobed *chultunob*, they "generally contain only one or two such inner chambers, but others have been found with as many as nine" (Puleston 1965:24). Within these chambers styles there are several internal features which further define the *chultun* type. Variation is seen in the number and size of chambers, the presence or absence of a sill, the use of niches, and the use of plaster on floors (Powis 1999).

Although *chultunob* are ubiquitous features throughout the Maya Lowlands, few archaeologists have investigated them, resulting in a paucity of literature on the subject (Aylesworth 1993:78). Archaeologists working at the Maya sites of Blackman Eddy

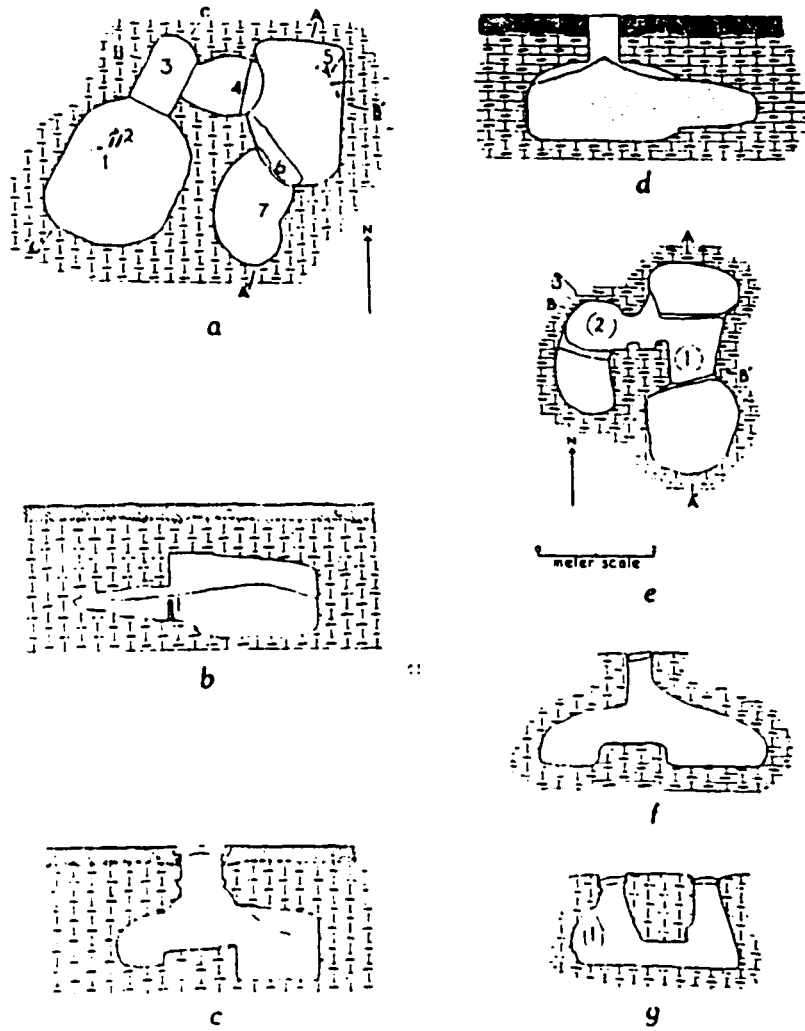


Figure 3. Multi-lobed chambers and dual orifice *chultunob* from Uaxactun

From: Smith 1973

(Driver and Garber 1993), Cahal Pech (Christensen 1995; Iannone 1994; Iannone et al. 1994; Powis 1992,1993,1999; Powis and Hohmann 1995), Caracol (Hunter-Tate 1994), Cuello (Miksicek 1991; Miksicek et al. 1981), Holmul (Merwin and Vaillant 1932), Labna (Thompson 1897), Nohmul (Tozzer 1913), Tikal (Carr and Hazard 1961; Puleston 1965), Uaxactun (Ricketson and Ricketson 1937; Smith 1950), and Xunantunich (Braswell 1992, 1993; Griffith et al. 2000; Keller 1995; Robin 1996; Yaeger and Connell 1993) have conducted *chultun* research (Figure 4).

Spatial Distribution

While reviewing the excavation reports of the *chultunob* researchers mentioned above, some patterns regarding spatial distribution emerged. *Chultunob* are located in areas where the limestone bedrock is close to the surface (Aylesworth 1993: 81). "The *chultun* is a direct result of the stony character of the country, where a comparatively slight deposit of soil overlies a continuous bed of limestone. Practically anywhere in the northern and central part of the Maya area the stone may be reached at no great depth" (Tozzer 1913:190-191). As a result of this accessible limestone bedrock, *chultunob* are found in most areas of the Maya Lowlands. Despite the writings of Willey et al. (1965), which suggested that *chultunob* did not occur in the Belize Valley, there are numerous examples of sites in this region which have these features. However, there is a notable absence of these features in alluvial areas, such as the site of Baking Pot. Spatial distribution studies of the *Cahal Pech* area revealed the common location of *chultunob* to be on top of knolls or well-drained terrain, although there were examples located

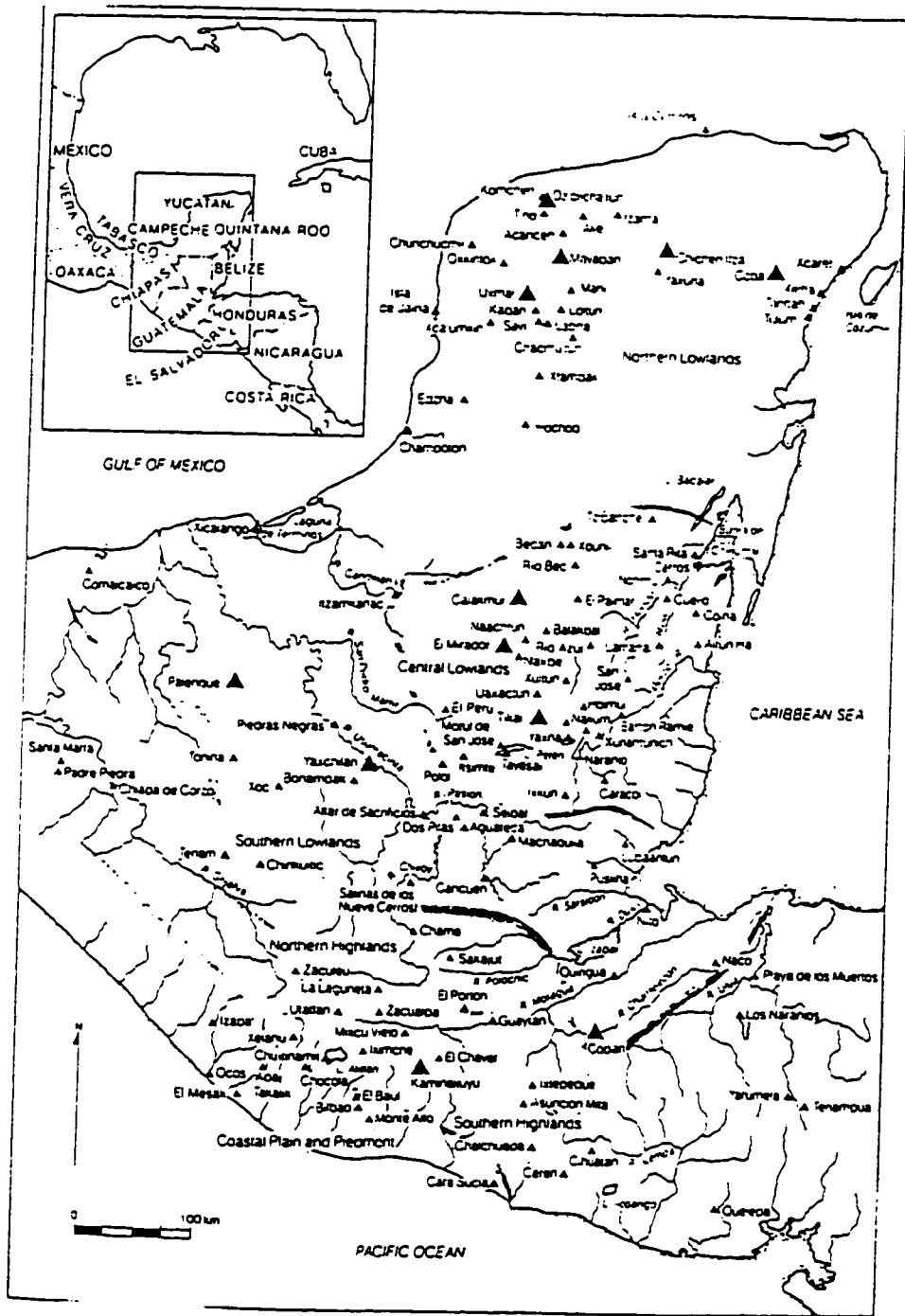


Figure 4. Map of the Southern Maya Lowlands

From: Sharer 1994

beneath structures. In most cases, the distribution of *chultunob* also indicates proximity to water sources and settlements (Powis 1999:2). Evidence from Tikal further supports this distribution pattern, as Puleston (1965 :26) writes that "most *chultuns* are found on high or well-drained ground where rapid run-off would allow little moisture to soak into the bedrock. It is not unusual to find them on the highest ground in a particular area". There is also evidence from various sites to suggest that *chultunob* are often associated with a single mound or *plazuela* group and in most cases their location is outside of the site core (Aylesworth 1993:84; Dahlin and Litzinger 1986:729; Puleston 1971:327; Thomas 1981: 21).

The Functional Debate

While it is difficult to state the "true" function of the *chultunob* of the Southern Maya Lowlands based on distribution, it is an easier task to demonstrate which functions are less practical. The proposed functions of water and food storage, fruit ripening/alcohol production, sweat baths and burial chambers are discussed below to illustrate the problems associated with these functions.

Water Storage

The use of *chultunob* as an area for water storage is a common interpretation stemming from excavations and interpretations of the past century. The typical morphology of lateral or multi-lobed chambers does not seem the most feasible form for

water storage. For example, Aylesworth (1993:86) states "besides simply not retaining water, the typical *chultun* morphology, with the orifice over the antechamber would not be practical for retrieving water". Also, the frequent occurrence of a sill or a raised lip between the antechamber and the main chamber would presumably have acted as a barrier and stop water from entering the main chamber (Puleston 1971:327). *Chultun* research at Cuello raises doubt that these *chultunob* were "ever used for water storage: the collar at the base of the central shaft was designed to keep water out of the storage chambers, and would also have made it very difficult to draw water from them" (Miksicek 1991:75). The unplastered *chultun* chamber, the most common type, cannot contain water and any water it may hold would quickly permeate into the limestone (see Miksicek 1991; Puleston 1965). In addition, *chultunob* "are usually found on ground slightly higher than that of the surrounding country" which would not be conducive to catching run-off (Tozzer 1913:191; Puleston 1971). In addition, as Tozzer (1941: 96) writes, water containment seems unreasonable as these chambers are often near natural water sources.

However, *chultunob* which exhibit plastered walls do seem to be suitable for holding water for extended periods of time. For example, a *chultun* at *Uxmal* was replastered, filled with rainwater, and sustained a crew for the field season (Blom 1936:184 in Puleston 1971:324). Also, although the chambers are smaller, archaeological and ethnographic evidence from Western Campeche illustrated that walls lined with thick (20-25 cm) fired clay did allow for water to be stored for individual family units (Matheny 1971: 474). While there is some doubt that the function of lateral shaped,

unlined *chultunob* was water storage, there are examples which have exhibited features that may facilitate water catchment. A small trough was identified adjacent to the orifice of *Chultun 1* at *Zubin*, and it was surmised that this unusual feature served to direct water into the chamber (Iannone 1994:99). However, water storage is not the only function this *chultun* served and this notion of changing function will be discussed further, in Chapter 2.

Whether or not a *chultun* could hold water continues to be debated, but rather than question the capability of the chambers, perhaps researchers should be asking why the ancient Maya would need to store water at sites that have adequate water supplies. Although water needed to be stored in some dry areas of the Maya Lowlands, the *Puuc* region for example, water scarcity was not a primary concern in all areas of the Maya Lowlands. In fact, *chultunob* occur in areas where "there is an abundant supply of water" and therefore "it may be argued that the storage of water is not the primary object of these subterranean rooms" (Tozzer 1912:669). For those features which do not appear to have served as water storage chambers, alternate functions, such as food storage have been forwarded.

Food Storage

During the past several decades there has been a functional debate within the archaeological literature which revolves around food storage and subsistence related activities. Despite the absence of suitable storage vessels, the storage potential of *chultun* chambers has been frequently advocated by researchers (see Dahlin and Litzinger

1986; Keller 1995; Miksicek 1991; Powis 1992). Features such as arrangements of cobbles within chambers are proposed to aid in the placement of "round-bottomed storage jars placed in these side chambers" (Keller 1995:10). Beyond the chamber's potential storage features, the typical food based hypothesis raises questions regarding the type of goods being deposited (Aylesworth 1993:78). Further, researchers are debating which crops served as the staples of the Maya diet, whether it be the ramon nut or maize. While the idea that crops were stored by the ancient Maya is not questioned, it is the use of *chultunob* as the preferred area for such an activity which presents the most difficulty. The use of the *chultun* as such a place is interwoven in this debate, but most of the information regarding storage is circumstantially based. The following discussion outlines the proposed functions and challenges these hypotheses in the hopes of presenting a clearer understanding of various *chultun* functions over time.

The food storage hypothesis favored by several archaeologists, was originally published by Maudslay in 1883 (see Puleston 1971:324). At this time, Maudslay wrote, "the sides of these chambers were not cemented, and it seems probable that they were used for the storage of food" (Puleston 1971:325). The analysis of *chultunob* of Nakum led Tozzer (1913:191) to propose that "the storage of maize and other foods is possible, as they are generally dry and would be suitable for such a purpose". Later, investigations of *chultunob* at Santa Rita led Gann (1918:83) to assert that these chambers were used for holding corn or other provisions. Though the writings of Bishop Diego de Landa predated these investigations, the translation in which Landa suggests that farmers kept their produce, particularly maize, ". . . in fine underground places and granaries, so as to

be able to sell (their crops) at the proper time", was not translated until later (see Tozzer 1941: 96). Tozzer's (1941) footnotes in the publication propose that Landa was referring to the lateral-chambered *chultun*.

Ramon

Until the early 1970's, the food storage model remained mere speculation. Dennis E. Puleston (1971) offered the first experimental work to test the potential food storage capabilities of *chultunob*. In this experiment, Puleston and crew excavated their own lateral-chambered *chultun* with stone tools. A *chultun* and two surface level buildings (one screened and one exposed) were constructed and used as comparative examples in order to understand each structure's storage ability. An assortment of vegetables were placed in each structure and tested at various times over an eleven week period. Maize, beans, squash and root crops all preserved poorly in the *chultun* conditions, exhibiting various stages of mite, fungi, sprouting and rodent infestations. A second experiment was conducted, at which time the ramon nut (*Brosimum alicastrum*) was also tested. This second set of experiments revealed that vegetables continued to fare poorly in the *chultun* environment but, the ramon seed remained edible and free of pests after 13 months in *chultun* storage. Two decades later, storage experiments performed in a *chultun* at Cuello further confirmed Puleston's claims of the storage suitability of the ramon (Miksicek 1991:78). These experiments at Cuello indicated that some roots crops could have been stored for a long period of time, and other foodstuffs could be stored for short periods (Miksicek 1991:79). The excellent preservation of the ramon in *chultunob*

was attributed to the low moisture content of the nut and, perhaps, to a selective adaptation to a humid environment. The experiments at Tikal also led Puleston to argue that the ramon seed was the food crop suited for long-term storage in the *chultun* environment (Puleston 1971:334). Further, he proposed there was a correlation between the distribution of the ramon tree and the location of house platforms, suggesting that this food may have been cultivated near houses in the past. As well, the distribution of the *chultunob* in certain areas of the Southern Lowlands was also argued to be correlated with the distribution of the ramon tree. With the decline of the Maya civilization at the end of the Classic period, Puleston suggested that the reliance on the ramon as a food source decreased, and this served as an explanation for the absence of *chultunob* among present day groups. Having illustrated that maize cannot be stored in *chultunob*, Puleston (1971:330) recommended that further experimental work needed to be conducted on silos as well as chambers below structure platforms to see if these were suitable places for dry storage.

Research by Reina and Hill (1980) supported Puleston's idea that the ramon nut was important in Maya prehistory. Historic sources recorded by friars of the Dominican Order during the 16th century offered general information regarding Maya subsistence, food production, and storage in the tropical highlands. *Kekchi* and *Pokomchi*-speaking people, who practiced the traditional Maya way of life, were observed by these friars who recorded information on foods which were foreign to them. The writings recorded the staples of the diet, as well as important information pertaining to gardens, wild plant utilization and food preparation techniques. One account, by Friar Miranda, described a

process where seeds were first boiled to lose their color and grease, and then were used to make tortillas, for coloring, or as a spice. Reina and Hill (1980:76) argued that based on the description of the seeds, Miranda was referring to the ramon. The historic records suggest that the use of small gardens and the abundant ramon trees were not enough to sustain a population. It was the maize from large *milpa* fields which provided the subsistence base. Further information from the friar's writings indicated the accumulation of surplus maize, which was first preserved by smoking and then stored in underground holes or "silos" for up to one year. However, Puleston's (1971) experimental work at Tikal revealed that smoked maize did not store well in the *chultun* environment. He argued that only the ramon could be stored for a long period of time, and, therefore, ramon was a staple of the Maya diet. In contrast, Reina and Hill (1980) contended that, based on historic evidence, maize was not only the mainstay in subsistence, but it could indeed be stored for a long time in a *chultun*. This article presented an interpretation of Maya subsistence as more diverse than Puleston's ramon-only model. Subsistence was said to include the use of gardens, ramon trees and large *milpa* fields, incorporating the smoking of corn and storage of surplus goods in *chultunob*.

The debate about ramon and maize continued in the work of Miksicek et al. (1981) when they challenged Reina and Hill (1980) by stating that the historic account was referring to the achiote seed. According to Miksicek et al. (1981), the translation of Landa's observations, similar to those of Miranda, indicate it was the achiote plant, not the ramon tree that was used by the Maya. The achiote, grown in the gardens of Belize

and the Yucatan, was used as a spice, a dye, and a trade good throughout Central America. As ramon has not been archaeologically documented as anything more than a starvation food, it was implied that there has been an overemphasis on the ramon (Miksicek et al. 1981:916). Also, the proposal that there were ramon orchards around Maya settlements was challenged by Miksicek et al. (1981), who argued that their presence related to the tree's adaptation to areas of disturbed ground (see also Lambert and Arnason 1982: 298). The experimental work by Puleston at Tikal was also questioned because additional research indicated ramon does not store well in *chultunob* for extended periods. The authors contended that maize, not the ramon or achiote, was the staple of Maya subsistence (Miksicek et al. 1981:918).

A further challenge to Puleston's ramon hypothesis was put forward by Peters (1983), when he stated that the occurrence of the ramon tree around settlements can be explained by the dispersal of seeds through bats, and the tree's ability to grow in limestone soils. This study, on the life-cycle of the ramon, showed that the tree had adapted to regenerate and grow in a closed tropical forest setting. It was argued that bats, which build their roosts around archaeological sites, were responsible for spreading the seeds, not intentional seed planting or harvesting by humans. Also, there was no evidence to indicate that the tree had adapted to grow in disturbed environments, nor was there any evidence to support the occurrence of ramon orchards around ruins. In fact, the trees are more numerous in areas where ruins are absent. However, studies of ramon at Tikal exhibited an unusual characteristic, the trees produced seeds year round. Typically, the tree bears fruit annually, at the onset of the rainy season. The nuts and seeds of the

ramon may have been utilized as a food source by the Maya and this could be detected through a detailed analysis of the population. There is the need for future research and comparative studies to be undertaken before conclusions can be drawn about the role of the ramon in Maya subsistence. However, whether it be maize, achiote, or ramon, there is no evidence to suggest that the *chultun* was a storage place for any of these products.

There are several key points which raise questions about Puleston's ramon storage hypothesis. First, it is highly problematic to assume that all *chultunob* were used for this specific (long-term storage) function because, as will be detailed below, there is evidence to suggest that a variety of functions were occurring in various regions and even within specific archaeological sites. Second, as the ramon seed has a low moisture content, it could preserve well and for extended periods of time in a non-*chultun* environment. Therefore, there would be no need to expend a minimum of 30 hours of labor to construct a chamber if the ramon can be stored in other contexts. Also, in terms of *chultun* attributes, Puleston neglects to explain why the use of a capstone, a restricted orifice and raised sills are required to store ramon seeds. Further, his suggestion that ramon was a staple is problematic because he fails to address the processing of the product into edible form. If ramon was a staple, how was it processed; moreover why would its reliance cease after the Maya "collapse" if the tree was easily cultivated? Although Puleston (1971) conducted experimental work on the storage capabilities of *chultunob*, he made several assumptions and did not use the artifact assemblage recovered from the chambers to resolve the functional debate.

Maize

The use of *chultun* chambers for maize storage is also questioned as modern maize storage occurs in above-ground structures. Smyth (1989:110) discusses modern domestic maize storage in the *Puuc* region and illustrates the above ground storage of maize. There are two structures, the bin and the crib, which are used to hold the crop. A bin is a temporary construction, dismantled seasonally, which contains husked maize. The exterior location of crib structures for the storage of shelled or ear maize is determined by household space and the distance to the *milpa*. In order for maize to be kept for an extended period of time, temperature, humidity, light and pests must be controlled (Smyth 1989:102). Inspired by research in England, Miksicek (1991:79) suggests that *chultunob* can provide this type of controlled environment and it is therefore argued that maize could have been stored in the chambers. He proposes that grain could withstand a *chultun* environment if the temperature was kept constant, through the use of a capstone or sealed storage jar, and if there was abundant carbon dioxide production. This production would be assured if the chamber or the individual vessels were filled to allow for an accelerated production of carbon dioxide. Also "if the chamber were lined with mats or vegetal material, such as sawgrass identified in flotation samples, and plugged with the same material, equilibrium carbon dioxide levels would be reached more rapidly" (Miksicek 1991:79). In terms of fungal growth and the potential intrusion of insects and rodents, research has shown that concentrations of carbon dioxide can be toxic to such pests (Hultin and Milner 1978 in Miksicek 1991:79).

With regard to the potential for *chultunob* as areas for the storage of food

products, such as maize, there is the issue of spatial distribution. If *chultunob* were indeed used for food storage, they do not occur as often as expected in farming areas (Aylesworth 1993:88). They also do not occur in high frequency in areas of large populations, as one would expect of storage facilities (Dahlin and Litzinger 1986:726).

Water and Food Storage

There is one example of the potential for small scale storage which comes from the excavation of an unplastered *chultun* below the *Zapote* Platform at Xunantunich. This *chultun* revealed a large number of jute (*Pachychilus indiorum* and *glaphyrus*) with unbroken spires. These faunal remains led Keller (1995:103) to propose the use of the chambers as a storage pool for jute and blue crab which may have been used as a food source. Research by Healy et al. (1990) indicates that ". . . *Pachychilus* clearly prefer shallow, swift moving water as these are the best aerated and the most likely to be carrying small food particles". The use of this Xunantunich *chultun* as a storage pool is therefore questionable. First, it is not clear that the chamber could have held water, even in the rainy season, without the aid of plastered walls. However, if water was in the chamber, it would be stagnant and this does not appear to be the conditions in which jute thrive. Finally, if these fauna were used as a food source, it is puzzling how they would be extracted from the chamber considering the narrowing orifice which characterize the *chultun*. Retrieving water from these lateral shaped chambers has proven difficult and the same can be said for the storage of crustaceans.

Ripening and Fermenting

Alternate storage related functions such as the ripening of fruit (Miksicek 1991:80) and the brewing of maize beer (Dahlin and Litzinger 1986) have also been suggested. While fruit will ripen in trees, and tubers are best left in the ground, large quantities of products may be required for redistribution or for participation in commercial markets. On this basis, it is plausible that *chultunob* may have provided a place for items to be accumulated until they were needed. This model is applicable to those products that did not require controlled environments or only required short term use of the *chultun*. As tropical trees tend to bear fruit all at once, farmers may have picked the fruit green, deposited it in the *chultun* briefly where it would slowly ripen, allowing for a more controlled supply of fruit. Alternatively, the fruit could have been shipped up-river while green and ripened upon arrival, allowing for the possibility of a market-based economy during these times (Miksicek 1991: 80).

Further interpretations which suggest *chultun* chambers may have been involved in economic activities are provided by Dahlin and Litzinger (1986) who argue that *chultunob* were used as places to process and, for limited periods, to store fermented items such as alcohol and fruits. Concentrating specifically on the distribution of structures at Tikal, Dahlin and Litzinger (1986) disputed the function of the small unlined, shoe-shaped *chultunob* which often have lateral chambers. This type of *chultun* was associated with residential structures that date to the Late Preclassic and Classic Periods. The authors created an intra-site model to re-interpret the spatial distribution of shoe-shaped *chultunob* at Tikal. A re-examination of data based on the intra-site model

indicated that the distribution of *chultunob* does not support the household storage hypothesis proposed by Puleston (1971). Dahlin and Litzinger (1986:728) argued that the lateral-shaped *chultun* was associated with a regional vending industry of perishable farm products. The *chultun* environment promotes the "growth of bacteria, yeast and molds" and would be an ideal setting for the fermentation of maize beer (Dahlin and Litzinger 1986:729). The alcoholic beverages brewed were said to be part of the low-level market economy which was centered around large urban sites where frequent civic-religious festivals encouraged a small to moderate market potential. The evidence to support this proposal stems from the non-random distribution of *chultunob* within sites and the common practice of underground storage of fermented food and beverages throughout Mesoamerica (Dahlin and Litzinger 1986:730). There is a relationship between *chultunob* and agriculture, as there is a greater frequency of *chultunob* in rural Tikal where households were peopled by farmers. *Chultunob* are found in association with residential structures in areas of restricted cultivable land. While crop storage was an activity carried out by individual households, *chultunob* appear to have been associated with some sort of economic activity beyond household consumption of staple goods. The authors argued that less prestigious families were engaged in the economic activity of alcoholic beverage fermentation as a means to supply the social demands of alcohol consumption (Dahlin and Litzinger 1986:733-734).

The difficulty in assigning an alcohol production function to these chambers revolves around the lack of storage type vessels to hold the beverage. The humid environment within *chultunob* would promote the growth of bacteria, but due to the lack

of artifactual evidence for brewing activities, this function remains speculative at best.

The Sweat House

The humid environment within *chultunob* has also led other researchers to the notion that chambers served as a *temascale*, a sweat house or bath. Puleston (1971:326), Maudslay (1883) and, later, Ricketson and Ricketson (1937) propose a sweat house function based on the humidity in the chambers, not because of an artifact assemblage. However, setting the artifact assemblage aside and investigating the function on a spatial level, *chultunob* are often located near water sources and suitable rocks could have been collected from the surrounding area. Hence, the material required for a sweat-type structure, using heated stones and water, were available. Further, the use of a stone capstone would allow the steam to remain in the chamber and facilitate an effective seal. However, the restricted orifice and vertical entrance shaft present some difficulty when new hot rocks were required because once the capstone was removed the heat would quickly escape. In addition to the logistical difficulties of placing hot stones within the chambers, the architectural design of the *chultun* deviates from all other sweathouse layouts. Ichon (1977: 203) states that "we can also exclude the possibility that *chultuns* at Uaxactun and Tikal were used as sweatbaths..." based on architectural differences. One of the architecture components that is often used to identify a sweat bath structure is a bench. A literature review of *chultunob* revealed an example of a chamber with a bench. The only example of such a chamber comes from the site of Blackman Eddy, Belize (Driver and Garber 1993:3). However, the *chultun* at Blackman Eddy did not

reveal the second architecture component which identifies sweathouses, a water drainage system. It is plausible that any water placed in the *chultun* would permeate into the limestone. Still, *chultunob* generally lack architectural features which would support a sweatbath function. The use of these chambers as *temascales* does not adequately account for their varying morphology, nor does it allow for any interpretation of the artifact assemblages recovered. The use of these chambers as *temascales* remains speculative and unsupported at present.

Burial Chambers

The use of *chultunob* as places of human interment is the only function that archaeologists can forward with certainty. At X-ual-canil and sites of similar size, *chultunob* are recognized as a unique grave type which must not be confused with a tomb. The reason for making a distinction between tombs and *chultunob* derives from a concern that researchers who stray from the Welsh (1988) burial typology misrepresent their data, and, in turn, complicate the functional issue. For example, according to Chase and Chase (1989:55), a tomb is a "formally constructed chamber in which an excavator can move freely about". If one considers this definition, then any *chultun* could be regarded as a tomb. However, simply because a *chultun* contains human remains does not automatically imply that it is a tomb. A tomb, as defined by Welsh (1988:18), is

an elaborate stone lined or rock-cut chamber of considerable dimensions, far exceeding those of the corpse. Usually contains a shaft leading down to the chamber, with an occasional antechamber. Height is sufficient for a human to stand, i.e. ca. 135 cms. or more. Tombs may be vaulted or have vertical walls with a cap. Walls, floor and ceiling are usually plastered and/or painted.

A *chultun* does have an entrance shaft, antechamber and often has sufficient height, but the walls and roof are typically unplastered and rounded. The *chultun* does not conform to the definition and therefore, for clarity, archaeologists should employ the appropriate terms when presenting their data. In addition, Welsh (1988:17) provides a definition of a *chultun* as a "large chamber originally dug out of the soil and/or bedrock for purposes other than mortuary...". This informs us that the Maya may have used the chamber as a resting place for individuals but it originally had another function. For example, the excavations by Thompson (1897:92) at Labna first suggested that the chambers "were used as ultimate depositories for the dead". In contrast, recent excavations by Hunter-Tate (1994) at Caracol produced further evidence that the predominant function of the chambers was human interment. Her research reports the occurrence of single and multiple interments which were often placed on stone slab arrangements (Figure 5). Although the interment may vary in terms of artifact assemblage and the number of individuals, there is evidence to infer the use of *chultunob* as burial chambers from the sites of Cahal Pech (Iannone et al. 1994; Powis 1992, 1993), X-ual-canil (Gray 1997, 1998), Uaxactun (Ricketson 1925), and Tikal (Puleston 1965).

These researchers are not suggesting that *chultunob* were constructed by the Maya only for, or even specifically for, the interment of individuals. Rather, while some chambers evidently served as places for human interment, not all *chultunob* contain interred humans and, therefore, the burial chamber function is viewed as a secondary one. This concept of primary (first use) and secondary functions recognizes that activity changed during the span of the *chultun*'s use. Essentially, information and artifacts

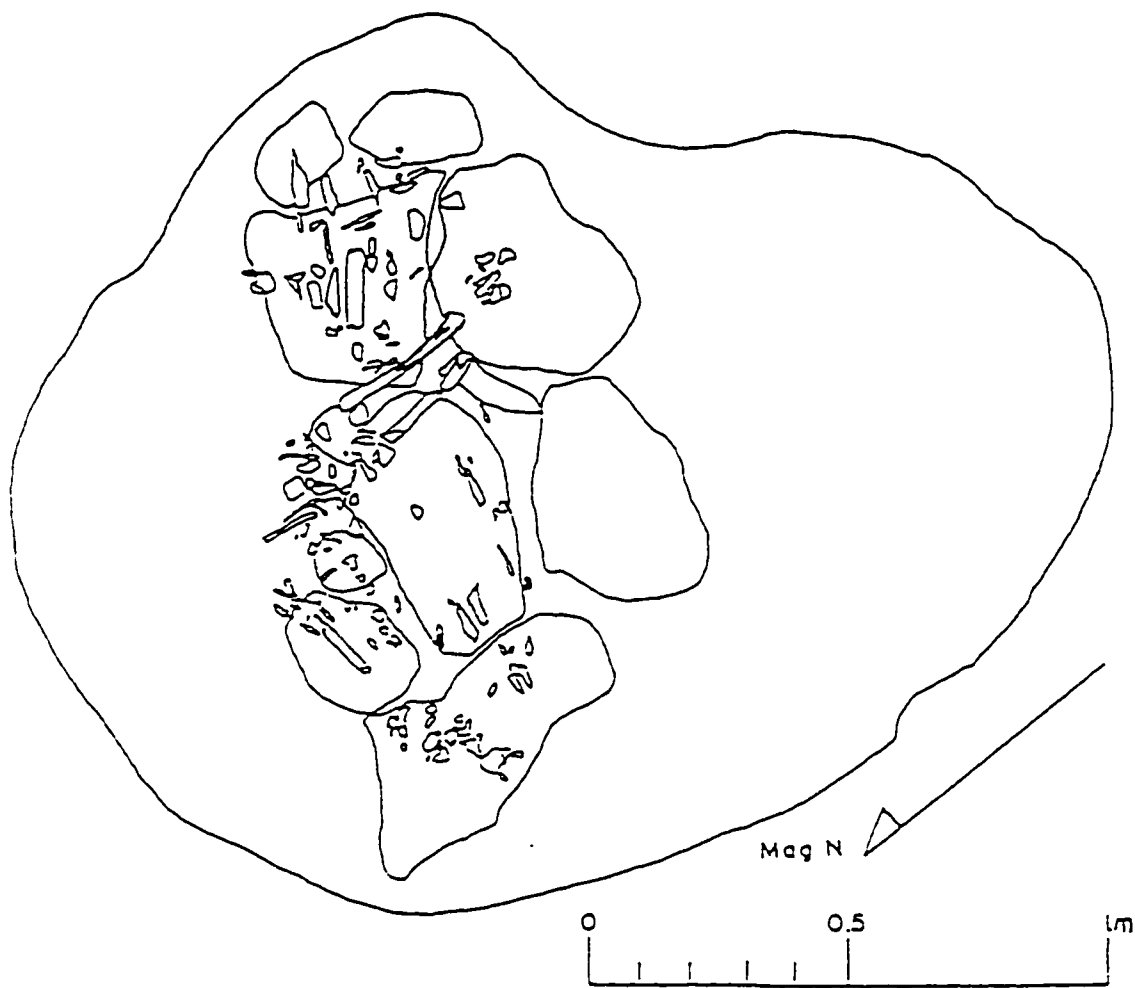


Figure 5. Plan of Chultun C60A, Caracol.

From: Hunter-Tate 1995

recovered from *chultun* contexts may not represent the full array of uses for the feature. Hunter-Tate (1994) proposed that the initial creation of the Caracol burial chambers may have been a by-product of limestone mining that provided materials for the residential building activities and the chambers were used later for human interment. Several excavated *chultunob* at Cahal Pech also reveal that these chambers were used for human interment, but the postulated primary functions include water, food, or alcoholic beverage storage (Powis 1992:46). Changes in *chultun* 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 (Aylesworth 1993:78).

Primary function has often been interpreted to be storage and subsistence related activities. However, the problems associated with these interpretations, discussed at length above, stem from the lack of artifactual evidence to support these claims. In an effort to confront this problem, the artifact assemblage of *chultunob* from the Upper Belize Valley River region were re-examined and compared with the X-uul-canil sample. The artifacts indicate that ritual activity, which had not been considered in the storage and subsistence based functions, was occurring. The use of these chambers for ritual activities could represent a primary and a secondary perspective to re-examine the *chultunob* of the Southern Maya Lowlands. This hypothesis does not exclude storage or burial functions, rather it incorporates them both, and offers a new means to view *chultunob* artifact assemblages and chamber morphology.

Ritual and *Chultunob*

Considering the association of the underworld as a place of the gods (Tedlock 1996:33-34) and the “holy” world, and the fact that a *chultun* offers restricted access beneath the surface, these features may have been regarded as a portal to the underworld or Xibalba. In order to begin to understand this type of association, the researcher must investigate the social network behind the action. For example, because *chultunob* were utilized as burial chambers, researchers could use these types of practices to understand social organization (Carr 1995:107). For example, the burial function of *chultunob* could indicate the temporary placement of human remains as one step in a more elaborate or extensive ritual process. The evidence for ritual activity in burial practices can therefore incorporate a broader study of social organization. In particular, burials within the specific context of the *chultun* may represent ritual activity. The placement of human remains in *chultunob* could represent acts of ancestor veneration or, alternatively, they may also be seen as ritual, “involving burial to ensure the successful transfer from this world to the next” (Welsh 1988:2).

In terms of the possible functions of *chultunob*, ancestor veneration may be tied to the storage capability of these structures, perhaps enabling the short term placement of surplus items to be utilized in feasts. McAnany (1995:31) offers a discussion of feasting, domestic rituals, and material remains of the ancestors which can be applied here. The presence of *chultunob* at a site may provide clues as to the economic and social welfare of the site. This is derived from the food storage/surplus stance and it is important to make linkages between domestic ritual, *chultunob*, and the economy. The economic

potential of the chambers and the suggestion that non-elite farmers may have engaged in a market economy are interwoven in the ritual based model. The use of alcohol in feasting and ceremonies, and the role of the individuals producing the fermented goods could possibly be correlated with ritual.

Summary

While the function of *chultunob* has generally been interpreted as utilitarian storage of water or food, a ceremonial/ritual use is suggested here for the *chultunob* of the Upper Belize River Valley. Through a discussion and a review of the literature concerning the functions of water storage, long-term food storage and sweathouses, it is evident that these uses are highly problematic and lack artifactual evidence. The ability of the *chultun* chambers to hold water, the difficulty in retrieving water, and the location of the chambers to other water sources makes this function highly questionable. In terms of food storage, the lack of storage vessels, the humid environment and the threat of pests and mildew rule out a long-term storage function. The use of the chambers as a sweathouse is also challenged on the basis of architectural plan and lack of features such as benches and drainage channels.

In contrast, the functions of fruit ripening, short-term storage and places for human interment, cannot be ruled out. It is argued that *chultunob*, distributed throughout the Southern Maya Lowlands, likely served a variety of functions over time. Ritual activity, associated with short-term storage and human interment, is proposed as another possible function based on recent *chultunob* excavations at the site of X-ual-canil.

Chapter 2

OVERVIEW OF THE BELIZE VALLEY

The Upper Belize Valley

There are several sites in the Upper Belize River Valley where *chultunob* have been investigated. The exploration of *chultunob* from the sites of Cahal Pech, Xunantunich and Blackman Eddy is presented here to provide a comparative background for the discussion of X-ual-canil *chultunob* in Chapter Three (Figure 6). There is also an overview of the Upper Belize River Valley environmental zone including a description of the archaeological settlement and a brief description of the state of affairs in this valley from the Preclassic to the Late Classic periods. There are two aims of this chapter, 1) to provide a comparative sample of *chultunob* in this region, and 2) to situate X-ual-canil in a temporal and spatial framework.

The Upper Belize River Valley, located in the Cayo District of Belize, is situated northwest of the Maya Mountains and the Mountain Pine Ridge. The area around the modern town of San Ignacio was described by Thompson (1931:224) as "rolling limestone country thickly covered with tropical rain forest, averaging a height between five and six hundred feet above sea level". The principle tributaries of this area are the Macal and Mopan Rivers, which merge to form the Belize River. This leads to the lower valley region and the alluvial planes of the Baking Pot and Spanish Lookout areas (Willey et al. 1965:21). On either side of the Mopan and Macal Rivers, limestone hills and alluvial soil, suitable for agriculture, characterize the country. The sites of

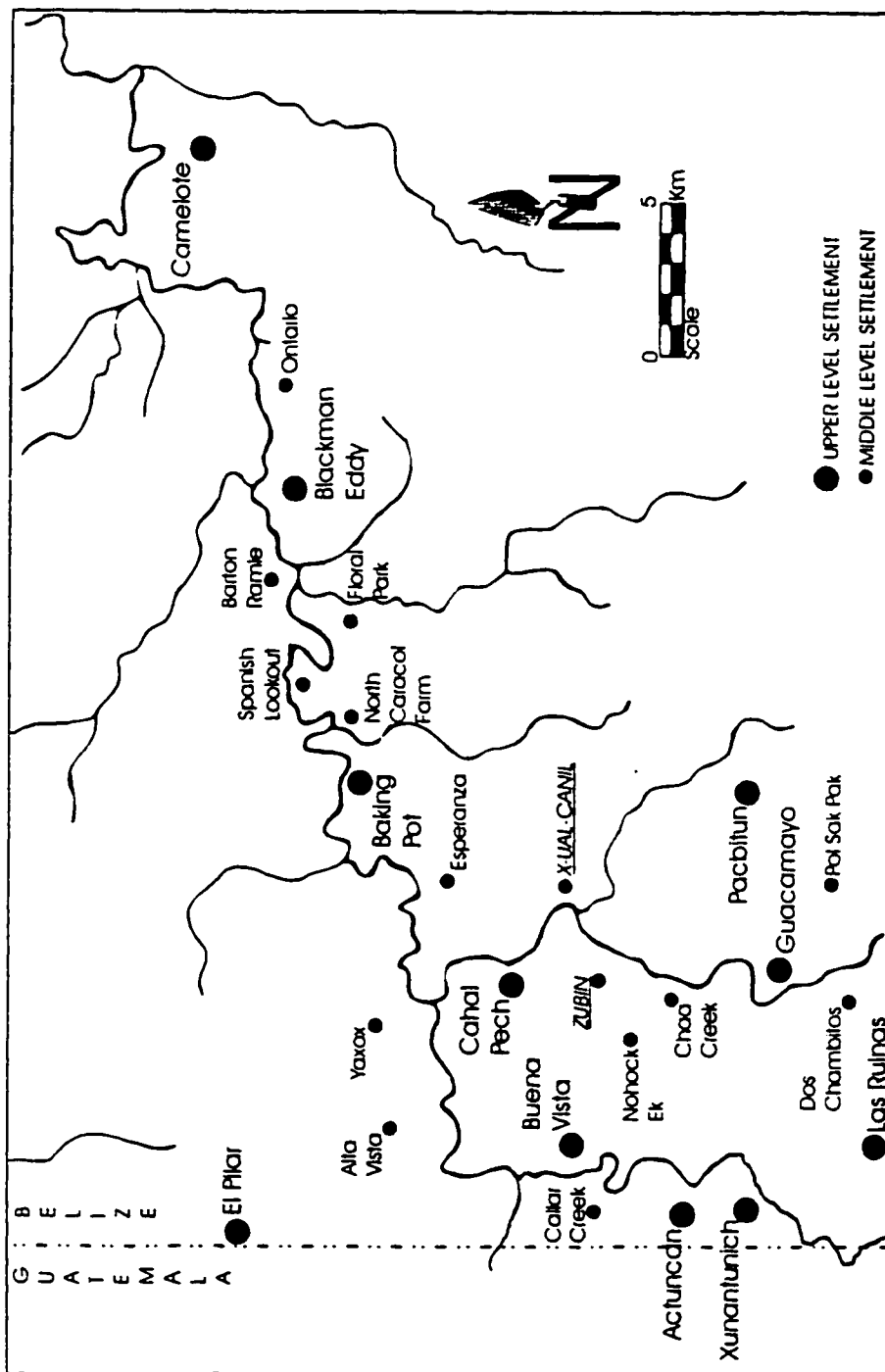


Figure 6. Map of the Belize Valley

Map Provided by Gyles Iannone

Xunantunich, Cahal Pech, X-ual-canil, and Blackman Eddy were built at the top of several of these hills.

Xunantunich, likely a small town prior to the Late Classic period, saw a sudden increase in construction and various stages of architectural re-modelling between AD 700-950 (LeCount 1996: 84-93). Earlier, the acropolis of the Cahal Pech site core, specifically Plaza B, indicates an occupation date beginning in the terminal Early Preclassic, between 1200-900 BC (Cheetham 1996: 25). Beyond the site core, the peripheral settlement of *Zubin* underwent significant construction efforts between the Middle (650-300 BC) and Late Preclassic (350 BC - 350 AD) periods (Iannone 197:15). Also during this time and extending into the Late Classic (AD 700-900) there were people inhabiting the site core of Cahal Pech and groups such as Tolok (Powis 1993:97). Another construction effort between 600-900 AD, likely under the greater Cahal Pech sphere of influence, was the building of the site core at X-ual-canil (Iannone 1997:16).

The construction of the site core at X-ual-canil was a late addition in the valley, but it is not the only example of a Late Classic building effort. Like Xunantunich, the area occupied by X-ual-canil had been inhabited by farming peoples prior to the construction of the site cores. The role of the X-ual-canil site core and its interaction with its peripheral groups will be discussed further in Chapter 3.

Distribution of *chultunob* in the Upper Belize River Valley Region

Cahal Pech

Powis (1999:1-15) presents a summary report on the distribution and excavation of *chultunob* located in the periphery of Cahal Pech (Figure 7). His findings suggest that the *chultunob* of this site were in continuous use from the Middle Formative (650-350 BC) until the Late Classic Period (AD 700-900). A total of fourteen *chultunob* have been mapped, seven of which were excavated. The following discussion presents the findings from six of the *chultun* excavations.

