The Dissertation Committee for Richard Keith Meadows, Jr.
Certifies that this is the approved version of the following dissertation:

Crafting K'awil: A Comparative Analysis of Maya Symbolic Flaked Stone Assemblages from Three Sites in Northern Belize

Committee:

Thomas R. Hester, Supervisor

Fred Valdez, Jr.

Samuel M. Wilson

Elizabeth Graham

Harry J. Shafer

Crafting K'awil: A Comparative Analysis of Maya Symbolic Flaked Stone Assemblages from Three Sites in Northern Belize

by

Richard Keith Meadows, Jr., B.A., M.A.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August, 2001

ProQuest Information and Learning Company
300 North Zeeb Road
PO Box 1346
Ann Arbor, MI 48106-1346

Dedication

This work is dedicated to the memory of my three grandmothers, Ella Elaine Shepherd Meadows, Margaret Linnea Anderson Johnson, and Wilma Anderson Jindra. They were in Illinois for the stories, they were in Florida for the baseball, and they were in North Carolina for the walk. They are still with me.

Acknowledgements

A lifetime of experiences has brought me into the spheres of many, many exceptional people. Family members, teachers, mentors, colleagues, and friends have all had a profound impact on me. It was from them that I learned not just how to complete tasks and goals, but how to live. And to them I express a deep and abiding gratitude that I will forever carry with me, a gratitude that cannot be expressed in words. Indeed, the many people with whom I have had the privilege to simply meet, or work with, or watch for awhile, can be included in this sphere.

In the completion of a work such as this, it is important to identify individuals by name that had a significant impact during the difficult and lengthy process of completing a doctoral degree. The list is long. Perhaps the people who have been most instrumental in completing this dissertation are the members of my dissertation committee. As my academic advisor and committee chair, Thomas R. Hester has been teacher, mentor, and friend. Through these years, Tom has shown both approval and dismay at my performance. He taught, rewarded, cajoled, and admonished me when appropriate. And I owe him thanks for the many times when, despite frustration at my sporadic or undisciplined efforts, he continued to support my work wholeheartedly.

I extend sincere thanks to Fred Valdez for his academic support as a mentor, but also for the invitations to Thanksgiving and Christmas dinners over the years. Being able to meet the families of Fred and Palma and share their hospitality is something that I will not soon forget. Samuel Wilson was instrumental in completion of this project both as a teacher and one who knew how to press all of the right buttons to get me to perform, and to finish. Elizabeth Graham has been both mentor and friend. As the Director of the Lamanai Archaeological Project, Liz was the first to suggest a comparative analysis of the assemblages from both Lamanai and Altun Ha. Liz also provided critical

academic and financial support, and for this I am very grateful. Over these years, Harry Shafer has been the source of stimulating conversation with regard to Maya lithics and excavations at Colha, as well as always providing insightful and helpful suggestions with regard to the current study. I sincerely thank each of these folks for serving on my dissertation committee.

Other faculty and staff members at the University of Texas and elsewhere who have helped me along the way include Darrell Creel, who as the Director of the Texas Archaeological Research Laboratory, provided me a place to finish the study after Tom retreated to the hidden canyons of Medina County. I also would like to thank Harry Iceland, who was friend and mentor during my early days in Texas, and with whom I have engaged in many interesting discussions regarding lithic analysis and Mesoamerican archaeology in general. Dale Hudler, with whom I have debated lithics, hunter- gatherer theory, and politics over the years, also helped me continue work at TARL. As Graduate Coordinator for the Department of Anthropology, Celeste Neathery always provided important information to me in a professional and friendly manner. Thanks to Monica Trejo, Laura Nightengale, Diane Ruetz, Rosario Casarez, Carolyn Spock, and Milton Bell, who all make TARL a pleasant place to work. I would also like to thank illustrators Kim Kersey and Louise Belanger who drew artifacts at Lamanai, as well as George St. Claire and Pamela Headrick who drew many of the Colha artifacts here in Austin. Thanks to Debra Walker and to Arlen and Diane Chase, who gave me my first opportunity to do archaeology in Belize at Cerros in 1993 and at Caracol from 1994- 1996, respectively. I also thank Linda Schele, who as a teacher and scholar has had a profound impact on me.

My fellow graduate students in the Department of Anthropology and at other institutions were often the source of conversation, support, and friendship. Foremost among these is Carmen Ruiz. I would like to thank Apen for her friendship and many conversations on life, politics, anthropological theory, and

the history of archaeology. The times I have been able to spend with Apen and her daughter Lucia are ones that I hold very dear. Christopher Ringstaff taught me most of what I know about flint- knapping, geography, and fishing in central Texas. Ed Baker taught me much about regional geomorphology, archaeology, and the history of punk rock in Austin. Thanks also to Tamra Walter and Yorke Rowan for many conversations regarding archaeology, and to Sharon Dornheim for her kind words and encouragement. My friendship with Angela Matusik helped me to continue forward and taught me much about life. For these valuable lessons, I thank Angela. Thanks also to Richard Bidstrup and Maureen Carpenter for their friendship.

Research has carried me to Belize, Central America and Toronto, Ontario where I again encountered many exceptional individuals. In Belize and back in central Texas, Brett Houk has always been there with a wry comment and a plan. His insightful comments and skills as a field archaeologist and editor are undeniable. My work at Chan Chich with both Brett and Hugh Robichaux provided me with important field experience. During my work at Chan Chich, I was fortunate to meet Kristen Hartnett, a gifted student and archaeologist whom I would like to thank for both support and friendship.

At Lamanai and in Texas, Terry Powis was prominently present. His friendship, knowledge of Maya archaeology, and the hours spent in Indian Church with our compadre, Norbert Stanchly helped keep spirits afloat and research on track. At Lamanai and in Toronto, Noberto has provided support and friendship. I would also like to thank Laura Howard of the Lamanai Field Research Center for her support and friendship over the years.

At Lamanai, perhaps no one person has helped me understand the complexities of being Maya in the modern world than Don Nasario Ku. I would like to thank Nasario and his family for being very supportive of my work and for being friends with me. Nasario's cultural knowledge transcends time and his

contributions to the current work are subtle and many. Also, I would like to thank Guadalupe Cunil of Indian Church, for his support. In Belmopan, at the Belize Department of Archaeology, Allan Moore, Bryan Woodye, John Morris, and Carmen Blanco all helped to facilitate research as the professionals that they are. I thank all the folks in the Department for their help and support.

In Toronto and in Belize, David Pendergast provided both data critical to the study, as well as conversation and friendship. I would like to thank David for the information he has provided regarding archaeological contexts of the lithic assemblages from Altun Ha and Lamanai. In particular, two meetings we had in the fall of 2000 were critical for stimulating continued research. At the Royal Ontario Museum, I would like to thank Susan Sivric and Mima Kapches, who helped me gain access to the collections located there. In a similar track, I would also like to thank Harriet Beaubien, Objects Analyst at the Smithsonian Center for Materials Research and Education and Research Fellow Jill Plitnikas for initiating and conducting the preliminary materials characterization study.

I would like to give a very special thanks to Kay Sunahara for friendship, conversation, and support over the course of the last year. During my extended stay in Toronto last fall, I was fortunate to make Kay's acquaintance. From that point on, we have spent many hours engaged in dialogue about politics, archaeology, and life in general. Kay is a special person whose friendship is very important for me.

Finally, but perhaps most importantly, I would like to thank the members of my immediate family. My father, Richard K. Meadows, Sr., my mother, Gwendolyn J. Meadows, and my brother, Andrew F. Meadows. They form the core, the inner sphere, so to speak. And without their love and support, both moral and financial, I am nowhere. I express my undying gratitude for what they have given me. I hope that someday I can begin to repay them. As for now, I continue the journey forward. *Siempre adelante!*

Crafting K'awil: A Comparative Analysis of Maya Symbolic Flaked Stone Assemblages from Three Sites in Northern Belize

Publication No._____

Richard Keith Meadows, Jr., Ph.D.

The University of Texas at Austin, 2001

Supervisor: Thomas R. Hester

This dissertation presents a material culture analysis of three archaeological assemblages of symbolic flaked stone artifacts recovered from the Maya sites of Altun Ha, Colha, and Lamanai, Belize. Individual artifacts are described and categorized guided by morphological and technological similarities. The dissertation contextualizes further the emergence of a distinct style of northern Belize symbolic lithics that exhibits linkages with regional technological antecedents. The exploration of these linkages is positioned within a theoretical framework that views material culture as a crystallization of three intersecting modes of cultural interpretation: technological knowledge, local political economy, and symbolic context.

Symbolic analysis focuses on the correlation between the lithic forms and themes prevalent in other Maya artistic media. It is suggested that flaked stone symbols both structured meaning and were historically emergent. Thus, meaning

of artifacts changed during the processes of production, acquisition, and ritual consumption. Technological analysis focuses on contrasting the assemblages to show how existing technology was elaborated upon in different places. The technological study resulted in the recovery of textile and pigments present on a significant number of artifacts. This supports the argument that these forms were part of a complex process of production that included painting and adorning individual artifacts prior to final deposition. Further materials characterization analysis revealed a number of interesting results with respect to the composition of these ancient materials. It is hoped that the convergence of these diverse modes of inquiry has shed new light on a frequently occurring yet enigmatic class of ancient Maya material culture.

Table of Contents

List of Tables

List of Figures

List of Illustrations

Chapter 1: Material Culture Analysis and the Study of Maya Flaked Stone Symbols: Introduction

k'awil- derived from the K'iche' Maya word *q'abawil*. Defined as a general term for a small idol or statue of a deity and the spirit of the deity contained within, usually made of stone or wood (Carmack 1981: 318; also Tedlock 1986: 78; Freidel et al. 1993: 200).

This dissertation presents the results of a material culture analysis of three assemblages of flaked stone symbols made of chert. Chert or microcrystalline silicate was a critical resource for ancient people in fashioning both utilitarian and symbolic implements. In Mesoamerica, chert was used for over 10,000 years in both gatherer- hunter and more complex society settings. In the eastern Maya lowlands, more specifically northern Belize, quality chert was available in large subsurface nodules or as tabular deposits outcropping along low ridges (Hester 1982, 1985; Iceland 1997; Potter 1993; Shafer 1979, 1985; Shafer and Hester 1983, 1991).

Commonly known as chert eccentrics, the artifact assemblages included in the present study were recovered from the ancient Maya centers of Altun Ha, Colha, and Lamanai, located in northern Belize, Central America and have been recovered at sites across the Maya lowlands (Coe 1959, 1990; Eaton et al. 1994; Hester 1985; Joyce 1932; Kidder 1947; Pendergast 1979, 1982, 1990). Archaeologists have recognized material culture as playing a critical role in the production of cultural and community identity, and more traditionally, as reflecting stylistic variation, cultural continuity, and culture change (Bartlett and McAnany 2000; Godelier 1973, 1986, 1999; Hodder 1982, 1986, 1990; Jenkins 1996; Shanks and Hodder 1998; Shennan 1989; Willey and Phillips 1949; Wobst 1977). Researchers working in the Maya culture area have implemented a variety

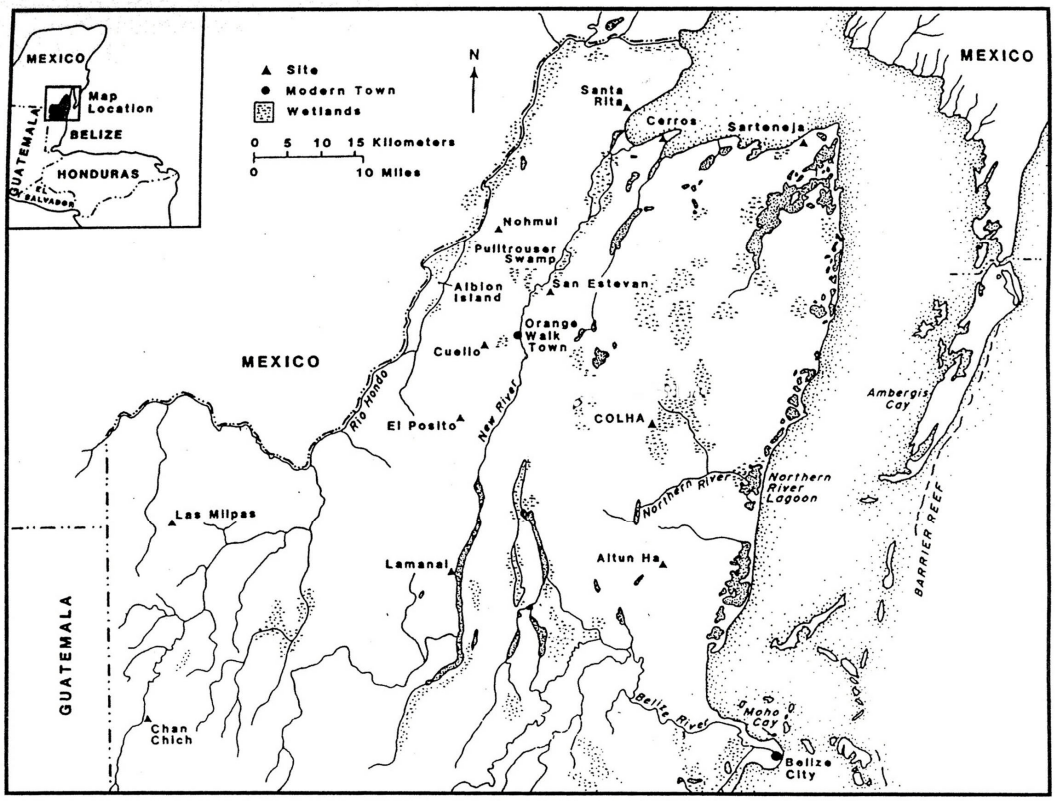


Figure 1.1- Map of northern Belize (adapted from Shaw 1992)

of methods in the analysis of material culture, to construct spatial and chronological distributions, identify intra- and inter- regional exchange networks, articulate stylistic innovation, and define the emergence of social hierarchy (Adams 1971; A. Chase 1992; Demarest 1984; Gibson 1986, 1989; Gifford et al. 1978; Graham 1987a, 1994; Hester 1985; Hester and Shafer 1994; McAnany 1989, 1989a; Pendergast 1979, 1982, 1990; Rents- Budet 1998; Sabloff 1975; Smith 1952; Valdez 1987). Similar to other classes of material culture, with perhaps the exception of ceramics, flaked stone artifacts frequently appeared as part of monographs and descriptive reports, but were rarely subjected to

comparative study (Coe 1959; Joyce 1932; Kidder 1947; Pendergast 1979, 1982, 1990; Probst 1984; Rovner 1976; Willey 1972).

A shift in the emphasis of archaeological investigations over the last three decades has taken place in the Maya area, as broader subsistence, settlement, and socioeconomic considerations have been addressed. As well, advances in the study of iconography and the decipherment of Classic Period Maya texts have also renewed research and brought accounts of the ruling class more clearly into our interpretations (Freidel et al. 1993; Grube 1994; Kelley 1976; Mathews 1985; Schele and Freidel 1990; Schele and Mathews 1998; Schele and Miller 1986; Stuart 1989). With respect to technological and economically oriented research, material culture studies have focused more intensively on lithic assemblages at numerous lowland Maya sites (see Aldenderfer et al. 1989; Dreiss 1988; Gibson 1986, 1989; Hester and Shafer 1991; King and Potter 1994; McAnany 1986, 1989, 1989a, 1991; Michael 1993; Mitchum 1992; Potter 1993; Shafer 1979, 1985; Shafer and Hester 1983, 1991 for explanatory and processual approaches to lowland Maya lithic assemblages).

These analyses center on production, consumption, and exchange of stone tools recovered from workshop and domestic contexts. The results were implemented in comparative and diachronic studies of lithic tool forms recovered from regional localities. These studies centered on defining economic foci and peripheries that in many instances contrasted with lowland political foci. Moreover, by defining community- wide lithic craft specialization, a producer and consumer economic model of utilitarian and symbolic lithic artifacts originating in the eastern Maya lowlands was proposed (Hester and Shafer 1994; Dockall and Shafer 1993; McAnany 1986, 1989, 1991).

With respect to the class of Maya material culture presented here, investigations have shown us that in the eastern lowlands, existing lithic

technology was elaborated upon, and ultimately became a medium in which more complex symbolic meaning was inscribed during the Late Preclassic Period (400 BC to AD 250) and through the Classic Period (AD 250- AD 900) (Gibson 1986, 1989; Iannone 1992; Iannone and Conlan 1993; Thompson 1996). Paradoxically, unlike chert tool forms, archaeological investigations have yet to reveal a production locality for this class of material culture. Despite the lack of production data available for these flaked stone symbols, the end result of production can still be studied utilizing multiple analytical approaches.

What has become clear is that these forms exhibit meaning from a number of perspectives, including both the technological and political- economic spheres. Moreover, individual forms were part of a complex ideology that constituted Maya social life. By implementing a comparative study of assemblages from three eastern lowland sites, continuity in terms of technology and form can be established. These symbolic forms can then be linked to historical, cosmological, and aesthetic themes appearing in other ancient Maya media.

This dissertation draws from two broadly defined analytical traditions, the descriptive- contextual approach, ubiquitous to the Maya area, and the comparative approach, also prevalent in lowland Maya research, and employed here to integrate new and existing data. The data presented here form the basis of a regional "typology" of flaked stone symbols produced on locally available raw material. Perhaps more important, individual artifacts are categorized and described not only for the purposes of defining a regional tradition via classification, but also to link flaked stone symbols to the crafting and transformation of human communities.

THREE SITES IN NORTHERN BELIZE

From a spatial and cultural perspective, the proximity of Altun Ha, Colha, and Lamanai to each other motivated a comparative study of this artifact class recovered in relatively large quantities at each site. Proximity was also an important consideration in terms of occupational history. Archaeological investigation at each site has determined that there were long term chronological overlaps in terms of cultural and social fluorescence (Hester et al. 1981, 1982, 1994; Pendergast 1979, 1981, 1982, 1990). Indeed, there is extensive architectural and artifactual evidence that imply complex political and economic relationships existed between the elites at Altun Ha and Lamanai (Pendergast 1981, 1986, 1992, 1998). This evidence appears to be supported by the present study.

Location of each site within the region was a second consideration in applying a comparative approach to the artifact assemblages. This is in part due to the natural occurrence of raw material from which the artifact class under study was produced. Both Altun Ha and Colha are located in what has been defined as the chert- bearing zone (Hester 1985). The chert- bearing zone (**cbz**) is a roughly 80km by 35km region in northern Belize where relatively uniform microcrystalline silicates occur in large subsurface nodules or outcrop along low ridges that cross the region (see Cackler et al. 1999; Luedtke 1992; also Tobey 1986 for provenance studies of northern Belize cherts).

Evidence for large- scale production of chert tool forms has been extensively documented at Colha (Hester and Shafer 1984, 1994; Shafer and Hester 1983, 1991). Lithic production on a lesser scale has been documented at sites to the south at Chicawate, in close proximity to Altun Ha (Kelly 1982; Meadows 1997; Shafer and Hester 1991). In concert, the location of Lamanai some 40 km to the west of Altun Ha and along the largest inland body of water in the region, the New River Lagoon, also hints that regional and dynamic inter- site

political- economic relationships were in place by the latter part of the Late Preclassic Period. These relationships are reflected in the context and forms of flaked stone symbols and other forms of material culture, primarily ceramics, occurring at individual sites.

ECCENTRIC LITHICS AS MATERIAL SYMBOLS

Maya eccentrics, referred to here as flaked stone symbols, occur archaeologically in a variety of forms and were produced in both chert and obsidian (see Coe 1959; Iannone 1992; Joyce 1932; Pendergast 1979, 1982, 1990; Probst 1984; Willey 1972). This study focuses exclusively on artifacts made of chert in order to assess the development and continuity of a specialized regional technology that was elaborated as symbol beginning sometime in the latter part of the Late Preclassic (AD 100) and appearing archaeologically through the Terminal Classic Period (AD 850- AD 950) with a much smaller number of forms appearing in the Postclassic (AD 950- AD 1350). It is hoped that by focusing on artifact assemblages comprised of locally available raw materials, the technological knowledge necessary to produce such artifacts can be contextualized in terms of a localized political economy and broader symbolic and ideological spheres in which they were produced, acquired, and consumed.

Throughout the development and practice of Maya archaeology, non-utilitarian flaked stone artifacts comprised of chert and recovered from Maya sites have been referred by a variety of monikers that have occasionally, but not always, incorporated the term eccentric in the classification. These include ceremonial flints, eccentric flints, and eccentric lithics (Coe 1959; Iannone 1992, Iannone and Conlan 1993; Joyce 1932; Pendergast 1979, 1982, 1990; Willey 1972). As previous researchers have described, both implicitly and explicitly, the eccentric category refers generally to any flaked stone artifact that is

asymmetrical in shape and cannot be classified as a tool form (Joyce 1932; Coe 1959; Kidder 1947; Iannone 1992). Thus, when compared to standardized, utilitarian chert tool forms, such artifacts appear to be irregular or unusual and thus, eccentric. Joyce, as early as 1932 expressed that the term eccentric was ingrained in the literature.

With regard to the artifacts from Altun Ha and Lamanai, David Pendergast has frequently used the term ceremonial flint (1979, 1982, 1990). This term possesses implicit meaning in the sense that the forms were likely used ceremonially during ritual deposition. However, evidence from the present study also suggests that individual artifacts often had a lengthy use- life prior to final deposition. Moreover, the raw material from northern Belize cannot be considered flint, as flint is defined lithologically as cryptocrystalline in composition. By referring to such artifacts as flaked stone symbols, I want reinforce the idea that these materials are explicitly symbolic forms that can be produced in both chert and obsidian. In this sense I am attempting to initiate the lengthy process of replacing such a term in the vernacular of Maya archaeology.

It is argued here, and previous researchers have indicated, the term eccentric is a misnomer (Coe 1959: 16; Iannone 1992: 6; Pendergast 2000: personal communication). Not only are many individual forms symmetrical, the repetition of forms apparent within the assemblages presented here clearly dispels the notion that flaked stone symbols are indeed eccentric. And while a number of artifacts are unique in form, these artifacts have distinct themes inscribed in the iconography and cosmology of the ancient Maya. In devising an interpretive framework for study, it is thought that many of the forms represent historical figures and (or) events that were defined and legitimated, in part via production and display of the forms. Rather than classifying and describing this class of material culture as eccentric, and thereby obscuring the notion that we can

interpret cultural meaning, this study attempts to position these artifacts as three-dimensional symbols that possessed cultural value from a number of perspectives.

By positioning these lithic artifacts as meaningful on multiple levels, it is hoped that relevant artifact histories can begin to be reconstructed. The current work synthesizes technological, morphological, and contextual data with respect to assemblages of flaked stone symbols produced on chert and classified in prior studies as eccentrics (see Coe 1959; Gibson 1989; Iannone 1992; Joyce 1932; Kidder 1947; Probst 1984; Willey 1972). A total of 508 specimens drawn from the three sites were the focus of research. Individual artifacts comprising the assemblages take a variety of anthropomorphic, zoomorphic, celestial, and more abstract forms. Thus, morphological similarity, technological continuity, and contexts of final deposition form the basis for the typological and descriptive study.

The second focus of study is perhaps more directly related to the notion that individual artifacts both represent and structure meaning and value (see Lesure 1999; Robb 1998, 1999). In this sense, individual forms are linked with visual representations in other ancient Maya artistic media. In concert with these linkages, individual artifacts are considered as sites of cultural meaning. Macroscopic, microscopic, and materials characterization analysis of a smaller number of individual specimens indicate that artifacts were often adorned with appliqués that oftentimes represented anatomical features made from different materials, as well as pigments. Appliques were held in place by resin that, in some cases is still visible on artifact surfaces. This adornment was part of a complex production process. Moreover, small samples of cloth were also recovered from artifacts, indicating that some symbols were perhaps wrapped and (or) bundled prior to deposition. Further analysis of pigment and cloth samples support the notion that individual artifacts possessed inherent cultural value, via artistic

elaboration and personification. The decoration of artifact surfaces further links individual forms, and the individuals and communities that crafted them to local history, broader cosmological and mythological themes, and the production of specific social relations in a political- economic context (see Godelier 1996; Helms 1993; Weiner 1992; Robb 1998).

ORGANIZATION OF THE DISSERTATION

The remainder of **Chapter One** outlines in detail the research design devised to undertake the present analysis of flaked stone symbols recovered from the eastern lowland sites of Altun Ha, Colha, and Lamanai, Belize. This research design includes the methods applied to the consideration of the assemblages as a whole, as well as to the analysis and description of individual artifacts. Much of this portion of the chapter was previously articulated in the dissertation prospectus, but there have been numerous changes in the working hypotheses as the study has progressed. These changes have been integrated into the original research design. The methods section includes a broad discussion of technology and context, both factors of which were considered in the structuring of the artifact groupings. I also discuss, in describing these forms, how parallels with Maya iconography became apparent. Finally, the research goals of the materials characterization analysis are articulated.

Chapter Two focuses on describing the environmental and physiographic context of the eastern Maya lowlands and specifically, northern Belize. It is clear that the physical environment shaped the emergence and histories of these centers during the Late Preclassic and Classic Periods. As well, the cultural environment framed the political- economic relationships that formed between the centers, as well as communities affiliated within each center. The extensive chert resources present in the region provided the material necessary for large-scale production of

both utilitarian and symbolic lithic forms. The chapter will include discussion(s) of physiography of the region, vegetation and faunal resources, geology, soils, and lithology.

Chapter Three presents the archaeological context for the study of Maya flaked stone symbols. This chapter reviews in more detailed fashion the history of archaeology in the eastern lowlands over the last century. The first part of the chapter contains a discussion of the research programs undertaken at the sites from which the flaked stone symbols in this study originate. The second part of the chapter briefly traces the culture history of each site. Contextual information and chronology for the assemblages of artifacts under study are presented.

Chapter Four presents a discussion of anthropological and archaeological approaches to craft specialization. This consideration of craft specialization is then integrated into a discussion of ancient Maya social and political organization. In turn, political- economic considerations are articulated centering on lithic craft specialization as evidenced among the ancient Maya. A theoretical framework for a political economy of flaked stone symbols is proposed based on both the archaeological evidence and theoretical approaches to material culture drawn from classic and more recent works of anthropology. The writings of Mauss (1966), Godelier (1996), and Weiner (1992) as well as others are introduced to position the material culture assemblages analyzed in the present study within the context of non- capitalist complex societies.

Chapter Five is a description of the artifact groupings constructed for the assemblages under study, as well as the organizational structure of artifact description and appearance in the **Appendix** at the end of the dissertation. Artifacts from each site were grouped according to morphological and technological categories and subsequently described (see **Appendix**). A

description of the criteria for classification as well as images of selected individual artifacts accompanies each morphological category.

Chapter Six is a symbolic analysis of the assemblages of non- utilitarian flaked stone artifacts included in the current study. This chapter focuses on interpretations of artifact meaning. In this chapter, artifacts are positioned as material symbols that can be linked to other ancient Maya artistic media. The writings of Robb (1998, 1999) are introduced to frame the discussion of the meanings of flaked stone symbols among the ancient Maya. Interpretation is based on recent developments in the study of ancient Maya art and iconography. Lithic artifacts are juxtaposed with images from other forms of ancient Maya art to draw parallels between meanings embodied in diverse artistic media.

Chapter Seven is a technological analysis of the assemblages based on the data collected during analysis. The results of materials characterization analysis undertaken by researchers at the Smithsonian Center for Materials Research and Education is also presented. The technological analysis focuses on continuity of Maya lithic technology through time, as well as contrasts in technology between the assemblages. Despite the lack of production data with respect to flaked stone symbols, finished forms exhibit a breadth of technological information. Quantitative data obtained from individual artifacts comprising each assemblage are compared and contrasted.

Despite individual differences, these data show that macroblade, macroflake- blade, and nodule reduction technology, developed nearly a millennia prior to the beginning of the Classic Period, and employed in the production of utilitarian tool forms, was also employed in the production of explicitly symbolic forms. The results of a subjective classification of raw material is presented to articulate variability and continuity within and between assemblages, evidence

used in conjunction with technological and contextual data to argue for two or more primary production loci across the region through time.

The summary of the materials characterization analysis focuses on textile and pigment samples recovered from a select number of artifacts. The results of which are interpreted with respect to the larger production process. The observation and recovery of materials and residues on artifact surfaces indicates that the production process of individual symbols was complex and that there were several steps involved in completing a symbol. Indeed, the elaboration via the application of paint on some forms further indicates the complexity of meanings associated with these artifacts. This elaboration supports the notion of an extended use- life for individual artifacts.

Chapter Eight is a discussion of the conclusions within the theoretical framework presented in Chapter Four and Chapter Six. Chapter Eight also addressed the implications of the study with respect to a conjunction of both positivist and more interpretive methods of research. In terms of the present study, these perspectives led research toward multiple avenues of investigation, and the integration of several research methods. Thus, the deployment of multiple methods permitted a wider perception of the material culture under study.

The **Appendix** presented at the end of the dissertation provides additional information that can be integrated with the text, or used as stand alone comparative data. This appendix presents individual artifact descriptions of the three assemblages as well as images of selected artifacts.

RESEARCH DESIGN

In the following section, a broad framework for investigating assemblages of flaked stone symbols recovered from the eastern lowland sites of Altun Ha, Colha, and Lamanai is presented (n= 508). The primary goal of the dissertation is

to document artifacts from each of the three assemblages by constructing a typology, hereafter referred to as artifact groupings. The artifact groupings are based on form (morphology), technology, and context (see Willey 1972, 1978). This section outlines five broad hypotheses addressing the appearance of the artifact class under study at particular sites, the use of raw material, the complex process of production, and the morphological and technological basis for the construction of the artifact groupings. The methods of interpretation employed to articulate the complex processes by which these material symbols were produced, acquired, and ultimately consumed in cultural context are outlined.

Cultural Production in Classic Period Maya Society

The ancient Maya produced and surrounded themselves with materials that actively participated in the negotiation of social and political relationships (Agurcia- Fasquelle and Fash 1991; Bartlett and McAnany 2000; Fash 1988; Iannone 1992; McAnany 1995; Schele and Freidel 1990; Schele and Miller 1986). To reiterate, flaked stone symbols occur as a range of anthropomorphic, zoomorphic, celestial, staff ends, as well as more abstract forms (Coe 1959; Gibson 1986; Iannone 1992, 1993; see also Thompson 1996; Willey 1972, 1978). These forms primarily occur archaeologically in sealed contexts, either interred in dedicatory or termination caches placed in strategic location within temples and palaces, oftentimes along the axis of structures (see Pendergast 1998). Symbolic forms also occur in numerous types of burials, including tombs, crypts, cysts, and interments (Iannone 1992, Pendergast 1979, 1982, 1990; Probst 1984).

Recently, Iannone (1992) has proposed that flaked stone symbols were part of a local and regional ancestor cult originating among emerging middle class and elite Maya lineage groups, beginning in the 4th century AD and spreading across the Maya area from the eastern lowlands (Iannone 1992; Iannone and

Conlan 1993). Prior to this limited interpretation, flaked stone symbols were documented in large assemblages at sites in the eastern lowlands (Eaton et al. 1994; Gibson 1986; Pendergast 1979, 1981, 1982, 1990; Probst 1984). The concept of an ancestor cult linked communities and places into larger political, mytho- historical and religious webs of significance (Iannone 1992; Iannone and Conlan 1993; McAnany 1995).

Flaked stone symbols, as is the case with most material culture, were part of a common ideology and helped to legitimate political authority when used in a ritualized setting. As Rice (1987: 84) has noted, the power of the Classic Period Maya elite came not from direct control of production or distribution, but instead from the manipulation and assertion of genealogies and history. At least some flaked stone symbols indeed were part of elite public displays or even war events, but others may have been used in restricted access or even elite domestic ritual. There appearance in caches and burials helped link the interred with local history and larger cosmological events and or characters (Freidel et al. 1993; Schele and Freidel 1990; Schele and Miller 1986).

Moreover, it has been demonstrated that flaked lithic forms appear in Maya iconography on ceramics, stone sculpture, and in murals as part of larger group performances manifest in public art (Freidel et al. 1993; Iannone 1992; McKinney 1985; Probst 1984; Schele and Freidel 1990; Schele and Miller 1986). It is clear that these performances served to reinforce social and political relationships as well as individual and group identity (Bartlett and McAnany 2000; Grube 1994; McAnany 1995; Schele and Freidel 1990). The appearance of flaked stone symbols in ancient Maya art also illustrates that these implements were abstracted to produce the image of an indigenous characterization of their consumption (Schele and Miller 1986). These concepts are powerful indicators of

the motivation(s) that existed in Classic Period society for their production and acquisition.

Technological and Political- Economic Meaning

Closer examination of modes of cultural production provides insight into how material symbols are manipulated and utilized across cultural settings (King 2000; Robb 1998, 1999). For example, the appearance of flaked stone symbols in burial and cache contexts suggests group identity in the form of ancestor veneration (Iannone 1992; Iannone and Conlan 1993; McAnany 1995). In any scenario, the presence of flaked stone symbols index the ideological hegemony of the ancient Maya elite. Moreover, the production of specific forms was also the result of the efforts of individual and groups of craft specialists (see Helms 1993; also Shafer 1979, 1982, 1985, 1994; Torrence 1978).

The role of the chert crafter in transforming raw material to a culturally recognizable symbol gave the crafter a distinct place within society (Helms 1993). The crafter and indeed the craft community where artifacts were produced were both linked to other, the world outside, cross cutting local alliances (Helms 1993). These links provided social and political legitimation to the craft communities within the broader social hierarchy. The cultural practice of applying technological knowledge is an integral part of the process of assigning aesthetic meaning to material culture (Helms 1993; Lucie- Smith 1981). By recognizing signature forms and technologies of flaked stone symbols, spatial and temporal parameters for their production and use can be proposed.

Equally important to an understanding of flaked stone symbols in ancient Maya cultural context is the transmission of knowledge required to produce these artifacts. The skills that were required to produce a single, aesthetically acceptable form, let alone hundreds are complex. Just as local and regional

symbolic knowledges, flaked stone technology was accessible to relatively few. Over the last few decades, researchers have begun to address the complexity of lowland Maya lithic economies, in terms of both symbolic and utilitarian items (Hester and Shafer 1994; McAnany 1989, 1991; Potter 1993; King and Potter 1994). It is posited that the social relations of production that mediated the acquisition of flaked stone symbols were part of a complex political economy that cut across kinship lines and socioeconomic class.

Production of flaked stone implements of any kind was influenced by raw material location. It is important to reiterate that the location of quality chert is a point of departure for addressing development of bifacial macroblade and macroflake- blade technology. It is clear from the data that the appearance of this technology emerged earliest at the site of Colha, and later within the lithic craft communities associated with Altun Ha. Despite Colha's relatively small size and rural locale in comparison to the larger centers of Altun Ha and Lamanai, crafters at Colha were producing flaked stone symbols in the form of stemmed macroblades for interregional exchange as early as the Late Preclassic (400 BC-AD 250). This artifact form appears at site in the Peten and in the Yucatan (Hester and Shafer 1994; Rice 1987) It is posited that this technology was later elaborated upon at Colha as well as other locations in the region (Gibson 1989; Shafer and Hester 1983, 1991).

It has been suggested that production of chert implements at Colha shifted during the Late Classic Period, and that intensive lithic production became focused at Altun Ha and the adjacent site of Chicawate (Shafer and Hester 1983, 1991). How this shift in overall lithic production relates to the production of flaked stone symbols is unclear. What is clear is that the northern coastal plain of Belize was the focus of production, acquisition, and consumption of flaked stone symbols dating to the latter part of the Late Preclassic (AD 100 - AD 250).

However, it was during the Classic Period (AD 250- AD 900) that these implements appear at Altun Ha in large numbers. They also appear at Lamanai during the Late and Terminal Classic Periods, albeit in cache contexts. As David Pendergast has noted, artifacts occur in similar quantities at both Lamanai and Altun Ha if only consideration of cache contexts is undertaken (Pendergast 2000: personal communication). It is posited that these material symbols reflect the presence of a political economy of flaked stone symbols linking crafters of flaked stone with the elite who acquired and eventually consumed them a ritualized context. By examining how these forms were standardized morphologically and technologically, their production and acquisition can be better understood.

COMPARATIVE ANALYSIS: FIVE HYPOTHESES

This study is centered on five broad hypotheses that are articulated to position the artifact assemblages within a framework that employs morphological similarity to link individual artifacts with one another. This framework can then be used to assess the assemblages in broader cultural context. The following is an articulation of the hypotheses with relevant implications in terms of the forms and contexts of the artifact assemblages included in the present study.

Hypothesis One

Flaked stone symbols occur at Colha by the end of the Late Preclassic Period (sometime prior to AD 250). Their appearance in tomb and cache contexts begins at Altun Ha by AD 550 and in more limited contexts, at Lamanai by AD 700. Moreover, flaked stone symbols occur less frequently at Colha through the Classic Period, ceasing by the Terminal Classic (AD 800- 850). At Altun Ha, symbolic forms no longer appear in tomb contexts after AD 850. Flaked stone symbols are present in cache contexts until at least AD 1100 (see Pendergast

1982, 1990). At Lamanai, the appearance of flaked stone symbols in primary contexts ceases by AD 900.

It is hypothesized that formal variation will be most prevalent between the Colha assemblages and the later Altun Ha and Lamanai assemblages. The Altun Ha and Lamanai assemblages will show elaboration in terms of form. It is hypothesized that the Colha assemblage will exhibit significant variation in technology as exhibited by the presence of both bifaces and notched blades. Flaked stone symbols will not occur in contexts dated later than AD 1100.

Implications of Hypothesis One

The majority of the assemblage from Colha date to the Late Preclassic, with some specimens dating to the Late Classic. Tomb and cache contexts at Altun Ha and Lamanai exhibit artifacts that are associated with the Late and Terminal Classic Periods (AD 600- AD 900). As the elite communities at Altun Ha gained political- economic power, the acquisition of flaked stone symbols became one material aspect of elite ritual displays. Eventually, concomitant with a shift in the mode of production at Colha during the Early Classic Period (AD 250- AD 600), signature technologies appearing at Altun Ha and Lamanai in the Late Classic indicate that production locus shifted. By the end of the tenth century, flaked stone symbols in standardized form no longer appear in large numbers at these three sites.

Hypothesis Two

Variation in color, texture, and the presence of inclusions in raw material comprising individual artifacts can be combined with morphological and technological data to initiate a consideration of production loci. It is apparent that all raw materials originated from the chert- bearing zone of northern Belize. It is

hypothesized that significant differences in raw material appearance in the assemblages will support the assertion of multiple intra- regional sources of chert, and at least two broadly defined production localities.

Implications of Hypothesis Two

Flaked stone symbols are bounded by technology, raw material, time, and space. By examining the raw material that comprises the three assemblages in the present study, we can begin to at least narrow the sources of the raw material. This macro- level analysis cannot reveal specific quarry sites or production loci. Instead the comparison provides further indication for shifts in raw material usage and more indirectly, production locus. Trace element data has revealed intra-regional patterning in terms of local chert composition (Tobey 1986; Cackler et al. 1999). However, overall homogeneity of the chert has made further refining of individual sources difficult. It is posited that raw material variation between assemblages links production to changing quarrying and production loci within the complex political- economic history of northern Belize.

Hypothesis Three

It is hypothesized that technological and morphological comparison of the flaked stone symbols from Altun Ha, Colha, and Lamanai will identify a highly standardized lithic technology developed from macroblade and macroflake- blade technology. This technology was prevalent among the craft community at Colha during the Late Preclassic (400 BC- AD 250) and through the Classic Period (AD 250- AD 850).

Implications of Hypothesis Three

Technological standardization will be assessed utilizing both metric measurements of individual pieces, as well as metric measurements of flake scars present on each piece. Flake scar terminations, the presence of initial striking platforms and platform remnants, curvature of the piece in relation to the original macroblade or macroflake- blade, and the presence of cortex and (or) thermal alteration are the variables which were examined in the technological study. While artifact morphology will provide the basis for the typology based on repetition of form, descriptive statistics based on the technological data are employed to document technological patterns present in each assemblage. Differences in the occurrence of specific attributes support the argument for significant technological variation present between assemblages.

Hypothesis Four

It is hypothesized that artifacts were painted and (or) adorned with appliqués that at held specific features of a form in place, perhaps as part of a process of personification. The presence of preserved textiles indicates that some artifacts may have been bundled prior to deposition. A macro- analysis of the surfaces of artifacts comprising the three assemblages indicates the presence of staining, residues, thermal alteration, and surface polish. It is hypothesized that samples of pigments selected from Altun Ha and Lamanai will yield similar elemental and mineralogical composition.

Implications of Hypothesis Four

If these materials were decorated, handled extensively, and (or) personified via emically based cosmological prescriptions, they possessed substantial cultural value. Materials characterization analysis employing

techniques such as scanning electron microscopy, energy dispersive spectrometry, and x- ray diffraction procedures will provide data that may indicate composition and perhaps standardization of both pigments and textile technology.

Hypothesis Five

Classic Period lowland Maya iconography present on ceramics, mural art, as well as carved stone and wood exhibit numerous forms that are similar to lithic forms originating from Altun Ha, Colha, and Lamanai. It is hypothesized that individual forms can be linked to tangible cultural and ideological themes that run through Maya art. Themes include a depiction of particular cosmological and (or) historical events. These include animals that played important roles in mythology, captives, sacrifice, eclipses and celestial events. The assignment of meaning to individual and groups of flaked stone symbols was part of a production and transmission of an iconography of power. Moreover, the themes reflected in individual artifacts were constitutive of the social relations of production and acquisition.

Implications of Hypothesis Five

By examining individual forms within a context of what we know about ancient Maya worldview, we can begin to understand how the Maya used a variety of media to access knowledge and produce a specific ideology. Moreover, the production of these forms also helped the individual and (or) community of crafters who produced them create their own social identity. Thus, by gaining a further understanding of the meaning inscribed in these symbols, we gain a clearer understanding of those who created them, as well as those who consumed them, whatever the precise context of their use. Systematic comparison with

iconographic representation includes juxtaposing lithic forms with examples from other Classic Period Maya media from a number of lowland Maya sites.

The present study has revealed that assemblages show remarkable technological similarity across the region and through time. However, morphologically the assemblages exhibit significant variation, especially prevalent between the Colha assemblage and the later Altun Ha and Lamanai assemblages. The addition of qualitative data with respect to materials present on artifact surfaces is critical to obtain a perspective on the production process that went beyond chert working and included both elaborate painting and adornment.

FLAKED STONE SYMBOLS IN REGIONAL PERSPECTIVE

Over the last three decades, archaeological research in the eastern Maya lowlands, along the coastal plain of northern Belize, has shown that during the Preclassic and Classic Periods, this area was not a cultural backwater but an area that possessed a vibrant political- economic and social life, and indeed exhibited a distinct regional culture. This region, with it's extensive chert resources was the focus for the elaboration of a lithic technology that played a critical role in furnishing the inhabitants of the region with utilitarian tool forms on a large scale. Moreover, this lithic technology also became the vehicle through which symbolic implements used in elite ritual activity were produced. Production of both kinds of lithic forms, utilitarian and symbolic, were an integral part of the production of political economy, social identity, and ideology within the region.

The social relations that motivated the production of flaked stone symbols were part of a larger process of cultural production. The crafter's place within ancient Maya society was one in which social identity was simultaneously part of and separate from the elite communities with which they interacted (Helms 1993). By crafting these symbolic implements, the chert crafters were making a social

identity that was intertwined with all of the trappings of human social life. This likely included competition and alliance within and across socioeconomic and political boundaries. As has been shown in prior studies, the Classic Period was a time of intense political competitiveness in the lowlands, a time that saw increasing efforts by the elite to reproduce their positions of power via the formation of politically expedient factions and exercising the significant power of traditional lineages. In either case, lithic crafters were no doubt an important part of the production of material culture necessary to legitimate and maintain power (see Brumfiel 1994; Pohl and Pohl 1994; Reents- Budet 1998).

In closing this introductory chapter, I offer a final thought regarding what this dissertation may or may not accomplish. The basis of this study lies not in preconceptions of inevitable artifact function in a material sense, economic growth, monopolization of resources, and universalized laws of supply and demand so prevalent in studies of archaic states. Instead, I hope to consider Maya society as local and historically emergent, within a constitutive ideological framework.

Thus, it is critical to view these artifacts as the crystallization of technological knowledge necessary for their production, the political- economic context in which the production, acquisition, and consumption of artifacts occurred, and finally the broader ideological structures that are refracted through individual symbols. Utilizing approaches from archaeology, symbolic and interpretive anthropology, lithic technology, and political economy, it is hoped that a wide, yet accurate lens be cast in the analysis and synthesis of an important element of ancient Maya material culture.

Chapter 2: Environmental Context

A detailed descriptive analysis of any bounded physical environment is difficult. This is especially prevalent in describing the physical environment of the eastern Maya lowlands in relation to the human communities that occupied this particular region through time. Drawing on data that is gathered under our own dualistic separation of the physical/ material and the mental/ ideological/ imaginary worlds, the goal of this chapter is to present a description of the region that considers recent environmental data while simultaneously not presuming such information had any bearing on ancient Maya ontology.

Such a separation of the material and the ideological is much less certain when considering the physical environment from the cultural perspective of the ancient Maya. There is little doubt that communities possessed explanations of their local surroundings interwoven with culturally driven conceptions of time, history, and the cosmos. A complete explanation of this worldview is admittedly inaccessible via environmental data, material culture, or even the written record.

Drawn from our current knowledge of archaeology, iconography, epigraphy, and ethnohistory, it has become apparent that the Maya intertwined the ideological and the physical in a fundamentally different, yet perhaps as equally complex a conception of the universe as our own epistemological constructs. Yet by describing the present physical environment of the lowlands, and to some degree subsequent interpretations of societal impact on a dynamic and changing environment during the Late Preclassic and the Classic Periods (400 BC- AD 900), we can begin to grasp the importance of the physical environment to the historical trajectories of Maya society. Thus, we can begin to integrate our knowledge of that environment into an interpretation of the social context that

saw, in the case of the present study, the elaboration of a regionally defined material technology into a symbolic form.

This chapter provides a description of the physical environment associated with and adjacent to the three sites under consideration. The chapter focuses first on the larger geographic area of the Maya lowlands, and then narrows in scope considerably to northern Belize. Included in this larger discussion are discussions of regional physiography, geology, soils, and floral and faunal resources. Moreover, a lengthy description of the lithology of the chert- bearing zone is presented to familiarize the reader with the formation and appearance of microcrystalline silicates in this region. The chert bearing soils of northern Belize were the source of the quality lithic material utilized extensively by the Maya. It is my view that by understanding this environment in our own terms, we can begin to understand how the use of geographically bounded raw material resulted in the production of observable material culture assemblages.

PHYSIOGRAPHY OF THE YUCATAN AND THE EASTERN MAYA LOWLANDS

The Maya lowlands include the Yucatan Peninsula, the eastern portions of the Mexican state of Tabasco, contiguous areas of Belize, and the Departments of the Peten and Baja Verapaz, Guatemala. The Maya lowlands are comprised geologically of a broad limestone platform that emerged during the early portion of the Pleistocene Epoch from a large shallow sea that covered nearly twice the surface area as the present day Gulf of Mexico. Despite a relatively similar geological composition, landforms and rainfall patterns vary greatly across the shelf (Rice 1993; Hartshorn et al. 1984).

Broadly defined, the Yucatan shelf is comprised of Oligocene and Eocene age limestones that were eventually transformed and uplifted from a marine environment (Lopez Ramos 1975; Maldonado- Koerdell 1964 as cited in Rice

1993: 12). To the south in the northern and central Peten, limestones are older Jurassic and Cretaceous material (Lopez Ramos 1975).

The surface of the Yucatan is karstic, the northern portion of which consists of very little elevation and no free flowing surface water. However, this area exhibits an extensive subsurface aquifer that was accessible via large voids in the karst. These large, primarily circular voids are known locally as *cenotes*. Cenotes provided fresh water to Maya communities in both ancient and contemporary times, and play an important part in Maya cosmology. Indeed, most of the Yucatan exhibits similar karst features and sinks interspersed with abrupt ridges and irregular protuberant rocks. Caves and underground streams are common. The karstic topography exhibits few other physiographic features, with the exception of the Puuc Hills, a series of low inland hills located in the western portion of the region.

In the northern portion of the Yucatan, the dry karstic surface and subsurface drainage system predominates. This region can be defined hydrologically as possessing an internal drainage system, where ground water rapidly infiltrates the porous carbonate rock and seeps into subterranean aquifers. The water discharges as submarine springs and sinkholes. In general, Tabasco, the northern Yucatan, Quintana Roo, and northern Belize all occur on geologically recent land forms that exhibit large areas of sands and gravels, and are marked by poor soil development and in some areas sparse vegetation (Rice 1993).

Elevation in the lowlands in terms of absolute sea level, as well as the overall geologic age of the substrate increases as one moves from north to south (Rice 1993: 13). Along the eastern extent of the lowlands, the Caribbean coast of Belize exhibits extensive deposits of sand and limestone marl overlaying marine

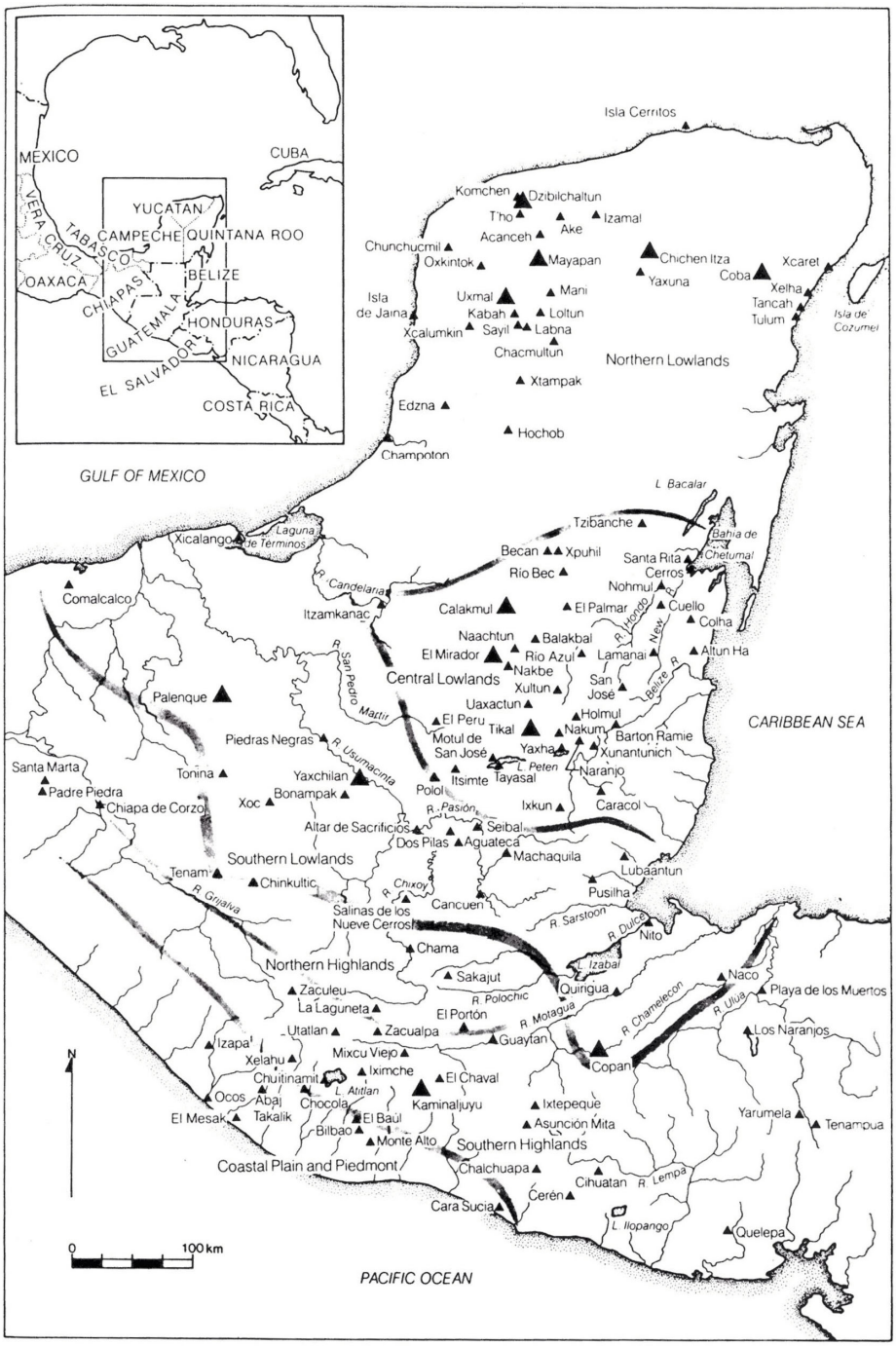


Figure 2.1- Map of Yucatan Peninsula and Maya area (from Sharer 1994)

terrace gravels and coastal alluvium that formed during the Quaternary. Rice (1993) labels this material *sascab*, a soil formation was an important resource use for construction mortar (Johnson 1983: 16; Rice 1993: 14). Though the Yucatan proper exhibits no rivers, northern Belize possesses a number of relatively short, shallow rivers that flow primarily east- northeast, emptying into Chetumal Bay and the Caribbean Sea. The northern most of these rivers, the Rio Hondo flows along a series of karstic folds that mark the western most extent of the coastal plain.

The eastern coast of the Yucatan and Belize, extending to the Bay of Honduras exhibits a reef and island system that embays an extensive area of shallow water lagoons. Sitting atop the limestone substrate, the lagoons and short eastern flowing rivers are part of a series of perched aquifers that provided extensive resources of fresh water. The presence of this reef island embayment has created an extensive network of mangrove swamps that surround numerous small islands. These mangrove areas provided a rich habitat for marine and bird life as well as numerous narrow, twisting channels leading to broad coastal lagoons and, in northern Belize, the mouths of local rivers and streams. These mangrove swamps also obscure the divide between the littoral and mainland. There is considerable archaeological evidence that the shallow water littoral along the northern coast of Yucatan and along the coast of Belize saw extensive salt manufacture during ancient times (see Andrews 1983; MacKinnon and Kepecs 1989; Valdez and Mock 1991).

Across the central portion of the Yucatan gradual uplift known as the Sierrita de Ticul runs from the northwest to the southeast and marks the northern boundary of a Miocene beach lining the shallow sea from which the northern half of the Yucatan emerged. This line represents the boundary with the more level northern zone of the Yucatan Peninsula (West 1964 as cited in Rice 1993: 14).

The Miocene littoral marked by the Sierrita has undergone extensive folding, and exhibits a series of ridges, some reaching as high as 50 m above sea level extending across the shelf from the Gulf to the Caribbean sea. The hilly karstic zone drops off to the southeast to the coastal plain of northern Belize, where lower limestone folds, known as cohune ridges, show a similar topographic pattern. This central area is also interspersed with rivers and lagoons.

To the south, the east- west folds of limestone across the central Peten extend from 100 m to 300 m in elevation. This contour falls to a more gradual series of ridges and folds to the east, rising some 45 to 55 m above mean sea level. The northern Peten is much younger physiographically as compared to the older southern portion of the shelf and exhibits much less contour. Overall, the Central Peten can be characterized topographically as rugged with broken karstic hills and ridgeland, swamps, and seasonally inundated depressions. Surficial drainage of the central lowlands is characterized by inland marshes, streams, sinkholes, and bajos that are present between numerous folded and eroded ridges, and larger flood plains comprised of basins lined with residual clays deposited between folded ridges of the upland terraces (Rice 1993: 17).

To the west, dividing the Peten and portions of the states of Chiapas and Tabasco is the broad basin of the Usamacinta River and it's associated tributaries and distributaries. South and east of this broad basin, the interior of the Peten is drained by the Pasion and Chixoy Rivers, as well as Lake Petexbatun. Each of these regions saw the elaboration of a distinct pattern of monumental construction, material culture styles, and historical trajectory during the Late Preclassic and Classic Periods of Maya civilization. Primarily comprised of lowland tropical rainforest in contemporary times, the area also exhibits significant contour in the form of low hills that drop off to the west along the Usamacinta Basin.

Similar to the Yucatan and the Peten, northern Belize is a region that possesses obvious geographic and physiographic boundaries. Located in the in southeastern portion of the lowlands, the region exhibits marked contrast to the Paleozoic horst topography of the Maya mountains to the south (Johnson 1983). northern Belize is bounded on the north and west by the Rio Hondo valley, on the south by the Belize River, and on the east by the Caribbean Sea. Elevation in the coastal plain of Belize does not exceed 40 m above mean sea level (Hammond 1981).

This region saw intensive occupation by the ancient Maya and their predecessors dating to some 3000 BC (Hester et al. 1996; Iceland 1997). Though shallow, rocky soils predominate over much of the area, the presence of permanent water courses and a number of ecological zones which include: extensive freshwater swamps, coastal mangrove littoral, riparian hardwood forests, and upland cohune forests provided an environment in which human populations flourished. Major rivers and streams in the region include: the Northern River, the Rio Hondo, the New River, the Belize River, Quashie Banner Creek, Santana Creek, Rancho Creek, and the tributaries and distributaries of the New River Lagoon. As mentioned previously, shallow lagoons such Kate's Lagoon are located to the north and east of the indigo crocodile (the New River Lagoon) that stretches down from northeast to southwest in the north central portion of the region. The crocodile plays a critical part in the iconography, cosmology, and no doubt the popular imagination of the ancient communities that inhabited the ancient Maya cities and towns, villages and hamlets of the Belizean coastal plain.