Tolok Group

Investigations at the Tolok Group, located in the southeastern periphery of Cahal Pech, were initiated with the aim of answering questions regarding settlement patterns, social groupings and population estimates in peripheral zones (Figure 8). This group, 500 m from the site core, is situated on a long, narrow ridge which consists of seventeen mound structures, four *chultunob*, a surface midden and a possible *sacbe* (Powis 1992:38, 1995:456). The spatial configuration at Tolok is defined as a structure-focused patio cluster because the low structures are situated around two larger structures (Powis 1992:38). Evidence of floor replastering in several structures during the Late Classic period possibly suggests architectural modifications to accommodate an increased population (Powis 1992:42). The low frequency of elite goods possibly suggests this peripheral group housed a residential farming community which was closely connected

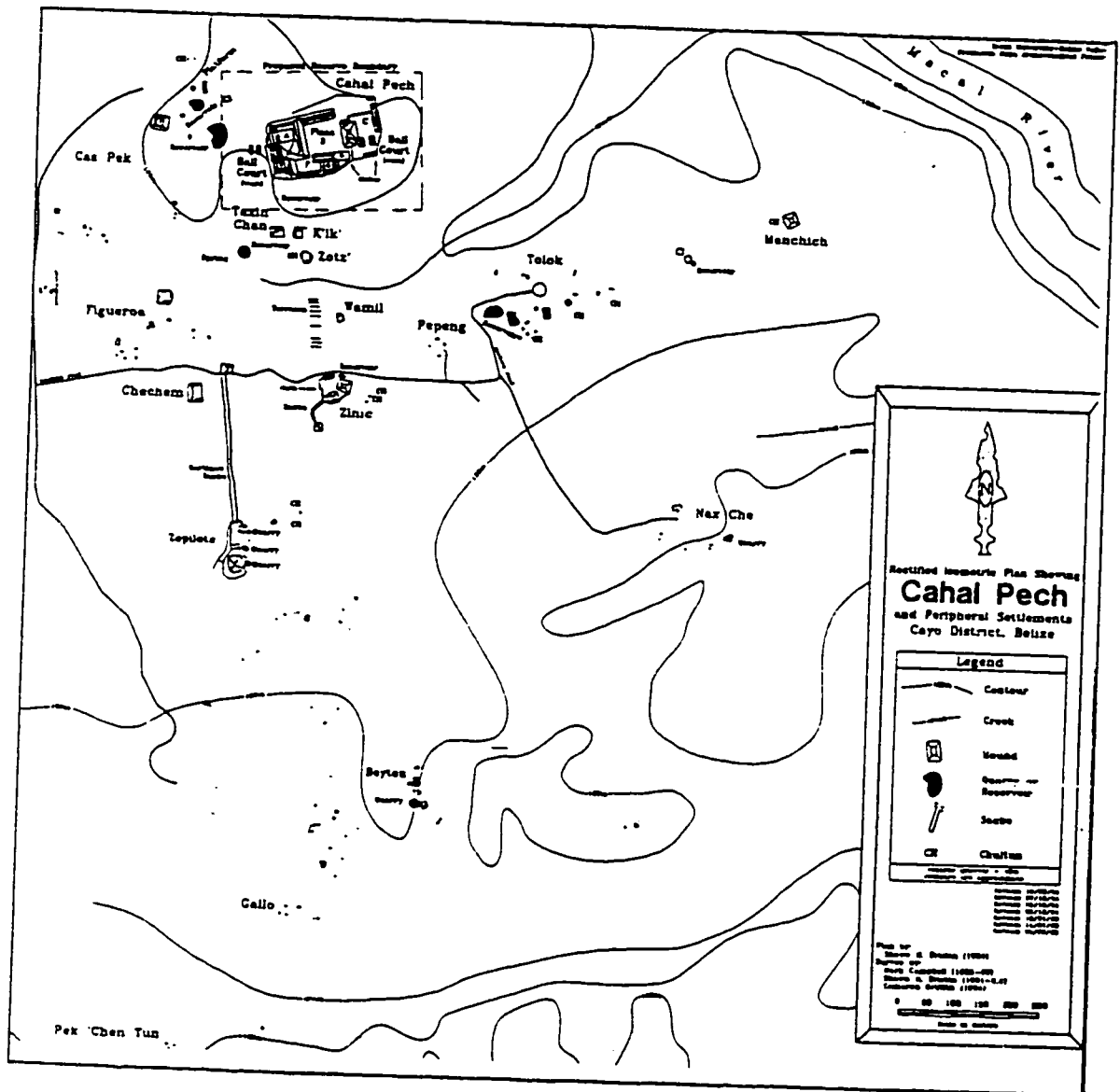


Figure 7. Map of Cahal Pech and its peripheral groups

Map Provided by Paul Healy

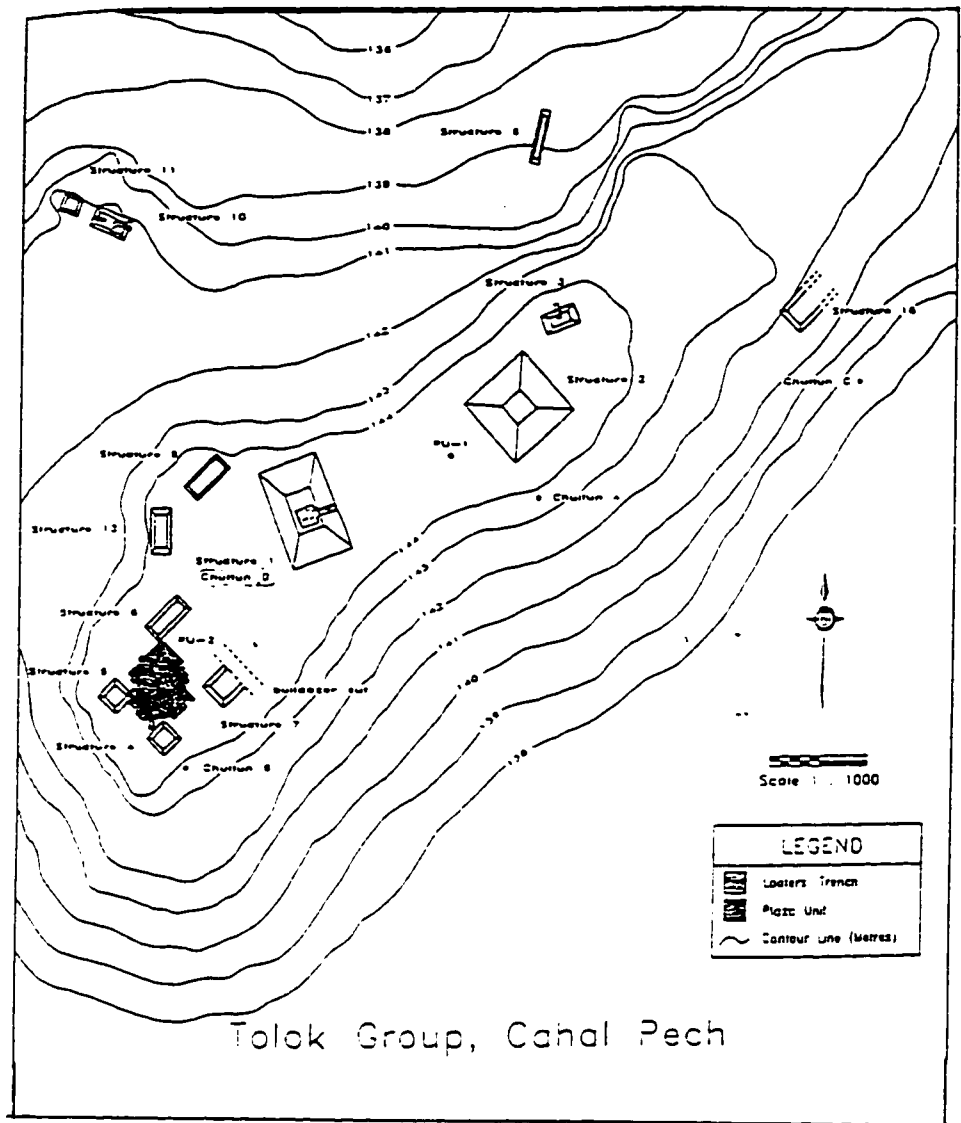


Figure 8. The Tolok Group

From: Powis and Hohman 1995

to the Cahal Pech site core (Powis 1992:48).

Of the four *chultunob* discovered at the Tolok Group, *Chultun A*, *B* and *C* were located downslope from the southern side of the ridge. *Chultun A* had been looted and, as a result, was not excavated. On the ridge, the activity of looters also revealed *Chultun D*, located under Structure 1.

Chultun B, the first to be excavated, exhibited three lateral chambers to the east, west and south. The capstone for the orifice was recovered within the chamber fill, 90 cm below the opening. The *chultun* exhibited no evidence of plastered walls, but there was a poorly preserved plaster floor evident in the three chambers. The *chultun* may have been in use throughout the Late Classic period due to the recovery of vessels from the Tiger Run and Spanish Lookout phases (Powis 1992:45). The chamber also revealed human remains, a postulated secondary interment, associated with Late Classic vessels. Powis (1992:46) believes the placement of these remains may have served as a termination ritual in the Late Classic. The postulated primary function is one related to storage of water, food, or alcoholic beverages. The secondary use of the *chultun* as a burial chamber is evident.

Chultun C, also dating to the Late Classic, was excavated in order to compare it to *Chultun B*. Unlike *Chultun B*, this feature had no associated structure nor were there any burials present. It was located on a slope, adjacent to a surface midden, and dated to the Late Classic period. A single orifice, 53 cm in diameter, provided access to the two domed chambers. The artifacts recovered from the *chultun* including broken utilitarian ceramics, lithic debitage, and a cylindrical vase with eroded hieroglyphs. These suggest

the use of the *chultun* as a place for offerings. Their deposition “may be related to domestic religious activities conducted just prior to the *chultun*’s abandonment. It is suggested that some kind of termination ritual was practiced during the Late Classic period (Spanish Lookout phase) in the form of a votive offering” (Powis 1993:104).

Chultun D was a lateral-shaped feature which became a midden. The use of this chamber as a refuse spot provided information regarding early diet and subsistence (Powis et al.1999:364-376). The function of the chamber prior to the roof collapse and the subsequent midden formation is difficult to determine. The discovery of ceramic materials, including a nearly intact *Joventud Red* vessel from a level that existed prior to the influx of midden deposit, is comparable in function to the vessels from *Chultun B* and *C*, discussed above. Powis and Hohmann (1995:59) suggest that a similar terminal ritual practice occurred in *Chultun D*.

Tzinic Group

The growth of San Ignacio Town and the need for additional housing has had its effects on the peripheral settlement groups of Cahal Pech. The use of bulldozers and widening of roads to accommodate marl mining activities resulted in the destruction of Tzinic mounds and necessitated the archaeological salvage of a *chultun* nearby (Iannone et al. 1994: 211-223). The salvage location, 35 meters southeast of the Tzinic Group, was impacted when two known mounds, Structures 8 and 9, were destroyed by the bulldozer. In addition, *Chultun 1* had been looted. One remaining feature, *Chultun 2* became the focus of an excavation. Due to the fear of overnight looting, excavations

were performed in one day.

This was a complex, lateral-chambered *chultun* which had one main chamber and three niche areas of differing depths. Plaster floor surfaces were encountered in Chamber I and II. Within Chamber I, the Main Chamber, the *chultun* exhibited a sill feature, below the orifice, which served to facilitate entry or exit of this area (Figure 9). A dedicatory cache consisting of a ceramic vessel, dating to the Classic Period, was recovered within the sill of Level I (Vessel 3, see Figure 10). The remains of at least one individual were discovered in Level I of the Main Chamber, along with two unidentifiable vessels (Vessel 1, Vessel 2). Importantly, it was learned that this *chultun* was in the process of being looted when the caretaker of Cahal Pech confiscated and returned the two vessels to the chambers (Figures 11 and 12) As a result, the original location of these vessels is unclear.

Additional human remains, recovered from Chamber II, may indicate a second burial. However, because of their poor preservation they could not be separated with certainty from the remains found in Chamber I. Chamber III, was devoid of cultural remains or a plaster floor, indicating it was a true niche. Due to time constraints, Chamber IV was not excavated because it did not appear to have any cultural remains.

The only chamber that had a second level was the Main Chamber. During excavation of this level the original plaster floor was revealed. As with the first level, a dedicatory cache was located within the sill. This cache consisted of an unidentified vessel and two modified conch artifacts (Figure 13). The unidentifiable vessels from this *chultun* are intriguing and may indeed be "special" deposits (Figure 14). The occurrence

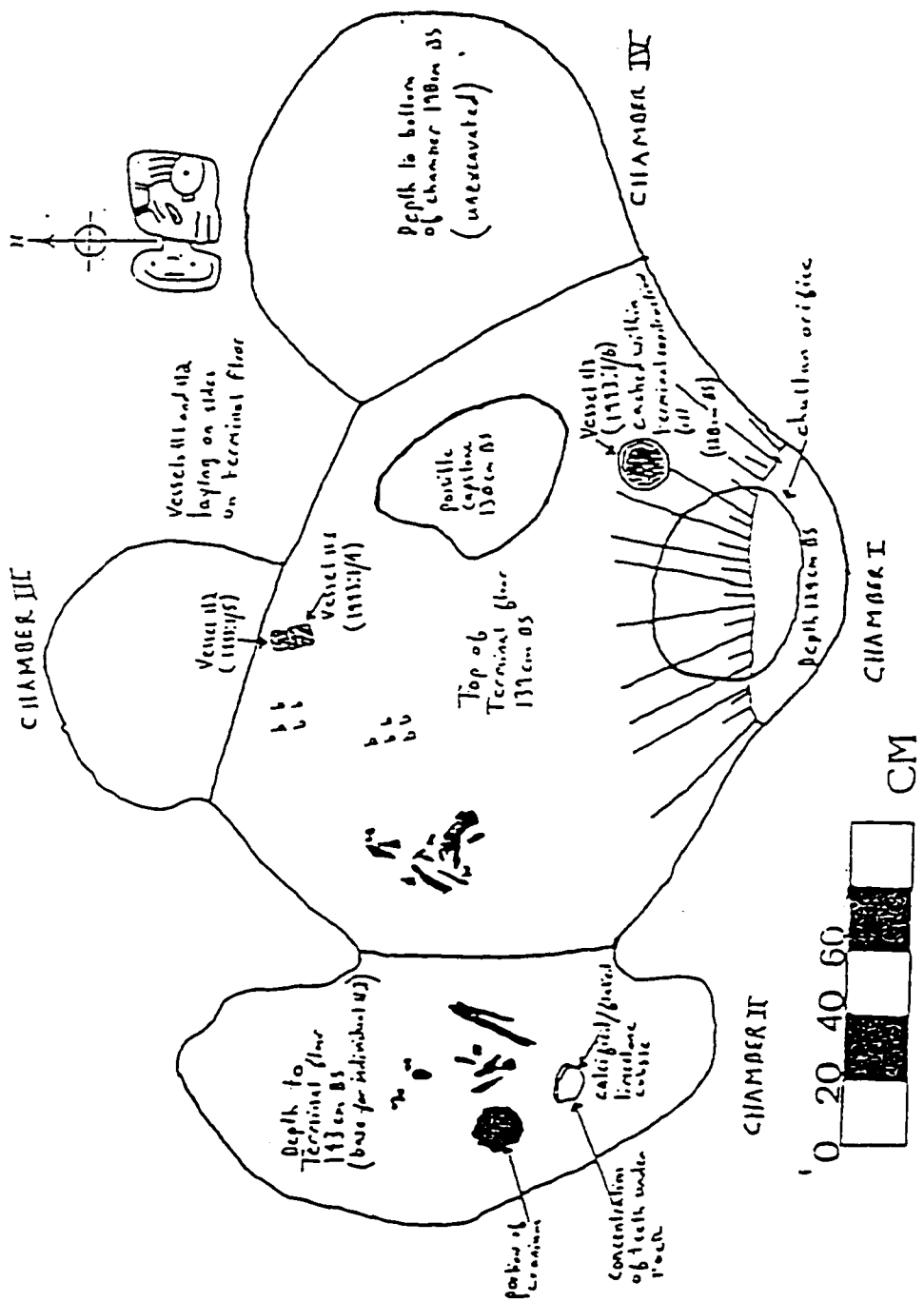


Figure 9. Top Plan of Level 1, *Chultun 2*, Tzinc Group, Cahal Pech

From: Iannone et al. (1994:215)

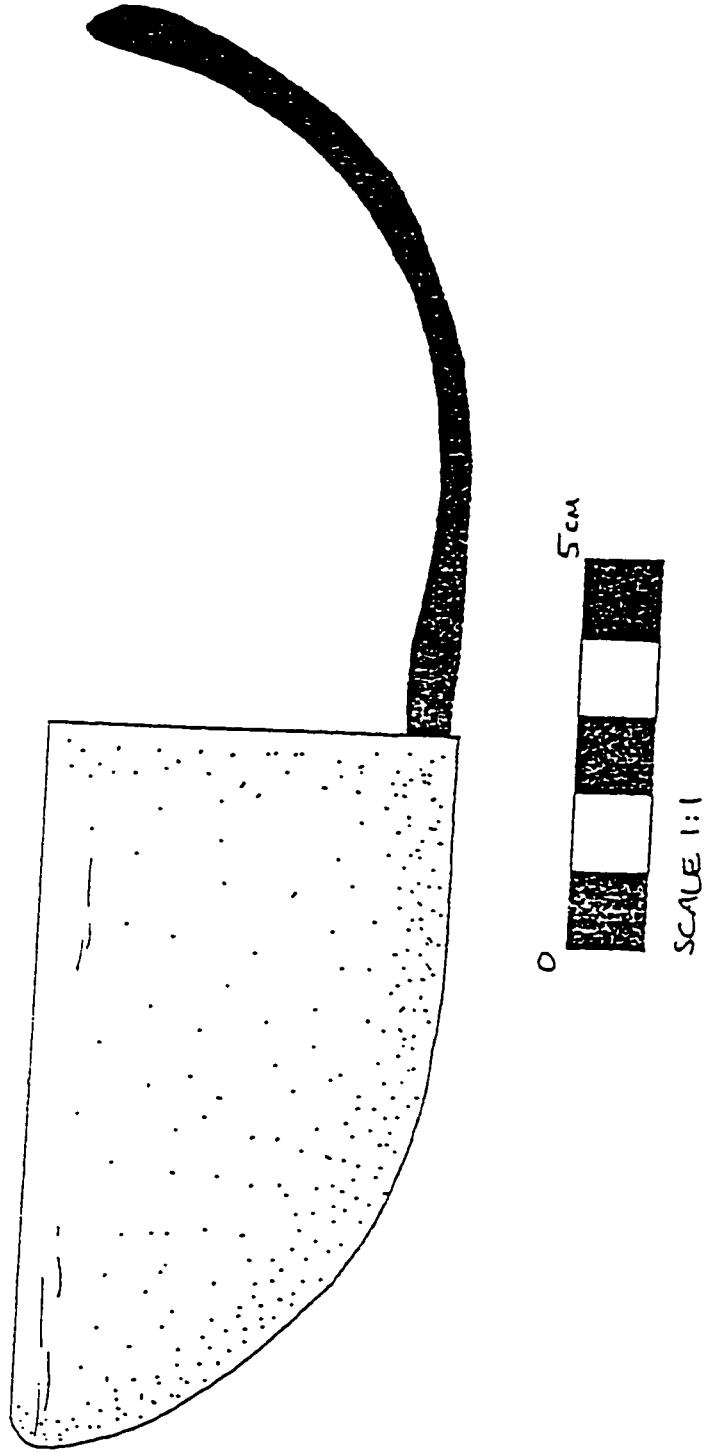


Figure 10. Vessel 3 from Chultun 2, Tzinic Group, Cahal Pech

From: Iannone et al. (1994:219)

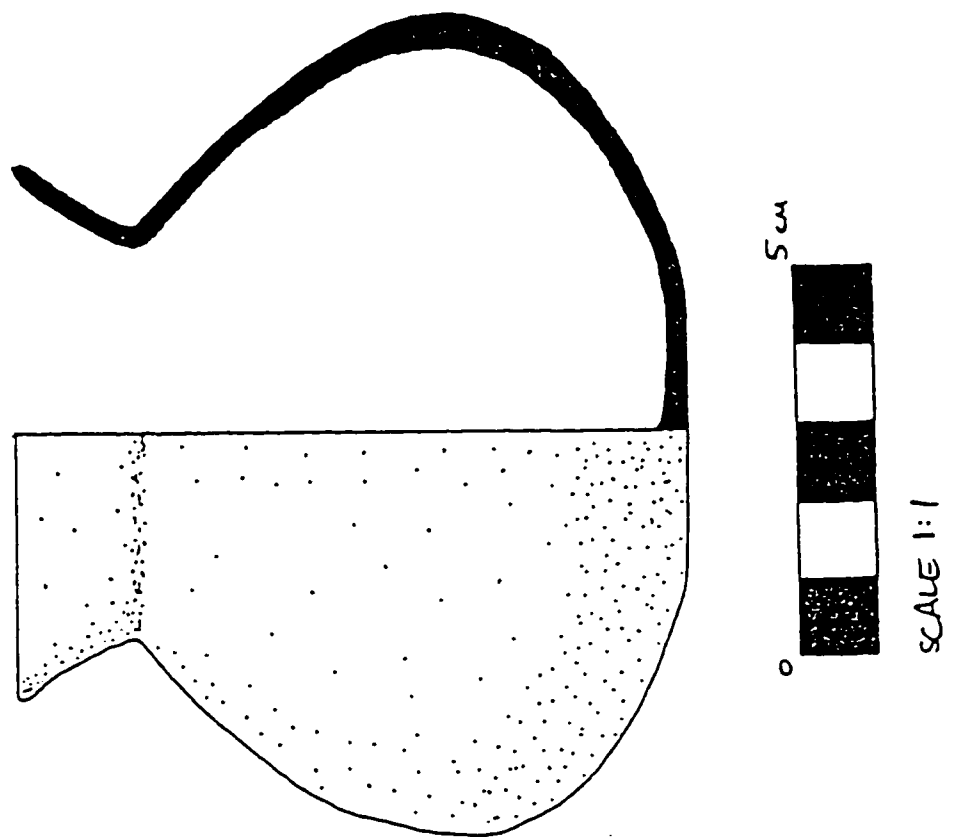


Figure 11. Vessel 2 from Chultun 2, Tzinic Group, Cahal Pech

From: Iannone et al. (1994:216)

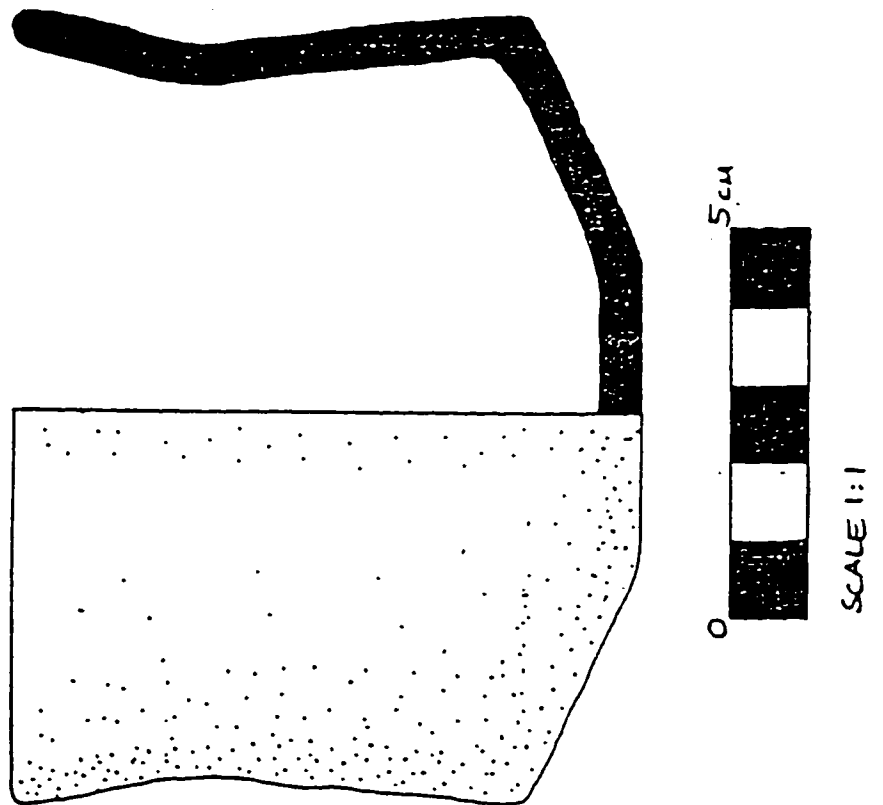


Figure 12. Vessel 1 from Chultun 2, Tzinic Group, Cahal Pech

From: Iannone et al. (1994:217)

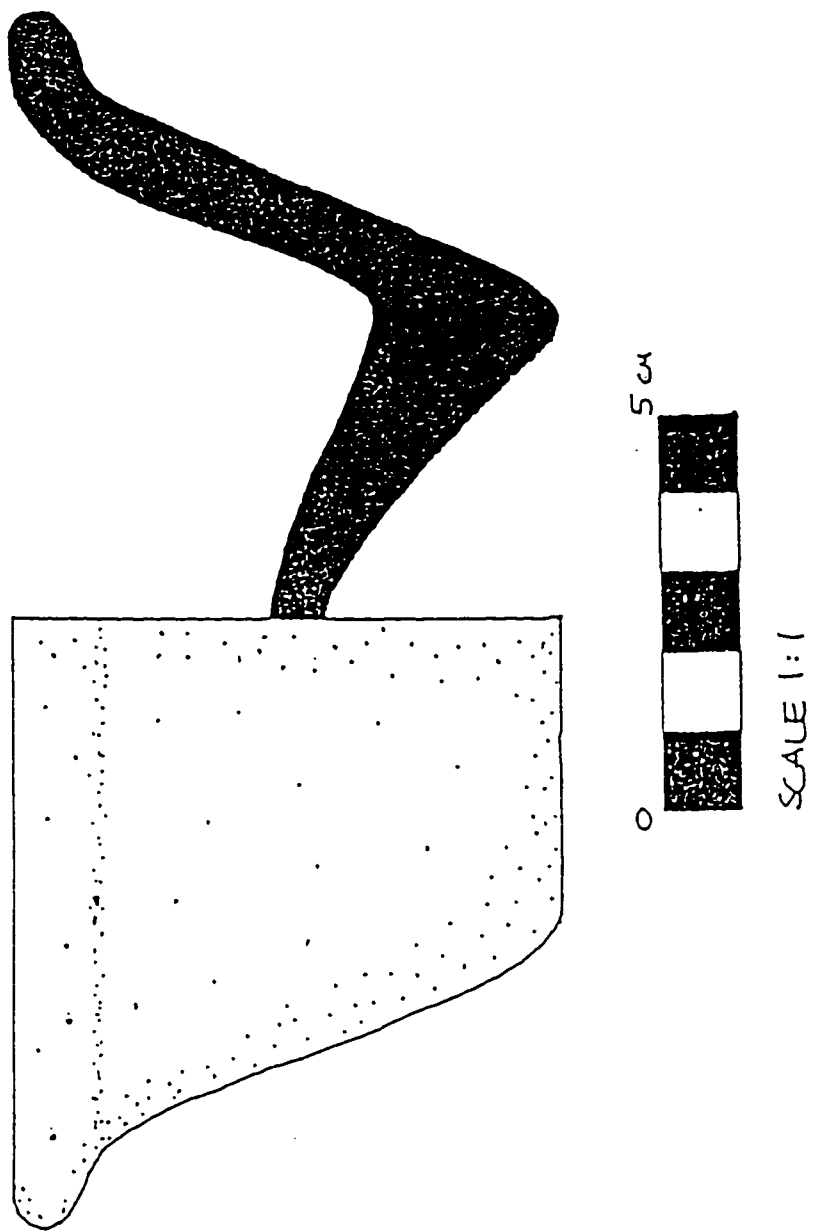


Figure 13. Vessel 4 from Chultun 2, Tzinic Group, Cahal Pech

From: Iannone et al. 1994

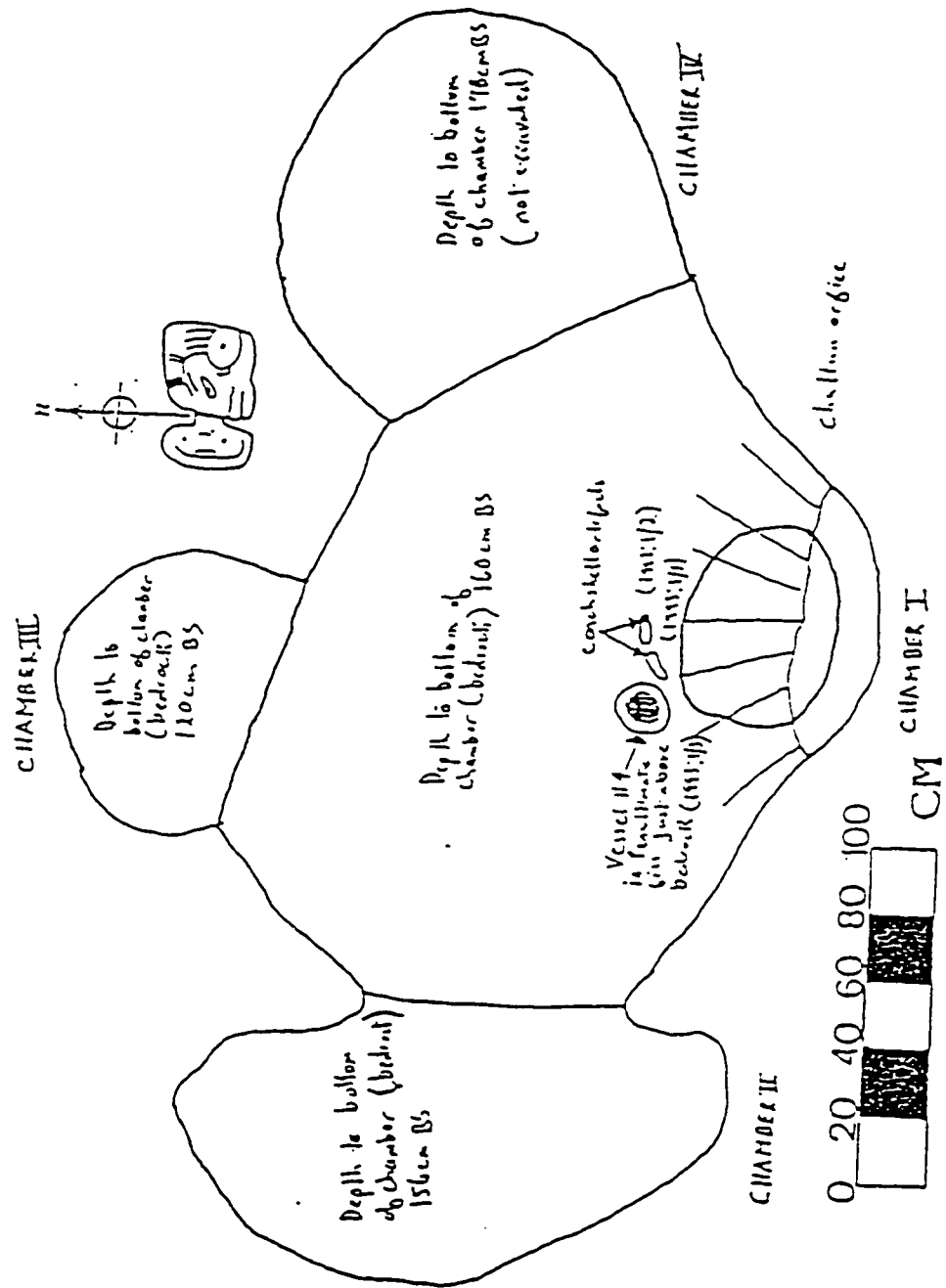


Figure 14. Top Plan of Level 2, *Chultun 2*, Tzinic Group, Cahal Pech

From: Iannone et al. 1994

of a dedicatory cache in both levels of the sill is an interesting find and raises more questions about *chultun* function.

In terms of an overall function of this *chultun*, no conclusions were drawn. Recognizing that function can change over time, all that could be said was that the final function of this *chultun* was as a burial chamber (Iannone et al. 1994:214, 218). Because of the salvage nature of excavations and the destruction of the associated mounds, it will never be known how this area compared to the other peripheral groups at the site. As there were two *chultunob* and two structures in this peripheral group, this could conform to the one *chultun* per structure ratio, which Powis (1999:4) identifies for other areas of Cahal Pech.

Zubin Group

Two *chultunob* were excavated at the peripheral group of Zubin (Figure 15). These were the only two *chultunob* observed from Zubin and both of these features provide new insights into the range of locations, morphology and functions of these chambers. The first *chultun* excavated, *Chultun 1*, appears to have served a water storage function. The second *chultun*, beneath Structure E12, offers an unusual morphology.

Iannone (1994:98-105) excavated a solitary lateral-shaped *chultun*, 85 m east of Structure A1. This feature exhibited a unique trough on the northwest portion of the orifice (Figure 16). The capstone for the 70 cm orifice was recovered within the chamber. The *chultun* exhibited three levels which revealed ceramic sherds dating to the Spanish Lookout phase of the Late Classic Period (700-875 AD). It is surmised that the

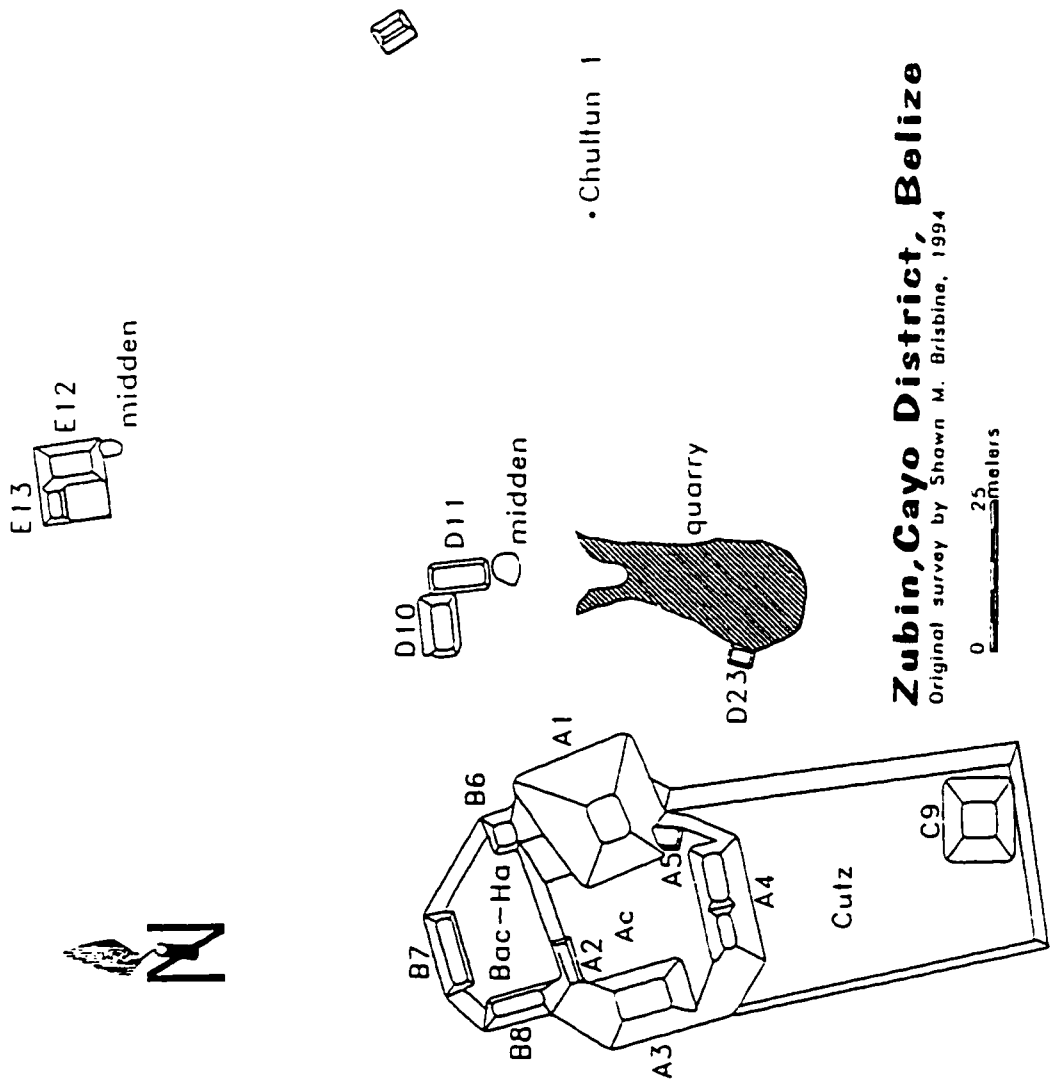


Figure 15. Map of Zubin Group, Cahal Pech.

Provided by Gyles Iannone

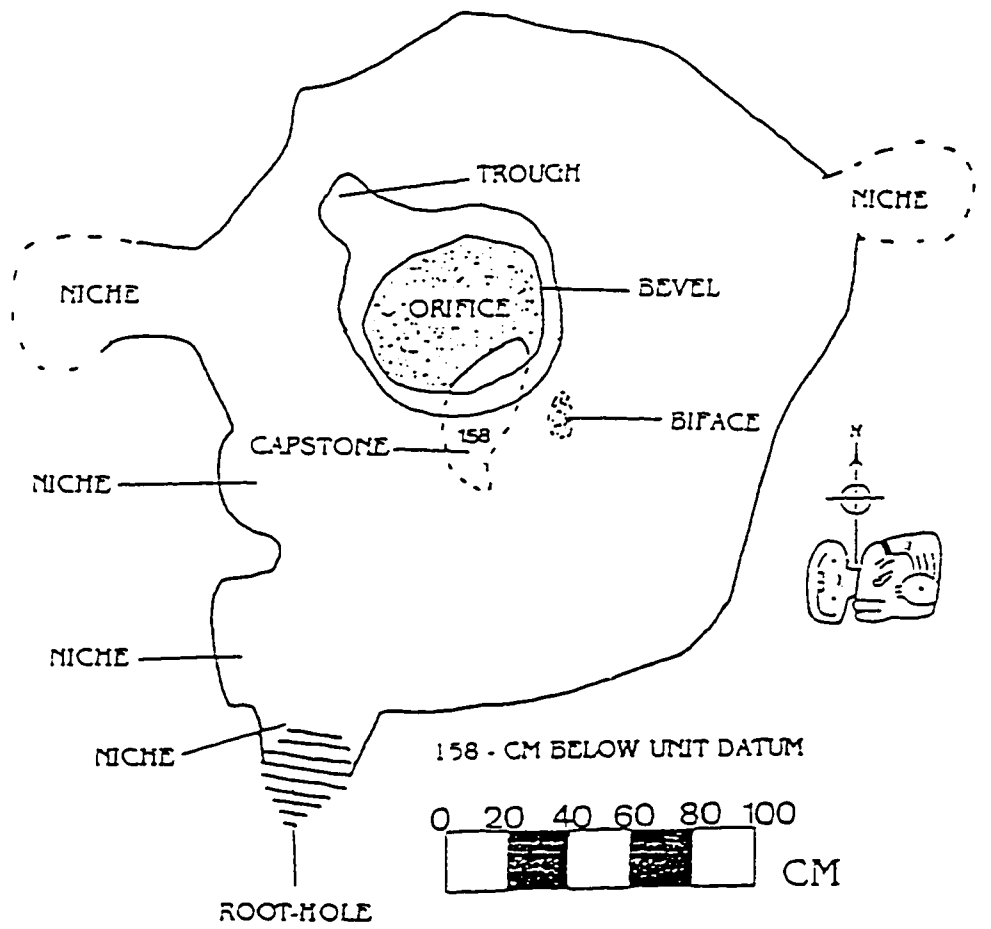


Figure 16. *Chultun 1*, Zubin Group, Cahal Pech

From: Iannone 1994

capstone was in place while Level 3 formed. As a result, Level 1 and Level 2 debris and artifacts are regarded as intrusive. There were three small niches noted in the southwest corner of the chamber. None of these produced artifacts. Ceramic artifacts recovered below the collapsed capstone, however, are considered to represent termination rituals. These artifacts suggest that by the end of the Spanish Lookout period, this *chultun* was abandoned (Iannone 1994:104). The suggested function of the chamber prior to its abandonment, is one of water catchment.

Unlike the other groups from the Cahal Pech periphery, the inhabitants of Zubin did not have the same access to water sources. The location of the *chultun* on a slope, and a trough leading into the chamber, imply a water collection strategy. The capstone would not prevent water from entering the chamber. Rather it would restrict unwanted larger materials from washing in.

During the last days of investigations at Zubin, a lateral shaped *chultun* was discovered beneath Structure E12 in the *Ek-pay* Group. Christensen (1995: 125-130) was unable to excavate this feature but she does provide a detailed map and description. Upon initial discovery of the *chultun*, the capstone was found wedged in the entrance shaft (Figure 17). As such, not only were the contents of this feature sealed by the Structure E12, but the capstone was roughly intact as well. No artifacts were visible when the *chultun* was accessed and time did not allow for excavations to be undertaken.

The Structure E12 *chultun* consisted of a central antechamber which had five chambers radiating from it (Figure 18). None of chambers showed evidence of plastered walls, but they did exhibit sills which separated them from the antechamber. There was

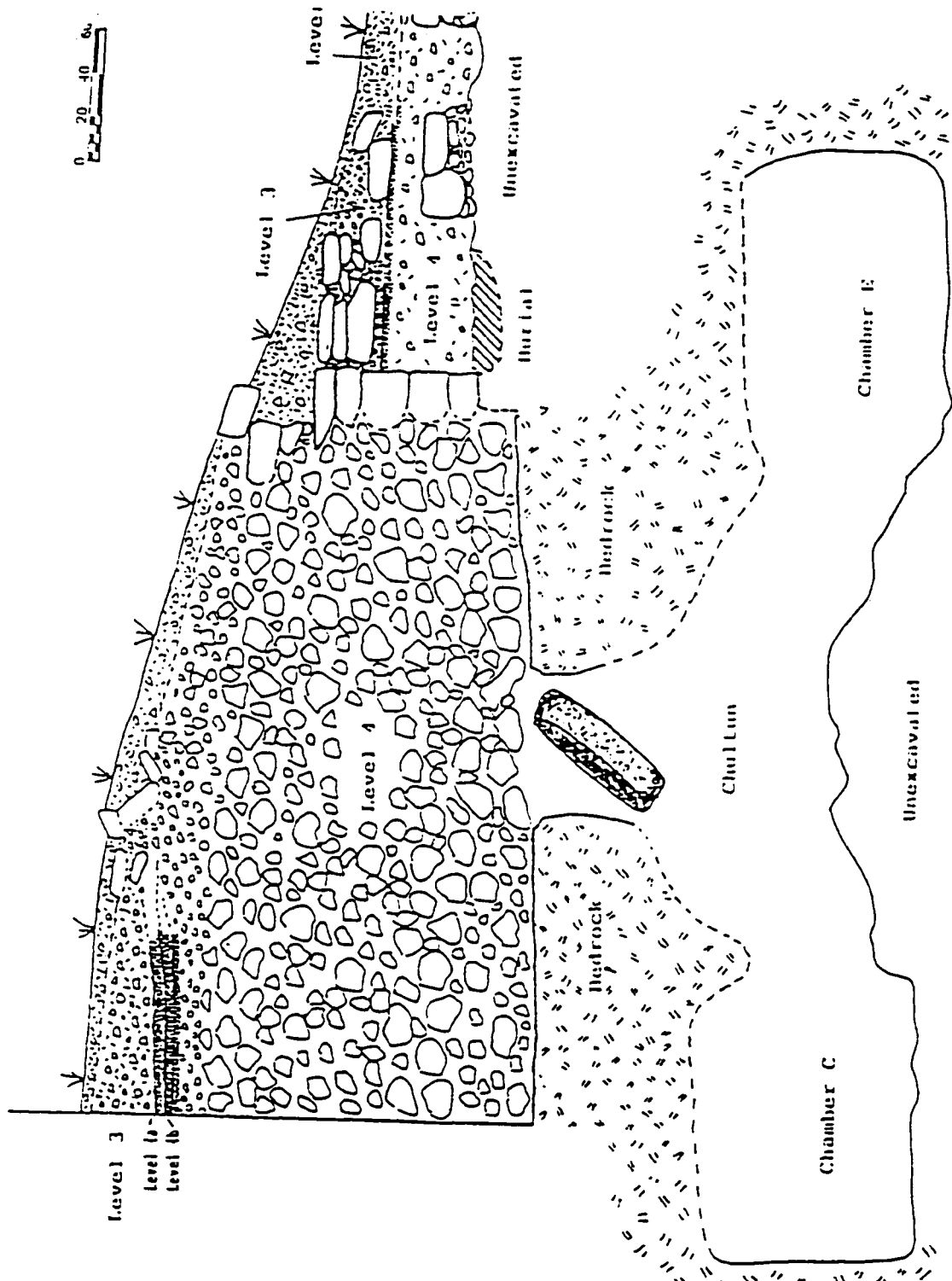


Figure 17. Structure E12 excavations with *chultun* visible, Zubin Group, Cahal Pech

From: Christensen 1995

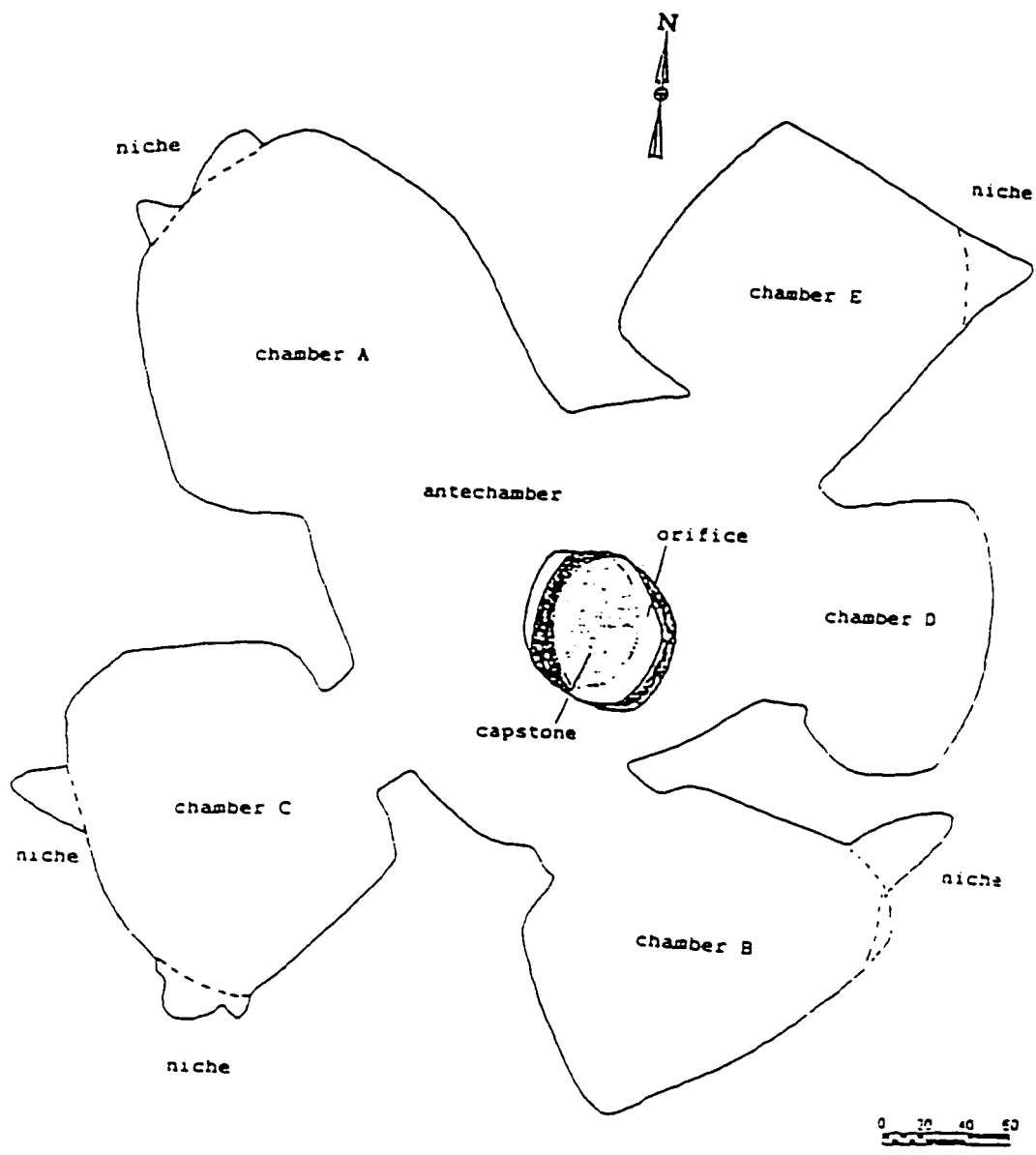


Figure 18. Top Plan of *Chultun 2*, Zubin Group, Cahal Pech.

From: Christensen 1995

great care taken to create this *chultun* and the 5 chambers and further effort was taken to build Structure E12. The question is, why would the *chultun* be concealed by an overlaying structure? Christensen (1995:129) makes reference to the ceremonial role of *chultun* when she explains that it may have served as a container of sorts for evil spirits (see Hanks 1990 in Friedel et al. 1993:131).

The Cahal Pech Sample

Aylesworth (1993) and Powis (1999) provide useful summaries of the *chultunob* from Cahal Pech and its peripheral groups. In general, the use of *chultunob* for ritual activity is a function which appears frequently at Cahal Pech. Using this site as an example, Aylesworth (1993:78) challenges the assumption that all *chultunob* in the Southern Maya Lowlands were used for the same purpose. He believes that these functions changed through the span of the *chultun*'s history, resulting in primary and secondary functions.

Spatial distribution of 14 *chultunob* reveals their common location to be on top of knolls or well-drained terrain, although two were located beneath structures (*Chultun* D, Tolok and the E12 *Chultun*, Zubin). In most cases, the distribution of *chultunob* also indicates proximity to water sources and structures. All *chultunob* excavated were entered through a single, restricted orifice leading into chambers with unplastered walls. *Chultun* morphology varies in the number and size of chambers; the presence or absence of a sill; the creation of niches; and the use of plaster on flooring surfaces. In general, there are no cultural levels noted in any chambers. Excavation of the chambers often

results in the assignment of two, possibly three levels, which are based on changes in matrix from humus to fill. Within this matrix, utilitarian and non-utilitarian ceramic artifacts were used as the main source of dating, indicating the prevalence of Late Classic materials. The *chultunob* of Cahal Pech, spread over a two kilometre radius, provide intriguing data on *chultun* distribution over time and space (Powis 1999). To summarize, the research from Cahal Pech indicates that *chultunob* are associated with peripheral settlements, exhibit morphological variation, and were utilized for human burials, storage and ritual activities.

Xunantunich

Several researchers have investigated *chultunob* in the periphery and site core of this important valley centre. As this chapter is striving to formulate a comparative data set to analyse the *chultunob* from the periphery of X-ual-canil, discussion of the features from Xunantunich will begin in the periphery and lead to those investigated in the site core (Figure 19).

In the Xunantunich periphery, the transect survey work of Yaeger and Connell (1993: 186) located five sites that included *chultunob*. The presence of mounds was the determining factor in the designation of sites (Yaeger and Connell 1993:180). Seven *chultunob* were included in their survey but were not excavated nor is there any description of chamber morphology. Site T/A1-30 was a patio cluster with a single *chultun* and an *aguada* (Figure 20). The function of the *chultun* at this site is attributed to household food storage. A second site, referred to as the Succotz Mound, revealed two

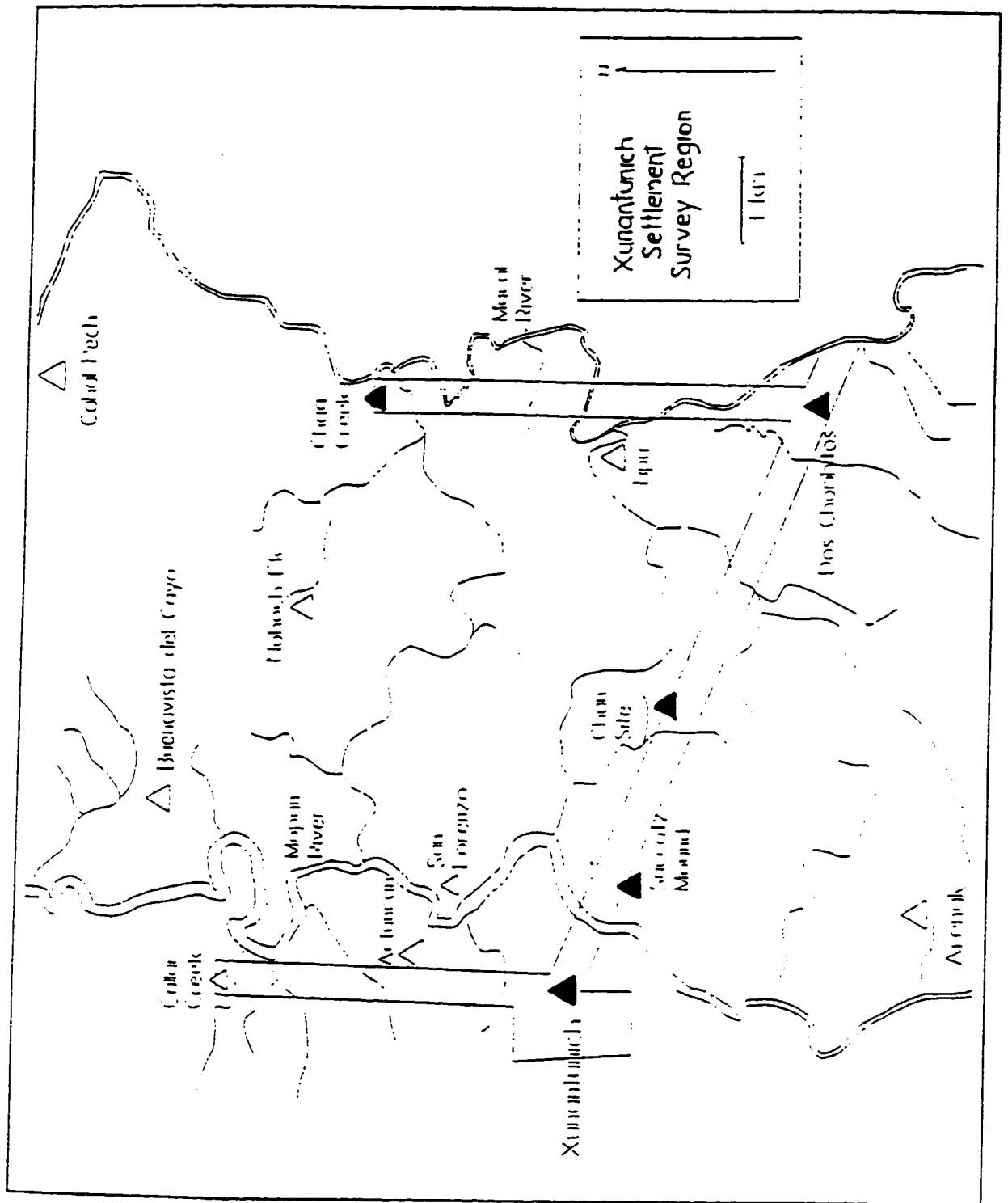


Figure 19. Xunantunich Survey Area. (sites discussed are indicated with dark triangles)

From: Robin 1996

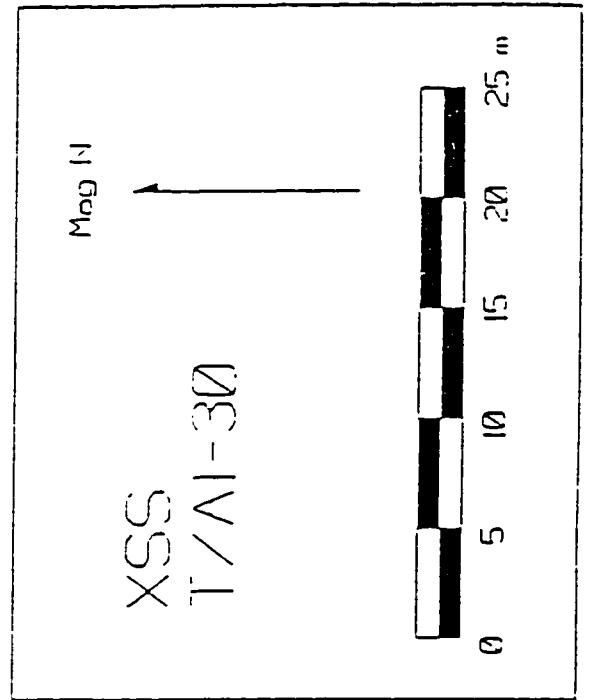
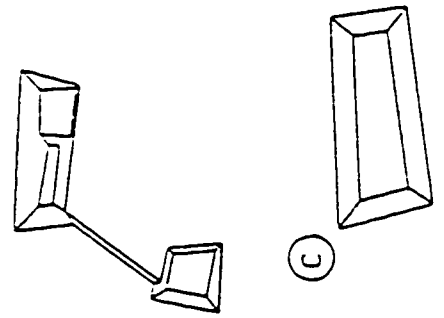
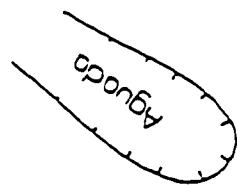


Figure 20. Site T/A1-30 from the Xunantunich Periphery.

From: Yeager and Connell 1993

(Yaeger and Connell 1993:187). On a hillslope east of this area there was a *chultun* located at the end of a bedrock channel. In this case, the feature appears to serve in a water catchment capacity as it is located at the end of the modified channel and water could easily be washed in. (Figure 21).

The functions of these *chultunob* are based on speculations by Yeager and Connell, not on artifactual data from the chambers. It is unclear if these authors actually entered the chambers or designated the function of these *chultunob* based on surface observations. However, the location of the *chultunob* provide information about spatial distribution in the Xunantunich periphery. Their hilltop locations, associations with patio groups, pyramidal structures and an aguada is similar to patterns seen at other Upper Belize River Valley sites.

Chaa Creek

Further research of *chultunob* was conducted at Chaa Creek. The first *chultun*, Operation 180, was a salvage operation due to bulldozing activity. Connell (1995:206) posits that the *chultun* capstone was intact, sealing the chamber and preventing debris from washing in. A special deposit was contained within the bell-shaped chamber and this consisted of broken jars and a complete tripod vessel which were dated to the Late Classic II (AD 670-780) period. Three jar rims with necks were recovered, each with a triangular body sherd placed on the jar as "... if each jar was ritually dismantled, stacked on top of one another, put inside a tripod vessel, and the whole offering placed in the *chultun* below the floor" (Connell 1995:206).

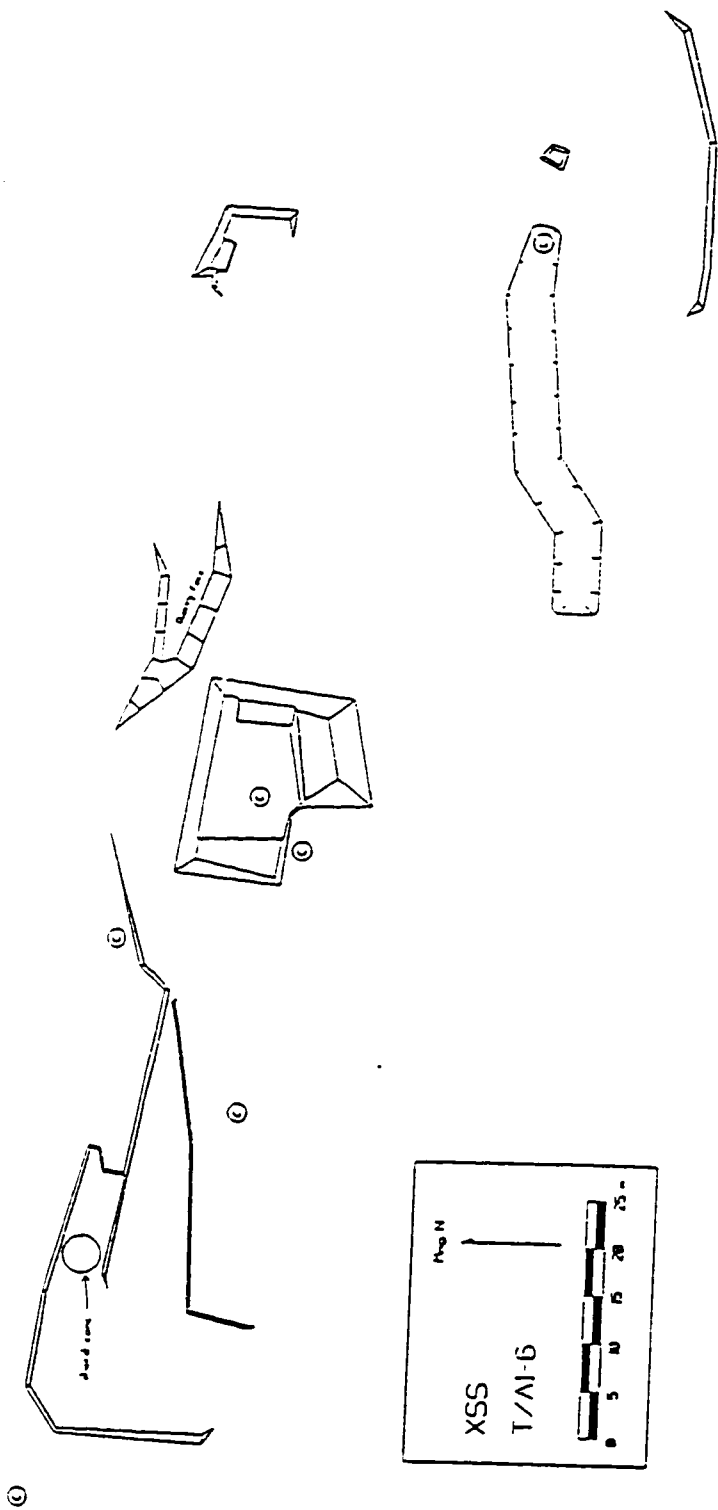


Figure 21. Map of Site T/A1-6 from the Xunantunich Periphery

From: Yeager and Connell 1993

Yax Caan

The notion of offerings within a *chultun* is also seen at the the Yax Caan *chultun*. This feature, excavated in 1999, is located near Green Heaven Lodge, which is accessed from the modern road to Chaa Creek Cottages. The Western Belize Regional Cave Project (WBRCP) initiated a salvage operation of this single chambered feature (Griffith et al. 2000). A total of 21 fragmentary and whole ceramic vessels, dating from the Late Classic to Terminal Classic (AD 750-900), were recovered including 12 *ollas*, 5 bowls, 3 tripod dishes, and 1 cup. While this assemblage is dominated by *ollas*, only one complete *olla* was encountered, and this possessed a kill-hole. The remaining 11 *ollas* were incomplete, with only the jar neck portions recovered. Although the assemblage is predominately utilitarian, the inverted and terminated state of the ceramics leads the authors to suggest the placement of the ceramics in an oval pattern as indicative of ritual practices.

Within the chamber there was also an east-west floor depression along the southern wall which measured 140 cm in length by 20 to 40 cm in width. Vessels were placed around this depression and it is plausible that this area was constructed for the placement of human remains. At the time of the investigations, the depression held no human remains, and none were recovered through excavation. Therefore, ased on the material recovered from this chamber, burial and storage functions were not supported. Rather, the placement of ceramic artifacts suggests they were part of a ritual offering, possibly a dedicatory act.

Chan Noohol

Another region of the Xunantunich periphery which was investigated was a transect that ran southwest from the site core. The work conducted by Robin (1996) mapped 5 *chultun*-like features, 3 of which were excavated. These occurred in the Chan Noohol and Dos Chombitos Cik'in communities (Figure 22). Six isolated mound sites were mapped at Chan Noohol. The northeastern site, designated T/A1-071, revealed one *chultun* near a waterhole (Figure 23). This *chultun*, referred to as C1, was classified as Suboperation 224D. The feature, originally described as a single mouth *chultun*, was later discovered to be a double mouthed feature comprised of a western chamber with a north and south lobe, and an eastern chamber with a single lobe (Robin 1996:161-162). There was a tunnel which offered access from the northern lobe (in the western chamber) to the eastern chamber. This passageway was blocked at the eastern chamber by a number of limestone blocks. It is unclear whether this blockage was present throughout the *chultun*'s use, or if it was constructed at a later date. Material recovered from the *chultun*, including numerous ceramic artifacts, suggests Late Classic I and Late Classic II (AD 670-780) dates for the use of the *chultun*, and perhaps continual use through these periods (Figure 24). The stratigraphic placement of Late Classic I ceramic materials below Late Classic II (AD 670-780) examples may imply that the chambers were used throughout those time periods. Robin (1996:162) interprets the ceramic artifacts as constituting primary deposits, but offers no explanation for their placement in the *chultun* environment. Since this feature was located near a waterhole, that these chambers and the artifacts accumulated in them were part of ritual activities.

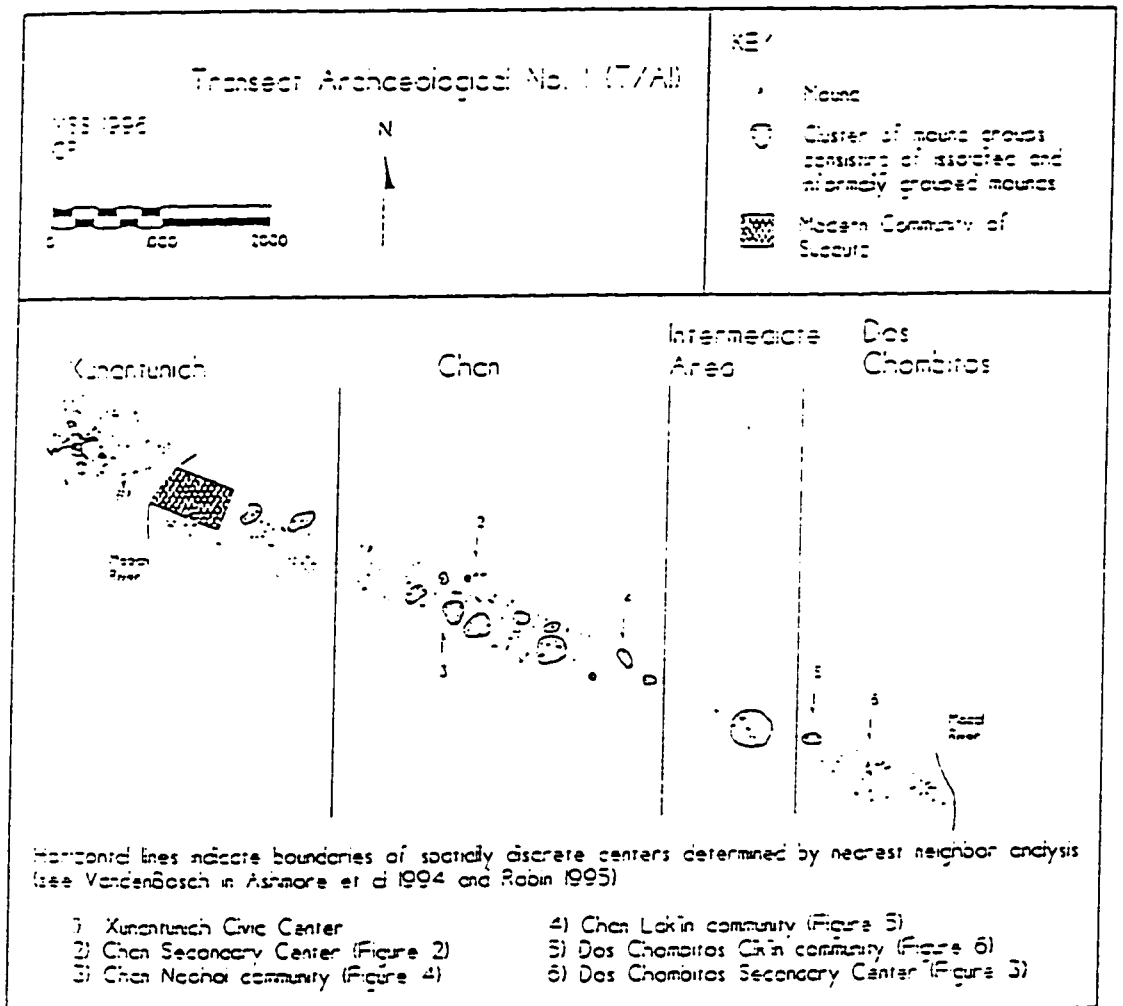


Figure 22. Survey Transect from the Xunantunich site core

From Robin 1996

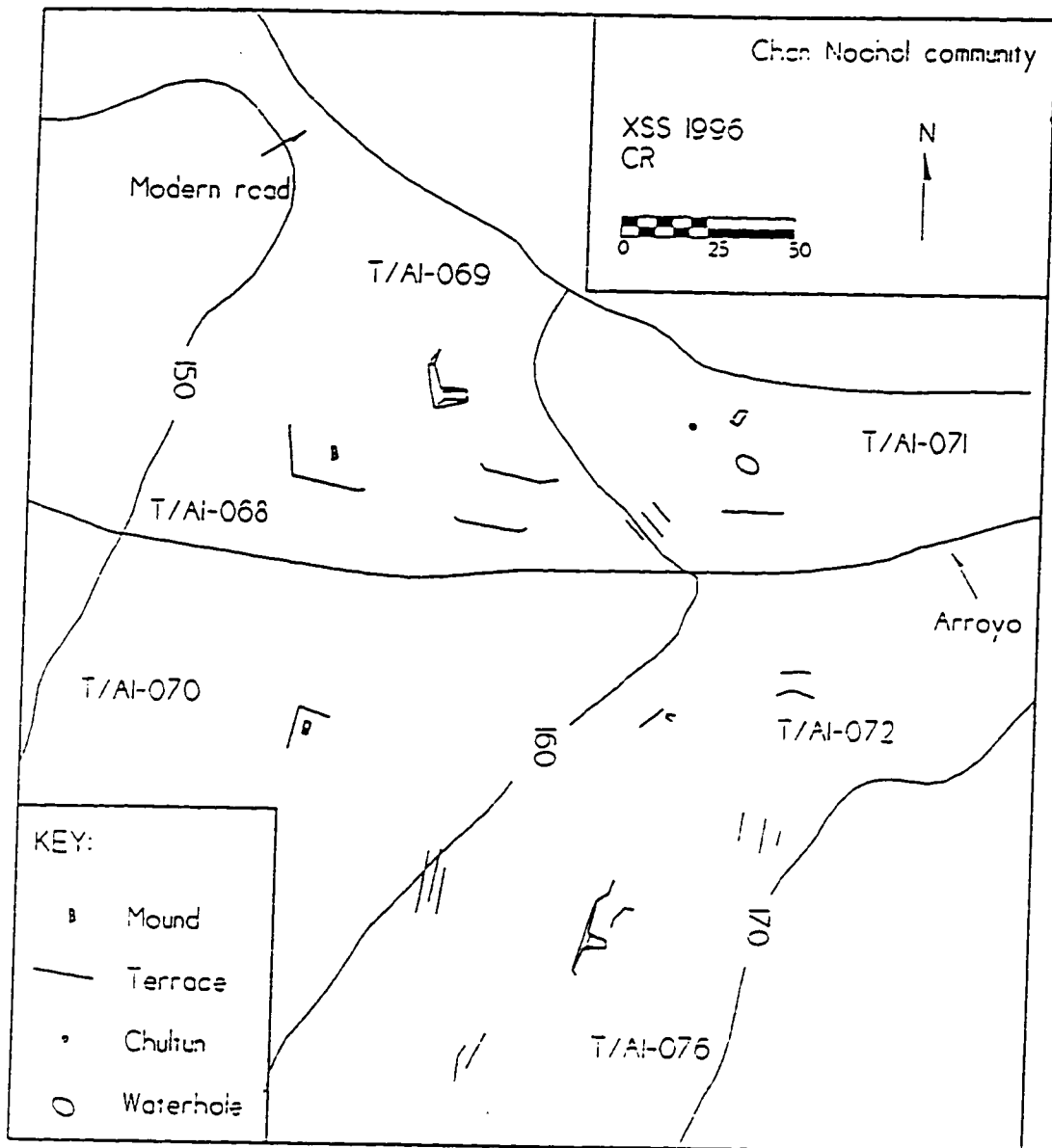


Figure 23. The Chan Noohol Community in the periphery of Xunantunich

From Robin 1996

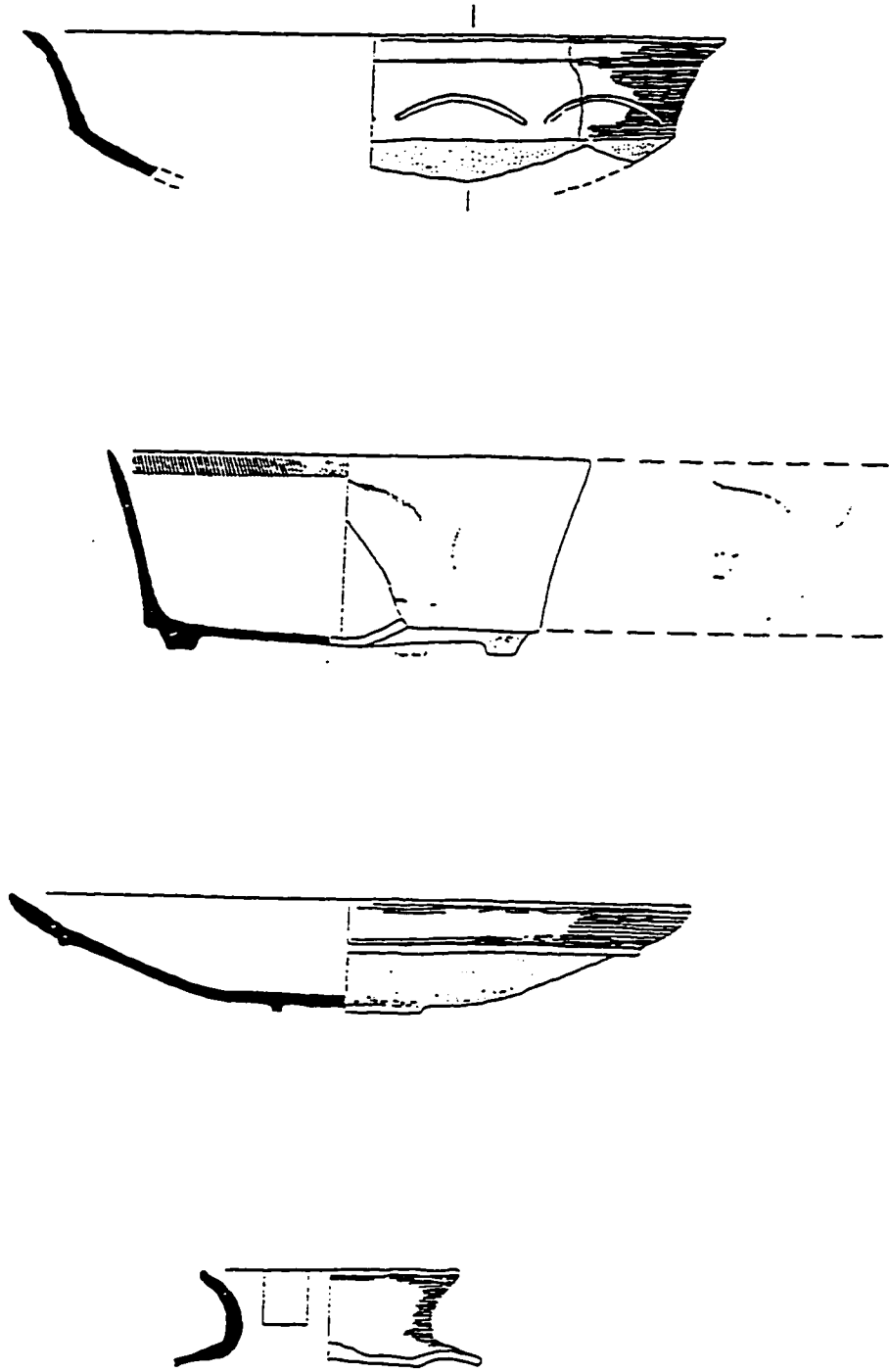


Figure 24. Ceramics recovered from Chultun 1, T/A1-71

From Robin 1996

As Robin (1996:154) notes, “waterholes can hold ritual and symbolic meaning for a group, as focal landmarks, integrating communities and representing the ancestral founding of a place”. The notion of *chultunob* as part of ritual activities will be expanded in Chapter 4.

Dos Chombitos Cik'in

At *Dos Chombitos Cik'in* community there are two sites, T/A1-152 and T/A1-153. A *sascabera*¹, three *chultunob*, and a small waterhole were the features discovered at these sites (Figure 25). *Chultun* 1 (C1), 31 m south of Mound 1 at the site of T/A1-152, has been re-interpreted as a *sascabera*. In addition, *Chultun* 2 (C2), east of Mound 1, was mapped and *Chultun* 3, west of Mound 2, was uncovered in Suboperation 244F (Robin 1996:165-166). The orifice of this latter *chultun* was concealed by a lense of soil, refuse and overlaying fill from Mound 1. Sixty centimetres of the *chultun* fill were excavated and ceramic analysis provides mixed dates, extending back into Preclassic times (Robin 1996:169). Due to time constraints this *chultun* was not excavated beyond the 60 cm soil sample. As a result, the morphology of this chamber and the potential artifact assemblage are not available. However, its proximity to the waterhole and the mounds is informative.

At site T/A1-153, a single *chultun* (C1) was located between Mound 1 and

1

According to Robin (1996:166, 172) a *sascabera* is a “subtractive feature formed through the excavation of *sascab*”. It is unclear why Robin is making the distinction between *chultun* and *sascabera* because it is proposed that most, if not all, *chultun* were primarily excavated by the Maya for *sascab* and later utilized for other functions.

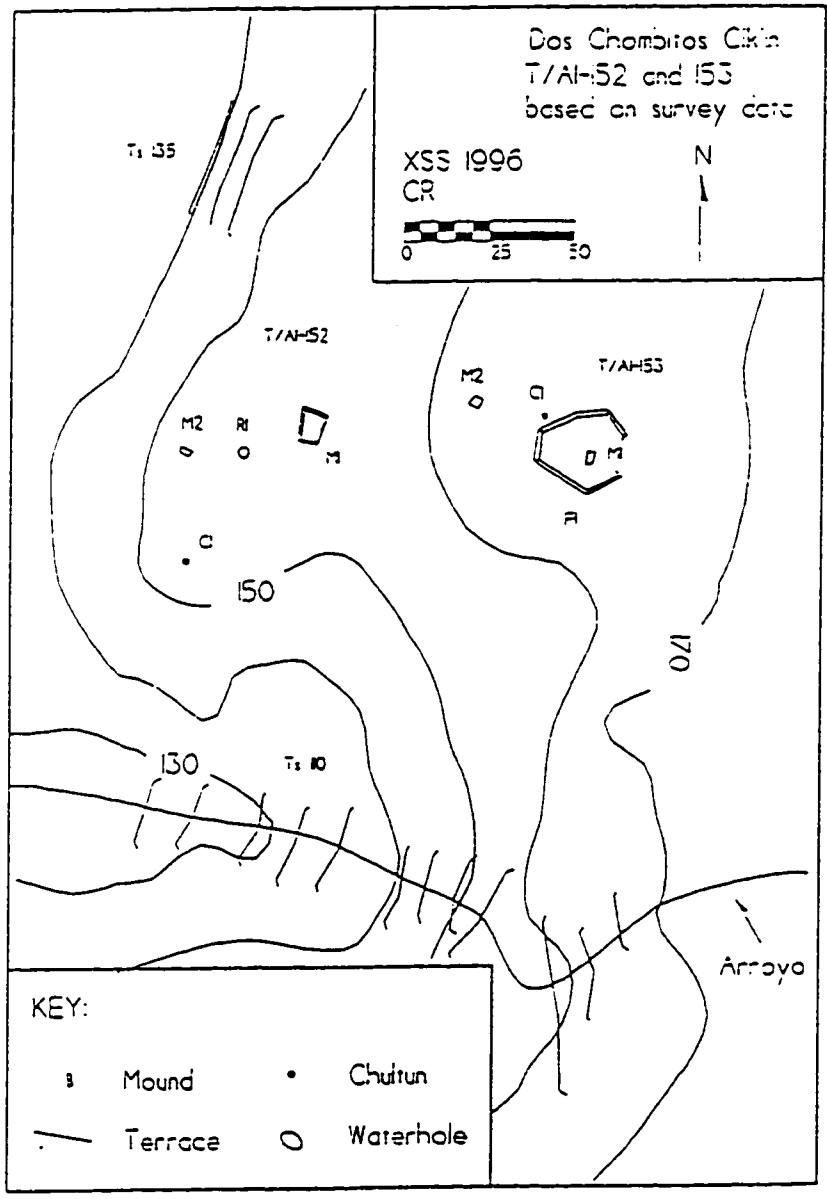


Figure 25. Map of Dos Chombitos Cik'in

From: Robin 1996

Mound 2. The investigation of this feature, Suboperation 224C, revealed ceramic artifacts including rims from five jars which date to the Late Classic I and Late Classic IIb (AD 780-890) periods. Interestingly, body sherds for these jars were not recovered (Figure 26, Figure 27). As the orifice of the dual lobed *chultun* was exposed, the possibility that the artifacts had been moved from their original placement was a concern. The recovery of a single human tooth, thought to be result of a disturbed or removed human burial, was regarded as evidence of the possible disturbance in the *chultuns*' past (Robin 1996:168).

In general, the *chultunob* investigated and mapped in the periphery of Xunantunich reveal numerous complete or nearly complete vessels which date to the Late Classic. Not all *chultunob* were assigned functions by the researchers, but the dominant uses proposed relate to the storage of food for domestic or ritual use. Arguably, there is a pattern to the location of *chultun*, or at least those *chultunob* discussed above. There is a tendency for *chultunob* to be located on sloped areas or on hilltops, in association with mounds and waterholes. While this maybe the result of the surveying strategies, this pattern was also seen at the site of Cahal Pech. The discovery of *chultunob* in close association, in some cases below or abutting structures or plaza floors, as was the case for Suboperation 244F, is also evident at Tolok, Zubin and in the Xunantunich site core at Groups A and D.

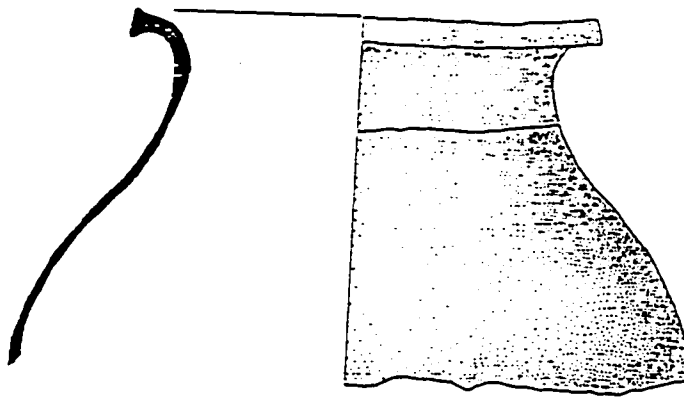
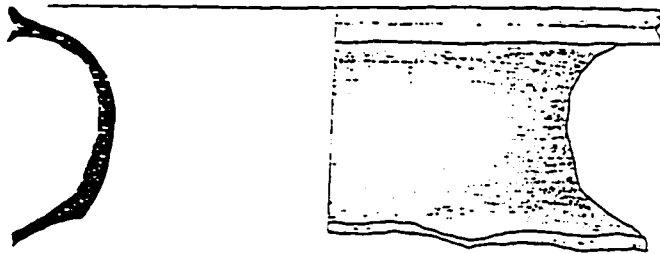
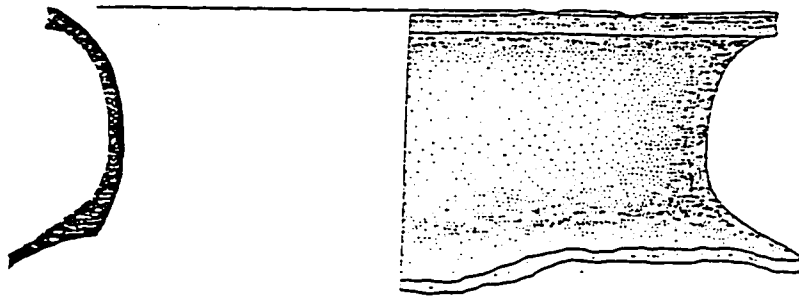


Figure 26. Ceramics from *Chultun* 1, T/A1-153, Dos Chombitos Cik'in

From Robin 1996

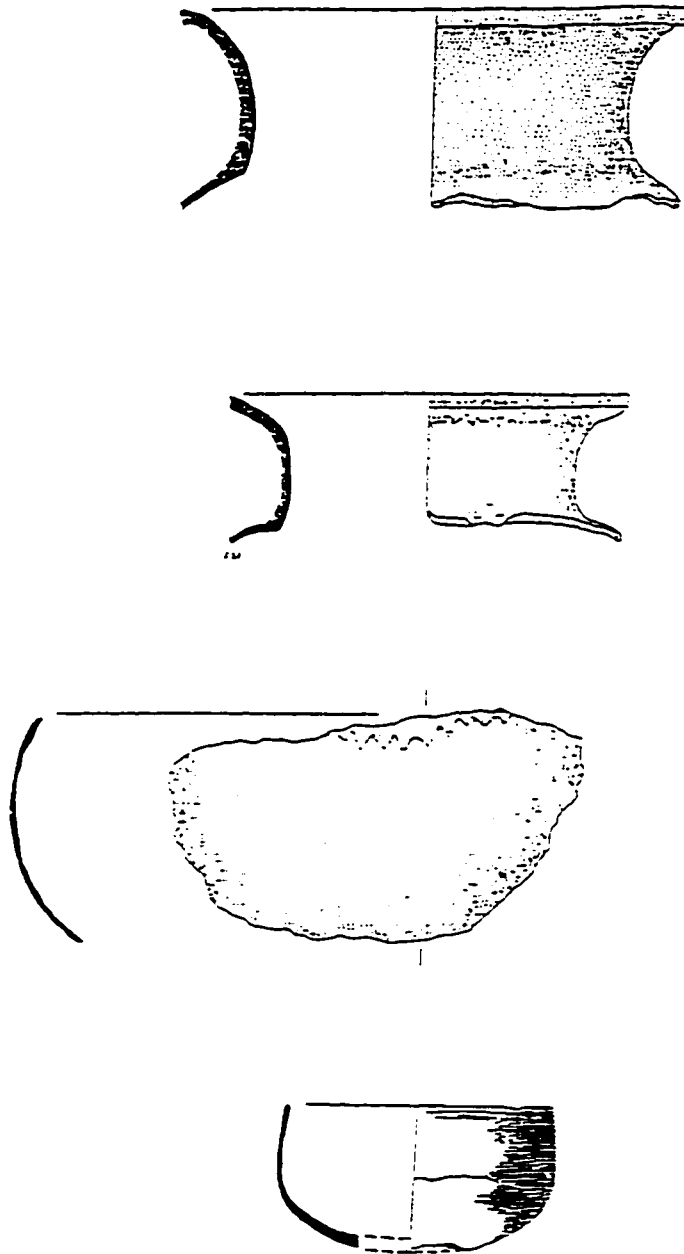


Figure 27. Ceramics from *Chultun* 1, T/A1-153, Dos Chombitos Cik'in

From: Robin 1996

The Xunantunich Site Core

Moving from the Xunantunich periphery, Mackie (1985: 89-90) describes the excavation of a underground chamber "beside the trail from the river"². The chamber was investigated in the 1959-1960 field season, and although the exact location of this *chultun* is not provided, its investigation provides useful information. A single, unplastered chamber, circular in plan and dome-shaped, was entered through a circular opening (76 cm in diameter). There was no evidence of deliberate construction around the *chultun* orifice. Once accessed, the chamber, measuring 1.63 m deep and 1.57 m wide, contained a level floor " of hard packed earth several inches thick which lay on the sloping surface of the underlying rock" ((Mackie 1985:90). Ninety-one cm of debris lay in the chamber with 31 cm of this containing faunal remains and ceramic sherds. Also recovered in this debris were fragments of a slate disk which was suggested as the remains of the *chultun* lid. If these slate fragments were indeed the capstone, this *chultun* is unique in this fashion.

Since this lid was recovered at the top of the debris layer, the chamber was likely used as refuse dump when the lid was still in use. This function is proposed as there was "no indication that any whole vessels had been broken *in situ*" (Mackie 1985:90). The refuse dump appears to be the secondary function, while the primary function relates to storage. A cellar, rather than a water-tank, was also suggested by Mackie because no

2

A. Moore described a *chultun* on the edge of the modern road to *Xunantunich*. He explained that the *chultun* had been excavated and did contain a capstone but no burials. I believe that he was referring to this *chultun* (A. Moore, personal communication, 1998).

form of water catchment device around the orifice, a funnel of plaster or rock, was observed. The beaten earthen floor within the chamber was taken as evidence that it provided a level surface for objects to stand on. There were, however, no whole ceramic vessels recovered which would support this postulated function. Rather, ceramic analysis was not performed as the collection was misplaced and no temporal or stylistic analysis of the ceramics was possible. In addition, no description of the recovered animal bones was provided.

Although the artifactual and faunal evidence from this *chultun* is lacking, it does present an interesting addition to this study of *chultunob*. This is the case of an unplastered chamber with a possible slate capstone. The *chultun* was located on a limestone hill, near the Mopan River. Therefore, the water storage function of the chamber was ruled out by the investigators and the suggested functions, a refuse pit and cellar, are interpretations which lack artifactual evidence. However, as this discussion moves into the site core, excavated *chultunob* here produced artifactual evidence for their use(s).

Group D

Excavations conducted in Group D at Xunantunich, a nonroyal elite residential corporate group, revealed two *chultunob* (Braswell 1992, 1993, 1994). Group D has been identified as a "group-focussed patio cluster" (after Ashmore 1981) which was occupied as early as the Formative period, and into the Early and Late Classic periods (Braswell 1992:58). *Chultun* 1, located near the north west corner of the main platform in Group

D, was excavated in the 1992 and 1993 field seasons. *Chultun* 2, located off the southeast corner of Structure D15, was not excavated, but its proximity and inclusion in this group are noted (Figure 28). The excavation of *Chultun* 1, and its proposed function provide further evidence of *chultun* variability at Xunantunich.

Chultun 1 displayed two orifices aligned at a 75 degree angle. These measured approximately 45 cm in diameter. Once accessed, the *chultun* revealed a single domed chamber with three niches (in the western area) and 5 distinct layers of debris (Braswell 1992: 64-65) A total of five individuals were recovered from the *chultun* over the two field seasons. The first grave was uncovered at the base of the main chamber, under the fourth stratum. This was a dual interment which was placed in a circular arrangement of stones. Braswell (1992:67) provides the following description of this interment,

The burial consisted of the primary interments of two individuals, both adult males, and both extended. Individuals [sic] 1 was more robust than individual 2. Individual 1 was face-down with his head to the W, on top of Individual 2 which was face-up with his head to the E. Each was associated with a turtle carapace at the torso, both in the same position relative to the spine and pelvis, ie in front of the pelvis, facing out, away from the body in front of the spine.

These tortoise shells were not recovered intact but, due to the perforation on the inside, were likely suspended ornaments. These were the only artifacts associated with the burial. In contrast, the two individuals recovered during 1993 excavations possessed no burial goods. However, the use of a circular arrangement of stones to demarcate the burial area, similar to the arrangement of the dual interment, was uncovered in the northeast quadrant of the chamber.

In the other parts of the *chultun*, specifically the niches, human remains were also

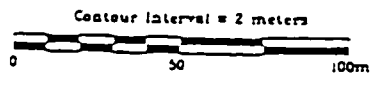
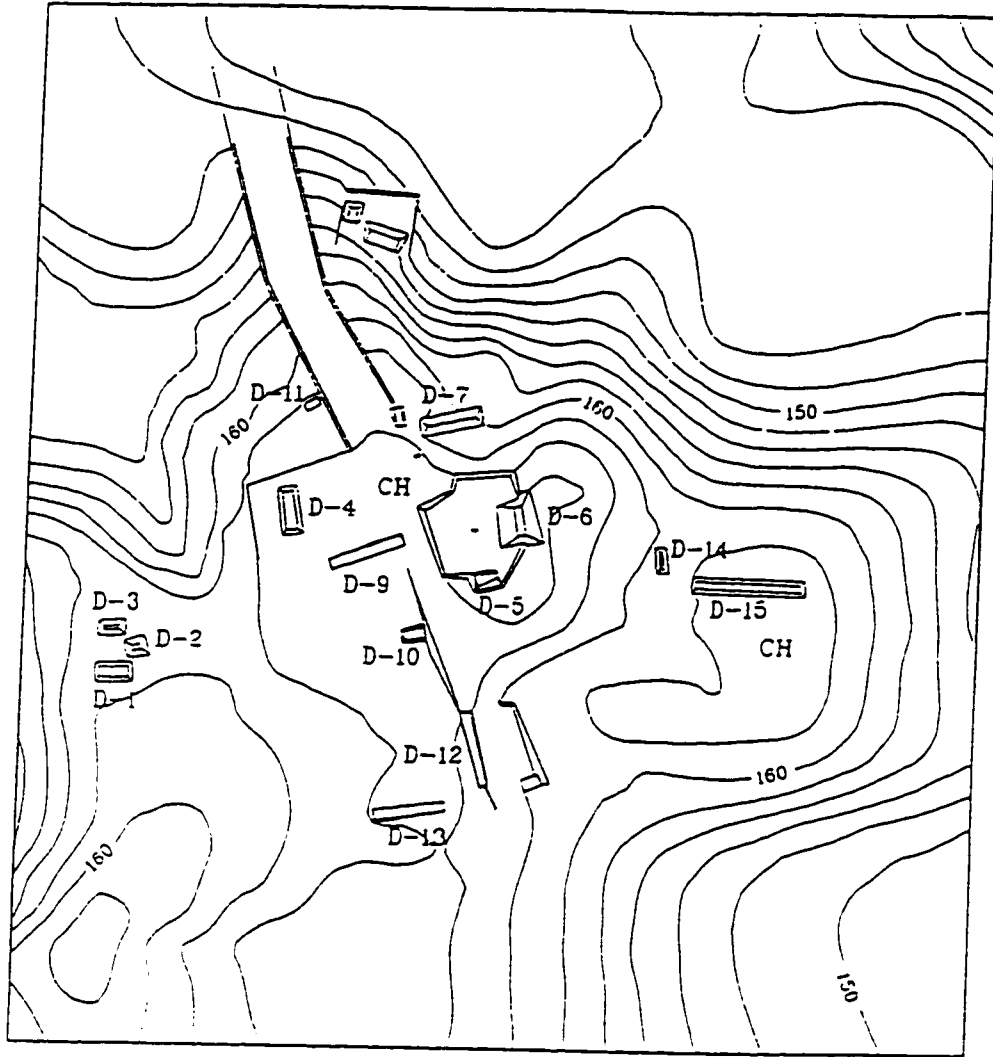


Figure 28. Group D, Xunantunich

From: Keller 1993

recovered. In addition, the morphology this *chultun* and its niches exhibit is worth noting. The largest niche, referred to as the southernmost, measured 103 cm deep, 80 cm wide and 100 cm high. Within this area, small bones, likely from the dual interment, were recovered. A third burial in the western niche was within in a concrete-like material, and lay directly above the head of Individual 1. The burial in the main chamber and this western niche were separated by 16 cm of Stratum D (soft white powdered limestone below gravel). Based on the size of the recovered teeth and bones, the individual is classified as an adult. The northern niche was a rectangular shaped space that was set into a rounded-rectangle recess. The first recess was 64 cm wide, 15 cm deep and 30-39 cm high. Within this space, there was a rectangular niche 30 cm wide, 30 cm deep and 28 cm tall (Braswell 1992:65).

Excavations conducted in *Chultun 1* reveal the use of the chamber and niches as burial places. There are no other indications that the *chultun* was used for other purposes and, as a result, this *chultun* may have been excavated by the Maya as a specially-prepared tomb (Braswell 1992: 67-68; 1993:79). Although five individuals were recovered, it is the dual interment which provides the most information. These individuals were placed on the floor of the chamber, within a group of stones and covered with a specially-prepared white limestone material. In terms of dating, a few ceramics from the Terminal Classic were recovered from the dual interment area. Sherds from various time periods, Proto-Classic to Late Classic, were in the upper strata and this suggests that the *chultun* was prepared, the bodies interred, and then the chamber was filled up carefully with earth scrapped from the surface of the group (Braswell 1992:67).

The care taken in the preparation of the area, the placement of the tortoise ornaments, and the individuals' robustness, suggest that these two individuals were elite residents of Group D (Braswell 1992:68). In a general sense, the symbolic importance of the *chultun* as a burial place seems to be emphasized by its location to the north side stairway at the top of the *sacbe*, across from *Stela* 12 (Braswell 1993:79).

Group A

Sacbe 1, an intrasite causeway, provided a physical link between Group D and Group A (Keller 1995:86). At the ends of the *sacbe* uncarved stelae were erected, with *Stela* 12 in Group D, and *Stela* 5 in Group A. Approximately 60 m north of the Group A *sacbe* terminus, a *chultun* was discovered near the Zapote Platform (Figure 29). This feature exhibited four unplastered chambers and was accessed through a orifice 70 cm in diameter. There was a central chamber directly below the orifice and three chambers to the north, east and south. The north and the east chambers displayed low sills which separated these areas from the central chamber. Storage of food is the suggested function of these small side chambers. In addition, circular arrangements of cobbles in the north and east chambers are hypothesized as resting spots for round bottomed containers, despite the lack of any *in situ* storage vessels (Figure 30).

However, there were artifacts recovered from the *chultun* which are believed to constitute a ceremonial deposit, possibly relating to the termination of the storage function of the chambers. These artifacts included a complete cacao pot, an obsidian blade from the eastern chamber, the broken capstone, and several broken vessels from

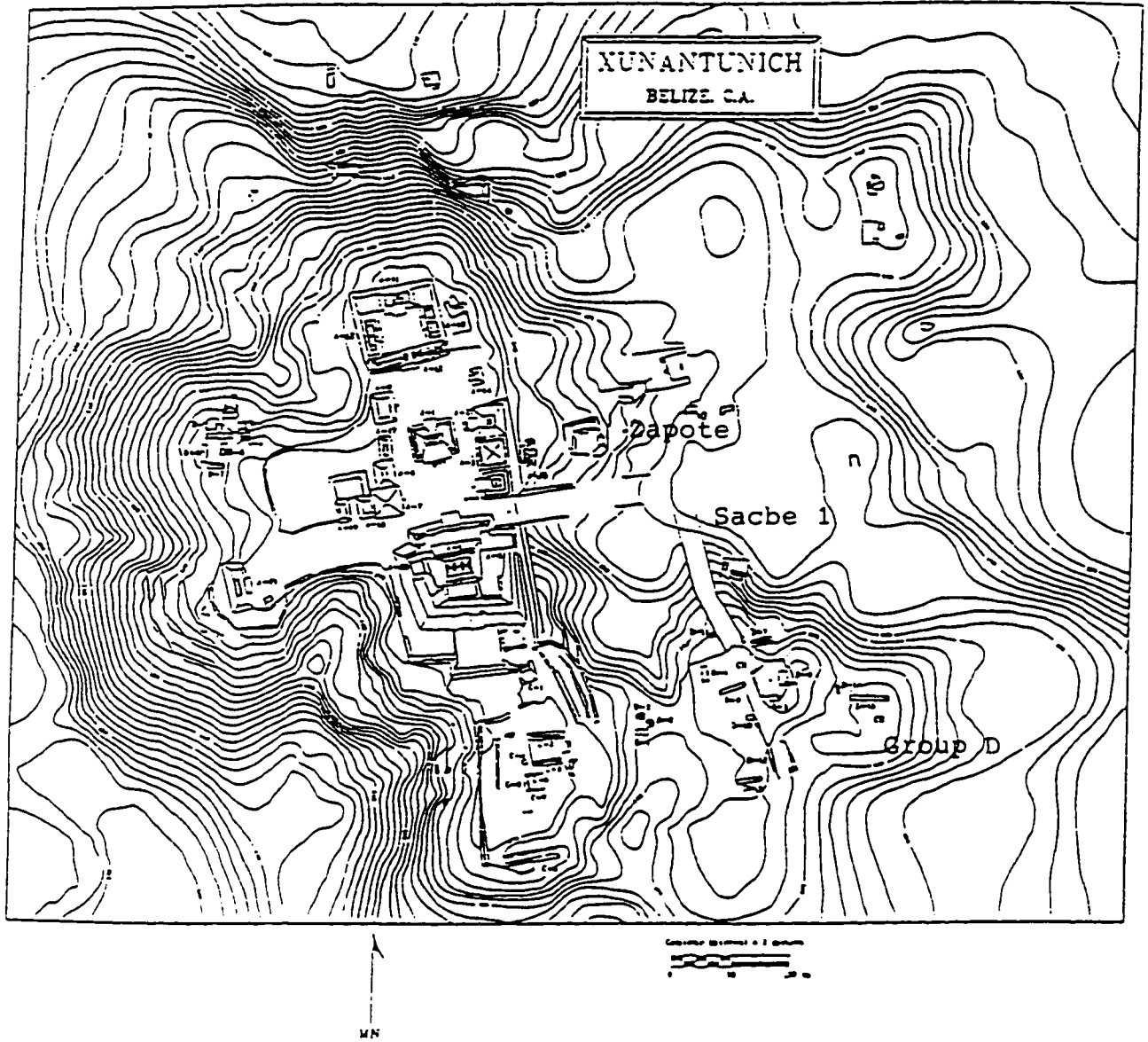


Figure 29. Map of Xuantunich

Adapted from: Keller 1993



Figure 30. Cobble Arrangement from the Zapote *Chultun*, Xuantunich

From: Keller 1993

the central chamber (Figure 31).