The western half of the northern Belize lowlands is comprised of low limestone or *cohune* ridges and valleys running primarily to the north- northeast. The Rio Hondo, Booth's River, and the Rio Bravo mark the eastern most extent

of a series of superficial fracture zones along which riverine environments settled (Rice 1993). As indicated, shallow rivers drain both the eastern and western peripheries of the region. The eastern half of northern Belize is comprised of flat coastal plain with numerous coastal and inland swamps. The region also exhibits considerable area of lowland pine ridge forest. Northern Belize also contains part of the bajo complex of depressions present on the eastern periphery of the Yucatan peninsula. This includes the central and interior uplands located to the east of the New River lagoon and extending north to the central portion of Quintana Roo (Rice 1993).

CLIMATE

The general trend for geographic areas located to the south of the Tropic of Cancer, including the Maya lowlands is reduced variation in seasonal temperatures, with a relatively low range of temperatures both in the hot, humid season as well as during the cooler dry season. Variation in precipitation across the lowlands can be linked to the presence of the northeast trade winds and the subtropical calms that influence local rainfall across the western Caribbean (Rice 1993: 18).

As Rice (1993: 18- 22) has described in detail, seasonal changes in the earth's orbit effect the sun's migration path, with the formation of a belt of high precipitation under the sun's zenith. The belt of high precipitation shifts with the season. Thus, when the thermal equator is located at it's northern most point in June, moisture laden trade winds rise and encounter equatorial calms, resulting in rapid cooling and the loss of moisture in form of rain. In general, there is a gradient of total rainfall that, like elevation above mean sea level, increases as one moves from north to south across the lowlands. For example, the northwest corner of the Yucatan averages little more than 50 cm of rain per year. In contrast,

eastern Honduras averages some 300 cm of rain per year. Southern Belize illustrates this change even more clearly (Rice 1993: 19).

The tropical climes of the Maya lowlands, like the rest of Mesoamerica, exhibit a well- defined wet and dry season. With January to May considered the dry season and May to December normally the wettest times of the year, with a short dry spell, usually occurring during July or August. In the north, vegetation consists primarily of low evergreen forest and dry scrub. In contrast, the wetter southern lowlands are blanketed with tropical rain forest, as well as both lowland and upland pine ridge habitats. More specifically, the coastal plain of northern Belize receives between 130 and 200 cm of rainfall annually (Lundell 1937; Walker 1973). The region can be characterized as having a lowland tropical climate with temperatures ranging from 10 to 35 degrees Celsius. A majority of northern Belize is covered in tropical savanna vegetation and exhibits an average annual rainfall of 180 cm (Wright et al. 1959). However, local variation in rainfall patterns can be linked to local variation in topography (Rice 1993).

While there is significant variation in rainfall across the lowlands, there is also considerable variation in quantity of rainfall from season to season. Seasonal variation poses a risk for contemporary farmers in the lowlands, and no doubt the same was true for farmers in antiquity. Yucatec Maya farmers still strictly adhere to prescribed ritual in appealing to the Chaks, Maya gods of rain, to bring the seasonal storms. However, periodic flooding can also be problematic in terms of large shifts in regional rainfall patterns, as the entire lowlands are subject to hurricanes arising in the Atlantic and moving unimpeded across the Caribbean.

As Rice (1993) and Dahlin (1983) have noted, shifts in climate are not static and dissociated from terrestrial conditions. Terrestrial conditions that effect modern climate also effected climate in antiquity. This includes absorption of solar radiation. Changes in heat can be linked to climate changes. Variables such

as solar radiation, atmospheric composition, changes in land features (vegetation), and water salinity can all be linked to climatic changes. This is also true of changes in levels of lakes, oceans, seas, and rivers, as well as changes in groundwater conditions, geomorphologic processes, as well as soil and vegetation changes. These conditions are intertwined and a shift as one or multiple conditions effects the entire system (Rice 1993: 22).

Rice (1993) posits a regional climatic model based on data collected by members of the Central Peten Historical Geography Project. Both lake sediment coring and tree ring data show an overall cooler and wetter local atmosphere for the central Peten lakes district during the eighth century AD. However, changes in micro- topography and conditions of the ground oftentimes both cover and create variability in conditions across the landscape. Deforestation of a region increases the ratio between light reflected from ground surface and light falling on that particular surface. Overall, this increase reduces surface absorption of solar energy, reducing local convective activity and rainfall, indicating that conditions for changes in rainfall patterns may have ripe during the Terminal Classic and into the Early Postclassic Periods (Rice 1993: 23).

Rice's model suggests that during both the Early Classic and Early Postclassic drier periods prevailed, with a cool/ wet interval occurring between AD 600- AD 950 (Rice 1993: 22). The moderation of the limits of higher temperatures resulted in a greater predictability for rainfall. This also was associated with isostatic sea level rises along coastal Belize and Mexico as coastal sites were submerged. As Pohl et al. (1990) have suggested, marine incursions drowned the lower portion of the Rio Hondo in northern Belize during the Late Preclassic, resulting in ponding and sedimentation of aboriginal wetland fields. The loss of any inhabitable land was undoubtedly felt by Maya farming and craft communities on the Belizean coastal plain. Such losses were perhaps part of a

larger cycle, within a cultural and historical context, of adaptation and changes shaped by local and regional climatic and environmental dynamics.

GEOLOGY OF THE EASTERN LOWLANDS

The large limestone platform that comprises the Yucatan Peninsula and the Maya lowlands exhibits significant variation in geological and mineralogical substrate. The northern lowlands are underlain primarily by Cretaceous and Tertiary carbonate rocks. Moving to the south, the Central Peten exhibits low, anti- clinal ridges of Cretaceous to Miocene dolomitic limestones. Moving farther south, there is a gradual geological positioning of igneous rock that extends to the base of the highlands.

Along the eastern coastal littoral, folded ranges of marine clastics and limestone give way inland to older Paleozoic and Cenozoic metamorphic schist and granites that, in part form the Maya Mountains. This gradual shift is especially prevalent further west, along the northern edge of the volcanic ranges of northern Central America, also recognized as the Maya highlands. Along the southeast periphery of the lowlands, the Montagua fault exhibits highly broken ground surface, steep slopes of deeply cut valleys oriented in a northeast to southwest structural alignment. This region exhibits deep depressions and rugged mountain ranges that climb to 2,500 m above sea level (Rice 1993; West 1964).

Located to the north of the Montagua fault are the Maya Mountains, comprised primarily of granite, the substrate is a stark contrast to the limestones of other portions of the lowlands. The substrate of the Maya mountains consists of sandstone, marble, schist, and rhyolite which were used for masonry stone, sculpture, ground stone implements. Jadeite and serpentine were also obtained from this region. The Maya Mountains are comprised of both igneous and

metamorphic rock of Tertiary age and are uplifted along fault lines that extend from between 800 and 1,000 m above sea level (see Shipley 1979).

To the north, the coastal plain of Belize, specific geological formation processes are in dispute. Maldonado- Koerdell (1964) stresses that regions contour was anti- clinal and synclinal in origin, however faulting may have resulted in the formation of conduits for both the New River and the Rio Hondo. To reiterate, northern Belize is underlain by Tertiary and Cretaceous carbonates (primarily limestone) with discontinuous or localized areas of Quaternary alluvium (Johnson 1983).

Northern Belize saw the formation of a limestone solution and the creation of what were to emerge as karstic surfaces during the late Miocene (Siemens 1978). The bedrock geology of northern Belize dates to the upper Tertiary, with an Oligocene and Pliocene strata (Johnson 1983). Marl or sascab are classified as Cayo marls and New River chalky marls (Wright et al. 1959). The origins of the white chalky limestones were likely from a combination of three major processes: **1.** silt deposited by riverine erosion from the Maya Mountains, **2.** sediments eroded from the Maya Mountains creating a coastal fan that subsequently submerged, **3.** shallow water deposition via the sea bed, **4.** remnant of a deeply weathered limestone (Johnson 1983).

The regional fault systems that trend from the northeast to the southwest form the New River and Rio Hondo, which flow in fault guided basins (Johnson 1983). Within these folds are a series of scarps and intervening swales that exhibit complex and dynamic geomorphology, especially in the north central portion of the region, along the New River lagoon, which is adjacent to low rolling and hilly limestone upland surfaces, and an intermediate bench from which local tributary and distributary creeks are fed via runoff and seep springs (Hartshorn et al. 1984). These streams flow across the fairly level lagoon basin. The surface and

subsurface drainage of northern Belize contrasts markedly to the rest of the Yucatan peninsula as water infiltrates directly in the ground water reservoir and flows as surface runoff into streams and creeks.

CALCAREOUS SOILS OF NORTHERN BELIZE

What elevation there is along the eastern portion of the lowlands is underlain with limestones and sascab, comprised primarily of fossils of calcified marine mollusks and other species, gravels, and calcareous clays. In the northern portion of the coastal plain Eocene and Miocene- Pliocene limestone, marl, and gypsum extend from between 0- 40 m above sea level. Wright et al. (1959) initially described the general distribution of soils, land use potential, and vegetation cover of Belize, extending from the Rio Hondo in the north, west into the Maya Mountains and the Vacca Plateau, and south to the Sarstoon River. Wright et al. (1959) grouped soils within the principle land form features for each region. The following discussion describes the main soil features of each landform. General descriptions of soils for northern Belize are presented, focusing on the areas contiguous to each site of the three sites under consideration in the present study.

Description of the soils associated with the region are derived from the soils maps of northern Belize provided in Wright et al. (1959) and Hartshorn et al. (1984). The soils associated with each site also exhibit some variability, but for the most part fit the descriptions provided. Please note that each section also contains soil series information. Perhaps the most critical goal of the discussion of soils is to illustrate the natural occurrence of siliceous materials, which often contain nodules of microcrystalline silicates quarried for the production of lithic implements.

The Altun Ha and Rockstone Pond vicinity is part of the siliceous soils adjacent to the lowland pine ridge (Hartshorn et al. 1984: 74). These soils exhibit limestone outcrops with siliceous material and microcrystalline silicate more prevalent in the northern portion of the pine ridge. Soils are part of the Rockstone, Felipe, and Tok soil series. Soils of Rockstone series are mainly sandy clay loams. Felipe and Tok soils commonly exhibit strongly leached sand topsoil (Hartshorn et al.: 79).

Soils are considered to be low fertility with extensive rock outcroppings. Located to the west of the lowland pine ridge, soils of the Puletan series predominate. These soils are also characterized by calcritic clays and loams that lack extensive limestone inclusions. The soils exhibit a clay hard pan some 20-30 cm below the ground surface. This pan allows for surface water to collect in perennial streams and numerous lagoons in the region (Hartshorn et al. 1984).

Overall, the area surrounding Altun Ha is comprised of siliceous material with outcropping limestone. The parent materials are siliceous sediments influenced by the presence of outcrops of hard limestones. The siliceous sediments have been deposited over either hard or soft calcareous materials. In general, soils are less acidic and are filled with both calcium and magnesium. The abundance of silica in the ancient geomorphologic system is indicated by the common occurrence of chert in these soils (Hartshorn et al. 1984).

Clearly the soils near Colha, part of what has been termed the Jobo series, exhibit extensive subsurface chert nodules as well as chert outcrops. The inhabitants of Colha constructed their town on some of the richest chert bearing soils in the region. The soils exhibit hard siliceous limestones and nodules of microcrystalline silicates. The Jobo series soils are characterized as low in fertility with internal drainage. Local soils are somewhat deep. However, poor subsoil drainage causes frequent flooding of lowland areas. Topsoils are

comprised of gray brown sandy clay loams. These are located over compact and plastic sandy clay subsoil (Hartshorn et al. 1984).

Located to the west, Lamanai is also part of the calcareous soils of the northern Belize lowlands. The area exhibits upland elevation and alluvial deposition adjacent to the New River Lagoon, along the western shore of the lagoon. Moreover, the Ramgoat series are described as calcareous soils. But there is little evidence that nodules of quality chert are present in this area. The soils of the Ramgoat series are located primarily along the upland areas adjacent to the lagoon and are subject to periodic flooding. Adjacent to the soils of the lagoon basin, upland soils are quite rocky and are not subjected to periodic inundation. These upland soils originated from Miocene age limestones and some volcanic ash. They are associated with the Yaxa/ Pulucax series. Soils are characterized as stony, shallow, and are phosphorous deficient (Hartshorn et al. 1984: 77). In general, soils that occur across the northern coastal plain are partially cemented limestone conglomerates and dull plastic clays.

In the lagoon's basin proper, reddish brown, moderately plastic clays of moderate depth, are most prevalent. Along the basin of the New River Lagoon, soils are derived primarily from alluvium and colluvium that overlay marl and limestone. In general, these soils appear as dark gray sand or sandy clays with mottled subsoil.

The surfaces of the lowland coastal plain were formed by the continuous deposition of alluvium on top of calcareous limestones. The primary source of the calcareous material are the rocks and soils of the Maya Mountains and upland pine ridge, located to the west and south (see Wright et al. 1959). Contemporary and cumulative geomorphological processes across the coastal plain were likely active throughout the Quaternary. In some places more than 25 m of alluvium are present over the limestone. Materials appear to have been transported and

deposited in shallow water. Remnant surfaces along the uplands in the region indicate that there was also intermittent intrusion of the sea and a re- deposition of materials. The redistribution and reformation of these materials has resulted in a hard packed and relatively non- porous surface across the lowlands (Johnson 1983: 19).

Generally speaking, coral rubble and calcareous sand, kaolinitic clay mixed with coral sand and marl, in tandem with presence of extensive silica in the form of quartz sand and silica gels or soluble silica are all present in the soils of the coastal plain (Hartshorn et al. 1984) These soils produced the silicified limestone beds of the eastern portion of the coastal plain, in the area recognized as the chert bearing zone (Cackler et al. 1999; Hartshorn et al. 1984: 77; Shafer and Hester 1983, 1991; Tobey 1986; Wright et al. 1959). The various soil compositions have been formed by both marine and river deposits overlaying in some places, and permeating the limestone substrate. The formation of soils on the coastal plain occurred in conjunction with colluvial and alluvial deposition. The process of filling numerous depressions in the area resulted in complex local soil sequences. The presence of nine sub- units is indicative of the heterogeneity of soils (Hartshorn et al. 1984: 78).

Because the accumulation of alluvium is a long term and discontinuous process, the soils in different locations on the plain show variation in age and sequence. The most recently deposited soils, where accumulations of fresh alluvium still occur, exhibit the highest fertility. On the other hand, in soils that were deposited much earlier, the process of leaching and clay translocation have produced soils with very high acid content, possessing few nutrients and exhibiting a clay pan that restricts percolation of water through the subsoil (Johnson 1983). Long- term soil processes have altered the siliceous early material, forming soils that are nearly all quartz and sand overlaying compact

kaolinitic clay (Johnson 1983). During heavy rains, soils located above the clay pan are flooded and the quartz grains flow downslope, in the dry season the soils dry out and the clay pan bakes to a very hard surface. The flow of perched water moves quartz from high to low points (soil creep) that is gradually leveling the surface of the plain and influencing the development of low terraces.

Apart from the cohune, riparian, and mangrove forests that cover the northern Belize coastal plain, pine savanna characterizes a large portion of the landscape, and is designated lowland pine ridge. In the lowland pine ridge, soils are distinct from surrounding areas. The pine ridge is underlain by clayey and siliceous soils located across the coastal plain of northern Belize and do not exhibit outcrops of limestone or nodules of microcrystalline silicate. The majority of soils in this flat sub- unit are of low or very low nutrient status, with fertile and moderately fertile soils adjacent to the main river systems. Soils of the lowland pine ridge located also belong to the extensive Puletan soil series (Johnson 1983).

The agricultural record along the coastal plain of northern Belize is both rich and ancient (see Jacob 1991, 1995; Jones 1994 for an in depth discussion of ancient Maya agriculture at Colha and along the margins of Cobweb swamp; also Turner and Harrison 1983). Like the Maya and Creole village farmers that presently occupy portions of the northern coastal plain of Belize, the ancient Maya no doubt concentrated agriculture on the upland limestone soils of the rolling and hilly landscapes. There is evidence for intensive agriculture to the south, along the Belize River and in the Vacca Plateau for extensive terrace networks of the foothill slopes, and raised fields in valley bottoms. Extensive wetland agriculture, where soil fertility could be altered and enhanced by trapping alluvial deposits and organic sediments between interlocking series of dikes and

weirs, is highly visible along the margins of swamps and rivers of the northern Belize (Jacob 1991).

Agricultural intensification required organization and cooperation. These activities were no doubt carefully planned in advance. Yet after the ancient inhabitants no longer possessed the motivation for the construction of large centers, and in the case of northern Belize, the intensive production of lithic implements, communal agricultural activities also lapsed and food production returned to level of individual and family milpas (after AD 900). According to Spanish documentation small family and group settlements were located from between 30-50km apart. These small settlements were farmed in traditional methods with a diffuse pattern of land usage. Despite rapid and wholesale cultural changes over time, the continuity of farming methods continues in some areas to the present day.

FLORAL AND FAUNAL RESOURCES

The following brief discussion presents a broad overview of the composition of floral and faunal resources present on the coastal plain of northern Belize. The discussion will not attempt to identify and describe all of the plant and animal species utilized by the ancient Maya. This would take a dissertation length report in its own right. Instead, the discussion will provide a generalized description of local habitats that, while certainly altered through time, support particular species utilized in a variety of ways by human communities living in the region. It is important to note that many of these species clearly influenced the worldview of these communities, as manifest in art and iconography. Indeed, flaked stone symbols from the region often take the form of serpents, crocodilians, mammals, amphibians, and a variety of supernatural creatures that exhibit elements from several different animal species.

The vegetation of the northern Belize lowlands could be broadly characterized as tropical broadleaf forests interspersed with stands of pine savanna. Microenvironmental variation can be linked to heterogeneity of the calcareous soils in the region. The Maya lowlands possess several hundred species of mixed soft and hardwoods, including the mahogany (*Swietenia macrophylla*) and the sapote (*Achras zapota*). Distinct floral communities are present within the broadleaf forest in northern Belize. This includes both inland and coastal marsh and swamp communities, cohune palm forest, and pine ridge areas. The lowland areas exhibit species segregation based on both soil heterogeneity as well as the amount of moisture contained in specific soils (Rice 1993).

Broadleaf climax forests are present on well- drained soil, with intermittent areas of subclimax forests. The rain forest is part of mesophytic deciduous species that exhibits three mature tree stories with microenvironments below the forest canopy. Along the eastern Peten, ramonal, sapodilla, vitex, cecropia, and burseria are part of the broadleaf quasi- rain forest. These flourish on fertile, well- drained soils and in the present day are indicative to farmers of the presence of productive land (Rice 1993: 25). Along the bajos of the eastern Peten and northern Belize, cohune and plamaceae species differ substantially from upland habitats, with dry periods alternating with periodic inundation (Darch 1983).

Savanna and grasslands, known as the lowland pine ridge, exhibit minimal soil development and thus subclimax forests. Moreover, soil degeneration contributes to the formation of grasslands, which contain perennials that demand few nutrient requirements. Xerophytic trees and shrubs are mixed with wetland grasses. These live only during the wet season. The overall biomass of the savannas is low, thus few indications of human occupation. These clearings are

not the result of deforestation, but instead from edaphic factors in which grasses colonize hydromorphic soils, primarily comprised of red brown oxisols through the Holocene Epoch (Rice 1993).

The spatial diversity of tropical forest takes the form of a mosaic, determined by topography, soil fertility, and soil moisture. The vertical orientation of the biomass, from the canopy to the ground, indicates that procurement must be spatially diffuse. The organizational character of the lowland tropical forest can impede human exploitation. However, by the Classic Period, broadleaf forests were not pristine, but highly shaped by human action, namely agriculture and other forms of resource procurement (Rice 1993: 26). This includes both domesticated and semi- domesticated plant and animal species. Faunal species also profoundly influenced the character of human exploitation of resources in the region. Voorhies (1982) has identified 150 plant species of plants and twenty- five animal species that were utilized by ancient Maya communities (Rice 1993: 26; Voorhies 1982). The exploitation of the broadleaf forest plant and animal communities provided a host of resources for use. These include dyes, fibers, food, fuel, incense, medicine, oils, pelts, plumage, jewelry, and other goods.

It is clear that temperate forest succeeded xeric Pleistocene vegetation and mesic forests that date to 10,000 years in age. By the time human communities were establishing village cultures during the Early Preclassic, humans began unfettered alteration of both abiotic and biotic portions of the ecosystem. Paleoecological data indicates that by Late Classic times in the central and eastern Peten and northern Belize, the landscape was denuded (Jones 1994; Rice 1993). Deforestation, intensive agriculture, abandonment, and succession are indicated by pollen deposition. Beginning in the Late Classic (AD 600), overall pollen presence in core samples is low compared to other time frames. Data from

Cobweb Swamp indicate that forest clearance for agriculture is evident by the Classic Period. By the Late Classic, it is apparent that the lowland landscape was very nearly cleared. The majority of pollen can be linked to agriculture and open grasslands and low levels of arboreal pollen (Jacob 1991; Jones 1994).

Not only were productive lands needed for agriculture, arboreal species were needed for fuel. Rice (1993) estimates that an individual might consume one ton of fuel wood per year. Wood was not only needed for making implements and fuel for cooking, but also building perishable structures. The strain between the necessity of land for crop and trees for fuel was felt by burgeoning local populations. This is well illustrated from palynological data recovered from Cobweb Swamp adjacent to Colha and also areas near the center of Copan in western Honduras (Jacob 1991; Jones 1994; Rice 1993). The Copan data indicates that montane forests, which are not productive, were stripped of arboreal species. Lake beds are also a source of paleoecological data that exhibit a thick layer of silty, montmorillonite clays that indicate an increase in alluvium and colluvium, which are reflective of long term human disturbance.

LITHOLOGY OF NORTHERN BELIZE AND THE CHERT- BEARING ZONE

The coastal plain of northern Belize has been identified by archaeologists as possessing critical lithic resources necessary for the production of both utilitarian implements and symbols by the ancient Maya communities that lived there. Human occupation in the region dates to some 8,000 BC, and stone was used from those times onward (Iceland 1997; Kelly 1993; MacNeish et al. 1980).

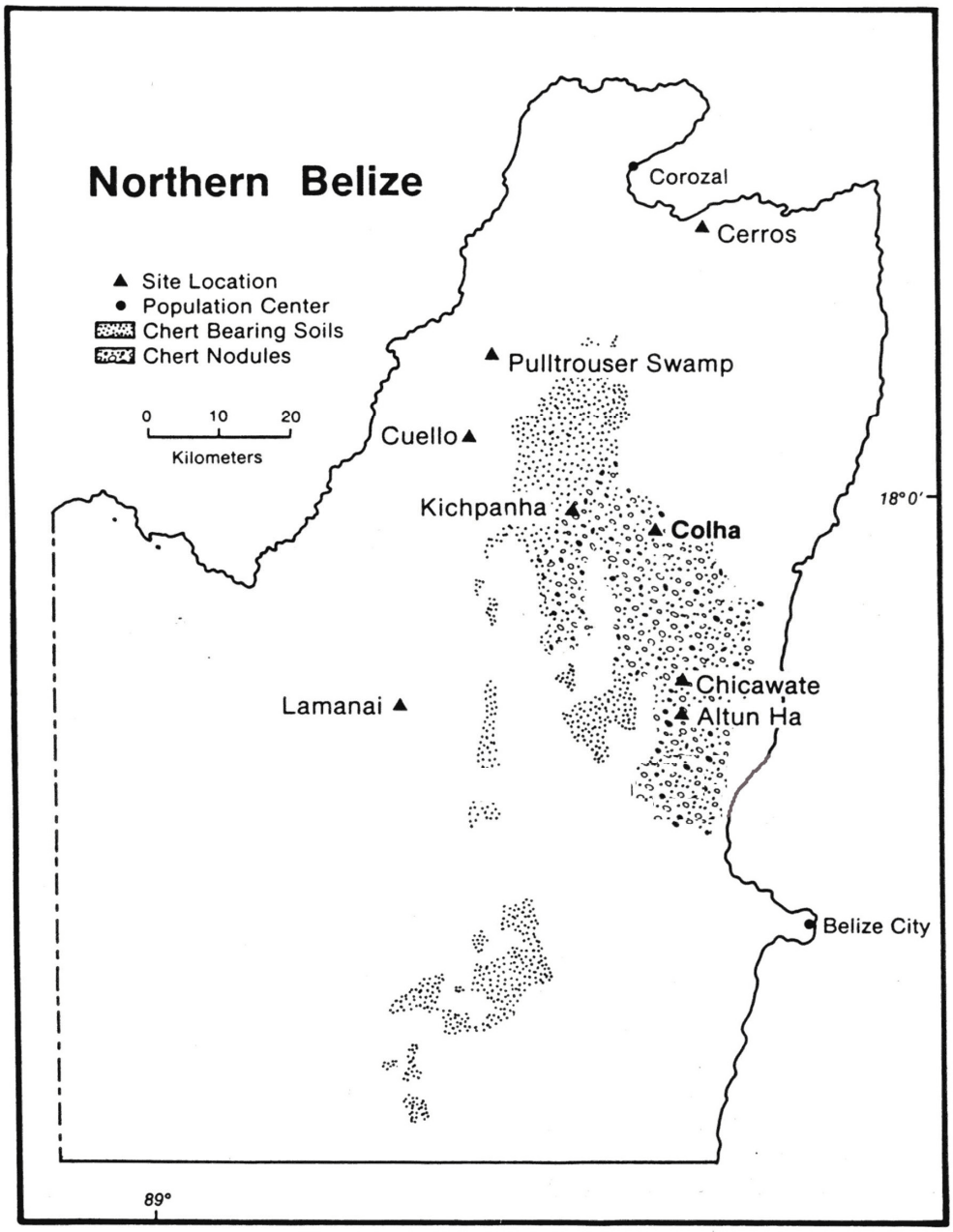


Figure 2.2- Map of chert- bearing zone with Maya sites (adapted from Hester 1985)

The chert- bearing zone, defined in Chapter One as an 85 km by 30 km area, exhibits a wealth of microcrystalline silicate rocks occurring in the form of subsurface nodules and outcropping along the low cohune ridges. While high quality chert is present in the heart of the **cbz**, which extends in a north- south line from the site of Colha extending to just south of Altun Ha, more coarse textured chalcedonies are prevalent in the northwest and western portions of the **cbz**. Generally speaking, cherts and chalcedonies occur widely but intermittently across the landscape.

Overall, a patchy distribution of materials in terms of color, grain, nodule form and size were used to determine the quality of the material for reduction by the lithic crafters at Colha (Potter 1993, Tobey 1986). This variable quality and overall intermittent distribution of lowland cherts acted as a bounding mechanism in the formation of economies based on the production and exchange of flaked lithic materials (Potter 1993).

While trace element sourcing of chert can provide clues in terms of the location of specific materials, visual distinction can be made with some success at a general level (see Cackler et al. 1999; Iceland 1997; Tobey 1986). Numerous researchers have posed the question of where high quality chert originates within the cbz region. Tobey (1986) undertook an initial trace element characterization of cherts recovered from different portions of the **cbz**. Tobey obtained mixed results when attempting to elucidate consistent differences in trace element composition from area within the **cbz**. What was established, and later supported by Cackler et al. (1999) was that raw material from the **cbz** can be considered, at least in terms of trace element composition, a homogenous area (Cackler et al. 1999; Tobey 1986).

At the site of Colha, quarries have been identified in close proximity to the site. At these quarries, chert occurs in nodules are as large as one meter in

diameter. Often times, tabular cherts can be up to 50 cm thick. This material exhibits excellent quality for production of large macroblades and macro flake-blades. Regionally, these macroblades were bifacially reduced into tool forms. Cherts range in colors from dark brown and tan brown to gray and also banded gray materials (Tobey 1986; Shafer and Hester 1983, 1991).

The chert- bearing zone was first mapped by Wright et al. (1959). Chert is comprised of some 98.0 % silica. Chert is defined as an opaque stone exhibiting a wide range of colors and is a sort of cover term for a number of sedimentary rocks, including: agate, jasper, and chalcedony (Tobey 1986: 8). Chert is also known as flint, although in general, chert is a more heterogeneous material than flint. Both materials yield sharp edges when fractured and possess isotropic fracturing properties that yield consistent breakage patterns. There are a number of competing theories to explain the formation of chert. One theory is known as syngenesis, in which gelatinous silica lumps accumulated on the sea floor and were surrounded by accumulating sea- bed and soils. A second is labeled penecontemporaneous formation. This theory posits that silica accumulated below the sea floor in deeper environments where materials were undergoing geological transformation. A third, called the epigenetic theory of chert formation, suggests that microcrystalline silicate formed after the ocean floor had emerged above water level and was part of a larger deposition of silica into voids in the limestone (Luedtke 1992: 17- 20).

Chert Formation

Archaeologists working in the coastal plain of northern Belize have traditionally been interested in both the source of the cherts and the properties of different kinds of chert. As discussed previously, chert is a term that encompasses microcrystalline silicates of various colors, grains, and inclusions.

However, chert classification cannot be limited to geography or quality. The problem is in its variability. Chert from the same quarry can exhibit extreme differences in both visible properties and trace element composition. As Tobey (1986) Iceland (1997) and Cackler et al. (1999) discovered, that while there is significant variability in the cherts from northern Belize, overall homogeneity is most prevalent.

Silica also takes the form of what is termed chalcedony, a silicate that takes the form of strings rather than crystals. Chalcedony is of less quality than chert and is most prevalent along the northwestern and western boundaries of the chert- bearing zone. Mineralogically, chalcedony is similar to chert, thus being sometimes translucent. Chalcedony is considered to be a fibrous form of quartz that appears differently, even though in some instances it is comprised of the same material.

Chert classifications can be divided into two primary groups, chert type that refers to a discrete geologic deposit, and chert source, a regional location where a type of chert can be obtained. Chert can be classified as a sedimentary rock comprised of combination of specific chemical elements known as minerals. Chert is a naturally forming solid formed by inorganic processes. The end result is an ordered internal arrangement of atoms and chemical compounds whose physical properties are relatively fixed (Luedtke 1992).

Chert is comprised primarily of the mineral quartz, comprised of silicon and oxygen. Rocks are aggregates of different mineral. For example granite is comprised of quartz and feldspar, mica, amphibole, and pyroxene. Chert is a rock made up of grains of mineral quartz, considered to be sedimentary in origin that were formed at low temperatures and pressures at the earth's surface (Luedtke 1992). Silica minerals come in a number of size ranges. The mineral crystal appears like a six- sided needle with a pyramid on top. Chert is comprised of

microcrystalline quartz, meaning its crystals are visible under high power magnification. The quartz crystals are then modified by water, clay, carbonate minerals, iron minerals, and organic materials that result in an internal structure of great variability.

The silica tetrahedron is the foundation of chert. However, chert is not a homogeneous solid mass, but instead is comprised of particles and varies with the bonds that exist between the particles. In northern Belize, chert comprises less than 2% of the volume of sedimentary rock (Tobey 1986).

The numerous inclusions in chert were determined by solubility, meaning how the mineral absorbs water and impurities. Quartz crystals absorb water at six parts per million and amorphous silica at 120 parts per million. Microcrystalline quartz is comprised of interlocking grains. The material precipitates six parts per million from other solutions. Compared to chalcedony, the impurities in chert slow down precipitation.

The size of individual quartz grains are linked to the fracture properties of individual types of chert. Fracturing properties are affected by variables such as: the density of nucleation sites, rate of crystal growth, and temperature. The quantity of impurities in the matrix of the chert has repercussions for how the material fractures. Smaller grain sizes are, for the most part, in closer proximity to fossil inclusions. Also smaller grains form near organic material. However, coarse grained cherts form where there are not many impurities suitable to act as nucleation sites. Moreover, the impurities form lower silica concentrations. Grain size variation in a single chert nodule can be explained by the tendency of chert to grow from the inside out (Luedtke 1992: 24).

There are a number of conditions that effect the formation of different kinds of silica. These include low temperatures, silica concentrations, quantity and kinds of impurities appear to be the most important determinants of the type

of silica that will form. For the most part, microcrystalline silicate concentrations are relatively low and impurities are abundant. The more pure crystals, the longer it takes to form, due to no impurities acting as nucleation sites.

Perhaps the most relevant theory for the explanation of chert formation is a theory called diagenesis. Diagenesis occurred where low temperatures and low-pressure changes are working on sediments prior to lithification (Luedtke 1996: 25). The compaction, cementation, alteration, and replacement are processes that are important to the formation of different cherts. Moreover, as the present study shows, chemical alteration and changes in the fabric of the chert can occur via surface alteration, as well as variation in the environment in which the materials was culturally deposited. However, as Luedtke (1992) has so aptly noted, there is a significant gap between the chemical changes of chert formation and our own empirical observations.

Nodular cherts, comprised of spheres or lumpy ovals of limestone or dolomite formation are the form in which many cherts in northern Belize take. However, nodular cherts comprise a very small proportion of such formations and are areally very limited (Dapples 1979: 100). Nodular chert forms when silica and carbonates are exposed to long term temperature and water variation. Moreover, these materials are also exposed to carbonate secreting organisms. This forms limestone, which is also suitable for silica secretors. Silica can then be deposited in the voids left by dissolving carbonates. These deposits appear in quiet shallow seas. In the process, chert forms early in diagenesis, when carbonates are compact, but remain unsolidified (Luedtke 1992).

Carbonates containing chert are oftentimes located where fresh and salt water mix at the margins of large land forms, where silica deposition often occurs. These also form bedded cherts, which are not part of the microcrystalline silicate

sources in northern Belize. However, outcrops along cohune ridges may exhibit tapering lenses of chert material.

The impurities in chert are responsible for the visible characteristics of the material. Impurities originate from a variety of sources such as rocks, sediment, and organic remains. The remains of clays, carbonates, iron oxides, and organic matter create variation in color and texture of chert. The impurities often appear to be inside the fabric of the quartz grains, but instead form around and in the voids that are present between the quartz crystals. Impurities also stem from the minerals that are present in the area of silica deposition, including clays or sand grains or bits of organic material, as well as other minerals such as pyrite, hematite, dolomite, and clays that form in place (Luedtke 1992: 36).

Also contributing to chert diagenesis are the kinds of rock present on adjacent landforms, which affect chert formation via the processes of transporting sediments to nearby bodies of water. Moreover, the kinds of flora and fauna that occupied the waters where chert was formed also affect the appearance and structure of chert. Volcanic ash also adds to the complexity of chert diagenesis and the formation of chert fabrics.

Visual Properties of Chert

Chert can potentially appear in every color of the spectrum as well as numerous patterns from solid to banding. Chert is also variable in luster from glossy to opaque. Quartz is the major constituent of chert, impurities and microstructure variation cause differences between kinds of chert. Assessing quality of chert via visible properties is a subjective process but can be done. Anthropologically, the visible properties of chert likely had ideological and aesthetic significance. The knowledge of quality lithic material was important to local craft communities in northern Belize. The crafters possessed an intimate

knowledge of raw material and visible and subjective properties were part of the criteria for judging quality. Thus a crafter would be familiar with local and distant chert types (Luedtke 1992: 59).

Visual properties include color, translucency, luster, texture, and structure. These properties are linked to structural properties of the material that affect how light behaves when exposed to the surface of the material. In general, the materials from northern Belize are opaque. Coloration of material is also subjective. By using Munsell standards of soil colors including hue, value, and chroma. Texture is often related to grain size. This is not necessarily the case in the sense that most often grains of the silica are more often not visible to the naked eye. Even the largest grains are 0.05 mm in diameter. Texture instead is a function of chert porosity and fluctuates with the number and size of the cavities between grains making the material appear coarse (Luedtke 1996). Subjective typologies of chert texture have proven useful for distinguishing between chert types based on feel and appearance (Rick 1978: 15).

The more porous a material is, the more coarse grained it appears. The coarseness is based on presence or absence of clusters of quartz grains or replacement of fossils. Indeed, in the present study, chert texture is ranked according to four separate classifications. The fracturing properties of chert are a function grain size. The more coarse the material, a specific fracture will go around the grain clusters.

Color changes in chert include mottling and splotching. Mottling of material is what has been termed a replacement phenomenon in which the structure of the chert surface begins to take on the structure of the surrounding material. In the case of the materials from northern Belize, the surrounding matrix is limestone, which appears as both mottled and exhibiting fossil inclusions (Luedtke 1992: 66). Oolitic cherts are materials that formed from marine

environments and the agitation of carbonate sediments. Many chert contain numerous fossils, indeed tiny animal and plant fossils are part of the chert itself, comprised of bits of limestone and dolomite which are relics of the original sediments.

As well, remnant quartz grains that are outside the fabric of the quartz can effect the appearance of the chert. These variables have repercussions for the appearance of the chert. Oftentimes, chert exhibits concentric banding, as is the case in northern Belize. This phenomenon can be attributed to layers of silica deposited on the interior initial nodule. This banding can also be caused by diagenesis rather than from depositional processes. Voids in the chert are often filled with chalcedony.

Another critical component of chert is the cortex, which is often defined as the outer layer over the nodule or a weathered area. Cortex is a diagenetic feature distinctive surface layer in the nodule or bed. The weathered layer that accrues after breakage is different, and is known as patination. This is the case with the materials in the present study, where long- term deposition has resulted in weathering. Patination is often chemically in between chert and cortex (Luedtke 1992).

Chalcedony also appears quite frequently in the matrix, and is common in many cherts. The fibrous structures are short thick bundles and long thin ones. The fibers radiate out from the surface or form spheres around nucleation sites. Chalcedony also fills cracks, voids, or fossils and may also cement quartz grains in the body of the chert.

Correlation among various visible properties can be definitive in articulating a chert type. Impurities and grain size, as discussed previously cause the visible properties of chert. In the present study, chert texture was graded from one to four. Color was assessed based on a loose association with Munsell Color

Chart. The presence of inclusions were noted, though attempts to define the inclusions as caused by inorganic and (or) organic material was not undertaken. A caveat must be articulated at this point, in the sense that not all visible properties of chert are equally variable within a chert type.

It is not always true that highly local cherts vary less than widespread. However, recent research has indicated that all chert bearing zone chert should be viewed as one homogeneous chert type (Cackler et al. 1999; Iceland 1997; Tobey 1986). Color, for instance is important but not definitive. Texture is also important in that it is linked to mechanical properties. When combined with presence of inclusions, it is posited that these visible properties can discern at least that notion of a single production locus for flaked stone symbols from Altun Ha, Colha, and Lamanai.

Chert occurs at Colha and across the **cbz** as nodules varying in size from several centimeters to over meter across. These nodules are mixed in the limestones and soil. Some of the cherts also outcrop on the ground surface as opaque to slightly translucent and varied in color as mottled grays, browns, and some reds. These materials also exhibit both banding and fossil inclusions. Many of the cherts originating from northern Belize contained fossils visible in fabric the fabric of the chert. These often appear as circular white specks ranged in diameter from 0.1mm to 1.0 cm (Tobey 1986). There are also larger oval inclusions that contain chalcedenous material. It is unknown whether these voids were where fossil skeletons were located. However, the presence and appearance of fossil inclusions provides subjective criteria for description of specific cherts.

Chert quality was not the most important factor in the manufacture of stone implements. Maya lithic crafters used a wide variety of poor quality material, and produced intricate and excellent work. Other variables that were likely considered include the shape of the core, how the material is held, how it is

struck, type of hammer, and preparation of the striking platform all affected how a piece of stone was worked. Moreover, availability, size, aesthetic and ideological considerations all had to be considered when selecting a piece of material that was to be crafted. Crabtree (1972) articulated the notion that the way chert breaks is the critical criteria. The properties a lithic crafter is looking may have included even texture and free of flaws, cracks, inclusions, cleavage planes, and grains (Crabtree 1972). What makes chert useful mechanically is its isotropic fracturing properties. These can often be improved via thermal alteration. The gradual heating and cooling of chert enhances the uniformity of the breakage pattern.

Generally speaking, there is no consensus in how chert types are defined. Typologies are always arbitrary (Luedtke 1992). The question remains what kind of typologies can we construct in terms of raw material, and for what is that typology useful? Provenance studies in northern Belize have taken two approaches. The first has been the construction of a typology of chert artifacts based on geographic locations of sites (Boxt and Reedy 1985). Perhaps more definitive are the petrographic and chemical techniques employed by Tobey (1986) and Cackler et al. (1999). According to the latter study, it seems clear that banded brown and gray cherts originated from Colha. However, large source areas to the north of Altun Ha pose the question of similar material originating there.

It has been concluded that a great deal of chemical homogeneity exists within the chert- bearing zone. Distinctions cannot be made chemically between geographic areas within the area. Attempts to chemically differentiate between sources within the chert- bearing zone have been met with mixed results. Instead the present study does not attempt to isolate individual sources, but instead poses the question of whether there is sufficient variability in the visible properties of the material to consider that materials originated from two or more source areas.

CONCLUDING REMARKS

This chapter has presented a description of the environmental context relevant for the analysis of three assemblages of flaked stone symbols recovered from ancient Maya sites in northern Belize. The technological knowledge controlled by the lithic crafters demanded an intimate knowledge of both the material with which they were working, as well as the location where the material was available, as well as the placement of the material in their worldview. In this sense, it is critical that we too have an understanding of the environmental context in which this knowledge was displayed. In doing so, we can generate relevant questions with respect to the access and use of resources, and how this access shaped the historical trajectories of Maya society, as well as the production of material symbols. In this way I have constructed my analysis, reflexing between interpretive and positivist modes of thought, cobbling together a study of material culture that brings the widest possible perspective to the study of flaked stone technology and the communities that, while practicing it, transformed themselves.

Chapter 3: Archaeological and Culture History in Northern Belize

This chapter is divided into two parts. The first presents a discussion of previous archaeological research in northern Belize, briefly reviewing research that has been undertaken in the central and eastern portions of the region, primarily along the coastal plain. The second part is devoted to presenting a culture history for each of the three centers from which the assemblages of flaked stone symbols originate. Though this dissertation presents the results of a material culture analysis of flaked stone symbols recovered from three primary sites in the region, it is critical to understand the history of archaeology in the area and the accumulation of knowledge stemming from previous work. Information contained in this chapter will set the stage for Chapter Four, which is comprised of a discussion of craft specialization and ancient Maya political- economic organization.

Archaeological research in northern Belize has contributed to our current knowledge of eastern lowland Maya culture and architectural histories, site organization, ceramic and lithic chronology, and socioeconomies of lithic production, craft specialization, and exchange. One of the goals of this chapter is to present this study in archaeological context, drawing on results of previous work to position the present analysis of a class of ancient Maya material culture.

ARCHAEOLOGICAL HISTORY

The first modern exploration of ancient Maya sites in northern Belize was undertaken by Thomas Gann at the turn of the 20th century. Gann, a physician by trade, visited a number of sites in northern Belize during the first decade of the century. While Gann employed excavation methods acceptable at the time, much

of his work was based on less than systematic methodology. Gann visited the site of Santa Rita Corazol on Chetumal Bay and trenched numerous buildings at that site (Chase and Chase 1988). Gann also excavated at the site of Lamanai, as evidenced by the large open trenches in the structure adjacent to and just north of the historic period church (Pendergast 1981, 1993). Though Gann's work was important in the sense that it resulted in the formal documentation of archaeological sites in the region, his reports of both excavations and material culture leave much to be desired. Gann took few notes and primarily documented only items of elite or exotic origin (see Gann 1900, 1927).

Despite the presence of numerous Maya centers along the coastal plain of northern Belize, archaeological work there waned for most of the first half of the 20th century. During the second decade of the century, Alfred Tozzer (1913) led a research party via mule train from the Caribbean coast into the interior of Belize (then British Honduras) and along the Guatemalan border. Sylvanus Morley of the Carnegie Institution spent a short amount of time at the site of La Honradez, in eastern Guatemala in 1915. In the 1920's and 30's J.E.S. Thompson also visited the site of La Honradez and spent three seasons excavating at the site of San Jose, in western Belize. Thompson also visited the sites of Lamanai and La Milpa, eventually naming the site of La Milpa during this time period. But even as the Carnegie Institution began a long term archaeological project to the west in the central Peten, at the site of Uaxactun, and in the northern lowlands at Chichen Itza during the 1920's and 1930's, little archaeological work was undertaken at sites in northern Belize (see also Wauchope 1934; Smith 1937, 1955).

In the decades following, changes in archaeological method and theory as practiced in the New World began to be felt in the Maya area. These changes were initiated in part by subsequent historical and political changes in geopolitical arrangements, as well as changes within the discipline of archaeology itself

(Trigger 1990; Willey and Sabloff 1995). The shift from a primarily culture historical approach to a focus on explanations of cultural continuity and change was embodied perhaps most clearly in the publication of two texts in North America. The first was Walter Taylor's *A Study of Archaeology* (1967), which set the stage for interdisciplinary research to become an accepted part of archaeological investigation. The second text, *Method and Theory in American Archaeology* (1952) authored by Gordon Willey and Phillip Phillips, stressed explanations based on accretive and processual changes in culture via systematic archaeological sampling and classification.

Early in the 1950's, one of the authors of the latter text, Gordon Willey of Harvard University, initiated pioneering settlement survey and excavation in the Belize Valley in cooperation with a number of colleagues (Willey et al. 1965). At the same time, in the central Peten, the University Museum of the University of Pennsylvania initiated a comprehensive and long- term archaeological research project at Tikal (Coe 1990; Coe and Haviland 1982; Coggins 1975; Fry and Cox 1974; Fry 1979; Haviland 1981, 1989; Jones 1991; Puleston 1983; Shook et al. 1958). These projects represent a critical part of the foundation of our knowledge of the ancient lowland Maya.

The Tikal Project included not only excavations in the monumental center and investigations of elite material culture, but also focused on site settlement, organization, and non- elite material culture (Haviland 1981; Moly- Nagy 1998; Puleston 1983). Moreover, interpretations of stone sculpture and hieroglyphic inscriptions provided local and regional histories of the ruling dynasty (Coggins 1975; see also Schele and Freidel 1990). The Tikal Project showed that the organization and history of a Maya center could be approached from a number of avenues of inquiry. The work at Tikal and in the Belize Valley motivated continued efforts and subsequent innovations in theory, interpretation, and

methodology. And yet despite increased research efforts across the Maya lowlands, northern Belize had yet to be the focus of systematic archaeological inquiry.

It may have been common knowledge to local Yucatec Maya villagers that numerous sites existed in the region prior to the 20th century and generations later, when archaeologists first appeared there. A.H. Anderson, the first archaeological commissioner of British Honduras visited numerous sites in the region during the late 1950's and 1960's. In 1961, American William Bullard of the Royal Ontario Museum accompanied Anderson to Altun Ha. During that year, Bullard directed excavations at the site of San Estevan, located some 35km to the northwest of Altun Ha and some 15km northwest of Colha. At the time, Bullard recorded Altun Ha as the site of Rockstone Pond, the name of the nearby Creole village.

In 1963, Anderson again visited the site of Altun Ha, this time with David Pendergast, then of the University of Utah. During the fall of that year, three weeks of test excavations were undertaken at the site. The following year, Pendergast returned to Altun Ha under the auspices of the Royal Ontario Museum. As Pendergast (1979: 1) so aptly states:

> The original rationale for the project was simply that the coastal zone of Belize was *terra incognita*, long held to be sort of a peripheral backwater in which nothing of great significance to Maya prehistory had occurred.

This preconception about the region was soon proven by the Altun Ha project to be in error. What followed were seven field and one lab season that revealed Altun Ha, renamed from the original Rockstone Pond by Pendergast, as one of the richest sites in terms of the diversity of elite material culture, excavated to date in the eastern lowlands. During field work at Altun Ha, Pendergast worked

with Mopan and Yucatec Maya excavators from the village of Succotz, Cayo District, Belize as well as numerous North American specialists in architecture, ceramics, floral and faunal resources, and eventually lithic artifacts (see Pendergast 1979, 1982, 1990, 1992, 1998).

The excavations at Altun Ha set the stage for further archaeological investigation in northern Belize, and indeed in Belize as a whole. Over the course of the next three decades, numerous archaeological projects were established in northern Belize. The Corazol Project was the first regional archaeological survey undertaken in northern Belize (see Hammond 1973). Excavation and survey were also undertaken by Hammond and his colleagues at the site of Nohmul, along the Rio Hondo (Hammond 1983). The Corazol Project, which was conducted under the auspices of the British Museum, was an early manifestation of a regional settlement study that was to become so prevalent in the Maya area during the 1980's and 1990's (see Ashmore 1981). The project documented the locations of numerous sites in the region, including the large- scale remnants of lithic production at the site of Colha (Wilk 1973, 1976).

Observations at Colha motivated Hammond, whose research focus was not lithic technology, to contact researchers at the University of Texas at San Antonio and Texas A&M University. In 1976, Thomas R. Hester and Harry J. Shafer, accompanied by New World lithic technologist Don Crabtree and other North American researchers visited Colha. After a visit of several days, this group concluded that Colha was an important site in terms of production of lithic implements. Indeed, Crabtree suggested that Colha was one of the most important archaeological sites in the New World in terms of understanding lithic technology in a complex society setting (Hester 1985). Thus, the Colha Project was initiated under a research focus that encompassed the production and economy of lithic

tool forms (see Hester and Hammond 1976; Hester 1979; Hester et al. 1981, 1982, 1994).

Hammond also directed excavations at another small but important site, located just west of Orange Walk Town in northern Belize. The site of Cuello was a small site with intact deposits and ceramics that dated to the early part of the Middle Preclassic (900 BC- 400 BC). This early ceramic complex known as Swasey hinted at habitation by people that practiced an early form of Maya village culture (see Hammond 1991). At the same time excavations were being undertaken at Cuello, the Colha Project and Regional Survey was initiating excavation and mapping at this relatively small but economically important site (see Hester 1979; Hester et al. 1981, 1982, 1994). While excavations at Colha will be discussed in more detail below, it must be noted that the regional survey resulted in the location of over a dozen smaller sites, many of which were involved to some degree in production of lithic implements from locally available chert resources (Gibson 1982; Kelly 1982; Kelly and Valdez 1979; Meadows 1997; Shafer 1982a).

During the ensuing twelve field and lab seasons at Colha, North American and Belizean excavators documented over 100 lithic workshop deposits and numerous associated domestic structures. They also generated a complete site map and conducted sustained excavations in the site's monumental center. The Colha Project also initiated paleoenvironmental and geomorphological investigations in adjacent Cobweb Swamp (Jacob 1991, 1995; Jones 1994). In the early 1990's, a members of a reconfigured Colha Pre- ceramic Project located deposits that are considered to be pre- Maya in origin (see Hester et al. 1996; Iceland 1997). These conclusions are supported primarily by analysis of early lithic technology and associated radiocarbon assays (Hester et al. 1996; Iceland 1997; see also Wilson et al. 1998).

Within the same time frame, archaeological investigation was initiated at other sites in northern Belize. Work at Santa Rita Corazol showed this site to be an important center during the both the Late Preclassic and Postclassic Periods (see Chase and Chase 1988). Moreover, archaeological investigations at the site of Cerros yielded considerable evidence of political complexity established by the Late Preclassic Period (400 BC- AD 250) (see Robertson and Freidel 1986; Garber 1986; Scarborough 1986). The Cerros Project also demonstrated the importance of multiple avenues of investigation, as research focused on monumental architecture, material culture, and settlement organization. These projects, as well as other projects underway in the eastern Peten at Rio Azul (see Adams 1986, 1988, 1989) influenced greatly the large scale regional settlement project now under way on the Programme for Belize lands (Adams and Valdez 1993) as well as work at El Pozito, La Milpa, Chan Chich, and Blue Creek, all medium sized centers located in the Three Rivers region of northwest Belize (see Houk 1998, 2000).

Archaeological investigations of Maya outfields and agricultural settlements were initiated in northern Belize at Pulltrouser Swamp (see Turner and Harrison 1983), and spurred later settlement research at the nearby site of Ka'xob. The work at Pulltrouser Swamp yielded information about the complexity of Maya agricultural techniques, lithic technology and economy, as well as provided important data about environmental change through time (see McAnany 1986, 1989, 1995; Turner and Harrison 1983).

Analysis undertaken on lithic assemblages from agricultural fields and settlements located on the periphery of Pulltrouser Swamp have shown that local communities were linked with regional exchange networks during the Late Preclassic Period. These networks were focused the acquisition of quality lithic implements used in farming (McAnany 1986, 1989; Shafer 1983). Later work at

Ka'xob linked small Maya communities to regional economies and ideological webs of significance (McAnany 1995). Along similar lines, further work at San Estevan during the late 1980's showed this community to exhibit substantial settlement and socioeconomic complexity.

Some 45 km to the southwest during the late 1970's and into the mid 1980's, David Pendergast and his colleagues from the Royal Ontario Museum, H. Stanley Loten of the University of Western Ontario, Canadian excavator Claude Belanger, North American archaeologists, and Maya excavators from Succotz, Cayo District, Belize under Valentino Ku, began long term excavation in the large monumental center at Lamanai, along the western shore of the New River Lagoon. The relationship between Lamanai and Altun Ha proved to go far beyond each site's excavation by David Pendergast, as similarities in architectural and material culture styles bear this point out (Pendergast 1992, 1998).

The early investigations at Lamanai were important in the sense of providing a perspective on the architectural, cultural, and ceramic histories of a large Maya center that had not, to that point, been systematically excavated. Archaeological research at Lamanai is discussed in more detail below.

Archaeological work at Northern River Lagoon, originally located and tested by members of the Colha Regional Survey, shows that this site was important in the production of salt (Valdez and Mock 1991). As well, Northern River Lagoon and the surrounding settlements exhibit evidence of significant Postclassic occupation. To the north and west of Altun Ha, work has been undertaken at Laguna de On, located in the northern portion of the chert- bearing zone (Masson 1997). This Postclassic settlement has yielded significant data with respect to cultural changes that occurred in the region during the Terminal Classic and the Early Postclassic Periods (Masson 1997). Indeed, a nearly complete chert form recognized as God K was recovered from secondary contexts at Laguna de

On (Masson 1997). The elaborate God K form indicates the importance of flaked stone symbols at sites across northern Belize.

Other work in the region includes sporadic excavations at El Pozito and excavations at the center of Chau Hi'ix, located at the mid- point between Altun Ha and Lamanai. Chau Hi'ix is a site that has yielded a number of flaked stone symbols from tomb and cache contexts, but little published material on excavations at the site is currently available .

In sum, these projects have yielded important data with respect to ancient Maya culture history and political and economic organization. It is also clear that archaeological investigations in northern Belize represent a cross- cut of research methodologies, extending from the more traditional monumental center approach undertaken at Altun Ha and Lamanai to the interdisciplinary paleoenvironmental, economic, and settlement emphasis at sites such as Colha, Cobweb Swamp, and Pulltrouser Swamp. These projects represent to a certain degree archaeological poles between which the accumulated history of Maya occupation in northern Belize has been outlined archaeologically in evocative terms.

CULTURE HISTORY AND THREE SITES IN NORTHERN BELIZE

As Pendergast (1979) has noted, the coastal plain of northern Belize was once thought to be culturally isolated prior to and during the Late Preclassic (400- AD 250) and Classic Periods (AD 250- AD 900) of Maya civilization. However, over the course of the last three decades, archaeological research at a variety of sites in the region have shown that northern Belize was the focus of cultural elaboration from early human settlement through collision with Spanish interlopers after AD 1540 (see Jones 1987; Pendergast 1986). Specifically, during the Late Preclassic and the Classic Periods, this region saw the proliferation and decline of regional centers at Cerros, Santa Rita, and Colha and later at Altun Ha

and Chau Hi'ix, while cultural continuity has been documented to some degree at Lamanai (Scarborough 1985; Pendergast 1981; 1986). While numerous smaller centers including Cuello, Kichpanha, San Estevan, and Ka'xob also flourished during the Late Preclassic and into the Classic Period (Figure 3.1).

There is now little doubt that the coastal plain of northern Belize was the focus for the development of complex social and political structures which had precursors in the village life of the Middle Preclassic (900 BC- 400 BC). However, by the middle of the Late Preclassic, data suggests that regional population levels were increasing, as new institutions of political power were acquired and developed (Freidel 1979; Scarborough 1985; Schele and Freidel 1990).

The elite communities who consolidated particular institutions of power drew political and economic support from surrounding communities. This reliance likely resulted in acquisition of both commodities and labor by the elite, as well as solidified relations between local elites and those elites occupying larger regional centers. At the same time, lower level socioeconomies of production and distribution were continuing to cross cut political boundaries, as individuals and communities likely maintained numerous exchange relationships (Hester and Shafer 1994; King and Potter 1994; McAnany 1989, 1991; Shafer and Hester 1983, 1991).

With the emergence of a clearly defined status hierarchy in the Late Preclassic, new forms of material culture appeared. These included locally produced ceramics and flaked stone symbols comprised of chert, as well as non-local ceramics and other materials such as shell, jade, and obsidian (Gibson 1989). Though perhaps established earlier, the presence of obsidian in larger quantities during the Late Preclassic and Early Classic Periods suggests that an

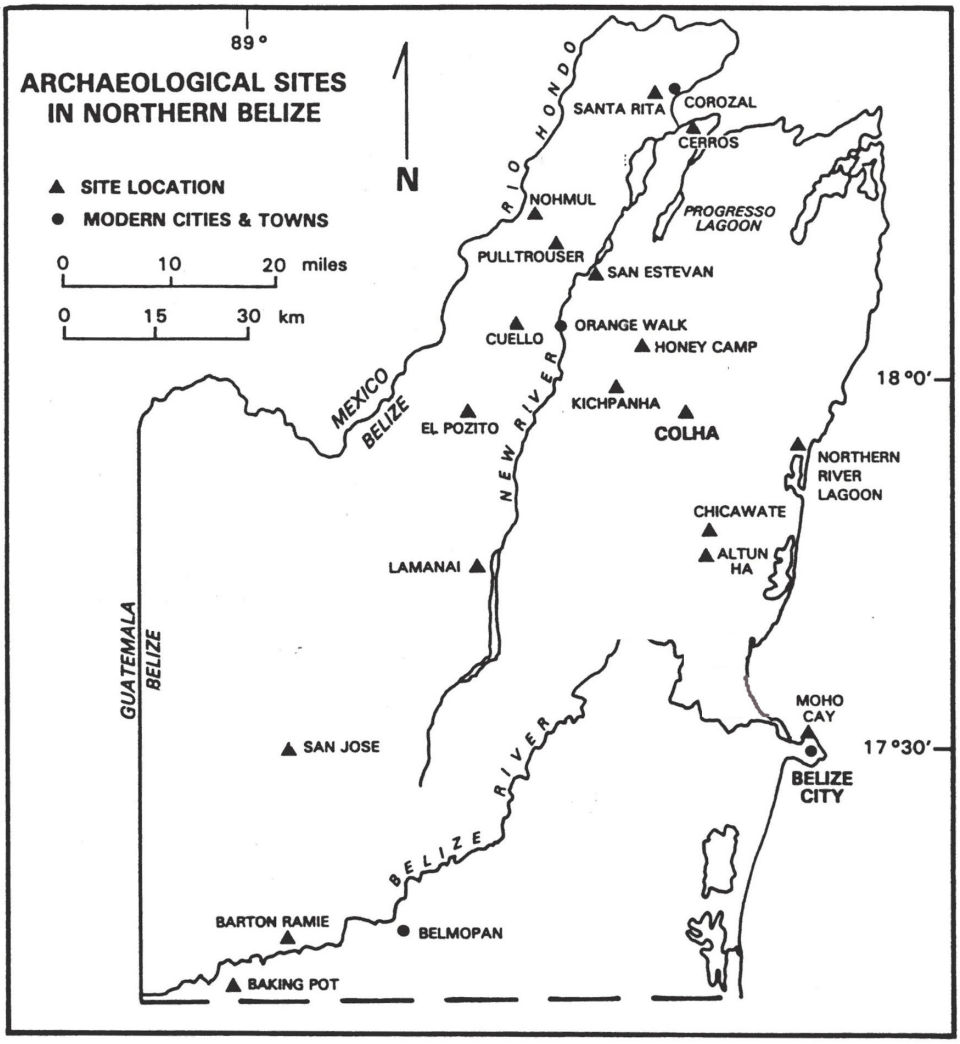


Figure 3.1- Maya sites mentioned in text (adapted from Hester 1985)

increase in long distance exchange likely occurred during this time frame (Dreiss 1988; Hammond 1972).

Altun Ha

Although not large in comparison to neighboring Lamanai or the more distant central Peten centers of Tikal and Uaxactun, Altun Ha can clearly be

classified as unique in the eastern lowlands and perhaps in all of the Maya world in terms of the quantity and diversity of elite material culture recovered there (see Pendergast 1979, 1982, 1990). Concomitant with this material wealth is the implicit notion of Classic Period social complexity. With the monumental center covering some 2.5 square km, Altun Ha is relatively compact. The central precinct is located approximately 20km south southeast of Colha, along the southern periphery of the chert- bearing zone (see Figure 3.1). Again, the location of the site near water, relatively good agricultural soils, and quality limestone and chert no doubt played a part in the elaboration of Maya culture in this locality. Moreover, Altun Ha's proximity to the coast must be considered in terms of the expansion of trade across northern Belize and perhaps farther north into the Yucatan and most certainly west with Lamanai and perhaps into the central Peten.

The focus of the Altun Ha investigations was a comprehensive assessment of monumental architecture in the site center (see Pendergast 1979, 1982, 1990). A complete map of the monumental center was generated and a number of peripheral structures were also excavated during the project (Pendergast 1979, 1982, 1990). What became clear after several seasons of work was the continuity of the placement of caches and burials in structures, and the diversity of offering contents. Moreover, distinct architectural and ceramic styles have been documented at the site. Occupation spanned from the Middle Preclassic through the Classic Period, from around 600 BC through AD 1000. During the Classic Period (AD 250- 900), Altun Ha saw the proliferation and elaboration of elite culture, and was likely was a dominant political center in northern Belize with clear cultural and political links to Lamanai and other sites in the region (Pendergast 1981, 1992; Scarborough 1985; see also Hester and Shafer 1994).

The excavation of over three dozen tombs and burials has been instrumental in expanding our knowledge of elite Maya funerary patterns. Within

the royal tombs at Altun Ha, ceramics, shell, obsidian, and especially jade have been recovered in large quantities (see Pendergast 1979, 1982, 1990). This material wealth indicates the status and power the elite community possessed during the Classic Period. A consideration of this political economic power must include the assumption that the elite possessed the ability to acquire both labor and material objects that played a vital role in the production and legitimation of a dominant ideology.

Maya occupation at Altun Ha dates to the latter part of the Middle Preclassic (600 BC) as defined chronologically by the Xul ceramic phase (Pendergast 1979: 34). Like other Late Middle Preclassic settlements in the lowlands, Maya village culture at Altun Ha was likely focused economically on milpa agriculture, bounded socially by both ancient and expedient kinship ties, and linked to larger cosmological themes through household ritual and ancestor veneration. The various permutations of these social forms were an integral part of the Pandora's Box eventually forced open by emerging elite communities, likely descendants of village leaders. These relations and the political alliances and cosmology on which they were formed became the ideological basis for Classic Maya political hierarchy (see Marcus 1993; Culbert 1991). This hierarchy not only manifested in elite communities the ability to harness cosmological and human labor power, but also in peripheral and craft communities the technological and social knowledge necessary for legitimation and maintenance of relations of production and exchange within and across socioeconomic classes.

The Xul Phase extends to 100 BC, or the latter part of the Late Preclassic Period (400 BC- AD 150) coeval with the Chicanel complex as defined at Uaxactun (Smith 1955). During the subsequent Yaxkin Phase (100 BC- AD 150) further construction of public and eventually monumental architecture and an increase in size of the site center became prevalent (see Figure 3.2). During this

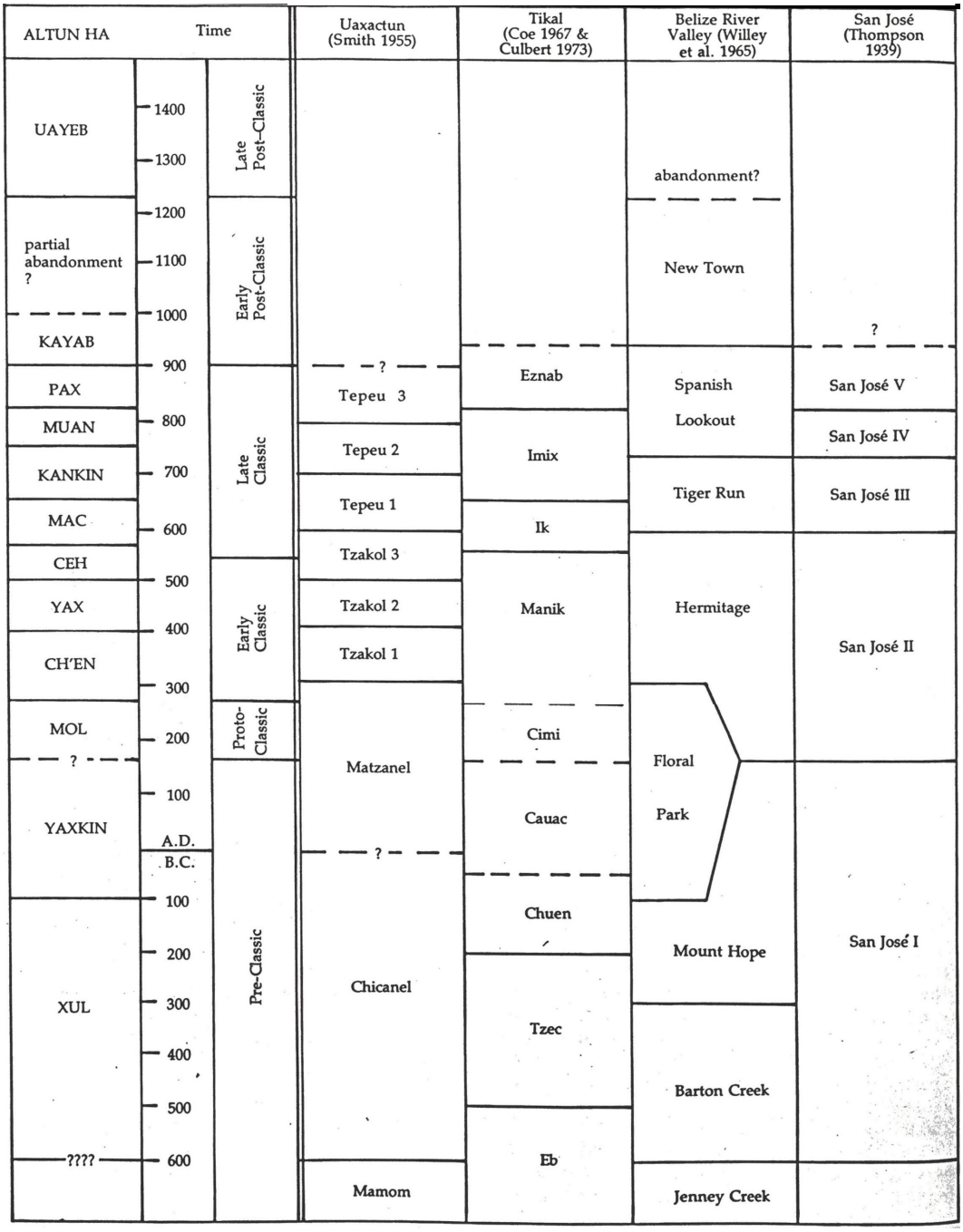


Figure 3.2- Ceramic chronology at Altun Ha and other Maya sites (from Pendergast 1990)

time period, lithic craft communities located to the north, at Colha were producing stone tools on a massive scale for local and regional consumption. To the west, Lamanai also was the focus of monumental construction as elite lineages consolidated their power among villagers living along the indigo crocodile known today as the New River Lagoon. It is not unreasonable to surmise that both elite communities occupying each site and surrounding settlements were aware of the existence of distant towns with which political- economic and thus cultural exchanges were perhaps at the time becoming more frequent.

By the Early Classic Period (AD 250- 600) or the Mol and Chen ceramic phases at Altun Ha, the frequency of monumental construction was reaching its zenith, with cultural influences reflective of Lamanai (i.e. the Lamanai Building Type). These trends continued into the Late Classic Period (AD 600- 900). Approximately 100 years afterward, during the Early Postclassic Period (AD1000- AD 1200) the site was partially abandoned and then re- occupied to some degree during the Late Postclassic (Pendergast 1979: 34; Loten and Pendergast 1984).

A large (some 346) and diverse assemblage of flaked stone symbols were recovered from various tomb and cache contexts at Altun Ha, with a distinctive pattern of deposition dating to the latter part of the Early Classic Period (Pendergast 1998). This pattern consists of caches of intricately flaked chert symbols placed in caches around tomb chambers. In numerous instances, caches were positioned along the axes of the cardinal directions, such as at the tomb of Kinich Ahau, in Tomb B-4/7 (Pendergast 1982: 54- 60). Caches also occur at the corners of tomb chambers, as well as along the central axis of particular structures. The number of flaked stone symbols present in caches vary from three to forty- one individual artifacts, with specific numbers perhaps purposefully repeated (Table 3.1). These caches contain a wide diversity of forms comprised of

Table 3.1- Contexts of flaked stone symbols from Altun Ha, Belize

Altun Ha: Contexts and Chronology N= 346			
Tombs	Number	Context	Date
A-1/1	21	Crypt	AD 550
B-4/1	4	Wall caches	AD 725
B-4/2	19	Subfloor caches	AD 675
B-4/3	16	Wall caches	AD 825
B-4/4	32	Wall caches	AD 850- 875
B-4/5	3	Crypt/subfloor	AD 775
B-4/6	19	Subfloor caches	AD 650
B-4/7	26	Subfloor caches	AD 600
E-1/1	21	Subfloor caches	AD 675- 700
E-1/2	21	Wall caches	AD 550
E-1/3	20	Crypt	AD 600
E-54/9	9	Simple interment	AD 850- 875
Caches	Number	Context	Date
A-5/1	8	Cache	Post abandon.
A-5/2	8	Cache	Post abandon.
B-4/2	9	Cache	AD 825
B-4/4	5	Cache	AD 650
B-4/5	5	Cache	AD 650
B-4/6	7	Cache	AD 650
C-13/17	1	Cache	Unknown
D-2/1	1	Cache	Unknown
E-3/1	9	Cache	AD 600- 900
E-7/7	2	Cache	AD 650
E-44/2	2	Cache	Post abandon.
E-44/4	3	Cache	AD 850- 875
F-1/1	7	Cache	AD 600
J-1/1	6	Cache	Post abandon.
K-33/1	41	Cache	Post abandon.
K-33/3	14	Cache	650
K-33/6	6	Cache	650
K-35/1	1	Cache	Post abandon.

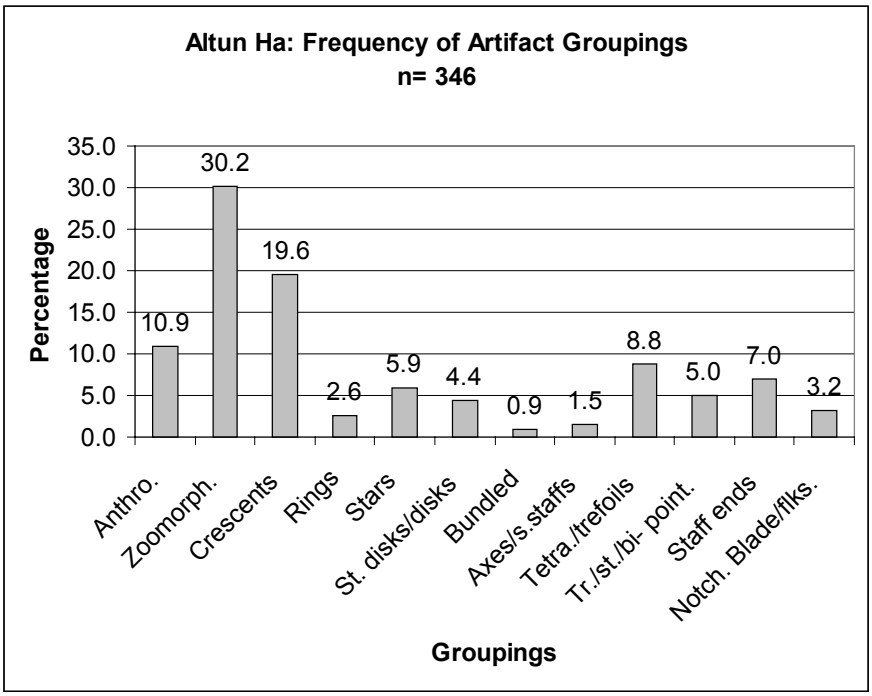


Figure 3.3- Frequency of flaked stone symbol groupings present at Altun Ha

similar raw material, including a variety of anthropomorphic, zoomorphic, staff ends, disks, rings, and more esoteric forms that may convey portions of hieroglyphs and (or) celestial events (Figure 3.3).

The number of caches containing flaked stone symbols at Altun Ha is impressive. What is perhaps more interesting is the fact that the materials appear to be produced from the quality microcrystalline silicates found locally, in the northern Belize chert- bearing zone. It seems clear that specimens were produced by local crafters. Moreover, obsidian eccentric pieces are also present at Altun Ha in moderate quantities. Though this research will not address the production of obsidian items, they support the notion that symbolic lithic materials made of both chert and obsidian played an important role in indexing specific meaning to the

individuals and communities who produced, acquired, displayed, and observed these artifacts in cultural and ritual context. In addition to comprising caches associated with burials, individual symbolic chert artifacts show marked patterning in terms of the production of the artifact, the form each artifact takes, as well as the contexts and associations in which they occur.

In terms of chronology, the earliest appearing flaked stone symbols occur at Altun Ha during the latter part of the Early Classic Period, which correlated to the Yax ceramic phase (circa AD 550) (Pendergast 1979). By the Late Classic (AD 600- 900), caches of flaked stone symbols become even more frequent, with tombs and crypt burials displaying caches of flaked stone symbols in large numbers. The latest contexts for symbolic lithics at Altun Ha date to the 7th century AD, during the Pax ceramic phase. This chronological period also is marked by the deposition of large numbers of flaked stone symbols in caches at Lamanai (Table 3.1).

There is scant evidence of lithic production in the site center of Altun Ha. This hinders our ability to interpret when and where the production of flaked stone symbols occurred. However, production of chert tool forms has been documented in the settlement area known as Chicawate, located some 2- 4 km to the north of Altun Ha (Kelly 1982; Kelly et al. 1979; Meadows 1997). Maya settlement at Chicawate shows surface evidence of domestic production of stone tools comprised of local chert dating to the Late Classic Period. The presence of lithic implements and production debris tentatively dating to the Late Classic Period have also been observed at the site of Kunahmul, located some 5 km to the south of Altun Ha (Shafer: personal communication 2000, Taylor 1980).

At Chicawate, a total of fifteen structures were documented within a one square kilometer area in June of 1997. Each context exhibited a dense mound of lithic debitage associated with low rectangular platforms (see Meadows 1997).

Surface ceramics from the Tepeu 2 and Tepeu 3 ceramic complexes tentatively indicate a Late Classic occupation, consistent with ceramics recovered in the earlier surveys. Moreover, observations of surface materials indicate the presence of a similar technology for stone tool production as that observed at Colha. Namely, macroblades and macroflake- blades that were quarried locally and bifacially reduced via hard hammer percussion into tool forms are present.

It has been proposed that Chicawate became important in terms of the production and distribution of chert tool forms in the region during the Late Classic Period (Meadows 1997; Shafer and Hester 1983, 1991). Along these lines, it is suggested that with increasing local populations, and the encroaching political economic and religious influence of Altun Ha, craft and agricultural communities proliferated on the periphery of this monumental center. These communities provided both the human labor and technological resources for the construction of monumental architecture, intensification of agricultural practices, and the production of specific kinds of material culture.

In sum, during the latter part of the Early Classic through the Terminal Classic Periods (AD 500- AD 900), large quantities of flaked stone symbols were being placed in elite burial and cache contexts at Altun Ha. Without further work, it is impossible to draw any conclusions regarding whether the production of flaked stone symbols occurred at Chicawate. What has become clear is that flaked stone technology was an important cultural and economic activity to craft communities associated with Altun Ha. On multiple levels, flaked stone was necessary for monumental construction, agricultural work, and numerous tasks that included but were not limited to working bone, shell, and plant fiber (see Lewenstein 1987; Aldenderfer et al. 1988). In another sense, the production of flaked stone implements in symbolic form indicates that these symbols were

critical to the production and legitimation of a culturally and historically specific ideology, and comprise, to some degree, an iconography of power.

The wealth of material culture recovered from Altun Ha indicates the center's location was an important intersection for items of exchange via a number of complex, and likely interrelated, economies from the Protoclassic through the Terminal Classic Periods (150 BC- AD 900). The presence of craft specialization in masonry, architecture, production of ceramics, and in this case flaked stone symbols, suggests that elites were harnessing knowledge through specific modes of political economic and cosmological power. The necessity for production and acquisition of specific classes of material culture may have been embedded in kin relations, ancestor veneration, and the deification of the genealogy of the elite as culture, political economy, and religion were inextricably linked.

The distinct styles of material culture present at Altun Ha point to complex local and regional histories within which flaked stone symbols played an important part. These symbolic forms embodied the dominant ideology and linked communities of lithic crafters to the ideology of the elite.

Colha

Positioning lithic technology as a point of departure for a comprehensive study of flaked stone symbols originating in northern Belize, there is no site in the Maya lowlands that better exhibits evidence of lithic production on a massive scale than Colha, Belize. Colha is located in the northern portion of the chert bearing zone along Rancho Creek and Cobweb Swamp (Hester 1979; Hester et al. 1981, 1982, 1994). The site is located on 7.5 square kilometers of relatively productive soils that were conducive to intensive agriculture. Colha's location, close to an abundant source of fresh water, quality stone, and good soils motivated both early human occupation of the site dating to pre- ceramic times, as

well as later Maya habitation (Shafer and Hester 1983, 1991; Hester et al. 1996; Iceland 1997; see also Wilson et al. 1998).

Archaeological investigations at Colha are part of a multi- disciplinary approach that has contributed to knowledge of Maya stone tool technology, agriculture, human- ecological relationships, and the economic organization of communities that developed away from large centers of elite culture (Hester et al. 1982; Jacob 1991; Jones 1994; King and Potter 1994; Potter 1993; Roemer 1984). At this relatively small and rural site there is no free standing monumental architecture. However, the presence of numerous lithic workshop deposits exhibiting large quantities of debitage and discarded tool forms indicated that stone working was a specialized economic activity undertaken by the occupants of the site. The presence of these workshop deposits prompted questions such as: Where was the chert quarried? What was being produced? What were the lifeways of the lithic crafters (Hester and Hammond 1976; Shafer and Hester 1983, 1991)? Moreover, because the workshop deposits were so numerous and dense, it was clear that the rate of production far outnumbered the number of tools utilized by the site's inhabitants (Hester and Shafer 1983, 1991).

The resultant investigations have documented well over 100 lithic workshops spanning from the Middle Preclassic (900 BC- 400 BC) to the Postclassic Period (after AD 1100). However, the majority of the workshops date from the Late Preclassic and the Late Classic Period (400 BC- AD 250) and (AD 600- 850) (Hester and Shafer 1994; Shafer and Hester 1983, 1991). This time frame saw the elaboration of a bifacially worked macroblade and macroflake-blade technology, the precursors of which were in place prior to ancient Maya occupation of the region, perhaps as early as 3,000 BC (Iceland 1997; Wilson et al. 1998). Macroblade and macroflake- blade technology is based on the bifacial reduction of large chert "blanks" procured from chert nodules quarried from

shallow surface mines, visible at Colha and Altun Ha, formerly known as Rockstone Pond, indicative of the local quarry.

Both nodular and tabular cherts were roughly shaped at the quarry and then brought to workshops where the materials were knapped into a diversity of utilitarian and later, symbolic forms (Gibson 1989; Shafer 1979, 1985; Roemer 1984). A reduction continuum for stone tools, based on experimental results and analysis of materials from workshop deposits of differing time periods suggests that ancient Maya stone workers at Colha were indeed craft specialists (Shafer 1982, 1985, 1994). Shafer (1985) concludes that during the Late Preclassic and Late Classic periods, chert crafters were producing a tool form inventory with direct hard hammer percussion, using small, ovoid limestone hammers (Shafer 1982, 1985). It has been posited that lithic reduction occurred in workshops specifically occupied for working chert nodules, macroblades and early stage bifaces into finished tool forms (Shafer 1994; Shafer and Hester 1983, 1991).

A chronology of stone tool forms has been identified spanning from the Middle Preclassic through the Postclassic Period (Early AD 1000- 1200, Late AD 1200- 1400)(Hester 1982, 1985). These forms represent the development of a highly specialized technology for producing the tools necessary for use in the intensification of agriculture, working wood and other materials in domestic activities, and monumental construction at Colha and sites across northern Belize (Hester and Shafer 1994; McAnany 1989). During the Late Preclassic and Classic Period these materials were part of important exchange networks, known as lithic economies (Gibson 1986; Hester and Shafer 1994; King and Potter 1994; McAnany 1989).

Perhaps the most distinctive form appearing during the Middle Preclassic Period was the t- shaped adze. The Middle Preclassic at Colha is associated with the Bolay and Chiwa ceramic complexes (Valdez 1987). The t- shaped adze form

was the precursor to a later development, the tranchet bit adze (Hester 1985). Later developments in macroflake and biface technology resulted in the production of both utilitarian and symbolic forms (Gibson 1989; Hester and Shafer 1994). The stemmed macroblade was manufactured after 400 BC, as were other forms of flaked stone symbols present at Colha (Gibson 1989; Probst 1984). It is important to note that utilitarian forms possessed symbolic value in terms of the raw material on which they were produced. Chert was no doubt seen as an important medium that likely possessed both physical and supernatural properties critical for completion of specific tasks. Paired with the continued elaboration of Maya culture and society, one trajectory was the development of purely symbolic lithic implements that crystallized ideological themes and political relationships.

Perhaps the tool form that has been most critical to assessing lithic craft specialization at Colha was developed during the Late Preclassic (400 BC- AD 250), a time period associated with the Blossom Bank ceramic complex (Figure 3.4) (see also Valdez 1987: 28). The tranchet bit tool or adz was produced from a biface in which a single flake was removed via the tranchet technique from the distal end of the tool form in order to create the tool's bit (Shafer 1979, 1982, 1985; Shafer and Hester 1983, 1991). In most instances, a single tranchet flake was removed from the distal end of the biface. Thus, researchers were able to calculate the number of tool forms produced by tabulating the number of flakes contained within a workshop deposit (Shafer and Hester 1983, 1991; Hester and Shafer 1992). Indeed, specific workshops were hypothesized to be the locus of production of tens of thousands of tranchet bit tools during the Late Preclassic (Hester and Shafer 1984; Shafer and Hester 1983, 1991).

The oval biface has been identified as a tool form that was produced in greater numbers than the tranchet bit tool during the Late Preclassic at Colha.

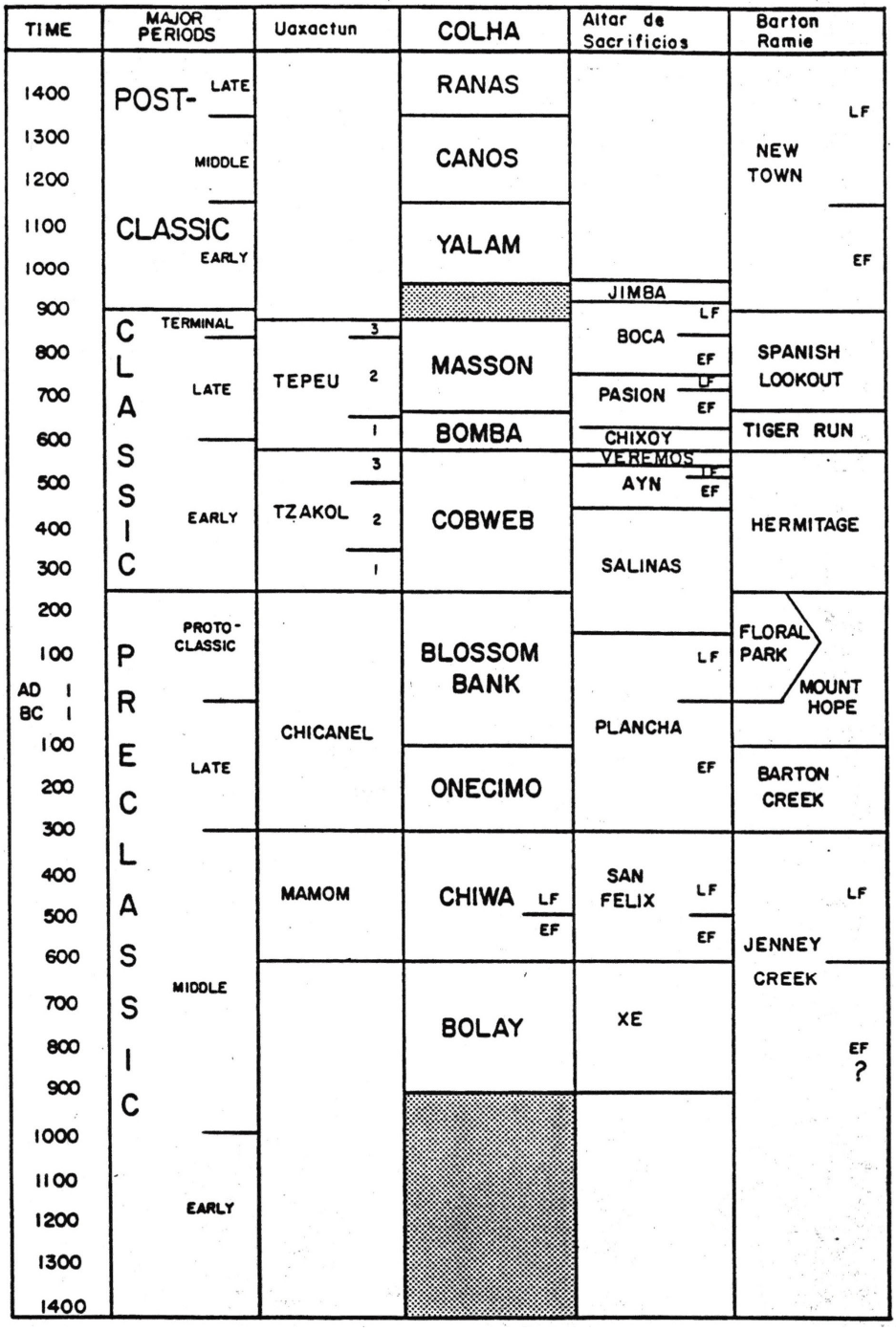


Figure 3.4- Ceramic chronology at Colha and other Maya sites (from Valdez 1987)

The oval biface was also produced on a macroblade, but left no signature flake that could be correlated with the number of implements produced. Instead, large quantities of bifacial reduction flakes accumulated during production, limiting the accuracy of tabulating the exact number of implements represented in a particular workshop deposit (Shafer and Hester 1983, 1991). Moreover, the oval biface changed form through time, as the larger variety was more prevalent during the Late Preclassic gave way to a smaller, celt- like oval biface, more prevalent during the Late Classic (Roemer 1984; Hester 1985). This change in form may be linked to shifting economic activities through time, as agricultural intensification may have necessitated the use of smaller implements for removing secondary undergrowth rather than primary forest.

Results of numerous analyses of lithic workshop debris from Late Preclassic workshop deposits excavated at Colha support the notion of community wide lithic craft specialization (Shafer 1982, 1985; Shafer and Hester 1983, 1991). Moreover, the density and configuration of the lithic deposits suggest that stone tools were being crafted on a full time basis (Hester and Shafer 1984; Shafer and Hester 1983, 1991). Ethnographic analogues suggest that the crafters were independent specialists engaged in full time production of tool forms for intra- regional distribution.

During the Late Preclassic, with regional political centers becoming more influential in local political economies, both utilitarian and flaked stone symbols were being produced at Colha (see Scarborough 1985). Gibson (1989) asserts that stemmed macroblades manufactured at Colha were becoming increasingly important to elite communities occupying surrounding sites. Hester and Shafer (1994) have documented the presence of stemmed macroblades produced from northern Belize cherts at sites across the southern Yucatan and into the Peten. Gibson (1989: 75) asserts that the production of stemmed macroblades can

be traced to the increasing importance of the status hierarchy during the Late Preclassic Period. Other forms of flaked stone symbols were also being produced at Colha during the Late Preclassic and may have been introduced into regional elite economies of acquisition and exchange (Gibson 1989; Hester and Shafer 1994; Meadows 1998).

The Early Classic Period (AD 250- AD 600) at Colha is ephemeral. No workshops have been identified that date solely to the Early Classic. It is posited that continuity is present in ceramic and lithic artifact styles from the Late Preclassic through the Early Classic. By Late Classic times (AD 550- AD 900) at Colha, marked by the emergence of the Bomba and Masson ceramic complexes, changes in the forms of stone implements produced in the workshops is evident. Additionally, there is compelling evidence that the mode of production may have also shifted during this time (King 2000). Large deposits of debitage independent of structures, while present, are not nearly as prevalent as those dated to the Late Preclassic (see Roemer 1984). Workshop deposits dated to the Late Classic generally occur as smaller talus slopes that spill off the sides of platforms. Household workshops, such as that present at Operation 3017 may be the norm during the Late Classic (Meadows and Wilson 1997).

At Operation 3017, a large talus slope spilling of the southwest corner of the platform indicates a workshop deposit directly associated with the structure. The platform itself was clearly the site of domestic activities based on the presence of ceramics, expended tool forms, ground stone, and shell ornaments. A total of 13 individuals were interred in the platform (Meadows and Wilson 1997). The occurrence of burials, domestic debris, and the raised platform in close association with the debitage deposits and broken tool forms, suggests this context may have functioned as a household workshop. Analysis of the material indicates that a number of Late Classic tool forms were being produced in the

Table 3.2- Contexts of flaked stone symbols from Colha, Belize

Colha: Contexts and Chronology N= 68			
Operation	Number	Context	Date
Op. 100	1	Surface find	Unknown
Op. 2001	2	Domestic platform/ workshop dep.	AD 950- AD 1150
Op. 2002	3	Workshop deposit/ midden	400 BC- AD 250
Op. 2006	1	Workshop deposit/ midden	400 BC- AD 250
Op. 2008	2	Domestic platform	AD 600- AD 900
Op. 2012	38	Caches in central precinct	AD 600- AD 900
Op. 2025	3	Domestic platform	AD 600- AD 900
Op. 2031	5	Burial/ cache in main plaza	AD 150- AD 250
Op. 2032	1	Workshop deposit/ midden	AD 950- AD 1150
Op. 3060	2	Surface cache in 3000 quadrant	AD 600- AD 900
Op. 4001	3	Workshop deposit/ midden	400 BC- AD 250
Op. 4036	4	Workshop deposit/ midden	AD 600- (?)
Op. 4041	1	Workshop deposit/ midden	AD 600- (?)
Op. 4044	1	Workshop deposit/ midden	AD 600- (?)
Op. 4045	1	Workshop deposit/ midden	AD 600- (?)

vicinity. At 3017, these forms include small oval bifaces, general utility bifaces, and thin bifaces (Meadows and Wilson 1997).

Flaked stone symbols at Colha take a number of forms and originate from several contexts, most frequently occurring in a series of Late Classic caches at Operation 2012 and two caches likely associated with the burial of a female at Operation 2031 dating to the Protoclassic (Meskill 1992). The forms from 2012 occur as an impressive array of notched blades and bifaces. Later bifacially worked materials are more prevalent in the Late Classic context at 2012 (Table 3.2). Moreover, numerous partial and broken flaked stone symbols from Colha originated from platform fill. This may indicate production discard. Probst (1984) has compiled data regarding flaked stone symbols recovered from Colha. This assemblage, numbering some 68 specimens, includes a range of forms, from

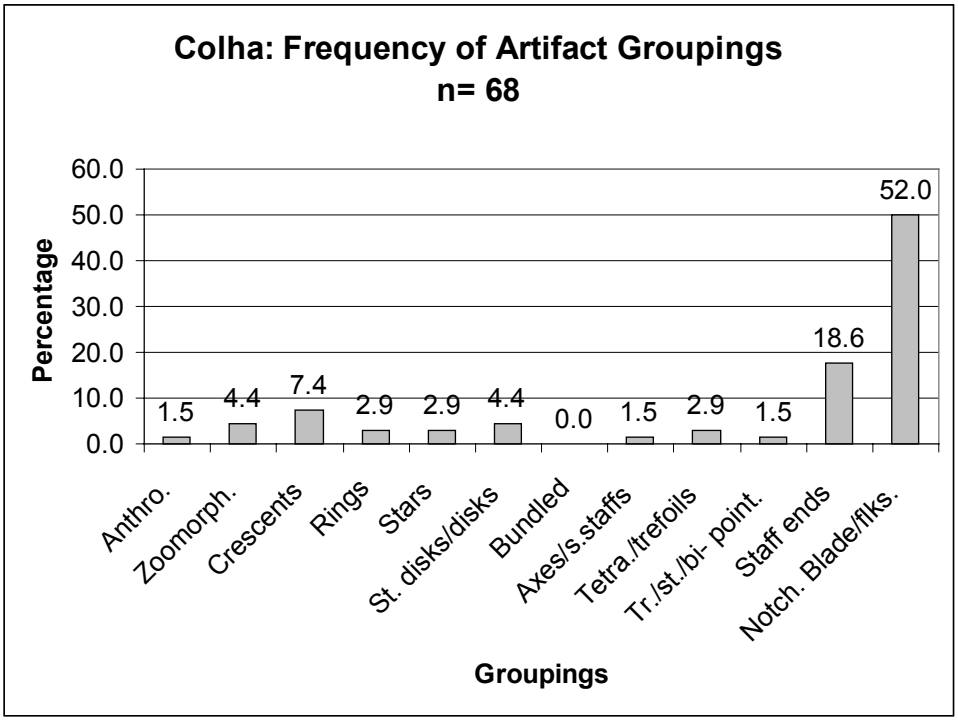


Figure 3.5- Frequency of flaked stone symbol groupings present at Colha

serrated rings and thin bifaces that appear to be the distal ends of staffs and notched blades (Figure 3.5)(Probst 1984; Eaton et al. 1994).

The work of Potter (1993), King and Potter (1994), and Hester and Shafer (1994) have further clarified the role of Colha from a regional perspective. King and Potter (1994) assert that low level socioeconomies of exchange were in effect during the Late Preclassic and into the Classic Period. These socioeconomies were the manifestation of long- term exchange relationships in which ancient Maya lithic crafters were engaged. These horizontal socioeconomies were part of a complex network of community exchange that, while dynamic was also stable due to varying degrees of autonomy with respect to elite dominated political economy.

Moreover, during the same time frame, regional elites were also involved in lithic exchange, both in the direct acquisition of flaked stone symbols that were likely used in public or restricted access ritual, or as part of tribute extraction from specific loci of exchange (i.e. such as regional markets). According to the producer- consumer model, as put forth by Hester and Shafer (1994), utilitarian items were being distributed within northern Belize, while symbolic items such as the stemmed macroblade were being exchanged across political and geographic boundaries (Hester and Shafer 1994; Dockall and Shafer 1993).

Whatever the specifics of the distribution of lithic materials that were produced at Colha, there are a number of points that are clear. The first is that certain types of tool forms were being produced in vast quantities for exchange beginning in the Late Preclassic. The second is that these materials were being worked by full time specialists that exhibited some degree of autonomy in terms of distribution of their wares (Hester and Shafer 1992, 1994; Shafer 1994; Shafer and Hester 1983, 1991). The third is that the mode of production shifted to a domestic context after the Early Classic Period (King 2000; Potter and King 1994; Meadows and Wilson 1997). The Late Classic saw a shift in the kinds of tool forms being produced and the setting in which they were produced. Stemmed macroblade production likely decreased, and while bifacially worked flaked stone symbols were produced in the Late Preclassic, production of these forms during the Late Classic at Colha declined (see Probst 1984).

The excavation of what has been termed the "skull pit" and designated more formally as Colha Operation 2011 illustrates the violent end of a large group of elite individuals sometime during the Terminal Classic Period (AD 775). The decapitation of 30 individuals provides a glimpse into the extent of social disjuncture occurring at Colha during this time period (see Mock 1994). The decline of elite communities at Colha can be correlated with pollen evidence that

shows a regeneration of the forest at Colha after AD 850 (Jones 1994; Valdez 1998: personal communication). By the Early Postclassic (AD 1000), the site appears to have been reoccupied by a different group of people, perhaps Yucatecan populations originating from the north, based on changes in settlement organization and lithic technology (Hester 1985; Hester et al. 1994). This change is supported by marked changes in lithic and ceramic production (Michael 1989; Valdez 1987; see also Masson 1997). By the Early Postclassic Period, the technology and political economy that spurred the production of flaked stone symbols was no longer present in the region, even if cosmological themes persisted.

Lamanai

Lamanai is a large, sprawling center located on the west- bank of the New River lagoon, some 40 km due west of Altun Ha. In comparison to other Maya centers, Lamanai is markedly linear in overall site plan (Pendergast 1981; see also Houk 1996 for a discussion of Maya site planning). The site center of Lamanai comprises a total of 4.5 square kilometers. Within this perimeter, 718 structures were documented, indicating significant structure density (Pendergast 1981: 32). The size and site plan of Lamanai make the center unique in the Maya world. Moreover, there is little evidence for the widespread social disjuncture so prevalent throughout the Maya lowlands at the end of the Classic Period (AD 900) (Pendergast 1981, 1986, 1993).

Instead, Lamanai shows occupation from the Preclassic through the Postclassic Periods and into historic times (Jones 1987; Pendergast 1981, 1986). Although there is still debate as to the intensity of occupation during the Terminal Classic and the Early Postclassic Periods. There is no dispute that Lamanai was the site of the construction of a historic period church that was the focus of

proselytizing efforts during the early years of the Spanish entrada (Jones 1987; Pendergast 1981, 1986).

It must be noted that efforts to synthesize data from field work and lab analysis are still being undertaken at the Lamanai Field Research Center by members of the Lamanai Archaeological Project (see Graham 2000). Moreover, recent excavations and structure consolidation under the direction of Elizabeth Graham of the Institute of Archaeology, University College London and Jaime Awe of the University of New Hampshire and the Government of Belize are also underway. The presentation of the assemblage of flaked stone symbols in this dissertation represents part of these continuing research efforts. However, while the archaeological evidence for an extended culture history at Lamanai most certainly exists, the lack of published data on Late Preclassic and Classic Period developments there, to some degree impedes the present discussion. Thus, the culture history section presented here is in somewhat abbreviated form and integrates more contextual information in relation to Lamanai's culture history rather than a synthesis of the published work implemented in the Altun Ha and Colha discussions.

The earliest evidence of occupation at Lamanai was recovered from what has been termed the harbor area, located at the north end of the site center. At the harbor, a large quantity of corn pollen was recovered from the sediments originating at the bottom of harbor. This large accumulation of corn pollen dates to the Early Preclassic Period, around 1500 BC (Pendergast 1981: 56). In general, though, excavations at Lamanai, similar to Altun Ha, yielded evidence for intensive occupation and monumental construction beginning in the Late Preclassic Period (circa 400 BC). In contrast to Altun Ha, Lamanai is a substantially larger center, and thus provided its own archaeological challenges in

terms of excavation of monumental architecture, establishing site chronology, and generating a comprehensive site map (see Pendergast 1981).

The focus of excavation in the initial seasons of work was the southern portion of the site, at the elite temple complex designated N10-9. The terminal construction of N10-9 has been relatively dated to the Late Classic Period, with significant Postclassic occupation evident along the axis of the building and in a substantial midden adjacent to the structure. While numerous offerings were recovered along the axial staircase of N10-9, no tombs were encountered. However, two large caches of flaked stone symbols, ceramics, small quantities of jade, carved bone, obsidian, and shell were recovered beneath the terminal staircase and the second staircase of the structure. These caches contained the majority of flaked stone symbols recovered at Lamanai, and have been relatively dated to the Late and Terminal Classic Periods, respectively (Pendergast 1981).

Structure N10- 9, known as the Temple of the Jaguar yielded two large caches of flaked stone symbols along the primary axis. These flaked stone symbols and other forms of material culture in the caches were located in successive construction episodes dating to the late 7th and early 8th century AD (Pendergast 2000: personal communication). The lithic artifacts appear as a range of anthropomorphic, zoomorphic and other esoteric forms. Specifically, elongated and notched bifaces that appear in profile as serpents and (or) crocodiles occur in both of these Late Classic Period caches. The latest cache specifically exhibits a large number of zoomorphic forms produced on chert bearing zone microcrystalline silicates. Both the symbolic forms and the raw materials are very similar to the assemblage from Altun Ha and are addressed in Chapter Five.

A significant cache of flaked stone symbols were recovered from beneath a large altar in the plaza of N10-9 (see Pendergast 1981). This context appears to have been a secondary deposition, due to evidence that the altar fragment located

over the cache was dragged from a previous location (Pendergast: personal communication 2000). The context dates to the Late to Terminal Classic Period (AD 850- 900). It is clear that the diversity of forms and the continuity of raw materials with the rest of the assemblage at Lamanai and the assemblage at Altun Ha. There is little doubt that the material comprising these artifacts are from the northern Belize chert- bearing zone, the region that was the source of raw material for the chert crafters at Colha and Altun Ha.

After three seasons of excavations in the southern end of the center, emphasis shifted to the northern portion of the site, primarily in the N9-56 structure complex. At N9-56, the Lamanai building type prevalent at Altun Ha was easily recognized in the terminal construction phase (Pendergast 1981). After clearing a large mask on the south flank of the building, trenching into the interior of the structure resulted in the discovery of an Early Classic tomb present in an earlier structure. The tomb exhibited an interior composite structure of wood and cloth and yielded ornate mortuary goods, ceramics, obsidian, but no symbolic lithics. This tomb dates to circa AD 550 (Pendergast 1981: 36). The terminal construction at N9- 56 is dated to the Late Classic. As Pendergast (1998) has noted, the archaeological contexts at Lamanai exhibited far fewer items of what might be considered material wealth when compared to Altun Ha. However, the similarity of architectural and ceramic styles suggests that there was a political relationship between the two centers.

Late Preclassic offerings were recovered in moderate quantities at N10-43 during construction modification of the structure, known as the High Temple. These offerings again indicated the parsimony of offerings at Lamanai when compared to other sites in the region (Pendergast 1998: 57). A black ware cylindrical vessel dating from between 100 BC to AD 100 illustrates to some

Table 3.3- Contexts of flaked stone symbols from Lamanai, Belize

Lamanai: Contexts and Chronology n= 94			
Structure	Number	Context	Date
N10- 4/3	1	Simple interment	after AD 1250
N10- 4/46	2	Simple interment	after AD 1250
N10- 9/8	9	Large axial cache	AD 600- AD 900
N10- 9/9	24	Large axial cache	AD 600- AD 900
N10- 15/6	3	Small axial cache	AD 600- AD 850
N10- 15/8	16	Small axial cache	AD 600- AD 850
Altar 1 (PA 2)	22	Large cache	AD 600- AD 900
Unknown	17	Unknown	Unknown

degree the caching emphasis at Lamanai was on ceramic vessels (Pendergast 1998: 57).

While materials recovered from N10-43 yielded evidence of significant Late Preclassic occupation and N9-56 important data in the form of the Early Classic tomb, caches dated to the Classic Period at Lamanai show little patterning in the placement and kinds of offerings present (Pendergast 2000: personal communication). One example of a Classic Period caches includes lip to lip vessels recovered from structure N9-53, which dates from between AD 500 and AD 550 (Pendergast 1998). However, during the Late Classic (AD 600- 900) large axial caches are more prevalent, as illustrated by the two large caches recovered from structure N10-9.

Located just to the southeast of the N10- 43 complex is an elite residential area that opens via a broad staircase into the extreme north end of the N10-9 plaza (Plaza 2). A structure at the northern extent of this residential complex is a building designated N10- 15. In the small northern staircase of N10- 15, two significant caches of flaked stone symbols were recovered from beneath the central portion of the staircase (Table 3.3). These two caches were dated via

construction sequence to the Terminal Classic. These caches were deposited after the main plaza of the compound was filled (Pendergast: personal communication 2000).

Located just to the east of the N10-9 plaza extensive excavation in structure N10-2 and N10- 4 indicate intensive occupation throughout the Postclassic Period. In these structures, ceramics are elaborate and appear to be stylistically related to centers in the Northern Yucatan. Copper bells are present in offerings from these structures, also indicative of contact with other regions of Mesoamerican during the Postclassic. Further excavation around the church revealed shifts in ritual practices after the presence of Spanish missionaries in the region sometime after AD 1540. Conflict between catechists and Maya communities occupying the center are archaeologically visible via the re- setting of a stela in front of the church and placement of a traditional cache under the doorway during this time period (Jones 1987; Pendergast 1986).

Lamanai was a center that possessed a significant population for dozens of generations, beginning in the Late Preclassic and perhaps extending for over a millennium into the Postclassic and Historic Period. The populations during this time no doubt included communities of craft specialists of one kind or another. However, the lack of evidence for discrete production episodes for flaked stone symbols at Lamanai, the continuity of forms with Altun Ha, and the continuity of raw material with that originating from the chert- bearing zone must be addressed to interpret where and when flaked stone symbols were produced. Questions arise such as: Was the raw material imported for use by local crafters at Lamanai? Was production being undertaken elsewhere?

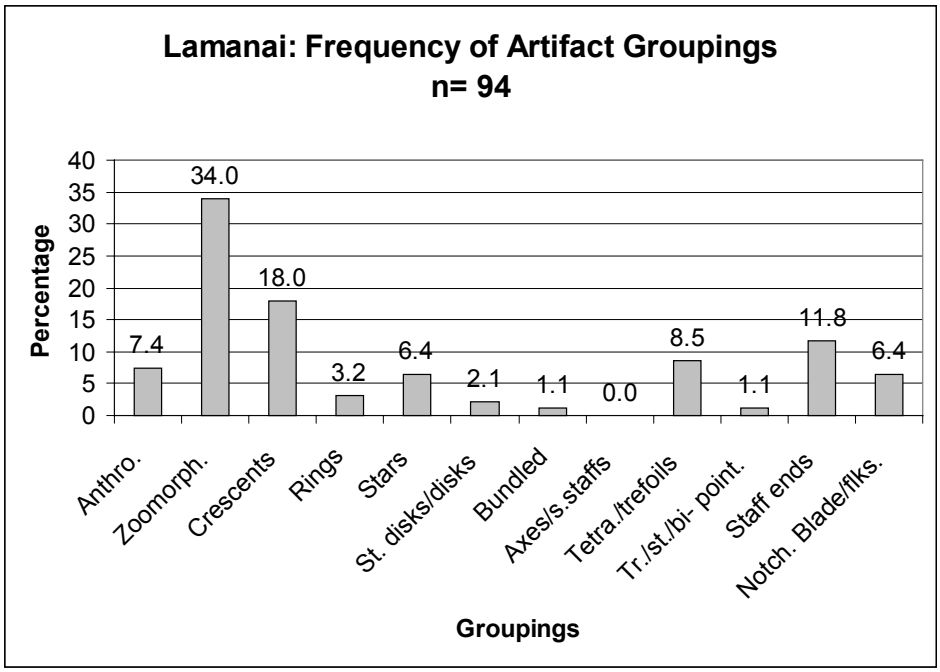


Figure 3.6- Frequency of flaked stone symbol groupings present at Lamanai

In sum, the discrete contexts of flaked stone symbols at Lamanai, an assemblage that numbers some 94 pieces, suggests that these artifacts played an important role in the elaboration of elite culture. The artifacts were part of a political economy of production and procurement of the objects, as well as ritual activities of use and deposition in specific cultural contexts. In any case, the images represented in the assemblage are powerful indicators of specific cosmological and historical links (Figure 3.6).

Lamanai was an important lowland center before, during, and after the Classic Period. Archaeological investigations there show a complex material culture assemblage marked by a distinct architectural as well as ceramic style. The Lamanai Building Type was actually first observed at Altun Ha and then observed at Lamanai (Pendergast 1981). The style is prevalent in the Late Classic and again is indicative of likely powerful political relationships between the two

centers. Moreover, the presence of a diverse assemblage of flaked stone symbols, similar in form and raw material to the larger assemblage from Altun Ha, also supports the notion of cultural and political economic relationships between these two important sites.

CONCLUDING REMARKS

This chapter has presented a broad history of archaeology in northern Belize, an accumulation of work spanning most of the 20th century. As has been articulated, much of this work took place in the second half of the century. Stemming from these investigations, a general culture history for each of the three centers under consideration in the current study was discussed. The goal was to contextualize culture history as the direct result of specific archaeological projects, and the research emphasis of those projects. In doing so, I can employ these culture histories in a broad way in an interpretation of the emergence of a specific material culture assemblage and the communities that produced, acquired, and consumed the assemblages through time.

In closing, I would like to summarize the culture history as presented for the region in relation to lithic technology and the appearance of flaked stone symbols. Northern Belize contains deposits of quality microcrystalline silicate that supplied the raw material necessary for an early developing flaked stone technology. Early chert macroblade technology has been identified as dating to the Middle and Late Archaic Period in northern Belize, dating to 3000 BC (Iceland 1997; MacNeish et al. 1980). This technology has been linked to the appearance of similar forms across the Caribbean during a similar timeframe. The distinctive lithic technology present in various localities separated by water hints at cultural contact between Late Archaic pre- Maya populations in Belize and those inhabiting the Greater Antilles (Wilson et al. 1998).

The coastal lowlands of northern Belize were the focus of intensive occupation by the ancient Maya dating to the Middle Preclassic (900 BC- 400 BC). Chert crafters utilizing this technology provided both utilitarian and symbolic lithic implements that were the focus of both low level socioeconomies of production and exchange as well a high level elite acquisition of symbolic artifacts. The development of macroblade technology for producing bifacial forms utilizing direct hard hammer percussion is most evident at Colha. At this small, rural site, generations of lithic crafters produced specific utilitarian and symbolic forms and, perhaps most prolifically during the Late Preclassic. To some degree the rise of a status hierarchy during this time began to motivate the production of symbolic forms (Gibson 1989). These forms, such as the stemmed macroblade, first appear at Colha.

In what appears to be an elaboration of the lithic industry, by the Early Classic, the site of Altun Ha exhibits an extensive assemblage of flaked stone symbols produced on northern Belize chert. The quantity and quality of these materials suggests that the political hegemony of the elite at Altun Ha manifested the ability to garner the services of lithic craft specialists. In turn, while these specialists were likely not part of the elite, they may have wielded considerable influence in their courts (see Helms 1993).

At Lamanai, similar architectural and material culture manifestations link this site indelibly to Altun Ha. Indeed, despite yielding smaller quantities of material wealth in comparison to Altun Ha, Lamanai exhibits a cultural continuity that lasted much longer than that seen at Altun Ha. Part of the material culture assemblages recovered from cache contexts at Lamanai during the Late Classic are large quantities of flaked stone symbols. These artifacts exhibit a diversity of forms and are produced from high quality northern Belize chert.

Moreover, the majority of these items were clearly produced on bifacially reduced macroblades and macroflake- blades, indicating a technological standardization that had its origins in the workshops at Colha. Indeed, the contexts of the assemblage at Lamanai suggest that flaked stone symbols may have played an important role in a broader political relationship with Altun Ha during the Classic Period.

It is important to reiterate that flaked stone symbols lie at the intersection of political economy, cosmology, and lithic technology. They crystallize meaning accessed and employed by the lithic crafters from multiple perspectives. The standardization, florescence, and eventual disappearance of flaked stone symbol technology may be part of a burgeoning political- economic complexity that to some degree foreshadows Terminal Classic social disjuncture in the eastern lowlands. Chapter Four, the next chapter discusses social organization of Classic Period Maya society and places in perspective the notion of craft specialization with respect to production of material culture in general, and flaked stone symbols more specifically.

Chapter 4: Craft Specialization and Ancient Maya Political Economy

Homo economicus is not behind us, but before, like moral man, the man of duty, the scientific man and the reasonable man. For a long time man was something quite different; and it is not long now since he became a machine, a calculating machine (Mauss 1966: 74).

One of the goals of this chapter is to contextualize the class of material culture under study within current conceptual frameworks of craft specialization. By understanding how archaeological constructions of craft specialization are linked to larger paradigms of social evolution, we can re- position flaked stone symbols as both a developmental marker for lithic craft specialization as well as a catalyst for the historically emergent social relations that help to define localized political economy. In this sense, political economy is viewed as the social relations that exist between communities with unequal access to wealth and power (King 2000: 12; Roseberry 1989: 44).

The focus here is not just how elites acquired and employed flake stone symbols as part of ritual displays that reinforced political authority, but also how technological and symbolic knowledges differentiated craft communities from both the elite and the non- elite. In this view, flaked stone symbols were not commodities, in the sense of possessing only an economic value, but instead were signifiers of the social relations that existed between their producers and their eventual possessors (Appadurai 1986: 4; Godelier 1999; King 2000; Weiner 1992). It is posited that flaked stone symbols were prestige goods of local origin, and that they embodied powerful relationships that existed between the crafters and the individuals and communities who acquired and employed them. In this sense we can begin to view the production and acquisition of flaked stone symbols as the manifestation of local and historical knowledge.

At the same time, we must also define the appearance of flaked stone symbols in the eastern Maya lowlands within a larger view of Classic Period Maya society. There is an extensive body of literature regarding the emergence of lowland Maya states and their political organization during the Late Preclassic and the Early Classic Period (Adams 1977; Demarest 1986, 1992; Marcus 1993; Sanders 1977; Scarborough 1985; Rathje 1971). These models, while important, are fundamentally grounded in cultural ecological and functionalist explanations of complexity. And while there is some room within these frameworks for historical interpretation, it seems that the assumptions underlying the appearance of such a wide spread and complex social milieu to some degree homogenize causal explanations of its emergence from a regional and historical perspective.

Other models of the emergence of lowland Maya complexity also point to both production and exchange of local and exotic commodities and prestige items as causal factors in the emergence of social complexity (see Andrews 1990; Freidel 1979; Graham 1987, 1994; McKillop 1989). The importance of long distance exchange and the social relations implied by such exchange are clear. The movement of commodities suggests to some degree that economic relationships are in a way removed from political relationships prevalent in the local sphere (see Appadurai 1986; Brumfiel 1994; Clark and Blake 1994). However, it is suggested here that symbolic forms produced on chert were not commodities nor were they comprised of exotic raw material. Instead they are prestige items produced on locally available raw material. The local sphere of production and acquisition necessitates a consideration of the economy of political relationships that were involved in their appearance archaeologically.

Both cultural ecological and exchange models have provided explanatory frameworks in which to position particular historical manifestations (see also Culbert 1991; Marcus 1993). At the same time, functionalist models also provide

a theoretical pivot for structural and symbolic interpretation of the localized production and acquisition of material culture, in this case flaked stone symbols. This interpretation in no way dismisses the importance of cultural ecological and environmental factors, but instead focuses on material culture as a manifestation of local technological and symbolic knowledges within a historically bounded political economy. This economy of regional politics emerged in the eastern lowlands during the Late Preclassic (400 BC- AD 300) and was the basis for relationships that waxed and waned throughout the Classic Period (AD 300-900). It is posited here that this political economy was not static in nature but saw shifts in political and economic emphasis within a landscape of changing political domination.