Keller (1995:103) proposes that the *chultun* continued to be utilised by the Maya after these materials were deposited. The proposed function, after the capstone collapsed, was as a chamber for a storage pool of *jute* and blue crab. These may have served as a food sources which were harvested from this pool. The evidence to support her suggestion is derived from the unusually large number of complete *jute* shells recovered. While Aylesworth (1993:86) argues that *chultunob* of the Southern Lowlands are not conducive to water storage, Keller (1995:103) suggests this *chultun* could have pooled water and served as a *jute* and blue crab storage chamber. As there is no discussion of the chambers ability to hold water, perhaps this hypothesis is a feasible suggestion during the rainy season only. A second possible explanation for the large numbers of shells being recovered is that the chamber served as a refuse pit after a feast as the meat may be removed without breaking the spire (Gyles Iannone, personal communication, 1999). Although the explanation of the *jute* and crab remains is debatable, the inclusion of the "ceremonial deposit" and the arrangement of stones indicates the possibility of shifting functions for *chultunob*.

This *chultun* also represents a feature which was excavated below the public space of the Chaaca Patio. This *chultun* predates the patio construction, offers the earliest evidence of construction prior to the Late Classic I phase at Xunantunich, and appears to have no associated structure (Keller 1995:102, 104).

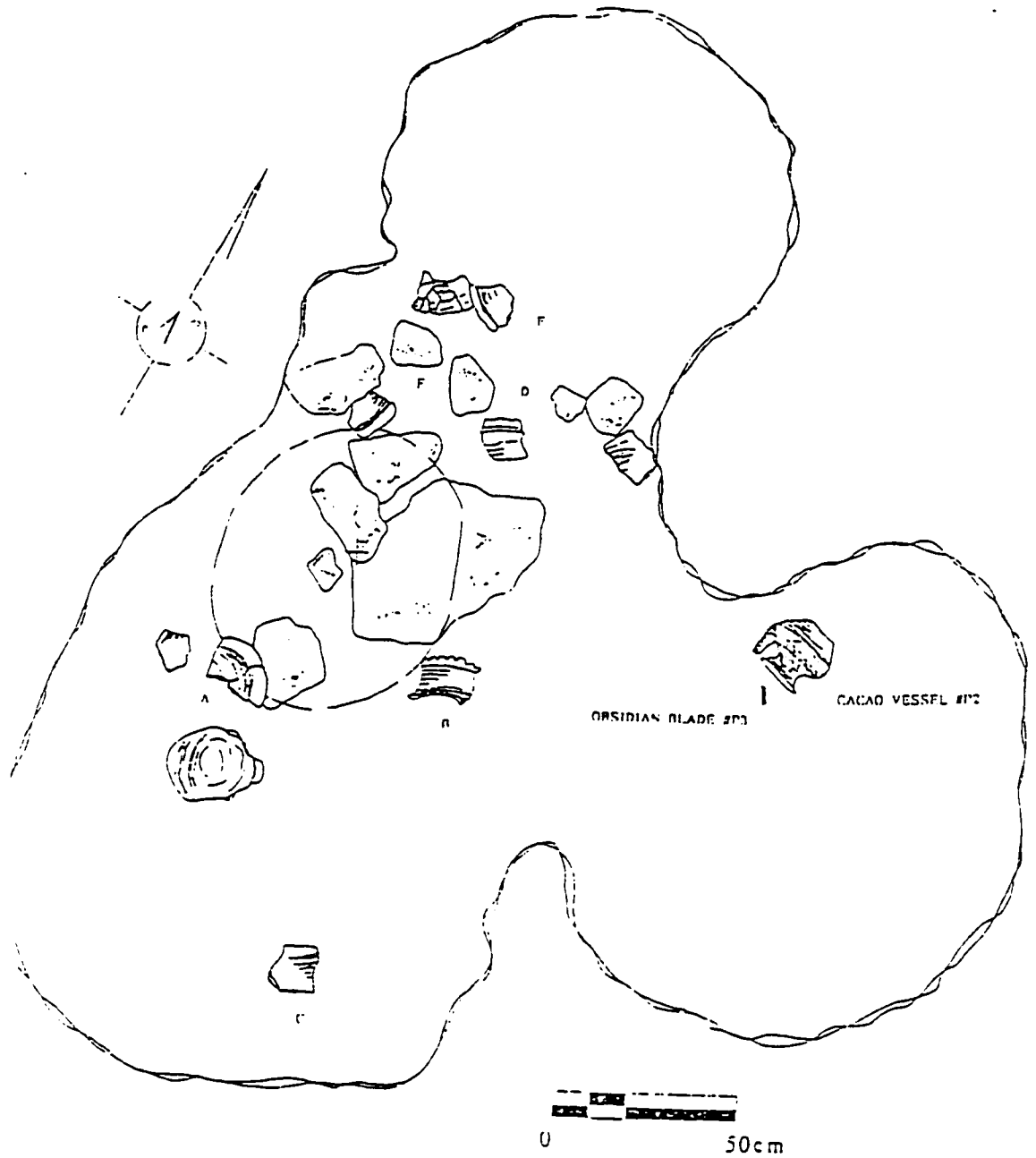


Figure 31: Ceremonial Deposit from the Zapote *Chultun*, Xunantunich

From: Keller 1993

Blackman Eddy

Research by the Belize Archaeological Project has investigated the small ceremonial sites of Blackman Eddy, Ontario Village and Floral Park (Garber et al. 1993; Glassman et al. 1993). Thus far, their investigations have been concentrated on excavations in Plaza A and B at Blackman Eddy, a possible ballcourt structure at Ontario Village and the excavations of Structure 1A from Floral Park. In the 1993 Field Season, a single orifice *chultun* was located at Blackmann Eddy in the southwest corner of Structure 3A. Structure 3A is the northern building in a small *plazuela* group referred to as Group 3. This group, 700 m west of the site core, appears to have undergone two separate building phases during the Late Classic period. Driver and Garber (1993: 5) posit that the hilltop location and the labour investment in this group suggests occupation by peoples of a middle-class or lower elite status.

The *chultun* revealed an orifice 90 cm in diameter which led into an entrance chamber 1.5 m in diameter and 1.1 m deep (Figure 32). It was noted that much material had exfoliated from the walls and, therefore, the chamber was larger than it had been in antiquity. This exfoliation may also have destroyed any plaster lining. The capstone was recovered on the floor of the entrance chamber. The size and shape of the capstone suggest that orifice may have been smaller, and possibly rectangular, if this was an example of a fitted capstone.

Once the shaft was accessed, the *chultun* offered access to a large niche in the east, a small chamber to the northwest and a main chamber to the south. There was a 35 cm sill separating the entrance chamber from the large southern chamber (Figure 33).

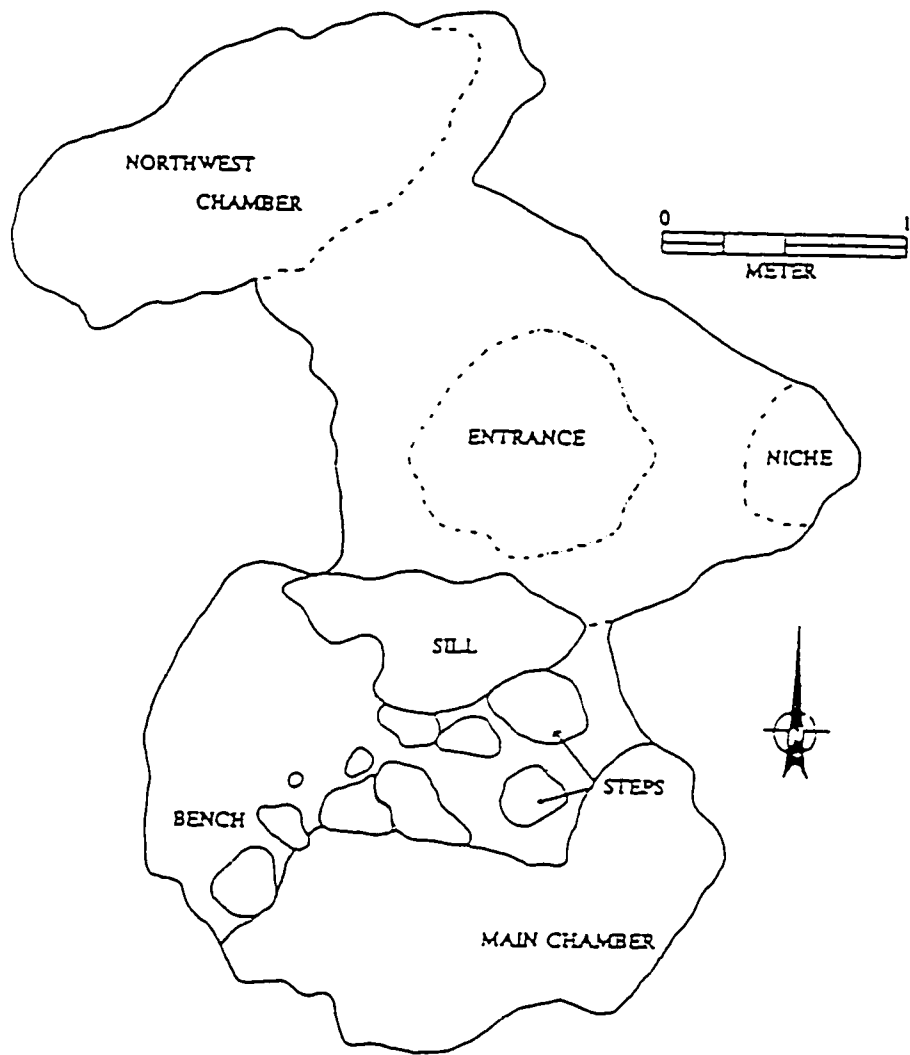


Figure 32. Top Plan of *Chultun* 1 from Group 3, Blackman Eddy

From: Driver and Garber 1995

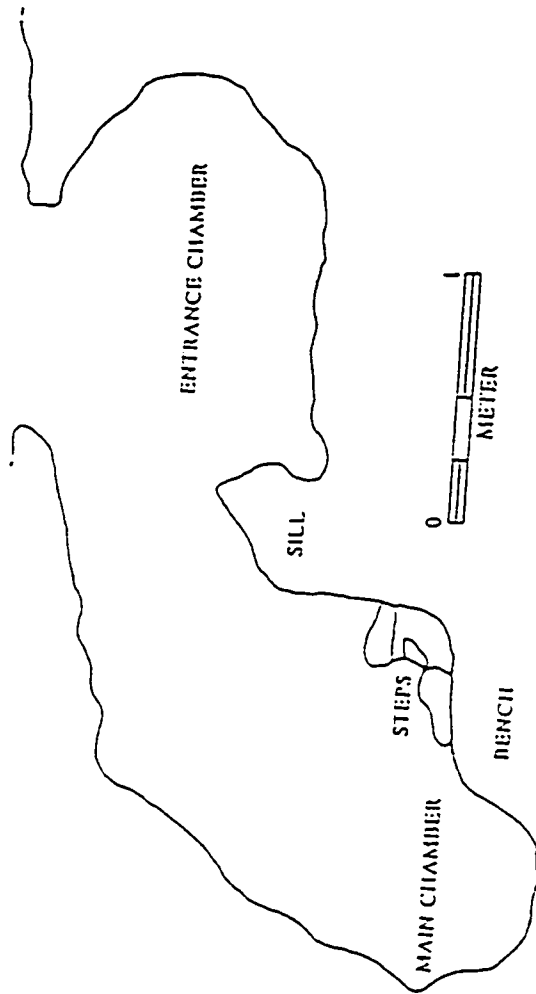


Figure 33. Profile of *Chultun* 1 from Group 3, Blackman Eddy

From: Driver and Garber 1995

Two cut stone steps, set into plaster, served as a stairway to provide access into the oblong shaped southern chamber. Against the north wall, there was a low, L-shaped bench. A small excavation trench was set into the bench, but no diagnostic sherds revealing its construction date were recovered.

As the capstone for the orifice was located directly above the floor of the entrance chamber, the bench was the only area where the primary context of the *chultun* could be assured. Since no ceramic remains from the bench could provide solid chronological evidence, an assumed Late Classic construction date was proposed.

Summary

A review of ten *chultunob* from three sites, Cahal Pech, Xunantunich, and Blackmann Eddy is presented as a comparative sample. The excavation of these *chultunob* from the Upper Belize River Valley region illustrates an ancient labour investment which is comparable to some of the surrounding above ground architecture. While not all *chultunob* discussed here fit into a distribution pattern, there is a tendency for the *chultunob* to be located on natural or modified hilltops and slopes, near structures in *plazuela* and/or patio groups. They are often associated with natural streams, rivers, waterholes, as well as modified areas like reservoirs. Although there are cases where *chultunob* are located beneath or directly adjacent to large structures, these prove to be exceptions rather than the norm.

The most striking variation comes when chamber morphology is examined. Within the small sample of *chultunob* discussed here there is a wide range of chamber

morphologies. There are various examples of lateral shaped *chultunob*, such as those from Tolok group, and there are numerous examples of multi-lobed chambers, such as those from Group D at Xunantunich, Ek-pay at Zubin, and Blackmann Eddy.

The range of postulated functions for the Upper Belize River Valley *chultunob* is comparable to the list provided in Chapter 1. However, unlike sites such as Tikal which only provide *chultun* counts, the sites in the Belize Valley provide artifactual data to support their distribution and suggested functions. For example, excavation of *chultunob* from the periphery of Cahal Pech indicates their use as burial chambers and water catchment areas. In addition, the presence of ceramic remains on the *chultunob* floors are viewed as examples of dedicatory and termination rituals associated with the abandonment of the chambers. These ritual and burial activities were also occurring at Xunantunich, in both the site core and the periphery. Here there are also examples of *chultunob* with dual orifices, which is not the predominant pattern at the sites of Cahal Pech and Blackman Eddy. What is clear is that the function of *chultunob* likely changed over time and possibly even differed from site to site within the same region.

Chapter 3

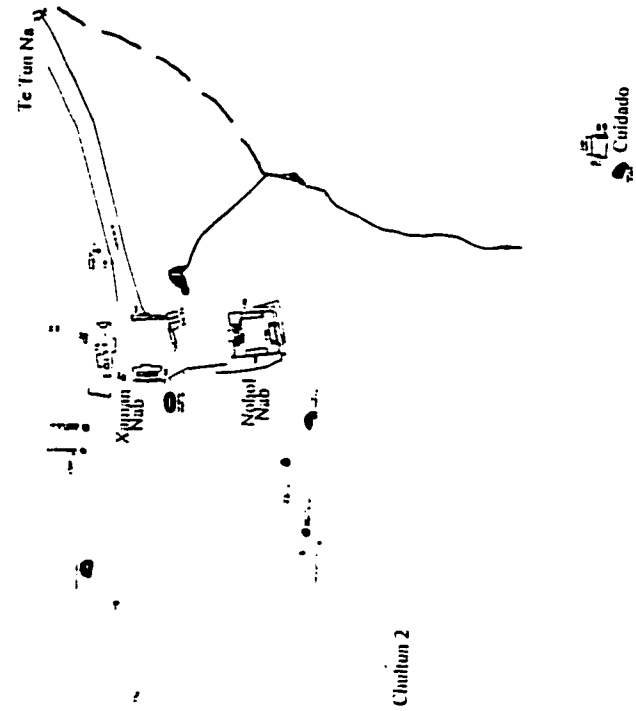
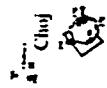
EXCAVATION OF CHULTUNOB FROM X-UAL-CANIL

Introduction

This chapter provides an overview of the site of X-ual-canil including the discovery of the site, a description of investigations in the site core as well as a discussion of the peripheral regions. The chapter focusses on the three season study of *chultunob*, including an overview of the excavation methods, the levels encountered and the burials and artifacts recovered. The variability in chamber morphology, *chultun* location and artifact assemblages are also presented as a means to illustrate how this small sample can provide new insights into *chultun* use in the Upper Belize River Valley region.

X-ual-canil

During the 1996 - 1998 field seasons, four *chultunob* were excavated in the periphery of the ancient Maya site of X-ual-canil in the Cayo District of Belize (Figure 34). These excavations, by the author, project staff and students, were conducted under the auspices of the Social Archaeology Research Program (S.A.R.P.) which operates a Trent University field school. The primary goal of the S.A.R.P. research at X-ual-canil was "to investigate rural complexity, and middle level settlement, as a means to provide more inclusive models for ancient Maya social organization" (Iannone 1996:2). The



Chultun 2

Gran Maestro

Figure 34. Map of X-ual-canil

Map provided by Gyles Iannone

research plan involved the reconnaissance, mapping and excavation of structures in the site core, as well as structures, terraces and features in the peripheral regions. The excavation of features, such as *chultunob*, provided a means to investigate peripheral activities and aided in establishing a chronology of occupation at *X-ual-canil*.

Of direct concern to this thesis, the study of *chultunob* was designed to address the following three questions; 1) What was the function(s) of these features? 2) Was there a pattern to the construction, morphology and use of the *chultunob* at this site? 3) What can *X-ual-canil chultunob* tell us about the use(s) of these chambers in the Southern Maya Lowlands? The excavations not only generated responses to these questions, but also permitted comparisons to previously excavated chambers at other Belize Valley sites and allowed for the exploration of *chultunob* form and function on a micro-regional scale (see Gray 1997; Iannone 1997). In general, the *chultunob* of *X-ual-canil* and other Belize Valley sites offer an interesting study in variability because the chambers were in use at different times and the range of recovered artifacts attests to their functional variation.

Site Background

X-ual-canil is a medium sized site which is situated on a high ridge on the eastern side of the Macal River, approximately 3 kilometres from the larger site of Cahal Pech (Iannone 1998:4). The initial reference to *X-ual-canil* was made by Willey et al. (1965) but, the site had been visited prior to this by A.H. Anderson, L. Satterthwaite and W.R. and M.D. Coe. None of these archaeologists appear to have spent much time at the site, beyond doing a visual study of the site core. The site, then called Cayo Y, was

described as ". . . a small ceremonial ruin. . ." which had ". . . at least one plaza surrounded by four long buildings. One and probably two of these had vaulted rooms. No temple pyramid was evident in the group we examined" (Willey et al. 1965:313).

Since these initial explorations, the Belize Department of Archaeology has renamed the site X-ual-canil, a Yucatec Maya word for fly-brush, a plant which predominates the site (Iannone 1996:9). J. Awe, who was conducting research at Cahal Pech, also visited X-ual-canil and urged the government to investigate the site further. He felt the site provided the ideal opportunity to investigate the middle strata of Maya social organization. A research plan for the site was initiated by G. Iannone to evaluate and compare social relations in the Upper Belize Valley (Iannone 1997:6)

The first systematic investigation of the X-ual-canil site core began in the summer of 1995, with mapping of the site core and surrounding features (Iannone 1998:6). It was evident that the site encompassed more structures than had previously been reported. In 1996, S.A.R.P.'s investigations of X-ual-canil concentrated on the site core with excavation units being placed in the ballcourt (Ferguson 1996), and the Nohol Nab (Stemp et al. 1996), and Te Tun Na (Schwake 1996) Groups (Figure 35). In the periphery, the reservoirs and drainage channel were explored and mapped and several additional groups of structures were discovered. One group, the Choj Group revealed a *chultun*, which was excavated near the end of the season.

Research in the 1997 field season involved a continuation of the site core excavations (see Ferguson 1997; Schwake 1997), as well as Schwake's (1999) investigations along the *Lahkin Sacbe* (a Maya word for "white road") and in the *Zuhuy*

X-UAL-CANIL
Cayo District, Belize
"Central Precinct"

16

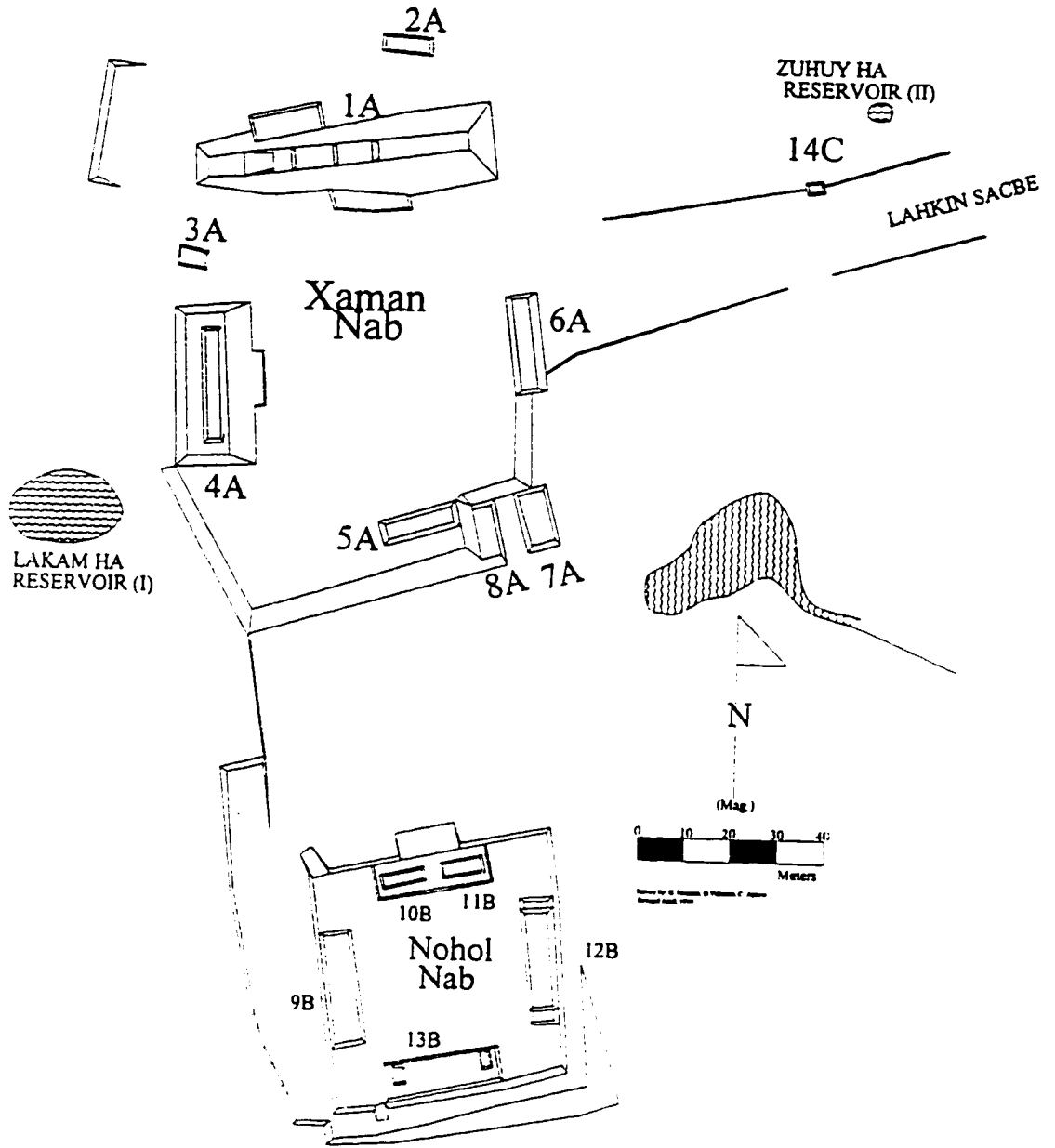


Figure 35. Map of the X-ual-canil site core

Map provided by Gyles Iannone

Ha reservoir. Explorations of the periphery expanded and included the excavation of the *Cuidado* Group (Prince 1998), and an adjacent pottery midden (Killpack 1997). This season also saw the investigation of agricultural terraces, solitary mounds (Killpack 1997) and a small, solitary *chultun* (Gray 1997).

In the final (1998) field season, equal attention was devoted to the site core and peripheral areas. In the site core, Nohol Nab (Seibert 1998) and Xaman Nab (Schwake and Seibert 1998) research continued, while the Gran Maestro Group (Prince 1998), including *Chultun* 4, *Chultun* 3 (Gray 1998) and numerous terraces (Killpack 1998), were excavated in the periphery.

The completion of these excavations at X-ual-canil has demonstrated that the site functioned differently from the ceremonial-type ruin initially suggested by Willey et al. (1965). Ceremonial and ritual activity occurred in the site core, within the ballcourt, along the *Lahkin Sacbe* and at the Te Tun Na Group (see Ferguson 1996, 1997; Schwake 1999). These site core activities were ritually associated with the modified drainage system taking water from higher elevations of the site to the fertile lands below. However, the primary function of the site was not ceremonial. Rather, X-ual-canil serves as an example of microregional political and economic specialization. Specifically, the site appears to have functioned as an administrative base for the surrounding agricultural activity (Ianonne 1998:20). The length of time which the site served this purpose was limited. The site did not exhibit indications of long-term settlement or control over the activities conducted at the base of the hill. Rather, excavations of the site core revealed that the buildings were erected during the Late Classic Period (AD 675-875) in one

construction phase. In contrast, occupation in the periphery occurred, in some cases, during the Early Classic (AD 250-400) and continued into Late Classic times. It is felt that there was a small dispersed population of farming people in the peripheral regions before the site core of X-ual-canil was constructed. The population in the periphery is of particular interest to this thesis as their construction efforts included *chultunob*.

During the three seasons of field work discussed above, a total of four *chultunob* were excavated. *Chultun 1*, situated below a plaza floor in the Choj Group, was approximately one kilometre west of the site core. *Chultun 2* was located near a reservoir on a ridge southwest of the Nohol Nab residential group. *Chultunob 3* and *4* were located northeast of the site core, approximately 300 metres from the terminus of the Te Tun Na Group. These latter *chultunob* were associated with small residential structures and a reservoir in the Gran Maestro Group. Although these *chultunob* were located in different areas of the site, the excavation methods and data recording were standardized. The information presented below outlines the excavation methods, and provides an overview of the burials and artifacts revealed through these investigations.

Excavation Methods

Understanding that the establishment of an excavation unit gives archaeologists scientific control, the means to establish a unit which encompasses the entire *chultun* feature requires a slightly different approach. For the purpose of maintaining 3-dimensional control over mapping and excavation activities in the *chultun*, a 1 by 1 metre unit was placed around the *chultun* orifice and linked to the site's benchmark. The

surface unit was not formally excavated but surface collections were taken. Fixed and temporary datums were established within the chamber and created with reference back to the surface unit. Material recovered from within the *chultun* can thus be provenienced with reference to their location below unit datum (BUD).

Following Iannone's (1994:99) observation that the *chultun* constituted a readily definable space, its chambers served as the primary excavation unit. That is, the walls of the chamber demarcated the boundaries of excavation. These walls, rather than an arbitrary grid of squares, served to define the location of excavation.

Within the subterranean setting vertical control over artifact distribution was maintained by excavating within natural levels, while horizontal control was maintained through the use of triangulation. Architectural maps were completed with a 1:20 cm scale, features and burials were recorded at a 1:10 cm scale. The units were excavated with trowels and brushes with all materials being passed through a 1/4 inch mesh screen. In cases where artifacts contained matrix, the artifacts were removed with the soil *in situ*, and finer screening was conducted in the field laboratory. The matrix description used the following categories to differentiate the clast percentages; pebbles (0.4 -6.4 cm), cobbles (6.4 - 25.6 cm) and boulders (>25.6 cm).

In terms of processing and field laboratory procedures, the artifacts were assigned both a site number and a S.A.R.P. catalogue number according to the Belize Department of Archaeology guidelines. Formal tools and ceramic vessels were assigned individual catalogue numbers while ceramic sherds and lithic debitage were assigned bulk lot numbers. Catalogue numbers were assigned each day and, as a result, there are

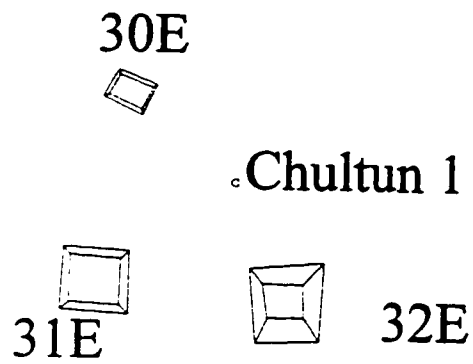
often multiple numbers representing the bulk lots from each level. The bulk lots of ceramic and lithic artifacts, as well as the special finds, faunal and human remains, were identified in the field. Further identification of the ceramics was achieved in reference to Gifford (1976) and these are presented in Appendix 1. All artifacts uncovered from the X-ual-canil investigations are housed at the Department of Archaeology in Belmopan, Belize.

Choj Group *Chultun* (Unit CH1-1)

This feature, called *Chultun* 1, was revealed while Jose Martinez, Everaldo Tut and David Valencia were conducting reconnaissance in the periphery of X-ual-canil (Figure 36). Once excavation was initiated, there was a concern that the *chultun* might be looted in the evening as the area was accessible from a highly travelled road. At this point, the excavations were viewed as a salvage operation. As it turned out, the *chultun* revealed many artifacts and represents the largest single feature from X-ual-canil.

This lateral-chambered *chultun* was located on top of a natural hill in close association with a constructed platform (Figure 37). During the Proto-Early Classic (AD 0-350) there was an expansion effort in this *plazuela* group. As a result, the main orifice was sealed with a plaster floor.

When exposed, the main orifice was 58 cm wide and circular in form. The capstone which served to seal this orifice was later recovered from the fill in Level 1, beneath the opening at 2.48 m BUD. Once the *chultun* was entered, its morphology exhibited a single, unplastered chamber, running roughly north-south, with two levels.



Choj Group

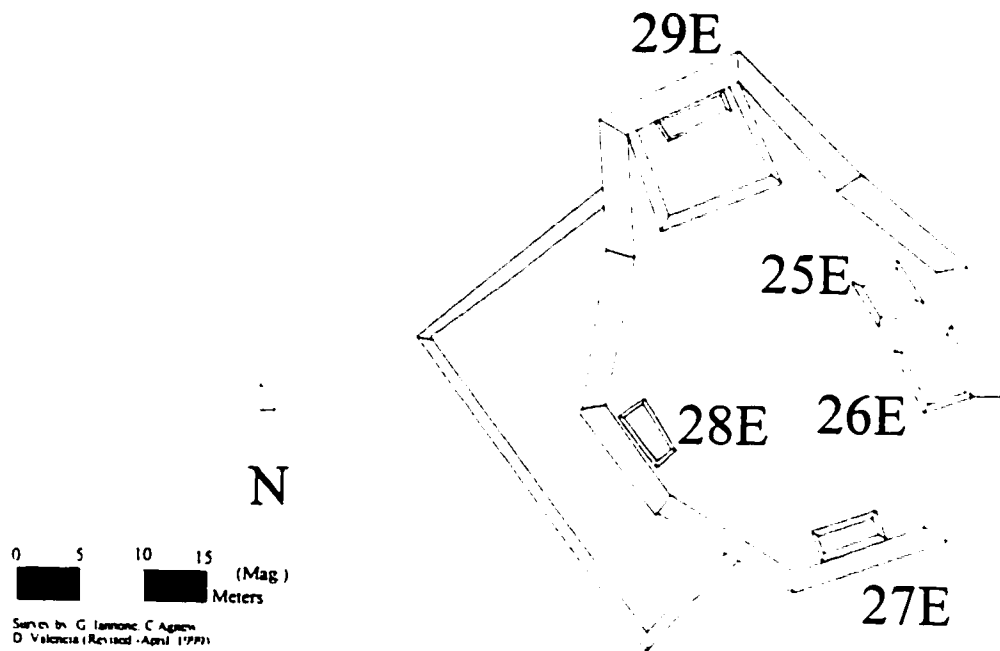


Figure 36. Map of the Choj Group, X-ual-canil

Map Provided by Gyles Iannone

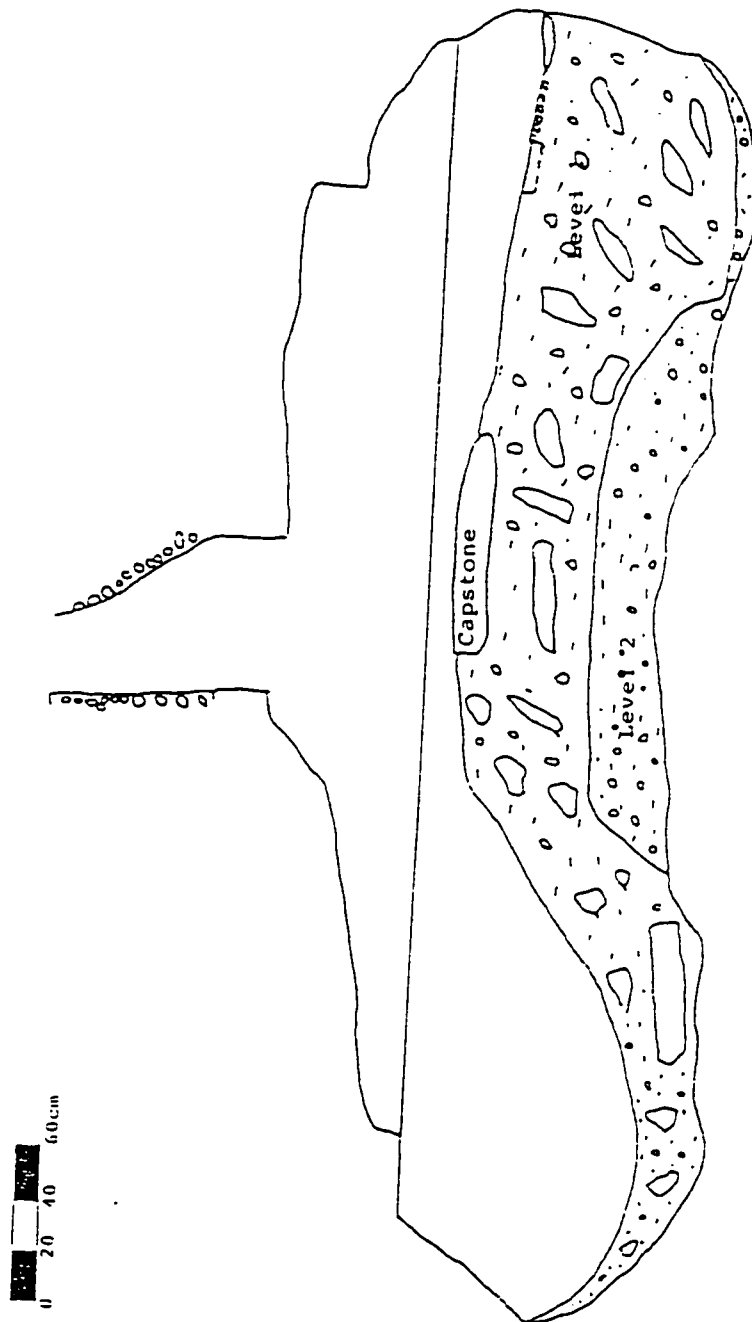


Figure 37. Profile of *Chultum* 1 from the Choj Group, X-ual-canil

Map Provided by Gyles Iannone

This chamber was approximately 5 m in length (North-South) and 2.9 m in width (East-West). A second opening to the surface was located in the southern part of the chamber. Much debris entered the chamber from this southern opening, and additional materials had been washed into the *chultun* when the main orifice capstone collapsed. Two additional capstones, possibly serving as burial capstones, were found at 221 cm and 248 cm BUD with concentrations of highly deteriorated human remains located beneath them (Figure 38). These are discussed in detail in the burial section below.

As suggested previously, the *chultun* chamber provides the primary unit of investigation. In this case, the Choj Group *chultun* chamber was designated Unit CH1-1 and two vertical levels were distinguished in this unit. In addition, one artifact was recovered from the surface level. This was an unknown artifact type, made of limestone (28/189-1:606).

Level 1

The matrix encountered was a mix of loosely packed dark, rich organic sediment with cobble to boulder-sized limestone spalls. The latter likely originated from the roof and walls. The depth of the deposit was between 2 and 25 cm. This range in depth was a result of the large amounts of limestone cobbles, pebbles and a few boulder-sized limestone clasts which were mixed throughout the fill. These materials made the level matrix rather loose and distinct from the raised, harder packed limestone located in the central part of the chamber. Essentially, this level was an undulating surface which contained natural and cultural materials.

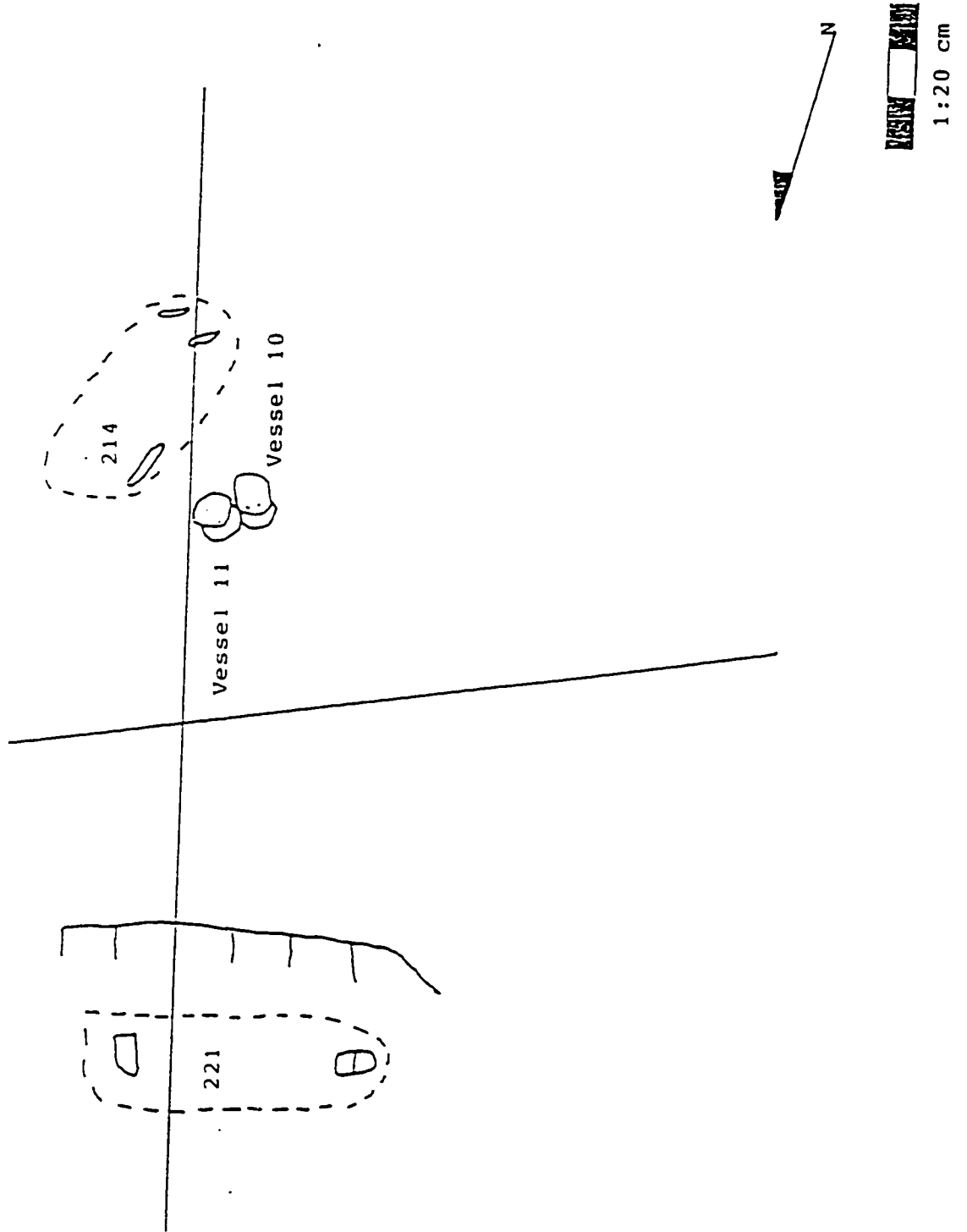


Figure 38. Human Bone Concentrations from the Choj Group *Chultun*, X-uul-canil

From: Gray 1997

The level revealed a high concentration of material including lithics, ceramics, animal and human bone in various stages of preservation (Figure 39). The best preserved artifacts were lithics and these consisted of four material types; chert, obsidian, slate and limestone. The chert artifacts included a bulk lot of lithics (28/189-1:603), two exhausted cores (28/189-1:629 and 28/189-1:635), and two bifacially flaked cores (28/189-1:627 and 28/189-1:632). The obsidian artifacts consisted of a blade fragment (28/189-1:1), a distal blade fragment (28/189-1:2), 2 medial blade fragments (28/189-1:5 and 28/189-1:6), 2 proximal blade fragments (28/189-1:3 and 28/189-1:4), and core fragment (28/189-1:7). There were three slate fragments (28/189-1:633 and 28/189-1:634) recovered, with the latter catalogue number representing a bulk lot of two artifacts. One example of a limestone artifact was a conically drilled disk bead (28/189-1:8).

There were numerous ceramic artifacts, including 11 complete ceramic vessels (see Appendix 1), and various pottery sherds (bulk lot #28/189-1:622). While the dates of the bulk pottery sherds are mixed, all vessels recovered are examples of the Floral Park and Hermitage Ceramic Complexes (Gifford 1976: 127-191). The following ceramic types from the Floral Park Phase were represented: Aguacate Orange: Aguacate Variety (28/189-1:10, Figure 40) and (28/189-1:15, Figure 40) and Privaccion Variety (28/189-1:14, Figure 42), Chan Pond Unslipped: Variety Unspecified (28/189-1:11, Figure 40), Negroman Punctated-Incised: Negroman Variety (28/189-1:12, Figure 41) (28/189-1:13, Figure 41) and (28/189-1:16, Figure 43), and Gavilan Black-on-Orange: Gavilan Variety (28/189-1:19, Figure 44) and (28/189-1:20, Figure 44). There are two

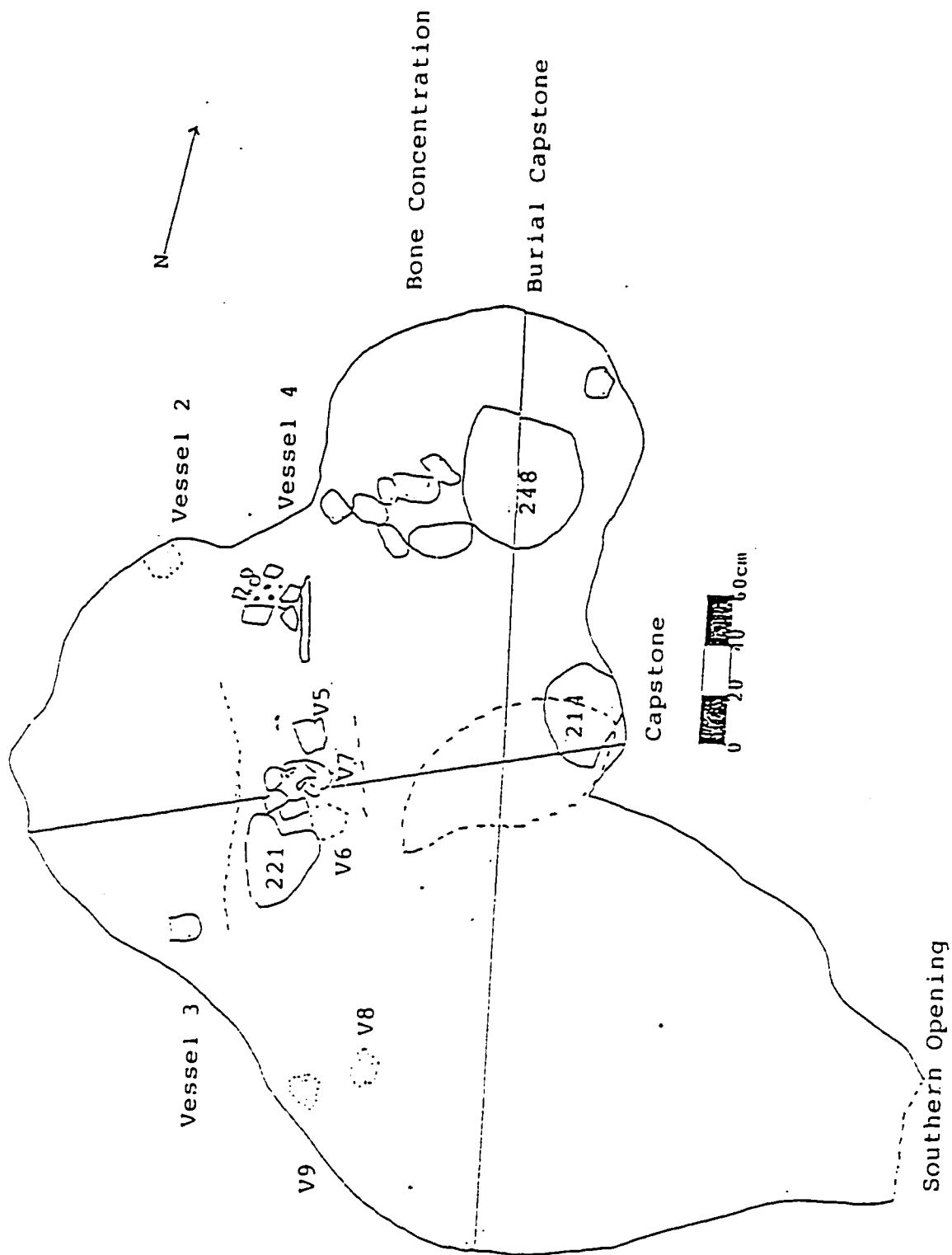
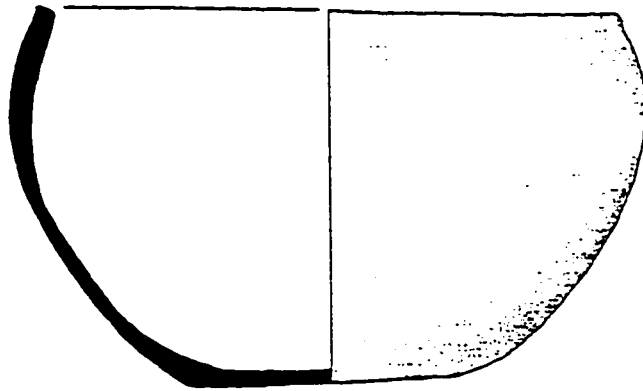


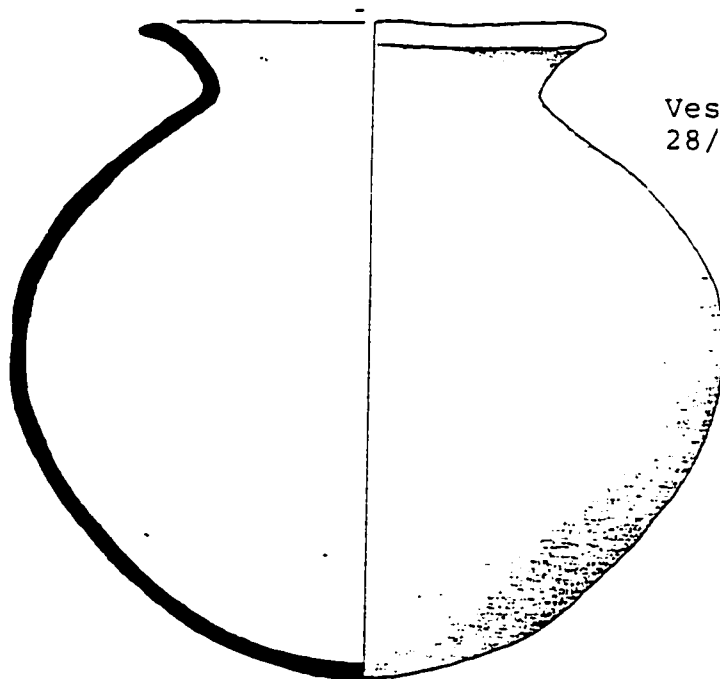
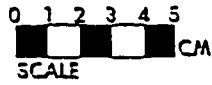
Figure 39. Top Plan of Level 1, Choj Group *Chultun*, X-uai-canil

From: Gray 1997



Vessel 1
28/189-1:10

Aguacate Orange:
Aguacate Variety



Vessel 2
28/189-1:11

Chan Pond Unslipped:
Variety Unspecified

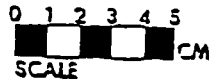
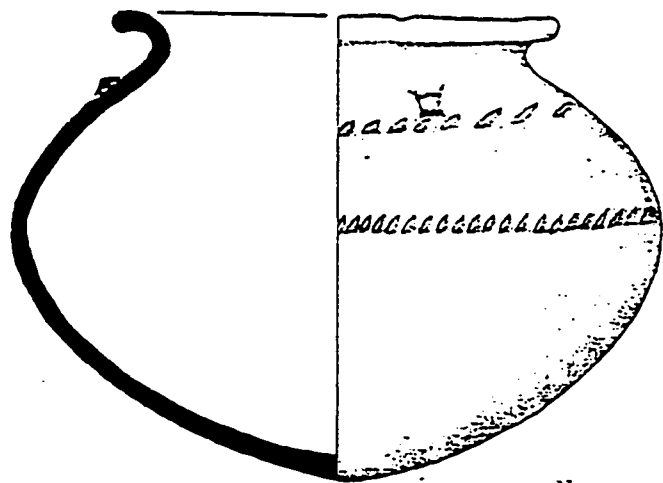
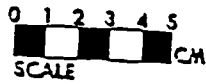


Figure 40. Vessel 1 and 2 from the Choj Group *Chultun*, X-uul-canil

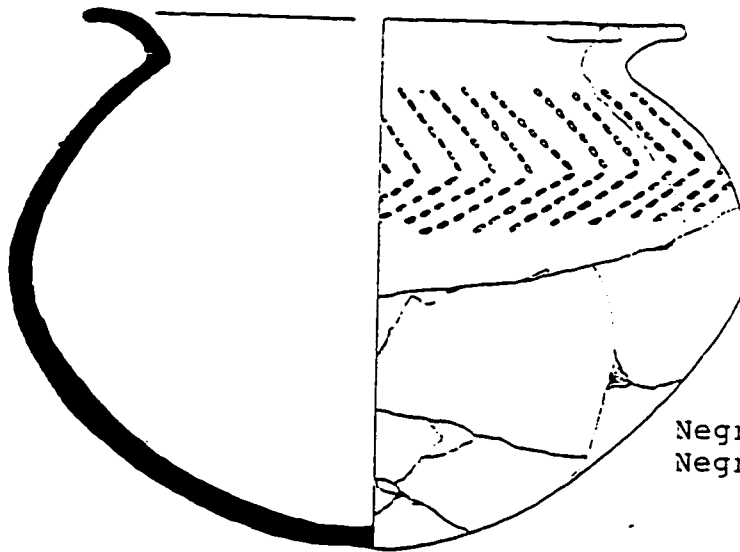
From: Gray 1997



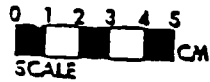
Vessel 3
28/189-1:12



Negroman Punctated-Incised:
Negroman Variety



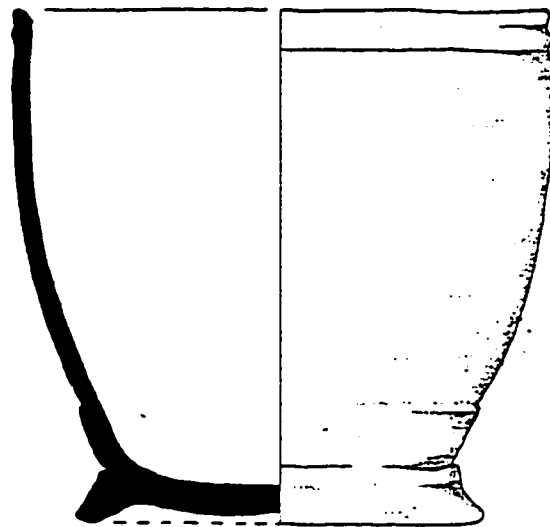
Vessel 4
28/189-1:13



Negroman Punctated-Incised
Negroman Variety

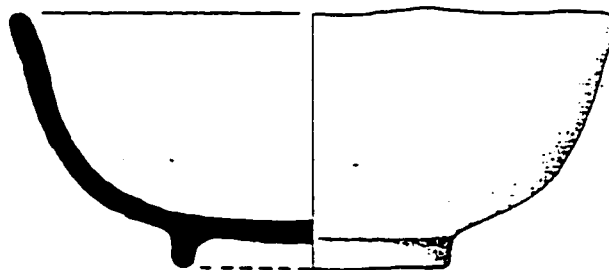
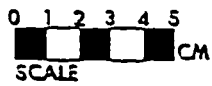
Figure 41. Vessel 3 and 4 from the Choj Group *Chultun*, X-uul-canil

From: Gray 1997



Vessel 5
28/189-1:14

Aguacate Orange:
Privaccion Variety



Vessel 6
28/189-1:15

Aguacate Orange:
Aguacate Variety

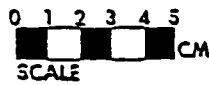


Figure 42. Vessel 5 and 6 from the Choj Group *Chultun*, X-u'al-canil

From: Gray 1997

examples of the Fowler Orange type of the Hermitage Phase. These were a Fowler Orange-Red: Spring Camp Variety (28/189-1:17, Figure 43) and a Fowler Orange-Red: Fowler Variety (28/189-1:18, Figure 44).