CRAFT SPECIALIZATION AND INTERPRETATIONS OF SOCIAL COMPLEXITY

A detailed overview of the now massive literature on craft specialization is not possible here. However, what is possible is a basic review of the changes archaeological perceptions of craft specialization have undergone. Early views clearly saw the emergence of economic or occupational specialization as part of the evolutionary precursor to urbanization and civilization. The standard unilinear evolutionary view of the late 19th and early 20th century was profoundly altered in part by the writings of V. Gordon Childe (Childe 1939, 1944, 1951). Childe viewed the development of civilization and the city as correlated with the emergence of full time craft specialists supported by an economic surplus (Childe 1951). However, as Childe (1951) asserted, and Wailes (1996) has more recently articulated, the appearance of craft specialization also transformed society. New technologies and the social relationships associated with those technologies altered the way communities completed tasks and saw the world. Childe's approach was a radical departure from the unilinear evolutionary view, which saw

civilization as the latest in a series of stages that marked progression from the savage to the civilized. As King (2000) has discussed, Childe's view that technology and production transform society is inherently dialectical and is based in Marx's materialist conception of history articulated in *The Critique of Political Economy* (Marx 1933).

Prior to the work of Childe, who made the link between craft specialization, social complexity, and internal differentiation between specialists and non- specialists, functionalist models of social development were the basis for interpreting the appearance of complexity. Early functionalist models in anthropology were based in the writings of Durkheim (see also Giddens 1978), who stressed the organic solidarity of society, in which institutions and norms were established and maintained as adaptive responses (Durkheim 1984, 1995). Functionalists were less concerned about evolutionary mechanisms, and instead focused on the articulation of social institutions from a synchronic perspective (Durkheim 1984, 1995; Radcliffe- Brown 1952).

As structural- functionalism became entrenched in European anthropology, Julian Steward (1955) was developing a multi- linear model of culture change. Despite the evolutionary underpinnings, Steward, to some degree, drew from the Boasian tradition that emerged in North America some 30 years prior. Steward suggested that each society had its own evolutionary trajectory based in environmental and ecological causation. Craft specialization was viewed as part of a subsistence economy that was at least partially structured by the natural environment (Steward 1955 as cited in King 2000: 5). The examination of economy as part of a larger pattern of subsistence and settlement was the basis for the emergence of cultural ecology and later systems theory, as explanatory models in archaeology. Cultural ecology was linked to functionalist models in that implied in each was the notion that society as a whole somehow searched out

and located equilibrium through processes of organic solidarity, and the interrelatedness of all facets of that society.

In archaeology, recent interpretative frameworks put aside an evolutionary typology and the notion of societal equilibrium (Hodder 1982, 1986; Shanks and Tilley 1988; Tilley 1993). In these models, variation in archaeological contexts illustrates how material culture is a dynamic part of social relationships in the past. Ideology in the past and in the present is not epiphenomenal, but critical to our interpretations. From this perspective, adaptation to the environment became secondary to a focus on the social relations of production, or sense how communities interacted in the production of material culture, and how material culture actively participated in the negotiation of these relationships. (see Barthes 1987; Brumfiel 1992; Shanks and Tilley 1988; Tilley 1999).

In this respect, it is posited here that the emphasis on the social relations at given historical moments can be classified under the rubric of political economy. However, for the most part in archaeology as practiced in North America, the idea of political economy has been ignored, as materialist conceptions were appropriated by researchers who were interested in evolutionary trajectories and long- term technological and economic process (see Binford 1962, 1983, 1989; see also Sanders 1977; Sanders and Price 1968). The idea of the relations of production, so critical to craft specialization, were considered secondary to changing subsistence and production technologies. The emphasis on technology and subsistence may be linked to the nature of the archaeological record, as questions addressing the appearance of sedentism, domestication, and complex society from this perspective presented a nearly infinite research potential (see Trigger 1990). Researchers have also focused on defining types of craft specialists, drawing on gradualist models that to some degree link both empirical evidence and organization of production as it appears archaeologically to types of

craft specialization (Brumfiel and Earle 1987; Clark 1995; Clark and Parry 1990). This includes defining independent and attached, or part time versus full time craft specialization. However, despite serving as useful heuristic devices, these terms have often become convenient pigeon- holes for labeling material production across both cultural and archaeological contexts.

Craft specialization as well as the appearance of political centralization and urbanism can be positioned in a developmental trajectory. But an integral part of this trajectory must be a consideration of the relationships that shaped how production and acquisition took place. Because the archaeological data perhaps orients researchers towards questions of technology and form, when an opportunity presents itself for a consideration of symbolic structure and ideology, these approaches must be introduced to the data. The economy (economies) of political relationships involved in production and acquisition must be considered. The opportunity to consider locally produced prestige items on which important ideological and symbolic information was inscribed presents itself in the assemblages of flaked stone symbols analyzed in this study.

In order to position the class of material culture under study within a framework of craft specialization, we must look at the relations of production and acquisition that set the craft community apart. By looking at the technological and symbolic knowledges employed in the production of flaked stone symbols, we can begin to formulate how particular specialized craft activities and the relationships that necessitated production as both transformative and historically emergent. It is at this point we must expand the definition of community so that it does not just refer to a geographic place where production was undertaken. Instead, we can think of community as individuals or groups of individuals who produced flaked stone symbols and the immediate and extended family with whom they were associated on a daily, as well as a less frequent basis.

Moreover, we must disentangle functionalist notions that production and acquisition were solely part of a process of elite social control. Instead the knowledge embodied in the forms show that craft communities also exercised a certain amount of political power and no doubt exercised political agendas of their own, both adhering to and resisting political domination. Crafters also often possess specific relationships with individuals involved in local or long distance exchange (see Helms 1993; Brumfiel 1994).

In considering these relationships, we must also consider that functional differentiation and organic solidarity are signposts for social complexity (King 2000). In the Maya area, the study of the emergence of complex society has a long history. Again, a review of the immense literature on the origins of Maya civilization cannot be dealt with here. However, in general, the trends can be framed from two perspectives. The first is the notion of hierarchy, as structures that centralized social and political economic power emerged in response to environmental and (or) population pressures. This centralization resulted in apparent functional differentiation (Sanders and Price 1968; Sanders and Webster 1988). Social and political structures as evidenced in the archaeology are assumed to be uniform in communities at every level in the hierarchy. In the Maya area, this had repercussions in recognizing that functional distinctions could be made between large "regal- ritual centers" and second and third order sites (Sanders and Webster 1988). Namely, the assumption that there were no functional distinctions at levels below large centers (King and Potter 1994: 66). The evidence of lithic production at the site of Colha directly contradicted the assumption that small centers were simply reflections of larger centers.

The second perspective is based in the notion of heterarchy, a concept that first appeared in the archaeological literature through Carole Crumley (1987). Crumley asserted that hierarchy and complexity were often conflated by

archaeologists (Crumley 1987). Instead, Crumley proposed that communities exhibited both functional variability and interdependence. In this sense, societies are functionally differentiated horizontally, as communities possessed significant economic differences, but were often under the political hegemony of their neighbors. The concept of heterarchy allowed for the consideration of functional differentiation at the site level. Indeed, the notion that there is functional differentiation between communities within sites provides a framework for consideration of emergent craft communities within and between larger sites.

Simultaneously, part of the functionalist paradigm is an implicit assumption of a rational subject. This assumes, at some basic level, humans display a rationality recognized across cultural and (or) historical contexts. This assumption must be confronted so that we can begin to look at ideological structures that condition historically and culturally bound precepts of "rational". We can draw from the recent archaeological literature that has begun to recognize that culture is historically emergent and is negotiated by individuals and communities within broad structural frameworks (Hodder ed. 1982, 1986; Shanks and Tilley 1988; Tilley 1993: 6).

The process of production of both material culture and ideology and the negotiation of specific relations between individuals and communities provides a counter to the narrative that culture or society is always moving towards some implicit equilibrium. By reflexing between the structural frameworks and the individual or agents that operate within them, we can begin to implement a dialectical and historical approach to the analysis of material culture, as part of a larger process of cultural production (Giddens 1979, 1984; Bourdieu 1977, 1990; Robb 1998; Tilley 1993: 8).

If we can consider material culture to be an integral part of a historical process of cultural production, we can begin to consider the relationships that led

to contexts of final deposition. The technology and symbolism inscribed on individual artifacts hint at what might be termed complex material cultural histories that lead to how the artifact is viewed by the archaeologist. The production and acquisition of material culture necessitated an economy of social and political relationships. Within the milieu of Classic Period Maya society, these relationships were likely complex and shifting, expedient and negotiated. In some cases these relationships may have defied rationality as we recognize it. They may have been part of a larger process of fragmentation and dissolution rather than integration or political centralization. With respect to flaked stone artifacts inscribed with a complex symbolism, we must begin to consider how they arrived at their contexts of final deposition via the political economic relationships that led to interment.

CLASSIC PERIOD MAYA SOCIAL AND POLITICAL ORGANIZATION

Over the last several decades, archaeologists conducting research in the Maya area have turned their attention to the social and political organization of society that appeared during the Late Preclassic and the Classic Periods (400 BC-AD 900). Problems with such an examination stem from the nature of archaeological data as well as theoretical constructs that bound our inquiries. What has become clear is that there is no monolithic entity of ancient Maya social organization (Sharer 1993: 90). Instead Maya social organization is comprised of gradients and contrasts in organizational form. Large scale and normative conceptions are inadequate. Regional and local social organizations were part of a larger dynamic flux (Sharer 1993: 91).

The way that Classic Period society is divided most frequently by archaeologists is between the elite and the non- elite (A. Chase 1992: 31; Thompson 1966, 1970). If we base social stratification on the access to

differential resources based on a number of social processes such as inheritance, marriage, and (or) rank, the question that remains is whether these patterns can be recognized in the archaeological and material culture record? And, how can these patterns be used to interpret social organization? One useful way might be to begin with a consideration of craft specialization, and the diversity of craft specialists necessary for cultural production in a complex society. If we can begin to infer divisions between communities based on dynamic and expedient political relationships as well as technological knowledge, we might then view differentiation of craft specialists based on material culture class. This involves making the leap to accepting that relations of production and acquisition of material culture occurred in a far different social context than that represented in contexts of final deposition.

As Sharer (1993) has articulated, there were likely many gradations and divisions between and across both elite and non- elite. In the Late Classic, faction and alliance were an important part of dynamic and changing political relationships that were both the cause and the result of conflict (Pohl and Pohl 1994). Burial patterns show evidence of internal rankings of both the elite and the non- elite (A. Chase 1992: 40; Chase and Chase 1992). Families and site centers were linked by marriage (Grube 1994: personal communication). This suggests that immediate family and larger kin groups exhibited locational relationships. These localities were likely linked to the supernatural with descent lines forming a critical part of the distribution of power and property (Sharer 1993). Along these lines, it may be useful to consider technological knowledge similar to material objects and even land that comprised an ancestral birthright.

We know that the Maya followed descent primarily through patrilineage lines marked by the sharing of a common surname that linked kin groups with patron deities, family heads, and concomitant social and political obligations

(Schele and Freidel 1990; Marcus 1993; Sharer 1993; Thompson 1966). In terms of the Classic Maya elite, we have evidence from Copan Altar Q of patrilineal decent lines (Sharer 1993). However, women were also politically important in elite families (Schele and Freidel 1990). Coe (1965) also argues for bilateral descent based on prestige of the mother or fathers family. This likelihood makes models of social organization quite complicated. Non- elite household organization, it has been posited, also followed multiple generations within an extended family. These models show a common pattern of domestic settlement that manifested archaeologically as plazuela groups, also recognized as corporate groups (see Lohse 2001).

In terms of larger political organization, Joyce Marcus (1993) has articulated a model of lowland Maya polities based on ethnohistorical, epigraphic, and archaeological evidence. She positions the model as stemming from two competing interpretations, one being regional uniformity and the other localized diversity. Both approaches to Maya political organization stem from notions of powerful centralized states with administrative hierarchies controlling large numbers of political units that can be linked to functionalist notions of organic solidarity, as opposed to hundreds of small units or city states exhibiting a form of mechanical solidarity (Marcus 1993: 111).

As we now know, Classic Maya centers were urban centers that attracted people from the surrounding areas for both religious and political events and economic opportunity. Thompson's (1966) religious center model was dispelled by the comprehensive settlement survey undertaken by the Tikal Project that showed a large population at one time lived in close proximity of the site center (Haviland 1966, 1969; Puleston 1974). At the same time the notion that large Maya sites served as urban centers was realized, epigraphic evidence showed that hieroglyphic writing systems were recording the histories of the ruling dynasty. In

the iconography, it was recognized that scenes of warfare were depicted, and that large regional states likely existed (Adams and Jones 1981). The regional state model was supported by the decipherment of place or location names in hieroglyphic text on monuments across regions (Mathews 1985; Schele and Mathews 1991).

Marcus (1993: 111- 113) asserts that static models are insufficient for an explanation of ancient Maya political organization. Instead, scholars need to account for change over time. Moreover, feudal models are also insufficient, failing to take into account the particular social and political economic structures existing in historical context. Instead Marcus holds that we must look toward ethnohistorical accounts, both in the northern Yucatan and in Belize during the 16th and 17th century to interpret the way Classic Period civilization may have been organized.

By AD 534, Maya civilization exhibited every characteristic of complex society, and probably had for some 500 years previously. In this sense, Maya civilization could be classified as an archaic state, namely a society that was stratified and highly centralized with internal occupational and craft specialization and a powerful ruling class that waged war and exacted tribute. The control of information and labor was more centralized than ranked chiefdoms. The centralization of the control of labor by the elite marked the shift from complex chiefdoms to archaic states. Despite possessing these characteristics, it is important to remember that Classic Period society also manifested internal contradictions, local resistance to political domination, and dynamic and changing political alliances and factions. The Maya archaic states can be defined as exhibiting endogamous strata divided into elites and commoners, a well as an enveloped ideology of stratification, a four tiered hierarchy of settlement, and a hierarchy of authority within settlements (Marcus 1993: 114- 115).

By the 5th and 6th centuries, elite residential units in the site center classified as palaces were present. A critical ingredient in the Marcus model is the concept of hierarchy. This is not a static conception, but is instead based on shifting political relationships and diversity of function at the local level shown by the Itza and Cocom confederacies documented by the Spanish in the early 16th century. In this context, variable hierarchies existed that show all centers did not have the same political or economic function. When we can begin to see variability in political hierarchies, we can begin to consider a heterarchical model, where differing contexts reflect different kinds of hierarchies (Crumley 1987; King and Potter 1994). However, in the Marcus model, political hierarchy based in the elite remains as a point of departure for articulating political organization.

Marcus (1993) utilizes the political configuration of the northern Yucatan during the 16th century as an ethnohistoric example that evidences the existence of a Maya nation. Historically, it is documented that the inhabitants of the Peten Itza region, located far to the south, spoke of a single empire under the rulership of a multepal that existed several generations prior to the arrival of the Spanish, during the reign of Chichen Itza (Marcus 1993: 115). Later, political unification under the realm of Mayapan and the confederation of 16 provinces extended from AD 1250- AD 1450. Marcus asserts, I think correctly, that the dynamic process of political unification and break- up can be extended back in time.

Warfare and competition were both present within and between provinces of Mayapan. Marcus refers to a vocabulary of terms that refer to geographic areas and corresponding political rulers. Marcus points out key terms that define different portions of a polity (Marcus 1993: 118- 120). These terms include but are not limited to *luum/luumil*, defined as homeland, and *ahulil/baalcab/cab* defined as a kingdom or polity. There were also political personnel hierarchies such as: *ahau*, *halach uinic*, *batab*, *nacom*, and *holcanob*. During the later years at

Mayapan, treachery between the ruling families of Xiu- Mani and Cocom- Zotuta resulted in a weakening of the confederacy and subsequent political dissolution (Marcus 1993: 119).

Marcus holds that a specified group of batabil, or towns, was the most stable political unit through time. This political unit is defined as a province (Marcus 1993: 125). Ethnohistorical evidence originates from the Peten, and the Itza rulership centered at the site of Tayasal. At Tayasal, Canek, the halach uinic of the Peten was ruler of a quadripartite political division comprised of 22 districts or towns that were subject to the halach uinic. This political hierarchy was to some degree, distinct from economic hierarchy. This economic hierarchy may have been part of a specialization among towns from which specific kinds of tribute were exacted. However, there were also overlaps in the form of political relationships between economically specialized towns or even perhaps, communities and the elite (see Marcus 1993: 120- 123).

A dynamic model of Classic Period political organization emphasizes a series of oscillations, with consolidation and dissolution of large scale polities occurring at specific junctures through time (Marcus 1993: 121). The political hierarchy included large regional states, provinces, head towns, dependent towns, villages, and hamlets. Each political center weathered periods of dissolution and consolidation. Working back in time, Marcus asserts that Chichen Itza and the Puuc Hills polities such as Uxmal, Mul Chic, Edzna, Kabah, and Sayil were engaged in political alliances that spanned across the northern Yucatan by AD 800- AD 950.

After AD 950 the political situation in the Yucatan was changing rapidly as alliances forged between regional lineages brought a centralized political hierarchy to Chichen Itza. In the southern lowlands centralized areas had already lost any regional political authority, warfare was rampant, and centers were being

sacked and abandoned (see Culbert 1973; Kowalski 1987: 238). Evidence of social disintegration is evident at Colha in the form and contents of what has been termed the skull pit (Mock 1994). This archaeological context is a mass grave of 30 skulls. The collective interment was discovered in the central precinct at the site (Massey 1994; Steele et al. 1991). The skull pit has been interpreted to be the execution of an elite family and has been dated to AD 850 (Mock 1994: 221). Evidence of endemic warfare is also evident to the west, in the Petexbatun region of Guatemala. Site centers along the Pasion River at Dos Pilas, Aguateca, Tamarandito and other sites exhibit archaeological evidence of fortifications (see also Demarest 1992).

Using the ethnohistoric data, Marcus (1993) posits that the province was the most stable political unit of the Classic Period. This position is based on the notion that when political integration was at its peak, large regional centers, secondary centers, towns, and villages were politically allied under the authority of a powerful ruler (ahau) and a number powerful of lineages. At particular moments, secondary centers pulled away from regional capitals and the regional state deteriorated to a lower level of political integration, perhaps at the provincial level. Provinces were comprised of loosely allied towns and cities one of which often rose to become a political center in this cyclical process.

Marcus posits that even earlier in time, from AD 292- 434 during Baktun 8 in the southern Maya lowlands, there was not a clearly defined four tiered hierarchy of sites, but instead what preceded, which was a number of autonomous provinces (Marcus 1976: 191). The earliest example of regional integration was the regional state that formed from the alliance between Tikal and Uaxactun. Marcus points to glyphic similarity of the emblem glyphs at Tikal and a number of second order sites, such as Hol Cah. By Baktun 9 (AD 514- 534) there was what appears to be a standardized symbol system that was present over a wide

area (i.e. the emblem glyph) (see Mathews 1985; Schele and Mathews 1991). Over the course of the next millennium, consolidation and dissolution of lowland Maya polities into both larger and smaller units occurred. By the 16th century, Spanish historians were describing politically integrated regional polities in the northern Yucatan as nations.

The question of political economic hegemony of centers comes into play. Certainly during the Classic Period, Tikal was a first order political center with large, second order centers such as Naranjo held under the sway of Tikal's elite. By AD 682, the hieroglyphic texts refer to a woman who comes to Naranjo from Tikal and marries a ruler there, thus solidifying the alliance (Marcus 1993; Chase and Chase 1987, eds., 1994). To the west, in the Usamacinta region, the hieroglyphic texts at Bonampak tell of a woman coming from Yaxchilan and marrying a male from Bonampak. By AD 757 Yaxchilan and Piedras Negras forge an alliance (Marcus 1993). Of course the problem with these texts is that they are, indeed the history of the elites. With respect to the nuances of political domination and resistance, numerous questions still remain.

In terms of economic specialization, craft specialists exhibited an important role in the process of cultural production during Classic Period Maya society. Craft specialization is critical to understanding both production and political economy (Fry and Cox 1974; Gibson 1989; Shafer and Hester 1983, 1991; McAnany 1989). Marcus (1993) draws on ethnohistorical and archaeological evidence from both the Near East and China to support the ethnohistorical evidence from the Maya area. Both of these regions of the world saw the development of elaborate archaic states (see also Marcus 1983, 1995).

In the Near East example, the city of Ur saw craft specialists concentrated in one area of the city, while peripheral villages were primarily oriented toward agricultural production (Stein and Blackman 1993). In the example from rural

China, as well as an example in Mesoamerica at Monte Alban, the first order city depended on outlying villages where specialists in metal working, potting, stone working, and other crafts were concentrated. As the massive evidence of lithic production visible at Colha, Belize shows, it appears the Classic Period Maya possessed a similar system (King and Potter 1994; Marcus 1993: 145). The question of the political and economic relationships between lower and higher order centers in the eastern Maya lowlands will be addressed below. These relationships are the basis for political economy referenced in the title of this chapter.

Whatever the complexities of elite political intrigue, the integration and dissolution of political alliances in the Maya lowlands was a dynamic process. Marcus (1993) constructs a four tiered hierarchy and applies it to the Tikal example with links to the Petexbatun. However, Tikal's influence in the Ixcanrio region in the northeast Peten was equally powerful (Adams 1990). As Marcus (1993) posits, the rulers of secondary centers (batabob) were always trouble for the elite of the primary centers. Marcus also uses the Pasion Region of the Peten as an example, citing the rise of Seibal, which was a lower order center that rose in the hierarchy, and by AD 849 was a powerful dynastic seat of political power.

In the Montagua Valley, glyphic evidence exists for a similar process that occurred between Copan and Quirigua during the 8th century AD (Marcus 1993; Sharer 1978). Marcus (1993) points to Stela A, which she posits exhibits emblem glyphs of the sites of Copan, Tikal, Calakmul, and Palenque. This is the quadripartite model that Marcus posits were the four primary centers during the rule of 18 Rabbit at Copan (AD 731).

Marcus (1993) argues for a central place model with a hierarchy of primary and peripheral second order centers that provided goods and labor (see also Christaller 1966). The central place model can be applied to the Maya

lowlands during the Classic Period, with hexagons placed around regional centers. In sum, a 30 km distance between primary and second order centers is a relatively close match to the ideal as presented by Christaller (1966)(Marcus 1993: 154). The central place model contrasts with the thiessen polygon model that measures a political unit as half the distance between a large site and its neighbor (Hammond 1974, 1975; Mathews 1985). The presence of large sites around Tikal suggests the model is inadequate, as the political boundary of Tikal would lie somewhere in the city's settlement zone. Marcus (1993) holds that the thiessen polygon as presented by Hammond (1974) is not possible because it allots the same size territory to centers that are clearly not equal politically.

Marcus' (1993) dynamic model posits that cycles of integration and dissolution began in AD 534 and proceeded to the Contact Period. During this time, the province, or collection of towns, is the largest unit that exhibited long term stability. The most dynamic political unit were the second order centers, that moved to both up and down the political hierarchy, as evidenced by monument construction or site expansion following conflict or marriage (see also Pohl and Pohl 1994). In general, the stability of the Classic Period has been assumed to a large degree. In contrast, both the Classic and Postclassic Periods can be viewed as a continuous series of peaks and troughs as regional states broke down and reconfigured. As Marcus asserts, the grand collapse of Maya civilization is an artifact of archaeology, but has little to do with what actually happened (Marcus 1993: 167).

While Marcus's model is implicitly functional and organic, it is neither static nor trending toward equilibrium. Whether the site hierarchy and the breakdown of distances between centers within the hierarchy can be applied across the Maya lowlands is another matter. What must also be questioned is the usefulness of applying an abstract model to particular regions and sites. The

degree to which the model explains the cycles of breakdown of political and economic relationships must also be assessed. Neither does the model articulate the political relationships that existed between centers that were clearly (or not so clearly) aligned. Moreover, it appears to be overly dependent on the glyphic texts to "prove" the validity of the model. Perhaps most useful about the model is that it serves as a point of departure for historicizing regional political alliances that must be examined to understand regional developments through time.

POLITICAL ECONOMY AND CULTURAL PRODUCTION

The notion that lowland Maya centers were engaged in dynamic political alliances can serve as a point of departure for looking at a particular region of the lowlands, such as that of northern Belize, in the eastern lowlands. In order to disentangle the appearance of a class of material culture such as flaked stone symbols in elite cache and burial contexts with the relationships that necessitated their production and acquisition, we must begin to consider a local political economy, defined as the relationships that exist between communities with differing access to resources and power (Roseberry 1989).

The concept of political economy also depends on the idea of political hierarchy and the socioeconomic division of labor. It is posited here that flaked stone symbols were part of an economy of social and political relationships that cannot be explained solely by tribute extraction or commodity exchange. While goods such as agricultural products, utilitarian tool forms, and utilitarian ceramics may have been transferred as commodities through market places, elaborate material items were likely dependent on other forms of acquisition. Moreover, the acquisition of prestige items of local origin likely contrasted with the acquisition of items produced on exotic raw material, such as jade or obsidian.

At the same time, we also have to consider the process of cultural production from a historical perspective. Cultural production is an overarching term for the historical process that intertwines social relations, ideology, and material objects as part of a broader process of producing and reproducing the power relations that naturalize a power hierarchy (see Bourdieu 1977, 1990; Giddens 1984). An integral part of the process of cultural production is the mode by which power relations are transferred, negotiated, and resisted.

During the Late Preclassic and Protoclassic Periods, we know that regional urban centers under the authority of local elites were establishing themselves through the control of labor, the construction of public architecture, the commissioning of public art in the form of carved stone, as well as through the acquisition of material culture such as elaborately painted ceramics, carved jades, obsidian, and to some degree flaked stone symbols (see Gibson 1989; Scarborough 1985). The elites and those that were allied with them, legitimated their positions of power through large scale pageants, public feasting, and seasonal festival scheduled via a ritual calendar that had both historical and religious antecedents. Public displays linked the supernatural with political and historical events such as accession to power and (or) the death of an important personage.

Maya art, in many instances, depicts an iconography of power that naturalizes the role of the elite and the relationship of the elite with deities, the cosmic order, transformation, and the power of the Otherworld, the mythical place of Maya creation (see Schele and Miller 1986). The commissioning of such elaborate works of art and architecture in the service of the state was likely brought about by a complex series of political alliances and obligations, as well as the exacting of tribute in the form of labor and commodities, such as agricultural products and utilitarian goods (Sharer 1993, 1994).

Art in the service of the state and in the form of an iconography of power was both representative of the process of legitimation, as well as constitutive in terms of structuring how crafters, artisans, the elites, and peasant farmers perceived the world around them. An important part of the process of legitimating power originates from political- economic relationships. The cultural practice that certain quantities of maize were due at certain times of certain yearly cycles was more likely than not, unquestioned by peasant farmers. Moreover, the artisans and craft specialists who produced the images so critical to the legitimation and naturalization of the elite order, and to whom they were closely bound, did so with an expectation inherent in any cultural context. Aside from the desire to express a kind of knowledge that craft and art satisfies in those who practice it, there was also motivation stemming from desire for both political and material favor. At the same time, the complexity of the artistic depictions illustrates a profound historical and symbolic knowledge that members of these communities were able to exercise. It is posited here that the inter- generational exercise of this knowledge manifested a situation where, at some point, craft and artisan communities were able to recognize the conditions of their own domination.

POLITICAL ECONOMY, CRAFT SPECIALIZATION, THE EASTERN LOWLANDS

In the eastern Maya lowlands, the appearance of one dominant center is in doubt, not only because the sites in this regions do not exhibit extensive hieroglyphic texts, but also because there are such a plethora of what Marcus might term second order sites in the region (Hammond 1974, 1981; Scarborough 1985). There is little doubt that during the Classic Period, elites at many of these sites were engaged in dynamic political relationships. Indeed, the correlation of architectural and material culture at the sites of Altun Ha and Lamanai, suggests

that political alliances between the elites at each center were in place by the early part of the Late Classic (see Pendergast 1992, 1998).

With respect to lithic production, centers like Altun Ha and Lamanai are located on the periphery of what has been termed the chert- bearing zone, where the chert for both utilitarian and symbolic lithic forms originated. With the intensive investigations at Colha, we know that this relatively small, rural center had developed into a community whose inhabitants were participating in large scale production of utilitarian chert implements for local use and export (Shafer and Hester 1983, 1991; Hester and Shafer 1994; King and Potter 1994). One of the more reasonable explanations for the distribution of Colha products has been proposed by Hester and Shafer (1994) and tested by Dockall and Shafer (1991) and McAnany (1989, 1989a).

The producer- consumer model arises from the notion that specific sites were responsible for producing lithic implements and regional sites were consuming them for local activities. Moreover, non- utilitarian, symbolic forms such as the stemmed macroblade were being produced for export outside of the region, to sites in the Peten and in southern Campeche and Yucatan (see Hester and Shafer 1994).

Gibson (1989) posited that the elaboration of non- utilitarian forms marked the appearance of an increasingly complex political hierarchy in the eastern lowlands during the Late Preclassic Period. This elaboration resulted in the acquisition of locally produced non- utilitarian forms for ritual consumption. In this sense, both stemmed macroblades and flaked stone symbols were produced at Colha for export (Dockall and Shafer 1991; Gibson 1989; Hester and Shafer 1994). The appearance of finely flaked bifacial symbolic forms in cache and burial contexts at Colha is clearly the earliest appearance of flaked stone symbols (eccentrics) in the eastern lowlands (400 BC- 250 AD). However, as Shafer and

Hester (1983, 1991) have asserted, that by the end of the Late Preclassic lithic production at Colha may have declined as utilitarian forms associated with the earlier time frame are no longer present.

During the latter part of the Early Classic (AD 500- 600), elaborate flaked stone symbols appear in tomb and cache contexts at Altun Ha (Pendergast 1979, 1982, 1990). The chronological gap that exists between the limited number of forms that occurred in Late Preclassic and Protoclassic contexts at Colha and the numerous forms in Early Classic contexts at Altun Ha begs the question of where production of flaked stone symbols was undertaken. We now know that during the Late Classic (AD 600- AD 900), there was a marked re- organization of production at Colha and likely at other sites in or near the chert- bearing zone. As Shafer and Hester (1983, 1991) have articulated, large deposits of lithic production debris have been observed at rural areas located to the north of Altun Ha, in a settlement area known as Chicawate. Two surveys conducted in the early 1980's and in the mid 1990's by Kelly (1982) and Meadows (1997) resulted in the documentation of production debris and finished utilitarian products, as well as ceramics that date tentatively to the Late Classic Period.

Shafer and Hester (1983, 1991) posit that the production of utilitarian lithic implements shifted to Chicawate and other small sites located in close proximity to Altun Ha, from Colha, during the Late Classic Period due to the emergent political hegemony of Altun Ha. On a smaller scale, this is a similar process described in Marcus's (1993) model discussed above. As the elite at Altun Ha consolidated their power, residents from the region may have moved into the areas surrounding the center. At the same time, the archaeological evidence tells us that lithic production declined at Colha. The area around Altun Ha, located at the southern end of the chert- bearing zone, became the focus of the production of utilitarian lithic implements. Indeed, during the Early Classic (AD

250- AD 600) the large scale production of flaked stone symbols at workshop localities outside the site center, at Chicawate or more likely, within the site center, was being undertaken utilizing macroblade and macroflake- blade technology, developed nearly a millennium earlier at Colha. This technology was elaborated by the crafters with perhaps more recently acquired historical and symbolic knowledges (Gibson 1989).

In terms of political economy, it is critical to consider the process of acquisition, by the elite, of prestige items produced on locally available raw material. The fact that these items were prestige items is clear with respect to their contexts of final deposition, in tombs and elite burials and caches in the monumental center, first at Colha, then at Altun Ha, and later in large axial caches at Lamanai. It is posited here that these items were acquired during large- scale gift exchanges between elites. Local elites likely acquired them from the lithic crafters via a similar, perhaps less elaborate process of gift exchanges and feasting. It is posited that these exchanges were part of elaborate regimes of gift exchange within and between communities possessing differential access to wealth and power.

In this sense, we can look to anthropology for explanations of political economic relationships that had little, if nothing to do with market exchange or subsistence economy. Instead, the acquisition of flaked stone symbols is considered as part of a process of cultural production, in which social meaning was transferred from crafter to possessor. The technological and symbolic knowledges that elevated the crafter were part of a complex web of political relationships that the elite established with numerous communities of artisans and craft specialists. The transfer of possession of these objects was a powerful form of ideological legitimation. At the same time it was an implicit acknowledgment of obligation between the crafter and the elite recipient.

In one of the most important works in anthropology *The Gift*, Marcel Mauss (1966) examines the forms of gift exchange seen in what he terms primitive societies. Perhaps most clearly, Mauss emphasizes the cyclical process of gift giving and receiving, which he defines as prestation. Prestation existed and exists in different forms in both simple and complex societies. In the context of *The Gift*, the complex societies included in the analysis could be termed non-urban and non- capitalist complex societies. In examining the acquisition of prestige items among these societies, Mauss asserts:

> In the systems of the past we do not find simple exchange of goods, wealth, and produce through markets established among individuals. For it is groups, and not individuals, which carry on exchange, make contracts, and are bound by obligation; the persons represented in the contracts are moral persons- clans, tribes, and families; the groups, or the chiefs as intermediaries for the groups, confront and oppose each other. Further, what they exchange is not exclusively goods and wealth, real and personal property, and things of economic value. They exchange rather courtesies, entertainment, ritual, military assistance, women, children, dances, and feasts; and fairs in which market is but one element and the circulation of wealth but one part of a wide and enduring contract (Mauss 1966: 3).

It is clear that Classic Period Maya society exhibited all the complexities of state level social organization, including urban centers. However, it is important to separate complexity with implicit assumptions of capitalist economic organization. It is posited here that flaked stone symbols were not acquired via a market system or production in concert with abstract laws of supply and demand. Instead, flaked stone symbols were produced and acquired as part of the process of obligation and tribute that was undertaken in the context of public political and religious events, and more restricted elite feasting events. While commodity

exchange may have occurred at some level, there is no evidence that a market system existed. And while market places likely did, the exchange that occurred within their confines was not part of a capitalist mode of production and exchange. Instead, the production of flaked stone symbols was likely part of a number of carefully tended relationships based on the desire to gain and transfer prestige (see Shafer and Hester 1991: 93).

Mauss (1966: 31) employs observations among the Tlingit and Haida, groups occupying coastal areas of the Pacific Northwest of North America, to articulate the definition of agonistic prestation, also known more commonly as the potlatch. These groups, although not state level societies, were certainly complex in material culture production, political organization, and ideology. Both the Tlingit and Haida passed much of the winter season in festival, in banquets, fairs, and markets. During these times, many events were undertaken such as marriage, initiation, and ritual festival focused on shamanic trances (Mauss 1966: 34). During festival, widespread and to some degree competitive gift exchange took place. Mauss defines these exchanges as total prestations that are agonistic in form. The exchanges are usurious and extravagant, and are inherently competitive in terms of garnering prestige in the amount of material culture given.

Similarly, Mauss identified a form of total prestation also appearing also in Melanesia and Papua, New Guinea. However, prestation appears in less radical forms in West Africa, Polynesia, and Malaya (Mauss 1966). Mauss uses an example from Western Samoa to contrast agonistic versus non- agonistic forms of prestation. Samoan society exhibited total prestation that are non- agonistic, or non- competitive. This system of contractual gifts is present in marriage, childbirth, sickness, puberty, and funeral ceremonies. The honor conferred by wealth is conceptualized as the term *mana*, which defines both authority and wealth (Mauss 1966: 6).

More importantly, ritualized or contractual gifting is based in the repetitive cycle of giving and receiving. This kind of exchange is perhaps most clearly defined in Maori society by the term, *toanga.* Toanga is a term that is defined as the spirit of the thing given. A more general term of the spirit of things is *hau*. The toanga is the thing given, but hau is the spirit that travels with the toanga and remains with each possessor of the object (Mauss 1966: 9). Thus, the toanga must be returned in order for hau to remain with the giver. A return gift thus gives the donor authority and power of the original donor, who becomes the recipient. This is the critical point in how obligation is defined by the Maori.

The notion of gifting linked to public feasting and political obligation has relevance among the ancient Maya. Bishop Diego de Landa recorded observations of extravagant feasting and gift exchange in the northern Yucatan as late as the 16th century (Tozzer 1941: 92). Recently, LeCount (1999) assesses the appearance of polychrome painted pottery in varying archaeological contexts at the site of Xunantunich. LeCount asserts that as local political conditions changed in the Late Classic Period, elites changed the common strategy of displaying wealth and prestige items. LeCount posits that the elites instead funneled elaborately decorated pottery through local political hierarchy (LeCount 1999: 239).

If we can begin to view flaked stone symbols as prestige items of local origin, then we can assume that they were part of elite displays of wealth during ritual and other activities. However, we still are left with the question of acquisition. How were these items acquired within the context of crafter and elite political relationships? Thus, the focus is not on elite political strategies, but on the process of acquisition.

Mauss (1966) posits that a critical part of the economy and morality of the gift are gifts made to men in the sight of the gods and nature. This has relevance for the symbolic and supernatural forms embodied in the assemblages of flaked

stone symbols under study here. The broadest motivation for giving and return giving is the power of the gods, the spirit of the thing becomes the motivation for the cycle of exchange and obligation to continue. However, in his critique of *The Gift* Godelier (1999) disputes the translation of hau, which Godelier states was more specific in terms of by what form hau remains with a gift donor. Godelier asserts that gift exchange is part of a moral code that relates to obligation (Godelier 1999: 29). Mauss posited that the spirits of the gods and the dead are the true owners of material possessions. This interpretation moves toward ideological first principles, which cannot be verified or falsified.

One of the groups that have been written about extensively in anthropology with respect to obligation and exchange is the Trobriand people. From the genesis of anthropology, Trobriand society, and more specifically, their tradition of the kula ring have been of interest to anthropologists researching exchange in so- called primitive society (Malinowski 1921, Mauss 1966, Godelier 1999; Weiner 1992). While certainly a complex society, Trobriand society could never be considered state- level. However, the kula ring does present an interesting point of departure for a discussion of gift exchange in complex societies.

Broadly speaking, the process by which a number of gifts are given includes gifts of varying value (Mauss 1966). The system has critical political overtones, and the institution has mythical, religious, and magical aspects. The gifted objects are comprised of armbands comprised of shells, necklaces, ornaments, and weapons. Mauss (1966) quotes a common spell among the Trobrianders in which the kula partner is an animal, which the caster of the spell invokes to bring him necklaces.

> Crocodile fall down, take thy man, push him down under the canoe. Crocodile, bring me the necklace bring me the bagidou (the shell necklace), the bagiriku… (Mauss 1966: 23)

As Mauss asserts, the kula is the most solemn part of a vast system of prestation and counter- prestation which embraces the whole social life of the Trobrianders. Thus, the element of the gift is the obligation to receive and the obligation to give. As well, among indigenous groups of North America, the objects cannot be separated from the persons who exchange them. The communion, alliance and obligation are indissoluble (Mauss 1966: 31). These alliances are embodied as giving, receiving, and repaying.

Moving from then contemporary ethnography to the ethnohistoric past, Mauss points to Hindu legal documents that articulate the theory of the *dandharma* or law of the gift (Mauss 1966: 57). In the Hindu context, land, foods, or other items that are given away are personified, and the item itself takes part in the contract. Another example is garnered from Chinese law, which recognizes the indissoluble bond of a thing with its original owner. This can also be applied to property. A right of pursuit is established over the thing combined with a right of pursuit of over its owner. Due to the thing that was transmitted, the alliance contracted is not temporary, and the parties are bound in continuous interdependence (Mauss 1966: 61- 62). The economy of gift exchange fails to conform to the laws of natural economy or utilitarianism. These are often disregarded in assessments of economic process among the ancient Maya.

Weiner (1992) has also elaborated upon the notion of gift and counter-gift. Her critique asserts that the norm of systemic reciprocity can be traced to capitalist economic theory defined by Adam Smith (1937). Smith held that a market economy tended toward equilibrium if legal codes were not harnessing its operation or progress. A natural exchange value for material goods would then be

established. This exchange value was the natural state for the accumulation of wealth. Thus, in the context of native or primitive societies, living without legal codes, anthropologists attempted to establish fixed and rational acts that resulted in a particular object obtaining a certain exchange value. This process could then be recorded ethnographically (Weiner 1992). As Mauss articulates in the Maori example, hau stays with the possessor of an original gift, and was the motivating factor for exchange. As has been argued, this elevated ideology to a level of first principles, and the fundamental problems arise with this kind of teleology. The spirit of the object motivates both gift and counter gift.

As Weiner argues, we must acknowledge that cosmology acts directly on social life, mediating societies unresolved problems (Weiner 1992: 5). However, we must also continue to ask how power is constituted through cosmological legitimacy. This precludes the notion that cosmology, despite acting as a powerful constitutive mode of thought, is the reason for the gift and the counter gift. Instead, we must examine relations of power that are particular to specific cultural contexts, and yet ubiquitous and constitutive in their own right. Efforts to accumulate power comprise a culturally internal logic that is at the foundation of gift and counter gift. Exchange value is not determined by cosmological links (Weiner 1992: 6- 9).

Weiner (1992) asserts that the paradox of keeping while giving creates an illusion of cultural production, of re- introducing the same things and concepts over and over through time. This is undertaken in an effort to give permanence in a social world that is constantly in a state of flux (Weiner 1992: 8). Even as keeping and giving were part of the forging of political alliances, the perceptions of the relationships, and thus the relationships themselves were changing. Also of critical importance is the question of gender, so that we can move away from functionalist and structuralist assertions that gender is universal and constant and

part of ranked oppositional patterns of a single permanent symbolic system (Weiner 1992: 10).

Weiner (1992) points to the political importance of cloth in the process of gift and counter gift within Trobriand society. The production of cloth reveals a complex interweaving of gender and cultural production. As Weiner states, the process of cultural production, or reproduction includes the cosmological legitimation of inalienable possessions through which the presence of ancestors or gods legitimate divinity and authority. Sexuality and reproduction are an intimate part of social practice (Weiner 1992: 13). In this sense, Wiener's work reconfigures classical anthropological exchange theory to demystify ahistorical and universal assertions of the norms of reciprocity which blur political dynamic and gender based power in gifts and counter gifts.

Perhaps more immediately relevant to the analysis of the production and acquisition of flaked stone symbols are the concepts of alienable versus inalienable possessions. Inalienable possessions are those that possess exclusive and cumulative identity with a particular series of owners through time. In this scheme, a particular object's history is authenticated by fictive or true genealogies, origin myths, ancestors, and gods. Inalienable possessions are transcendent treasures to be guarded against all the exigencies that might force their loss (Weiner 1992: 35).

Godelier (1999) also focuses on elaborating an internal and shifting logic of gift exchange in complex society settings. Godelier points to an economy and spirit of gifts that exist in the process of exchange. Included in this framework might be the model proposed by LeCount (1999) addressing the appearance of polychrome pottery in Late Classic contexts at the ancient Maya center of Xunantunich, Belize. The effort to circulate material culture might be thought of as a part of a series of aggrandizing efforts of individuals and communities of

elites. The desire to give more than can be given to illustrate the debt of the individual to the gods, to the dead must also be considered. Godelier asserts that all power contains kernels of the imaginary (Godelier 1999: 31). However, Godelier points out that not all wealth enters into gift exchange. Of importance are also display items. The contrast between alienable and inalienable possessions creates two spheres of wealth, those materials that are given and exchanged frequently and those whose possession is anchored in time (Godelier 1999: 32).

Whatever the value of an object, things given have power that is not separate from the object. However, Godelier asserts that the most accurate metaphor is logic rather than religion or spirit. The example of the potlatch among the Kwakiutl as a complex sumptuary ritual involving re- distribution and destruction is one example of an internal logic. However, the great objects held by the elite do not move, are not exchanged. The power is not in the object as a thing, but in the object as an extension of a subject, a political obligation. Thus, humans are actors rather than passive recipients of the power of objects and the gods (Godelier 1999: 105).

Godelier also points to archaic states to elucidate the economic power of gift exchange. During the reign of the pharaoh in ancient Egypt, pharaoh was the pivot on which society turned. The populace that comprised the social hierarchy was destined to pay their primordial debt through tribute and labor (Godelier 1996: 200). The emergence of power hierarchies promoted the reproduction of life prompting classes to emerge and states to form. State religion and the execution of art in its service was the result of the formation of hierarchy and asymmetrical relations between communities based in both reciprocity and obedience. The Rig Veda and the book of Leviticus both illustrate that the obligations of men to the gods and their earthly incarnations were an integral part of the process of social and cultural production (Godelier 1999: 199). Godelier

asserts that we must place humans in social contexts, consisting of humans producing a society of ideas, institutions, technology, and tools forms. At the same time, we must also reconstruct historical development to provide a counter to dominant discourses based in current popular and academic vogues (Godelier 1999: 201).

The above discussion has relevance for Classic Period Maya society in the sense that we can begin to understand the complexity of the political economy of production and acquisition of elaborate material objects in the past. In a recent article, Reents- Budet discusses the social and political flux of the Classic Period into which the production of elite polychrome ceramics were introduced (Reents-Budet 1998: 71). Reents- Budet asserts that painted polychrome vessels were first used as feasting dishware and then were entombed during burial rituals of the owner. The scenes from Classic Period banquets depicted on vessels is important in illustrating the large scale gatherings in which gifting occurred. However, Reents- Budet asserts that vessels were commissioned works of art that were spent as what is termed, social currency. In this sense, the vessels were critical to the identity of the possessors and as part of a process of political integration.

Yet, it is likely that the production and acquisition of vessels took place in a context of competition and perhaps social disjuncture. The elites who possessed the vessels were then in some sense obligated to the giver of the vessel. This obligation, it is argued did not take the form of social currency, but instead can be linked to gift exchange between crafter and elite and then perhaps between elite and elite. In this sense, the obligation was born of likely inter- generational relationships that were legitimated by historical and cosmological links. In this sense, the production and acquisition of prestige goods was not a process of expending social currency, but instead was a complex social manifestation of shifting political relationships. These relationships in the long term, may not have

been part of a process of political integration, but instead of may have been part of social fragmentation, or perhaps both at different times and in different contexts within the same society.

Indeed, Reents- Budet (1998) compares the crafting of painted polychrome vessels with the iron tool crafting tradition of the Toro of Western Uganda. An analogy closer to home may be the symbolic forms crafted from chert as depicted in the assemblages under study here (see Reents- Budet 1998: 73). The production and acquisition of polychrome ceramics was locally and situationally bounded. Of course if a glyphic sequence presented on a vessel can be deciphered, it is asserted by Reents- Budet, the artisans leave the ranks of anonymous and join the creatures that are recognized as immortal creators (Reents- Budet 1998: 74). During the Late Classic, new and more sophisticated production techniques appear. The development of recognizable painting styles during the Late Classic linked the artist and patron. Ultimately, individuals can be recognized as the crafter of particular objects.

In this example, the identities of the individual artists are constructed by the paintings that actually made the vessel complete. As well, so was the cosmological legitimation seen in the multiple references to creation present on individual vessels as documented by Reents- Budet (1998: 78). Workshops of elite goods have been documented within the confines of elite households at Aguateca (Inomata 1995). What has been termed the scribe's workshop at Aguateca yielded evidence that individuals and groups working there were engaged in writing and painting, as well as bone and wood- carving. Evidence of weaving and the preparation of pigments also likely involved both women and men in the production process (Inomata 1995).

With respect to the appearance of flaked stone symbols produced from chert in the eastern Maya lowlands, by introducing the interrelated writings of

Mauss, Godelier, and Weiner, we can begin to consider their production and acquisition as emerging in the context of a non- capitalist, yet urban and complex society. The notion of gift and counter gift, or keeping while giving, emphasizes the local and political contexts of production and acquisition of specific classes of material culture. At the same time, cosmology provided the legitimacy of both keeping and giving and the obligations involved in each. Yet, we must not fall into the aforementioned teleology. As Weiner (1992) and Godelier (1999) have successfully argued, there is an internal social logic by which cosmology is a critical part, but is not the source of ultimate causation. It is suggested here that keeping while giving among the communities of Maya lithic crafters and elite, and between elite and elite, was grounded in a social reality in which obligation was the mode through which political economic interdependence was perpetuated and negotiated.

Reents- Budet's (1998) important work provides the link between often studied and elaborate Maya painted polychrome ceramics, political and social importance of the crafter or artisan, and linkages with Maya cosmology. However, it is argued here that the idea that craft items were deployed as social currency fails to articulate the complexity of obligation and ritual gift exchange in ancient Maya society. Instead, drawing on the writings of Mauss (1966), it is suggested that abstracted notions of keeping while giving were manifest in social forms. Social forms such as that of agonistic prestation, when contextualized, present a more appropriate explanatory tool than the idea of spending accumulated social currency, which seems to mimic a dominant discourse that is invalid across cultural contexts.

In the eastern lowlands of northern Belize, we possess both a long- term sequence of flaked stone macroblade technology, as well as its technological elaboration into symbolic forms. Despite a less diverse set of forms and an overall

smaller assemblage at the site of Colha, the long term sequence and the early appearance of flaked stone symbols there suggests that flaked stone symbols came to be a medium by which political and economic relationships were negotiated and likely legitimated, both by cosmological references and political obligation.

The appearance of Late Preclassic and Protoclassic bifacially flaked forms in the central precinct at Colha, in combination with stemmed macroblades that were exported reflect the transformation of technological knowledge. Early Classic and Late Classic tomb and cache contexts at Altun likely represent to some degree a period of political integration, as complex political relationships and obligations were forged between craft communities and the elite at Altun Ha. In terms of flaked stone symbols, it is unclear where production was undertaken. What is clear is the complex production process, as embodied in pigment and textile fragments present on the surfaces of individual artifacts, involved numerous technologies that may have cross- cut gender divisions.

It is posited here that during the Early Classic Period, Altun Ha became a primary center in terms of political organization in the eastern lowlands. This saw the movement of technology, ideas, and likely populations to areas around and in Altun Ha, perhaps at settlement areas such as Chicawate. There, the chert crafters and peasant farmers elaborated existing technology and symbolic knowledge to solidify political relationships. These relationships were formed and maintained through the mutual obligation that existed between crafters and their elite patrons.

During the Early Classic and Late Classic Periods at Lamanai, architectural and material culture similarities illustrate the cultural and likely political relationships that existed between Lamanai and Altun Ha. It is unclear where production of the flaked stone symbols comprising the Lamanai assemblage took place. Undoubtedly, large- scale gift exchanges and complex political relationships existed between the elites at both sites. Moreover,

assemblages recovered from both sites reference complex technological and symbolic knowledges implicit in the artifact forms. When considered in concert with their contexts of final deposition, it seems clear that political relationships based in a shifting and negotiated social reality both preceded and contributed to the acquisition and interment of these symbols.

CONCLUDING REMARKS

This chapter began by discussing briefly the history of craft specialization and social complexity as conceptualized in anthropology. Interwoven within this discussion were implications for a framework based on both functional environmental and structural symbolic approaches to material culture. By looking at how production and acquisition of material culture has been conceptualized, and to some degree neglected in archaeology, a discussion of how political relationships in many instances were critical to the organization of production of prestige goods. In this way, an emphasis on the social relations of production can be linked to political economy. Any interpretation of Maya political economy necessitates a discussion of ancient Maya political organization. In this case, a dynamic model of long term political regional integration and dissolution, as proposed by Marcus (1993) is presented.

By reintroducing the writings of Mauss (1966) and others, a relevant interpretive framework is presented with respect to the processes by which prestige good of local origin were produced and acquired by elites in the context of non- capitalist societies. By approaching the political economic relationships that framed and organized the production of flaked stone symbols within the context of ancient Maya society, we can begin to understand the complex processes that necessitated both production and acquisition of this important class of material culture.

Chapter 5: Morphological Groupings

This chapter presents the methods and results of the morphological and technological study of the assemblages of flaked stone symbols recovered from the sites of Altun Ha, Colha, and Lamanai, Belize. The chapter is closely linked with the **Appendix** located at the end of the dissertation. The order of appearance of artifact groupings appearing in this chapter is identical to how they appear in the appendix. The artifact groupings themselves are based on the notion that there are symbolic parallels between specimens across assemblages grounded in morphological or formal similarity. I want to emphasize that the morphological grouping of artifacts is grounded in both similarity of form as well as current knowledge of ancient Maya culture. In this sense, like other art forms, flaked stone symbols are viewed as both representing and structuring a common ideology (Robb 1998).

It is a fundamental assumption of this study that flaked stone was a medium in which knowledge was demonstrated, structured, transferred, and transformed. Such an assumption provides a framework for interpreting culturally bounded ontology inscribed in flaked stone. The iconography embodied in these forms illustrates that chert crafters possessed an intimate knowledge of the linkages between their own surroundings, important historical events, and the cosmological underpinnings of the Maya universe. More specific linkages between different forms of Maya artistic media and forms of flaked stone symbols, as well as how symbols structured ideology within and across Maya culture more generally will be presented in Chapter Six.

A second key assumption of this study is that the execution of the forms of individual specimens was a process that demanded a high level of skill, and that

in the process of execution, subtlety was a quality that was highly desired. This subtlety of execution is directly related to the use of chert as a symbolic medium. It is posited that flake- scarring techniques were used to imply specific features of individual forms. The natural features of the stone, such as voids, inclusions, stains, surface alteration, and cortex are integrated purposefully in many of the forms. In terms of the presence of cortex and altered surfaces, in many instances anthropomorphic and zoomorphic forms exhibit one or both as part of the represented anatomy of a culturally defined creature. For example, many of the anthropomorphic and zoomorphic forms exhibit inclusions of cortex or surface coloration that clearly represent the eyes of the depicted creature.

Thus, Chapter Five provides a description of each artifact grouping based in formal similarity and linked broadly to Maya symbolism and iconography. Interspersed within the grouping descriptions, images of selected forms are provided. The artifact groupings and images provided in Chapter Five and in the Appendix are an integral part of the material culture analysis and the subsequent broader cultural interpretations addressed throughout the dissertation.

THE STRUCTURE AND METHOD OF ARTIFACT DESCRIPTIONS

In the Appendix, each artifact is presented as an individual unit containing information. Individual artifact descriptions are presented in a systematic fashion to facilitate future comparative research. As discussed above, the artifacts are grouped initially according to morphological similarity. In the present chapter, each artifact grouping is offset with an explanation of the criteria that formed the basis for the definition of a particular grouping. Individual artifacts are described in the Appendix following a template articulated below. The artifacts are grouped under morphological headings with artifacts from Altun Ha, then Colha, and finally Lamanai described in that order.

Within each artifact grouping as presented in the Appendix, the artifacts are described in ascending order based on the numerical designation assigned to particular contexts (the original artifact numbers from each project). For example, under the artifact grouping **simple crescents**, all simple crescent forms from Altun Ha are described first, followed by those from Colha, and finally those from Lamanai. Within the descriptions of artifacts from each site, an artifact designated RP164/32 would be described prior to an artifact assigned the number RP364/15. These numerical designations correspond to contextual information that is presented within individual artifact descriptions.

The template used to describe each artifact focuses on both qualitative as well as quantitative information. Images of selected artifacts within each grouping and originating from specific sites are presented based on overall similarity and variation within artifact groupings. Synthesis of quantitative data is presented in the technological and material characterization analysis presented in Chapter Seven. The purpose of this chapter is to provide a description of the template of individual artifact descriptions as well as each artifact grouping (see the Appendix for individual artifact descriptions).

The first prefix and number appearing in the description of each artifact is the **research number**, which is an arbitrary number that was assigned to each artifact during the present study. This number has no influence on the order in which the artifacts are described. However, these numbers are used to link images of specific artifacts with their individual description. The second number appearing in each description is the **original number** assigned to each artifact and links that artifact to it's archaeological context. This number as described above determines the order of artifact presentation within artifact groupings. Next, the **site** from which the artifact being described originated appears followed by the maximum length, width, and thickness of the artifact.

The **technological type** category is based in a model of stone working strategies (see Collins 1975; Shafer 1979, 1985; Roemer 1984; Whittaker 1994). These strategies include the reduction of large nodules into macroblades and macroflake- blades that were subject to further bifacial reduction and margin alteration. A second technology employed in the production of flaked stone symbols is characterized by margin trimming and direct percussion observable along the margins of core nodules. The second technology is most prevalent at Colha. This use of smaller cores with cortex located at one terminus resulted in uni- directional and bi- directional blade production. These lengthy blades are seen in much larger numbers at Colha. Blades were then often unifacially worked and uniformly notched along lateral margins. The production of notched blades required a sophisticated stone technology and the resources necessary for development of a particular technological trajectory.

However, in terms of symbolic content of the forms, the Colha assemblage might be generally intimated as less varied than the assemblage from Altun Ha and Lamanai in that there is an increased repetitiveness rather than elaboration of form. With respect to stone symbol technology, during the latter part of the Late Preclassic and the Late Classic at Colha it appears that a shift is made from the production of elaborate bifaces comprised of macroblades and macroflake- blades to increased production of smaller notched blades. These forms appear to be less complex symbols crystallizing instead a local blade technology.

The assemblages from Altun Ha and Lamanai exhibit exceedingly different kinds of assemblages. However, the technology visible within the assemblage, to a large degree, is more uniform. The present interpretation indicates that production of flake stone symbols was marked by both technological change and symbolic elaboration through time (Gibson 1989). Variation in technology is more clearly demonstrated at the site of Colha.

However, symbolic elaboration is apparent in the Altun Ha and Lamanai assemblages.

The technological type category includes the terms: biface, blade, and flake. These artifacts are posited to be the end result of clearly patterned production efforts. Further descriptors of each type are included in parentheses. The descriptors observed include the terms: serrated, notched, barbed, stemmed, elongated, one pronged, two pronged, trefoil, and tetrafoil. These terms are also included in grouping titles. Another descriptor in the case of elongated forms, or staff/ stave ends, is also used to refer to forms that appear to have been hafted. A haft or elaborate handling is marked by varying intensity of polish duly noted in the artifact description.

The next series of characteristics focuses on the general appearance of the artifact, including: the **presence of cortex** and **raw material appearance**, defined as the raw material color and pattern of the color. The color descriptions are based on Munsell Color Chart definitions. **Presence of polish, thermal alteration, or coloration** notes the presence of any or all of these characteristics on a particular specimen. More thorough articulation of the presence of surface alteration is presented at the end of the breakage patterns/ notes section of the individual artifact description. The **context** of the specimen is then presented based on data gathered from published and unpublished sources. Finally, **appearance in the literature** notes individual artifact presentation or illustration in previous literature.

The final two portions of the individual artifact description are the **breakage pattern/ notes** section and the **presence of pigments/ residue** section. Each specimen was examined under a ten-power magnification hand lens. The description of the breakage pattern implements standard morphological terms for lithic analysis. The breakage pattern/ notes section is employed to provide a

general description of texture and composition/ inclusions of the raw material and flake scar patterning. The following terms are used to characterize the surfaces of the artifact: dorsal/ ventral, medial/ lateral, proximal/ distal where each, if any are recognizable. Medial surfaces are generally characterized by the appearance of one of three kinds of flake scars, identified by their distal terminations. Terminations are classified as: 1. Step scar: a flake scar that terminates in a right angle 2. Hinge scar: a flake scar that terminates in a curve or hinge 3. Feather terminated scar: a flake scar that broadens out and terminates gradually, often exhibiting waves of the bulb of percussion (see Whittaker 1994).

The presence of stacked microflaking as well as the presence of edge crushing characterizes the lateral margins on a majority of the artifacts. Edge attrition identifies the presence of different kinds of flake scarring. Microflaking can be defined as very short, vertically oriented step and hinge scars. These are often most numerous on the interior of crescents, notches and serrations. Along the edge prominences and parallel margins, short feather terminated flake scars that extend from the margin to the interior of the surface are most prevalent. As stated before, surfaces are identified where possible. Also curved artifact profiles and the clarity to which an artifact appears to have originated from a bifacially reduced macroblade or macroflake- blade is indicated.

Brief notations of any anomalies and (or) the presence of interpretive characteristics, as well as clarification of the location of any cortex and it's relation to the artifact form are included. Finally, brief clarification of location and intensity of any polish and (or) staining/ coloration visible on artifact surfaces is presented in this portion of the breakage patterns/ notes section.

The **presence of pigments/ residues** section documents and describes color and texture of pigments. Moreover, any substance that exhibits some degree of uniformity and is present in a defined area delineates an interpretive

characteristic and is also described. In the assemblages of flake stone symbols under study, residues that may have held appliqués in place often occur in conjunction with pigments as well as textiles.

Artifact Grouping: Anthropomorphic Forms

The first artifact grouping presented are the anthropomorphic forms. The depiction of humans by Maya chert crafters is undertaken by representing individuals involved in a range of activities that likely represent specific historical moments, as well as structure how culture is produced. The forms serve in a way as markers or sign posts regarding an acceptable cultural aesthetic about the way humans are depicted and the activities in which they engage. Of note is the use of the term anthropomorphic form. This is not an attempt to evade the critical importance of gender in how culture is produced, but instead is employed so that gender is not assumed. The default mode of thought as implied by the notion that all forms are male is rejected in favor of careful consideration of specific traits of individual and groups of artifacts.

Several different sub- groupings emerged from the more general classification of anthropomorphic form. The sub- groupings are based on variation in how individual figures are depicted. The depictions are based on how similar forms are depicted and (or) appear in other forms of Maya media. The different sub-groupings include captives, gendered forms, depiction of sacrifice, ball players, more general forms and finally, exaggerated forms. Figure 5.1 shows the frequency of anthropomorphic forms between the three sites.

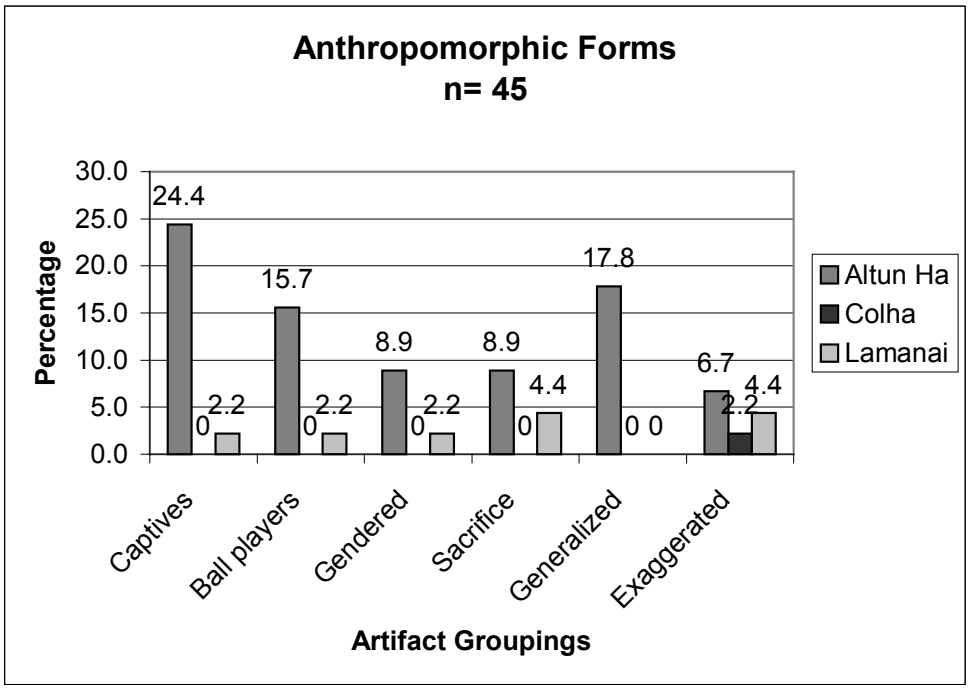


Figure 5.1- Frequency of anthropomorphic forms by site

Captives

The taking of captives was an important event in local histories. Moreover, captives were important in ancient Maya artistic depictions (Schele and Miller 1986). They represent an individual or groups' ability in war, as well reinforced the status of the captive taker. As seen in other media, captives are depicted in specific positions, primarily as bound and in a submissive body stance. The initial analysis of assemblages of flaked stone showed that anthropomorphic forms exhibited specific attributes.

The criteria for the classification of an anthropomorphic form as a captive are the positioning of the arms, the positioning of the legs, and the appearance and relative simplicity of the headdress. In this sense, there are a total of eight forms

in the assemblages that can be classified as captives. Seven of the forms are from Altun Ha and one form originates from Lamanai (see Figure 5.2 and Figure 5.3).

Ball Players

Within the cultural context of Classic Period Maya society as well as in depictions present in Maya artistic media, the ballgame played a critical part in both elite ritual and popular public displays. As a medium on which cultural activities were recorded, it is suggested that flaked stone figures were employed to depict and (or) commemorate ball players. Ball player figures were identified by similar criteria as captives. These criteria include overall anthropomorphic form of the individual piece, the positioning of the arms and legs, and the form of the headdress. In addition, the presence of what appears to be a yoke around the waist is also used to classify forms as ball player figures. It is posited that the simple headdress, the diagonal positioning of the arms, naturalized positioning of the feet, and (or) the presence of the waist yoke are defining characteristics of the Classic Period Maya ball player as represented in flaked stone (Figure 5.4).

Gendered Forms

As we now know, gender is a complex cultural construction. Interpretations of material culture should not be grounded in implicit assumptions to culturally specific notions of gender. At the same time, the construction of gender must be addressed not only in the production, acquisition and consumption of material culture, but in terms of the representative and (or) symbolic content of specific artifacts. Nor should individual specimens be labeled as male and (or)

Figure 5.2- ah8RP137/55 Altun Ha

Figure 5.3- r77LA244/6 Lamanai

female based on implicit and ethnocentric notions of gender. However, depictions of women abound in other Maya artistic media (see Schele and Miller 1986). The engendering of figures in Maya art follow distinct patterns that are linked to the normative or ideal that was prescribed by the state, as well individual and (or) group subjectivity. Cross culturally, anthropomorphic forms appearing in the rock art of the European Neolithic show individuals that exhibit gendered characteristics as well as those that exhibit no characteristics (see Handsman 1991; Gero and Conkey 1991; Wright 1996).

It is inferred here, as shown in other media, the crafters of flaked stone symbols also depicted women in a number of forms. It appears that gendered characteristics are present, such as broad lower portions of the forms. However, elaborate depictions of women undertaking specific roles in terms of the division of labor and craft production are absent. Classification of artifacts as a gendered form is based on the positioning of the head and headdress/ hair and the relative width of the lower torso of the artifact (Figure 5.5).

Depictions of Sacrifice

As depicted in other forms of Maya artistic media, ritualized human sacrifice and auto- sacrifice were critical components of Maya religious life. Sacrifice was necessary to keep in balance a fundamentally unstable and shifting cosmos, to celebrate both religious and politico- historical events, and to demonstrate power in more earthly contexts such as defeat in war or sport.

Figure 5.4- ah26RP98/19 Altun Ha

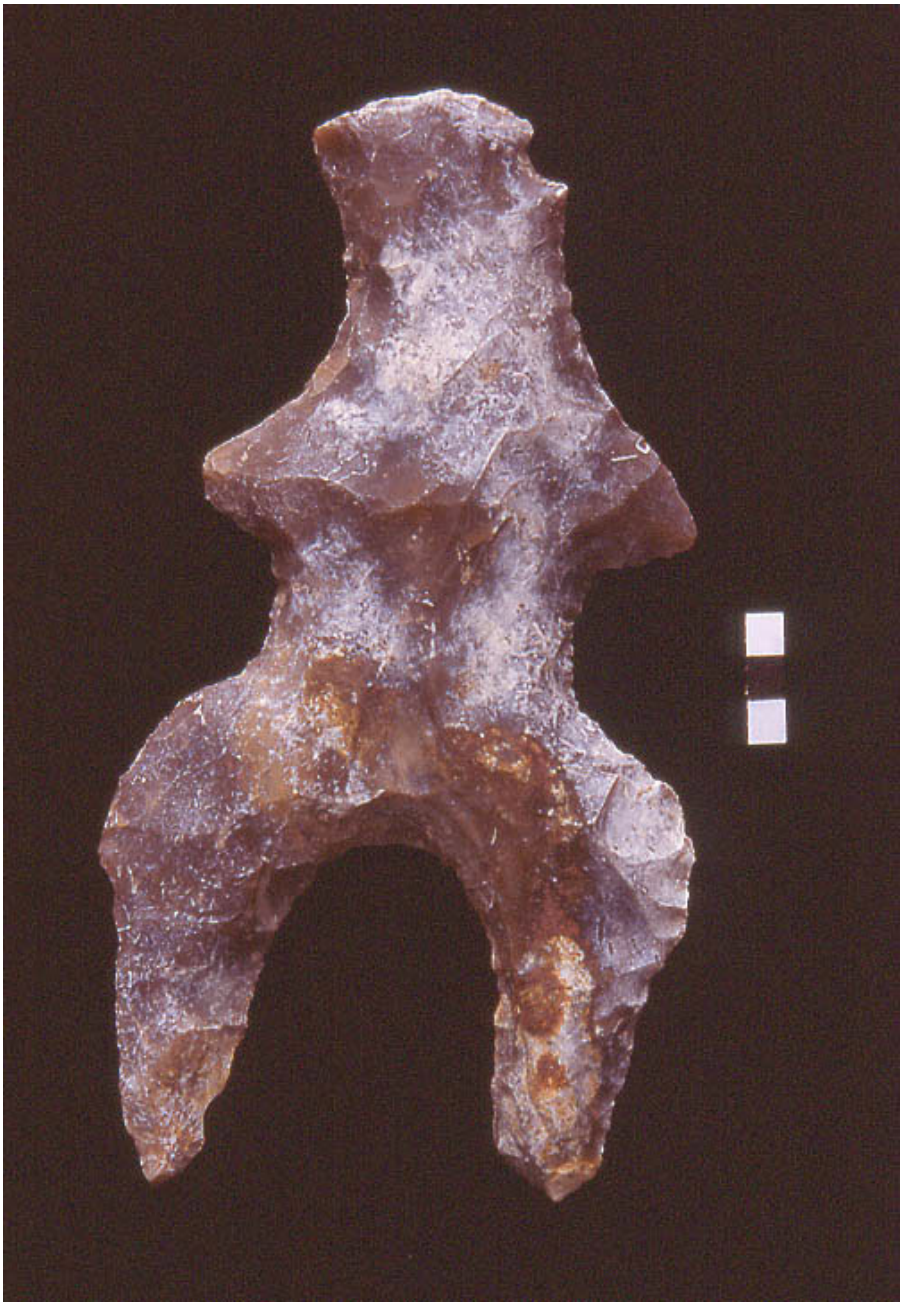


Figure 5.5- r72LA395/ Lamanai

Sacrificial victims were most likely retainers of recently deceased elite personages, slaves, and (or) war captives (see Schele and Freidel 1990).

As we have seen, there are numerous variations in the way anthropomorphic forms are depicted. It is important to remember that the execution of form in depicting an individual in specific social and historical context was part and parcel of the skill of the stone worker. In the case of sacrificial victims, my interpretation was based on the position of the body, as splayed out with arms and legs extended in fundamentally static mode, the lack of a headdress or a very simple headdress, and the presence of coloration and or surface alteration of the artifact that may represent the demise of the individual depicted. The submissive posturing and lack of even a simple headdress again support classification as a captive (Figure 5.6).

Generalized Depictions

When grouping artifacts based on specific morphological attributes, there is always the problem of specimens that are generalized in form. And while these forms certainly are anthropomorphic in form, they do not exhibit the plurality of specific attributes that would permit them to be further classified. The generalized sub grouping was devised because the forms that follow exhibit at least one attribute used to define prior and more morphologically/ culturally specific categories.

Generalized attributes are simple headdresses, the positioning of the arms, legs, or feet, and the implied static posture of the forms. A generalized classification does not preclude the notion that these forms may indeed be depictions of captives, or ball players, but only that the combination of attributes does not permit a more specific classification (Figure 5.7a).

Figure 5.6- ah258RP38/55 Altun Ha

Exaggerated Depictions and Facial Profiles

The final sub- grouping of anthropomorphic forms is comprised of four specimens. These appear to be anthropomorphic, but exhibit considerable variation in appearance. The first form presented is a short figure that exhibits a large void, suggested to represent and eye in profile. The second form is what appears to be a face in profile. The third example is a seated figure exhibiting a facial profile. All three of these forms were recovered from Altun Ha contexts. The fourth form is a bifacially worked flake that represents what appears to be a head and face in profile with an intact forelock. These forms show that there was significant room for interpretation of human form by individual crafters, perhaps in some instances motivated by humor (Figure 5.7b).

Artifact Grouping: Zoomorphic Forms

A large number of artifacts in the assemblages were classified as zoomorphic forms. As depicted in other Maya artistic media, the animal world had extensive symbolic value and can be linked to Maya ontology and cosmology, as well as history. No doubt the Maya had there own classificatory schemes for animals, perhaps divided into groups that possessed transformative properties. As well, animals and humans were not mutually exclusive beings. This can be seen in the metamorphosis that shamans and other Maya religious practitioners undertook to transform themselves into animals and back to humans again. Moreover, animals were important in the mundane world, as dogs were likely kept in domestic settings. The following groupings divide the assemblage according to what appear to be naturalized forms, taking into consideration alterations, exaggerations, and transformations that were incorporated in both static and dynamic depictions. Figure 5.8 shows the distribution of zoomorphic forms by site.

a.

b.

Figure 5.7- a. ah324RP364/74 b. ah125RP176/27 Altun Ha

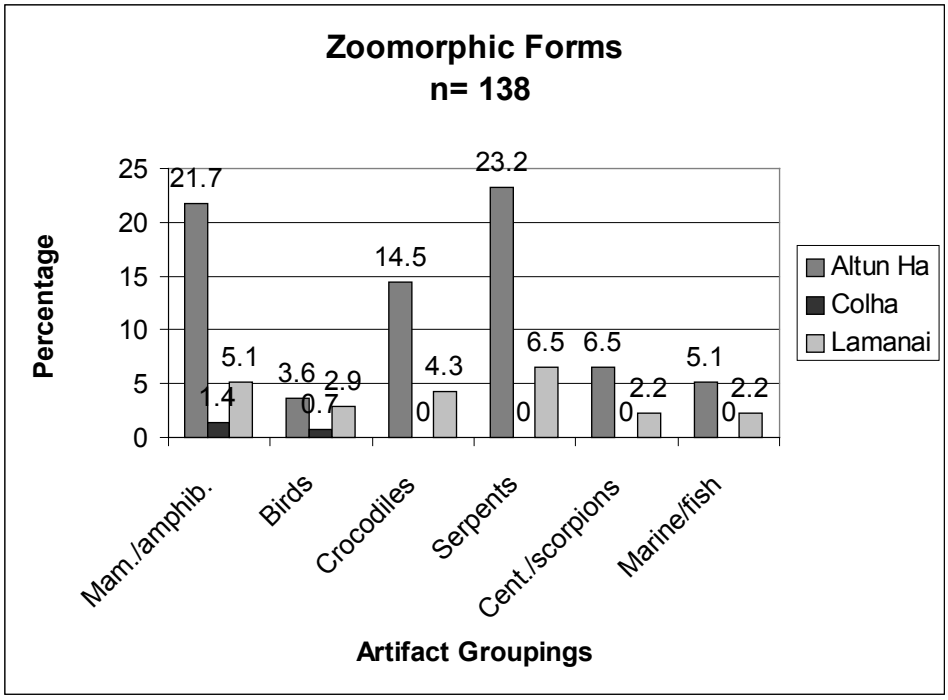


Figure 5.8 Frequency of zoomorphic forms by site

Mammalian and Amphibian Depictions

Depictions of mammals and amphibians were classified based on a number of criteria, from a consideration of Maya cosmology and mythology to that of the kinds of species that were present during the Classic Period of Maya civilization. It is clear from other artistic media that mammals in the forms of dogs, cats, deer, peccary, tapir, monkeys, and smaller species such as the coatomundi were an integral part of Maya life as sources of food and subjects of myth. Amphibians such as turtles and frogs also played roles in Maya cosmology, myth, as well as sources of food. The classification of individual forms was based on overall morphological similarity to specific natural species such as feline forms and (or) canine forms that may reference *wayob*, or animal spirit (Figure 5.9b).

a.

b.

Figure 5.9- a. ah282RP175/6 Altun Ha b. r13LA/ Lamanai

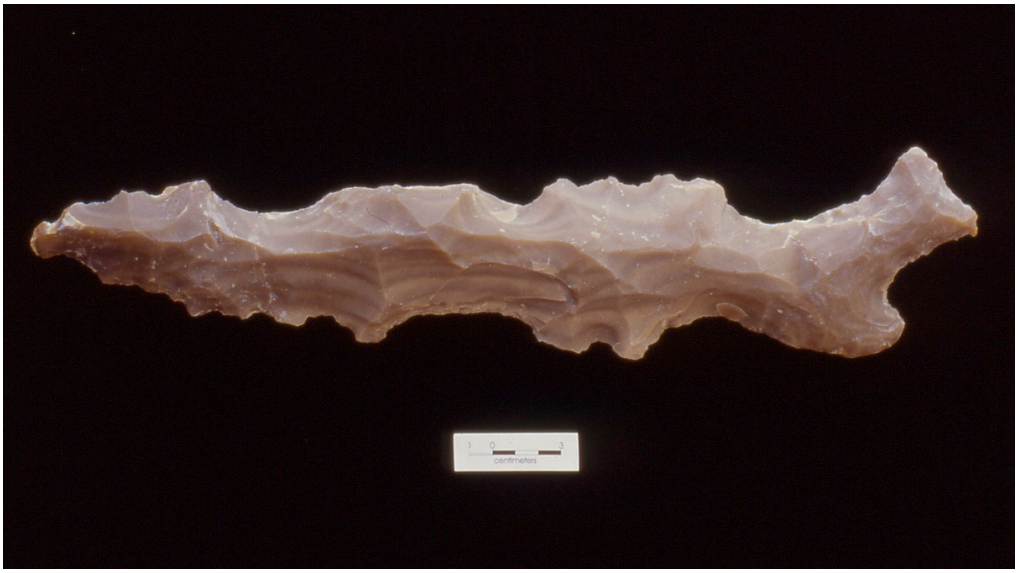
Birds and Bird- like Depictions

A number of artifacts in the assemblages showed remarkable resemblance to birds and bird- like forms. In other Maya artistic media, birds are depicted relatively frequently. Birds were present in both the real world, as well as in the world of myth and were recognized and depicted. Individual specimens were classified as birds primarily by the presence of a bill and also the form of the body and the legs. In some cases, the depiction of the bird form takes alternative morphological and technological forms. One example depicts a bird standing on the back of what appears to be a crocodile. In terms of technological variation, one example is produced on a large core, while another was produced on a large flake that shows scarring on the dorsal surface (see Appendix).

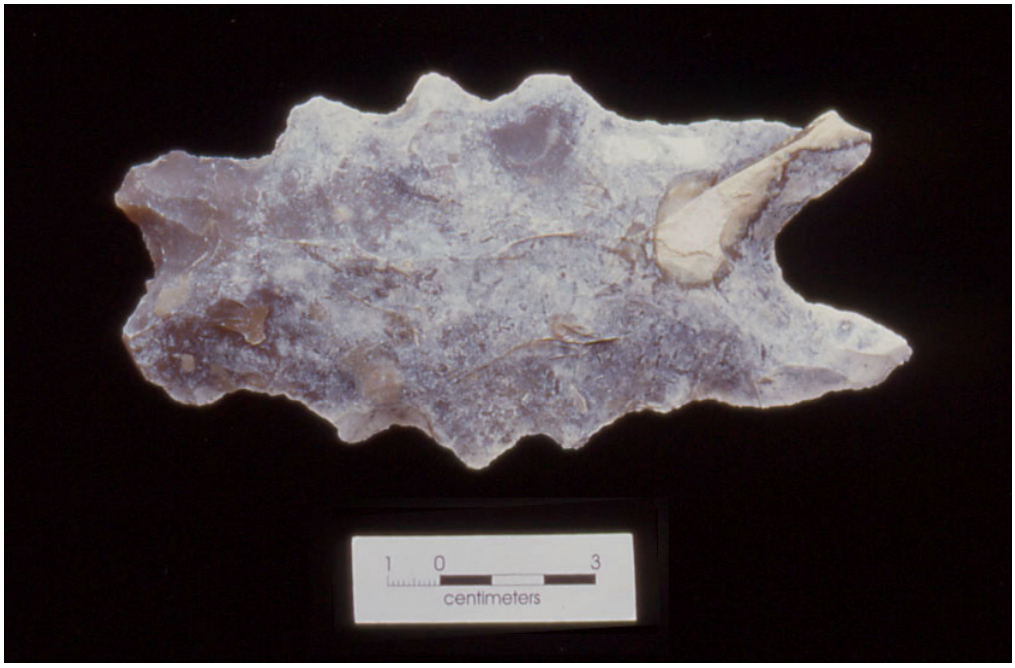
Crocodiles and Crocodile- like Depictions

Crocodiles again played an important role in the cosmology and mythology/ symbolism of the ancient Maya. According to the Maya cosmovision, the world was created on the backs of both turtles and crocodiles (Freidel et al. 1993). The crocodile no doubt had special symbolic importance to local historical and mythological knowledge in the eastern lowlands. Due to the close proximity to salt water and freshwater crocodile habitats, they were likely both a source of food as well as fear and respect. Indeed, the ancient Yucatec name of Lamanai is *lama' an ayin*, or submerged crocodile (Pendergast 1981: 32).

Crocodile and crocodile- like beasties were classified based on several criteria. The primary two characteristics are the elongated form and the subtle execution of both the snout and the eye. Moreover, serrated margins and the presence of a clearly defined tail were also traits that are associated with crocodile forms. However, each form does not have to exhibit all of the traits to be



a.



b.

Figure 5.10- a. r58LA244/14 Lamanai b. r70LA395/ Lamanai

interpreted as crocodile- like. Indeed, several examples show very similar forms to crocodiles, but may instead represent fantastic or transformational species, species that have no exact correlation to what we recognize as crocodiles. What must be remembered is the skill of the execution of form, the integration of natural features of the raw material, such as cortex and voids to delineate parts of the form, as well as flake scarring to illustrate features of individual forms (Figure 5.10a & b).

Elongated Serpent and Serpent- like Depictions

Like crocodiles, serpents played an important role in the cosmology and mythology of the ancient Maya. Serpents are depicted in numerous forms in other Maya artistic media. Snake symbolism was utilized to depict everything from the return of the ancestors to the appearance of the gods (see Schele and Freidel 1990; Spinden 1975). Serpents were thought to span the sky and surround the earth. Moreover, snake symbolism also marks a cultural link with other ancient Mesoamerican cultures. Serpents depicted in Maya artistic media often exhibit elaborate decorations, feathers, and were often personified. Snake symbolism was part of an iconography of both political and religious power.

On a more mundane level, serpents occur frequently at Maya sites and in the natural and cultural landscapes across the lowlands. It is likely serpents were observed by the Maya in all kinds of settings. While the elite appropriated serpent imagery for political ends, other communities also created there own vision of serpents in a medium such as flaked stone. Again, like crocodiles, serpents are classified according to a number of criteria; namely the elongated form that exhibits nothing that could be construed as legs or other appendages. Serpents also exhibit open, gaping mouths and are overall narrow in width (see Appendix).

Non- elongated Serpent- like Depictions

These forms are similar to the elongated serpent forms, but are compacted in depiction. Instead, the forms are depicted as dynamic and oftentimes compressed. The criteria for classification in this artifact grouping includes the presence of deeper and more frequently occurring notches and serrations, which imply movement and to some degree more diverse forms that begin to move away from naturalized depictions of serpents. These forms draw on knowledge of transformational or supernatural beasts so prevalent in Maya cosmology and mythology (see Appendix).

Centipedes and Scorpions

Elongated specimens take the form of other species besides crocodiles and serpents. Recognized in these forms are both centipedes and a scorpion. These species are found in other forms of Maya artistic media (see Tedlock 1985). Moreover, the species occur frequently in the Maya area. Specimens were classified as centipedes if the form is smaller and exhibits more serrations than serpent forms. Also, centipedes that were depicted as moving clearly contrast with serpent forms. Scorpion forms were easily classified by the presence of the lengthy tail and the pincer- like appendages (Figure 5.11a).

Marine, Fish, and Fish- like Depictions

Similar to other species, fish and marine species were part of the array of animal life that the Maya encountered in every day life, as well as in cosmological and mythological depictions of the universe. As with other forms, marine species and fish appear fairly frequently depicted in other forms of ancient Maya artistic media. Fish and marine species were classified based on the overall

a.

b.

Figure 5.11- a. r1LA/ Lamanai b. r54LA244/11 Lamanai

form of the individual piece. The outline of the specimen is fairly indicative of what is being depicted. Also as part of the grouping are the subtle ways in which features of the individual specimen are depicted. This includes irregular inclusions and cortex employed to depict eyes in profile, as well as flake scars and protrusions in the raw material that were used to depict other features, such as fins and barbles, as those that appear on catfish (Figure 5.11b).

Artifact Grouping: Crescent Forms

One of the most frequently occurring forms appearing in the three assemblages of flaked stone symbols under study is the crescent form and its numerous variants. Though simple crescents appear in all three assemblages, more frequently occurring are forms that exhibit numerous notches, barbs, and (or) serrations on the exterior lateral margin of the crescent, with a large primary notch forming the interior margin. Crescent forms oftentimes exhibit cortex and flake scarring which are integrated into the morphology of individual artifacts. From the location of these inclusions, it is posited that they are employed to depict eyes or highlight the open mouths of celestial creatures. Moreover, it is posited that some forms represent eclipses or planetary convergence. The elaboration of crescent forms demonstrates knowledge of cosmology, as well as knowledge of specific celestial bodies and their movements.

The crescent grouping includes artifacts that exhibit appendages or prongs protruding from one or both of the margins of an artifact. Crescent forms possessing two prongs extending from each side of the artifact greatly resembles objects identified as “knuckle dusters”. These forms are often displayed by individuals of high status depicted on carved stone monuments or in Maya paintings. It has been posited that knuckle-dusters were surely objects of authority

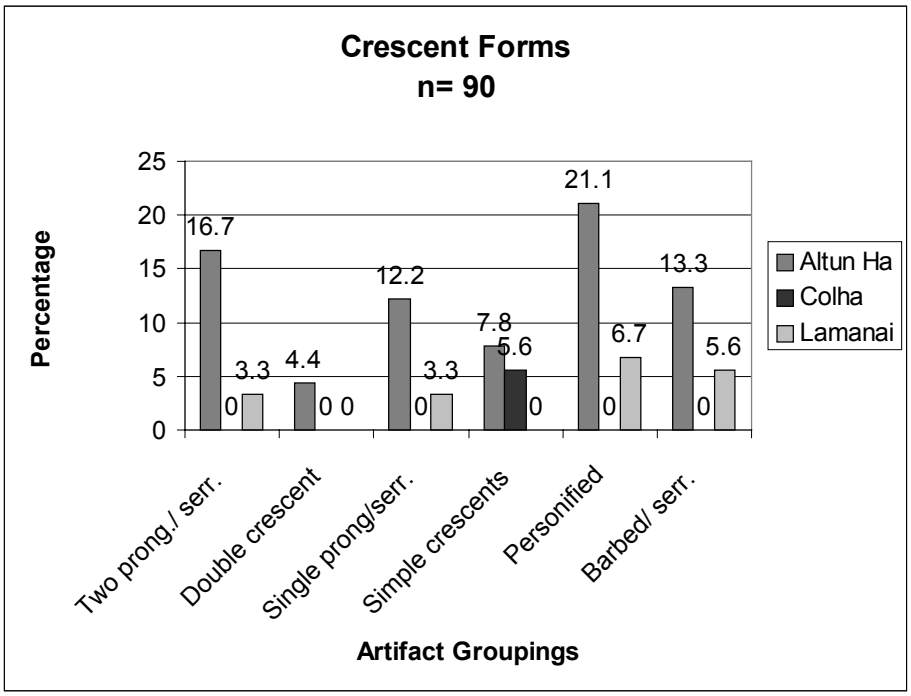


Figure 5.12- Frequency of crescent forms by site

when displayed in specific contexts. Indeed, several of the forms in the assemblages under study exhibit polish, suggesting that they were handled extensively. Figure 5.12 shows the frequency of crescent forms by site.

Generally speaking, crescent forms are grouped according to the presence or absence of one or two prongs, the presence or absence of serration and (or) barbs, and the presence of two crescents along a central stem. The inclusion of all crescents together does not preclude the notion that some forms may indeed represent other creatures, as is the case in several examples. However, the central location of the crescent in the overall form of the individual artifact guided subsequent classification.

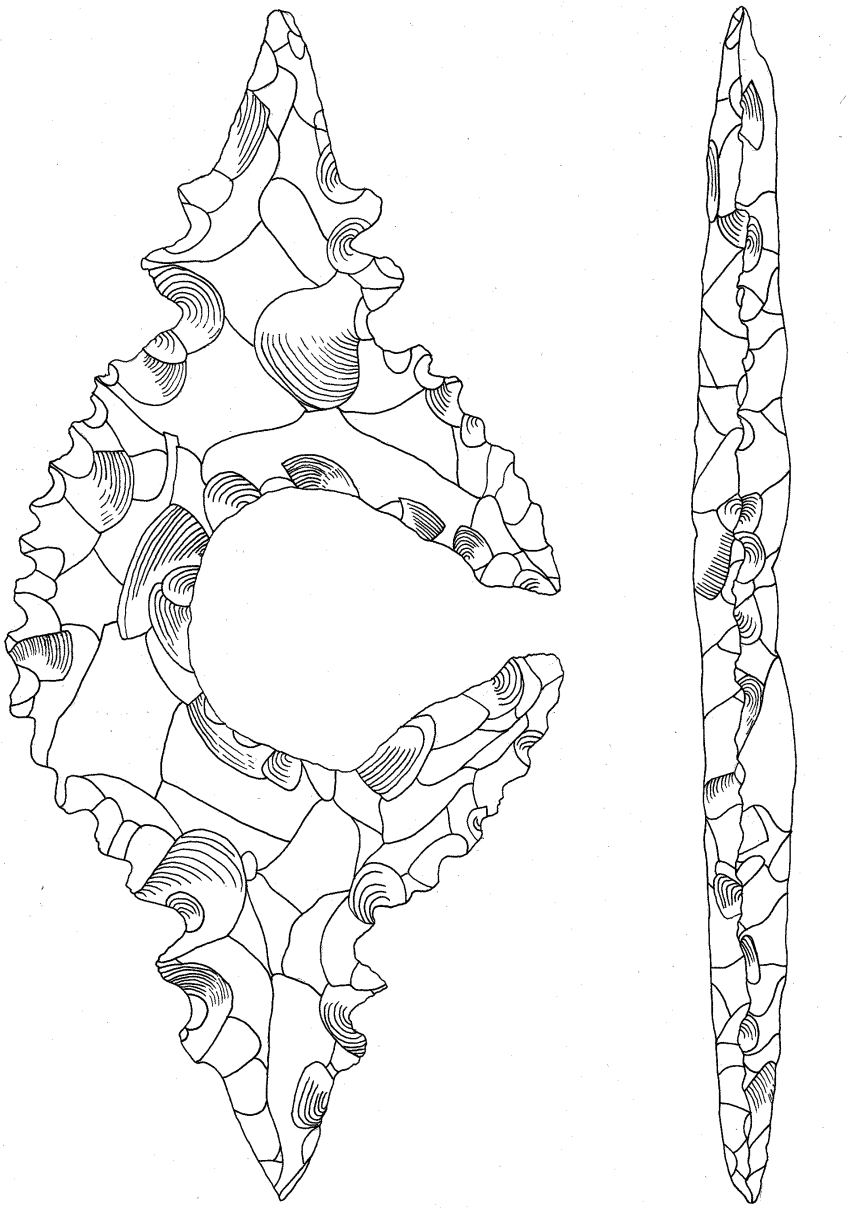


Illustration 5.1- r73LA69/ two pronged serrated crescent Lamanai
Max. dimensions- l: 33.5 w: 15.5 th: 1.9

Two Pronged Crescents (knuckle-dusters)

Two pronged crescents were grouped based on the protrusions extending from the margins of the crescent. These forms have been identified previously as objects that were oftentimes held by individual leaders and high-ranking individuals. Among some scholars, they are identified as knuckle- dusters. For the most part, the specimens are finely flaked and quite narrow. In some cases, polish is visible on the medial surfaces indicating the specimen was handled extensively (see Appendix).

Two Pronged and Serrated Crescents

As mentioned in the introduction and definition of the crescent form grouping, two pronged crescent forms occur relatively frequently in the assemblages. In many instances, these forms also exhibit margin serrations. These artifacts were grouped due to similar morphology in comparison to other pronged crescent forms. The presence of two prongs and in some cases, margin serrations mark this group as variation in the initial crescent form grouping (Illustration 5.1). This variation may have had correlates in terms of artifact meaning within a specific cultural context (see Appendix).

Double Crescents

This sub- grouping encompasses a limited number of forms, but the forms are significantly different than the other crescent forms to be set apart. Double crescents are comprised of two smaller crescents that are linked by a narrow stem or single prong that extends past both crescents. Although the symbolism of these forms is not nearly as clear as depictions of human captives or animal forms, the technical skill necessary to create these forms is exceptional.

Control of flaking depended on uniform and fine quality raw material, but also the skill of the crafter. In the case of the double crescent, in order to create the narrow stem and the wider crescents required exceptional skill. Short symmetrical feather terminated flake scars are most prevalent along the stem, with wider feather terminated flake scarring more prevalent across the medial surfaces of the crescents. What is most remarkable about the specimens is the clear demonstration of knowledge of the physical properties of the chert and the force required to fracture it in a preconceived pattern (see Appendix).

Serrated, Barbed, and Single Pronged Crescents

As mentioned in the initial description of the crescent form artifact grouping, there is variability in the forms of lateral margin alteration observed on crescent forms. The previous sub- groups have addresses large prongs extending from lateral margins as well as double crescents. The present artifact grouping is based on the kind and number of projections protruding from the lateral margins of the individual specimens.

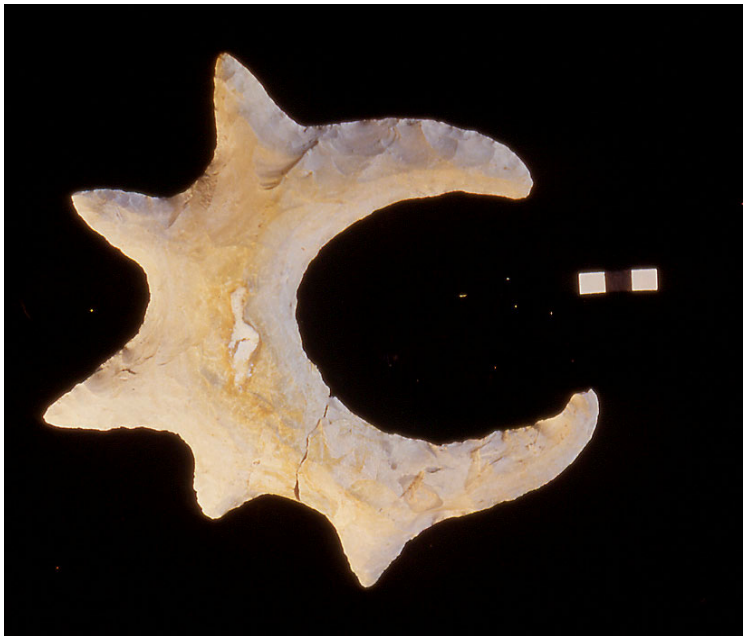
Serrated crescents exhibit numerous short and narrow projections that often exhibit stacked flake scarring on the interior of the numerous edge prominences. Barbed specimens exhibit larger projections that are fewer in number when compared to serrations. However, there are more than two or three projections. Barbs are generally shorter and narrower than prongs. Also, knuckle-duster forms exhibiting two prongs are not the only forms of pronged crescents present in the assemblages. Single pronged crescents are also present. These forms exhibit a single prong protruding from the lateral margin of a crescent form. Artifacts exhibiting single prongs often also exhibit serrations and (or) barbs in addition to the prong (see Appendix).

Simple Crescent Forms

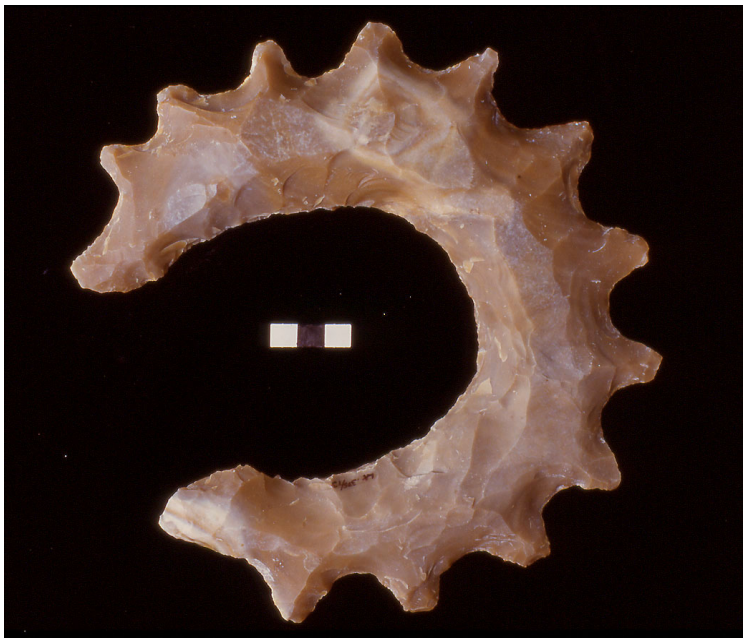
Simple crescent forms are comprised of artifacts that exhibit no margin alteration. The artifact grouping exhibits primarily wide medial surfaces that taper at both ends of the crescent. Broad feather terminated flake scars are most prevalent across the medial surfaces of the specimen. The interior margin exhibits stacked flake scarring. The exterior margins exhibit short feather terminated flake scarring. Several of the artifacts exhibit staining/ coloration that may be highly eroded pigment (see Appendix).

Personified Crescents (Celestial/ Earth Monsters)

It has long been recognized that the movements of celestial bodies were observed and recorded by the ancient Maya. Indeed, Thompson (1966) originally indicated that most, if not all hieroglyphic texts were recordings of indecipherable astronomical observations. While, as the decipherments of Proskouriakoff (1960) and then Lounsbury (1974), Kelley (1976), Schele (1982) and others over the past twenty-five years have shown us, a large portion of these texts were recording elite history. However, it has become clear that significant portions of the texts are likely records of astronomical observations. This is important in that it shows that the movements of celestial bodies were important events in Maya cosmology and mythology. The Maya believed that the sky was comprised of a giant serpent and that planets such as Venus, and bodies such as the moon and the sun were also living creatures. Moreover, the earth and mountains are also often depicted as monsters (see Appendix).



a.



b.

Figure 5.13- a. ah123RP528/38 Altun Ha b. r11LA395/13 Lamanai

It is posited here that flaked stone was a medium in which celestial events were recorded, oftentimes as personified symbols. These crescent forms possessing prongs and exhibiting pigments, stains, residues, and cortex that in many instances appear to delineate eyes and other facial features of personified celestial bodies. The sky was not the only part of the Maya cosmos that was personified. As mentioned above, topographical features of the earth were often personified as well. Mountains oftentimes were depicted as "witz" or earth monsters (see Freidel et al. 1993). While occurring less frequently than crescent forms depicting celestial monsters, at least one crescent form appears to delineate an earth monster. The following grouping of crescent forms presents crescents that exhibit eyes and mouths in profile. These are personifications and indeed, translations and inscriptions of a specific cosmology by the chert crafters (Figure 5.13b).

Simple Serrated and (or) Barbed Crescent Forms

This artifact group is defined primarily by forms that exhibit barbs or serrations along the margins but no other alterations. In addition, the serrated forms are also not believed to have been personified due to the lack of residue of pigment visible on each piece. There is no evidence of surface alteration of elaboration. Serrations are defined as short and numerous projections protruding from the lateral margins of an artifact. Each artifact exhibits margin alteration (Figure 5.13a).

Artifact Grouping: Barbed and Serrated Rings

Artifacts that are circular or oval in shape with perforated centers occur in the assemblages under study. Ring forms are produced for the most part utilizing voids in the chert. The perforated areas for the most part exhibit cortex on the and

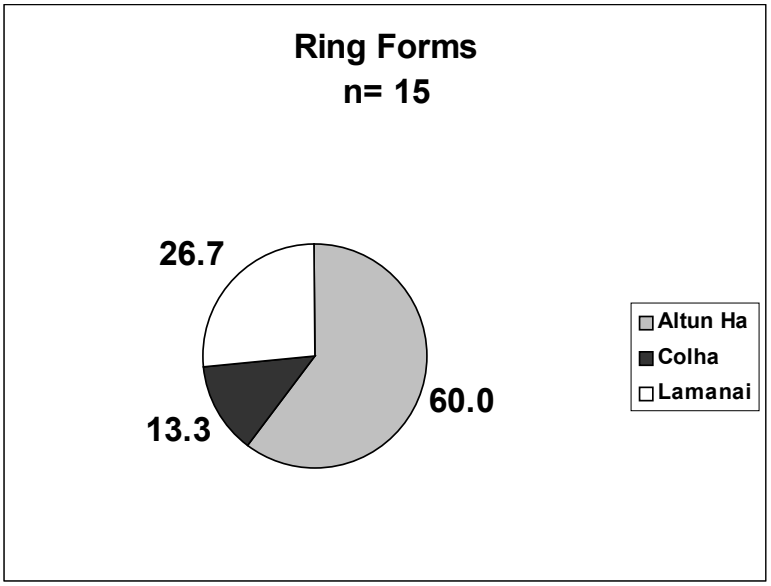


Figure 5.14- Frequency of ring forms by site

interior of the perforation. Oftentimes the interior of the ring exhibits scraping smoothing as shown by incised lines and scrape marks. These efforts were undertaken in order to make the ring more symmetrical in appearance. Figure 5.14 shows the frequency of ring forms by site.

Ring forms also exhibit alteration to the exterior margin. Like crescent forms as well as elongated forms, margins of rings exhibit barbs, serrations, and notches. Unlike crescents, which occur much more frequently in the assemblages, the kinds of variation visible on the exterior margin of ring forms are grouped together. Similar to crescents serrated rings show numerous short protrusions from the exterior margin. Barbed rings exhibit larger protrusions that are much more numerous in number. Notched rings exhibit short protrusions, but large gaps between them. These gaps extend a significant distance into the interior of the artifact. The specific meaning of ring forms is unclear. However, the opening or

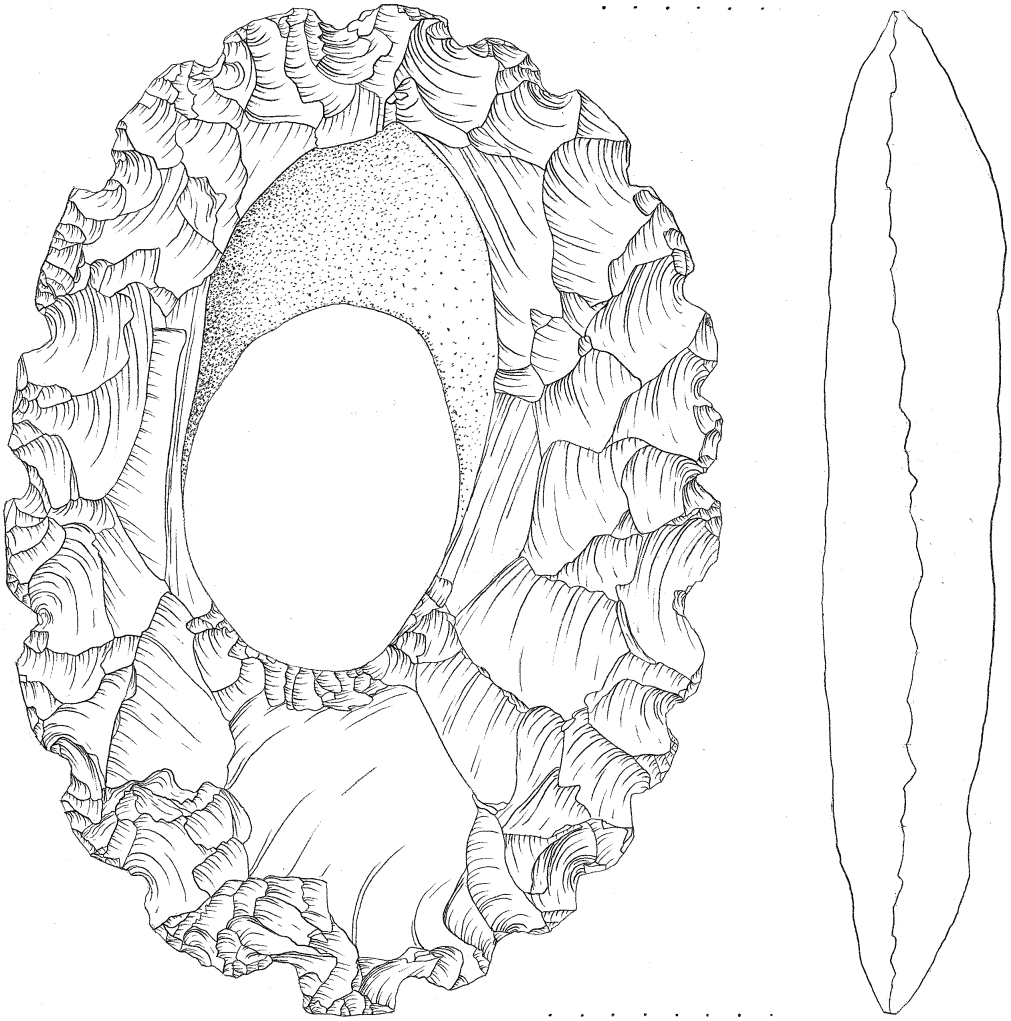


Illustration 5.2- cr75CH2012/13- 15
Max. dimensions- l: 31.5 w: 23.4 th: 5.3

perforation in the center of the ring may be linked to the importance of openings or portals to the underworld are in Maya cosmology. Whatever the case, ring forms possessed significant meaning as flaked stone symbols (Illustration 5.2).

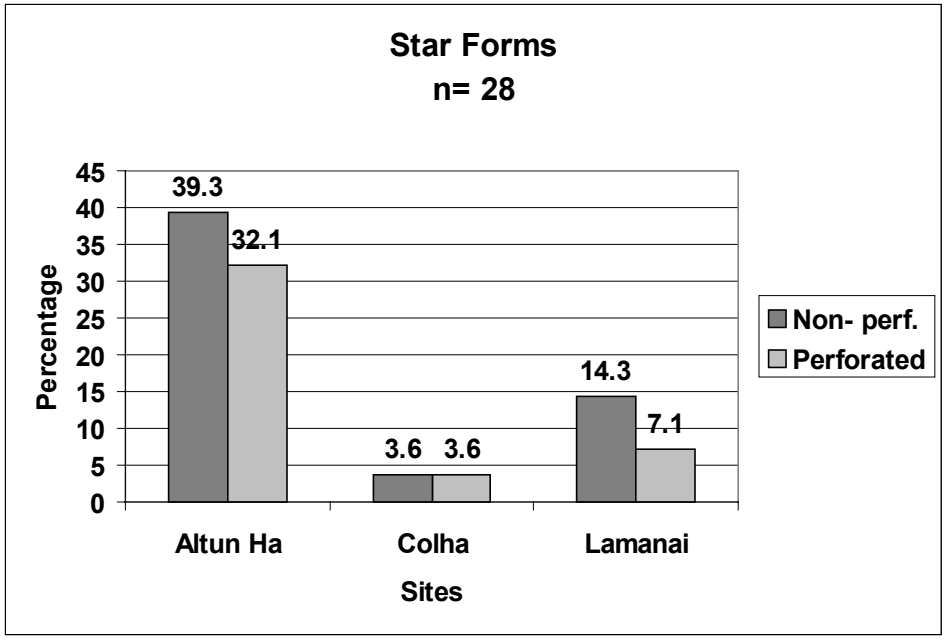
Artifact Grouping: Non- perforated and Perforated Star Forms

This grouping is defined by circular bifaces with a variable number of protrusions extending from the margin. The bifaces are marked by barbs or serrations, but there is little difference between the two. Of note are the particular numbers of protrusions that are present. The number of protrusions varies from seven and nine. Several of the forms exhibit four, five, and eleven protrusions. It is unclear what the symbolic meaning of these artifacts might be. The star forms appear in other media, usually as part of the frame of scenes (see Figure 5.15).

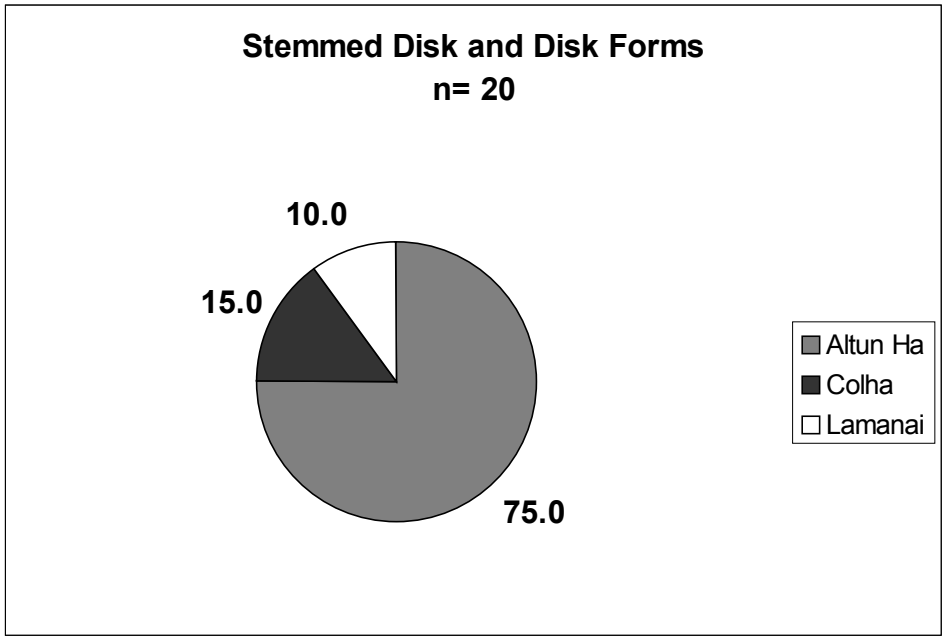
This group of artifacts may be considered a variation on both star forms and ring forms. The artifacts exhibit protrusions that cannot be considered barbs due to how numerous they occur. Moreover, the forms are not ring shaped but do exhibit perforations. These perforations also exhibit scraping and smoothing on the interior of the perforation. These incised lines may be indications of use as well as efforts to make the interior of the perforation more uniform. An initial interpretation of the meaning of the forms is difficult, though the perforations and the star form may link them to portals (or) celestial bodies (Figure 5.16a & b).

Artifact Grouping: Stemmed Disks

The stemmed disk is a form that occurs relatively frequently in both the Altun Ha and Lamanai assemblages, though it is not present in the Colha assemblage. The artifact grouping is defined by a circular biface extending from a narrow lengthy stem. The artifacts in the group exhibit generally exhibit



a.



b.

Figure 5.15- a. Frequency of star forms b. Frequency of stemmed disks/ disks

symmetrical flake scarring along the stem and broad flake scars across the surfaces of the disk. One artifact exhibits variation in the form of lengthy barbs extending from the disk of one form. Figure 5.15b shows the frequency of stemmed disks and disks by site (see Appendix; also Chapter 6).

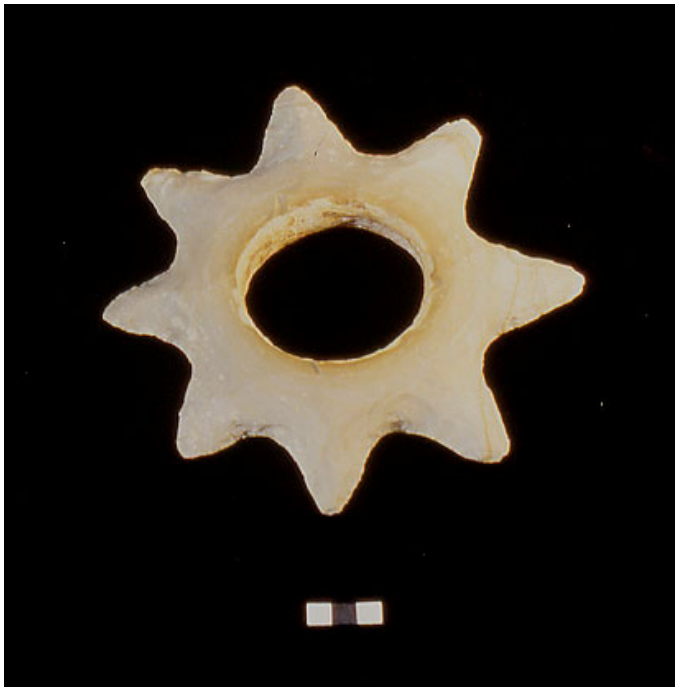
The symbolic meaning of the forms is unclear, as they have previously been identified as hand mirror and (or) stingray forms. It is posited the latter can be dismissed due to the appearance as so different than a stingray. If these assemblages have illustrated anything, it is that the chert crafters can depict naturalized as well as supernatural appearing animal and human forms. The stemmed disk while generalized in form does not resemble a stingray. The hand mirror interpretation is possible, but evidence suggests that Maya mirrors were not hafted, but instead were objects without hafts. There is also little evidence that anything like a mirror was attached to the disk portion of the form. Additionally, the barbed artifact seems to further stretch the hand mirror interpretation.

It is also possible that these forms could have been used as clubs or weapons. However, there is little evidence for extensive handling. It is suggested here that the forms are depicting meteors and (or) comets. The barbed form is a depiction of an especially bright meteor. If we can accept the interpretation that other forms are also depicting celestial bodies at rest and in motion, as well as personified, then the depiction of meteors and comets appears more plausible.

Artifact Grouping: Circular and Ovoid Disks

Several circular and oval shaped forms are present in the Altun Ha assemblage. Primarily their shape characterizes these artifacts and the lengthy feather terminated flake scarring visible across the medial surfaces of the specimens. The lateral margins are often characterized by short feather terminated

a.



b.

Figure 5.16- a. ah51RP58/36 b.ah297RP200/384 Altun Ha

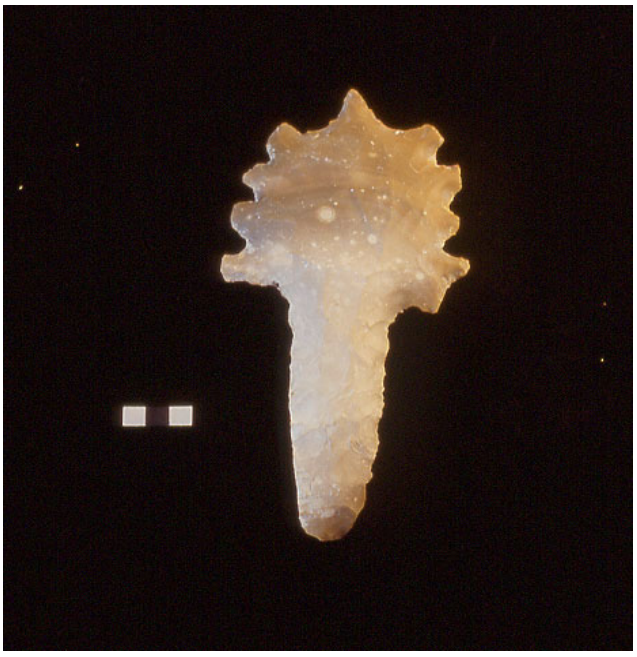
flake scars and localized stacked flake scarring and edge crushing. The circular artifacts exhibit flake scarring primarily on the dorsal surfaces with fewer flake scars present on the medial ventral surfaces. Along the margins of the ventral surfaces, short feather terminated flake scarring is visible. This flaking was likely undertaken strengthen the margins. Moreover, ate least one circular form exhibits both textile and pigment on the dorsal surface of the artifact. In terms of the oval shaped forms are finely flaked on both surfaces with margins exhibiting short feather terminated flake scars. These forms exhibit a similar technology as the general utility bifaces present at Colha.