The third category of material recovered from this level were the faunal remains. These included numerous bivalve shells (*Nephronaias*), and several rodent bones (28/189-1:611). It is thought that these faunal remains represent intrusive examples, rather than deliberately placed or deposited materials as there was no uniform arrangement to their distribution. In addition, the remains did not show signs of human modification such as drilled holes on the shell, cut marks on the bones, or any indication of heating, cooking or burning.

The fourth category of material recovered was that of human remains (28/189-1:636). These remains were examined by S. Schwake, project osteologist. Her report (Schwake 1997) reflected both levels and all areas of the Choj Group *Chultun* (Appendix 2). This report identifies the minimum number of individuals (MNI) represented as four, based on the presence of four maxillary left canines. None of the remains were determinate of sex or stature. They were identified as adult, as there were several premolars present, all epiphyses were fused, and there was the presence of occasional arthritic lipping. Analysis was hampered as many of the bones showed marked erosion, primarily due to the caustic and aerobic conditions with the *chultun* chamber. While the condition of the human remains in *Chultun* 1 varied from good to poor, the disturbed nature of the remains within the *chultun* made it difficult to conclude if these individuals were recovered from their initial interment area, or if they were displaced over time. It

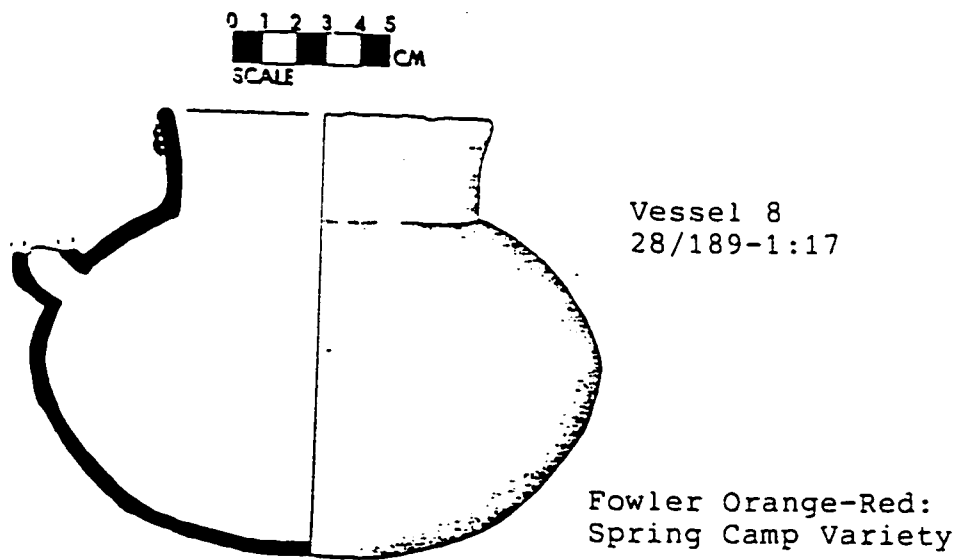
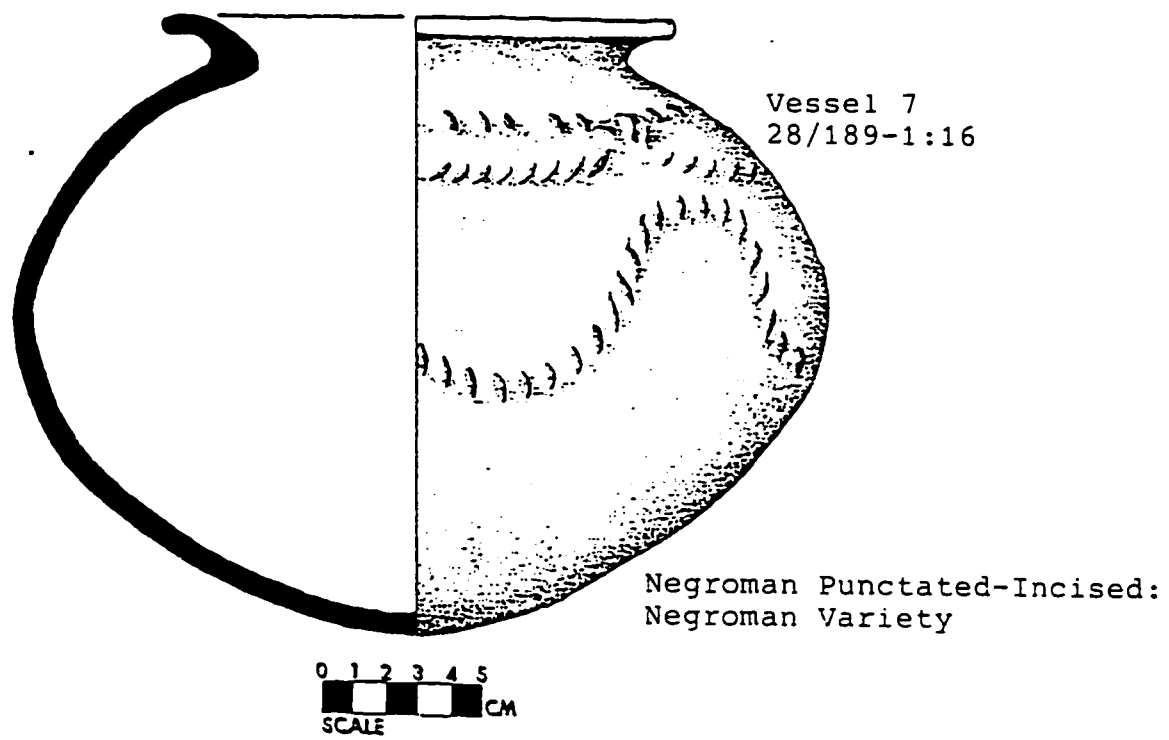


Figure 43. Vessel 7 and 8 from the Choj Group *Chultun*, X-uul-canil

From: Gray 1997

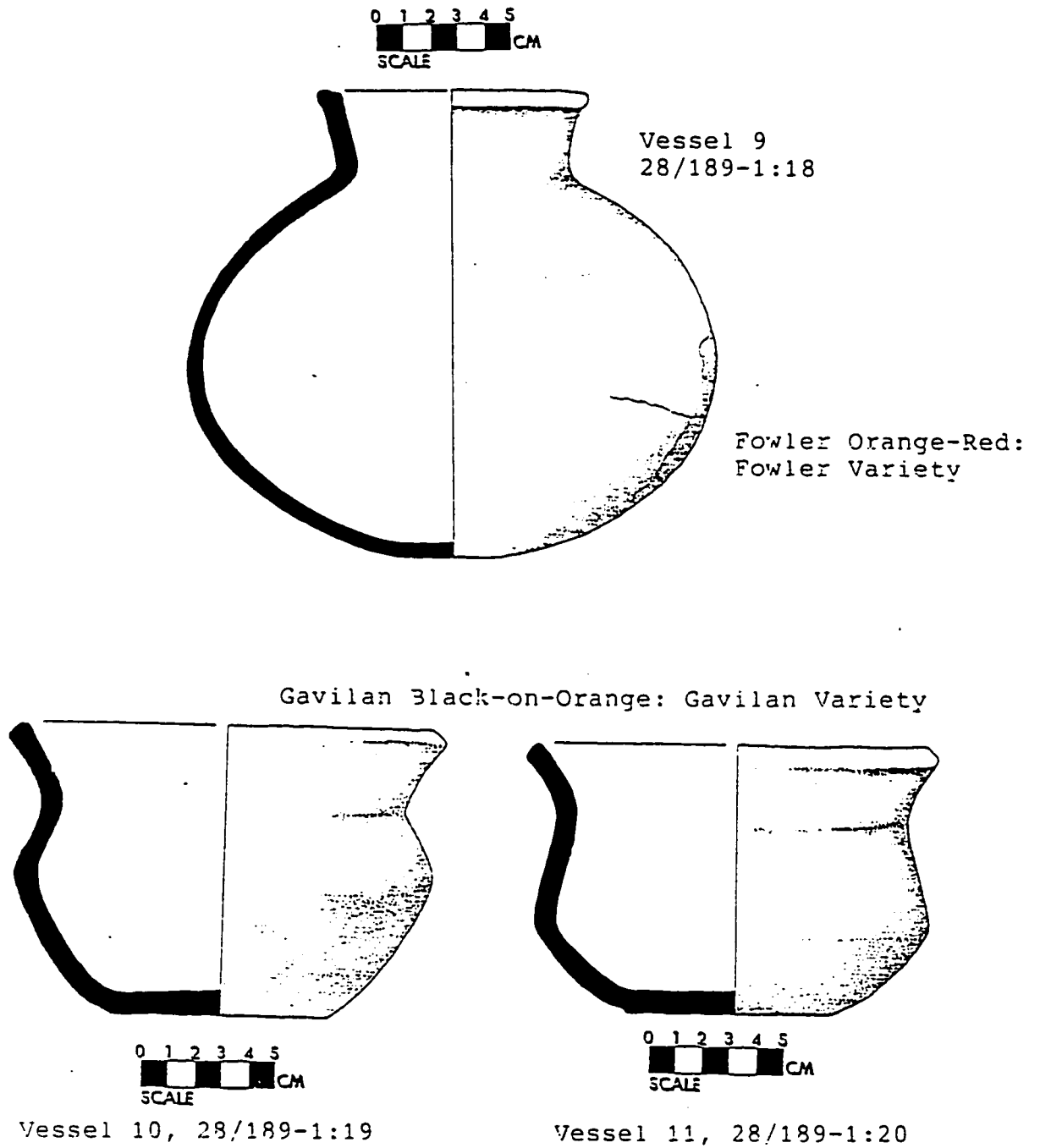


Figure 44. Vessel 9, 10, and 11 from the Choj Group *Chultun*, X-uul-canil.

From: Gray 1997

can be said with certainty, however, that the remains were recovered from a sealed context. They may have been moved by natural forces and materials entering the *chultun*, but the *chultun* was their burial chamber. Excavations below these human remains represented another level, which was differentiated from Level 1 by a marked change in matrix.

Level 2a

This was a hard packed area, a lense, between Level 1 and Level 2 (Figure 45). This lense was confined to the west/central portion of the chamber, and encompassed bulk ceramics (28/189-1:623, from the mixed context of Level 2 and 2A) dating to the Protoclassic/Floral Park Phase, bulk lithics (28/189-1:605), and bulk faunal (28/189-1:612) remains. It also yielded human remains with the recovery of a maxillary left canine, 2 cranial fragments, an ulna fragment, portions of a second metacarpal, and a proximal hand phalanx (28/189-1:637). Beyond the limited extent of this level, a large deposit designated Level 2, was uncovered.

Level 2

This level matrix was likely formed due to internal fill from natural weathering of limestone, as this level was a compact and dense limestone layer. In addition, lenses of dark organic material were intermingled with more compact, fine grained limestone. The occurrence of organic materials is the result of root decomposition over time. It is felt that the capstones of the two orifices (east and south) were probably intact and in

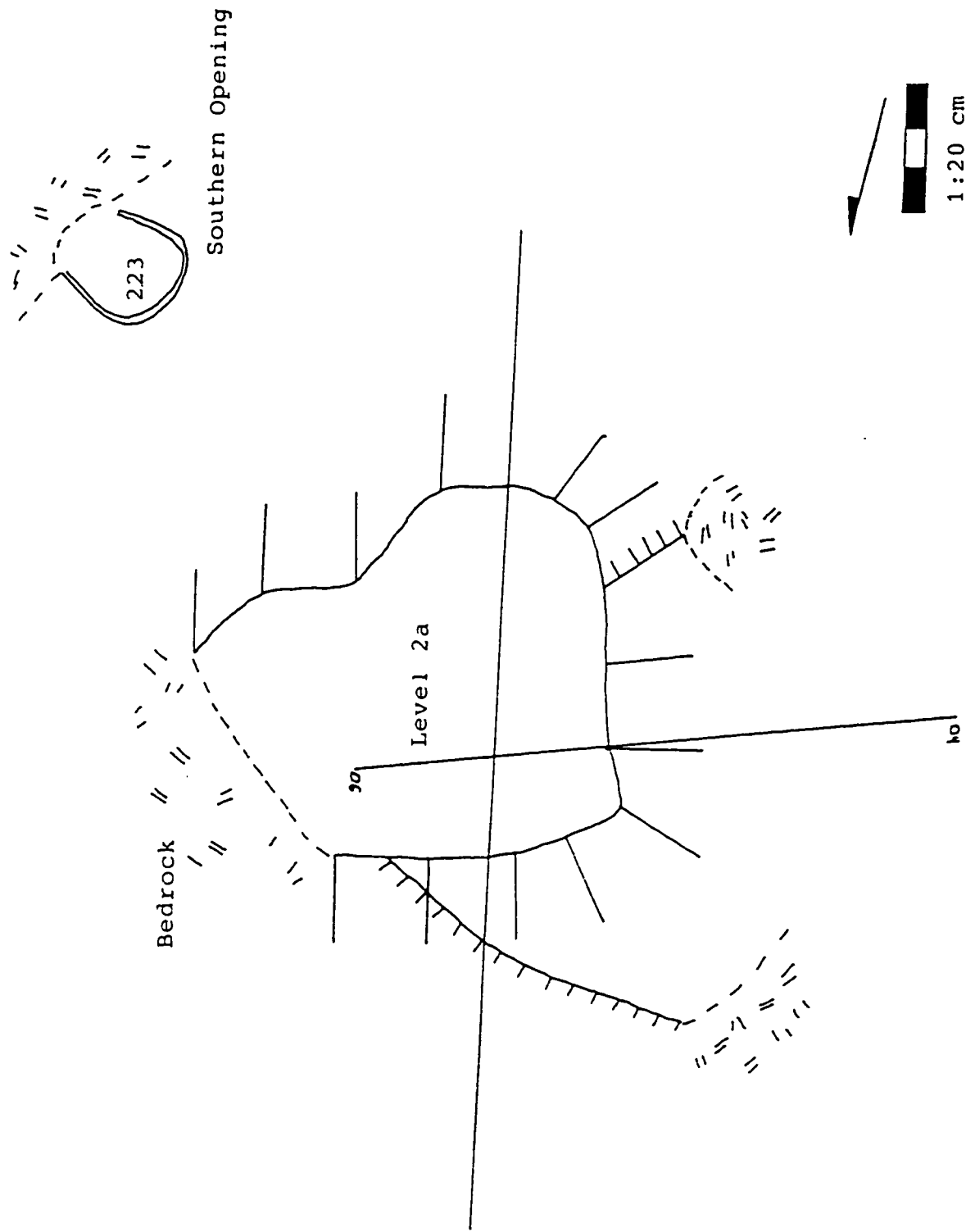


Figure 45. Top Plan of Level 2a, Choj Group *Chultun*, X-uul-canil

From: Gray 1997

position, sealing the orifices, and organic materials as this level formed. Thus, the fill consisted mainly of spall from the chamber roof and wall with small amounts of material entering through the capstones. At a later date, the capstones collapsed and the chamber received an influx of organic materials forming Level 1, and covering Levels 2a and 2. While this later influx was noted in all areas of the *chultun*, the original deposit (Level 2) was confined to central and southern sections of the chamber. The thickness of the level in the centre of the chamber was 28 cm, while the southwest and southeast sections were 9 cm. This thin level rested atop the bedrock floor surface carved by the Maya.

The materials recovered from Level 2, though not as abundant as that from Level 1, included a small collection of lithics (28/189-1:604), a proximal section of an obsidian blade (28/189-1:9), ceramic sherds (28/189-1:623), faunal remains (28/189-1:613), and scattered human remains (28/189-1:637). Here, the remains of at least two individuals were excavated judging from two small bone concentrations in the south and north sections of the chamber. The northern concentration was associated with a burial capstone recovered 2.48 m BUD. The southern bone concentration was located proximal to Vessel 10 (28/189-1:19) and Vessel 11 (28/189-1:20). Although the human remains and two ceramic vessels were encompassed by the more compact Level 2, these were most likely associated with Level 1 in regards to deposition. As mentioned previously, the human remains likely were displaced over time. As such, when the capstones collapsed and material entered the *chultun*, the human remains and vessels most likely were shifted from their original placement.

The excavation of this level and the *chultun* chamber was halted once bedrock was encountered. The central portion of the chamber exposed bedrock at 244 cm BUD, but the bedrock in the northwest and northeast sections was not encountered until 275cm BUD.

With excavations in this *chultun* complete, it was noted that while simultaneous excavations in the site core were producing few artifacts, excavations in the periphery, specifically the *Choj* Group, proved to be the exception. However, as investigations moved upslope, toward the site core, a *chultun* which revealed very few artifacts, was encountered.

Chultun 2 (Unit CH2-1)

The 1997 field season involved the excavation of a solitary feature which was located closer to the site than the *Choj* Group. This feature was located south of Nohol Nab, in proximity to a small reservoir. When the *chultun* was first encountered it was noted that the chamber's entrance shaft was almost completely filled with debris. This point of entry, a single orifice, was circular in form and measured 52 cm in diameter. Although no capstone was recovered, the *chultun* orifice was bevelled, suggesting that it supported a capstone in the past. In the vicinity of the orifice there was a small collection of artifacts, including two lithic bulk lots (28/189-1:174 and 28/189-1:200), as well as a bulk lot of Late Classic ceramics (28/189-1:212).

When the entry was cleared and the *chultun* was accessed, its morphology displayed a central entrance shaft which lay directly below the orifice and led to an

eastern and a western chamber (Figure 46). These chambers were similar in dimensions, and had finely prepared domed roofs. There was no evidence of plaster on either the walls or flooring, but it was notable that the floors were level surfaces (Figure 47). Openings that stemmed off the entrance shaft were evident at an early stage in the excavations. A system of letter codes to differentiate these areas was established. The entrance shaft, designated Lobe A, offered access to the West Lobe (B) and an Eastern Lobe (D). In the early stages of excavation, it was thought that an opening to the South, Lobe C would be encountered. As the work progressed it became evident that there was no opening to the south, and the artifacts recovered from this designation were thereafter regarded as part of the Lobe A assemblage. These three lobes were treated as separate sub-units with the excavated artifacts and matrix samples being processed separately.

Lobe A

This entrance shaft consisted of one level which was a combination of humus and fall which was referred to as Level 1 and 2a. Due to the mixing of the materials, the matrix was a fine, dry, brown soil with 30% inclusions of pebbles and a 2% inclusion of boulders. The level ranged in thickness from 90 cm to 135 cm, with an average thickness of 111 cm. There was no concentration of artifacts, but there were several artifact types recovered. Lithic artifacts included one bulk lot of chert (28/189-1:173), a chert multidirectional core (28/189-1:59), a fragment of quartz crystal (28/189-1:60) and a fragment of vein quartz (28/189-1:61). There were three bulk lots of ceramic sherds (28/189-1:175), originally designated to Lobe C), (28/189-1:178) and (28/189-1:172)

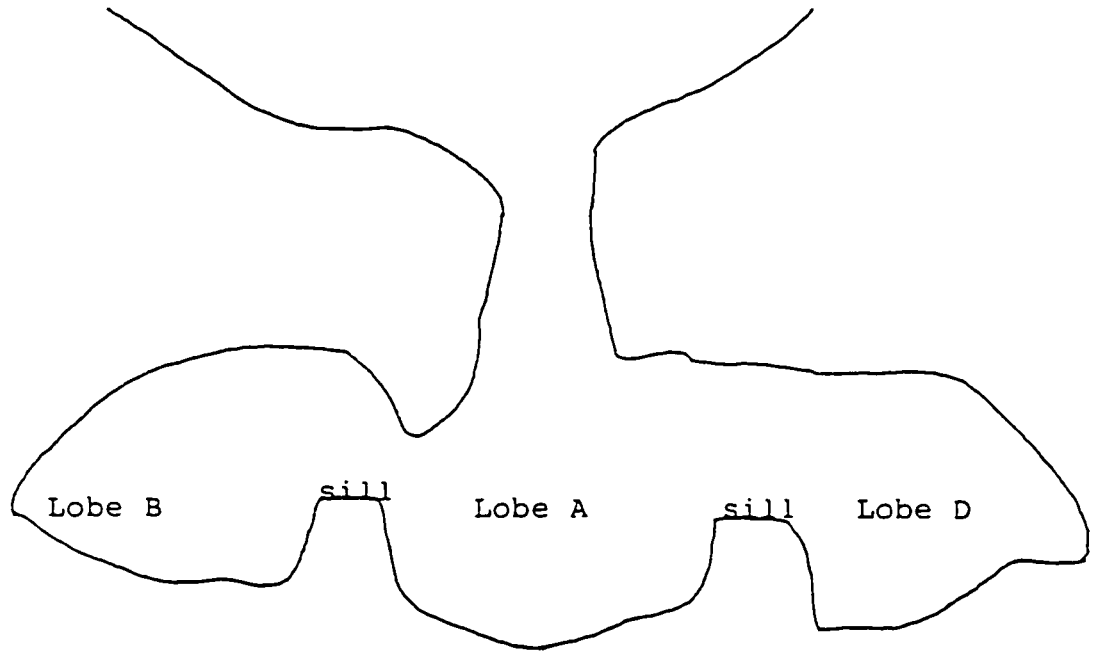
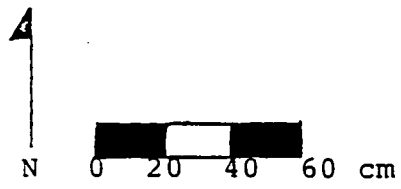


Figure 46. Profile of *Chultun 2*, X-ual-canil

From: Gray 1997

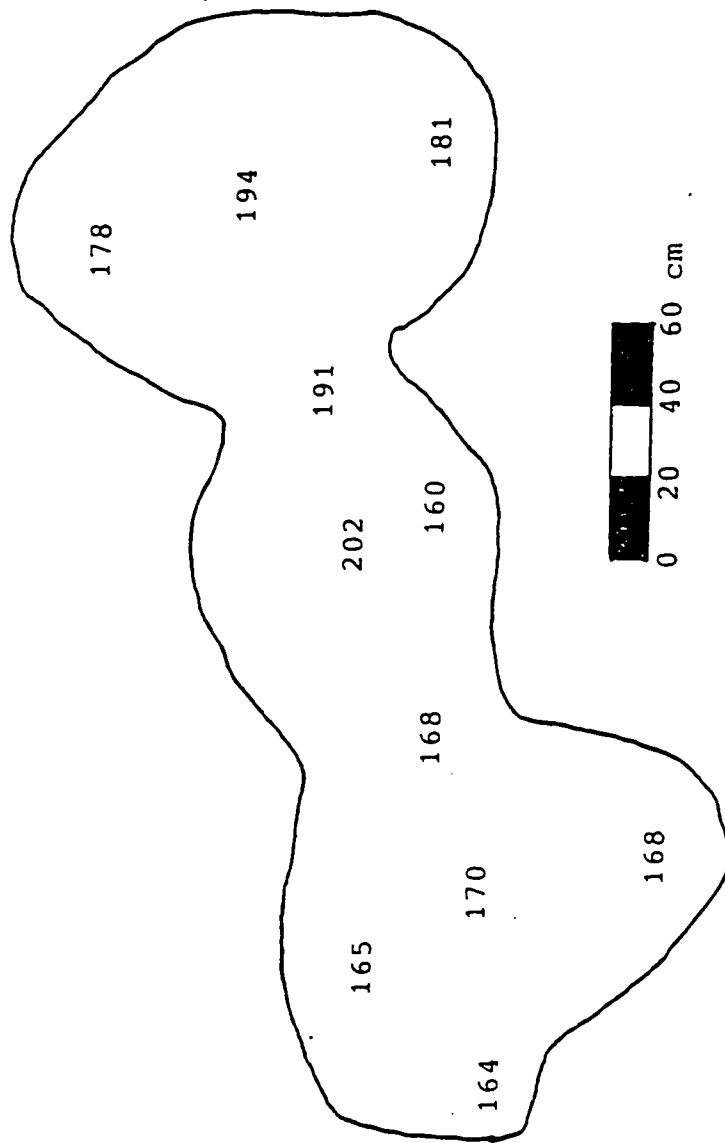


Figure 47. Top Plan of *Chultun 2*, X-ual-canil

From: Gray 1997

all dating to the Late Classic period. A small collection of faunal remains, identified as *jute* shells (28/189-1:625), were also recovered from this Lobe. With the removal of these artifacts, bedrock was encountered at an average depth of 185 cm BUD.

Lobe B

As with Lobe A, the first level from this Western Lobe (Level 1 and 2b) was a mixture of humus and fall. The matrix, consistent with the entrance shaft, was a brown, fine, dry soil with 30% inclusions of pebbles and a 2% inclusion of boulders. This matrix filled the lobe and did not allow access to the western portion of the lobe. As a result, an internal profile line could not be established. However, as the lobe entrance had first been encountered at a depth of 120 cm BUD, this point became the starting measurement of this lobe. A layer of matrix and artifacts were removed, approximately 47 cm thick, before bedrock was reached. By 170 cm BUD, bedrock had been encountered in all regions of Lobe B. The bedrock surface was relatively flat with only 4 cm variability in depth from the west to the central portions.

The artifacts recovered from Level 1 and 2b included lithics and ceramics. Chert artifacts predominated the assemblage with 3 bulk lithic lots (28/189-1: 199, 28/189-1: 209, 28/189-1:211), a multidirectional core/chopper (28/189-1: 197), and the medial section of a biface (28/189-1:210). The other artifacts recovered were ceramic sherds, forming two bulk lots which dated to the Late Classic period (28/189-1: 198 and 28/189-1:210).

Lobe D

This region of the *chultun* was the only area where three levels were identified. Consistent with Lobes A and B, the matrix of Level 1 and 2d was a mix of humus and fall. The matrix was a brown, fine, dry fill with 30% inclusions of pebbles and a 2% inclusion of boulders. The level began at 97 cm BUD and continued to a depth of 181 cm, with an average thickness of 82 cm. Contained within this level were a small collection of chert artifacts (lithic bulk lot 28/189-1:176) and Late Classic ceramics (28/189-1: 171, and 28/189-1:177, bulk lots). This level of brown soil gave way to a 5 cm layer of fine, powder like, grey, dry soil which revealed no artifacts. This layer, Level 3, sat directly atop the bedrock which was reached at average depth of 186 cm BUD. The bedrock floor surface in this lobe was not as uniform as those in Lobe A and B. There was a gradient from 193 cm and 194 cm recordings in the western and central regions up to 178 cm in the north, 181 cm in the south and 184 cm in the east.

This sloping effect is a one of the features which makes this *chultun* distinct from the other chambers studied from the X-ual-canil periphery. The noticeable gradient in the eastern lobe (D) may be an extension of the unique architectural element within the *chultun* which separated the side chambers from the central chamber. At the entrances to both the east and the west chambers there were areas of raised bedrock which give a lipped, or sill-type opening to the chamber (See Figure 46). A second unusual discovery was the size and morphology of the *chultun*. Once excavated, the *chultun* was an example of a small, dual chambered feature which measured a total of 2.6 m in length by 1.4 m in width. Not only was the *chultun* small in comparison to the other chambers

excavated, the artifact assemblage was surprisingly sparse. The paucity of artifacts supports the belief that the *chultun* was looted prior to our excavations. Further, it is believed that as the *chultun* was almost filled with debris, most of the material excavated could have been washed in, rather than being purposely placed in the lobes. Therefore, the artifacts recovered were not the primary artifacts that the *chultun* originally held. Unfortunately, the excavations did not clarify the function of the chambers and this was compounded by the absence of any surrounding structures. This was a solitary *chultun*, devoid of any architectural buildings but not necessarily separated from a humanly modified landscape. A small reservoir was located a short distance away. The association of *chultunob* and reservoirs was also noted again the following field season when two *chultunob* in the western periphery of X-ual-canil were investigated.

Group F

This area of the X-ual-canil periphery was designated the Gran Maestro Group (Figure 48). This group includes two clusters of settlement. One cluster of the group consists of *Chultun* 3, two mounds (Structures 35F and 36F) and a reservoir. The second cluster, located 90 m upslope, is comprised of *Chultun* 4 and two mounds (Structures 34F and 33F). The only mound excavated in this group was Structure 33F. The excavation of two units uncovered a terminal phase of architecture including a retaining wall and a possible floor (Prince 1998: 41-48). Based on the excavations of Structure 33F, *Chultun* 3 and *Chultun* 4, it is apparent that the Gran Maestro Group was utilized during the Late Classic period. The occupation of Structure 33F and the use of two *chultunob* appear to

35F
 Chultun 3
 36F

Gran Maestro Group

33F
 Chultun 4
 34F

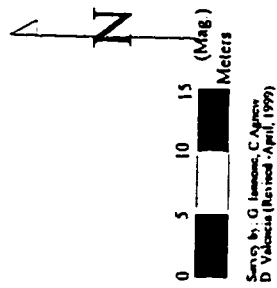


Figure 48. Gran Maestro Group, X-uai-canil

From: Gray 1998

be contemporaneous.

Chultun 3 (Unit CH3-1)

Chultun 3, the first feature excavated in the 1998 season, was located 9 m southwest of Structure 35F, 20 m due east from Structure 36F and approximately 10 m to the west of a reservoir. No excavations were conducted within the mounds or the reservoir, but a 1 m by 1 m unit was placed around the *chultun* orifice. This unit represents the only example from X-ual-canil where a *chultun* with an *in situ* capstone was excavated. The capstone was a circular disk-shaped limestone slab, 38 cm in diameter, which rested at a slight angle on top of a bevelled orifice measuring 42 cm in diameter. At some point prior to the 1998 investigations, a triangular section was separated from the rest of the capstone, leaving the *chultun* orifice slightly exposed. As the area immediately around the orifice was surveyed for this triangular portion of the capstone, several chert (28/189-1:416) and ceramic (28/189-1:418) artifacts were located. Attempts to recover the missing piece of the capstone were unsuccessful, and attention turned to the subterranean chamber. When the capstone was removed and the entrance chamber was accessed, two unplastered chambers, exhibiting different dimensions stemming off to the north and the south, were visible (Figure 49). It was determined that these chambers should be excavated separately, as sub-units, similar to the strategy employed in *Chultun 2*. The entrance shaft became Lobe A, providing access to Lobe B in the north, and Lobe C to the south (Figure 50).

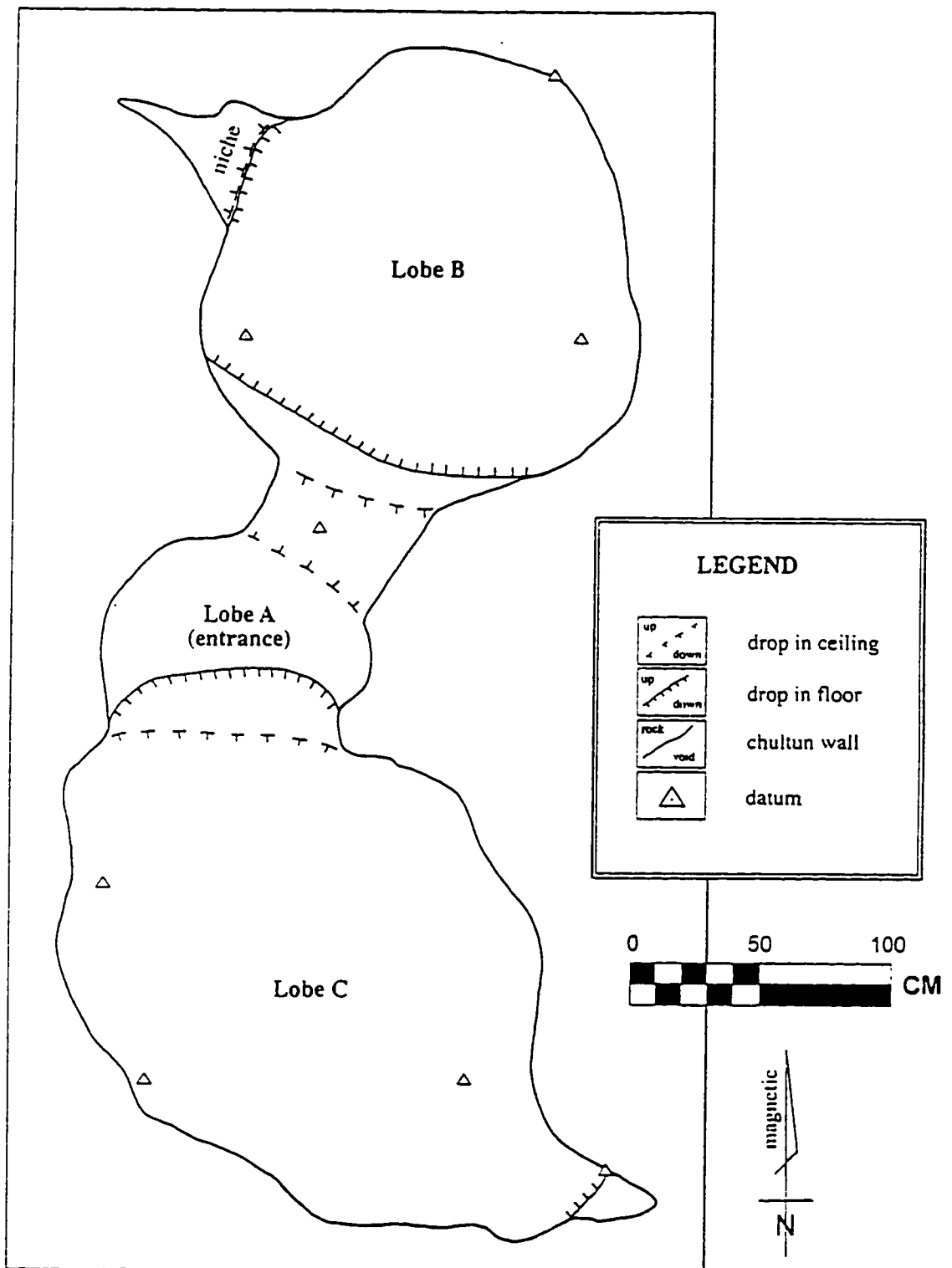


Figure 49. Top Plan of *Chultun 3*, Gran Maestro Group, X-uul-caniil

Map Created by Christophe Helmke and presented in Gray 1998

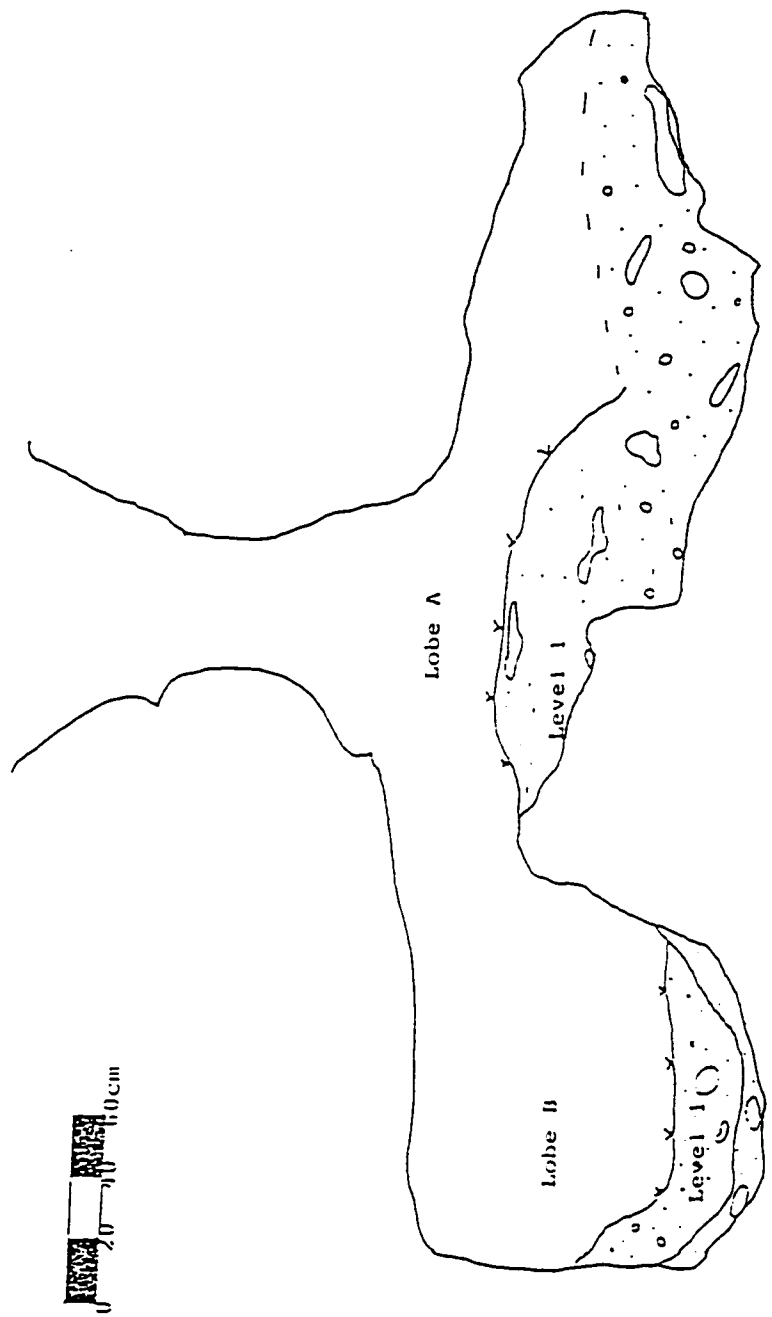


Figure 50. Profile of *Chultum* 3, Gran Maestro Group, X-uul-canil

From: Gray 1998

Lobe A

This region consisted of one level, a humic layer of rich brown, dry matrix with small pebbles, roots and litter mat intermixed. At its widest point Lobe A measured 85 cm. The level had an average thickness of 28 cm at which time bedrock was encountered. The artifacts recovered included numerous lithics and ceramics. The lithic types included a bulk lot of chert (28/189-1:421), obsidian shatter (28/189-1:426) and a blade fragment (proximal end 28/189-1:425), as well as a piece of quartz massive³ (28/189-1:510). Unslipped, fragmentary ceramic sherds (28/189-1:417) dating to the Late Classic period were also removed from this level. There was no uniform placement of the lithic and ceramics artifacts, and it is plausible that these were washed into the entrance.

The notion of debris washing in became increasingly apparent as excavations were conducted during the rainy season. It was noted that rain and surface materials would enter from the eastern side of the orifice (the lowest point of the surface bedrock), and leach into Lobe C. This activity caused Lobe C to be filled with debris to the point that when the *chultun* was first entered, the surface we stood on (the top of Lobe A, Level 1) was even with the top of Lobe C. The transition from Lobe A to Lobe C was not well defined like the space between Lobe A and Lobe B. As a result, the faunal materials recovered in the southern region of Lobe A (the point of entry into Lobe C) were combined with those recovered from Lobe C (28/189-1:614). The artifacts recovered

³

Quartz massive is milky in appearance and is differentiated from the clear and glossy appearance of quartz crystal.

from the western region of Lobe A were scarce. The recovery of the ceramics sherds in this area was attributed to the naturally occurring slope within Lobe A. Within the 85 cm width of the Lobe, a 50 cm gradient was revealed. There was a 20 cm drop on a 45 degree angle, which led into a 30 cm drop on a 90 degree angle. This gradient appeared to lead materials naturally from the entrance lobe into Lobe C, while at the same time preventing vast amounts of debris from entering Lobe B. Some of this debris did form Level 1 in Lobe B, but it was not as dense as the matrices from Lobes A and C.

Lobe B

The northern chamber, designated Lobe B was 127 cm in length, 159 cm in width, and roughly circular in form. The chamber exhibited a rounded, dome-like roof which was finely formed despite the damage that the resident bats had inflicted. Excavations in this Lobe identified two natural levels which encompassed many artifacts. The first level, designated Level 1, was a humus layer with an average thickness of 26 cm. It was a rich, brown, dry matrix with minimal small pebbles (10%) and cobble inclusions (5%). The remains of several small rodents and two ungulate teeth (28/189-1:424) were recovered from this level, along with numerous ceramics and lithic artifacts. The lithic artifacts include a bulk lot of chert (28/189-1:445), quartz massive fragments (28/189-1:427, 28/189-1:493), raw hematite (28/189-1:547), and a medial section of an obsidian blade (28/189-1:484). These artifacts were distributed throughout the chamber, and are associated with ceramics dating to the Spanish Lookout Phase (AD 675-875) of the Late Classic Period (Figure 51).