These forms perhaps are representations of rubber balls so important to the ball game as well as perhaps representation of celestial bodies. The intertwining of the ball game and depictions and movements of celestial bodies is well documented as integral to Maya mythology (Figure 5.17a).

Artifact Grouping: Bundled Forms

This artifact grouping is defined by bifaces that exhibit a stemmed portion, marked by short and symmetrical feather terminated flake scarring. The distal end widens to notched and barbed firms that appear as bundles. This portion of the forms exhibit for the most part lengthy feather terminated flake scarring. The use of the term bundle refers to bundled maize that appears in other form of Maya media. These bundles were common features of Maya life as part of the harvest, of which maize was the staple crop. The harvest also possessed powerful symbolic value and likely was represented in Maya art (Figure 5.17b).

a.



b.

Figure 5.17- a. ah37RP256/68 Altun Ha b. ah113RP306/3 Altun Ha

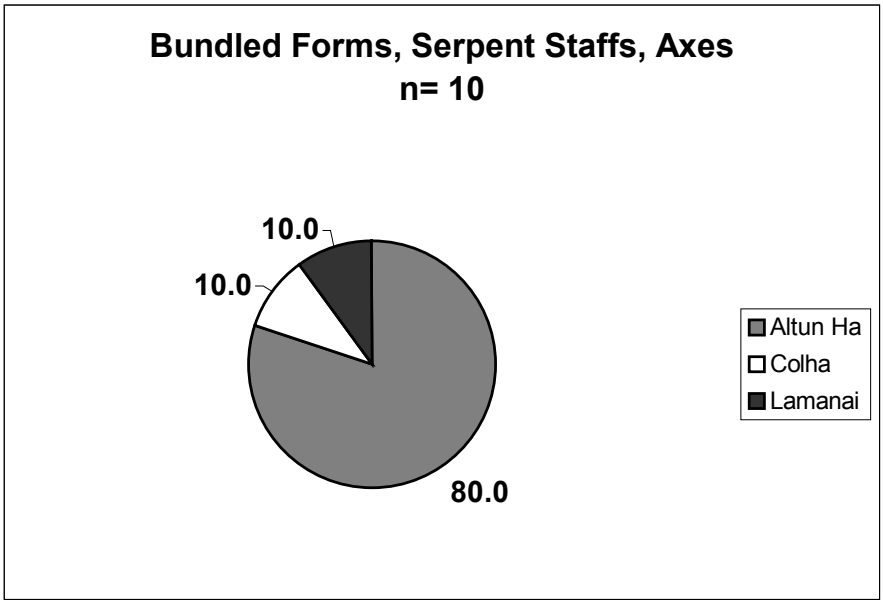


Figure 5.18- Frequency of bundled form, serpent staffs, axes by site

Artifact Grouping: Serpent Staffs, Axes, and Axe- like Depictions

This artifact grouping is comprised of stemmed forms exhibiting distal ends that broaden out to one of several forms define this artifact grouping. The stems of each form exhibit symmetrical feather terminated flake scarring. On a number of the specimens, extensive polish is visible that suggests that they have been extensively handled. The distal ends terminate in two forms, namely as serpent head and axes. One exceptional form is a monolithic axe that appears to have been handled throughout its use life prior to interment (see Appendix; also Chapter 6). Figure 5.18 shows the frequency of bundled forms, serpent staffs, and axe forms.

Artifact Grouping: Tetrafoils

Artifacts that exhibit four elongated prongs that extend from a central intersection define this grouping. The prongs are marked by similar flake scarring

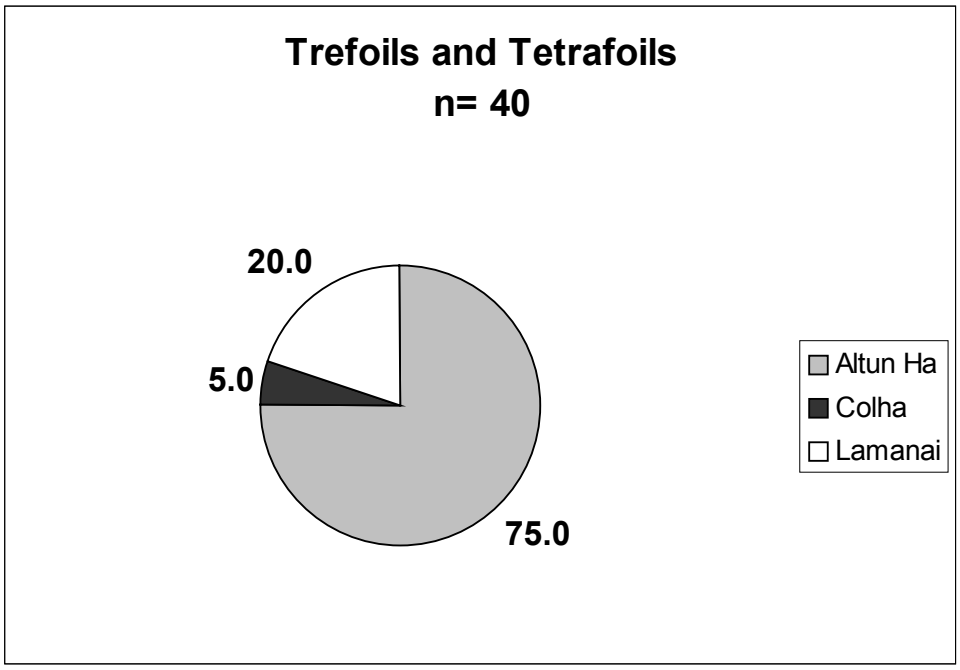
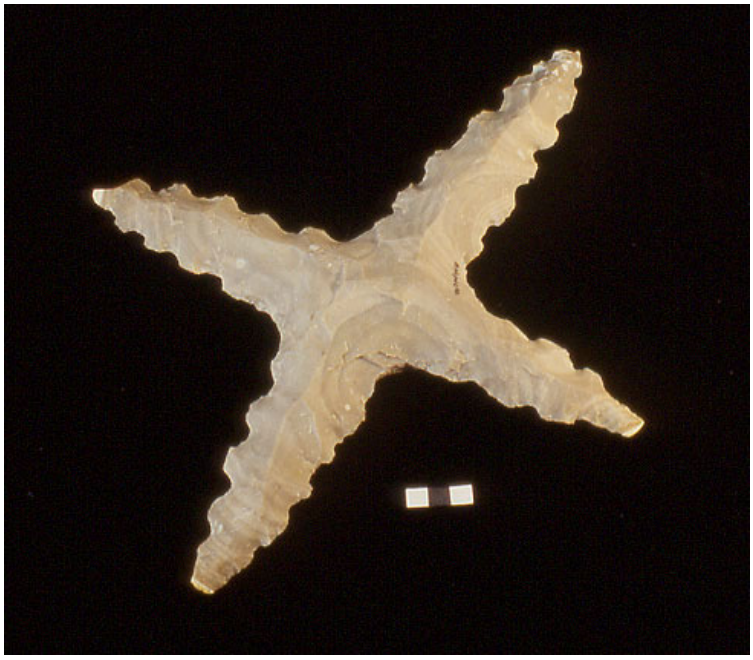


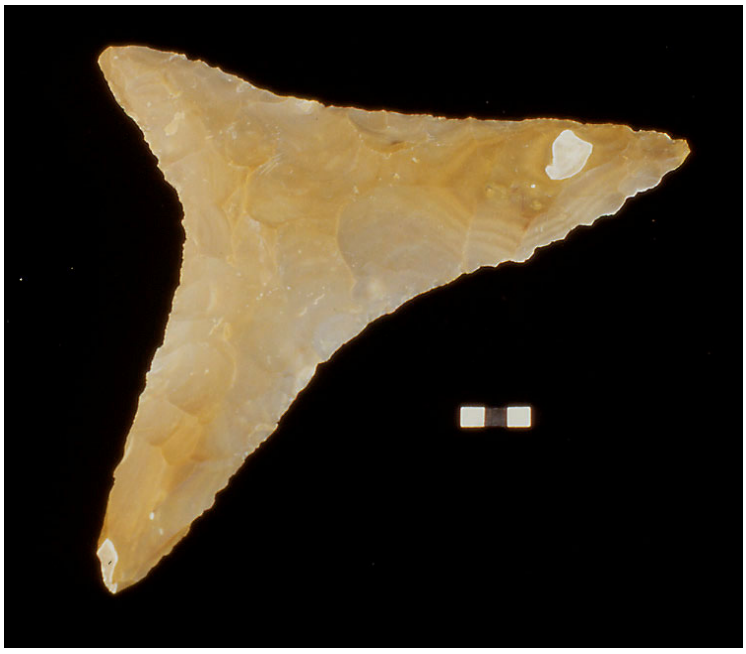
Figure 5.19- Frequency of trefoils and tetrafoils by site

as elongated stems, such as symmetrical feather terminated flake scarring. The lateral margins exhibit extensive stacked flake scarring at the intersection.

The tetrafoil form is a very frequently occurring form in Maya art. It is often used to represent the quadripartite division of the Maya cosmos. Also, the tetrafoil is often depicted as the world tree, the *axis mundi* on which the three worlds of the Maya cosmos are oriented. It is unclear the symbolic nature of the tetrafoil presented here. What is clear is that the tetrafoil was an important aesthetic symbol that indexes rather than represents how the ancient Maya imagined the structure of their universe (Figure 5.20a). Figure 5.19 shows the frequency of both trefoils and tetrafoils by site.



a.



b.

Figure 5.20- a. ah319RP364/48 Altun Ha b. ah331RP364/68 Altun Ha

Artifact Grouping: Trefoils

This artifact grouping is defined by elongated specimens with three-prongs. These artifacts generally exhibit symmetrical flake scarring along the medial surfaces of the prongs that meet at a central intersection. The margins at the intersection for the most part exhibit extensive stacked flake scarring. It is unclear what the trefoil may index, but clearly it is an important symbol employed in both flaked stone and other ancient Maya media (see Figure 5.20b).

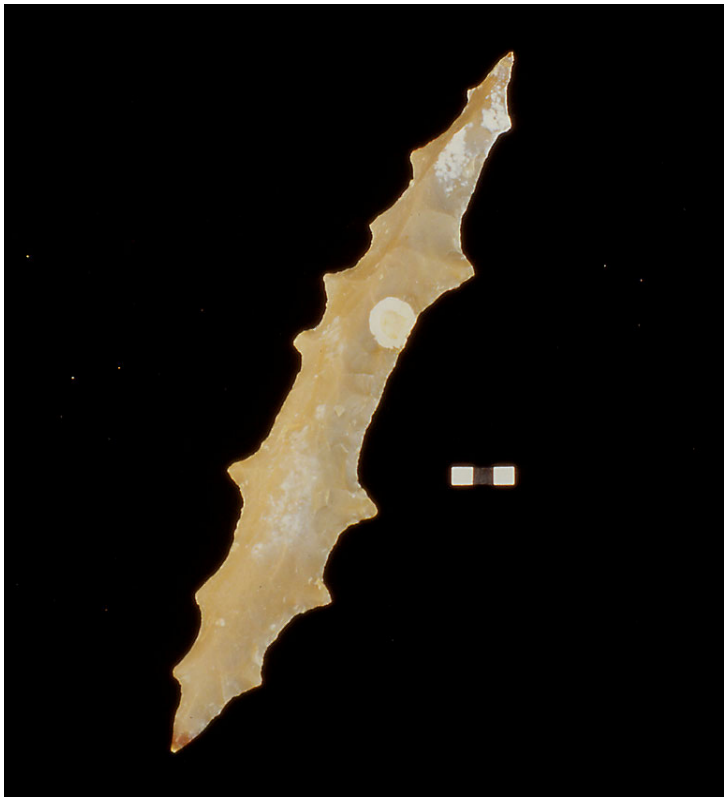
Artifact Grouping: Bident and Trident Forms

These forms are defined by elongated, stemmed forms with two prongs extending from the distal end. These forms appear similar to a two-pronged "fork". They are in general finely flaked with short symmetrical feather terminated flake scarring visible along the stem as well as the prongs. The term bident is used in the same way trident would be used, save for the presence of only two prongs. It is unclear what these forms may index. Moreover, there is little evidence of extensive polish visible on any of the forms (Figure 5.21a).

Artifact Grouping: Stemmed Forms with Notches/ Profiles

This artifact grouping is broadly defined. These forms are for the most part elongated, but also are wide, oftentimes exhibiting short as well as longer stems. It appears that the forms may also depict profiles of humans and supernatural creatures. The artifact forms exhibit triangular distal termini with some notches visible along the lateral margins. For the most part, artifacts exhibit short and lengthier feather terminated flake scarring. Lateral margins exhibit short feather terminated flake scarring with some localized areas of edge crushing and stacked step and hinge terminated flake scarring. Figure 5.22 shows the frequency of these two artifact classifications by site.

a.



b.

Figure 5.21- a. r46LA682/9 b. ah320RP364/78 Altun Ha

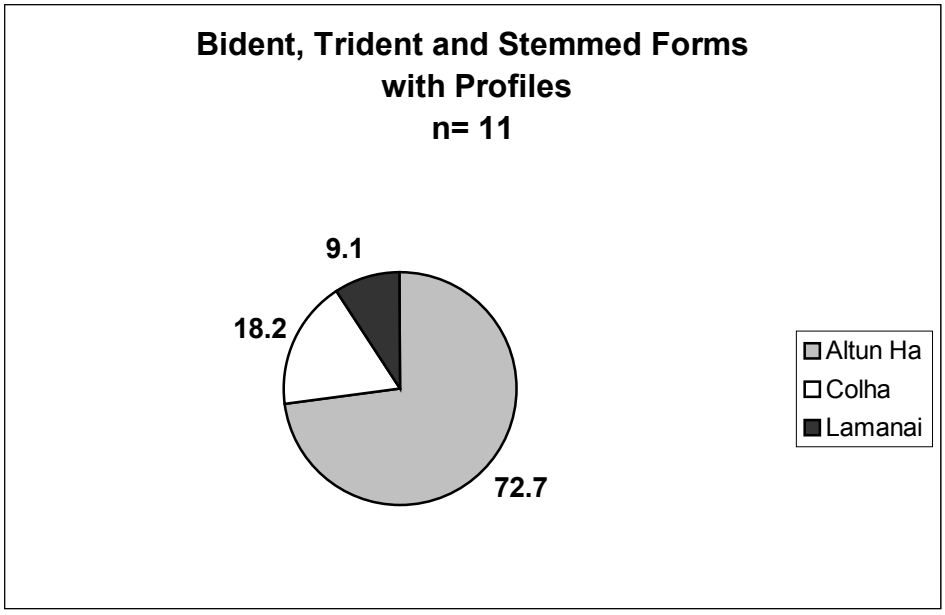


Figure 5.22- Frequency of bident, trident, and stemmed profile form by site

The margins exhibit serrations as well as notches. On the interior of the serrations, edge crushing is more prevalent. In at least two of the specimens, the portion of the specimen that likely was part of a human profile was missing. Although this portion of the specimen is not present, the notion that they were part of the grouping is not as much of a stretch as one might think. The extensive notches and serrations are present on elongated forms. In some cases, the distal ends exhibit a snap fracture. This fracture removed that particular portion of the specimen. Also, the presence of pigments and staining on at least one of the specimens indicates that the surfaces of the form were elaborated upon. Combined with the removal of the distal ends, it is suggested that these pieces were important symbols during their use- life (see Appendix).

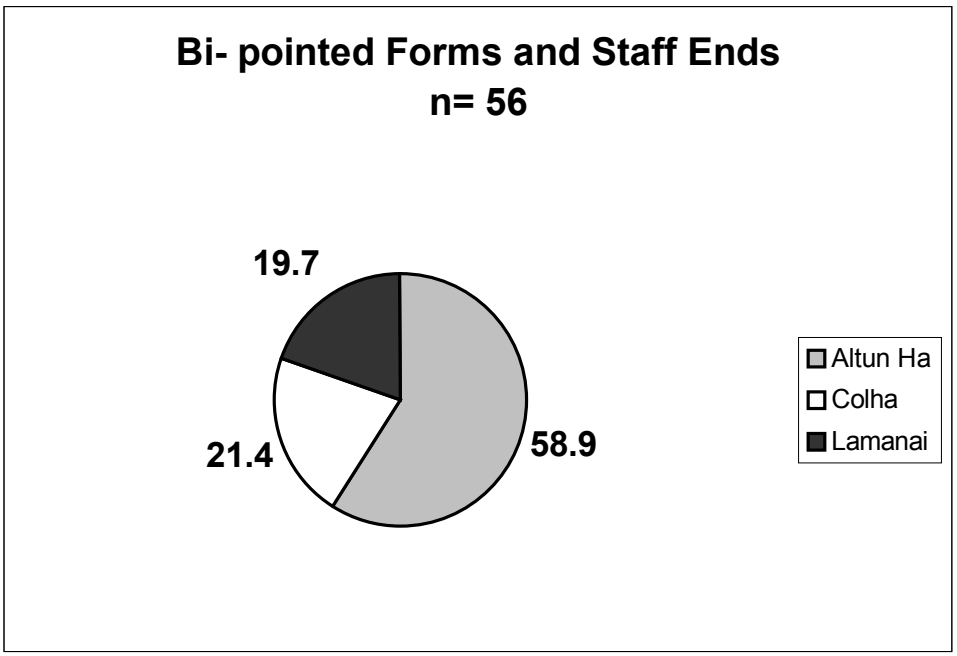


Figure 5.23- Frequency of Bi- pointed forms and staff ends by site

Artifact Grouping: Bi- pointed, Elongated, and Notched Forms

This artifact grouping consists of forms that exhibit a tapered point at each terminus. In the central portion of artifact forms are notches that narrow the width of the stem. The bi- pointed form appears at other sites, namely in smaller forms at Piedras Negras. However, the forms in the present study are limited to the Altun Ha assemblage. The medial surfaces generally exhibit moderately lengthy, symmetrical feather terminated flake scarring (Figure 5.21b).

Artifact Grouping: Elongated, Stemmed, and Narrow Forms (Staff Ends)

This artifact grouping is another broadly defined group. It includes elongated and narrow forms that often exhibit stems. Many of these forms appear

a.

b.

Figure 5.24- a. ah102RP657/1 b. ah173RP166/2 Altun Ha

to be staff ends that were hafted, perhaps as lengthy spear points. However, polish is not present on all of the forms. Some of the forms are quite wide with triangular distal ends and short, wide stems. Some of these forms appear to be zoomorphs, but the perspective does not lend itself to an interpretation. It is suggested that some of the forms that do exhibit polish were hafted at the end of a staff for display (Figure 5.24a & b).

The wider forms exhibit lengthy feather terminated flake scarring along the medial surfaces of the specimen. The lateral margins are also finely flaked. The narrow forms exhibit shorter feather terminated flake scars across the medial surfaces as well as along the lateral margins. These flake scars are in many cases symmetrical and parallel. One of the defining criteria that define many of the other artifact groupings is the presence of barbs and notches. This artifact grouping possesses forms that exhibit both. However, the presence of both narrow and wide stems and the elongated nature of all of the artifacts classified in this grouping prompted a consideration of these artifacts as belonging to a broadly defined artifact grouping. Illustrations 5.3 and 5.4 are line drawings of what have been classified as staff ends from the Protoclassic burial at Operation 2031, Colha.

Artifact Grouping: Notched and Stemmed Blades

In addition to elaborately produced bifaces, also included in the present study of flaked stone symbols are artifacts that comprise additional morphological and technological categories. While the majority of the assemblages have been technologically categorized as bifaces and then divided into groups based morphological characteristics; other artifacts were clearly produced using a different production technology. As stated previously, morphological groupings

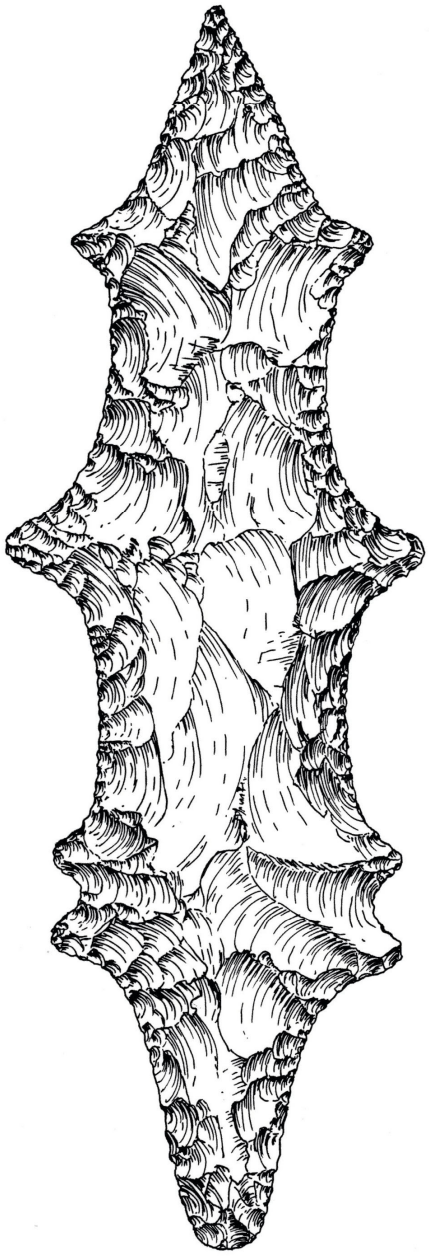


Illustration 5.3- cr1CH2031/116-5 Colha
Max. dimensions- l: 46.4 cm w: 15.2 cm thick: 3.6 cm (see Appendix)

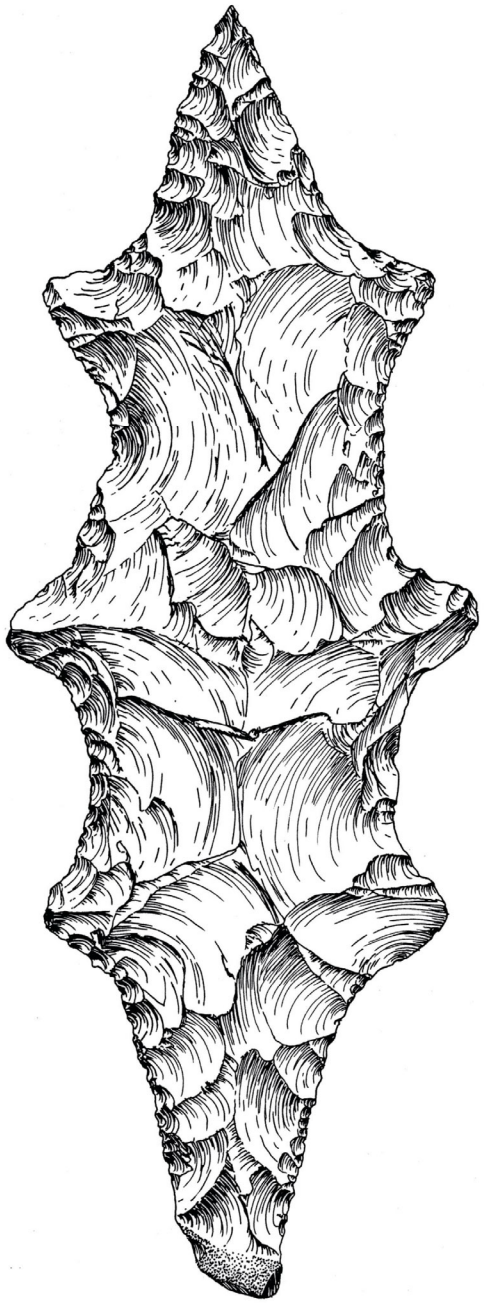


Illustration 5.4- cr20CH2031/5- 116 Colha
Max. dimensions- l: 27.0 w: 9.2 thick: 2.5 (see Appendix)

of bifaces are based broadly on similarity of form and surface treatment that evidence the complexity of meaning associated with individual forms. However, a significant number of artifacts in the assemblage vary both morphologically and technologically from the artifact groupings classified under the heading of biface.

The first and most numerous forms of the non- bifaces are notched blades (see figure 5.25). The notched blade grouping constitutes a convergence of both morphological and technological characteristics. The reduction technology of large bifaces stems from initial production of what has been termed macroflake-blades from large nodules quarried near Colha, Altun Ha and smaller sites in the chert bearing eastern portion of northern Belize. These preforms were then reduced on both dorsal and ventral surfaces to create the bifaces observed in the assemblages (see Hester 1985; Meadows and Wilson 1997; Potter 1993; Roemer 1984; Shafer 1979, 1985).

In contrast, notched blades were produced from smaller, more carefully prepared cores. Blades were then notched along the lateral margins using most likely a punch technique. The interiors of many of the notches also exhibit abrasion and grinding, likely to standardize the size and shape of individual notches. In the present study, notched blades were grouped by the presence of the striking platform at the proximal terminus, the lack of any lateral flaking on the dorsal or ventral surfaces, and standardized notches along the lateral margins (see Illustration 5.5).

While artifacts clearly possessed technological meaning, the forms produced also possessed symbolic meaning. The variation in form of the morphological groupings of the bifaces lends itself to symbolic interpretation. However, despite the standardization of form of the notched blades, their meaning is much more ambiguous. One interpretation stems from what we have derived as how the Maya viewed the origin of both microcrystalline silicate and obsidian.

Both chert and obsidian were thought to have come from the heart of the sky and were formed by powerful meteorological phenomena that appeared as thunder, lightning, and hurricanes. The convergence of heart of sky and heart of earth as interpreted in Maya cosmology resulted in chert and obsidian present in the ground (Freidel et al. 1993: 101). It is posited that the notched blades comprised of highly uniform chert may be abstracted representations of lightning bolts. Clearly chert crafters placed meaning on the appearance of chert. Such an meaning attached to chert, in the form of an effigy lightning bolt may refer to the power of heart of sky (see Tedlock 1985: The Popol Vuh, The K'iche' Book of Counsel for a more detailed discussion of Heart of Sky and Heart of Earth).

Structure of the Descriptions of Blades and Flakes

The structure of the artifact descriptions of blades and flakes is very similar to the descriptions of the various artifact groupings that were produced on bifaces. The individual descriptions and selected images also appear in the Appendix. However, there are some alterations that include data specific to these particular morphological and technological forms. More specifically, the **platform dimensions**, **platform angles**, and the number of **dorsal facets** are all information pertinent to the production of blades and flakes. The notes section at the end of the individual artifact description conflates descriptions of raw material texture, breakage patterns along the lateral margins, and description any surface alteration. Because none of the artifacts exhibited pigments and (or) residues that particular category was eliminated.

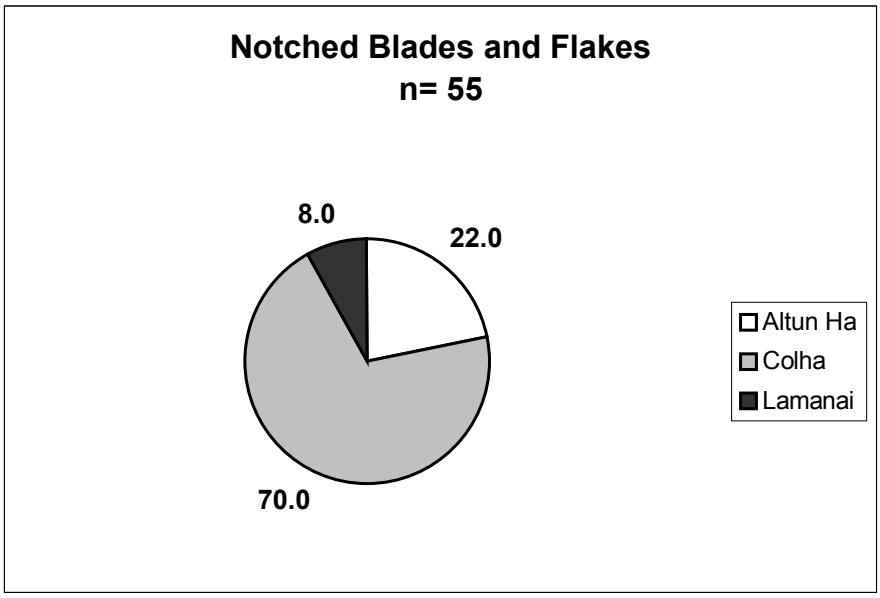


Figure 5.25- Frequency of notched flakes and blades by site

Artifact Grouping: Notched and Perforated Flakes:

The final artifact grouping for the assemblages of flaked stone symbols under study are notched and perforated flakes. Similar to notched and stemmed blades, notched flakes also occur with more elaborate bifaces in cache and burial contexts, primarily from the sites of Colha and Lamanai. And like the notched and stemmed blades artifact grouping, the notched and perforated flake grouping is a convergence of morphological and technological characteristics.

Flakes were grouped according to their overall size and evidence of flaking visible on the surfaces of individual specimens. The primary characteristic that motivated a separate category is that flakes do not fit the general rule of a blade. They are generally wider in relation to the overall length. More clearly, blades are defined as lithic artifacts that are unifacially worked and are twice as

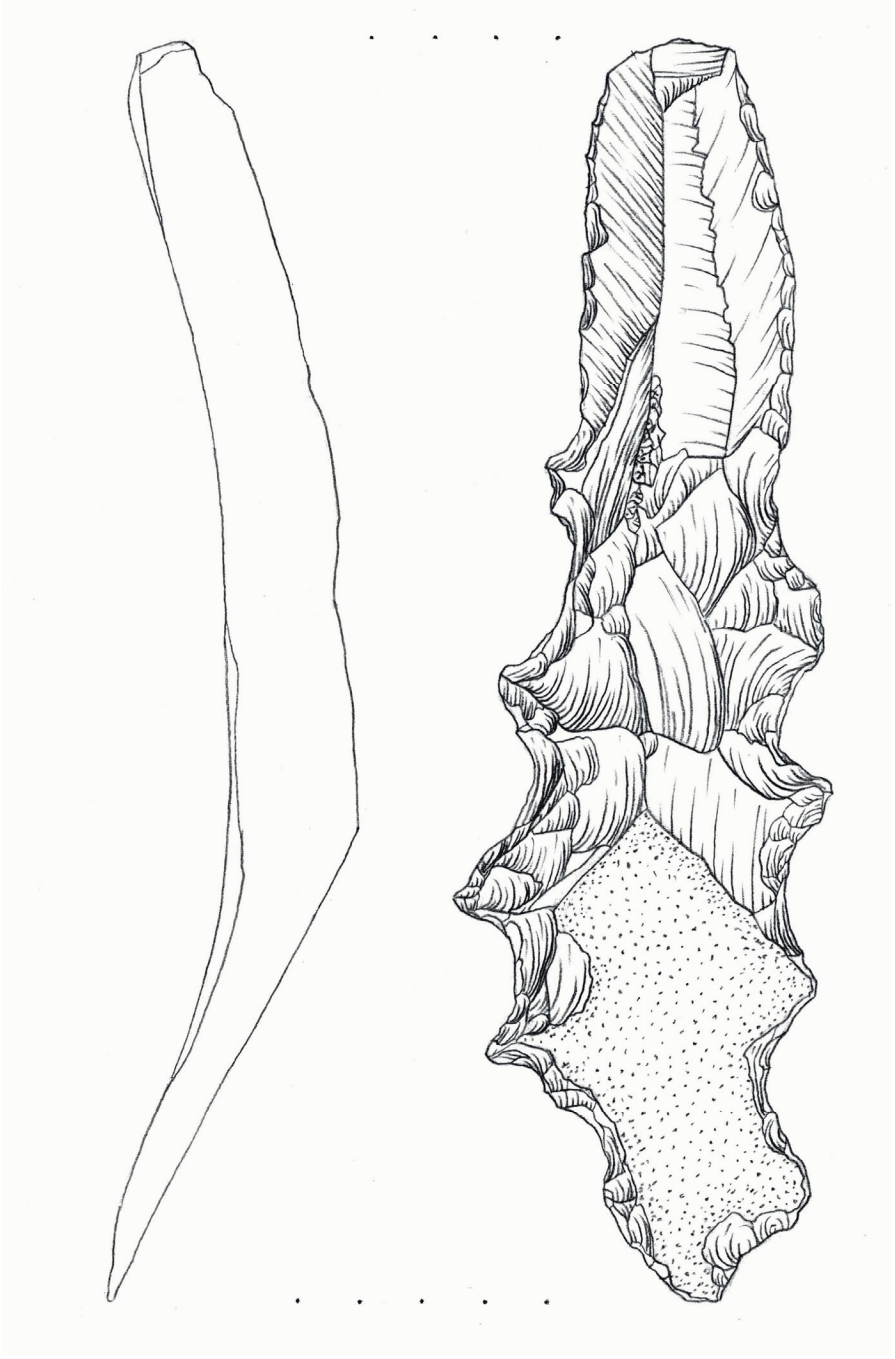


Illustration 5.5- cr11CH2012/5- 3 notched blade
Max. dimensions- l: 20.3 w: 5.7 thick- 2.0 (see Appendix A)

long as it they are wide. In contrast, flakes frequently have irregular flake scarring visible on the dorsal surfaces.

In terms of the symbolic meaning embodied in the form of individual artifacts, this category is much more difficult to assess in relation to larger and more elaborate bifacial forms. The variation in form of individual artifacts makes classification in more specific artifact groupings difficult if impossible. Thus, if an initial interpretation of symbolic meaning based on artifact form is possible it is presented in the notes portion of the individual description. As a final note, there were no notched or perforated flakes analyzed from Altun Ha, though smaller and more elaborately worked bifaces produced on obsidian and chert were present in the artifact assemblages from Altun Ha. The reason for this was that the focus of the study was larger bifacially worked artifacts produced on local chert. In terms of the Colha and Lamanai assemblages, notched and perforated flakes were larger in size when compared to the materials from Altun Ha (see Appendix).

Chapter 6: Structuring Webs of Meaning Through Symbolic Analysis

Maya eccentrics or ceremonial flints, referred in this dissertation as flaked stone symbols, appear in different forms at many sites across the lowlands. Eccentrics in the form of elaborate composite profiles have been described extensively from the centers of Tikal and Copan (see Coe 1962, 1990; Agurcia-Fasquelle and Fash 1991). Composite profile forms also appear locally in northern Belize, recovered from a Late Postclassic secondary deposit at Laguna de On (Masson 1997). The artifact groupings presented in Chapter Five, and recovered from three sites in northern Belize are focused primarily on describing the morphological and technological markers visible on individual specimens and groups of specimens.

It is hypothesized that the numerous forms present in the assemblages from Altun Ha, Colha, and Lamanai, Belize possess symbolic value derived from parallels with prominent themes present in Maya art. Recent advancement in the study of Maya hieroglyphics, iconography, and symbolism provides a rich framework for an analysis of abstracted and naturalistic forms occurring in flaked stone (see Coe 1990; Freidel et al. 1993; Grube 1994; Kelley 1976; Schele and Freidel 1990; Schele and Mathews 1999; Schele and Miller 1986; Stuart 1988). These approaches have relied primarily on art historical and epigraphic analyses focused on deciphering iconographic and linguistic complexity and patterning. Many studies assumed works of art were undertaken largely by and for the elite.

One criticism of the art historical approach is that in such studies, symbols exhibit the same meaning in every cultural context. Clearly, artistic works were part of a larger process of cultural production and were often viewed by the public. In viewing the art forms, the political legitimacy of the elite was

reinforced. Artistic themes were part of a larger program of legitimating historically specific power relations manifested as patronage, tribute, and obligation. However, as argued in Chapter Four, flaked stone symbols may not have been the artistic medium of the elite. It is suggested here that they were instead a collective expression of technological and symbolic knowledges by crafters and associated communities that lived outside elite households. These communities may have been part of an emergent craft class. Thus, the symbols depicted in flaked stone demonstrate an intimate knowledge of cosmology, myth, and historical reality by non- elite communities.

The first goal of this chapter will be to discuss some recent approaches to the archaeological study of symbols. After which, the morphological groupings of flaked stone symbols presented in Chapter Five serve as a point of departure in relating themes prevalent in Maya art and iconography to the forms under study here. Images from polychrome painted ceramics; murals, stucco, and carved stone monuments provide comparative data for more specific interpretation of the meanings of flaked stone artifacts. It is hoped that by presenting such juxtapositions, the notion that such artifacts were somehow eccentric in shape and devoid of meaning can be finally dispelled.

It became clear during the construction of the morphological groupings in Chapter Five, artifact forms from Altun Ha, Colha, and Lamanai exhibited some continuity with the iconography, and that each form possessed culturally bounded meaning. The elaboration of forms also varied between assemblages. Individual specimens represented common themes seen elsewhere in Maya culture. Moreover, it is argued here that individual artifacts also embody meaning that was and is negotiated in specific historical moments, as part of a larger process of cultural production and subsequent cultural evolution (see Robb 1998, 1999).

For example, during the Late and Terminal Classic (AD 600- AD 900) as elaborate chert symbols were acquired and displayed, utilized in warfare, ritual, or other activities, or sequestered away in elite family shrines, the meanings of these artifacts shifted within the social contexts in which they were produced and employed. An artifact that was utilized in public, such as a staff end had a different meaning to the individual who produced the implement. At the same time, the forms reflect certain larger organizational structures as indexed in other artistic media. Briefly, I would like to review some of the approaches to symbols recently employed in the literature and relate them to the artifact class under study.

APPROACHES TO THE STUDY OF SYMBOLS IN ARCHAEOLOGY

In an important paper in the ***Annual Review of Anthropology 1998***, and elaborated later in an edited volume John E. Robb (1998, 1999) synthesizes three perspectives from which the interpretation of symbols has been undertaken historically in archaeology. These three approaches are important in a consideration of ancient Maya flaked stone symbols. A brief review of some of the problems of studying symbols archaeologically is presented below. After which a summary of each approach is reviewed to construct a framework for understanding this particular artifact class.

The study of symbols has to some degree been mired in folk models that distinguish between a tangible material world and an invisible world of ideas and emotions (Robb 1998). This model reflects the arbitrary division between the sciences and humanities as well as the division between objective and subjective knowledge permeating archaeology today. Indeed, the dominance of the former approach has resulted in the emergence of a kind of theoretical materialism, in which signs speak for themselves and that the object of study is purely material

(Robb 1998: 330). This reduces the complex processes involved in the production and use of an artifact in cultural context as relating solely to economy and (or) subsistence.

The conflation of technology and subsistence and our ability to make factual statements with regards to material process in some ways denies the notion that symbolism and ideology are critical to the application of technological practices. Ideology contextualizes all cultural practice. Indeed, the social fact that production is entwined within a culturally bounded ideological framework begs the question of whether there is anything of cultural origin that is not symbolic? It is posited here that economic and material use cannot be easily separated from the symbolic aspects of material culture.

Current archaeological studies of symbols originate from many sources, many of the approaches (including processual, structural Marxist, and evolutionary approaches) have begun to converge in a general framework involving cultural actors and symbols (Robb 1998: 332). Researchers interested in social evolution have begun to view increasing social integration and complexity as the result of motivated human actors (see Bourdieu 1977; also Clark and Blake 1994). Marxist and structural approaches have moved away from *a priori* and monolithic structural causation to more localized and dialectical interplay between institutions and individuals and communities of actors (Saitta 1991; Saitta and McGuire 1996). The shift to a more particular approach reflects conceptions that view culture as fragmented and contested, rather than integrative and normative (see Robb 1998).

The first approach discussed by Robb (1998) is what he labels the information/ transmission view. This view is the most frequently employed by archaeologists and originates from a processual and functional evolutionary approach to culture. In this view, symbols are seen as tokens representing specific

meanings that are deployed through certain strategies, resulting in the emergence of predictable economies of representation, namely the exercise of power (Robb 1998: 333). Artifacts transmit information through stylistic variation, which then can be de- coded through the study of such variation and (or) similarity (Wobst 1977).

In this sense, symbols are displayed as a part of differing strategies to consolidate power or deployed as instruments of social control (Clark and Blake 1994). Symbols are critical to groups legitimating and maintaining power. The most relevant critique of this view is that symbols do not simply represent power relations, but indeed constitute them (Robb 1998). The interpretation of symbols solely as tokens of representation relies heavily on the notion of individuals and groups whose primary motivations for producing and deploying symbols is social control. This dismisses many symbolic aspects of material culture that do not appear to be practical in composition. In Maya studies, the view of public art as constitutive of an iconography of power has played an important role in understanding ancient Maya symbol systems (Schele and Freidel 1990; Schele and Miller 1986). However, while the understanding of power relations as represented and hidden by symbols is important, we must also understand how symbols structure power.

The second approach discussed by Robb (1998: 333- 334) and considered important in terms of the assemblages of Maya flaked stone symbols under study is the mental reality or structural approach. This approach centers on the notion that while individual human ambition may be part of a symbol's use life, the emphasis of interpretation is on how humans orient themselves in the world. How do humans think and act through culturally specific structures that recur in the organization and production of material culture (Robb 1998: 335)? In this semiotic view, symbols structure human social reality (Hodder ed. 1982; Tilley

ed. 1993). This approach has been employed relatively recently in the analysis of culturally bounded space in the European Neolithic (Hodder 1982, 1982).

It is posited here that such an approach has validity in the case of ancient Maya flaked stone symbols, as the convergence of technological and symbolic knowledges places an emphasis on a common ontology shared by the crafters and their associated communities. Moreover, this ontology was also shared with the elite communities who acquired and deployed material culture. These objects not only reflect how historically specific ancient Maya communities perceived the world, but they constituted the way these communities structured their world. Perhaps the most relevant criticism of this approach is the question of what basic concepts actually structure and constitute power within a particular culture (Robb 1998: 35). In the Maya case, it seems clear that a common creation myth and a potent supernatural reality entwined with a dynamic historical reality structured perceptions of political and economic relationships.

The third approach discussed by Robb (1998) is focused on the notion that while material culture may both represent and constitute meaning in different contexts, it is also culturally and historically emergent, that meanings are dynamic and change through time and across social contexts. Thus, the meanings grafted on to symbols are a mosaic that are not fixed but subject to negotiation at specific moments (Robb 1998: 337). This approach moves away from the formal qualities of material culture and focuses on how symbols were experienced and thus fit into a larger montage of culturally produced images. This perspective necessitates a close contextual analysis of material culture across archaeological and social contexts. And yet the critique of this approach comes from the fact that interpretations are often homogenized, as meaning is viewed as arbitrary and without cultural antecedents (Robb 1998: 337).

ANCIENT MAYA ICONOGRAPHY AND FLAKED STONE SYMBOLS

In Maya studies, both archaeology and art history have provided a rich body of data comprised of ancient Maya art and iconography for interpretation. This data is often accompanied by equally rich interpretations that rely primarily on both the information/ transmission view and the structural/ constitutive view (see Freidel et al. 1993; Schele and Freidel 1990; Schele and Miller 1986). In this view, even the most humble cultural artifact form is directly related to larger mythological and cosmological phenomena. However, there has been some effort to frame the production of works of art also encompassed a symbolic reality that structured power relations between the elite and the masses, as well as provided a medium through which communities could craft identity and negotiate power with other communities (see Bartlett and McAnany 2000; Reents- Budet 1998). Maya art was inscribed with a symbolic language that combined iconography and written texts that was shared by the individuals and groups who made, displayed, and viewed them (Schele and Miller 1986). Different communities had different levels of access to knowledge, and the body of knowledge that they possessed was both shaped and manipulated by its possessors.

In the analysis that follows, images drawn from other ancient Maya artistic media are employed to support the notion that the class of lithic artifacts under study both represents and constitutes symbolic meaning. And yet, the meaning of objects and groups of objects likely changed as processes of production, acquisition, and use unfolded through time and across space. As seen in Chapter Five, morphological similarity prompted the construction of groupings based on similar form. In this chapter, images of flaked stone symbols are compared to images derived from other artistic media to support an interpretation that these artifacts indeed are part of a larger cultural aesthetic and reflect symbolic and structural aspects of Maya society.

The images that provide the basis for the interpretation of flaked stone symbols originate from a number of sites across the Maya lowlands, including other artistic media at the sites included in the study. Images inscribed on carved stone monuments, painted polychrome ceramics, stucco, and mural art appear in conjunction with depictions of flaked stone artifacts from morphological groupings. The analysis number and the site number identify individual artifacts. This provides for easier reference to the artifact's individual description presented in the appendix. Implicit in this kind of analysis, is that the comparative data originating from different sites across the lowlands reinforces the idea of a pan-Maya symbolic system (or language) that structured both cosmology and historical and social reality. All of the comparative works date to the Classic Period (AD 250- AD 900). The larger narratives surrounding individual works used in the comparison are omitted.

Depictions of Captives and Sacrifice

As stated in the definition of the morphological grouping in Chapter Five, the taking of captives was critical to both the individual in terms of demonstrating skills in warfare and the community in terms of demonstrating political legitimacy. Skill at taking captives showed that opponents could be subdued and enslaved as prospective servants, opponents in a public ballgame, and (or) ritual sacrifice. Images of captives occur frequently in Maya art.

Figure 6.1- r77LA244/6 Lamanai

As will be seen in this chapter, chert crafters utilized similar artistic techniques to execute particular chert forms. This is perhaps most obvious in specimen r77LA244/6 (Figure 6.1), a captive form recovered from an axial cache in an elite house complex at Lamanai (structure N10- 15). In this form, the arms are depicted as bound behind the back and the legs are foreshortened as if the individual was on the knees. It appears as if the upper torso or the head is twisted to depict a facial profile. This specimen prompted the notion that some of the captive forms in the assemblages of flaked stone symbols actually depict historical figures who were captured in conflict. Specimen ah8RP137/55 also appears to depict a captive according to similar criteria. The specimen exhibits the simple headdress, triangular outline of the arms, and what appear to be

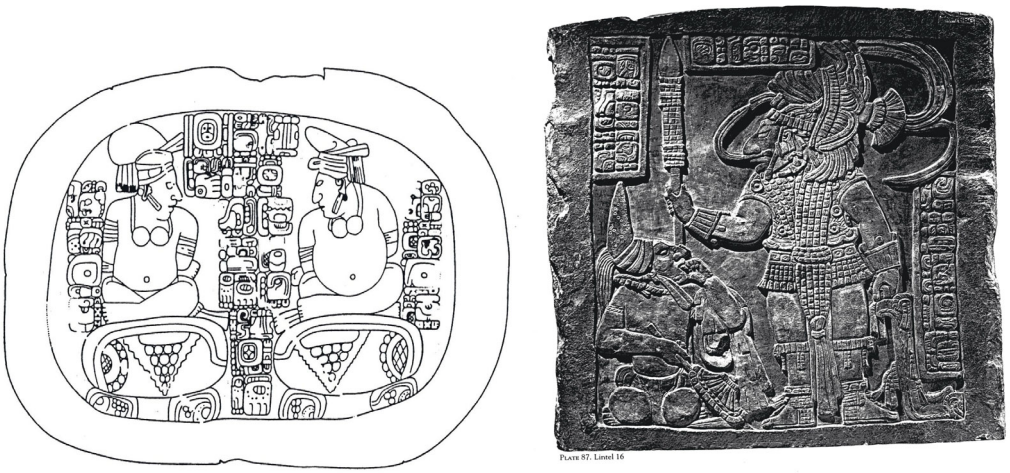


Figure 6.2- a. Altar 23 Caracol (from Grube 1994) b. Lintel 16 Yaxchilan (from Schele and Miller 1986)

foreshortened arms. As noted in Chapter Five, the specimen is covered with red and yellow pigment (see also Figure 5.1).

Perhaps one of the largest depictions of bound captives can be observed on the surface of Altar 23 from Caracol a large Classic Period center located on the Vacca Plateau of western Belize (Chase and Chase 1987, 1994; Grube 1994). Altar 23 depicts two captive nobles from the nearby and smaller sites of Ucanal and Bital, located to the west of Caracol. The medium of the altar is carved limestone (see Grube 1994: 84).

The captives are bound with their arms behind them and are stripped of all elaborate clothing. Simple headdresses adorn the heads of the captives and they are seated with legs crossed in a passive posture. The binding of the arms creates a triangle outline of the upper torso. The technique of depicting arms provides one of the defining criteria for identifying captives in the assemblages of flaked stone symbols. It is posited that the depiction of a captive with arms bound

behind the back implies the captive is completely subdued and under the sway of the individuals who took the captive (Figure 6.2a).

The second image of a bound captive originates from Yaxchilan, a major Classic Period center along the Usamacinta River (Schele and Miller 1986: 235). Lintel 16 at Yaxchilan, comprised of carved limestone, depicts a captive with arms unbound, in a passive body posture. What is important in this depiction is the way the legs are foreshortened to depict the individual on the knees. Moreover, the upper torso is twisted to depict the profile of the individual. These artistic techniques are common aspects included in Maya art (Figure 6.2b).

In concert with the interpretation of captives as historical personages, the notion of captive has origins in the Maya creation myth and the conflict between the mythical Hero Twins and the Lords of Death (see Tedlock 1985). Other captive forms depicted in flaked stone do not possess the clear profile, but do exhibit simple headdresses, bound arms, and foreshortened legs. These less-detailed forms occur primarily in the Altun Ha assemblage (see Appendix).

Related to depictions of captives, sacrifice was important for political legitimation and public ritual. Sacrifice victims were in many instance captives, but sacrifices of other individuals also likely took place. Sacrifice victims appear in the medium of flaked stone. The critical attributes for identifying captives is the extension of the appendages and the depiction of the upturned head to reveal a profile. These features are perhaps most clear in a specimen from Altun Ha. Blood sacrifice took many forms namely auto- sacrifice as well as ritualized and public sacrifice. As Schele and Miller (1986) and Freidel et al. (1993) articulate, blood was the mortar of Maya religious life. The ritualized spilling of blood via sacrifice was necessary in order to cleanse as well as anchor the present in the face of a volatile and dynamic Otherworld. Captives were dealt with in a number of ways.

Figure 6.3- ah209RP188/5 sacrifice from Altun Ha

These include decapitation, disembowelment, dismemberment, heart excision, and immolation (Schele and Miller 1986). Thus, sacrifice structured how ancient Maya communities viewed the world. Sacrifice also structured power relations between the elite who engaged in public ritual and sacrifice as pageant and other segments of ancient Maya society. Perhaps the best example of this is specimen ah258RP38/55 that shows an upturned profile, an incised circle at the location of the heart, and red colored surface alteration across what corresponds to the thoracic region of the individual (see Figure 5.3).

Specimen ah209RP188/5 is also a good example of a captive with outstretched appendages and upturned facial profile. The facial profile is subtle, but was achieved through patterned flake scarring. The profile is clearly visible if one takes into account the detail of execution visible in other media (Figure 6.3).

Figure 6.4- ah26RP98/19 ball player from Altun Ha

Ball Players

The ballgame was important as a ritualized game of sport to both elite groups and the popular masses. Ballgames often placed war captives against elite players in site centers. In Classic Maya art, dynastic and temporal transformations were emphasized to a far greater degree than ritual renewal. However, in some instances the ball game does appear to be ritualized (Cohodas 1991: 255). Ball game imagery dates to the Early Classic on painted polychrome ceramics from the central Peten. Ball players are often depicted as rulers with exaggerated waist yokes. The presence of an exaggerated waist yoke is a defining criterion for identifying ball players depicted in flaked stone (Figure 6.4).

In depictions of ball players in carved stone, the ball is often shown between two players with a glyph inclusion (Cohodas 1991: 256). Overall the ball players are depicted in naturalized poses with little indication of supernatural attributes. Ballgames on funerary ceramics are often paralleled with the hunt and

Figure 6.5- Ballcourt marker from Yaxchilan
(from Schele and Miller 1986)

(or) the confrontation with the old god. On carved monuments, ball game imagery is associated with capture, sacrifice, and warfare (Chase and Chase 1987: 33; Cohodas 1991: 269). The ballgame is also associated with the Hero Twins, who defeated the Lords of Death so that the Maya could live in this creation (see Tedlock 1985). The Hero Twins are part of ballgame imagery during Classic and Postclassic times.

The link between the ballgame, captives, warfare, and sacrifice is clear (Figure 6.5). Oftentimes the losing players were sacrificed in public ceremony, likely as part of a larger festival. The ballgame integrated political and historical events in a religious context. The ballgame was yet another institution that linked the political and the religious in ancient Maya social life. This linkage reflects the importance of the ballgame to all aspects of Maya society. This importance is reflected in the association of the ballgame and a paradigm of transformation through sacrifice and victory keeping the natural and social world intact (Cohodas 1991; Schele and Freidel 1991). As articulated previously, ball players depicted in flaked stone are recognized by the presence of a waist yoke. However, other important attributes of ball player figures are the positioning of the feet, and the

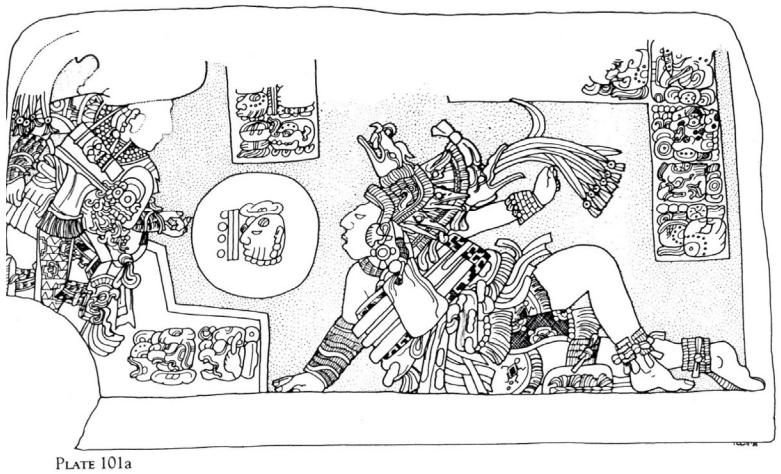


Figure 6.6- Step VII Structure 33 Yaxchilan (from Schele and Miller 1986)

headdress. Similar to captives, ball players may be historical figures that were captured in warfare or indeed, may be a depiction of the possessor of the form as part of the process of political legitimation.

Perhaps the best examples of ball players appearing in the medium of flaked stone are present in the Altun Ha assemblage. Specimen ah26RP98/19 from Altun Ha is also documented in Chapter Five (Figure 6.4). Another good example of a ball player is specimen ah92RP98/33. This specimen exhibits an exaggerated waist yoke and clearly defined feet. Also the figure's arms are drawn to the side rather than extended (see Appendix).

Steps VI through VIII on Temple 33 at Yaxchilan depicts Bird Jaguar playing the ball game with a bound human captive. The medium is carved limestone (Figure 6.6). In this scene Bird Jaguar plays a ball game after his father's death in AD 744 (Schele and Freidel 1990: 283). Bird Jaguar is dressed in elaborate ritual paraphernalia that related his game to the distant mythological past, placing the game in a sacred context. This ritualized form of the game was an important legitimating event, and clearly structured transfer of power.

Figure 6.7- ah184RP188/12

Gendered Forms

As articulated to some degree in Chapter Five, the culturally specific definitions of gender are the result of both cultural and biological factors (see Gero and Conkey 1991; Wright 1996; Yates 1993). Female forms depicted in flaked stone show characteristics that to some degree define their gender within the context of Classic Period Maya society. With respect to depictions of gendered forms, it is important to look at how female forms were depicted in other cultural contexts. Symbolic analysis of gendered figures from the Mesolithic and Neolithic site of Lepenski Vir in eastern Europe shows female forms as depicted with broad lower abdominal areas and often adorned with red pigment (Handsman 1991). Indeed, red pigment appears on specimen r72LA395/ from Lamanai (Figure 5.5)(see also Gero and Conkey 1991). This specimen may depict the sacrifice of a woman as illustrated by the upturned profile, presence of red pigment, and broad lower torso.

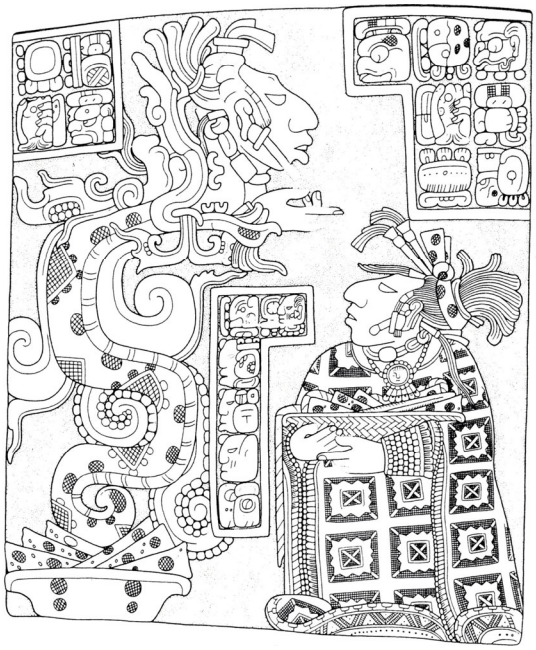


Figure 6.8- Lintel 15 Yaxchilan, Xoc with vision serpent
(from Schele and Miller 1986)

A number of other specimens from Altun Ha appear to be depictions of females, exhibiting similar attributes such as widened abdomen and facial profiles. Specimen ah184RP188/12 is an example of what appears to be the depiction of a female from Altun Ha (Figure 6.7).

It is clear from what appear to be female forms present in the assemblages and female forms appearing in other artistic media, there was complex gender differentiation in Classic Maya society. Women often possessed political power (Schele and Freidel 1990). In the medium of flaked stone, it appears that the forms may not have demonstrated political authority, but instead perhaps are representations of wives or consorts of the entombed (see Pendergast 1979 re: artifact associations in Tomb A-1/1 at Altun Ha).

Women appear on numerous Late Classic monuments from the lowland centers of Dos Pilas, Palenque and Yaxchilan among others (Schele and Freidel

1990). In depictions on carved stone, women occupy positions of political and religious power. For example, on Lintel 15 at Yaxchilan, Xoc, who was the primary wife of Bird Jaguar appears with a vision serpent, posited to be the founder of the ruling dynasty, Yat Balam (Schele and Freidel 1990)(Figure 6.8). As these depictions illustrate, elite women played critical roles in Classic Period Maya society. The appearance of female forms rendered in flaked stone reinforce the notion that gender is a complex culturally- bound phenomenon that can be observed in different forms of artistic media.

Zoomorphic Forms: Serpents

Serpent imagery is one of the most frequent and diverse images appearing in Maya art. The serpent held critical symbolic importance for the ancient Maya. First, in Maya belief systems, a giant serpent comprised the sky. Indeed, the word for snake is also the same word for sky (kan), as well as for the color blue, and the number four (Houston 1984). Spinden (1975: 71) asserts that the serpent may have been more important in art than in actual religious ritual. That is, the serpent in this case was assumed to exist as the abstracted sky itself, and was not a part of animistic ritual.

The body form of the serpent furnished numerous themes and possibilities of artistic development. And serpents appearing in the medium of flaked stone are no exception. Like other animal forms, serpents are naturalized, but can also appear as idealizations that reflect certain religious themes or events (Spinden 1975: 33). Specimen ah151RP528/ is an example that depicts what appears to be a serpent. The notches visible along the lateral margins of the specimen are

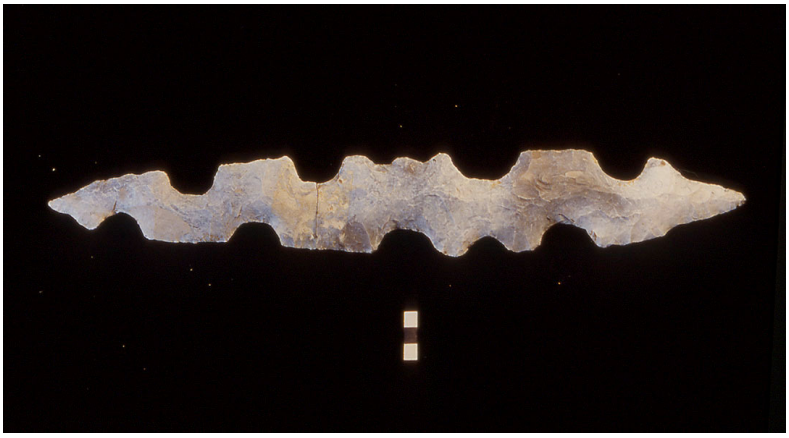


Figure 6.9- ah151RP528/10

interpreted to indicate motion. This implied dynamic is replicated in other serpent forms in the assemblage.

Serpent imagery was fundamental to rulership as manifest in the serpent bar (Schele and Freidel 1990: 68). Serpents also carried the ancestors from the Otherworld back to the present creation by appearing in hallucinatory visions. Serpents imbued places, objects, and people with power. A number of incarnations of gods, including *k'awil* as God K exhibit a serpent as one leg or one foot. Indeed, specimen ah180RP35/14 from Altun Ha appears to depict God K with a serpent foot (see Figure 6.24).

The proliferation of the belief that the serpent is embodied as the sky may be linked to the feathered serpent as Quetzalcoatl, originating from Central Mexico. A large number of what may be interpreted as serpent forms are present in the assemblages, including serpents that are both in motion and still, depicted with both open and closed mouths. The example I would like to use is much less clear in terms of archaeological context. However, the elaboration of the lithic technology on highly uniform chert perhaps marks this specimen as the finest

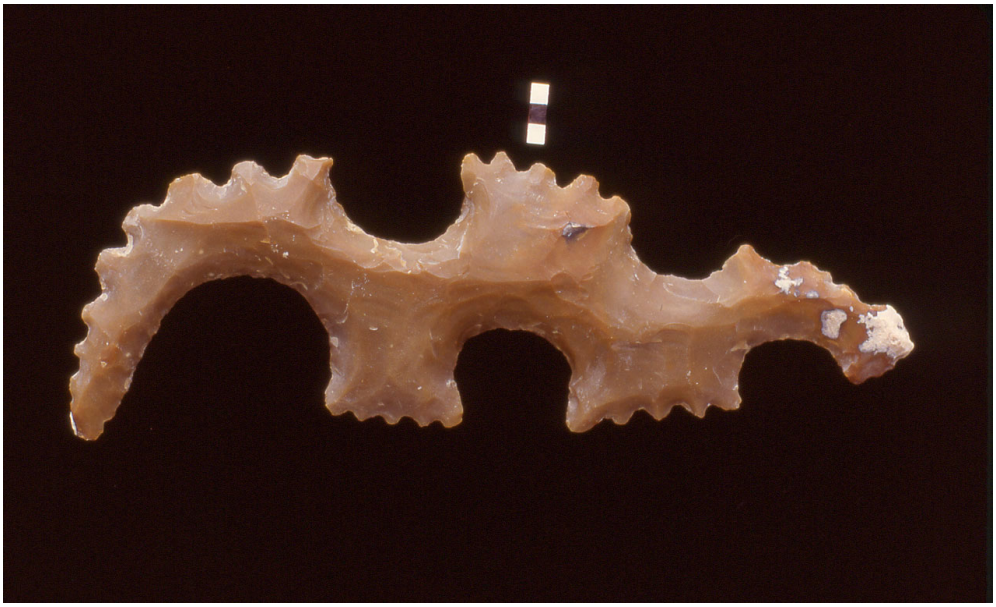


Figure 6.10- r85LA/ feathered serpent from Lamanai

example of individual craft skill in the Lamanai assemblage (Figure 6.10). We can clearly observe the fine flaking across the medial surfaces of r85LA/, as well as carefully controlled hammer technology exhibited by the serrations along the margins. This piece is interpreted here as depicting a feathered serpent. With the context unknown, what we have is the form itself to tell us of the technological and symbolic knowledge executed by its maker. First, visible on this piece we have the integration of raw material coloration as part of an eye. Second, we have the notches along the margins depicting a dynamic motion to the form. Third, we have the serration along the margins depicting the elaborate feathered plumes of Quetzalcoatl (Figure 6.11).

The depiction of the feathered serpent indicates knowledge of iconography perhaps dating to the influence of Central Mexico in the eastern Maya

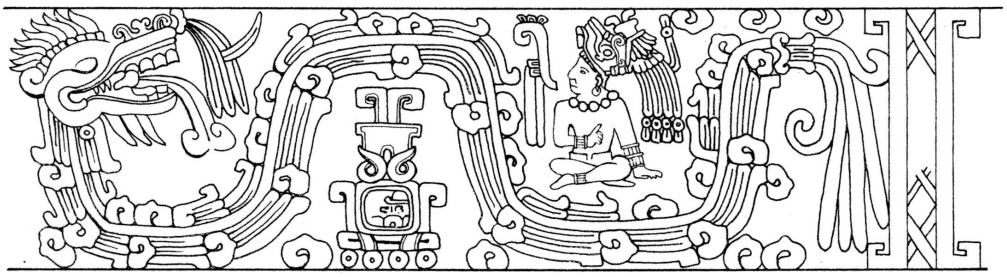


Figure 6.11- Feathered serpent from Xochimilco AD 250 (from Adams 1996)

lowlands, during the Early Classic (AD 250- AD 600). As well, the lithic depiction of the feathered serpent displays knowledge of a deity that exercised influence across Mesoamerica (see Adams 1991: 260; Sharer 1994). Thus, the form embodies symbolic knowledge of an important deity that links the chert crafter to an aspect of an ephemeral and far- reaching Mesoamerican ideology in addition to serving as ritual implements in elaborate blood offerings.

Felines and Canines

Of course feline imagery was an integral theme in Maya cosmology and art. The jaguar was a symbol of strength and fertility (Spinden 1975). The jaguar has religious significance across Mesoamerica dating to the Olmec culture (1500 BC- 400 BC). To the ancient Maya, the jaguar possessed a religious importance perhaps only secondary to the serpent (Spinden 1975: 76). Indeed, many gods and rulers had feline incarnations. One example, the Chaks or rain gods of the four-corners of the earth exhibited incarnations as this large cat indigenous to the Maya lowlands. The jaguar as sun god has been interpreted to be the celestial incarnation of the Hero Twins were reborn and defeated the Lords of Death (Schele and Freidel 1990). Jaguar imagery was also associated with political authority. During the Classic Period, jaguar imagery represented the king or ahau.

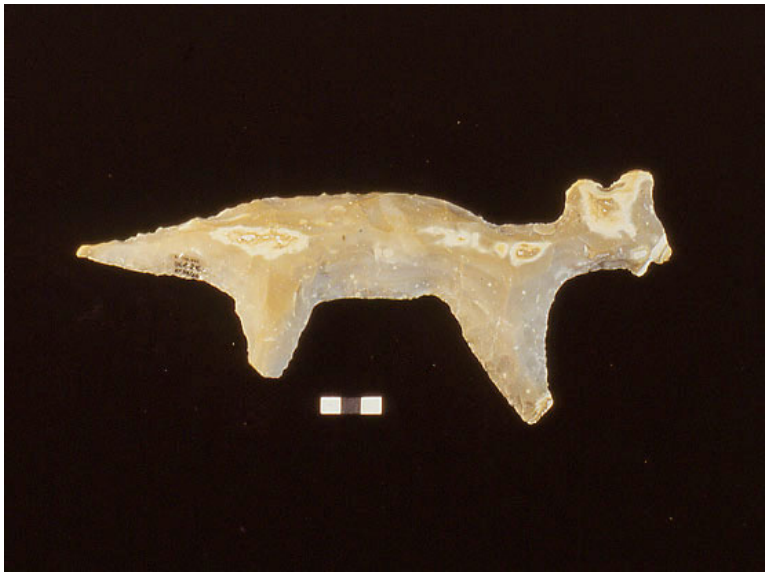


Figure 6.12- ah218RP35/26 Altun Ha

At Tikal, jaguar imagery is found in the earliest depiction of a Maya king on Stela 23 (Schele and Freidel 1990).

More generally, feline imagery was often associated with transformation and animal spirit companions (Figure 6.12). A *wayob* is defined as an animal spirit companions were often depicted in both zoomorphic and anthropomorphic forms (Figure 6.13). In the morphological groupings of felines appearing in the assemblages of flakes stone, in two examples the feline exhibits what appears to be a human face. One example I would like to use is also an artifact from the Lamanai assemblage. Specimen ah80LA244/22 was recovered from one of the two large axial caches located high on structure N10-9 (Figure 6.14).

This cache is dated to the Terminal Classic Period (AD 800- AD 900) and is one of two dedicatory caches that commemorated the construction of the final structures atop this massive example of public architecture. Specimen r80LA244/22 clearly depicts a feline form perhaps one of the smaller cats

a. b.

Figure 6.13- a. jaguar wayob painted vessel from Seibal (Freidel et al. 1993)
b. jaguar wayob (from Schele and Mathews 1998)

indigenous to the region, an ocelot or marguey. The naturalized body position illustrates this. However, upon closer inspection, the facial profile of the specimen appears as that of an anthropomorphic form. The subtle use of flake scarring and cortex depicts the eye and ears of the feline. But, it seems that the feline exhibits a human face. The snout or nose is clearly not feline.

The presence of human visages on animal bodies is not a rare occurrence in the assemblages of zoomorphic forms. The transformation of humans into animals and vice versa was an important element in Maya religious and social life (see Freidel et al. 1993: 202- 203). Certainly the boundaries between human and animal worlds were not the same as our own. If we can interpret the facial profile as human, we can assume the crafter who created this form clearly possessed knowledge of the transformative nature of humans and animals. The naturalized body form utilizing the raw material to depict coat pattern and the human face are remarkable in terms of the exhibition of culturally bounded knowledge of the world.

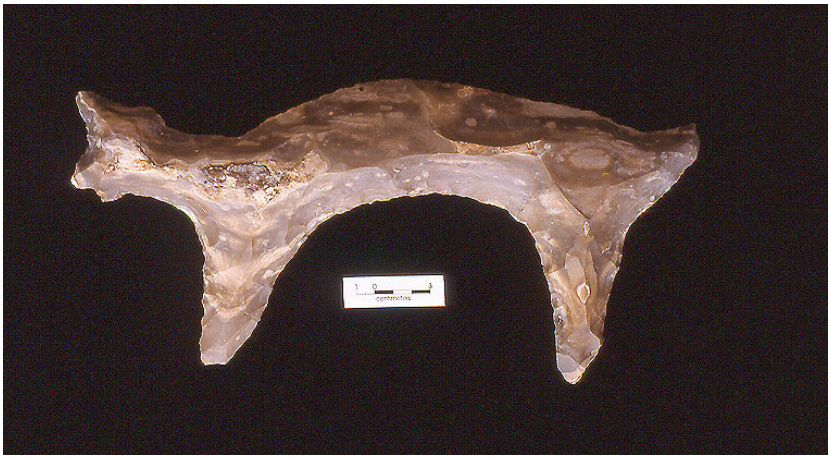


Figure 6.14- r80LA244/22 Lamanai

If we can assume the profile of specimen r80LA244/22 is human, the depiction of *wayob* can also be inferred. Though it is unclear whose wayob is depicted. Indeed, this critter may have depicted more than one person's wayob if more than one person possessed it. In any case, knowledge of the transformative interaction between humans and animals is demonstrated.

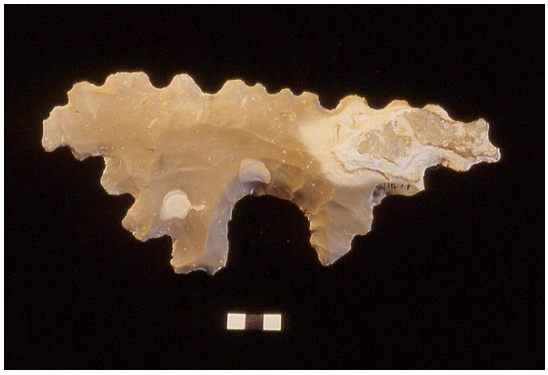
Canines occur much less frequently in the literature. We know that dogs were probably the most common domesticated animals in the lowlands. Dogs appear to be associated with the mundane world. This does not preclude the notion that dogs also moved back and forth between the real world and the Other World. Indeed, when appearing in the medium of flaked stone, one example from the Altun Ha assemblage may exhibit a human profile. This suggests that dogs were also associated with transformation and wayob as shown in specimen r13LA/ (see Figure 5.9b). A number of canine depictions as well as other mammals are visible in the Altun Ha assemblage also presented in Chapter Five (Figure 6.15).

Figure 6.15- ah205RP200/403 Altun Ha

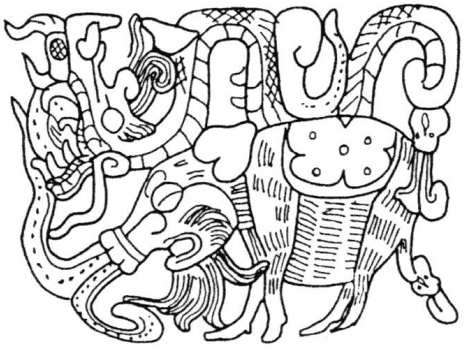
Other zoomorphic forms that exhibit correlation with forms that appear in ancient Maya artistic media are shown below. Rabbits were often associated with scribes in Maya myth and iconography. As shown below, the rabbit appears as a scribe on the Princeton pot, recovered from a site in the Peten (Schele and Miller 1986). The rabbit shows both animal and human features, again illustrative of transformation between human and animal. This kind of form may index the wayob, as human scribes may have had the ability to transform into rabbit form. The rabbit also appears in the medium of flaked stone. The specimen shown below exhibits features that. Also notice the pigment visible on the medial distal surface of the form, indicating artistic and (or) ritual elaboration of the appearance of the form (Figure 6.16a & b). Also shown above are two images of peccaries. The line drawing is an image appearing on a painted vessel from an unknown context in the lowlands (Freidel et al. 1993). The peccary had ritual significance to the Maya and was associated with fertility and the Otherworld. Of note is the kin in sign present

a.

b.



c.



d.

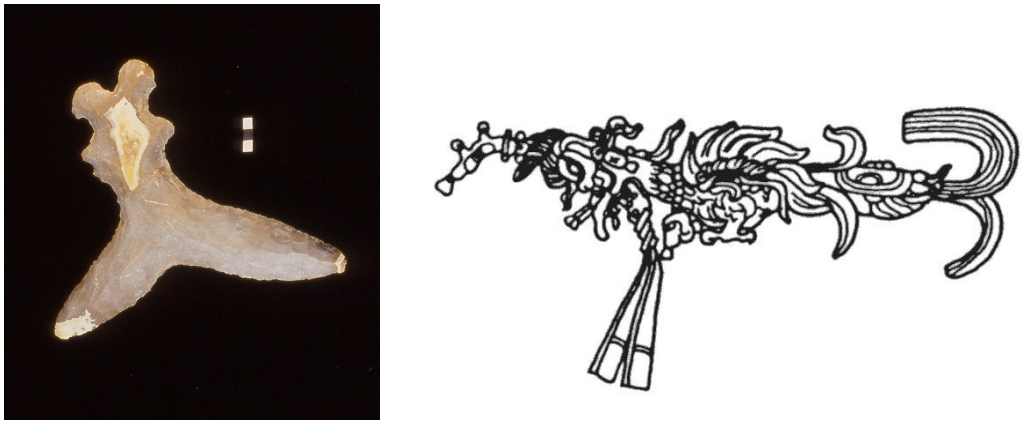
Figure 6.16- a. ah120RP137/53 Altun Ha
b. rabbit as scribe from Princeton pot (Schele and Miller 1986)
c. ah66RP306/7 Altun Ha
d. peccary from painted vessel (Freidel et al. 1993)

on the back of the peccary. The kin sign is associated with the sun and the term for a day in the long count. These associations link the peccary with the origin of the cosmos. It has been suggested that the peccary appears in the sky as the constellation we know as Gemini (see Freidel et al. 1993). In other examples, the maize god is shown emerging from an opening in the back of a peccary. The peccary also appears in the medium of flaked stone. This example exhibits the form of a peccary, especially noticeable in what appears to be the snout of the form (Figure 6.16c & d).

Birds

Birds appear as imagery in a variety of artistic media. In the creation myth, the giant bird known as Itzam Ye or the celestial bird was described as the false sun (see Freidel et al. 1993; Schele and Mathews 1999; Tedlock 1985). In the creation myth of the Popol Vuh, this figure claimed to be the true sun god and had to be defeated by the Hero Twins. After firing a blowgun at the tree in which the giant bird was perched, the Hero Twins swarmed the tree and killed the false sun. Itzam Ye as the false sun was defeated and cast into the night sky as the North Star (Tedlock 1996). Bird imagery and birds, more specifically the quetzal appeared in numerous artistic works, oftentimes associated with headdresses and the world tree, as clearly seen in the Tablet of the Cross from Palenque (Schele and Miller 1986).

In the assemblages of the flaked stone symbols under study, birds appear as individual specimens as well as part of composite forms, such as the example from Lamanai (see Appendix). Birds also appear in composite artifacts that may have been hafted or handled. The specimen below shows what appears to be a form of a quetzal. The correspondence with the false sun appearing at the top of



a. b.

Figure 6.17- a. ah197RP35/28 Altun Ha
b. depiction of Itzam Ye from Tablet of Cross (Freidel et al. 1993)

the world tree is illustrated in Figure 6.17a & b. Also of note is the yellow pigment present on the cortex. This pigment is thick and exhibits texture.

Crocodiles and Turtles

The turtle and the crocodile both played an important role in the cosmology and symbolism of the ancient Maya. This of course translates into frequent appearance in art. Both the turtle and the crocodile were believed to be the surfaces on which the present world was created. As documented in Chapter 5, the crocodile has an important place at Lamanai. The crocodile appears multiple times in effigy ceramics dated to the Classic Period. In the assemblage of flaked stone, numerous complete crocodile forms can be observed, as well one form that depicts the head of a crocodile. These images show that crafters of flaked stone were depicting naturalized forms of animals that lived in proximity to Maya centers, as well as possessed supernatural correlates. The crocodile may also have served as a *wayob*, as one Late Classic example exhibits a human head

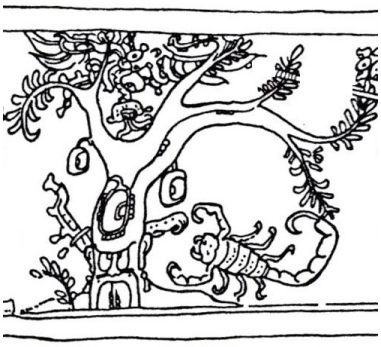
a. b.

Figure 6.18- a. ah67RP694/4 Altun Ha
b. Maize God in turtle carapace (from Schele and Miller 1986)

inside the open mouth of a crocodile. The best example of a crocodile depicted in flaked stone as presented in Chapter Five is specimen r58LA244/14 from Lamanai (see Figure 5.10a).

The turtle also was believed to have comprised the surface of the earth on which the present creation was located. Indeed, the turtle appears on the surface of a well- known painted polychrome plate. In this scene, it has been interpreted that the Maize God emerges from the crack in the turtle carapace. The turtle also appears on the surface of another jar, which depicts a Chakob cracking open a turtle carapace so, again the Maize God can merge (see Freidel et al. 1993). Moreover, according to the interpretation of the same scholars, what has been termed the turtle of rebirth appears as the belt of Orion (see Freidel et al. 1992: 80). In the flaked stone depiction, two specimens from Lamanai and Altun Ha, respectively depict what are seemingly much more humble examples of turtles (Figure 6.18 a & b).

a.



b.

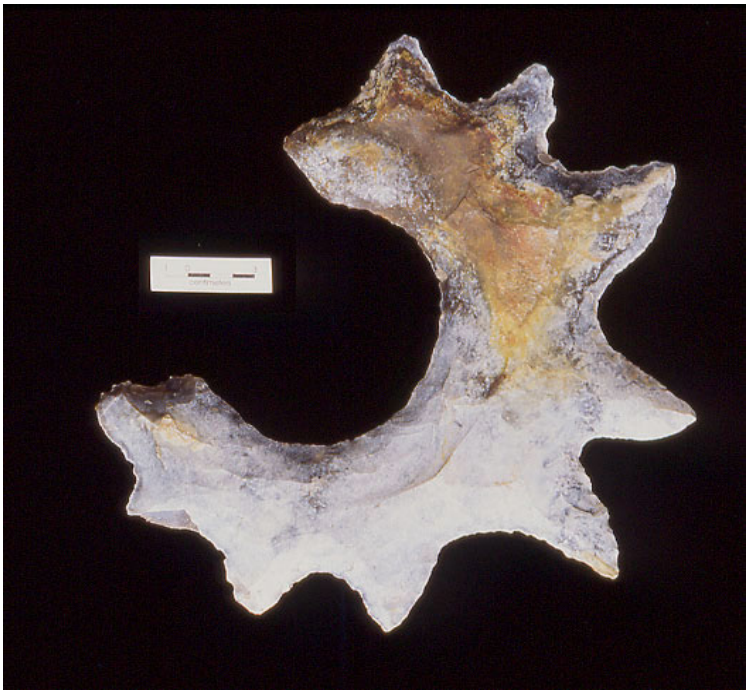
Figure 6.19- a. r1LA/ Lamanai
b. scorpion and Itzam Ye from painted vessel (Freidel et al. 1990)

Scorpions

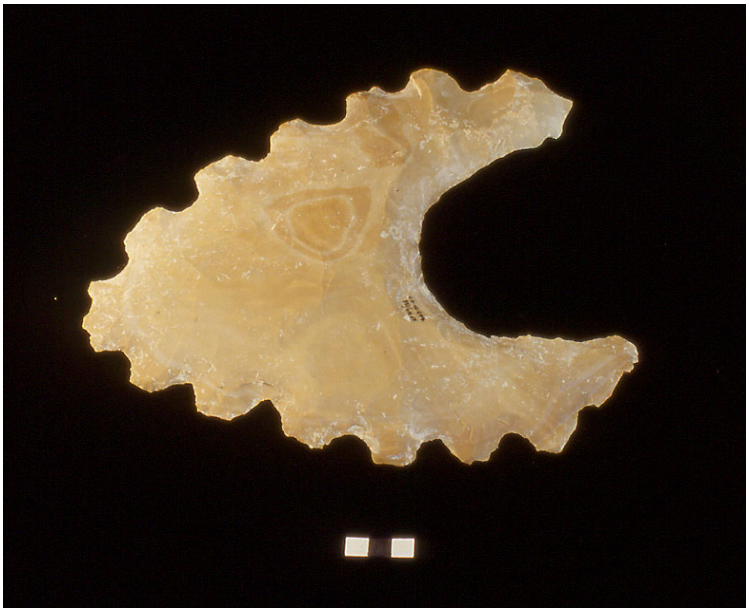
The ancient Maya duly noted the transformation of humans and animals. These transformations were important metaphors for cosmology and history. Centipedes were important in transformation imagery. Scorpions also appear in Maya art as part of the dangers of the natural world. Indeed, the scorpion is depicted on painted ceramics and in depictions of the defeat of the Hero Twins over Itzam Ye, the false sun (Figure 6.19a & b)(see Freidel et al. 1993; Tedlock 1985).

Crescents and Stemmed Disks: Personified and Celestial Bodies

As has been extensively documented, the Maya observed and predicted complex astronomical phenomena (Aveni 1990; Freidel et al. 1993). It is currently unclear the degree to which they were able to predict the occurrence of planetary convergence, the appearance of constellations and comets, and eclipses. However, what is becoming clear is that the Maya associated specific star clusters with characters in Maya mythology. According to Freidel et al. (1993), the constellation



a.



b.

Figure 6.20- a. r53LA395/ Lamanai
b. ah309RP314/133 Altun Ha

we know as Orion was fraught with mythological imagery, including what has been posited as the three hearth stones and the turtle of creation. Aveni (1990) has shown that the ancient Maya practiced a vibrant astronomy, and these observations were integrated in their daily lives, to record time, and to position events in a larger cosmological and historical context.

Aveni (1990: 27) asserts that an eclipse of the sun and the moon are pictured in the Florentine Codex. The Codex asserts that the appearance of a comet foretold the death of a leader. In terms of other celestial events, a series of solar eclipses would have been visible to all of Mesoamerica during the Early Classic and Classic Periods. Total solar eclipses visible in the Maya area occurred in AD 138 and AD 290 (Aveni 1990: 81). These eclipses were a source of great fear and foreboding. Moreover, planetary movements were also important, especially the movements of Mercury and Venus. Venus especially was observed, perhaps because it was linked with the sun as the celestial incarnation of the Hero Twins (Schele and Freidel 1990). Maya conceptions of death and rebirth, sowing and dawning, find symbolic expression in interplay between these two celestial bodies (Aveni 1990: 86; Schele and Freidel 1990).

Crescents appear as supernatural creatures, perhaps as the sun devouring the moon or the moon devouring other celestial bodies as was thought to occur during both eclipses and convergence (Figure 6.20a & b). Observe the pigment visible on the surface of r53LA395/ (Figure 6.20a). Crescent forms are personified as presented in Chapter Five. These appear as different profiles with eye and mouth features. The sky and the sun were also personified it is posited that these personifications appear to be visible in the medium of flaked stone. Monsters appear perhaps most frequently as masks on the exterior of structures (Schele and Freidel 1990). These masks are often identified as witz (mountain) monsters. The

Figure 6.21- ah327RP364/63 Altun Ha

facade on structure E-VII-sub from Uaxactun is perhaps the most well known depictions of earth monsters as masks. It is posited here that at least one artifact form recovered from Altun Ha exhibits an earth monster (Figure 6.20b).

A frequently occurring form in the assemblages is termed the stemmed disk. These have also been called hand mirrors (see Pendergast 1979). They come in a variety of styles (see Appendix). However, no artifact exhibits a stem that exhibits extensive handling polish. This seems to eliminate the supposition that these are mirrors or even weapons. It is posited here that the appearance of comets may be inscribed in flaked stone as this artifact form (Figure 6.21). Numerous stemmed disks appear in both the Lamanai and the Altun Ha assemblages. The red staining on the form shown above and barbs visible on a second from Altun Ha indicates variability in the depiction of these forms.

Star and Ring Forms

Star forms also appear in the medium of flaked stone. Stars may have represented specific celestial bodies. Stars that exhibit nine barbs occur most frequently. As documented in Chapter Five and in Appendix A, star forms exhibit pigment and drawings were applied to the surface. One example, specimen r63LA240/19 from Lamanai exhibits both red and yellow pigments (Figure 6.22). This specimen shows pigments that form the profiles of several creatures emerging from the border of the star. A second example from Altun Ha (specimen ah41RP697/2 clearly exhibits a seated figure facing to the right comprised of red pigment (see Appendix). The pigment on this specimen has deteriorated, but the outline of the form is clearly visible.

Star forms begin to be more abstracted from naturalized representations seen in human and animal depictions. However, they clearly possessed meaning and were reproduced in fairly large numbers. If indeed these forms were associated with celestial bodies, they linked the mythical past and the present creation. As well, some of the star forms exhibit perforations, perhaps these rings represent portals. Or from a more utilitarian perspective, were used to haft the forms.

After interpreting the naturalized anthropomorphic and zoomorphic forms and the personified crescents, a symbolic interpretation of star and ring forms is more difficult. The meanings of the forms are abstract. Rings appear frequently in all three assemblages. Oftentimes they exhibit serrations and barbs. Perhaps the best example of a ring form is a large, serrated ring recovered from a Late Preclassic cache at Colha (Figure 6.23). As abstractions, we must broaden the interpretation to include notions of a cultural aesthetic that may not have had immediate representative meaning. A search of literature of depictions of Maya art yielded numerous depictions of both star and ring forms that were part of

Figure 6.22- r63LA240/19 star form with pigment Lamanai

a technique for defining the borders of a particular scene. This indicates that forms structured the way Maya artists conceived of scenes, part of an aesthetic sensibility that was manifest in the medium of flaked stone. Moreover, transformations, openings, and portals were important themes in Maya mythology. Many structures were built over caves, which likely served as portals to other creations and perhaps the Underworld (Freidel et al. 1993).

It is suggested here that these perforations may index portals. The perforations in specific artifacts are not directly representing a specific portal, but are part of a cultural aesthetic. Indeed, in a functional sense, many of the perforated forms exhibit striations and burnishing on the interior. This perhaps indicates the use of the perforation as part of a hafting element. Thus, a form that may index a broad structuring concept such as a portal or opening can also be linked to a functional role such as hafting for public display (Figure 6.23).

Figure 6.23- cr75CH2012/13- 15 Colha

Tetrafoil and Trefoil Forms

This same interpretive approach can be applied to tetrafoils and trefoils, objects that appear in large numbers in the assemblages from Altun Ha and Lamanai. Both a quadripartite and tripartite divisions were inherent in Maya thought. We know that the present creation was divided into four areas and the fifth direction defined as up. This organization is indexed in the tetrafoil form. Moreover, tetrafoil forms also occur as borders in other artistic media. Initially, it was thought that these forms might have been used in a more functional context, perhaps as weapons. However, there is little evidence that these forms were extensively handled or mounted. There is also some variation in how tetrafoils are depicted. As illustrated in the appendix, most tetrafoil forms exhibit elongated

appendages. Two forms, one from Altun Ha and one from Lamanai exhibit short and round appendages. These forms appear remarkably similar to the kin sign, which serves as both a day sign and part of the glyph for sun.

Trefoil forms also lack extensive evidence of handling or mounting. However, one form from Altun Ha exhibits pigment staining on the surface of the form. The trefoil can be linked to the three worlds where ancestors, animals, and rulers lived. These include the Underworld, occupied by the Lords of Death and the Otherworld, the place of creation and of the ancestors. Moreover, much has been written about the three hearth stones of creation as structuring everything from structure location to how the Maya viewed the constellation we know as Orion (see Freidel et al. 1993). It is posited here that the trefoil form may index these structuring concepts, but did not represent them directly. The trefoil, like the tetrafoil had many correlates in Maya art because it was part of a larger aesthetic that structured how the world was organized (see Appendix).

Composite Forms

Unlike the naturalized forms seen in anthropomorphic and zoomorphic forms and the more abstract symbols seen in star, ring, trefoil, and tetrafoil forms, a number of composite forms as godheads and ancestors are present in the assemblages. These forms resemble, to some degree, the elaborate anthropomorphic profiles appearing at Copan and also recovered in northern Belize (Agurcia- Fasquelle and Fash 1991; Masson 1997). These forms embody specific information about both mythological and historical figures. In the assemblages under study here, it is interpreted that specimen ah180RP35/14 appears as the depiction of God K, with a serpent foot (Freidel et al. 1993)(Figure 6.24). More elaborate composite forms are also present in the assemblages.

Figure 6.24- ah180RP35/14 God K with serpent foot from Altun Ha

Specimen ah255RP38/50, recovered from Altun Ha is a composite form that depicts a serpent with an open mouth. Protruding from the open mouth is a human profile. It is unclear if this is a historical figure, but may be a similar depiction as those appearing in the scenes of vision serpents (Figure 6.25).

Composite forms also appear as painted figures on large staff ends. Specimen ah90RP528/2 from Altun Ha is a large staff that exhibits a yellow serpent form across one surface (see Appendix). As described in the appendix, the serpent form exhibits a head that has been scraped away. The staff also exhibits

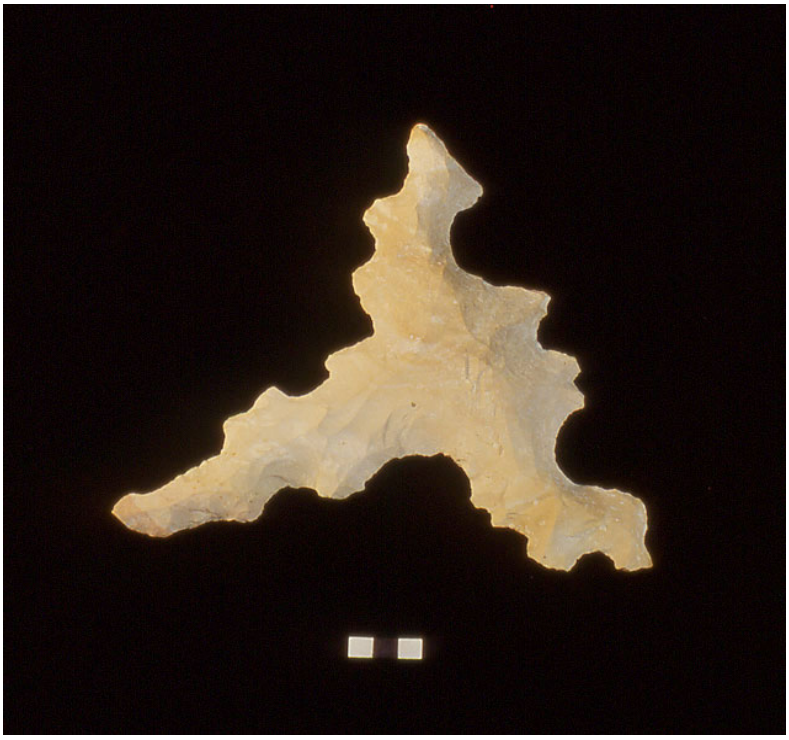


Figure 6.25- ah255RP38/60 Altun Ha

extensive polish at one terminus. This area appears to be an area where the staff was handled extensively. This serpent staff fits into the wand and stave classification as seen in McKinney (1985).

Vision Serpents

Specimen ah252RP200/387 was recovered from the chamber of tomb A-1/1 at Altun Ha, in a cache of flints placed at the southeast corner of the crypt (Figure 6.26)(Pendergast 1979: 60- 75). In addition to a large number of flaked stone symbols, the tomb yielded numerous jade artifacts, ceramics, and the skeletal remains of an adult male. As we can see this form placed in comparison

Figure 6.26- ah252RP200/387 Altun Ha

with Lintel 25 (AD 725) from Yaxchilan, the lintel depicts blood ritual and hallucinatory visions of a conjured ancestor through a vision serpent. In the present image, the vision serpent is appearing to a woman from the site of Yaxchilan. Lintel 25 shows an unnamed consort of Shield Jaguar (Figure 6.27). The iconography present on lintel 25 has been interpreted as a vision serpent with the figure emerging from the serpent's mouth as exhibiting Tlaloc imagery. The image also exhibits jaguar imagery, elaborate decoration, and a dynamic depiction of a giant serpent. The anthropomorphic figure is interpreted as an ancestor or the lineage founder as he emerges from the gaping mouth of the giant serpent (see Schele and Miller 1986: 100, 187- 190).

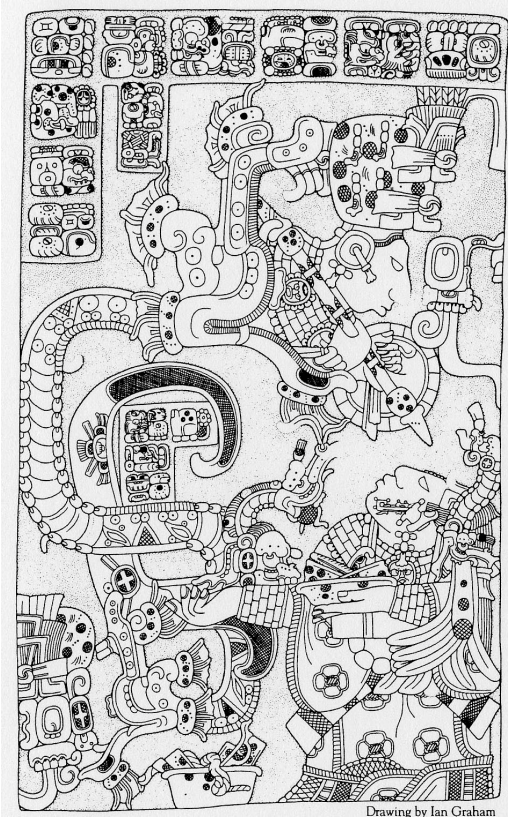


Figure 6.27 - Lintel 25 Yaxchilan (from Schele and Miller 1986)

In the case of specimen ah252RP200/387, the head of the anthropomorphic form, the ancestor, emerges from the gaping mouth of the vision serpent (Figure 6.26). This example illustrates both the breadth and depth of symbolic knowledge demonstrated by the individual that produced the artifact. The artifact demonstrates a detailed knowledge of cosmology and ritual as the catalyst for calling forth both the serpent and the specific ancestor from the Otherworld (see Schele and Freidel 1990; Schele and Mathews 1999). Knowledge of cosmic structure is clearly demonstrated.

Moreover, the knowledge of history is also implied. As recent decipherments have shown us, Maya hieroglyphs recorded the history of the

ruling dynasty. It is posited here that the appearance of the vision serpent with the individual emerging from the mouth is the appearance of a historical personage, perhaps a dynasty founder (Schele and Freidel 1990). In order to depict such a scene in flaked stone, knowledge of that ancestry is implied. Thus, the appearance of the vision serpent and the ancestor in the medium of flaked stone illustrates that crafters indeed possessed a complex view of the universe and history. This view was subject to interpretation and elaboration. Because of the location and the wealth of material culture recovered from Tomb A-1/1 at Altun Ha, it is posited that this is specimen is an homage through depiction, part and parcel of tribute to the elite individual entombed within. The vision serpent indexes the ruler's linkage to the ancestors, and subsequent supernatural appearances that occurred after the death and interment of the individual.

Staff Ends and Axes

Depictions of stone knives and stave ends occur frequently in Classic Period iconography. It is apparent that flaked stone implements were frequently used as weaponry. This weaponry may was used in combat to take captives, but weapons were also important in public and ritual displays. A number of staff ends and axes in the assemblage under study exhibit polish indicating extensive handling of the artifacts by their owners. In an unpublished paper, McKinney (1985) documents the appearance of functional flaked stone implements in ancient Maya art. Depictions of flaked stone implements are found in all surviving artistic media including painted ceramics, carved stone monuments, painted murals, codices, and objects of jade. McKinney's study classifies chert artifacts as weapons, ceremonial

Figure 6.28- Lintel 24 Yaxchilan (from Schele and Miller 1986)

implements, or badges of rank and office (McKinney 1985: 3). In terms of staff ends and axes, the classification as a weapon is a useful device. Follet's (1932) classification of Maya weapons illustrates more clearly the division between actual weapons of war and more ceremonial implements used to express political authority or rank. It is posited that these functions often overlapped (Figure 6.28).

With respect to the current study, there are numerous questions as to the actual use of artifacts in warfare, or primarily as ritual paraphernalia. Both Follet (1932) and McKinney's (1985) classifications include: spears with and without serration, spears with a serrated shaft, stone tipped wands and scepters, darts, clubs and maces, axes and hatchets, knives, and finally what are termed foliated eccentrics. In the present assemblages, we can also include bident and trident forms under the heading of foliated eccentrics. It is important to note that

Figure 6.29- Staff ends shown in Maya art (from Freidel et al. 1993)

common functional attributes that each of these classes of weapons shared was that in all cases the specimens were hafted.

In terms of the three assemblages under study here, there is scant evidence of hafting on the vast majority of materials that could be classified as weapons. This could be because evidence of hafting was not detected at low power magnification (10X) implemented in the analysis. However, there is also the likelihood that such artifacts possessed a symbolic value that did not include hafting of the artifact on a staff or use as weapons.

Perhaps the greatest value of the McKinney (1985) study is the comprehensive chronology of lithic artifacts visible in Maya artistic media dating to the Late Preclassic Period. For example, knife blades are clearly visible on Stela 1 at El Baul (Proskouriakoff 1950). In the same volume, Proskouriakoff (1950) also identifies a short wavy blade on Stela 9 and Stela 13 at Tikal. Both of these carved stone monuments date to the Early Classic Period (AD 250- AD 600).

Maya art dating to the Late Classic (AD 600- AD 900) exhibits many representations of stone tipped spears. Some of these artifacts include laurel leaf blades, as well as the more narrow forms seen in the Altun Ha assemblage (see also Pendergast 1982, 1990). Follet (1932: 382) observed that the primary

indication that a spear was intended for actual combat was the presence of saw-like projections fastened by lashing which ends about 12 inches below the spearhead in an ornament from which a bundle of feather was suspended (Figure 6.29). These are depicted at Yaxchilan on Lintels 8 and 41, Stela 18, Stela 19, and at Aguateca on Stela 6, as well as at Piedras Negras and Chichen Itza (McKinney 1984: 8). This is supported by the depictions on the murals at Bonampak. We have yet to recover an intact spear point and staff. In the present assemblages, there is evidence of hafting in the form of use polish. However, the presence of residues or pigment is not primarily associated with the location of hafting elements, even on the staff ends. Residues instead appear as material used to attach appliques or perhaps mount the artifact.

There are several axe forms in the assemblages from Altun Ha and Colha (ah4RP382/4 and cr47CH3060/)(Figure 6.30; see also Appendix). These are not simply axe blades, however. They instead are monolithic axes, only one of which exhibits polish that indicates extensive handling. A monolithic axe from Altun Ha is the clearest example of a specimen that may have had functional use as a weapon and was displayed as an accouterment of power. Specimen ah4RP382/4 from the Altun Ha assemblage is a monolithic axe that was handled extensively. Specimen cr47CH3060/ from Colha also appears to depict a monolithic axe, though no evidence of handling is visible on the surfaces of the specimen (see Appendix).

In this study I am not simply trying to document the presence of functional implements in Maya art. Instead, I am attempting to recognize forms in the art that have parallels in the medium of flaked stone, and thus interpret symbolic meaning. More closely related to this line of questioning is MicKinney's (1985) observation

Figure 6.30 ah4RP382/4 monolithic axe from Altun Ha

that axe blades appear in what has been termed the manikin scepter, a label that is no longer used in the literature. However, a depiction of this staff of office appears at Yaxchilan Stela 11 and Yaxchilan Lintel 42. These carved stone monuments show axe blades embedded in the foreheads of the manikin (McKinney 1984: 23; Spinden 1975: pl. 61). The manikin with a blade protruding from the forehead has recently been interpreted as a depiction of God K (Freidel et al. 1993

McKinney (1985) also documents the use of what he terms eccentric axe blades (Figure 6.31). These objects are used in ritual decapitation and sacrifice. Death and rebirth is an integral part of the victory of the Hero Twins over the Lords of Death. Part of their victory was sacrificing themselves and then being re-born in the defeat of Death. Depictions of this kind of sacrifice are related to a

Figure 6.31- Hafted chert ax (lightning flint) (from Freidel et al. 1993)

Late Classic vase that exhibits what has been termed the Water Lily Jaguar (Coe 1982: 6; Robicsek 1978: 125, fig. 144). Axes also take the form of trefoil lily shaped blades. This has implications for the trefoils present in the assemblages in the present study. These may have indeed been hafted, though there is little visible evidence visible on individual specimens.

Indeed, the serpent staffs and stemmed disks present in the assemblages here may have served as weapons. McKinney (1985) discusses in detail the important of the Maya war club. McKinney also mentions a serpent handled scepter and rounded clubs. However, the majority of these depictions appear to have blades attached to them. This is in contrast to the stemmed disks and serpent staffs included in the present study. These specimens have little evidence of hafting and no surfaces to which blades could have been attached.

Perhaps most relevant to this discussion are the foliated eccentrics such as one to four blades positioned on the periphery of a ring. These have been termed as claw- knives by Follet (1932), yet none of the claw knives or jaguar claws appear in the assemblages under study. More common to the present assemblages are two and three- prong crescents, as well as bident and trident morphological

groupings. These forms are also present at Maya sites in Belize and Guatemala such as Nohmul, San Jose, Piedras Negras, and Uaxactun (Coe 1959: 18; Thompson 1939; Ricketson and Ricketson 1937).

Depictions of what McKinney (1985) terms foliated eccentrics are concentrated at site in the Peten and western Belize, perhaps as part of the technological tradition originating in northern Belize. These depictions have also been observed at Chichen Itza (Maudslay 1902, pl. 45A3). Two prong and three prong knives are depicted at Caracol, Tikal, and Uaxactun. Activities that are depicted in Maya art that involve lithic artifacts include warfare, ritual sacrifice and bloodletting, public and private ritual, and more rarely mundane activities of everyday life. This relates to Maya symbolism in the sense that these forms are depicted as representations (see Figures 6.29 and 6.31).

It is clear that flaked stone technology was integral to the completion of tasks such as ground working, food processing and preparation, wood and bone working, carving stone, and other kinds of production. Flaked stone implements such as large laurel leaf bifaces also served as functional implements in more ideologically based activities. Moreover, as this study shows, flaked stone was also critical in the transmission of purely symbolic knowledge. It is likely that the aforementioned functional implements also possessed symbolic value. It is also clear that raw material such as chert possessed symbolic value in and of itself, as debitage has been recovered in stela caches and above tombs at centers across the lowlands (Coe 1959; Morley 1938; Ricketson and Ricketson 1937).

Notched Blades

We know from popular and scholarly works, the origin of obsidian and chert was thought by the Maya to be in the sky (Heart of Sky)(see Tedlock 1985). These materials then took an earthly manifestation when the force of the sky,

lightning, struck the earth (Freidel et al. 1993: 200). Notched blades occur most frequently at Colha, but also are present in the assemblage from Altun Ha. It is suggested here that notched blades are depictions of the lightning that formed the chert. Along this line of reasoning, notched blades are effigy lighting bolts that linked the creative power of the chert crafters with the power of lightning in the sky (see Appendix).

The notched blade assemblage from a Late Classic cache located in Operation 2012 at Colha yielded both the largest number and most impressive array of notched blades of any context in the present study. It seems fitting that the presence of effigy lightning bolts appears to be most clear at Colha. While the assemblage of symbolic forms may in general be less elaborate there, ideological power of chert and its formation was likely an important part of how residents viewed their world. Certainly the archaeological evidence of intensive and long-term production of utilitarian and symbolic forms produced on chert support this argument. Chert was integral to how the inhabitants saw the world. Part of defining this world was defining the origin and importance of the material so many in the community utilized on a daily basis.

DISCUSSION AND CONCLUDING REMARKS

It is clear that the naturalized and abstracted forms appearing in the assemblages of flaked stone symbols can be linked to important concepts in Maya cosmology and history. The naturalized forms of humans likely represent historical figures. Following an extremely simplified, yet parallel line of reasoning similar to the primary assumption followed by Proskouriakoff (1960), it is suggested here that anthropomorphic depictions represented individuals who were actually captured, played the ball game, or were wives or consorts, or

children, as actual historical personages (Proskouriakoff 1960). These individuals were in some way linked to the interred as well as the crafter of the artifact.

Moreover, zoomorphic forms are also naturalized and may represent either actual animals or perhaps the *wayob* of the possessors. The concept of the wayob is critical to understanding the differing ways the ancient Maya perceived the natural world. Part of understanding the various kinds of transformative power that were tangible and present in the Maya world, we must consider the power of transformation and its link to the wayob. As seen in Chapter Five, there is a range of naturalized animal forms observed in the three assemblages under study in this dissertation from felines and canines to marine forms, crocodiles, and serpents.

It seems clear that, combined with our knowledge regarding the importance of celestial phenomenon to the ancient Maya, and the ability of the Maya to observe, predict, and explain such phenomena, that depictions in the medium of flaked stone becomes plausible. It appears that in several examples of crescents, solar eclipses are depicted. At least two examples of crescents from Lamanai appear to depict planetary convergence.

More abstracted forms may have served as objects that were part of elite household repertoires. These abstracted forms index a cultural aesthetic, but their meanings are so detached from the forms that it is difficult to interpret any specific meaning they may have had to either the crafters who produced the objects or the elite who eventually acquired and possessed them. Stars, rings, tetrafoils, and trefoil forms, as well as less frequently occurring elongated forms clearly refer to structural concepts in ancient Maya culture. While we may never be able to obtain a clear definition of what these forms may have meant to their producers or their possessors, it is clear is that the forms themselves were part of an overall regime of shapes and forms familiar to the Maya. These forms index meaning that we cannot, at this point, access.

Perhaps more accessible via the medium of flaked stone, in terms of abstracted ideas, is the notion of transformation. More specific aspects of the power of transformation appear to be increasingly relevant in the interpretation of flaked stone symbols. Linguistically, this transformation is linked to the Maya word *k'awil*. K'awil has been deciphered as a general term for stone idols, as well as the name for the powerful God K in the Maya pantheon (Figure 6.22). K'awil as God K is a term that describes both sustenance and transformation. Indeed, in the present day, k'awil is the K'iche' term for a depiction of a wood or stone statue of a saint and the spirit of that saint (Tedlock 1985, 1986). In both highland K'iche' and lowland Kekchi vocabularies, k'awil is a general term used to refer to idols made of stone or wood. In the latter case, k'awil is followed by the term *pech*, the word for dog indicating a pejorative in the modern translation. In a more earthly interpretation, the power of k'awil also represents the contractual obligations bonding people and the gods, in the larger process of humans nurturing the gods, and the gods providing for humans (Freidel et al. 1993; Godelier 1999; Mauss 1966).

K'awil can also be associated with vision serpents and scepters of authority. As Freidel et al. (1993: 197) state, Classic Period monuments and ceramics depict small images being wielded by lords or shamans. The objects were in many cases flaked stone symbols. Indeed, k'awil appears as eccentric lithic forms, such as those recovered at Copan and Tikal. On these forms, k'awil is present in the material. Thus, k'awil is again defined as a small idol or statue comprised of stone that was the embodiment of a spirit or ancestor (Freidel et al. 1993: 199).

The power of k'awil, like the execution of form by the chert crafters is subtle. Dennis Tedlock (1985) asserts that stone k'awil are called *Cacula Huracan*, *Chipa Cacula*, and *Raxa Cacula* in K'iche'. These deities were created

with the earthly incarnation of lightning after it struck the earth. According to Tedlock the ability to divine and reveal the intentions of the ancestors rests on a shaman's capacity to feel lightning in the muscles and blood of the body (Freidel et al. 1993; Tedlock 1985, 1986, 1992).

Finally, it is clear from McKinney's (1985) analysis that chert objects also served as staff ends and to some degree, weaponry. Staff ends present in the assemblages under study here reflect similar functions. These objects were used for display and use during warfare and after, perhaps in public ceremony and ritual. Their elaborate use in public ritual displays are evidenced by the widespread depiction of chert staff ends, spears, and axes present in other ancient Maya artistic media.

Thus, symbolically the assemblage can be divided into five groups. These are: **1.** Naturalized forms that depict historical personages, **2.** Forms that served as incarnations of supernatural creatures, such as wayob or k'awil as small idols or statues, **3.** Forms that personifications of earthly and (or) celestial events such as eclipses and planetary convergence, **4.** Forms that are more abstracted indices of a cultural aesthetic, **5.** Forms that served as either ritual or actual functioning weaponry. Simply put, it would be difficult to over- emphasize the symbolic value of artifacts comprised of flaked stone, as representation, as objects that reflect structural principles, and as objects whose meaning changed in specific historical moments.

This chapter began with a discussion of the approaches to symbols in archaeology and then led to an interpretation of the assemblages ancient Maya flaked stone symbols. To close, if archaeology is the study of past culture and society, we must directly confront the symbolic meanings of differing classes of material culture. While symbolic interpretation may be less certain than studies of

the facts of technology or subsistence, it must be remembered that without ideology and subsequent cultural value, facts become meaningless abstractions.

Chapter 7: Technological and Materials Characterization Analysis

Lithic production has been the focus of archaeological research in northern Belize for over two decades. The rich chert bearing soils of the region were intensively exploited by ancient Maya communities as well as by their predecessors. The research program at Colha has perpetuated continuing studies of the production of utilitarian lithic implements dating from what has been termed the pre- Maya occupation (before 1500 BC) through the Postclassic (AD 1000- AD 1300) (Gibson 1989; Hester and Shafer 1994; Hester et al. 1996; Iceland 1997; King 2000; King and Potter 1994; Michael 1989; Potter 1993; Roemer 1984; Shafer and Hester 1983, 1991).

The vast quantities of production debris that have accumulated through time at Colha have provided ample evidence for the identification of the lithic reduction continuum. This continuum was the vehicle by which intensive production of stone tools on a community wide level was undertaken (see Shafer 1979, 1985, 1994; see also Collins 1975; Fowler 1991). The continuum represents an idealized series of production stages individual pieces of stone passed through prior to the shaping of the end product. Finished implements were then often utilized in local domestic settings or were introduced into horizontal socioeconomies of exchange (Gibson 1986; Hester and Shafer 1994; King and Potter 1994; McAnany 1986, 1989, 1990).

The lithic reduction continuum has been constructed for tranchet bit tools and oval bifaces for the Late Preclassic Period at Colha. The continuum illustrates consistency of both quarried raw material and production techniques (Shafer 1979, 1985). The presence of internal consistency can then be expanded to address the relative degree of craft specialization in lithic production that was

present (Shafer 1982, 1994). The reduction continuum is based on linear reduction models that link reduction debris with the end results of the reduction process (see Callahan 1979; Collins 1975; Shafer 1979). The linear reduction model is not purely idealized in that it is based on observations of modern day flint- knappers and on experimental studies regarding hammer technology and breakage properties of the chert (Callahan 1979; Collins 1975; Shafer 1979: 29).

In two articles authored by Harry Shafer (1979, 1985) three primary trajectories in the production of utilitarian implements are identified at Operation 2006, a Late Preclassic workshop deposit at Colha. These include oval bifaces, tranchet bit tools, and macroblades. The reduction trajectories have implications for the flaked stone symbols that comprise the Colha assemblage. Moreover, the evidence of the intensive production of chert implements visible at Colha also has technological implications for the assemblages of flaked stone symbols recovered at Altun Ha and Lamanai.

The reduction and thinning of macroblades and macroflake- blades into bifaces by Maya chert crafters was accomplished utilizing hammer technology that included both hard and soft hammers and chert edge abrading tools (Shafer 1985). Other tools that were likely used were antler punches and billets, as well as wooden and stone anvils (Shafer 1979: 30). The most frequently occurring hammer stone in the Late Preclassic workshop deposits at Colha are bi- convex chert limestone hammers, the platforms of which are tapered due to frequent abrading (Shafer and Oglesby 1981: 203)

Initially, large nodules were procured from local quarries. Large limestone and chert quarries are visible at Colha and Altun Ha, and likely dot the northern Belize landscape. The larger nodules or tabular cores may have been reduced at

Figure 7.1- Early stage biface from Colha, Belize

localities near the original quarry sites. The raw materials were brought to reduction localities as macroblades, macroflakes, or large nodules (Crabtree 1972: 42). The production of blanks necessitated a number of strategies used by flint-knappers today, including the preparation of striking platforms, biface thinning, and final shaping and forming (Figure 7.1).

Perhaps the utilitarian implement that most closely resembles the large flaked stone symbols under study in the present analysis is what has been termed the large oval biface (see Hester 1982, 1985). The oval biface reduction trajectory

as illustrated in the workshop debris at Colha Operation 2006 is comprised of thinning debris and production failures (Shafer 1979). Reduction of flake blanks was marked by a large number of production failures despite the skill of the crafter and the high quality of raw material (Figure 7.2).

The lithic forms used in production were for the most part large flakes that were bifacially reduced with direct hard hammer percussion, oftentimes exhibiting symmetrical and parallel flake scarring (Shafer 1979: 58). Thinning was accomplished by the repeated preparation of beveled striking platforms along the lateral margins. Breakage patterns on oval bifaces most frequently resulted from end shock, perverse fractures, poor platforms, and flaws or inclusions in the raw material. End shock is a breakage caused by impact vibrations that create a zone of tensions surpassing the strength of the material (Crabtree 1972: 60). Essentially, the impact causes the biface to bend and snap. Perverse fractures are defined as spiral or twisting breaks initiated at the edge of a biface. Inclusions and excessive force oftentimes cause perverse fractures (Crabtree 1972: 82). The vast majority of forms were finished successfully. These forms were repeatedly used and re- worked. Finished large oval biface forms recovered from Colha exhibited mean dimensions of: length- 24.5 cm, width- 7.6 cm, thickness- 2.7 cm (Shafer 1985).