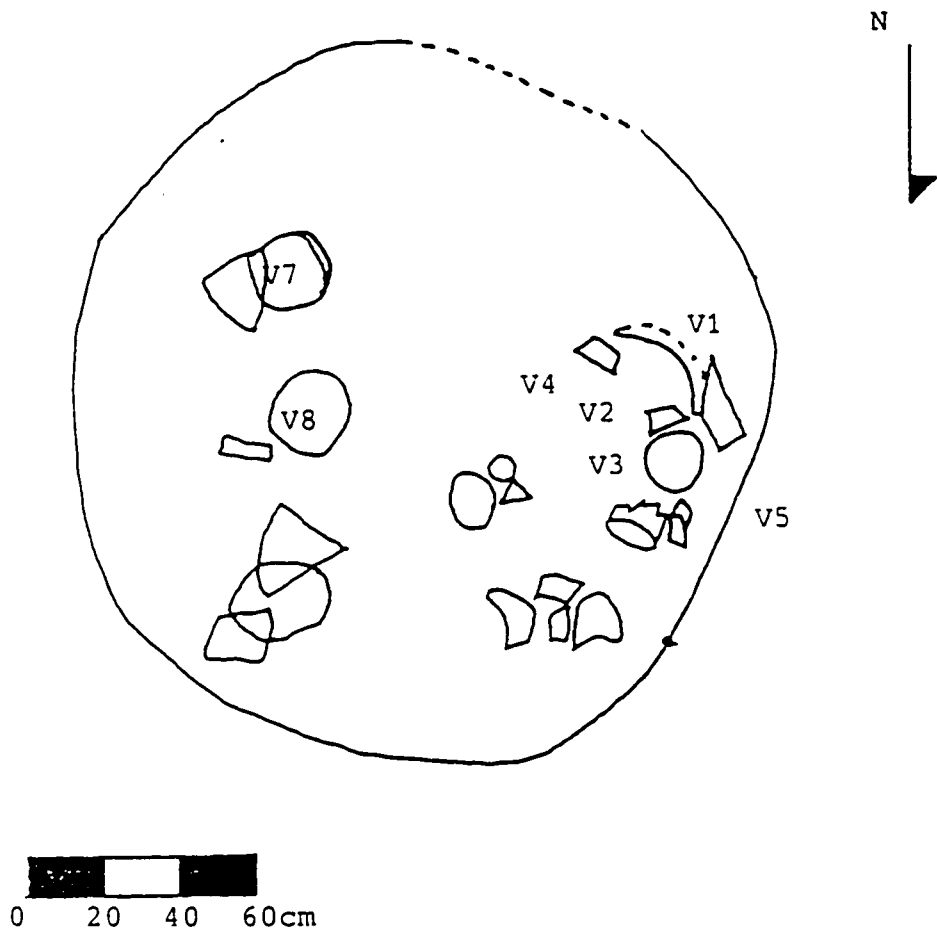
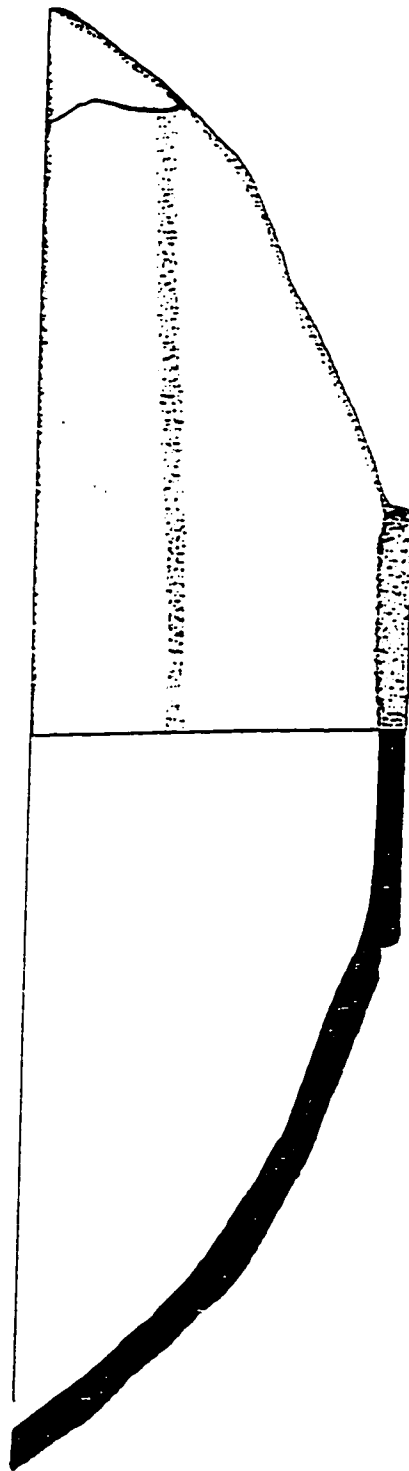


Figure 51. Top Plan of Lobe B, *Chultun 3*, X-ual-canil

From: Gray 1998

A total of 11 ceramic vessels were removed from Lobe B, along with numerous sherds (bulk lot 28/189-1: 420). These include three miniature vessels of the Belize Red: Belize Variety, Vessel 2 (28/189-1:462, Figure 53), Vessel 4 (28/189-1:464, Figure 54), and Vessel 8 (28/189-1: 553, Figure 53). A fourth miniature vessel, Vessel 10 (28/189-1:554, Figure 54), is an example of a Yalbac Smudged Brown: Yalbac Variety. This latter miniature vessel was contained within a Belize Red: Belize Variety bowl (Vessel 3, 28/189-1:463, Figure 55). Just 10 cm away, Vessel 5, a Montego Polychrome: Montego Variety vase (28/189-1:550, Figure 56) was recovered in a fragmentary state. The vase was later consolidated in the lab. The recovery of two olla rims was also expected to require consolidation, but no body sherds matching these rims were excavated from any region of the *chultun*. The first rim recovered, Vessel 6 (28/189-1:551), is a Cayo Unslipped: Cayo Variety. The second olla rim, Vessel 11 (28/189-1:555, Figure 59), which was located across the chamber from Vessel 6 (28/189-1:551), near the western edge of the lobe entrance, is an example of a Mount Maloney Black: Mount Maloney Variety jar. To the eastern side of the lobe opening was Vessel 1, a Dolphin Head Red: Dolphin Head Variety plate (28/189-1:461, Figure 52). Moving toward the centre of the chamber, two Belize Red: Belize Variety bowls, Vessel 7 (28/189-1: 552, Figure 57) and Vessel 9 (28/189-1: 465, Figure 58) were uncovered. Unfortunately, due to the resident bats, soil samples from within the upright vessels were not in pristine condition, and as a result no soil samples were recoverable for flotation experiments. With the ceramic vessels removed, excavations resumed until a change of matrix was noted. Level 1 ended at 250 cm BUD and gave way to Level 2.

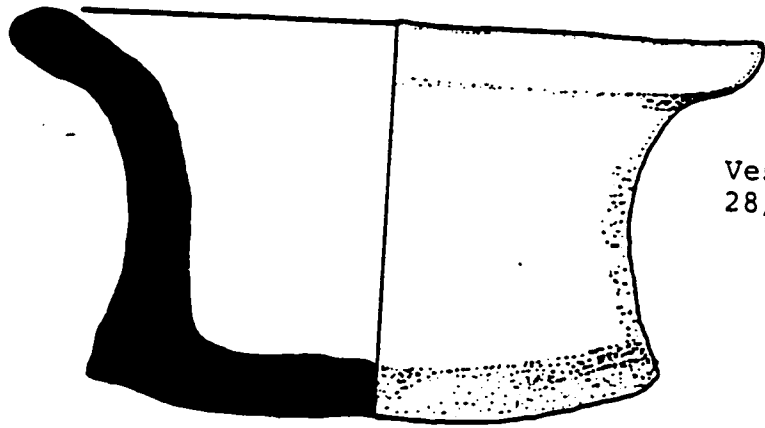


1:1 scale

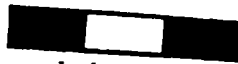
Vessel 1, 28/189-1:461

Figure 52. Vessel 1- Dolphin Head Red: Dolphin Head Variety- *Chultun* 3, X-uai-canil

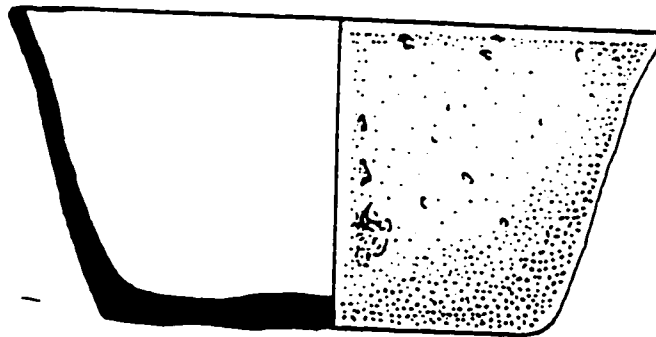
From: Gray 1998



Vessel 2
28/189-1:462



1:1 scale



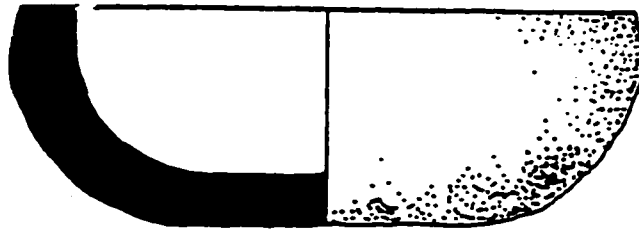
Vessel 8
28/189-1:553



1:1 scale

Figure 53. Vessel 2 and 8- Belize Red: Belize Variety - *Chultun 3*, X-ual-canil

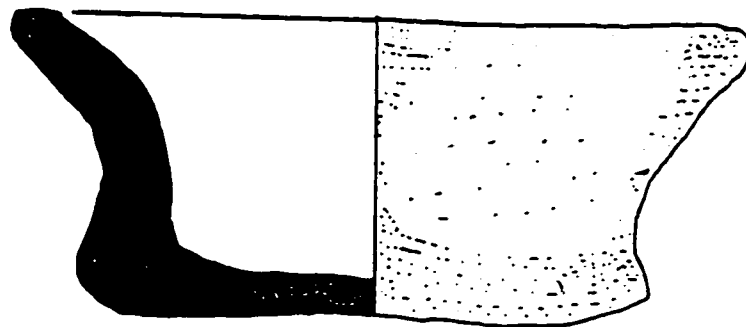
From Gray 1998



Vessel 10
28/189-1:554



1:1 scale



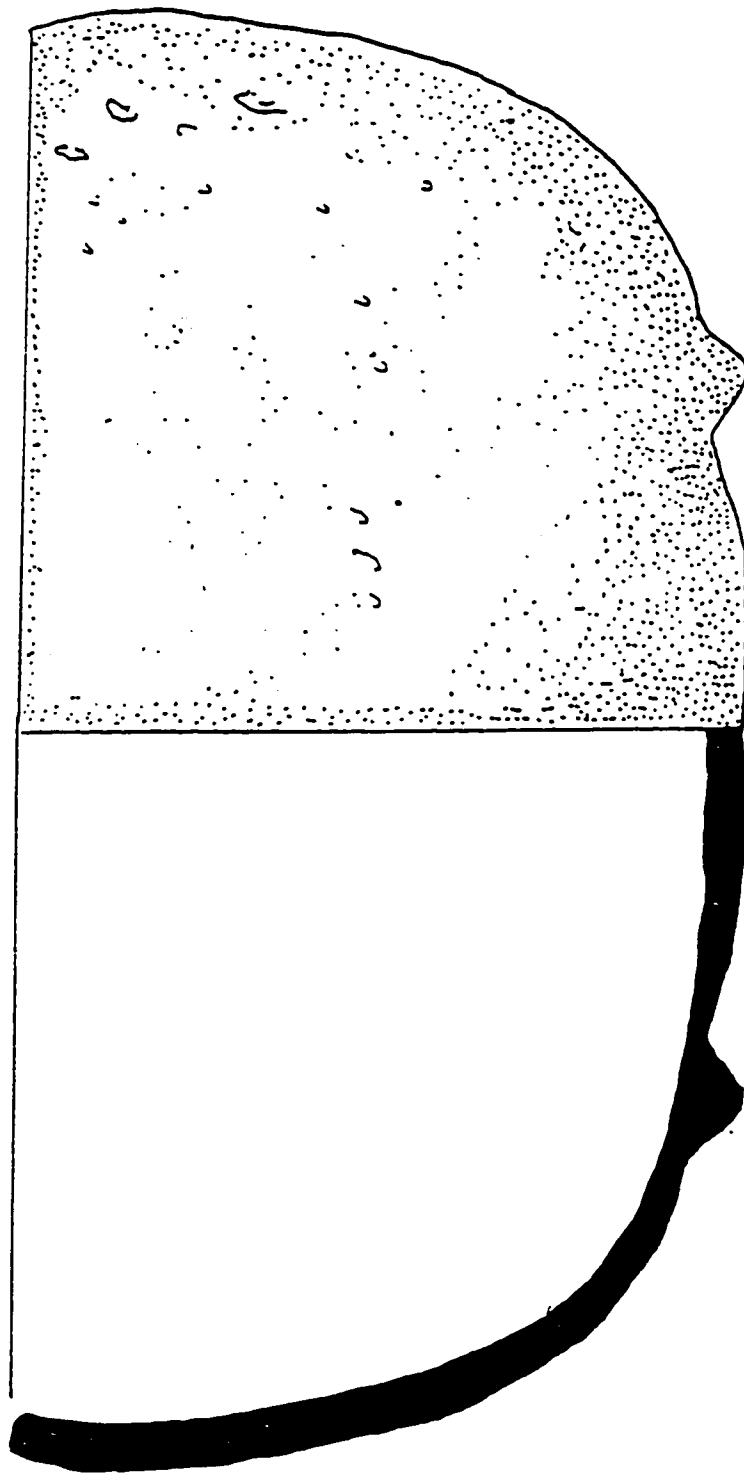
Vessel 4
28/189-464



1:1 scale

Figure 54. Vessel 10- Yalbac Smudged Brown: Yalbac Variety and Vessel 4-Belize Red: Belize Variety - *Chultun* 3, X-uai-canil.

From: Gray 1998



Vessel 3
28/189-1:463
Drawn by: P. Tohver



Figure 55. Vessel 3 - Belize Red: Belize Variety - *Chultun* 3, X-ual-canil.

From: Gray 1998

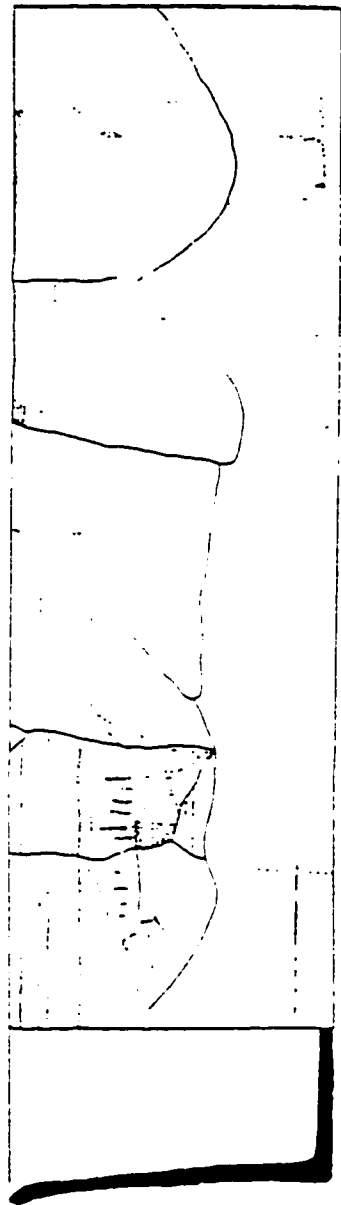
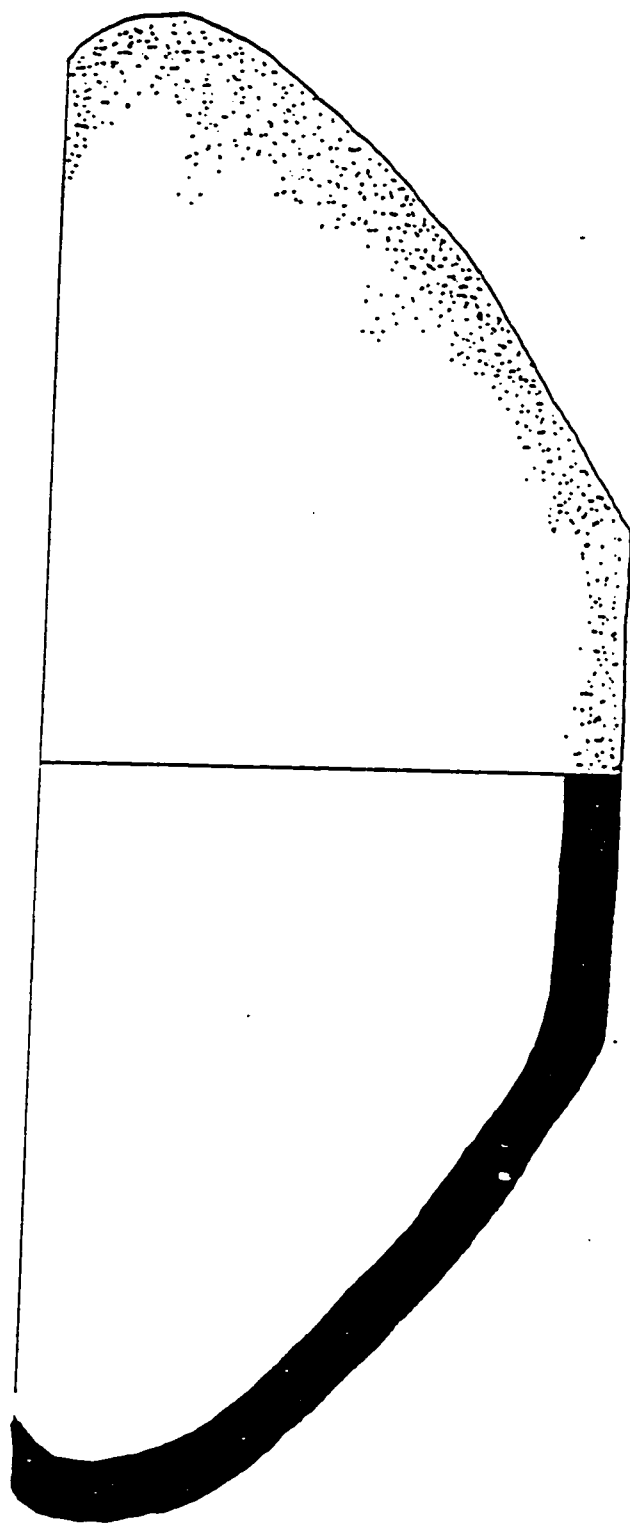


Figure 56. Vessel 5 - Montego Polychrome: Montego Variety - *Chultun* 3, X-ual-canil

From: Gray 1998

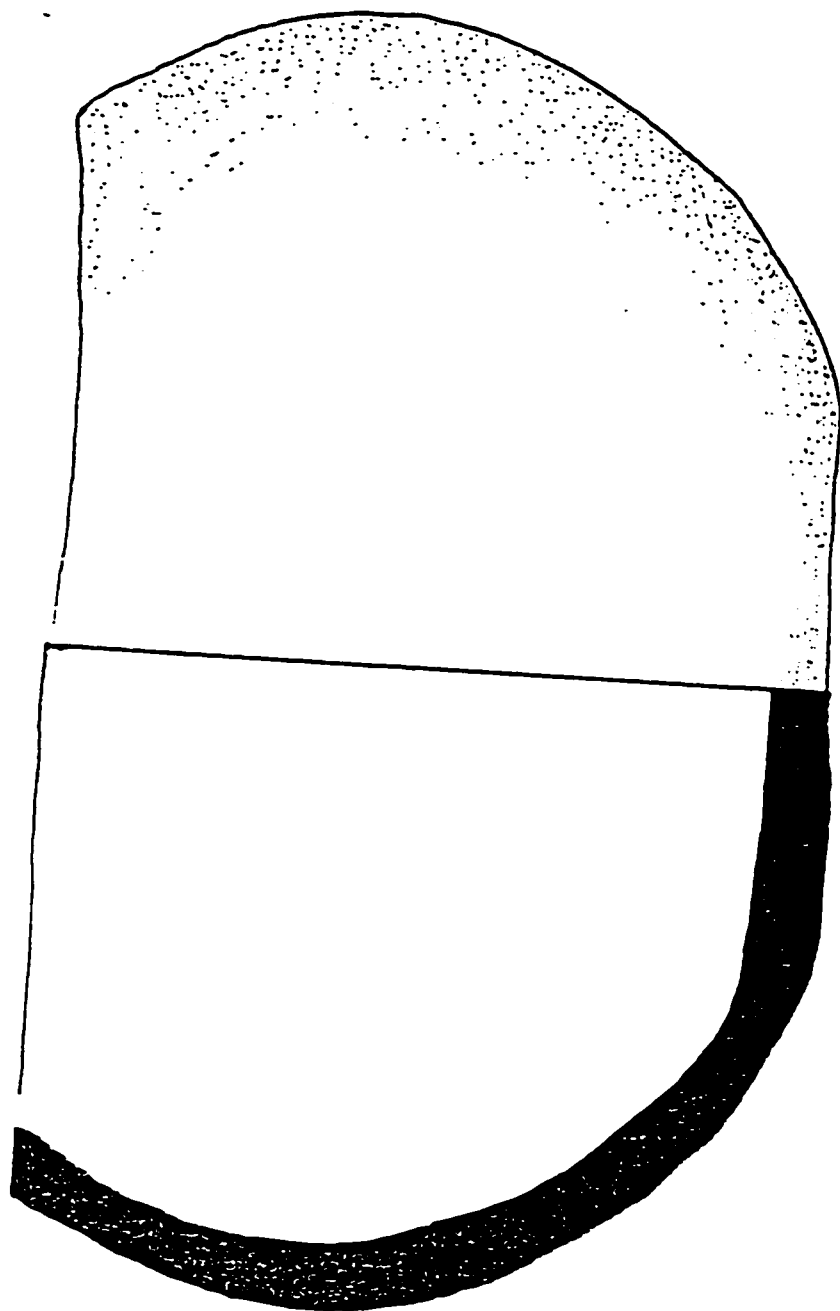


Vessel 7
28/189-1:552
Drawn by: A. Salzer and P. Tohver

1:1 scale

Figure 57. Vessel 7 - Belize Red: Belize Variety - *Chultun* 3, X-ual-canil

From: Gray 1998



1:1 scale

Vessel 9
28/189-1:465
Drawn by: A. Selzer

Figure 58. Vessel 9 - Belize Red: Belize Variety - *Chultun* 3, X-ual-canil

From: Gray 1998

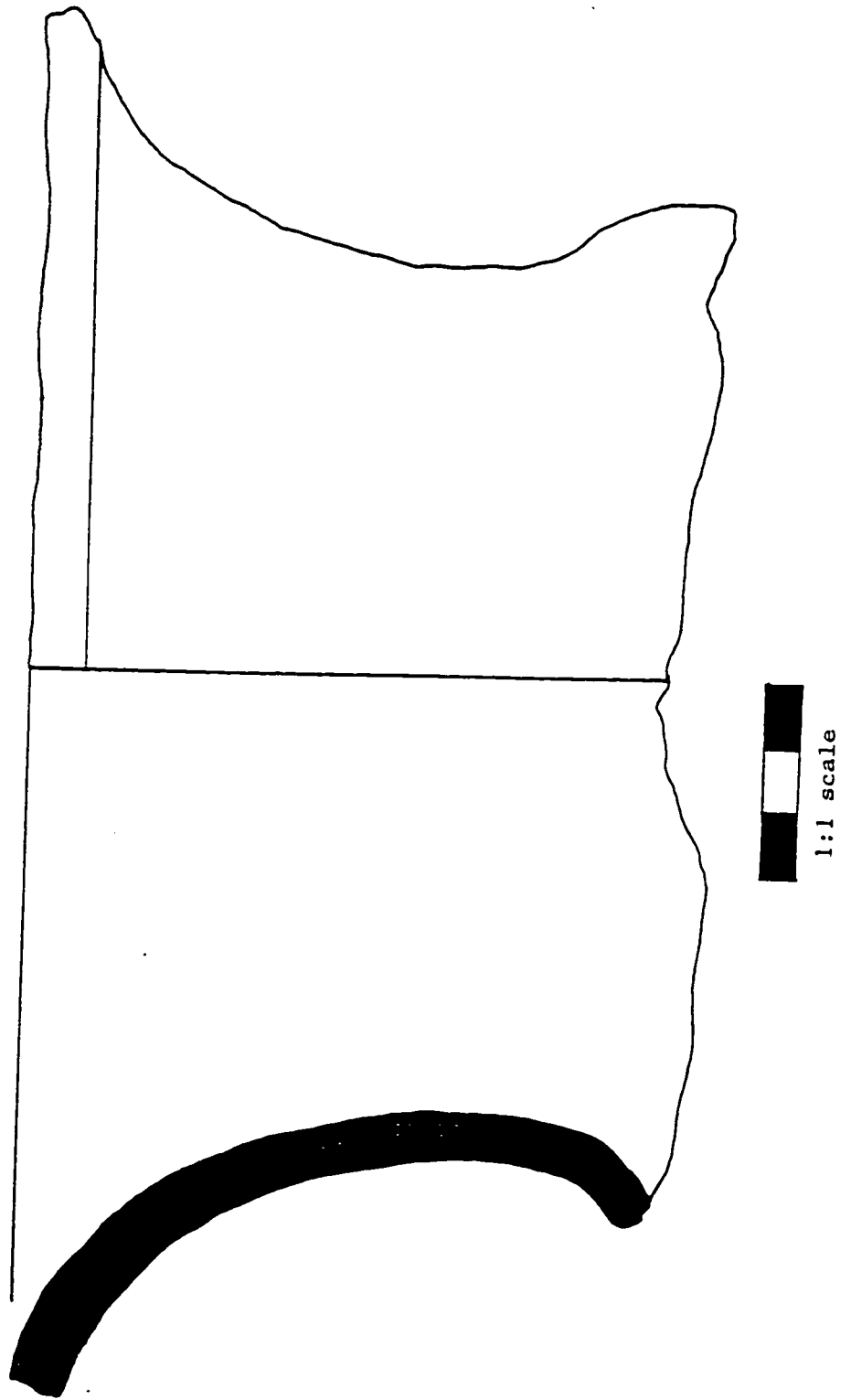


Figure 59. Vessel 11-Mount Maloney Black: Mount Maloney Variety
Chultun 3, X-ual-canil

From: Gray 1998

The matrix consisted of a dry, grey soil with frequent inclusion of cobbles and pebbles. This level was not consistent throughout the chamber. Rather, it formed an oblong sphere extending from the southwest region, through the chamber's centre and continuing into the northeast. The level thickness in the southwest was 2 cm, but this increased to 7 cm in the centre and 8 cm in the northeast. Cobbles predominated, with soil only being recovered from the spaces between the rocks. There was no uniform placement of cobbles, nor were there any examples of cut or prepared stone evident. No complete vessels were excavated from this layer, only fragments of Late Classic sherds (bulk lot, 28/189-1:430). There was no obvious spatial patterning to these ceramics, nor to the chert artifacts removed (bulk lot 28/189-1:530). All of the lithic and ceramic artifacts recovered were contained within the matrix; no artifacts were found lying directly atop the bedrock. Bedrock was encountered at an average depth of 250 cm BUD. The bedrock was quite uniform, ranging from depths of 249 cm to 253 cm. These measurements were taken from three internal data points that were established in this lobe. These points, 150 cm BUD, were used to create temporary data points for mapping purposes. A similar system of internal data was used in Lobe C.

Lobe C

The opening to Lobe C was very restricted and internal data points were difficult to establish as there was debris blocking the chamber. There was a narrow opening 40 cm from the roof of the lobe to the top of the debris (see Figure 49). However, once the debris was removed, a long, narrow chamber measuring 2.2 m long, 1.6 m wide and 2.4

m deep was revealed. Excavations uncovered two levels and numerous artifacts.

Level 1

This humus layer, averaging 38 cm thick, consisted of loose, brown, dry soil with root and leaf litter intermixed. There was a 10% inclusion of pebbles and a 5% inclusion of cobbles, likely the result of spall from the roof and walls which was distributed throughout the lobe. Intermixed in the spall and soil were several examples of lithic artifacts which included; a bulk lot of chert (28/189-1:481), an obsidian shatter (28/189-1:485), flake (28/189-1:486), and a blade (28/189-1:487), as well as quartz massive (28/189-1:443) and crystals (28/189-1:499 and 28/189-1:522). Two unique finds were also recovered, a small jadeite mosaic piece (28/189-1:494) and a pebble sized piece of slate (28/189-1:500) which was incised and carved (Figure 60). These artifacts were found at opposite ends of the chamber but were both associated with ceramic sherds dating to the Spanish Lookout Phase of the Late Classic (bulk lot 28/189-1:478). In addition to the sherds, three olla rims, Vessels 12, 14 and 15, were discovered. Vessels 12 (28/189-1:556) and Vessel 15 (28/189-1:558, Figure 61) are identified as Cayo Unslipped: Cayo Variety jars. The third olla rim, Vessel 14 (28/189-1:557, Figure 62) is a Jones Camp Striated: Jones Camp Variety jar. The other vessel contained in the chamber, Vessel 13 (28/189-1:466), was recovered in two pieces (Figure 63). These are the basal tripod portions of a Belize Red: Belize Variety dish. As with all the olla rims excavated in *Chultun* 3, the walls of this tripod dish were not present.

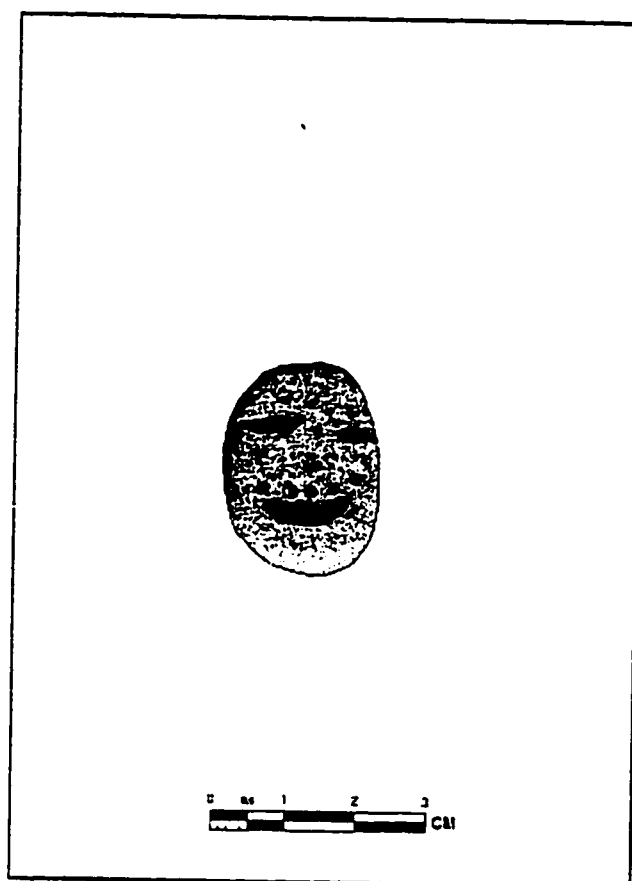
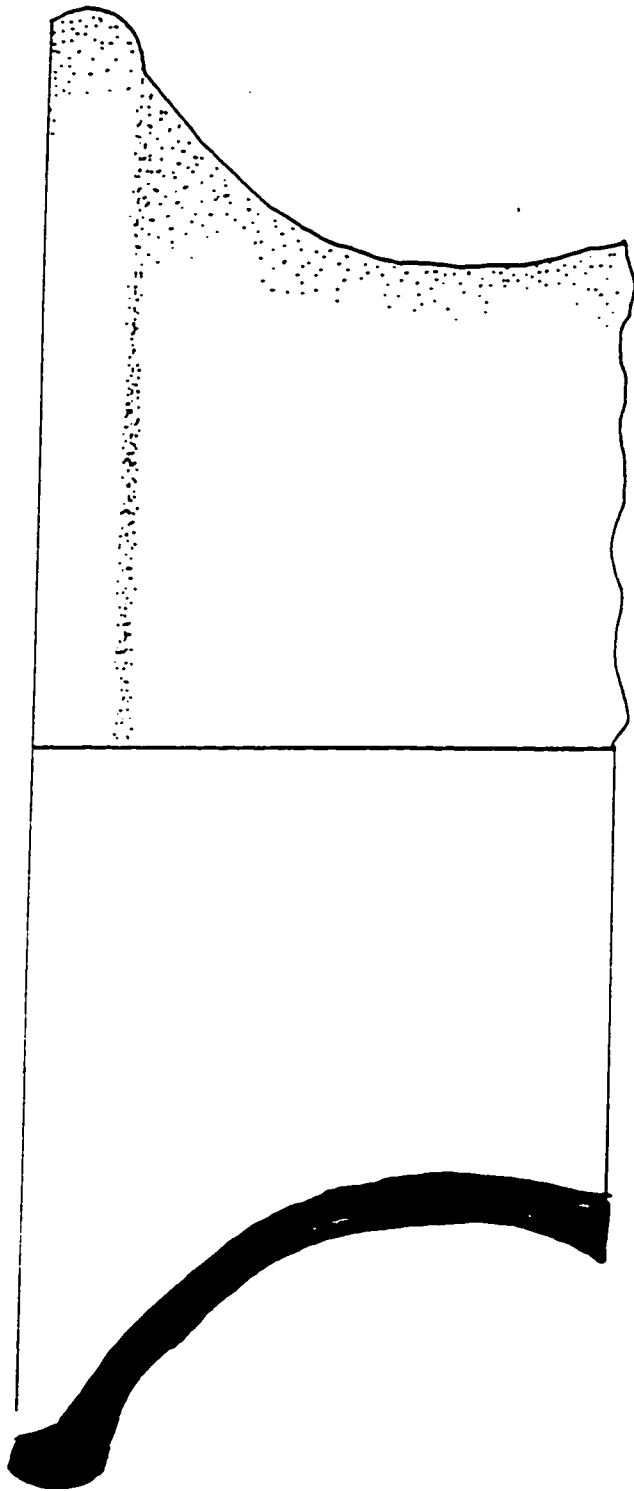


Figure 60. Decorated Pebble recovered from *Chultun 3*, X-uul-canil

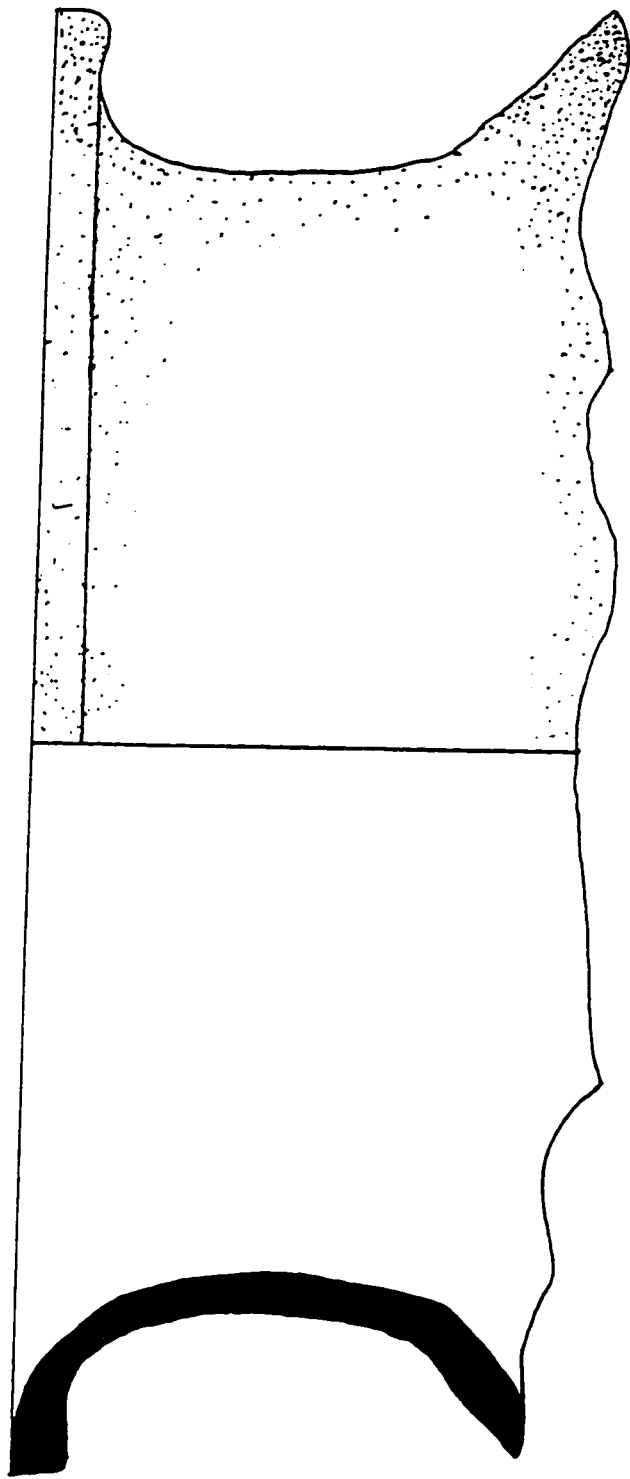
From: Gray 1998



Vessel 15, 28/189-1:558

Figure 61. Vessel 15 - Cayo Unslipped: Cayo Variety - *Chultun* 3, X-ual-canil

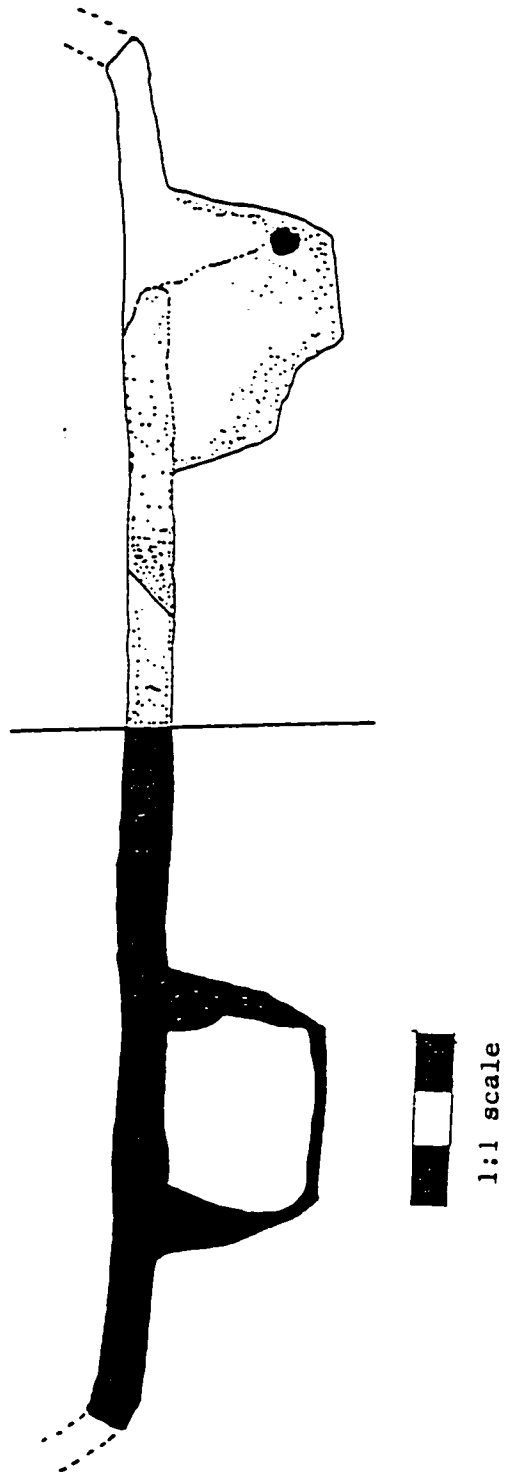
From: Gray 1998



1:1 scale

Vessel 14, 28/189-1:557

Figure 62. Vessel 14 - Jones Camp Striated: Jones Camp Variety -*Chultum* 3, X-ual-canil
From: Gray 1998



Vessel 13
2B/109-1:466
Drawn by: Kieron Rupke

Figure 63. Vessel 13 - Belize Red: Belize Variety - *Chultun* 3, X-uai-canil

From: Gray 1998

The two pieces of this tripod dish were resting on top of several large cobbles. These cobbles were isolated to the southeast quadrant of the chamber and were the evidence for a second level.

Level 2

The second level consisted of a fine, dry, grey soil which was located in a thin lens upon, and between, large cobbles (Figure 64). The limestone cobbles were more concentrated here than in Lobe B and included a granite metate fragment (28/189-1:506). The level also revealed obsidian blades (28/189-1:488, 28/189-1:489 and 28/189-1:509) and a quartz massive (28/189-1:521). Bulk lots of chert lithics (28/189-1:532), ceramics (28/189-1:497) and faunal remains (28/189-1:614) were scattered throughout this 10 cm level.

Chultun 3 Observations

Prior to excavation, the vertical shaft leading into the feature was approximately 1.6 m in depth. This small landing served as the point of entry to the other lobes, to the north and to the south. By the time the excavations in the lobe were complete, a depth of 2.2 m BUD had been reached and it became increasingly difficult to exit the *chultun*. Also, the narrow orifice further restricted one's mobility. However, two roughly circular depressions were noted on the walls of the shaft which provided a type of foothold. It is suggested that these were created by the ancient Maya in order to facilitate their entrance and exit from the chambers (see Ricketson and Ricketson 1937: 123).

Another aspect of this area in the *chultun* which distinguished it from others was

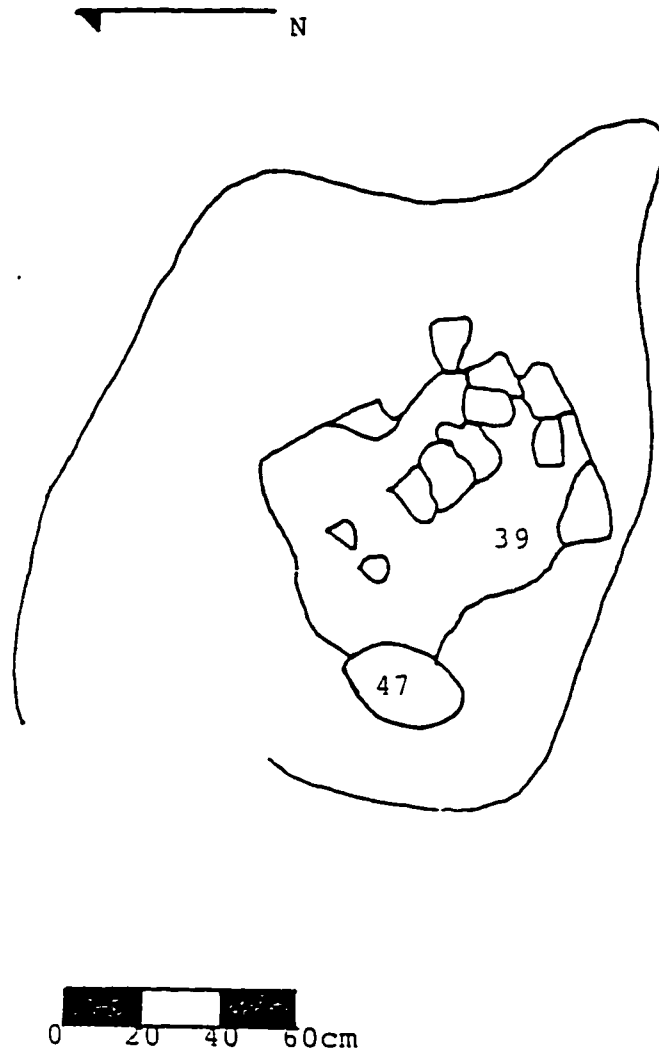


Figure 64. Top Plan of Level 2, Lobe C, *Chultun* 3, X-ual-canil

From: Gray 1998

that this landing was the only area which could be excavated by the natural light entering from the orifice. Lobe A marked the highest point within the *chultun* and required one to descend into the darkness of the north and south chambers. The idea of dark zones and deprivation from natural light will be discussed in more detail in Chapter 4. This zone of darkness beyond the entrance chamber was repeated in *Chultun 4*.

Chultun 4 (Unit CH4-1)

Chultun 4, located on a natural ridge 97 m west of *Chultun 3*, exhibited a lateral or "boot"- shaped morphology (Figure 65). Entrance into the chamber was gained through a single bevelled orifice, approximately 45 cm in diameter. The entrance shaft opened into a single chamber which, once excavations were completed, measured 3.4 m in length, 1 m in width, and a maximum of 1.5 m deep. The excavations did not alter the length or width of the chamber, as the original limestone walls were hardened.

Investigations in this chamber revealed two levels which had been formed by materials washing through the open orifice as well as spall coming from the chamber walls and ceiling.

Once the 1 m by 1 m unit was situated around the *chultun* orifice, excavation in the chamber began. Excavations were initially undertaken at the base of the entrance shaft which led north, into the chamber. As excavations progressed, four data points were established in the *chultun* chamber (on the cardinal directions), as well as several temporary points that were used during mapping. The first artifacts encountered were contained within a layer of humus, designated Level 1.

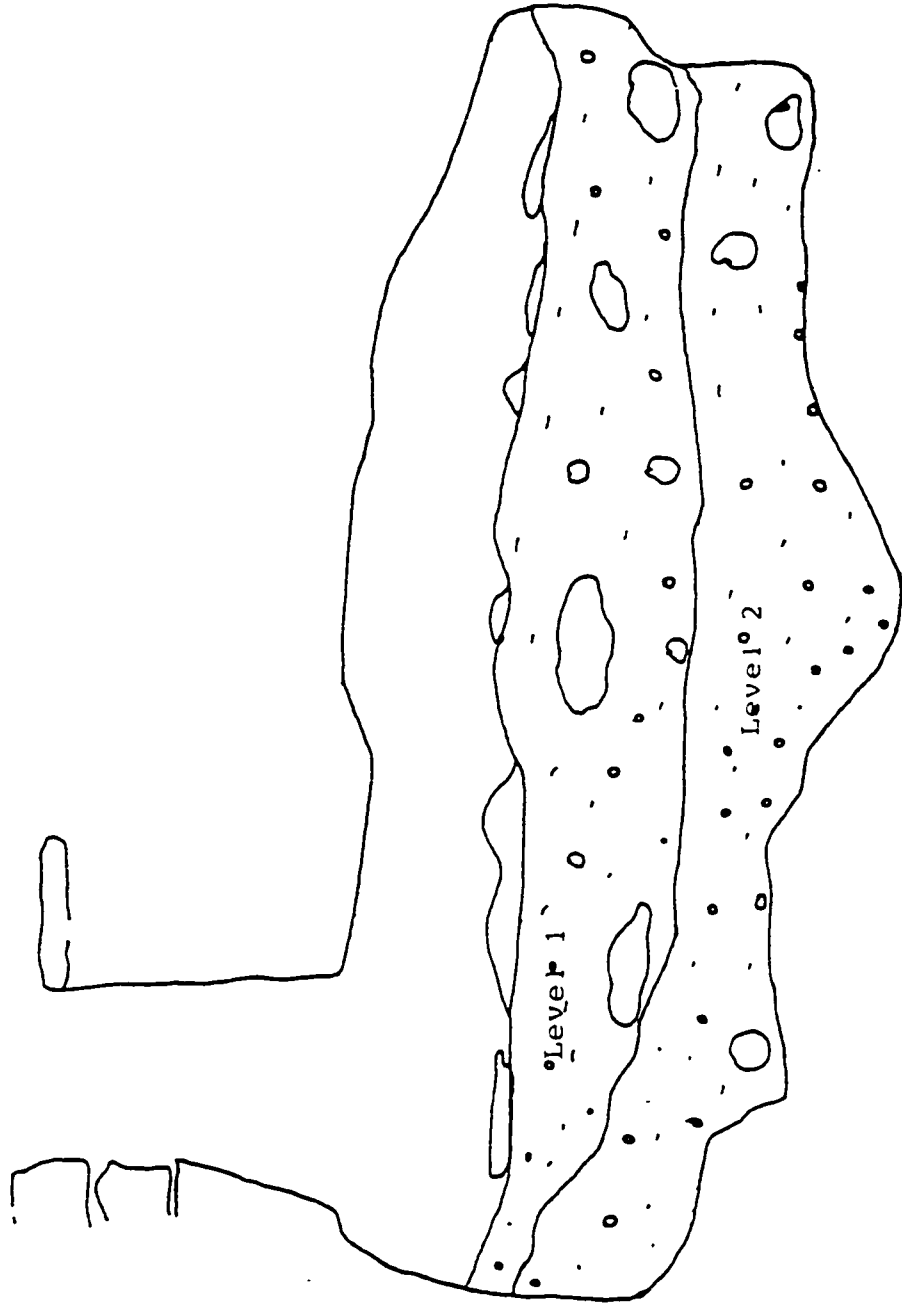


Figure 65. Profile of *Chultun* 4, Gran Maestro Group, X-uai-canil

From: Gray 1998

Level 1

This layer was comprised of loose, dry, brown soil with a 30% inclusion of pebbles and a 10% occurrence of cobble spall. The layer was 25 cm thick, and included bulk lots of ceramic sherds (28/189-1:496), chert debitage (28/189-1:535) and faunal remains (28/189-1:495). As excavations proceeded it was noted that soil below the orifice was compact, while the soil around the chamber walls was a very loose and was a mix of brown and grey soils. The compactness directly below the opening was attributed to water coming in the *chultun*, creating a harder consistency to the soil. The grey matrix near the chamber walls was likely limestone dust created by intrusive creatures who nested in the *chultun*. Toward the rear of the chamber two sections of plastered surfaces were encountered (Figure 66). These were located in the northwest and northeast regions of the chamber. The preservation of the surface was poor, ranging from 2 cm of plaster in the northwest to 5 cm in the northeast. The total thickness of the northwest section was 15 cm with a 3 cm ballast layer and a 10 cm core layer. The total thickness of the northeast section was 18 cm with a 6 cm ballast layer and a 7 cm core layer. In both plastered areas the ballast and core layers were dry fill, devoid of mortar. No artifacts, or cached offerings, were recovered beneath the two plaster sections. There was no evidence of plastered areas in any other regions or levels of this *chultun* chamber. Once the plastered sections were removed, a second, deeper level was encountered.

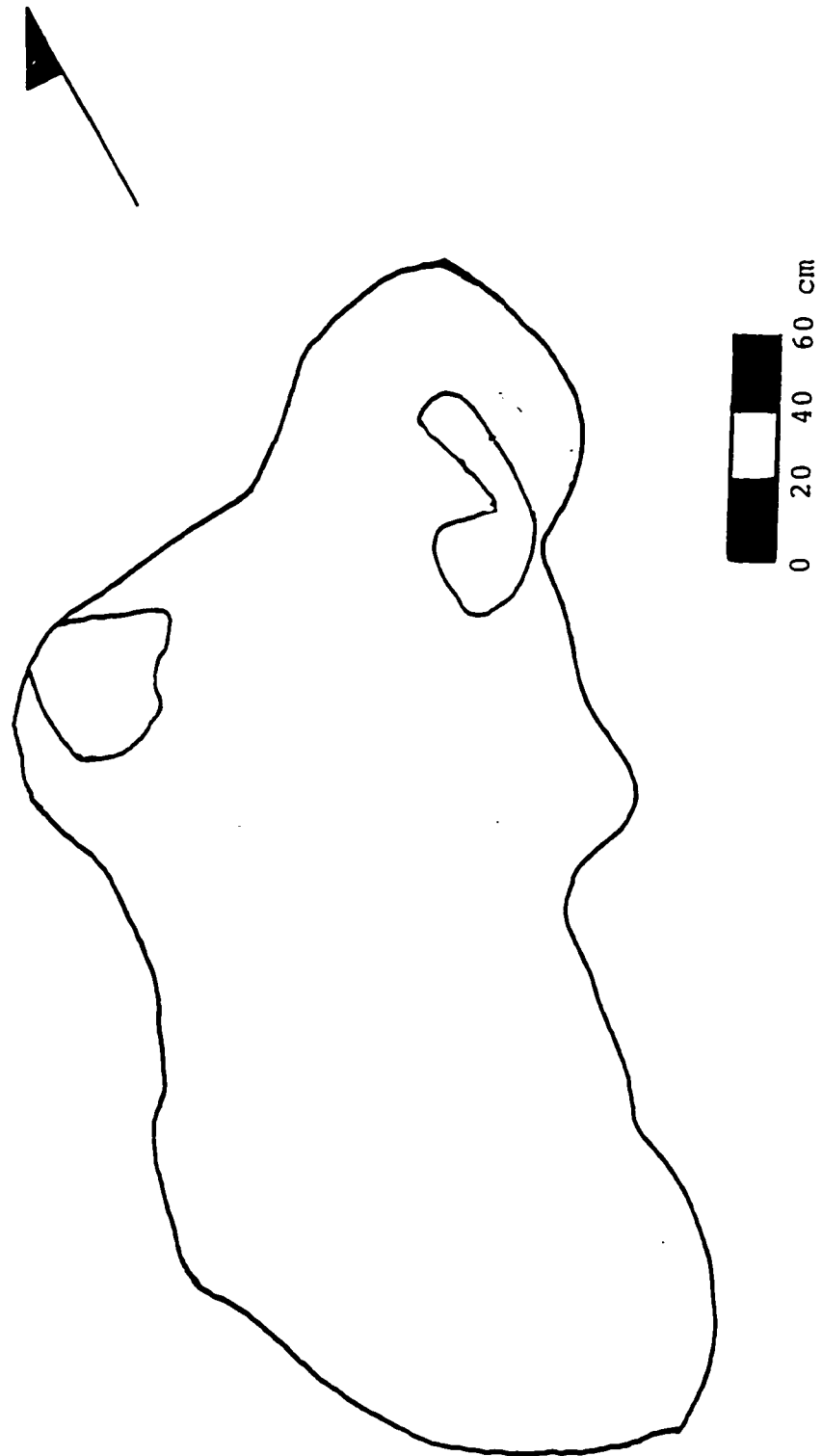


Figure 66. Plaster Sections from Level 1, *Chultun* 4, X-ual-canil

From: Gray 1998

Level 2

This level consisted of fine, dry grey soil with a 25% inclusion of large pebbles and small cobbles. The level averaged 42 cm in thickness and contained faunal remains (28/189-1:508), bulk chert (28/189-1:514) two quartz massive pieces (28/189-1:512 and 28/189-1:513), and ceramic sherds (bulk lot 28/189-1:515). A total of 6 ceramic vessels dating to the Tiger Run and Spanish Lookout Phases of the Late Classic period were recovered (see Appendix 1, Figure 67). Vessel 1 (28/189-1:559), a large olla body of a Macal Orange Red: Macal Variety was broken into several pieces. Also recovered from this southeast region of the chamber were Vessel 3 (28/189-1:561), a Xumantunich Black-on-Orange: Variety Unspecified bowl, which was contained within the larger Vessel 2 (28/189-1:560), a Silver Creek Impressed: Silver Creek Variety bowl. Vessel 4 (28/189-1:562), a small Cayo Unslipped: Cayo Variety olla rim, rested beside these stacked bowls and contained the remains of a small rodent. To the east of these ceramics, two vessels, appeared as if they were stacked. Vessel 5 (28/189-1: 563), a Meditation Black: Meditation Variety bowl was partially overlapped by Vessel 6, an inverted, Platon Punctated Incised: Platon Variety plate (28/189-1:564, Figure 68). These two vessels were in direct association with human remains (28/189-1:638).

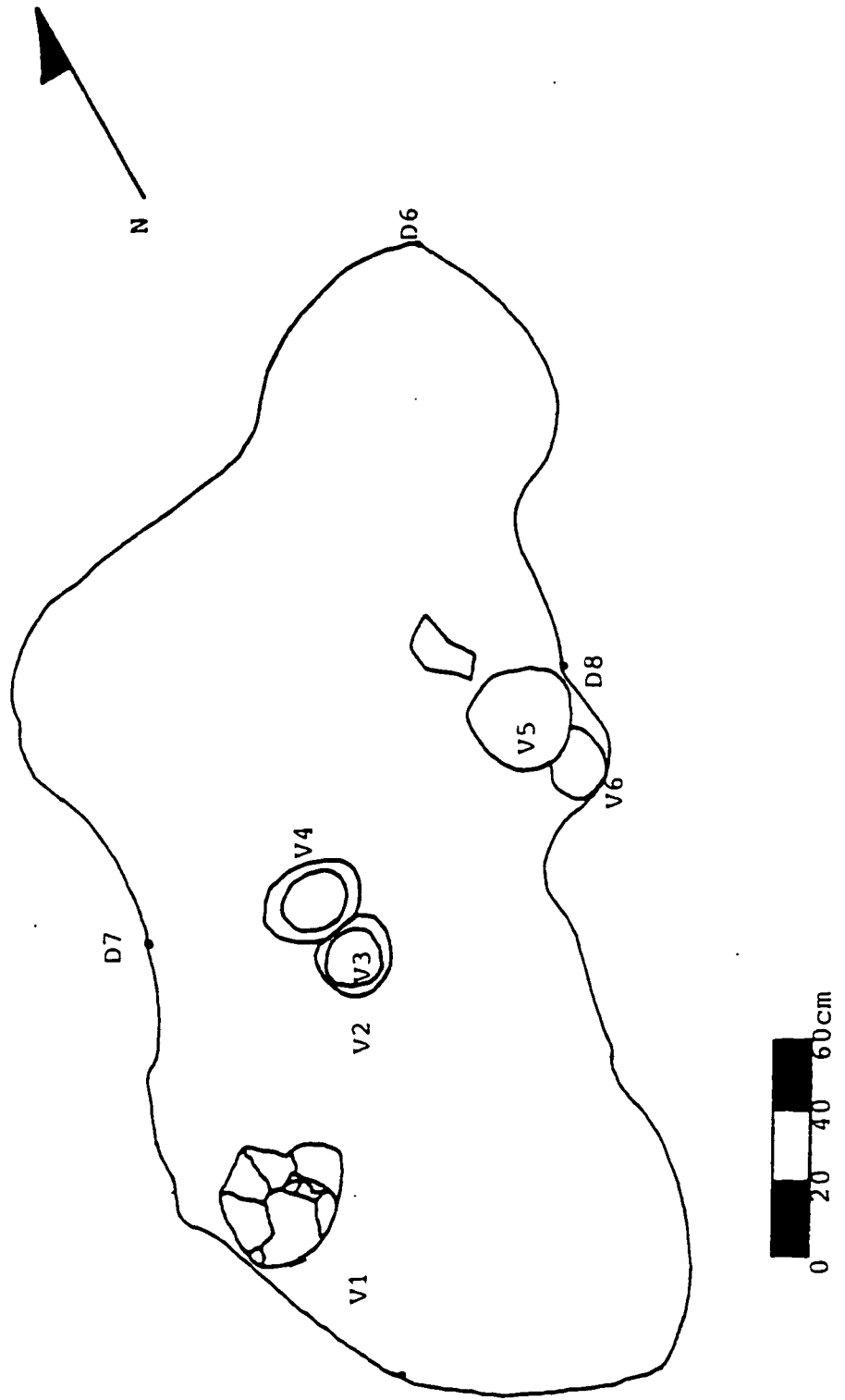
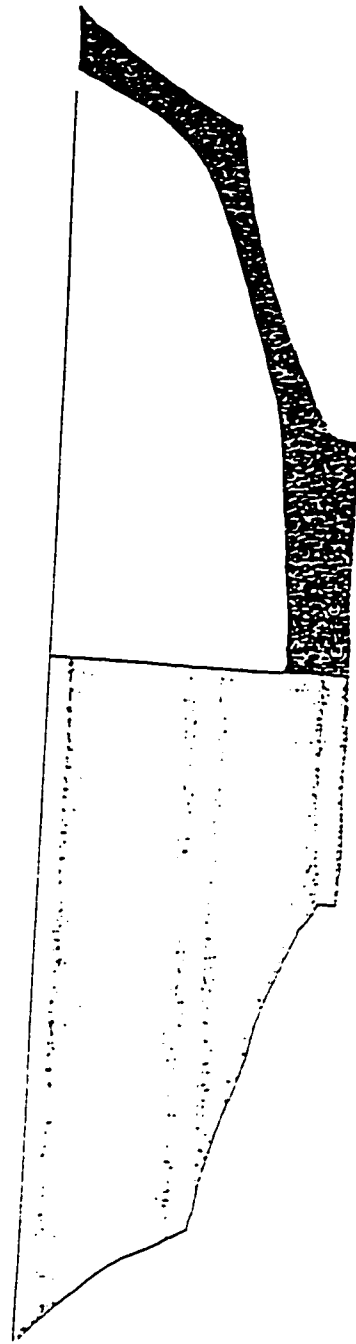


Figure 67. Top Plan of Level 2, *Chultun 4*, X-ual-canil

From: Gray 1998



1:1 scale

Vessel 6
28/189-1:564
Drawn by: K. Rupke

Figure 68. Vessel 6 - Platon Punctated Incised: Platon Variety - *Chultun* 4, X-ual-canil

From: Gray 1998

CH4-1. Human Remains

The highly deteriorated remains of a single individual were recovered from the west, central area of the chamber (Appendix 2). These remains, indeterminate for sex and stature, represented an adult individual. The elements recovered included a mandibular lateral right incisor, a radial shaft fragment, humeral fragments, rib fragments, several pieces of the innominate including the acetabulum of the hip, a fragment of a robust long bone (likely the femur), tibial fragments, and the proximal end of a metacarpal (Figure 69). The individual was highly disarticulated but it is proposed that the body originally lay in a flexed position with the head facing to the north. It is further suggested that Vessel 6 was placed in the area where the skull and mandible, if present, would have been recovered.

The removal of these remains and the subsequent mapping program were the final activities conducted in this chamber. Bedrock was encountered at a depth of 196 cm BUD in the southern section. The central portion of the chamber continued to reveal Level 2 matrix until 260 cm BUD. The bedrock floor of the *chultun* was very irregular with deep caverns and pits confined to the central region.

Summary

The excavation and artifact assemblage of four *chultunob* in the periphery of X-uul-canil have provided an avenue to explore the possible functions of these chambers. There are examples of ceramic and lithic artifacts, as well as faunal and human remains from the various excavated levels and lobes which provide insight into how the ancient

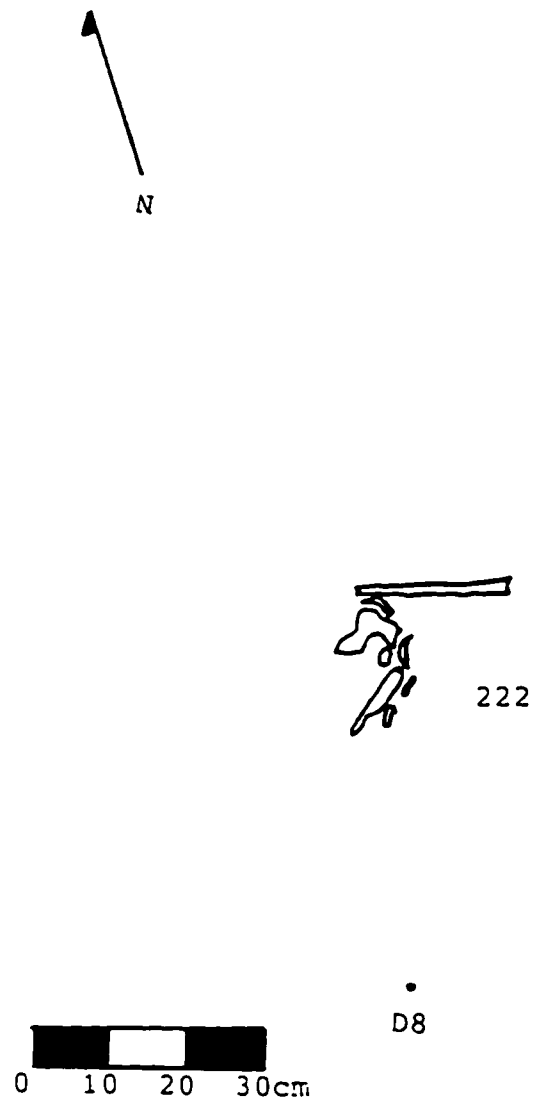


Figure 69. Top Plan of Human Remains, *Chultun* 4, X-ual-canil

Mapped by N. Gray and S. Schwake, 1998

Maya utilized these features. In most cases, these artifacts and the faunal material were recovered from two distinct levels, a humus/fall type level which lay on top of a fill level. Although there was uniformity in the formation of the levels, the chambers which held these material exhibited a large degree of variability in terms of morphology. *Chultun* 1 and 4 are examples of lateral-shaped features while *Chultun* 2 and 3 are variations on the multi-lobed style. Even the lateral-shaped *chultunob* were not identical as *Chultun* 1 had a northern extension and displayed dual orifices.

It is suggested that all the *chultunob* from X-ual-canil had fitted capstones which sealed the orifices at some point in the past. This is supported by the recovery of a capstone from within the chamber of *Chultun* 1, the bevelled orifices of *Chultunob* 2 and 4 and there was an *in situ* capstone on the orifice of *Chultun* 3.

Also, there is great spatial and temporal variability in these features as they were spread around the X-ual-canil periphery and in use during various times. It is evident that the *chultun* was in use at the *Choj* Group during the Protoclassic, while *Chultunob* 2, 3 and 4 suggest a Late Classic usage. However, there does not appear to be any correlation between *chultun* location, morphology and the temporal use from the features at X-ual-canil.

The construction and use of these chambers, the recovered artifacts and human remains, will be discussed further in the following chapter but it is apparent that *Chultun* 1 and *Chultun* 4 were used as places to inter human remains. It is also evident that these features served other functions throughout their lifespan based on the recovery of informative artifacts. Specifically, the complete ceramic vessels such as the types

recovered from *Chultunob* 3 and 4 may have been used for short-term storage, or, they may have contained offerings of food. The miniature vessels, olla rims and arrangement of cobbles also support a short-term storage interpretation because these items would have provided a base for storage vessels. The vessels recovered from *Chultun* 1, and Vessel 5 from *Chultun* 3, are potentially offerings themselves. Alternatively, based on the recovery of numerous deliberately broken ceramic vessels, special finds such as the carved pebble, hematite and jadeite, it is clear that functions other than food storage and human interment were occurring.

Chapter 4

EXPLORING RITUAL

Maya Ritual Activity and its Archaeological Manifestations

Modern highland Maya religion is defined as a shamanistic and animistic belief system which recognizes that the universe is a magical world where everything has a soul and a spirit (Tedlock 1982:48). While there has been research which proposes that excavated remains are reflections of similar past belief systems (Marcus 1989), there are no hypotheses which account for the proposed ritual significance of *chultunob* artifact assemblages. Although recovered ceramics can provide a chronological context, there is a desire within Maya archaeology to understand associated ritual action. Artifacts can provide evidence of ancient ritual activity, such as an offering or dedication, and through them archaeologists are then able to infer multivariate functions. As Lucero (1999) has recently noted, the "emphasis on chultunes for understanding Maya ritual is important because present evidence indicates that some of the earliest ceremonial activity may have taken place in these underground chambers".

In the following section a clear discernment of what constitutes a cache is examined with the intent of illustrating the potential ritual function of *chultunob* in the Belize Valley. This chapter seeks to understand the behaviour patterns which affected the deposition of the artifacts found within *chultunob* contexts (see Garber 1986:117). Finally, a synthesis of ideas is presented to provide a new means to examine ritual activities associated with the *chultunob* of the Upper Belize Valley.

Ritual

One perspective is that,

Ritual is conceived as an entirely unitary phenomenon removed from any link with everyday transactions, and identified in the archaeological record according to a strictly functionalist logic. It may have played an active role in life, but in the death assemblage that prehistorians study it is only a residual category, defined by its departure from 'practical reason' (Bradley 1991:135).

This interpretation is not an accurate definition of ritual activity in the Maya area because it separates the intent of offering from the action itself. There is no departure from practical reason in the ritual activities of the ancient Maya. Ritual activity is a part of life, and death. This interpretation is explained by Sharer and Sedat (1987:261) when they write that "burials and caches are both the product of ritualized and deliberate disposal behaviour marked by symbolic and religious meaning; they are differentiated by the presence (burials) of human remains or their absence (caches)". While there are exceptions to this general rule, as discussed below, the most crucial factor to be understood is the ritual activity. Once there is an understanding of the intended ritual act, then archaeologists can begin to speak of the artifacts as reflections of this behaviour. Specifically, rituals were used to dedicate places and objects through cached offerings and, therefore, caches are components of ritual behaviour (Freidel and Schele 1989: 234).

Offerings

A debate regarding the definition and categorization of offerings has been a theme in Maya archaeology since the 1950's. It has been argued by Coe (1965) that not

all offerings are caches. Rather, a cache is seen as one type of offering and, therefore, is listed here as a sub-category (Figure 70). It is the content, location and purpose of a cache that makes it a ceremonial offering. This distinction between an offering and a cache derives from the nature of the deposit, and whether or not the offering was intentionally hidden. A hidden offering is a true cache and those deposits which are not hidden are simply classified as offerings (Coe 1965:462). The distinction between offerings and caches is adhered to in this discussion and the focus then becomes the hidden deposits. Within *chultunob*, the presence of artifacts such as obsidian, jadeite, the carved slate pebble, quartz, and hematite, are assumed to be intentionally hidden and, therefore, represent caches. Beyond being hidden, these materials held special meaning to the Maya and as such they were often used in ceremonial life.

Caches

The primary categories established for caches are utilitarian and votive. Utilitarian caches were utilized for protection and storage of goods while votive caches were ceremonial (Smith 1972a:205). In regards to presenting a definition of the term cache, there exists a debate within the archaeological literature. A cache, prefaced by votive or dedicatory ". . . designates a limited but significant variety of offerings found apart from human interments though not necessarily devoid of human skeletal remains" (Coe 1965:462). While most Maya archaeologists agree that burials do not constitute caches, Becker (1992) argues that the definition of a cache used by Coe (1965) does not adequately address the behaviour patterns associated with all deposits. In order to

Offerings

Caches

Votive

Utilitarian

Dedicatory

Termination

Non-Dedicatory

Figure 70. Diagram illustrating the type of offerings

understand the intent of such deposits, whether they include human remains or not, researchers should consider that caches and burials may have held similar meaning to the Maya (Becker 1992:186). The difficulty in assigning material culture to categories of either caches or burials often results in a debate which stalls their interpretation. An example of this is evident where Coe (1959:78) suggests that a single vessel can be considered a cache if it is thought to be an offering. As well, human skeletal elements, specifically the skull, can constitute a cache (Coe 1959:78). Smith (1972a:205) refutes this definition and argues that the term cache should not be associated with burials and is applied to one or more objects buried together. Loten and Pendergast (1984:5) adhere to this interpretation when they describe a cache as,

[a]n artifact or group of artifacts intentionally placed in a specific location unrelated to a burial, often but not always on the primary or a transverse axis. The artifacts that comprise a cache were presumably intended as an offering, but the term "cache" is preferred because it is a designator without functional implication. Caches may lie in the core of a structure or in a pit cut into antecedent construction; they were usually sealed immediately after placement.

This definition provides an adequate summary which explains that a cache and a burial are two separate acts. The statement that a cache is "unrelated to a burial" becomes non-contentious because the importance of the intended act of offering is stressed. Further, the assumption that any human remains recovered are assigned the category "burial", is problematic as skeletal elements can be an aspect of a cache. Henceforth, a cache is regarded as a hidden offering which may be found apart from human remains but not necessarily devoid of skeletal elements (Coe 1965:462). Therefore, human remains and material items which are recovered from a hidden location can be regarded as a cache.

Remembering that it is the content and location of caches that make them ceremonial, this discussion will also include cases where the placement of human remains likely held the same meaning (as caches) for the Maya. These ceremonial and ritual elements of caches are divided into the subcategory of votive, being either non-dedicatory or dedicatory. In the literature, dedicatory caches are further divided into the termination and valedictory categories. However, it is perhaps more appropriate to place them alongside dedicatory caches, making them a sub-category of votive (Gyles Iannone, personal communication, 2000). These categories are discussed below and examples of caching activities are presented.

Votive Caches

This is a general term applied to caches which can either be dedicatory or non-dedicatory in nature (Coe 1959:78). Modified and unmodified shell artifacts offer an example of one type of votive offering (see Healy 1992:234). Evidence from tombs suggests that shells were not deposited as food offerings. Nor is there any evidence to suggest the shells were prepared or altered for deposit (Andrews 1969:61). While many shell artifacts are modified, there is also the occurrence of slightly modified shell suggesting the intention "of maintaining the shell's original appearance" (Ferguson 1995:163). The Maya seem to have endowed marine molluscs with symbolic properties which led to a number of ritual uses, possibly relating to a cult of the sea (Andrews 1969:53). Perhaps, the cult of the sea could be re-evaluated to reflect a cult of water

ideology and maintain the same connection to the watery underworld. Freshwater, land and marine shells appear in the *chultunob* of Cahal Pech, X-ual-canil and Xunantunich (Gray 1998; Iannone 1994; Keller 1995; Powis 1992). Due to this frequent occurrence, and the denial of molluscs as solely a food source, it is reasonable to argue for the inclusion of these artifacts as markers for ritual activity.

A second type of votive cache is presented by Smith (1972a:211) in the discussion of possible sacrificed human remains at Altar de Sacrificios. The presence of skulls lacking post-cranial elements in three burials is attributed to "sacrificed individuals who had their heads cut off and buried as votive offerings" (Smith 1972a:211). While these skulls may represent sacrificial victims and possible votive offerings, a discussion of disarticulated remains presented in the burial section of this thesis suggests alternative explanations for this occurrence. These alternative hypotheses are particularly relevant to the disarticulated remains recovered from *Chultun 4* and the Choj Group *Chultun* at X-ual-canil. Unfortunately, due to the poor preservation of the remains from X-ual-canil, it is not possible to argue that these remains were placed as offerings, by themselves. However, there are examples where disarticulated human remains may, in fact, represent ritual rather than sacrificial activity.

Dedicatory Caches

This type of cache is applied to items placed" during construction, whether it is on the axis or not; such an offering is presumed, from its stratigraphic position, to have been dedicated to the structure or whatever religious or lay objective the structure may

have had" (Coe 1959:119). These caches presumably served to sanctify the structure; offer dedication to a particular deity; or commemorate lineage and dynastic ancestors (Coe 1959:119; Freidel and Schele 1989:233). A refinement of this idea is proposed by Awe (1994:5) when he discusses household ritual and suggests, ". . .it is possible that among the ancient Maya, dedicatory caches were not only deposited as part of commemorative events, but that they also represented offerings to supernatural earth spirits who were being petitioned to guard the occupants of buildings from evil."

Termination Caches

Coe (1965) suggests that a termination offering should be differentiated from a cache since it signifies a ritual of renewal. Such offerings may have been left on the surface and subsequently concealed by new construction, therefore not being hidden (Coe 1965:462). According to this interpretation, termination rituals are regarded as a unique type of dedicatory deposit. This notion is challenged by Garber (1986: 117) when he writes that termination ritual deposits at Cuello are defined as the ritual activities associated with the termination or abandonment of a structure or area. Awe (1994:5) concurs with this notion when he states that ". . . termination rituals, which are associated with structure demolition and smashed objects. . . , may have been conducted as a means of thanking and releasing the spirits of houses at the time of structure abandonment or replacement". The emphasis in this argument derives from the association of the deposit with ritual activity. An example of this concept comes from Choj Group *chultun* at X-uul-canil, where there is evidence of an Early Classic termination cache. During the

Early Classic this *chultun* orifice was sealed off with a surface level plaster floor, to allow for the expansion of the group. The inclusion of human remains and the placement of ceramic vessels marked the termination of the *chultun's* use, and served as a dedicatory act for new structures (Gray 1998: 79). Additional examples which emphasize termination ritual within *chultunob* of the Belize Valley are presented by Powis (1993:104), Iannone (1994:104) and Griffith et al. (2000). Of particular importance is the intention of the "act of offering", not the subsequent activity of concealment which categorizes a cache. In the case of the Choj Group, the placement of pottery and human remains within the chamber marked the end of the *chultun's* use and, therefore, constitutes a cache.

These examples suggest that recovered materials deemed to be part of a termination ritual are, in fact, a category of caches. Freidel and Schele (1989:239) present an alternate view of termination when they suggest that a cache is one aspect of the ritual. The defacing of masks and acts of graffiti are also indicators of termination ritual. As this discussion illustrates, the ritual activities of termination can encompass caching, graffiti and defacing, all of which serve as a means for the Maya to mark the end of a structure's use.

Valedictory Caches

The term valedictory cache is used by Hammond and Gerhardt (1991:228) in regard to Structure 316 at Cuello. The lack of a clear definition of valedictory cache considerably clouds any attempt to classify caches as such. Of concern is the unclear

distinction between the use of the terms, dedicatory, termination and valedictory. As previously discussed, a dedicatory cache was placed in some instances to sanctify the structure, possibly during a building phase. If one considers valedictory to represent a "farewell" to a structure's use, this would imply that the structure was abandoned after the placement of the cache. If the structure is abandoned then it is truly a termination cache and the term valedictory is unnecessary. Another example of this term mixing problem comes from Driver and McWilliams (1995:34) who use the term abandonment ritual when referring to a midden deposit across the basal portion of a structure at Ontario Village, Belize,. As there was no further construction of this building, it is suggested that the deposit limited access to the structure, effectively killing it and its use. It would seem that the term termination cache would be more applicable. However, while there should be a clearer distinction made between dedicatory, termination and valedictory, this thesis does not attempt to initiate this. If there are indeed valedictory caches, there is no documentation to suggest an intrusive deposit versus a surface cache. Therefore, surface level deposits could also represent the act of offering, but not necessarily valedictory caches. In terms of sub-surface use, a valedictory act in a *chultun* would be difficult to state. Unless access to the *chultun* is prevented by the building of a structure or a plaster floor over the orifice, the *chultun* will always remain open and accessible. The very act of building on top of the *chultun* orifice could represent a termination act for the chamber. Until there is a clear example of the use of a valedictory cache in a subterranean setting, this term is not applied to the caches from the *chultunob* discussed in this thesis.

Non-dedicatory Caches

Non-dedicatory caches are differentiated from utilitarian caches and constitute a type of votive offering. As Smith (1972a:205) writes, "[n]on-dedicatory caches are intrusive, being set through the floor surface of a building after its construction." Coe (1959:119) suggests that intrusive caches should be distinguished from dedicatory caches as they were set through an interior floor, after construction and during the building's occupation. These intrusive caches "may have served various ritual needs; for instance, commemorative, celebration, intensification, propitiation" (Coe 1959:119). Coe cites Thompson when referring to intrusive caches as those being related to "the commemoration of katun and tun anniversaries" as well as, "other occasions requiring offerings in the form of pots and varied contents, all set beneath the floors on which their hierarchal donors walked" (Thompson in Coe 1959:119). The occurrence of these caches is difficult to apply to *chultunob* unless there is a plastered surface which has been re-entered. As such, there is no evidence of this type of activity occurring within the *chultunob* assembled for this thesis.

Discussion of Caches

The preceding discussion has illustrated some of the types of offerings which have been categorized as caches. Hammond and Gerhardt (1991:228) raise an important point when they suggest that a cache can serve as either a single or a multiple offering. For example, a cache may be a dedicatory as well as a valedictory act (Hammond and

Gerhardt 1991:228). There has been a tendency to associate a cache with a single intention, but there may be multiple interpretations related to the meaning of a cache. Becker (1992:187) argues that the "difficulty may be an epistemological problem of projecting our categories onto a situation in which the participants may not have made the distinctions that the archaeologists would make." While this statement is made in regard to burials and caches, it is an important concept to consider within the context of categories created for cached offerings. The Maya may not have conceptualized the same categories of offerings which archaeologists have established for caches today. For example, did the Maya consider human remains a cache?

Human Remains

Rather than using social organization to understand mortuary practices, Carr (1995:107) proposes that researchers use mortuary practices to understand social organization. Evidence of ritual activity in burial practices can, therefore, incorporate a broader study of social organization. The ritual act of caching may prove to be an important aspect of social organization just as differences in burial type, and differential treatment in death, are indications of social organization. Storey (1991:108) contends that mortuary analysis provides archaeologists one of the most productive ways to study past social organization because the "... treatment of the dead reflects something of the relationships of the deceased with family and group."

While it is difficult to ascertain the intention of the Maya in regard to human remains, the energy expended in placing a body in the ground provides archaeologists

with an indication that this individual was of some importance, whether it be on the community or household level of society . Generally speaking, the placement of remains in specific contexts may simply be the disposal of the dead with no correlation to ritual or ancestor veneration (Becker 1992:187). However, although Welsh (1988) has defined a burial classification system for the Lowland Maya, this typology does not adequately address instances of *chultunob* burials and their potential meanings. It is probable that human remains in a *chultun* context represent ceremonial activity, caching and ancestor veneration.

Of particular interest to this chapter's discussion of ritual is the concept of burials as caches. If the remains were viewed as an object with symbolic value (Coe 1959:78), burials could be classified as either dedicatory or non-dedicatory offerings (Becker 1992:188; Sharer and Sedat 1987:261; Welsh 1988:170). One point of concern is the way in which various types of human interments are categorized. Welsh (1988:16) has created a burial typology which classifies graves based on their morphology but other researchers, such as Sharer and Sedat (1987:261) suggest the materials associated with the burials are the primary means to define the type of interment. In either perspective, access to goods and labour required for the interment of individuals is determined by social status. For example, Becker (1992:187) illustrates, "elites could translate cultural ideas into material goods while the lower classes may have expressed the same cultural rules with perishable goods." So, different levels of society may be performing the same ritual activity, but archaeology may be unable to recognize these practices. This chapter does not offer a solution to this complex issue. Rather, this presentation merely serves to

signify that this type of situation may have been occurring at Maya sites in the Upper Belize River Valley.

Beginning in the Preclassic, an analysis of highland burials reveals they were dedicatory acts associated with construction. By the Middle Preclassic, social stratification appears to influence burial activities due to the occurrence of multiple burials with sacrificed individuals and greater wealth of burial artifacts (Sharer and Sedat 1987:261-262). In the *chultunob* of the Belize Valley there is some correlation to this pattern at a later date. By the Early Classic, human remains and ceramic vessels from the Choj Group *chultun* at X-ual-canil indicate that caching was occurring. The practice of caching in *chultunob* continues into the Late Classic at Cahal Pech in the Tolok Group (Powis 1993: 104) as well as at the Zubin Group (Iannone 1994:104).

Sharer and Sedat's (1987) content that human remains and other materials (i.e., grave goods) were dedicatory acts associated with structures. However, an alternate approach is to view the materials (human remains and the ceramics) recovered from these contexts as representing offerings to the interred individual, rather than to a structure. The notion of placing offerings to an individual, rather than a structure, also supports the occurrence of increased social stratification and differential treatment in death. In this situation, the ceramics are the evidence for ritual activity, specifically, caching.

A second correlation with Sharer and Sedat (1987) is the introduction of multiple burials. Multiple burials occurred during the Early Classic at X-ual-canil in *chultunob*. As well, there are moderate levels of wealth displayed in such burial assemblages (Gray

1998:79). Recent research by Healy et al. (1998:272) and, Chase and Chase (1996:77) discuss the occurrence of multiple burials at the sites of Caledonia and Caracol respectively. These studies present evidence of tomb re-entry which was postulated to mark an increased complexity of burial customs and serve as an indicator of ancestor veneration. The occurrence of tomb re-entry not only indicates Maya veneration of the dead, it may also be viewed as an intrusive act, similar to the outlook on caches, through which a second body becomes an offering. In regard to tombs, in particular, the recent report by Middleton et al. (1998:297-307) argues for a third mortuary practice, that of on-going tomb use in Oaxaca where the area is re-entered over a span of time. The occurrence of footholds in *chultun* (at X-ual-canil and Uaxactun) discussed previously, or the use of ladders by the ancient Maya, indicate that these subterranean features could be re-entered.

Ancestor Veneration

Whether it be a result of the *chultun* conditions or be a reflection of the original placement, human remains found within the *chultunob* of the Belize Valley are never complete remains. McAnany (1995:61-63) suggests that missing skeletal elements, which have often been regarded as evidence of sacrifice (Fowler 1984:604; Ruz 1965:443), are in fact indicators of ritual behaviour and ancestor veneration. Due to the poor preservation of the *X-ual-canil* human remains it is not possible to be so confident of the explanation for these missing skeletal elements. It is not proposed here that there is actual evidence of ancestor veneration being practiced at the four features excavated.

However, these ritual acts could have been occurring within *chultunob*, at other sites in the Maya area.

The discussion is not intended to imply that all burials display evidence of ancestor veneration and constitute offerings. Rather, it is plausible that human remains within the specific context of the *chultun* are representations of ritual activity. Research has revealed that the Maya disposed of their dead in a variety of ways (Ricketson 1925; Ruz 1965:458; Welsh 1988). Perhaps, as with caches, it is content, location and purpose of the remains which make them a ceremonial offering (see Coe 1965:462). The placement of human remains in *chultunob* could represent acts of ancestor veneration. Again, it is the underground location of the *chultun* which strengthens the notion there was ceremonial activity occurring in the chambers.

One suggestion is that the term *chultun* is derived from the Maya words *ch'ul* meaning 'holy' and *tun* meaning 'stone' (Schele and Freidel 1990:423). Considering the association of the underworld as a place of the gods and the 'holy' world, and the fact that a *chultun* offers restricted access beneath the surface, these features may have been regarded as a portal to Xibalba. Also of interest is the term *ch'ulel*, meaning "the holy 'soul-force' of the universe", which is derived from the root *ch'ul* (Schele and Freidel 1993:182, 244). If this proposal is correct, then the placement of human remains within *chultunob* clearly represents ritual activity.

This discussion of human remains illustrates that it is entirely reasonable to consider and recognize ritual activity in *chultunob*. The presence of multiple burials as indicators of lineage worship and veneration of the dead, along with caches, and missing

skeletal elements, may all serve as components of Maya ritual activity. Also, the shifts that are seen in burial patterns from the Preclassic to Late Classic, are likely the result of shifts in socio-political activity (Rathje 1970:359).

Burials and Caches

The problem of overlap between burials and caches is discussed by various researchers who view these deposits as mutually distinct (Smith 1972a:205). While there may be an overlap in some contexts, *chultunob* do not appear to exhibit this trait. The question remains, did the Maya conceptualize the deposits that archaeologists call caches and burials as being part of a single concept (Becker 1992:186)? If material and human remains were viewed as an object to be cached, a practice occurring in *chultunob*, then they are part of a single cultural concept. They are conceptualized as something to be offered, a tangible object which serves to dedicate a new structure, or, mark the termination of a building's use. However, this concept should not be regarded as a general law. That is, that all human remains or ceramic artifacts are only viewed as cached items. Therefore, a distinction between burials and caches, as separate concepts, would occur in both intra and inter-site settings. The micro-regional area of the Belize Valley appears to offer evidence that human remains and caches, within *chultunob*, are part of a single concept. This is argued from the perspective that whether it be a ceramic vessel, disarticulated human remains, or fauna, the materials in the (hidden) contexts of *chultunob*, are reflections of ritual activity. Arguably, most caches and burials may "be linked to ancient Maya rulership and lineage worship" (Pohl 1983:56). This idea is a

working hypothesis within the context of this thesis. Clearly, there is a need for more conjunctive evidence to be analyzed before this hypothesis can be properly tested.

Chultunob Function Revisited

The function of *chultunob* has generally been attributed to a utilitarian cache or cellar for food stuffs (for discussion see Tozzer 1913; Gann 1918:683; Miksicek et al. 1981:918; Reina and Hill 1980:78; Puleston 1971:331-332). While this may indeed be the primary function of *chultunob*, it is the potential secondary function which is of particular interest. A ceremonial/ritual activity area which involves the caching of human remains and other items is suggested as the secondary function of some *chultunob* in the Upper Belize River Valley. This hypothesis receives support when associated artifacts illustrate ritual activity. Artifacts recovered from the *chultunob* of X-ual-canil, such as ritually killed ceramics, lip to lip ceramics, and skeletal remains all provide direct indications of ceremonial activity. While not all human remains can be viewed as caches, those associated with ritual accoutrements need to be re-examined for their potential ceremonial significance.

What then does the placement of burials and caches in *chultunob* mean? The occurrence of Maya burials and caches in *chultunob* offers evidence regarding the secondary function of these chambers. There is evidence that these materials were used in termination and dedicatory rituals. There also remains the possibility that *chultunob* served as portals to the underworld and the rituals performed in the chambers were ritual acts of lineage and ancestor veneration. As well, the placement of *chultunob* in the

periphery of Cahal Pech, X-ual-canil, and Xunantunich could indicate evidence for domestic or sub-elite ritual. In the case of X-ual-canil, *Chultunob* 3 and 4 are located beyond the terminus of the Lahkin *sacbe* and Te Tun Na ritual area which may indicate an extension of ritual activity into peripheral and domestic zones. In addition, Iannone (personal communication, 1999) recognized the Proto-Classic ceramic assemblage from the Choj Group at X-ual-canil as a type of sub-elite status embellishment (see Brady et al. 1998: 32). It appears, then, that materials recovered from *chultun* contexts can provide information regarding social organization, behaviour patterns, and associated ceremonial activities.

For instance, cached offerings can also include faunal remains and fragmentary ceramic assemblages which evince different aspects of ritual. Research by Pohl (1983) suggests that animals were tangible manifestations of Maya religious thought. Therefore, faunal remains provide unique insight into prehistoric ceremonies and the people who conducted them. Most fauna recovered from caches (and burials) could potentially be used in a variety of ritual practices (Pohl 1983:55). Her discussion suggests that faunal remains from caves and *cenotes* resemble similar offerings from caches and burials. However, although animals were utilized in a similar manner, the fauna used in caves may indicate different ritual practices directed toward the underworld, renewal and regeneration (Pohl 1983:86-87). Although *chultunob* are classified as structures, it is appropriate to suggest that they have a closer connection with caves and *cenotes* due to their below surface or "entrance into the earth" orientation. Therefore, faunal material recovered from *chultunob* may be indicative of ritual activity focussing on underworld

concepts. Aylesworth (1993:90) suggests, in regard to floral and faunal analysis, that toads and plant bundles possibly were placed in *chultunob* to protect the stored material from micro-organisms. Also, the remains of toads and other amphibians are often classified as intrusive, whereas they may be an important indicator of the past ritual use of *chultunob*. These animals may have held significance related to their association with the underworld. Whether these were placed in the *chultun* as aspects of the underworld theme is not clear in the X-ual-canil sample. However, the concept of bone-soul, which states that the animal "does not die but is endlessly resurrected from the bones", is one possible explanation for the presence of such faunal remains in ritual deposits (Pohl 1983:98).

Ceramics offer another indication of ritual activity through the ceremonial breaking or piercing of ceramic items. The significance of this "killing" of ceramic objects is tied to the notion of releasing of the spirit held within the object. Numerous examples of terminated vessels were recovered from the *chultunob* at the Tolok Group at Cahal Pech (Powis 1995:59), *Chultun* 3 and 4 from X-ual-canil (Gray 1998), Chaa Creek (Connell 1995) and Yax Cann *Chultun* (Griffith et al. 2000). In several cases, incomplete ollas were found with only the jar neck portion of vessels being recovered (Connell 1995; Gray 1998; Griffith et al. 2000; Robin 1996). Due to the absence of body sherds, it appears that ollas were not smashed in the *chultun* chamber, but the necks were deliberately placed there. Their placement in *chultunob* could indicate their use as stands for other vessels, or, they may have been a symbolic variation on the hearth. Plunket and Urunuela (1998:297) suggest that hearths made from olla rims and stones

were set into the floor of communal and general function rooms at Temtimpa, Mexico. The matrix contained in the olla rims from X-uai-canil did not provide evidence of any burning or ash and, there is no evidence from other *chultunob* to support the use of these rims as hearths. While the exact purpose of the olla rims remains unknown, the ritual dismantling of vessels in order to release of the spirit contained within the object is tied to the animistic nature of Maya religious thought.

There remains a category of ritual artifacts which, it is speculated, are related to concepts of rebirth, dedication and lineage affiliation (Ruz 1965:459). For example, the deposition of human remains and lithic materials, such as obsidian chips and hematite, are practices which occur in Maya temple mounds and ceremonial platforms, forming a cult of the dead in public buildings. Smith (1972b:220) utilizes the term 'peculiarities' to discuss hematite, missing skeletal elements and obsidian chips. If one substitutes the term 'peculiarities' with 'ritual', an interesting pattern emerges. An example of this comes from Uaxactun, where ritual activity includes the deposition of lithics and human remains in public buildings (see Ricketson and Ricketson 1937). While these archaeologists acknowledge that ritual activity occurs in public architecture, the same activity in private, residential structures is often disregarded. For instance, Smith (1972b:213) suggests that house mounds do not exhibit these peculiarities because occupation of the house often continued after the placement of remains. In fact, the concept of "living with the ancestors" is validated here (McAnany 1995). It is therefore apparent that activities, such as placement of peculiarities and human remains, are recognized as ceremonial in public contexts but at the household level, they tend to be

overlooked. Clearly, the placement of human remains beneath a floor in a public building is viewed as a cache but in a household context, Smith (1972b) implies that the placement of human remains here was a matter of convenience and an easy means to dispose of an individual. This thesis challenges these oversights and suggests that although early research by Ruz (1965) and Smith (1972, 1972b) did not fully address Maya ritual activity, it is evident that this activity is occurring at all societal levels of the Maya world. The sub-elite inhabitants of the X-uul-canil periphery were practicing ritual activities in their own way with the items that were available to them. The olla rims, and domestic ceramics such as the plates of the Belize Red Group were the items that these people could incorporate into their ritual practices. Additional items such as cloth, weavings and plants may have been incorporated in these rituals but, they have since deteriorated in the *chultun* environment.

Domestic Debris

Sharer and Sedat (1987:261) make an important distinction between midden deposits and cache/burial deposits. Middens are the result of the deposition of waste materials and domestic debris, while caches evince offertory behaviour. Therefore, functional and behavioural activities distinguish caches from domestic deposits. This inference is particularly interesting considering *Chultun D* in the *Tolok* group which Powis (1995:49) argues may have served as a secondary midden deposit with a ritually "killed" ceramic vessel. The distinction between ritual and domestic deposit is unclear in this situation. Perhaps there is an overlap between middens and caches in some contexts.

Based on the evidence from the *Tolok* Group, it appears there is a need to further investigate the intention of deposits. For example, domestic debris may be a non-elite means of placing an offering. As Becker (1992:187) illustrates, elites may translate cultural ideas into material goods while lower classes may have expressed the same cultural rules through the use of perishable goods." Indeed, if the *chultunob* of the Belize Valley are areas of sub-elite ritual activity, there is a need to better understand these practices.

McAnany (1995:31) offers a discussion of feasting, domestic rituals, and material remains of the ancestors which can be applied here. In terms of the potential suggested functions of *chultunob*, the aspects of ancestor veneration may be closely tied to the storage function of these structures, perhaps storing of surplus goods to be utilized in future feasts or the disposal/garbage of materials already used in a feast. Alternatively, the burial function suggested for some *chultunob* in the Belize Valley, could indicate the temporary placement of human remains as one step in a longer and more elaborate ritual process. This is assuming that the idea of lineage and claims to ancestry account for absent skeletal elements.

Beyond the Maya Area

There are various terms applied to chambers or openings in limestone bedrock. At the residential compound of Tlajinga 33 from Teotihuacan in Central Mexico there are burials in the earth, in ceramic vessels, or in shallow (15-20 cm) *tepetate* bedrock pits (Storey 1991:108). The individuals recovered from the shallow *tepetate* pits are of

particular interest as these may be a variation on the *chultunob* that is seen in the Maya area. The most common grave good from the shallow pits was the ceramic bowl although there were examples of miniature vessels, vases, censers and jars as well. Those individuals recovered from deep *tepetate* pits were accompanied by three or more types of grave goods including ceramics, obsidian blades, marine shell, greenstone, slate and mica. In terms of location, the *tepetate* pit burials occurred with altars, which are not only a known ritual area but, also an area that suggests a higher status than those individuals found in activity areas (Storey 1991:109-112). Storey (1991:109) argues that the poverty of grave goods found with secondary interments suggests that burial goods were not moved when the individual was removed from their original interment area.

Although these pits are smaller than the features in the Upper Belize River Valley, there are examples of larger subterranean chambers which warrant discussion. From Western Mexico, specifically in the highland lake zones of Jalisco and Nayarit, Ohnersorgen and Varen (1996) discuss shaft-tomb cemeteries (also see Weigand 1996). These shaft-tombs begin to occur during the Early Formative period (1500-1000 BC). No surface buildings are present at this time but, by the Middle Formative period (1000-300 BC), they become associated with terraced, circular platforms located along the upper shores. By the Late Formative period (300 BC- AD 200) complex architectural arrangements were introduced on the platforms and some shaft-tombs had structures build over them. These configurations continue and, by the Middle Classic period (AD 400-700), they appear to be arranged in terms of community and settlement hierarchy which collapsed by AD 700-900 (Weigand 1996:93). This is also about the time that

chultunob use in the Maya subarea appears to end. It is particularly interesting that the association of the shaft tomb and circular buildings occurred in the early period. This association is reminiscent of the Tolok Group from Cahal Pech which also had contemporaneous *chultunob* and round structures (see Powis 1995).

Further, the location of the shaft-tomb chamber on high ground or beneath buildings, the chamber morphology (including the use of a capstone) and the inclusion of human remains in these shaft-tomb features are an intriguing parallel comparison to Maya *chultunob*. The shaft-tombs were

re-enterable family crypts, with shaft and at least one side chamber for the burials and offerings. These shaft tombs decreased in architectural complexity as the Classic Period progressed, though most continued to be richly furnished and occasionally painted with murals (Weigand 1996:94).

The architecture defined above has also been referred to as a ceremonial type known as *guachimontones*, which appear to be an elaboration of the widespread shaft and chamber tomb (Beekman 1996:136). Although these chambers are more elaborate than *chultunob*, there are temporal and morphological similarities despite their geographic distance. Further, there seems to be a functional correlation between the *plazuela* group with *chultunob* in the Maya area and, the West Mexican shaft-tomb with its associated settlement as they were both utilized for funerary, ritual and possibly habitation purposes (see Beekman 1996:136 for a discussion of the shaft-tomb). In sum, a comparison of these other types of subterranean features to the *chultunob* of the Upper Belize River Valley offers evidence of similar artifact assemblages, functions and temporal use.

Summary

This chapter has provided a discussion of offerings, burials and ritual, drawing examples from excavated *chultunob* of the Belize Valley. The preceding discussion served as a forum which offered evidence and the suggestion that *chultunob* were areas of ritual activity with a likely focus on ancestor and lineage veneration, as well as underworld themes. Issues raised in this presentation illustrate the on-going debate within the cache/burial dichotomy and how the apparent overlap or blending of the terms caches and burials may result from inadequate definitions offered by archaeologists. In order to formulate a new typology, archaeologists must strive to understand the Maya rules involved in making the offerings that traditionally have been called caches and burials. This goal may be achieved if alternate interpretive approaches are embraced. For example, there has been a tendency to associate a cache with a single intention. Another approach would be to consider the notion of multiple interpretation of meanings for caches. A second step is the recognition that caches are mere elements or components of ritual activity. There is the need to comprehend the use of extended ritual activity over time with the cache being one part of this ceremonial process. Finally, the inclusion of human remains should be regarded as a cache if the intention of the burial custodians can be ascertained as such (e.g., an offering).

Within *chultunob*, the act of offering is the most poignant evidence for ritual activity. The broken ceramic vessels as indicators of the ritual killing of pots, the inclusion of disarticulated human remains, as well as precious items such as hematite and jadeite artifacts, all indicate the potential ritual function of these subterranean chambers.

Overall, the micro-region of the Upper Belize River Valley appears to offer evidence that burials and caches within *chultunob* were part of a single concept within the ritual realm. All this is argued from the perspective that whether it be a ceramic vessel, human or faunal remains, these items were viewed by the participants as offerings and their placement in the *chultun* served particular purposes. In some cases, the items were offered to termination the use of the chultun and, in other cases the items were used to dedicate the construction of new buildings. While not all human remains can be viewed as offerings, those associated with other ritual items need to be re-examined for their potential significance as termination and dedicatory acts.

Chapter 5

CONCLUSIONS

As Puleston (1965:24) noted, no series of artifacts recovered from *chultunob* have been found to provide clear-cut evidence for a simple explanation of the function of these features. Exactly how these chambers were utilized continues to be a source of debate and it appears that there is no clear answer to be found. The ancient Maya used *chultunob* for various purposes and a single *chultun* could have had a number of functions over its lifespan.

While this thesis does not claim to have solved the functional debate, it has raised questions about the assumptions and over-sights of archaeologists with regard to function. An examination of artifact assemblages and chamber morphology of four *chultunob* from the periphery of the site of X-ual-canil in the Belize Valley has challenged the previously proposed functions of these features. For example, it is highly unlikely that the *chultunob* of X-ual-canil served as cisterns. The description by Bullard (1960:362) of *chultunob* which served a function other than cisterns applies here. As testing has revealed, the use of a plaster lining allowed for some chambers to become waterproof, so their use as potential cisterns is plausible (Blom 1936:184). However, the excavated *chultunob* at X-ual-canil did not exhibit plastered walls to any degree. In addition, there was no surface level evidence to suggest a drainage mechanism or channel which served to direct the water into the orifice. Perhaps the strongest evidence negating a cistern model was the occurrence of the developed drainage and reservoir

system at X-ual-canil. The presence of these systems of water management clearly rules out the need for water storage chambers here.

The second function which was challenged was the long-term (more than one year) food storage hypothesis. As was demonstrated by the experimental work of Puleston (1971) and, later, Miksicek et al. (1981), root crops do not store well in a *chultun* environment for extended periods of time. There was also no artifactual evidence, such as the recovery of storage jars from the X-ual-canil chambers, to suggest such a function. The absence of ceramic containers also makes the function of alcohol fermentation, proposed by Dahlin and Litzinger (1985) problematic, and untestable in this situation.

This thesis has argued that the *chultunob* at X-ual-canil were certainly utilized for the interment of human remains and that the chambers also possibly served a short term storage and on-going ritual function. These functions are suggested because the examination of offerings, burials and ritual activity in the Maya Lowlands was utilized as a lens through which the artifact assemblages from *chultunob* were viewed. The artifacts recovered from the chambers at X-ual-canil were compared with those artifacts from *chultunob* at the sites and peripheral groups of Cahal Pech and Xunantunich. While not all *chultunob* contained burials or evidence of ritual activity, there was enough information contained within the chambers to propose that these activities were occurring.

For example, the Choj Group *Chultun*, the largest feature in this study, provided both an informative artifact assemblage and a sealed context due to the placement of a

surface level plaster floor over the chamber's orifice. The artifacts recovered from Level 1 suggest that the *chultun* was utilized as a short term storage chamber for household goods during the Late Formative to the Early Classic. It was surmised that as the group expanded in the Early Classic, there was no longer a need for the storage function of this *chultun*. At this time the surface plaster floor sealed off the *chultun*. The inclusion of human remains (minimum number of individuals being four) and the placement of ceramic vessels in Level 1 served as a dedicatory act for new structures built on top of the *chultun* orifice.

The relatively poor preservation of the human remains at the Choj Group *Chultun* could suggest a secondary and haphazard interment, or perhaps the state of the burials was simply a reflection of disturbance created by the openings through which debris, water and creatures subsequently gained entrance. What is clear is that the residents of the Choj Group used the *chultun* as a final resting place for these individuals.

For a feature such as *Chultun 2*, where function could not be determined due to the paucity of artifacts, chamber morphology can assist in determining which functions it could not have served. It can be stated with certainty that this *chultun* was not utilized for water storage. Its location near a reservoir, dual chamber morphology, and unplastered walls all negate the possibility of water catchment or containment in this feature. One indication of its function may derive from the morphological style and the raised sills or lips distinguishing the entrance shaft from the two small chambers. Puleston (1971:327) mentioned the presence of raised sill in the lateral shaped *chultunob* between the chamber and the antechamber to prevent water from entering the main

chamber. In *Chultun 2*, perhaps the opposite was occurring. It is possible that rain water was prevented from entering the eastern and western chambers from the central chamber by the creation of these raised sills. Water could have trickled in when the capstone was removed and due to the small size of this *chultun*, the sill was an effective barrier for debris entering the east and west chambers. However, if water was prevented from entering the chambers, it is unclear what these sills maybe have been protecting.

The artifact assemblage from *Chultun 3* was quite large and very informative. The morphology and the numerous artifacts recovered allow an interpretation that this feature likely served a primary and secondary function, both of which left remains. In this case, short-term storage is postulated to be a primary function with a secondary ritual function occurring at a later date. The evidence to support storage is derived from the ceramic assemblage. Although no body sherds from olla vessels were recovered, the two chambers contained a total of 5 rims. It is suggested that these rims may have served as a type of stand or base for other vessels. Also, the remains of a cobble layer in both Lobes B and C has been suggested by other researchers as a means to support storage vessels (Keller 1995:102). Further evidence of storage activities was alluded to through the discovery of 3 miniature vessels which may also have served as pot stands.

Unfortunately, due to the activity of bats, soil samples from within the upright vessels were not in pristine condition and, as a result, no soil samples were recoverable for flotation experiments. Although the types of items stored was unclear, it is probable that both Lobe B and Lobe C were utilized in this fashion at some point. Considering that X-uul-canil is interpreted an administrative site for surrounding agricultural fields, perhaps

the support population which lived in the periphery was storing surplus to be utilized in feasts or festivals (see Iannone 1998:20). The application of a feasting/domestic ritual model can assist in further defining the role of *chultunob* at this site.

This is closely related to the second function, involving ritual or ceremonial action. As there were artifacts that did not fit the household storage-only model, it became necessary to consider what these artifacts could reveal about chamber use. For example, a small piece of jadeite, as well as hematite and a unique carved pebble appear to indicate that other activities (caching) may have been occurring. Further indications of ritual activity stem from the ceramic assemblage. A total of 15 ceramic vessels were recovered from the chambers and most of the vessels were broken or exhibited missing pieces. This type of assemblage represents a ritual killing of vessels within the *chultun* environment, specifically, it appears that vessels were deliberately broken and pieces placed in separate areas of the chamber/lobe. There are also examples of incomplete vessels which are missing rim fragments, body sherds or, in the case of Vessel 13 from Lobe B, the walls of the tripod dish were broken off and removed. The base of this tripod vessel was further broken into two pieces which were placed in different sections of Lobe C. These incomplete vessels represent a type of cache, indicating some level of termination activity.

From *Chultun 4* there is an example of a lip-to-lip dedicatory cache which is associated with human remains. The inclusion of human remains in *chultunob* is known to occur in approximately half of the chambers investigated in the Upper Belize River Valley region. Although the burial evidence from X-ual-canil is not an exact parallel,

recent research from the site of Caracol suggests that the *chultunob* there may have been utilized as burial chambers for elite farmers based on the richness of burial goods (Jaeger 1991 in Hunter-Tate 1994). Further, Hunter-Tate (1995:69) suggests that *chultunob* of Caracol may have been a prototype for the Late Classic tombs. Although X-ual-canil is outside of the Caracol region, the only human remains found at X-ual-canil have been those located in a *chultun* context and, therefore, they can be seen as a type of burial chamber.

As discussed previously, the *chultunob* from X-ual-canil are not tombs but, do exhibit characteristics which resemble this grave type. *Chultunob*, specifically *Chultun 3* in this sample, could have been re-entered due to the presence of footholds that lead one into the entrance shaft. For those features that do not exhibit footholds, a ladder may have used for repeated entrance into the chamber. The occurrence of an entrance shaft is also similar to the morphology of some tombs, as is the use of a capstone. However, the *chultunob* at X-ual-canil were not utilized by elite individuals as the Maya tombs were. Rather, the people farming in the periphery were occupying the associated structures and were most likely the builders of these subterranean features.

The location of *chultunob* in the Upper Belize River Valley landscape also reveals information about their spatial distribution. The four *chultun* excavated at X-ual-canil conform to the spatial patterning and the one *chultun* to structure ratio suggested by Powis (1999) at Cahal Pech. *Chultunob* are frequently associated with natural streams, rivers, waterholes, as well as modified areas like reservoirs/ *aguadas*. In addition, there is a tendency for *chultunob* to be located on natural or modified hilltops and slopes, near

structures in *plazuela* and/or patio groups outside of the site core. Although there are individual cases, at Group D from Xunantunich and , the Tolok and Zubin groups from Cahal Pech, where *chultunob* were located beneath or directly adjacent to large structures, these prove to be exceptions rather than the norm. A second pattern which is not as frequent but does occur at X-ual-canil, the *Zubin* group and Group A at Xunantunich, is the solitary *chultun*. This feature has no directly associated structures but is usually at least 50 metres from either a structure or a water source. The solitary *chultunob* was spatially distributed on the high ridges like the other *chultunob* with associated structures. Whether it be a solitary *chultun* or one associated with structures, *chultunob* in the X-ual-canil periphery never occur with other *chultunob* in a single group. This is to say that there is not more than one *chultun* per structure or reservoir.

While there may be a pattern to the spatial distribution and ratio of *chultunob* in this region, there is no apparent pattern to *chultunob* morphology. In fact, the variability in *chultun* morphology is evident even in the small sample from X-ual-canil. The four *chultunob* excavated provided evidence of the range of *chultun* morphology as there were examples of both lateral and multi-lobed features. The two lateral chambers, the Choj group *chultun* and *Chultun 4*, were different sizes and interestingly were the two features which included human remains. *Chultun 2* was a small, dual lobed feature and *Chultun 3*, much larger, also exhibited two chambers.

These four X-ual-canil features also provided a temporal range which allowed for an understanding of the range of occupation in the site's periphery. The Choj Group *chultun* provided evidence that suggested these features were used during the Proto to

Early Classic, while *Chultun* 2, 3 and 4 were in use during the Late Classic period.

To conclude, burial, ritual and short-term storage functions are the most suitable model to apply to the X-ual-canil *chultunob*. There is evidence for *chultunob* as places for human interment, as well as areas where the dedicatory caching and termination of ceramic vessels occurred. The placement of human remains and the ceremonial deposits such as ceramic vessels are viewed as offerings which occurred over various times. The *chultunob* discussed in this thesis also provided evidence regarding the settlement of the X-ual-canil peripheral areas during the Proto to Late Classic periods. As the nature of human activity is not static, nor are material remains. As a result there were changes over time, and an evolution in the function of *chultunob*.

More research needs to be completed in the Upper Belize River Valley region as well as other parts of Mesoamerica so that archaeologists can begin to clearly understand the range of functions, primary and secondary, that *chultunob* served. Functions should not be forwarded based on supposition or only those functions that have been suggested in the past. Rather, the artifact assemblage, *chultun* location, chamber morphology and associated features, structures and groups, should all provide the foundation through which function is determined. Clearly, there is a need to spend more time underground and to gain a much fuller understanding of these complex features of the ancient Maya world.

Bibliography

- Andrews, E. Wyllys IV
1969 *The Archaeological Use and Distribution of Mollusca in the Maya Lowlands*. Middle American Research Institute Publication 34: 48-53. Tulane University, New Orleans.
- Ashmore, Wendy
1981 *Some Issues of Method and Theory*. In *Lowland Maya Settlement Patterns*. Edited by W. Ashmore. Pp 37-70. University of New Mexico Press, Albuquerque.
- Awe, Jaime J.
1994 *Ritual, Religion, and the Cultural Complexity in the Middle Formative Belize River Valley*. Paper presented at the 12th Maya Weekend, "Coming into Sharper Focus: Maya Archaeology in Belize", University Museum, University of Pennsylvania, Philadelphia.
- Aylesworth, Grant R.
1992 *It's What's Inside that Counts: Chultuns of the Maya Lowlands*. Unpublished paper in possession of the author.
1993 *Chultuns: Burial, Refuse, Sour Wine, and Rotten Food*. In *Belize Valley Archaeological Reconnaissance Project: Progress Report of the 1992 Field Season*, edited Jaime Awe. Pp 78-96. Trent University, Peterborough.
- Becker, Marshall J.
1992 *Burials as Caches: Caches as Burials: A New Interpretation of the Meaning of Ritual Deposit Among the Classic Period Lowland Maya*. In *New Theories on the Ancient Maya*, edited by E.C. Danien and R.J. Sharer. Pp. 185-196. University of Pennsylvania: University Monograph 77, Philadelphia.
- Beekman, Christopher
1996 *Political Boundaries and Political Structure*. *Ancient Mesoamerica* 7:135-147.
- Blom, Frans
1936 *The Conquest of the Yucatan*. Houghton-Mifflin, Boston.
- Bradley, Richard
1991 *Monuments and Places*. In *Sacred and Profane: Proceedings of a Conference on Archaeology, Ritual and Religion*, edited by P. Garwood, D. Jennings, R. Skeates and J. Toms. Pp.135-140. Monograph No. 32, University Committee for Archaeology, Oxford.

Braswell, Jennifer Briggs

1992 The Excavations at Group D. In: *Xunantunich Archaeological Project: 1992 Field Season*. Pp 56-73.

1993 The 1993 Excavations at Group D, Xunantunich, Belize; Defining the Corporate Group. In: *Xunantunich Archaeological Project: 1993 Field Season*. Pp.65-85.

1994 Investigations at Group D, Xunantunich, Belize: A Nonroyal Elite Corporate Group. In: *Xunantunich Archaeological Project: 1994 Field Season*. Pp.214-247.

Bullard, William R. Jr.

1960 Maya Settlement Patterns in Northeastern Peten, Guatemala. *American Antiquity* 25:362.

Carr, Christopher

1995 Mortuary Practices: Their Social, Philosophical-Religious, Circumstantial, and Physical Determinants. *Journal of Archaeological Method and Theory* 2:105-200.

Carr, Robert F. and James E. Hazard.

1961 Map of the Ruins of Tikal, El Peten, Guatemala. *Tikal Report No. 11*. Museum Monographs, University of Pennsylvania, Philadelphia.

Chase, Diane Z. and Arlen F. Chase

1989 Maya Veneration of the Dead at Caracol, Belize. In *Seventh Palenque Round Table*. General Editor, Merle Greene Robertson. Edited by Virginia M. Fields. Pp.53-60. The Palenque Round Table Series, Volume 9. The Pre-Columbian Art Research Institute, San Francisco.

1996 Maya Multiples: Individuals, Entries, and Tomb in Structure A34 of Caracol, Belize. *Latin American Antiquity* 7:61-79.

Cheetham, D. T

1996 Reconstruction of the Formative Period Site Core of Cahal Pech, Belize. In *Belize Valley Preclassic Maya Project: Report of the 1995 Field Season*, edited by Paul F. Healy and Jaime J. Awe. Pp. 1-33. Department of Anthropology, Trent University, Occasional Papers in Anthropology No. 12. Peterborough.

Christensen, Tina

1995 Investigation of the Ek-pay Group, Zubin, Belize. In *Belize Valley Archaeological Reconnaissance Project: Progress Report of the 1994 Field Season, Volume 1*, edited by Gyles Iannone and James M. Colon. Pp. 123-141. Institute of Archaeology, London.

- Coe, William R.
 1959 *Piedras Negras Archaeology: Artifacts, Caches and Burials*. University Museum, Philadelphia.
- 1965 Caches and Offeratory Practices of the Maya Lowlands. In *Handbook of Middle American Indians*, Vol. 2 (Part 1): Archaeology of Southern Mesoamerica, edited by Gordon R. Willey. Pp. 462-468. University of Texas Press, Austin.
- Connell, Samuel V.
 1995 Research at Chaa Creek in 1995: Developing Social Complexity in the Xunantunich Hinterlands. In *Xunantunich Archaeological Project: 1995 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore. Pp 194-213. Belmopan and Los Angeles.
- Dahlin, Bruce H. and William J. Litzinger
 1986 Old Bottle, New Wine: The Function of Chultuns in the Maya Lowlands. *American Antiquity* 51(4):721-736.
- Driver, David W and James F. Garber
 1993 A Chultun from Group 3, A Plazuela Group at Blackman Eddy, Belize. Unpublished paper in possession of the authors. Southwest Texas State University, San Marcos.
- Driver, David W. and Jennifer K. McWilliams
 1995 Excavations at the Ontario Village Site. In: *The Belize Valley Archaeological Project: Results of the 1994 Field Season*, edited by James F. Garber and David M. Glassman. Pp. 26-57. Southwest Texas State University, San Marcos.
- Ferguson, Josalyn
 1995 Jewels from Among the Thorns: An Examination of the Modified Shell Artifacts from Zubin, Cayo District, Belize. In *Belize Valley Archaeological Reconnaissance Project: Progress Report of the 1994 Field Season, Volume 1*, edited by Gyles Iannone and James M. Colon. Pp. 152-166. Institute of Archaeology, London.
- 1996 The Ballcourt at X-ual-canil, Belize: 1996 Investigations. In *The Social Archaeology Research Program: Progress Report of the Second (1996) Season*, edited by Gyles Iannone. Pp. 39-56. Trent University, Peterborough.
- 1997 Entrance or Barrier: Excavations at the Xaman Nab Acropolis and Ballcourt Juncture. In: *The Social Archaeology Research Program: Progress Report of the Third (1997) Season*, edited by Gyles Iannone. Pp. 21-27. Trent University, Peterborough.

- Folan, Willaim J., Ellen R. Kintz and Laraine A. Fletcher
 1983 *Coba: A Classic Maya Metropolis*. Academic Press, New York.
- Fowler, William R. Jr.
 1984 Late Preclassic Mortuary Praticce and Evidence for Human Sacrifice at Chalchuapa, El Salvador. *American Antiquity* 49:603-618.
- Freidel, David A. and Linda Schele
 1989 Dead Kings and Living Temples: Dedication and Termination Rituals among the Ancient Maya. In *Word and Image in Maya Culture*, edited by William F. Hanks and Don S. Rice. Pp. 233-243. University of Utah Press, Salt Lake City.
- Freidel, David, Linda Schele and Joy Parker
 1993 *Maya Cosmos: Three Thousand Years on the Shaman's Path*. William Morrow, New York.
- Gann, Thomas
 1918 The Maya Indians of southern Yucatan and northern British Honduras. *Annual Report* 19:665-692. Bureau of American Ethnology, Washington.
- Garber, James F.
 1986 The Artifacts. In *Archaeology at Cerros Belize, Central America*. Volume 1: Interim Report, edited by Cynthia Robin, A. Robertson and D.A. Freidel. Pp.117-122. Southern Methodist University Press, Dallas.
- Garber, James F., David Glassman, W. David Driver and Pamela Weiss
 1993 *The Belize Valley Archaeological Project: Results of the 1993 Field Season*. Pp. 4-28. Southwest Texas State University, San Marcos
- Gifford, James C.
 1976 *Prehistoric Pottery Analysis and the Ceramics of Barton Ramie in the Belize Valley*. Peabody Museum of Archaeology and Ethnology, Memoirs:Volume 18, Harvard University, Cambridge.
- Glassman, David M., James M. Conlon, and James F. Garber
 1995 Survey and Intial Excavations at Floral Park. In: *The Belize Valley Archaeological Project: Results of the 1994 Field Season*. edited by James F. Garber and David M. Glassman. Pp. 58-70. Southwest Texas State University, San Marcos.

Gray, Nadine

- 1997 Friendly Spiders and Time Underground: Excavations of Chultunob at X-ual-canil, Belize. In *The Social Archaeology Research Program: Progress Report of the Third (1997) Season*, edited by Gyles Iannone. Pp. 78-94. Department of Anthropology, Trent University, Peterborough.
- 1998 Ritual, Bats, and Burials: Further Excavations of Chultunob at X-ual-canil, Belize. In *The Social Archaeology Research Program: Progress Report of the Fourth (1998) Season*, edited by Nadine Gray, Sonja Schwake and Jeff Seibert. Pp. 49-73. Department of Anthropology, Trent University, Peterborough.

Griffith, Cameron Scott, Josalyn Ferguson and Christophe Helmke

- 2000 Salvage Investigations and Excavation in the Yax Caan Chultun, Belize. In: *The Western Belize Regional Cave Project: A Report of the 1999 Field Season*, edited by Jaime J. Awe and David F. Lee. Department of Anthropology, Occasional Paper No. 3. University of New Hampshire, Durham.

Hammond, Norman and Juliette Cartwright Gerhardt

- 1991 Ritual and Ideology: Offertory Practices: Caches. In *Cuello: An Early Maya Community in Belize*. Pp 225-231. Cambridge University Press, Cambridge.

Haviland, William A.

- 1963 *Excavation of Small Structures in the Northern Quadrant of Tikal, Guatemala*. Ph.D dissertation, Department of Anthropology, University of Pennsylvania, Philadelphia.

Healy, Paul F.

- 1992 The Ancient Maya Ballcourt at Pacbitun, Belize. *Ancient Mesoamerica* 3:229-239.

Healy, Paul F., Jaime J. Awe, and Hermann Helmuth

- 1998 An Ancient Maya Multiple Burial at Caledonia, Cayo District, Belize. *Journal of Field Archaeology* 25:261-274.

Healy, Paul F, Kitty Emery, and Lori E. Wright

- 1990 Ancient and Modern Maya Exploitation of the Jute Snail (*Pachychilus*). *Latin American Antiquity* 1(2): 170-183.

Hunter-Tate, Clarissa

- 1994 The Chultuns of Caracol. In *Studies in the Archaeology of Caracol, Belize*, edited by Diane Z. Chase and Arlen F. Chase. Pp 64-75. Pre-Columbian Art Research Institute, San Francisco.

1995 The Chultuns of Caracol. Unpublished M.A. Thesis, Department of Anthropology, Ball State University, Indiana.

Iannone, Gyles

1994 More Time Among the Thorns: Results of the 1993 Investigations at Zubin, Cayo District, Belize. In *Belize Valley Archaeological Reconnaissance Project: Progress Report of the Sixth (1993) Field Season*, edited by Jaime J. Awe. Pp. 98-108. Institute of Archaeology, University of London. London, England.

1996a Introduction. In: *The Social Archaeology Research Program: Progress Report of the Second (1996) Season*. Edited by Gyles Iannone. Pp.2-26. Department of Anthropology, Trent University: Peterborough.

1996b Social Archaeology: Toward a Cohesive Interpretive Theory. In *The Social Archaeology Research Program: Progress Report of the Second (1996) Season*, edited by Gyles Iannone. Pp. 27-38. Department of Anthropology, Trent University: Peterborough.

Iannone, Gyles, B. Ford and T. Stevens

1994 Of Marl and Mounds: A Chultun Salvage Operation Near the Tzinic Group, Cahal Pech. In *Belize Valley Archaeological Reconnaissance Project: Progress Report from the Sixth (1993) Field Season*, edited by Jaime J. Awe. Pp. 221-223. Institute of Archaeology, University of London, England.

Ichon, Alain

1977 A Late Postclassic Sweathouse in the Highlands of Guatemala. *American Antiquity* 42:203-209.

Keller, Angela H.

1995 Getting into Xunantunich: The 1995 Investigations of the Access Points and Accessibility of Xunantunich. In *Xunantunich Archaeological Project: 1995 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore. Pp 83-112. Belmopan and Los Angeles.

Killpack, Patrick C.

1998 Agricultural Terraces and Sparse Population: Intensive Agriculture—Scattered Settlement: An Incongruity? In: *The Social Archaeology Research Program: Progress Report of the Fourth (1998) Season*. Edited by Nadine Gray, Sonja Schwake and Jeff Seibert. Pp. 94- 121. Department of Anthropology, Trent University, Peterborough.

- 1997 Mindful of Midden and Soil: The 1997 Field Season at X-ual-canil. In: *The Social Archaeology Research Program: Progress Report of the Third (1997) Season*, edited by Gyles Iannone. Pp. 65-77. Department of Anthropology, Trent University, Peterborough.
- Lambert, J.D.H and J.T. Arnason
1981 Ramon and Maya Ruins: An Ecological, Not an Economic, Relation. *Science* 26:298-299.
- Le Count, Lisa J.
1999 *Pottery and Power: Feasting, Gifting, and Displaying Wealth Among the Late and Terminal Classic Lowland Maya*. PhD. Dissertation, Department of Anthropology, University of California, Los Angeles.
- Loten, Stanley H. and David M. Pendergast
1984 *A Lexicon for Maya Architecture*. Royal Ontario Museum, Toronto.
- Lucero, Lisa J.
1999 Classic Lowland Maya Political Organization: A Review. *Journal of World Prehistory* 13(2):211-263.
- Mason, Gregory and Herbert J. Spinden
1965 Through the Mouth of a Cauldron. In *They Found the Buried Cities*, edited by R Wauchope. Pp. 25-67. University of Chicago Press, Chicago.
- Marcus, Joyce
1989 Zapotec Chiefdoms and the Nature of Formative Religions. In *Regional Perspectives on the Olmecs*, edited by Robert Sharer and David Grove. Pp. 148-197. Cambridge University Press, New York.
- Matheny, Ray T.
1971 Modern Chultun Construction in Western Campeche, Mexico. *American Antiquity* 36:473-475.
- McAnany, Patricia A.
1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Texas Press, Austin.
- Merwin, Raymond E. and George C. Vaillant
1932 *The Ruins of Holmul, Guatemala*. Memoirs of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Cambridge.
- Middleton, William D., Gary M. Feinman, and Guillermo Molina Villegas
1998 Tomb Use and Reuse in Oaxaca, Mexico. *Ancient Mesoamerica* 9:297-307.

Miksicek, Charles H.

1991 The Ecology and Economy of Cuello. In *Cuello: An Early Maya Community in Belize*, edited by Norman Hammond. Pp.70-84. Cambridge University Press: Cambridge.

Miksicek, Charles H., K.J. Elsesser, I.A. Wuebber, K.Olsen Bruhns and N. Hammond

1981 Rethinking Ramon:A Comment on Reina and Hill's Lowland Maya Subsistence. *American Antiquity* 46:916-919

Ohnersorgen, Michael and Mark D. Varien

1996 Formal Architecture and Settlement Organization in Ancient West Mexico. *Ancient Mesoamerica*, 7:103-120.

Peters, Charles M.

1983 Observations of Maya Subsistence and the Ecology of a Tropical Tree. *American Antiquity* 48:610-615.

Plunket, Patricia and Gabriela Urunuela

1998 Preclassic Household Patterns Preserved Under Volcanic Ash at Temtimpa, Puebla, Mexico. *Latin American Antiquity* 9 (4):287-309.

Pohl, Mary

1983 Maya Ritual Faunas: Vertebrate Remains from Burials, Caches, Caves and Cenotes in the Maya Lowlands. In *Civilization in the Ancient Americas: Essays in Honor of Gordon R. Willey*, edited by Richard M. Leventhal and Alan L. Kolata. Pp. 55-103, University of New Mexico Press, Albuquerque and Peabody Museum of Archaeology and Ethnology, Cambridge.

Pollock, Harry E.D.

1956 *The Southern Terminus of the Principle Sacbe at Mayapan-Group Z-50*. Current Reports 37:529-549. Carnegie Institution, Department of Archaeology, Washington.

Powis, Terry G.

1992 Preliminary Excavations at the Tolok Group: A Settlement Cluster in the Southeastern Periphery of Cahal Pech, Belize. In *Belize Valley Archaeological Reconnaissance Project: Progress Report of the Fourth Season (1991) of Investigations at Cahal Pech, Belize*, edited by Jaime J. Awe and Mark D. Campbell. Pp. 35-50. Trent University, Peterborough.

1993 Burning the Champa: 1992 Investigations at the Tolok Group, Cahal Pech, Belize. In *Belize Valley Archaeological Reconnaissance Project: Progress Report of the 1992 Field Season*, edited by Jaime J. Awe. Pp. 97-115. Trent University, Peterborough.

- 1995 *Excavation of Middle Formative Period Round Structures at the Tolok Group, Cahal Pech, Belize*. M.A Thesis, Department of Anthropology, Trent University, Peterborough.
- 1999 *Distribution and Excavation of Chultuns at Cahal Pech, Belize*. Unpublished manuscript in possession of the author.
- Powis, Terry G. and Bobbi M. Hohmann
 1995 *From Private Household to Public Ceremony: Middle Formative Occupation at the Tolok Group, Cahal Pech, Belize*. In *Belize Valley Preclassic Maya Project: Report on the 1994 Field Season*, edited by Paul F. Healy and Jaime J. Awe. Pp. 45-94. Trent University, Occasional Papers in Anthropology 10. Peterborough.
- Powis, Terry, Norbert Stanchly, Christine D. White, Paul F. Healy, Jaime J. Awe and Fred Longstaff.
 1999 *A Reconstruction of Middle Preclassic Maya Subsistence Economy at Cahal Pech, Belize*. *Antiquity* 73: 364-76.
- Prince, Peter V.
 1998 *Living on the Edge: An Examination of the X-ual-canil Periphery*. In *The Social Archaeology Research Program: Progress Report of the Fourth (1998) Season*, edited by Nadine Gray, Sonja Schwake and Jeff Seibert. Pp. 33-48. Department of Anthropology Trent University: Peterborough
- Puleston, Dennis E.
 1965 *The Chultuns of Tikal*. *Expedition* 7(3):24-29.
- 1971 *An Experimental Approach to the Function of Classic Maya Chultuns*. *American Antiquity*. 36(3):22-334.
- Rathje, William
 1970 *Socio-political Implications of Lowland Maya Burials: Methodology and Tentative Hypotheses*. *World Archaeology* 1:359-374.
- Reina, Ruben E. and Robert M. Hill, II
 1980 *Lowland Maya Subsistence: Notes from Ethnohistory and Ethnography*. *American Antiquity* 45:74-79.
- Ricketson, Oliver Garrison
 1925 *Burials in the Maya Area*. *American Anthropologist* 27:381-401.
- Ricketson, Oliver Garrison and Edith Bayles Ricketson
 1937 *Uaxactun, Guatemala, Group E, 1926-1931*. Carnegie Institution of Washington, Publication 477, Washington.

Ruz Lhuiller, Alberto

- 1965 Tombs and Funerary Practices in the Maya Lowlands. In *Handbook of Middle American Indians*, Vol. 2 (Part 1): Archaeology of Southern Mesoamerica, edited by Gordon R. Willey, pp 442-461. University of Texas Press, Austin.

Schele, Linda and David A. Freidel

- 1990 *A Forest of Kings: The Untold Story of the Ancient Maya*. William Morrow, New York.

Schwake, Sonja

- 1996 Ritual at the Road's End: Preliminary Excavations at the Te Tun Na Group, X-ual-canil, Cayo District, Belize. In: *The Social Archaeology Research Program: Progress Report of the Second (1996) Season*, edited by Gyles Iannone. Pp. 62-78. Department of Anthropology, Trent University, Peterborough.

- 1997a Stairway to Heaven? The 1997 Excavations of Structure 4A at Xaman Nab, X-ual-canil. In: *The Social Archaeology Research Program: Progress Report of the Third (1997) Season*, edited by Gyles Iannone. Pp. 28-41. Department of Anthropology, Trent University, Peterborough.

- 1997b Report on the Human Remains from Choj Group Chultun (CH1-1), Periphery of X-ual-canil, Cayo District, Belize. Unpublished report on file with the author.

- 1999 *On the Road: Excavations along the Maya Sacbe at X-ual-canil, Cayo District, Belize*. M.A. Thesis, Department of Anthropology, Trent University, Peterborough.

Schwake, Sonja and Jeff Seibert

- 1998 The 1998 Excavations in the Xaman Nab Plaza, X-ual-canil, Cayo District, Belize. In: *The Social Archaeology Research Program: Progress Report of the Fourth (1998) Season*. edited by Nadine Gray, Sonja Schwake and Jeff Seibert. Pp. 74-93. Department of Anthropology, Trent University, Peterborough.

Seibert, Jeff

- 1998 Home Invasion: Excavations in Structures 9B-13B, Nohol Nab, X-ual-canil, Belize. In *The Social Archaeology Research Program: Progress Report of the Fourth (1998) Season*, edited by Nadine Gray, Sonja Schwake and Jeff Seibert. Pp. 122-145. Department of Anthropology, Trent University, Peterborough.

Sharer, Robert J.

- 1994 *The Ancient Maya*. Fifth Edition. Stanford University Press, Stanford.

- Sharer, Robert J. and David W. Sedat
 1987 *Archaeological Investigations in the Northern Maya Highlands, Guatemala*. University of Pennsylvania, Philadelphia.
- Smith, A. Ledyard
 1950 *Uaxactun, Guatemala: Excavations of 1931-1937*. Carnegie Institution of Washington, Publication 588, Washington.
- 1972a Discussion of Caches. In *Excavations at Altar de Sacrificios: Architecture, Settlement, Burials and Caches*. Pp. 205-211. Harvard University, Peabody Museum, Cambridge.
- 1972b Discussion of Burials. In *Excavations at Altar de Sacrificios: Architecture, Settlement, Burials and Caches*. Pp. 212-221. Harvard University, Peabody Museum, Cambridge.
- 1973 *Uaxactun: a Pioneering Excavation in Guatemala*. Addison-Wesley Module in Anthropology no. 40. Reading, Massachusetts.
- Smyth, Michael P.
 1989 Domestic Storage Behavior in Mesoamerica: An Ethnoarchaeological Approach. In *Archaeological Method and Theory*. Volume 1, edited by Michael P. Smyth. pp 89-138. University of Arizona Press, Tuscon.
- Stemp, James, Isabel Anderton and Gyles Iannone
 1996 Excavations in the Nohol Nab Residential Group: The 1996 Season. In *The Social Archaeology Research Program: Progress Report of the Second (1996) Season, I* edited by Gyles Iannone. Pp. 57-61. Department of Anthropology Trent University, Peterborough.
- Storey, Rebecca
 1991 Residential Compound Organization and the Evolution of the Teotihuacan State. *Ancient Mesoamerica* (2):107-118.
- Tedlock, Barbara
 1982 *Time and the Highland Maya*. Revised edition. University of New Mexico, Albuquerque.
- Thomas, Prentice M., Jr.
 1981 *Prehistoric Maya Settlement Patterns at Becan, Campeche, Mexico*. Middle American Research Institute, Tulane University, New Orleans.

- Thompson, Della
 1993 *The Oxford Dictionary of Current English*. Second Edition. Oxford University Press, New York.
- Thompson, Edward H.
 1897 *The Chultunes of Labna, Yucatan. Memoirs* 1:75-92. Peabody Museum of American Archaeology and Ethnology, Harvard University, Cambridge.
- Thompson, J Eric S.
 1931 *Archaeological Investigations in the Southern Cayo District British Honduras*. Publication 301, Vol. XVII, No. 3. Field Museum of Natural History, Chicago.
- Tozzer, Alfred
 1912 The Chultunes of Northern Guatemala. *Science* 35:669.
- 1913 A Preliminary Study of the Prehistoric Ruins of Nakum, Guatemala. Peabody Museum of American Archaeology and Ethnology. Memoirs 5. Harvard University, Cambridge.
- 1941 *Landa's Relacion de Las Cosas de Yucatan: A Translation*. Peabody Museum of American Archaeology and Ethnology. Volume XVIII. Harvard University, Cambridge.
- von Hagen, Victor Wolfgang
 1962 *Incidents of Travel in Yucatan: Volume One*. University of Oklahoma Press, Norman.
- Welsh, W. B. M.
 1988 *An Analysis of Classic Lowland Maya Burials*. BAR International Series 409. Oxford.
- Willey, Gordon R., William R. Bullard Jr., J.B. Glass and James C. Gifford
 1965 *Prehistoric Maya Settlements in the Belize Valley*. Peabody Museum of Archaeological and Ethnology. No. 54. Harvard University, Cambridge.
- Willey, Gordon R.
 1982 *Excavations at Seibal*. Peabody Museum of Archaeology and Ethnology. Memoirs 15. Harvard University, Cambridge.
- Yaeger, Jason and Sam V. Connell
 1993 Xunantunich Settlement Survey. In *Xunantunich Archaeological Project: 1993 Field Season*. Pp. 172-201.

APPENDIX ONE

CERAMIC VESSELS FROM THE CHULTUNOB OF X-UAL-CANIL

1. Choj Group (Unit CH1-1)

Phase	Form	Type and Variety	Cat #, Vessel #
Floral Park	bowl	Aguacate Orange: Aguacate Variety	28/189-1:10 Vessel 1
Floral Park	jar	Chan Pond Unslipped: Variety Unspecified	28/189-1:11 Vessel 2
Floral Park	jar	Negroman Punctated-Incised: Negroman Variety	28/189-1:12 Vessel 3
Floral Park	jar	Negroman Punctated-Incised: Negroman Variety	28/189-1:13 Vessel 4
Floral Park	bowl	Aguacate Orange: Privaccion Variety	28/189-1:14 Vessel 5
Floral Park	bowl	Aguacate Orange: Aguacate Variety	28/189-1:15 Vessel 6
Floral Park	jar	Negroman Punctated-Incised: Negroman Variety	28/189-1:16 Vessel 7
Hermitage	jar	Fowler Orange-Red: Spring Camp Variety	28/189-1:17 Vessel 8
Hermitage	jar	Fowler Orange-Red: Fowler Variety	28/189-1:18 Vessel 9

Floral Park	bowl	Gavilan Black-on-Orange: Gavilon Variety	28/189-1:19 Vessel 10
Floral Park	bowl	Gavilan Black-on-Orange: Gavilon Variety	28/189-1:20 Vessel 11

2. Chultun 3 (Unit CH3-1), Lobe B

Phase	Form	Type and Variety	Cat #, Vessel #
Spanish Lookout	Plate	Dolphin Head Red: Dolphin Head Variety	28/189-1:461 Vessel 1
Spanish Lookout	mini	Belize Red: Belize Variety	28/189-1:462 Vessel 2
Spanish Lookout	bowl	Belize Red: Belize Variety	28/189-1:463 Vessel 3
Spanish Lookout	mini	Belize Red: Belize Variety	28/189-1:464 Vessel 4
Spanish Lookout	vase	Montego Ploychrome: Montego Variety	28/189-1:550 Vessel 5
Spanish Lookout	rim	Cayo Unslipped: Cayo Variety	28/189-1: 551 Vessel 6
Spanish Lookout	bowl	Belize Red: Belize Variety	28/189-1: 552 Vessel 7
Spanish Lookout	mini	Belize Red: Belize Variety	28/189-1: 553 Vessel 8

Spanish Lookout	owl	Belize Red: Belize Variety	28/189-1: 465 Vessel 9
Spanish Lookout	mini	Yalbac Smudged Brown: Yalbac Variety	28/189-1:554 Vessel 10
Spanish Lookout	rim	Mount Maloney Black: Mount Maloney Variety	28/189-1: 555 Vessel 11

3. Chultun 3 (Unit CH3-1), Lobe C

Phase	Form	Type and Variety	Cat # Vessel #
Spanish Lookout	rim	Cayo Unslipped: Cayo Variety	28/189-1:556 Vessel 12
Spanish Lookout	tripod	Belize Red: Belize Variety	28/189-1:466 Vessel 13
Spanish Lookout	rim	Jones Camp Striated: Jones Camp Variety	28/189-1:557 Vessel 14
Spanish Lookout	rim	Cayo Unslipped: Cayo Variety	28/189-1:558 Vessel 15

4. Chultun 4, (Unit CH4-1)

Phase	Form	Type and Variety	Cat #, Vessel #
Tiger Run	body	Macal Orange Red: Macal Variety	28/189-1:559 Vessel 1
Spanish Lookout	bowl	Silver Creek Impressed: Silver Creek Variety	28/189-1:560 Vessel 2
Spanish Lookout	bowl	Xunantunich Black-on-Orange: Variety Unspecified	28/189-1:561 Vessel 3
Spanish Lookout	rim	Cayo Unslipped: Cayo Variety	28/189-1:562 Vessel 4
Spanish Lookout	bowl	Meditation Black: Meditation Variety	28/189-1: 563 Vessel 5
Spanish Lookout	plate	Platon Punctated Incised: Platon Variety	28/189-1:564 Vessel 6

APPENDIX TWO

Report on the Human Remains from Choj Group
Chultun (CH1-1), Periphery of X-ual-canil, Cayo District, Belize

Sonja Schwake

Central Lobe

Dentition:

Level 1 (found in close proximity to Vessel #5 SF#28/189-1:14)
-maxillary right first premolar

Level 2a
-maxillary left canine

Cranial Fragments:

Level 2a
- 2 unidentified cranial fragments

Postcranial Fragments:

Level 1
- fragment of a large long bone (highly disintegrated). potentially a humeral or femoral fragment (found in close proximity to Vessel #5/SF 28/189-1:14)
- distal end of a finger phalanx (found within Vessel #5/SF 28/189-1:14)
- 1 distal finger phalanx (found within Vessel #6/SF 28/189-1:15)
- 2 fragments of the mid-shafts of finger phalanges (found within Vessel #6/SF 28/189-1:15)
- 1 distal toe phalanx (found within Vessel #6/SF 28/189-1:15)
- 1 metatarsal head (found within Vessel #6/SF 28/189-1:15)

Level 2a
- 1 ulnar fragment (with sharp interosseous crest portion of the shaft)
- 1 proximal end of a second metacarpal
- 1 distal end of a proximal hand phalanx

Level 2
- 1 fragment of the head of the humerus
- 2 distal radial fragments
- 1 metacarpal shaft
- 2 proximal hand phalanges
- 1 distal end of a proximal hand phalanx
- 1 rib fragment
- 1 right, first cuneiform (tarsal bone)
- 1 rib fragment (found within Vessel #11 SF#28/189-1:20)
- 1 fibula fragment (found within Vessel #11 SF#28/189-1:20)

- 1 humeral fragment (found within Vessel #10 SF#28/189-1:19)

Age:

All remains from the center lobe were indeterminate for age, although all were adult.

Pathologies:

Dentition

- maxillary left canine (Level 2a) shows wear on half of the occlusal edge (towards the lateral incisor) as well as linear enamel hypoplasia proximal to the cemento-enamel junction and proximal to the occlusal edge.

South-West Lobe

Dentition:

Level 1

- 1 maxillary left lateral incisor

Level 2

- 1 mandibular left first premolar (very eroded)
- 1 mandibular left second premolar (very eroded)
- 1 maxillary left canine

Cranial Fragments:

Level 1

- 5 cranial fragments

Level 2

- 16 cranial fragments

Postcranial Fragments:

Level 1

- 16 unidentified long bone fragments
- several small unidentified bone fragments from within Vessel #9 (SF 28/189-1:18)
- 1 right navicular (carpal)
- 1 distal finger phalanx
- 2 partial fragments of either foot or hand phalanges (very eroded)
- 4 rib fragments
- 1 flat bone fragment (either innominate or scapula, very eroded)
- 2 tarsals (1 cuneiform, side unknown; 1 talus, side unknown)

Level 2

- 1 medial section of a metacarpal shaft
- 1 complete metacarpal shaft
- 1 complete metacarpal

- 5 distal finger phalanges
- 1 medial finger phalanx
- 1 finger phalanx (unknown if proximal or medial)
- 4 shaft fragments of finger phalanges
- 1 shaft fragment of a medial finger phalanx
- 1 articular head of a finger phalanx
- 1 scapular fragment
- 1 humeral head fragment
- 3 humeral shaft fragments
- 2 radial shaft fragments
- 1 rib fragment
- 1 complete left patella
- 6 fibular shaft fragments
- 1 tibial shaft fragment
- 1 distal portion of a metatarsal
- 1 proximal end of a metatarsal
- 4 partial sections of metatarsal bones
- 4 distal toe phalanges
- 1 medial toe phalanx
- 8 proximal toe phalanges
- 7 unidentified long bone fragments from either the foot or hand
- 4 unidentified long bone fragments

Age:

The remains from the Southern lobe of the chultun were adult, though indeterminate for a more specific age range (presence of premolars reinforces this assessment).

Pathologies:

Post-Cranial

- the distal finger phalanx (Level 2) exhibited some minor arthritic osteophyte growth on the articular facet.
- One of the distal foot phalanges (Level 2) exhibited some arthritic lipping, another exhibited arthritic lipping, as well as a structural deformation with bony regrowth.

North Lobe:

Dentition:

Level 1

- 2 maxillary left central incisors (both are shovel-shaped)
- 1 maxillary left lateral incisor
- 1 mandibular right lateral incisor
- 1 mandibular lateral incisor, side unknown (no root)
- 1 maxillary right canine

- 2 maxillary left canines (one shows marked wear on the distal occlusal edge, while the other has little or no wear)
- 1 maxillary left second premolar
- 2 mandibular premolars (indeterminate for side due to extreme erosion and lack of roots)
- 1 mandibular left first molar
- 1 mandibular left second molar
- 1 mandibular right third molar
- 1 mandibular left third molar
- 1 maxillary left second molar
- 1 maxillary right second molar
- 1 maxillary first or second molar (side unknown), with a large carious lesion extending throughout the crown cavity
- 1 highly eroded maxillary molar
- 1 highly eroded mandibular molar

Cranial Fragments:

Level 1

- 36 cranial fragments

Postcranial Fragments:

Level 1

- 3 scapular fragments (one is the glenoid fossa of the scapula)
- 1 shaft of a finger phalanx
- 2 distal finger phalanges
- 1 medial finger phalanx
- 1 distal end of a proximal hand phalanx
- 1 distal end of a metatarsal
- 2 fragments of a radial shaft
- 3 lumbar vertebral fragments
- 1 right navicular (tarsal bone)
- 2 unidentified long bone fragments from the hand or foot
- 15 unidentified long bone fragments

Age:

These remains are representative of adult individuals, although there is no more specific age range determinable.

Pathologies:

Dentition

- The mandibular left second molar (Level 1) shows slight wear, a small lingual carious lesion and a large central-buccal carious lesion.
- Several of the maxillary incisors (Level 1) show shovel shaping
- One of the maxillary left canines (Level 1) shows marked wear on the distal occlusal edge

- There is a large carious lesion on one of the maxillary molars (side unknown)

Cranial

- 1 of the cranial fragments (Level 1) has circular porotic lesions. The fragment is very eroded though, and the lesion may be a result of taphonomic processes.

South-East Lobe:

Fragments:

Level 1

-4 unidentifiable fragments

Summary

Preservation- The condition of the remains varied from good to poor. Many of the bones showed marked erosion, primarily due to the caustic and aerobic conditions within the chultun chamber.

Minimum Number of Individuals- The minimum number of individuals represented by the remains found within the chultun (CH1-1) is four. This is based on the presence of four maxillary left canines. These were found in the Central Lobe, the North Lobe (two were recovered from this area), and the South-west Lobe respectively. Due to the rather disturbed nature of the remains within the chultun however, it is difficult to say if these individuals were interred in these specific "areas" within the chultun initially, or were displaced to these locations.

Demographics of the Individuals- The remains all represent adult individuals; as there were several premolars present, all epiphyses were fused and there was the presence of occasional arthritic lipping. There was no evidence for sub-adult individuals within this assemblage. None of the remains were determinate for sex or stature.

Remains Assessed in Relation to Areal Distribution- Roughly, the 'body parts' found within each respective area were as follows:

Southwest: Level 1- Cranial, teeth, ribs, hip, fingers and foot bones.

Level 2- Cranial, teeth, shoulder, upper and lower arm, hand, ribs, kneecap, lower leg and foot bones.

Center: Level 1- Teeth, long bones.

Level 2a- Cranial, teeth, lower arm and hand.

Level 2- Upper and lower arm, hand, rib, lower leg and foot.

North: Level 1- Cranial, teeth, shoulder, hand, vertebra and foot.

Thus there is a combined mix of body parts in each area, suggesting that these areas were probably the initial location of interment for at least three of the individuals. The remains were extremely fragmentary and disturbed however, so this distribution may just indicate random spread throughout the confines of the chultun.

X-ual-canil, Group F (Gran Maestro)
Chultun 4, Unit CH4-1, Level 2

Excavated July 22, 1998

13 fragments

- 5 unidentified bone fragments
- 1 rib fragment
- 5 long bone fragments
- 1 mandibular lateral right incisor
- 1 radial shaft fragment - side unknown

Excavated July 27, 1998

34 fragments

- 2 rib fragments
- 1 proximal end
- 16 pieces of innominate- side unknown
- 1 piece of innominate which includes the acetabulum of the hip
- 1 fragment of a robust long bone, femur- side unknown
- 8 unidentified long bone fragments
- 2 tibial fragments - side unknown
- 3 humeral fragments- side unknown

Preservation is poor. The remains are adult with no pathologies present.
Number of individuals is unknown