A total of 508 specimens were included in the technological study. However, it must be noted that blade forms were omitted from portions of the study. Unlike utilitarian implements from Colha, the vast majority of which were recovered in workshop deposits, there is scant evidence at any site in northern Belize in terms of the production of flaked stone symbols. The assemblages under study here were recovered from cache, burial, and tomb contexts as finished and completed forms. However, the finished forms exhibit a wealth of technological

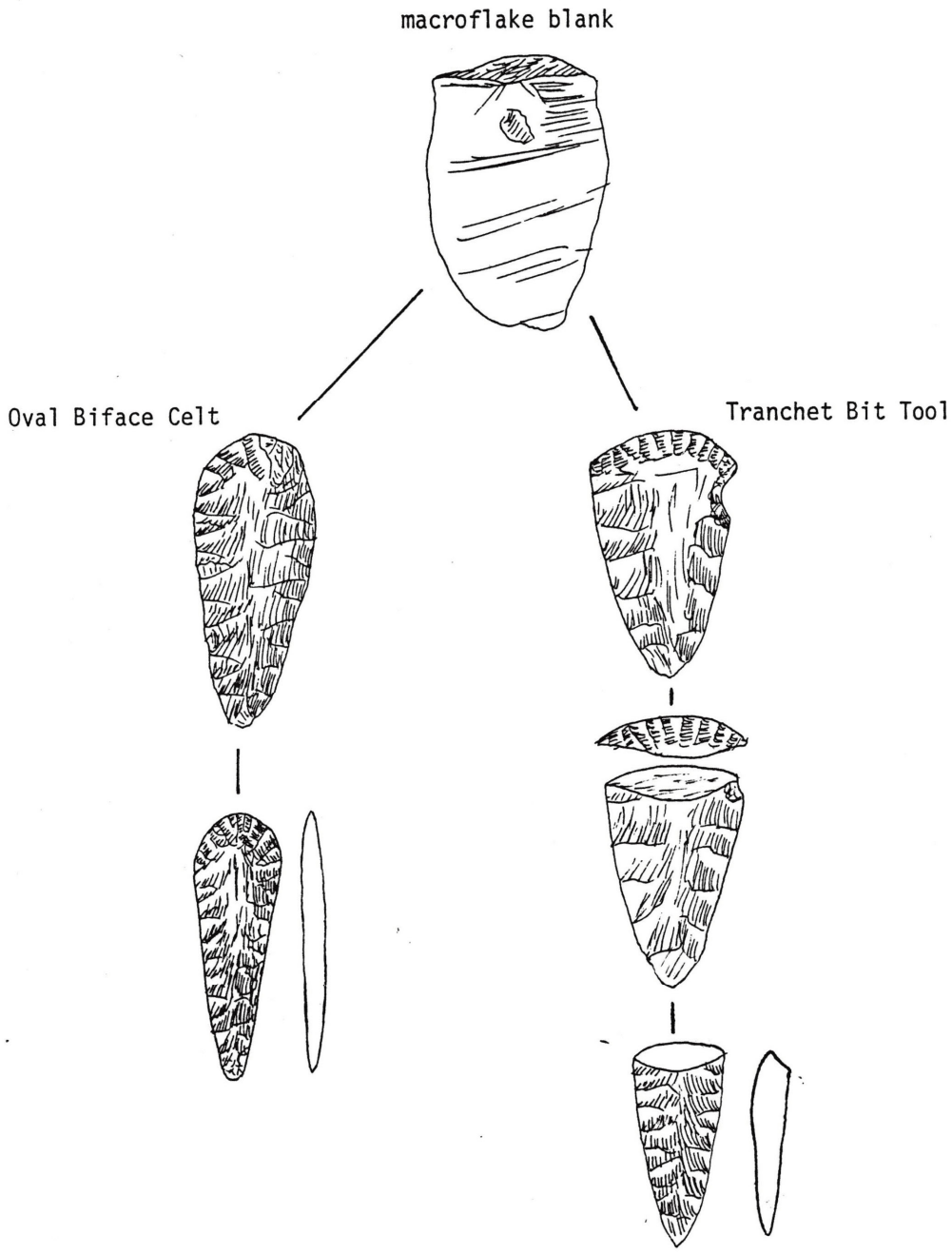


Figure 7.2- Reduction of utilitarian tool forms at Colha (from Shafer 1979)

data with respect to production. This chapter will address the continuum that resulted in the production of flaked stone symbols made from northern Belize chert in an attempt discern inter- assemblage patterning. Moreover, material characterization analysis of pigments and textiles recovered from the surfaces of a sample of fourteen artifacts from both Altun Ha and Lamanai will be summarized and interpreted within the context of the larger assemblages.

TECHNOLOGICAL ANALYSIS: COMPARISON OF THREE ASSEMBLAGES

Because we cannot at present identify workshop deposits directly linked to the production of flaked stone symbols, a technological study must focus on the finished forms. Critical to the production of forms was the use of raw material. As was clearly the case, the chert used in the production of these forms originated from northern Belize. The raw material comprising the assemblages exhibits overall uniformity in texture. Yet only two of the three assemblages exhibit significant variation of raw material appearance and texture within assemblages. Moreover, although the three assemblages exhibit overall uniformity in frequency of technological types, there is also considerable variation within and between assemblages.

The following analysis will address raw material, technological type, mean artifact dimensions, flake scar lengths, and flake scar terminations to compare and contrast the assemblages. In doing so, it is posited here that we will be able to infer site level production locality as well as observe changes in the technology utilized by the chert crafters at each site.

Hypothesis One

There are significant differences in raw material color and texture between the assemblages from each site suggesting differences in quarry sites.

Implication One

A contrast in raw material color and texture supports the argument that raw materials (chert) originated from different quarry localities within northern Belize, perhaps quarries associated with each site.

Hypothesis Two

There are significant differences in the frequency of occurrence of technological types at each site suggesting variation in lithic reduction strategies.

Implication Two

Contrasts in the occurrence of technological types support an argument that production sequences of flaked stone symbols varied from site to site.

Hypothesis Three

There are significant differences in mean artifact dimensions of the assemblages from each site.

Implication Three

Contrast in mean artifact dimensions supports the argument that there are differences in the assemblages as a whole. Variation in mean artifact dimension may be linked to changing patterns in lithic production through time and across space. These changes may be linked to how and where materials were quarried.

Hypothesis Four

There are significant differences in mean flake scar lengths between the assemblages.

Implication Four

Differences in flake scar lengths on artifacts from each assemblage supports the argument each assemblage exhibits a particular reduction continuum.

Hypothesis Five

There are significant differences in the relative frequency of flake scar terminations on artifacts from each assemblage.

Implication Five

Differences in the frequency of flake scar terminations on artifacts from each assemblage support the argument that there are differences in both the production continuum and raw material assemblages from each site.

METHODS: FREQUENCY OF ATTRIBUTE OCCURRENCE

All artifacts in the three assemblages were measured and analyzed for the attributes articulated above. Raw material appearance was recorded as follows: banded, mottled, or uniform. Color was recorded using terms derived from the Munsell Color Chart. However, the numerical notation contained in Munsell Color Chart descriptions was omitted. Raw material texture was described using a graded series of terms. These included very fine, fine, moderately coarse, and coarse classifications. Flake scar lengths were recorded to the nearest millimeter for the five lengthiest scars visible on the surfaces of the specimen. Flake scar terminations for each flake scar measured were recorded in the following terms: feather terminated, step terminated, and hinge terminated. It is also noted that five edge angle measurements were also recorded for each specimen at standard intervals around the margin of the specimen.

Raw Material Appearance (n= 508)

The color scheme for artifacts in each assemblage is diverse. Indeed, individual artifact descriptions present the colors visible on the surfaces of each specimen (see Appendix). However, how colors are depicted on each specimen is not as complex. Raw material appearance is described as one of three terms: banded, uniform, and mottled. Banded material has always marked the highly uniform chert from northern Belize. Banded material has been documented previously on lithic artifacts from both Colha and Altun Ha. Mottled material also occurs frequently in assemblages of lithic artifacts from northern Belize. Color schemes range from gray and brown to dark brown and blue gray. Chert that is uniform in appearance has been most frequently documented at Colha. Tan brown or honey brown chert marks the assemblage from Colha and marks the quality raw material originating from the chert- bearing zone of northern Belize.

The assemblages are broken down by raw material appearance to get an initial idea of the differences in raw material between the assemblages. Individual specimens exhibiting raw material that is banded in appearance comprised 29.6% of the assemblages. A total of 31.5% of the Altun Ha assemblage is comprised of artifacts that appear banded. 25.6% of the Lamanai assemblage is comprised of artifacts that appear banded. 20.6% of the Colha assemblage is comprised of artifacts that appear banded.

Specimens exhibiting chert that is mottled in appearance comprise 45.0% of the total. Artifacts mottled in appearance comprise 49.2% of the total from Altun Ha. A total of 34.8% of the assemblage from Lamanai are mottled in appearance. The Colha assemblage exhibited 29.4% of specimens that were mottled in appearance (Figure 7.3).

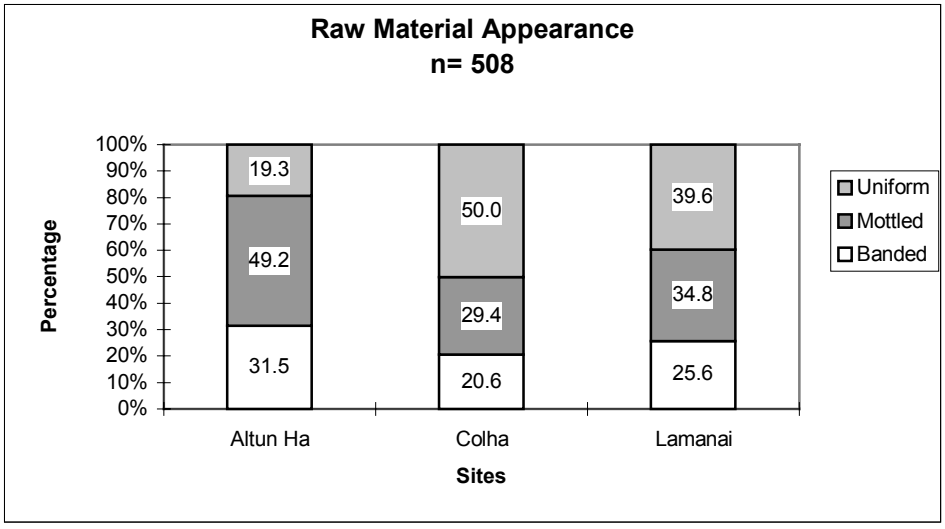


Figure 7.3- Frequency of raw material appearance in each of the assemblages

Specimens exhibiting chert that is uniform in appearance comprise 25.4% of the total. Artifacts uniform in appearance comprise 50.0% of the total from Colha. A total of 39.6% of the assemblage from Lamanai are mottled in appearance. The Altun Ha assemblage exhibited 19.3% of specimens that were mottled in appearance.

Raw Material Texture (n= 508)

Raw material texture was also recorded through a series of grades that include the following classifications: very fine, fine, moderately fine with coarse textured inclusions, and coarse. These gradations are based on visual appearance under 10X magnification. Differences between assemblages in terms of raw material texture are presented as percentages. It is posited that differences in texture can be an indicator of differences in the raw material source. One problem with this classification is the heterogeneity of chert texture from the same source. However, it was thought that such differences may still reflect general patterns.

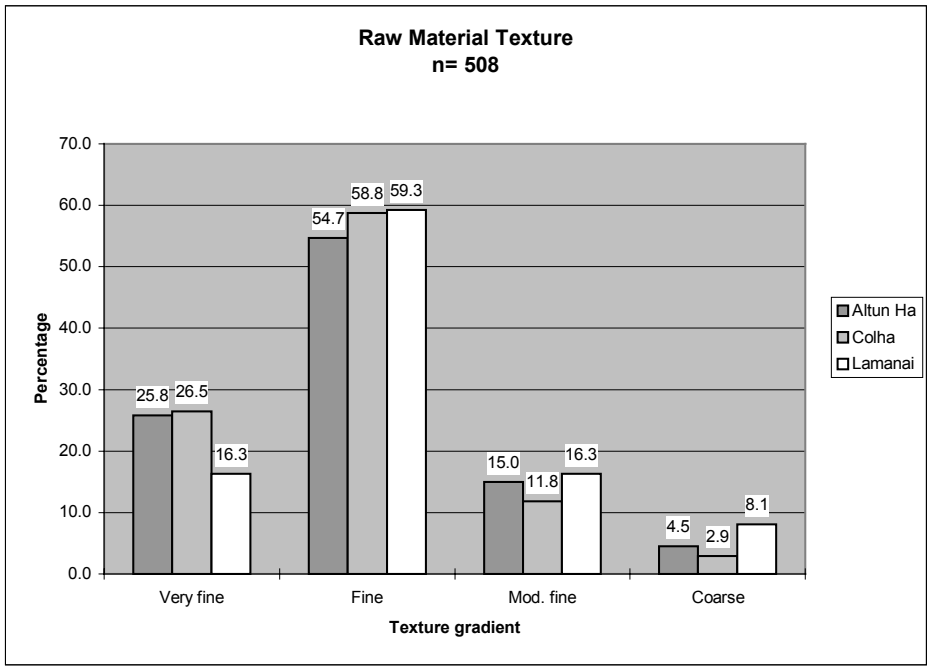


Figure 7.4- Frequency of raw material texture in each of the assemblages

The most frequently occurring texture type was fine textured chert. 55.8% of the three assemblages are comprised of what was termed fine textured chert. 24.1% are comprised of very fine textured chert. 15.0% of the assemblages were comprised of moderately fine textured chert with coarse textured inclusions. A total of 5.1% of the assemblages are comprised of coarse textured material.

At Altun Ha, 54.7% of the artifacts were comprised of fine textured chert. A total of 25.8% of the total was comprised of very fine textured chert. A total of 15.0% of the total was comprised of moderately fine textured chert with coarse textured inclusions. A total of 4.5% of the total was comprised of coarse textured chert (Figure 7.4).

At Colha, 58.8% of the total was comprised of fine textured chert. A total of 26.5% of the total assemblage was comprised of very fine textured chert. A

total of 11.8% was comprised of moderately fine textured chert with coarse textured inclusions. A total of 2.9% of the assemblage was comprised of coarse textured chert.

At Lamanai, 59.3% of the artifacts were comprised of fine textured chert. A total of 16.3% of the total assemblage was comprised of very fine textured chert. A total of 16.3% of the total was comprised of moderately fine textured chert with coarse textured inclusions. A total of 8.1% of the total was comprised of coarse textured chert.

Technological Type (n= 519)

As presented in the individual artifact descriptions, the frequencies of technological types in each assemblage are as follows. A total of 87.3% of all artifacts analyzed in the assemblages were bifaces. A total of 10.4% of all artifacts in the assemblages were blades. A total of 2.3% of all artifacts in the assemblage were flakes.

A total of 96.8% of the total artifacts from Altun Ha are bifaces (Figure 7.5). A total of 3.2% of the artifacts are blades. A total of 55.8% of the artifacts from Colha are blades. A total of 44.2% of artifacts from Colha are bifaces. 87.8% of the total artifacts from Lamanai are bifaces. A total of 12.2% of the artifacts from Lamanai are flakes. There were no blades present in the assemblage from Lamanai. There were no flakes present in the assemblages from Altun Ha or Colha. The substantial differences in the occurrence of technological types from Colha and Altun Ha and Lamanai suggest that the Colha materials were likely the result of a different production trajectory, perhaps indicating a different production location with respect to the assemblages from the two larger sites.

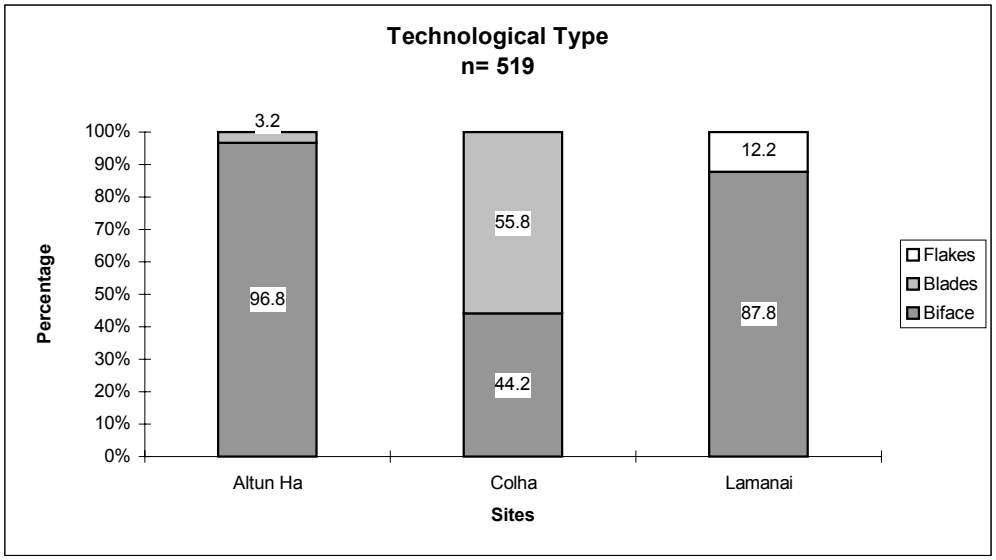


Figure 7.5- Frequency of technological types in each assemblage

Mean Artifact Dimensions (n= 508)

Maximum dimensions were measured for all specimens in each of the three assemblages. There are significant differences between the assemblage, most obviously are the mean dimensions of the Colha assemblages and the Altun Ha and Lamanai assemblages. However, each mean also exhibited a fairly high standard deviation. The standard deviation shows the range of values around the mean. Despite the large standard deviations, it is posited that comparison of mean artifact dimensions of the assemblages from each of the three sites can illustrate initial differences in the assemblages (Figure 7.6).

The mean artifact dimensions for the Lamanai assemblage are: mean length- 29.2 cm with a standard deviation- 9.3, mean width- 14.2 cm with a standard deviation- 6.1, mean thickness- 3.3 cm with a standard deviation- 1.3.

The mean artifact dimensions for Altun Ha assemblage are: mean length- 28.2 cm with a standard deviation- 8.2, mean width- 13.1 cm with a standard

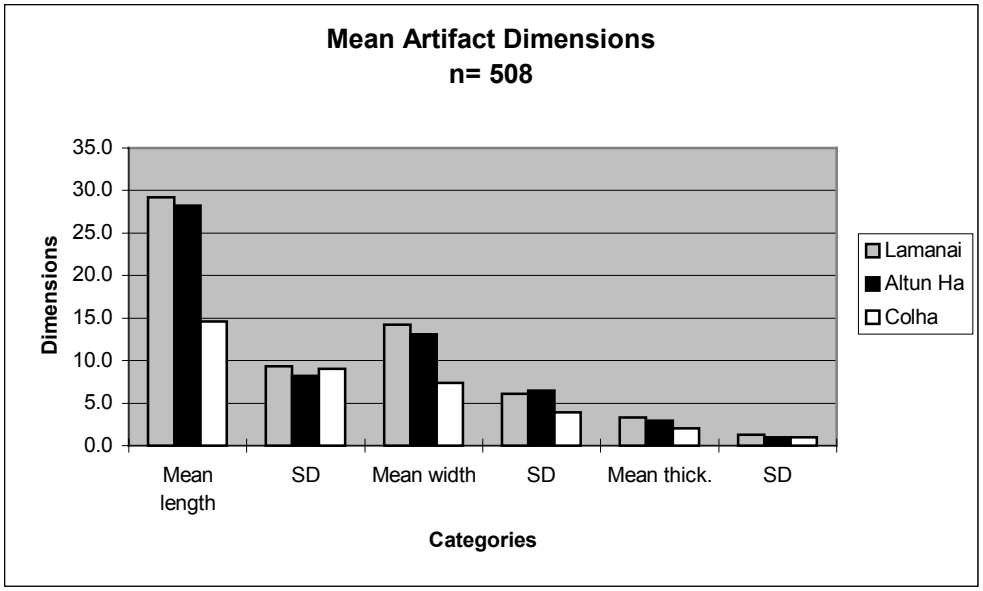


Figure 7.6- Mean artifact dimensions and standard deviations from assemblages

deviation- 6.5, mean thickness- 2.9 cm with a standard deviation- 1.0. The mean artifact dimensions for Colha assemblage are: mean length- 14.6 cm with a standard deviation- 9.0, mean width- 7.4 cm with a standard deviation- 3.9, mean thickness- 2.0 cm with a standard deviation- 1.0. The mean flake dimensions contrast the assemblage actually quite well. The differences between the mean dimensions of each assemblages, again seem to suggest a different production trajectory with respect to Colha and the other sites.

Flake Scar Lengths (n= 453)

Because we have no evidence of production in the form of lithic debitage linked directly to the production of flake stone symbols, the technological analysis must focus on the end result. However, the individual artifacts exhibit a wealth of technological information. In this sense, this portion of the analysis

Table 7.1- Categories and mean flake scar lengths in cm.

Categories and Mean Flake Scar Lengths			
	Lamanai	Altun Ha	Colha
Mean fs A	5.3	4.3	3.3
Mean fs B	4.2	3.7	2.9
Mean fs C	3.6	3.3	2.6
Mean fs D	3.2	3.0	2.3
Mean fs E	2.7	2.7	2.0

focused on flake scars that appear on the surfaces of individual artifacts (Table 7.1). During examination of each specimen, the five lengthiest flake scars visible on each artifact were measured. Flake scar lengths were then placed in descending order with one being the most lengthy and five being the shortest flake scar measured. As is observable in the table above (Table 7.1), mean flake scar lengths follow to some degree the same pattern as mean artifact lengths. The Lamanai assemblage clearly possesses the lengthiest flake scars in each of the five categories. The Altun Ha assemblage exhibits the second lengthiest mean flake scar lengths, and the Colha assemblage follows in each category except category E, the shortest mean length. In this example, the Lamanai and Atun Ha assemblages exhibit similar mean lengths, suggesting that secondary and tertiary thinning the overall size of the individual artifacts is not a dependent variable with respect to overall length of specimens.

Flake Scar Terminations (n= 453)

Flake scar terminations were recorded for each measured flake scar. The terminations were divided into three categories as observed at the termination of the flake scars. The categories are as follows: feather terminated- terminate gradually with no angle at the end of the scar, hinge terminated- terminate in a curve or hinge where the wave of force turns back toward the source of the force,

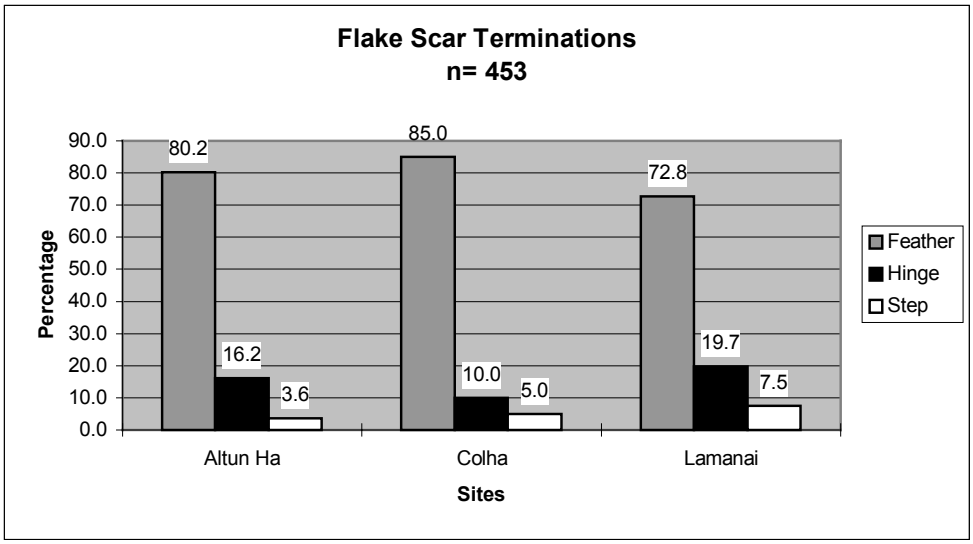


Figure 7.7- Frequency of flake scar terminations from each of the assemblages

step terminated- terminate in a right angle where the wave of force terminates at a right angle. It is posited that flake scar terminations perhaps can be linked to both raw material quality and size of the artifact (Figure 7.7).

A total of 85.0% of all flake scars measured on artifacts in the Colha assemblage were feather terminated flake scars. A total of 10.0% of all flake scars measured in the Colha assemblage were hinge terminated. A total of 5.0% of all flake scars measured in the Colha assemblage were step terminated.

A total of 72.8% of all flake scars measured on artifacts in the Lamanai assemblage were feather terminated flake scars. A total of 19.7% of all flake scars measured in the Lamanai assemblage were hinge terminated. A total of 7.5% of all flake scars measured in the Lamanai assemblage were step terminated.

A total of 80.2% of all flake scars measured on artifacts in the Altun Ha assemblage were feather terminated flake scars. A total of 16.2% of all flake scars measured in the Altun Ha assemblage were hinge terminated. A total of 3.6% of all flake scars measured in the Altun Ha assemblage were step terminated. The

Colha assemblage exhibits the greatest percentage of feather terminated flake scars, suggesting that raw material uniformity and quality may be most consistent in the specimens from this site.

MATERIALS CHARACTERIZATION: A SUMMARY OF METHODS AND RESULTS

The systematic analysis of each artifact in the assemblages of flaked stone symbols from Altun Ha, Colha, and Lamanai resulted in the identification of pigment, residue, and textile fragments adhering to the surfaces of a significant number of artifacts. It was clear from the identification of these materials that this artifact class was undergoing technological elaboration beyond the production of each specimen from macroblades and macroflake- blades. Specimens were often painted, stained, and (or) wrapped in cloth. With the identification of cultural materials present on the surfaces of the artifacts, it was clear that further characterization of the materials was necessary.

With the permission of Alan Moore, Archaeological Commissioner of Belize and Elizabeth Graham, Director of the Lamanai Archaeological Project, a number of artifacts were sampled for materials characterization. Fourteen pigment samples and two textile fragments were collected from a total of fifteen artifacts. Six of the pigment samples were from artifacts from the Lamanai assemblage. Eight of the pigment samples were from artifacts from the Altun Ha assemblage. The two textile samples were obtained from artifacts from Altun Ha. The samples were then transported to the Texas Archeological Research Laboratory in May of 2000. At this point, materials analyst Harriet Beaubien of the Smithsonian Center for Materials Research and Education was contacted with respect to coordinating materials characterization efforts. Materials were then transported to the laboratory at the Museum Support Center in Suiteland, Maryland in September, 2000. Research fellow Jill Plitnikas began the study in November, 2000.

The following is a summary of the research methods and results of the characterization analysis conducted by Jill Plitnikas at the Smithsonian Center for Materials Research and Education. The results appear in an unpublished preliminary report completed in January 2001 (see Plitnikas 2001). Further analysis of these materials is being undertaken and will be presented in a final report and published paper.

Plitnikas (2001) implemented a variety of techniques to characterize the pigment and textile samples. Three types of optical microscopy were employed, including stereo microscopy and polarized light microscopy. Also scanning electron microscopy, energy dispersive spectrometry, and a battery of histochemical tests were implemented in the analysis of the samples. Future research efforts will include x- ray diffraction, to more clearly quantify the crystalline composition of the pigments and atomic mass spectrometry to radiocarbon date a the textile fragments. The following summarizes results of the preliminary characterization study.

Pigment Samples

The spectrum probes of the pigment samples revealed somewhat similar spectra. Iron and oxygen were identified in all of the probes. This suggests that the colorant is an iron- oxide compound (Plitnikas 2001: 12). The samples also exhibited both quartz and clay mineral due to their source. The appearance of other compounds is consistent with trace elements often detected in such material via the electron- dispersive spectrometry. The differences in compounds is probably linked to differences in the types of mineral present rather than differences in colorant (Plitnikas 2001). Iron earth pigments can be yellow, red, or brown, depending on the particular oxides present (Plitnikas 2001: 12)

Sample A

This sample was recovered from specimen ah8RP137/55. The specimen was recovered from a Late Classic cache at Altun Ha and is classified as an anthropomorphic form. The pigment sample was removed from the medial-proximal area of the dorsal surface (see Figure 5.2).

The most frequently occurring particle viewed with scanning electron microscopy was round with an uneven surface. The energy dispersive spectrometry probes produced peaks for carbon, oxygen, sodium, magnesium, aluminum, silicon, phosphorus, sulfur, potassium, calcium and iron. (see Plitnikas 2001: 7).

Sample B

This sample was recovered from the same specimen as that described above, ah8RP137/55, originating from the site of Altun Ha. The pigment sample was recovered from the media- distal area of the dorsal surface (see Figure 5.2).

The most frequently occurring particle viewed with scanning electron microscopy was round with a rough or uneven surface. The energy dispersive spectrometry probes produced peaks for carbon, oxygen, sodium, magnesium, aluminum, silicon, phosphorus, sulfur, chlorine, potassium, calcium, titanium, vanadium, and iron (Plitnikas 2001: 7)

Sample C

This pigment sample was recovered from specimen ah42RP137/52. The specimen was recovered from Altun Ha and is classified as a zoomorphic (crocodilian) form. The pigment sample was recovered from one medial surface of the specimen.

The most frequently occurring particles observed with scanning electron microscopy are round with rough and round with smooth surfaces. The energy dispersive spectrometry probes produced peaks for carbon, oxygen, sodium, aluminum, silicon, phosphorus, sulfur, potassium, calcium, and iron (Plitnikas 2001: 7). A probe of several dark round particles indicated a very high peak for carbon suggests that these particles exhibit a large organic component (Plitnikas 2001: 12).

Sample D

Sample D was recovered from specimen ah70RP137/51. The specimen was recovered from Altun Ha and is classified as a tetrafoil form. The pigment sample was recovered from one medial surface of the specimen.

The most frequently occurring particle observed with scanning electron microscopy exhibit round shapes with rough surfaces. Energy dispersive spectrometry probes on rough and smooth particles yielded peaks for carbon, oxygen, sodium, aluminum, silicon, phosphorus, sulfur, potassium, calcium, titanium, and iron (Plitnikas 2001: 7).

Sample F

Sample F was recovered from specimen ah120RP137/153. The specimen was recovered from Altun Ha and is classified as a zoomorphic form (mammal). The pigment sample was recovered from one medial surface of the specimen.

The most frequently occurring particle observed with scanning electron microscopy was round with rough surfaces. Energy dispersive spectrometry probes on rough and smooth particles yielded peaks for carbon, oxygen, sodium, magnesium, aluminum, silicon, phosphorus, sulfur, potassium, calcium, vanadium, iron (Plitnikas 2001: 8).

Sample H

Sample H was recovered from specimen ah90RP528/2. The specimen was recovered from Altun Ha and is classified as a serpent form. The pigment sample was recovered from the medial- proximal area of the dorsal surface.

The most frequently occurring particles observed with scanning electron microscopy are homogeneous, with a small and round appearance. Energy dispersive spectrometry probes yielded peaks for carbon, oxygen, magnesium, aluminum, silicon, copper, sulfur, calcium, and iron (Plitnikas 2001: 8).

Sample I

This sample was recovered from specimen r47LA395/. The specimen was recovered from Lamanai and is classified as a staff end. The pigment sample was recovered from the medial- distal area of one surface.

The most frequently occurring particles observed with scanning electron microscopy were homogeneous, with a small and round appearance. Energy dispersive spectrometry probes yielded peaks for carbon, oxygen, magnesium, aluminum, silicon, phosphorus, sulfur, potassium, calcium, and titanium (Plitnikas 2001: 8).

Sample J

This sample was recovered from specimen r48LA395/. The specimen was recovered from Lamanai and is classified as an anthropomorphic form. The pigment sample was recovered from the medial area of one surface.

The most frequently occurring particles observed with scanning electron microscopy were homogenous in size with small round appearance. Energy dispersive spectrometry probes yielded peaks for carbon, oxygen, magnesium,

aluminum, silicon, phosphorus, sulfur, potassium, calcium, and iron (Plitnikas 2001: 8)

Sample K

This sample was recovered from specimen r52LA395/. The specimen was recovered from Lamanai and is classified as a staff end. The pigment sample was recovered from one medial surface.

The particles were few in number with rough and uneven surface and a larger and smoother. Energy dispersive spectrometry probes yielded peaks for carbon, oxygen, aluminum, silicon, phosphorus, sulfur, potassium, calcium, iron (Plitnikas 2001: 8).

Sample L

This sample was recovered from specimen r56LA395/. The specimen was recovered from Lamanai and is classified as a serpent form. The pigment sample was recovered from the medial area of one surface.

The most frequently occurring particles were round with rough surfaces. Energy dispersive spectrometry probes yielded peaks for carbon, oxygen, magnesium, aluminum, silicon, phosphorus, sulfur, potassium, calcium, iron (Plitnikas 2001: 9)

Sample M

This specimen was recovered from specimen r62LA240/. The specimen was recovered from Lamanai and is classified as a ring form. The pigment sample was recovered from the medial area of one surface.

The most frequently occurring particle observed with scanning electron microscopy was round with a rough surface. Energy dispersive spectrometry yielded peaks for carbon, oxygen, magnesium, aluminum, silicon, phosphorus,

sulfur, potassium, calcium, and iron. Also a number of flat particles were also observed. Energy dispersive spectrometry yielded peaks for carbon, oxygen, sulfur, calcium, and iron (Plitnikas 2001: 9). A probe of dark, flat particles indicates high peaks for carbon, suggesting that these particles have a large organic component (Plitnikas 2001: 12).

Sample N

Pigment sample N was recovered from specimen r63LA242/. The specimen was recovered from Lamanai and is classified as a star form. The pigment sample was recovered from the medial- ventral surface.

The most frequently occurring particle observed with scanning electron microscopy was round and smooth sided. Energy dispersive spectrometry yielded peaks for carbon, oxygen, aluminum, sulfur, silicon, calcium, and iron (Plitnikas 2001: 9).

Textile Samples

Sample E

This textile sample was recovered from specimen ah85RP/. The specimen was recovered from Altun Ha and is classified as a serrated crescent form. The textile sample was recovered from the medial- dorsal surface of the specimen (see Appendix).

The textile sample measures 2.1 cm in length by 1.3 cm in width and is irregularly shaped. The fibers have deteriorated substantially, but the weave is intact (Plitnikas 2001: 9). The weave is comprised of tow interlaces elements that run at right angles to one another. The elements are referred to as system 1 and system 2. Both systems are z- twisted single yarns with 0.3 mm in diameter. System 1 exhibits 33 yarns per cm and system 2 exhibits 17 yarns per cm. Thus,

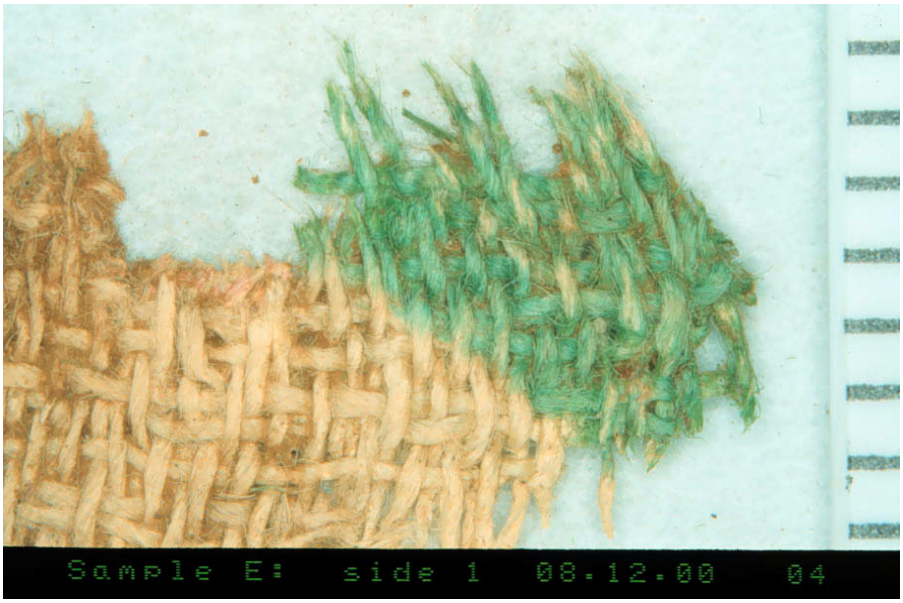


Figure 7.8- Side one of textile Sample E (courtesy of the SCMRE)

the weave is unbalanced with an uneven order of interlacing and no apparent weave repeat. An indication of what is termed a progressive float that is diagonal in alignment (twill weave) is visible (Plitnikas 2001: 9). The fibers are deteriorated and covered in spores and fungus. Pieces of the fiber are missing, making visible the wide lumen and thin walls of the fiber.

The textile fragment exhibits colorant visible on the surface of the sample (Figure 7.8). Energy dispersive spectrometry probes of green colored fiber yielded peaks for carbon, oxygen, sodium, magnesium, aluminum, silicon, phosphorus, sulfur, chlorine, potassium, calcium, iron, and copper. An additional probe yielded peaks for carbon, oxygen, silicon, phosphorus, sulfur, calcium, chromium, iron, and nickel. Probes of the pink colored fiber yielded peaks for carbon, oxygen, sodium, magnesium, aluminum, silicon, phosphorus, sulfur, chlorine, potassium, calcium, titanium, and iron.

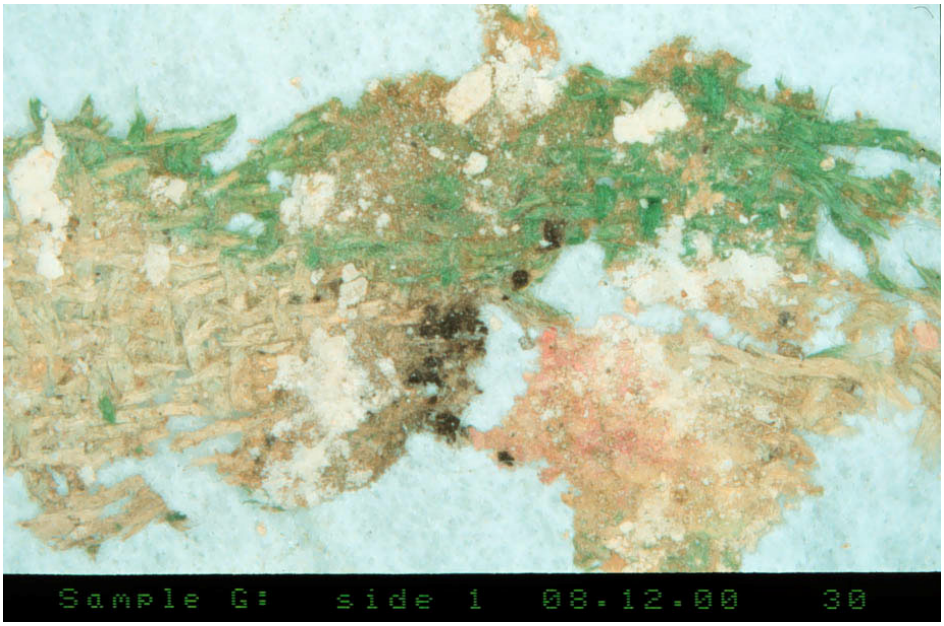


Figure 7.9- Side one of textile sample G (courtesy of the SCMRE)

Sample G

This textile sample was recovered from specimen ah178RP264/. The specimen was recovered from Altun Ha and is classified as a disk form. The textile fragment was recovered from the medial- dorsal surface of the specimen.

The textile sample measures 2.1 cm in length with 1.1 cm in width and is irregularly shaped. The fragment has deteriorated but part of the weave is intact. The fragment exhibits green, pink, and white material adhering to it (Figure 7.9). The weave structure consists of two interlacing elements that run at right angles to each other (Plitnikas 2001: 10). Because neither of the elements can be defined as a weft or weave, they are designated system 1 and system 2. Each system are loose z- twisted yarns that are 0.30 mm in diameter. System 1 exhibits 19 yarns per 0.55 cm and system 2 exhibits 17 yarns per centimeter. The weave is unbalanced and is defined as an irregular weave (Plitnikas 2001: 11). The fibers are cylindrical with wide lumen and thin walls. As well a number of cross section

views were undertaken that resulted in the characterization of the interior of the fibers (see Plitnikas 2001: 11).

The sample exhibited colorants visible on the surface of the sample. Energy dispersive spectrometry probes of green colored fiber yielded peaks for carbon, oxygen, magnesium, aluminum, silicon, phosphorus, sulfur, chlorine, calcium, titanium, and copper. Probes of the pink colorant yielded peaks for carbon, oxygen, sodium, magnesium, aluminum, silicon, phosphorus, sulfur, chlorine, potassium, calcium, and iron (Plitnikas 2001: 11).

Comparison of Textile Samples

Both textile samples E and G exhibit loose, z- twist, and single yarn and a two system, unbalanced thread counts, and irregular weaves (Plitnikas 2001: 13). The twill weave visible in sample E has been identified in Classic Period textile fragments from Teotihuacan (King 1979). Twill weaves are also present in later textiles from Chichen Itza, Monte Alban, and Teotihuacan (King 1979; Lothrop 1992 as cited in Plitnikas 2001). As Plitnikas (2001) asserts, further analysis of the structural characteristics of the fibers in cross section suggest that the fibers are not cotton (*Gossypium spp.).* Other possibilities are milkweed (*Asclepias spp*.) and perhaps is more likely is kapok (*Ceiba spp*.) (see Plitnikas 2001: 14- 15).

The energy dispersive spectrometry probes of the green colorant present on both textile samples yielded similar spectra, suggesting similar colorants were used in both cases. Plitnikas asserts that for the Classic Period, copper based pigment such as malachite (copper carbonate) or a green earth pigment that is colored by iron were used. The production of Maya blue (clay mineral colored by an organize substance) may also be a candidate (Beaubien 1991, 1993; Plitnikas 2001: 13).

The results of the energy dispersive spectrometry are somewhat contradictory, as half of the probes did not reveal any metallic elements. Peaks of copper appeared in five of the probes and peaks in the EDS graphs for iron appears in two of the probes. Other elements such as carbon, oxygen, sodium, aluminum, magnesium, silicon, phosphorus, sulfur, chlorine, potassium, calcium, and titanium are very common elements in the earth. These elements may well be related to the presence of textile fiber (Plitnikas 2001: 13). In addition, nickel and chromium appear and is not related to green earth- type pigment. Chromium is an element in modern green pigments and is viewed only as a trace occurrence (Plitnikas 2001: 14). The energy dispersive spectrometry probes of the pink colorant yielded peaks of similar elements. The detection of iron and oxygen suggests an iron oxide compound is the colorant. Other elements are common earth elements and some are no doubt related to the presence of textile fiber (Plitnikas 2001: 14). A white material visible on sample G yielded peaks for common earth minerals and is likely part of calcium carbonate material that originated likely from cortical material present on the specimen.

Further Research

New investigations in the characterization of materials recovered from the surfaces of a sample of fourteen flaked stone symbols from Altun Ha and Lamanai, Belize will focus on x- ray diffraction analysis in an effort to identify the iron oxide compounds present in the material. Mounting of the specimens and initial procedure of radiation has been completed (Plitnikas 2001: 14). Plitnikas hopes that diffraction patterns will provide further evidence for the presence of specific crystalline compounds. It is also hoped that tests for human blood proteins can also be undertaken on two of the pigment samples.

Also of importance is a more detailed identification of the species that comprises the fiber of the textile samples. X- ray diffraction analysis will also be carried out on the textile colorants in an effort to identify any crystalline compounds. Both the green and pink colorant samples have been mounted. X- ray diffraction analysis will also be undertaken on the white material in order to identify crystalline compounds (see Plitnikas 2001: 15). Ultimately, it is hoped that the textile fragments can be subjected to atomic mass spectrometry radiocarbon analysis in an effort to obtain chronometric ages for the two samples.

DISCUSSION AND CONCLUDING REMARKS

The earliest evidence of flaked stone symbols in northern Belize originates from cache and burial contexts in the central precinct at Colha. At Colha, the widespread production of non- utilitarian artifacts such as stemmed macroblades occurred at Colha and gave way to the appearance of purely symbolic forms on a much smaller scale during the Late Preclassic (400 BC- 250 AD). Larger bifacially reduced symbolic forms were recovered in what has been termed Protoclassic burials at Colha (AD 150- AD 250). Later caches recovered in the central precinct date to the Late Classic and are comprised primarily of notched blades but also yielded bifacial forms (Potter 1982; Probst 1984).

During the latter part of the Early Classic and into the Late Classic, large assemblages of flake stone symbols produced on local cherts appear in tomb and cache contexts at Altun Ha. This pattern correlates with what may have been a decline and re- organization of the craft community at Colha. These contexts extend from AD 550 to AD 875. Postclassic contexts are also present at Altun Ha. These cache contexts date primarily to after AD 1100. These materials are clearly local chert, but are different in terms of overall raw material than the Colha

assemblage. It appears that the flaked stone symbols appearing in the tombs and caches at Altun Ha were locally produced.

The assemblages of flake stone symbols from Lamanai appear in Late and Terminal Classic caches along the axis of large structures, in elite residential compounds, and associated with Altar 1 in Plaza 2. The appearance of the assemblage at Lamanai dovetails with the larger Altun Ha assemblage. There are some fundamental similarities with respect to raw material, technology, and morphology between the Lamanai and Altun Ha assemblages. Indeed, it is posited that some of the forms in the Lamanai assemblage may have been produced elsewhere. The late and smaller assemblage may have been the result of acquisition from the elites at Altun Ha. The architectural and material culture similarities between the two sites are clear (Pendergast 1992, 1998). Complex and long standing political relationships were likely solidified by large- scale gift exchanges, some of these exchanges may have included elaborate flaked stone symbols.

What also must be articulated are the similarities and differences in the production continuum indexed by the assemblages that have been the focus of study. Clearly the Late Preclassic materials recovered at Colha exhibit a biface reduction continuum that originated likely from macroblade and macroflake-blade blanks. This continuum is present and most elaborate at Altun Ha. The Altun Ha assemblage is perhaps more definitive of the macroblade macroflake-blade trajectory due to different raw material. Larger and more elaborate specimens necessitated more lengthy and wider blanks. The definition of a blade as being twice as long as wide is re- contextualized with respect to the production continuum. It seems more likely that blanks that were wider than the definition of true blades were used in the production of a majority of the specimens.

Technologically, the assemblage from Lamanai is closely related to the Altun Ha assemblage. The raw materials are similar and the large, elaborate specimens exhibit similar breakage patterns. The emphasis in both assemblages is clearly on bifacial reduction. Though it is difficult to assess production locality based on the context of final interment and the technological information embodied in the final product, it is suggested here that similar production trajectories and perhaps craft communities are evident. In any scenario, the technological and symbolic knowledges necessary for the elaboration of flaked stone symbols was available to relatively few communities. Whether crafters from Altun Ha were producing items from local cherts for acquisition by local elites and transport to a major center such as Lamanai or whether communities of local crafters were procuring macroblade of macroflake- blade blanks for production at Lamanai remains in question.

Hypothesis One

There are significant differences in the raw material appearance and texture in the assemblages from each of the three sites.

Implication One

Contrast in raw material appearance and texture supports the argument that raw materials originated from different quarry localities across northern Belize. The biface assemblages from each of the threes sites were classified as one of three patterns of appearance: banded, mottled, and uniform. A total of 453 of the 519 total specimens included in the technological study were classified. This comprised all of the bifaces from each of the three assemblages. One of the marked characteristics of chert originating from northern Belize is gray and pale gray and brown banding. Banding appears most frequently in the Altun Ha

assemblage, but a significant percentage of artifacts in the Lamanai and Colha assemblages also appear banded.

Results

Artifacts that exhibit cherts that are mottled in appearance, with a mix of several colors and perhaps patination was the most frequently occurring category across assemblages. The Altun Ha assemblage exhibited the largest number of specimens exhibiting a mottled appearance, totaling 31.5%. This is a significant number of artifacts. However, the Lamanai and the Colha assemblages also exhibit a significant number of artifacts that are mottled in appearance. Artifacts that exhibit cherts that are uniform in appearance were the least frequently occurring category across the assemblages. However, what it interesting is that uniform chert is the most frequently occurring category appearing in the Colha assemblage.

In terms of raw material texture, fine and very fine textured cherts are the most frequently occurring categories across the assemblages. Of note is the much lower percentage of very fine textured chert exhibited in the Lamanai assemblage. As well, Lamanai also exhibits the highest percentage of cherts that are moderately fine textured with coarse textured inclusions. Finally, the Lamanai assemblage exhibits a much higher percentage of artifacts that are comprised of coarse textured chert, totaling 8.1% of the total. In contrast to this total, the Colha assemblage exhibits the lowest percentage of artifacts comprised of coarse textured materials.

A comparison of raw material appearance and texture between assemblages exhibits some notable contrasts. Both categories show that the Colha assemblage exhibits a much higher frequency of materials that are uniform in appearance as well as the assemblage that exhibits a much higher frequency of

very fine textured chert and the lowest frequency of artifacts that are comprised of coarse textured chert. Colha is perhaps best known for its uniform tan brown (or honey brown) cherts. These materials were intensively exploited by craft specialists during the Late Preclassic and into the Classic Period of Maya civilization. The contrast in terms of the frequency of uniform and very fine as well as coarse textured cherts between Colha assemblages and the Lamanai and Altun Ha assemblages implies intra- regional variation in raw material originating from differing quarry localities.

Hypothesis Two

There are significant differences in the frequency of occurrence of technological types in each assemblage.

Implication Two

Contrast in the frequency of technological types in the assemblages supports an argument that production trajectories of flaked stone symbols was different at each site.

Results

In the Altun Ha and Lamanai assemblages, by far the most frequently occurring technological type is the biface. However, at Colha macroblades are clearly the most frequently occurring technological type. This contrast indicates a different production trajectory for flaked stone symbols at Colha as compared to Altun Ha and Lamanai.

Hypothesis Three

There are significant differences in the mean artifact dimensions in the assemblages from each site.

Implication Three

Significant differences in the mean artifact dimensions supports an argument that the production trajectories for flake stone symbols was different at each site. There are marked contrasts between mean artifact dimensions between each assemblage.

Results

There is a clear contrast again between the Colha assemblage and the assemblages from Lamanai and Altun Ha. However, the mean artifact dimensions also exhibit a fairly high standard deviation. Thus, the deviations indicate that there could be some overlap between dimensions of the outlying artifacts in each assemblage.

The mean length, width, and thickness of the Colha assemblage are in each case approximately half of the corresponding dimension of artifacts in the Lamanai and Altun Ha assemblages. The Lamanai assemblage exhibits slightly higher mean artifact dimensions than artifacts in the Altun Ha assemblage. The contrast in mean artifact dimensions from the Colha assemblage again indicates that there was a different production trajectory with respect to the artifacts from Colha. Indeed, the assemblages from Lamanai and Altun Ha appear similar, in the sense that larger bifaces appear to be the norm in the assemblages from these two sites.

Hypothesis Four

There are significant differences in mean flake scar lengths between the assemblages.

Implication Four

Differences in flake scar lengths on artifacts from each assemblage indicate that there are different reduction trajectories for the assemblages from each site. A total of the five lengthiest flake scars were measured on each specimen in the three assemblages. These flake scar lengths provided data on the final thinning and shaping of individual specimens. These data were then divided into five categories with one being the longest flake scar and five being the shortest flake scar. A mean flake scar length was generated for each category. The mean flake scar lengths from each category follow the trend shown in the mean artifact dimensions.

Results

The Lamanai assemblage, which exhibits the lengthiest mean flake scar. The mean value for category one at Lamanai is 5.3 cm. When compared to 4.3 cm and 3.3 cm for the category one values from Altun Ha and Colha, the differences in flake scar lengths on specimens from each site are clear. Category five values show that Lamanai and Altun Ha exhibit the same value in terms of mean flake scar length that is 2.7 cm in length. The overall smaller specimens of flaked stone symbols from Colha exhibits a category five value of 2.0 cm. These contrasts again correlate closely with the contrasts demonstrated by the mean artifact dimension values. These two tests show clearly that there are contrasts between the assemblages

Hypothesis Five

There are significant differences in the relative frequency of flake scar terminations visible on specimens from each assemblage.

Implication Five

It is posited that feather terminated flake scars were the desired termination for chert crafters of flaked stone symbols. Feather terminations demonstrate quality of raw material and control of the percussion instrument. Significant differences in the appearance of particular terminations may indicate differences between technology and raw material present in the assemblages.

Results

By far the most frequently occurring flake scar termination recorded on specimens from each assemblage were feather terminated flake scars. What is interesting is that the Colha assemblage demonstrates the largest relative number of feather terminated flake scars, with a total of 85.0% of all flake scars measured exhibiting feather terminations. The lowest frequency was exhibited by the Lamanai assemblage, with 72.8% which is still a high percentage. In contrast, the Colha assemblage exhibits the lowest percentage of hinge fractures. The Altun Ha assemblage exhibited the lowest percentage of step terminated flake scars.

These results, in combination with raw material appearance and texture indicates that what might be termed the highest relative quality of raw material was available to the chert crafters at Colha. This high quality raw material was undertaken by the generations of craft specialists that lived there to produce high quality utilitarian implements. Differences in technology also seem apparent, though flake scar terminations are not an independent test of the presence of lithic technology. Further discussion of the contrasting raw material and technology

present in the assemblages from each site will be discussed further in the final chapter of the dissertation, Chapter Eight.

Chapter 8: Conclusions

Like most things archaeological, this study has perhaps raised more questions than it has answered. However, by positioning material culture as a crystallization of technological knowledge, political economy, and symbolism, we can begin to trace and interpret the complex processes of cultural production that resulted in its appearance archaeologically. Maya flaked stone symbols recovered from Altun Ha, Colha, and Lamanai, Belize index such processes. More commonly referred as eccentric lithics or ceremonial flints, it has become clear that the artifact class under study here can be linked to the symbolic elaboration of a regional lithic technology that was temporally bounded.

Macroblade and macroflake- blade technology first observed at Colha and utilized in the organization and emergence of lithic craft specialization on a massive scale during the Late Preclassic Period was elaborated upon by crafters across northern Belize. This elaboration was undertaken within the context of a shifting and fluid political economic milieu and incorporated themes prevalent in Maya art and iconography. The symbolism present in these artifacts both reflects and constitutes an ideology with mytho- historical and political antecedents also seen in other forms of ancient Maya artistic media. The result was the large- scale production of explicitly symbolic forms at Altun Ha by the Late Classic Period (AD 250- AD 900).

With regard to their elaboration as material symbols, the assemblages can be divided into five groups. These are: **1.** Naturalized forms that depict historical personages, **2.** Forms that served as incarnations of supernatural creatures, such as wayob or k'awil as small idols or statues, **3.** Forms that personifications of earthly and (or) celestial events such as eclipses and planetary convergence, **4.** Forms that

are more abstracted indices of a cultural aesthetic, **5.** Forms that served as either ritual or actual functioning weaponry.

DISCUSSION OF THE FIVE HYPOTHESES

In Chapter One, five interrelated hypotheses were introduced that addressed questions surrounding the appearance of flaked stone symbols in archaeological contexts at the three sites mentioned above. Briefly, I would like to refer back to these, as well as discuss their implications and what the present study has revealed. The hypotheses were based first on establishing technological and historical precursors and then looking at how the forms themselves index ideology possessed by the crafters of the forms. After which, I would like to discuss the three- pronged approach undertaken in the present study with regard to interpreting artifact meaning and implications for future research.

Hypothesis One

Flaked stone symbols occur at Colha by the end of the Late Preclassic Period (sometime prior to AD 250). Their appearance in tomb and cache contexts begins at Altun Ha by AD 550 and in more limited contexts, at Lamanai by AD 700. Moreover, flaked stone symbols occur less frequently at Colha through the Classic Period, ceasing by the Terminal Classic (AD 800- 900). At Altun Ha, flaked stone symbols no longer appear in tomb contexts after AD 850. At Lamanai, the appearance of flaked stone symbols in primary contexts ceases by AD 900.

It is hypothesized that differences in the forms in each assemblage will be most prevalent between the materials from Colha and the later Altun Ha and Lamanai assemblages. The Altun Ha and Lamanai assemblages will show elaboration in terms of form. It is hypothesized that the Colha assemblage will

exhibit variation in technology as exhibited by bifaces and notched blades. Raw material will exhibit considerable variation between sites, but represent a range of materials from the northern Belize chert- bearing zone.

Implications of Hypothesis One

The majority of the assemblage from Colha will date to the Late Preclassic, with some dating to the Late Classic Period. Tomb and cache contexts at Altun Ha and Lamanai will exhibit artifacts that are associated with the Late and Terminal Classic Periods (AD 600- AD 900). As the elite communities at Altun Ha gained political economic power, acquisition of flaked stone symbols became one material aspect of elite ritual displays. Eventually, a shift in the mode of production at Colha during the Early Classic Period (AD 250- AD 600) and the subsequent appearance of signature technologies appearing at Altun Ha and Lamanai in the Late Classic indicate that production locus had shifted. By the 10th century AD, flaked stone symbols in standardized form are no longer produced.

Results

As we now know, Late Preclassic and Protoclassic (400 BC- AD 250) artifact forms associated with burials and caches at Colha Operation 2031, when considered in association with earlier appearing stemmed macroblades at that site, are clearly the earliest appearing symbolic lithic forms in northern Belize. The Colha assemblage dating to this time period is comprised of bifacial forms that were classified as staff ends (see Appendix). By the Late Classic, both bifacial forms and notched blades are present at Colha. Bifacial forms include rings, crescents, and several zoomorphic forms. The notched blade assemblage is larger at Colha, and the technology clearly contrasts with that appearing at Altun Ha and

Lamanai. This sequence to some degree reflects evidence for the re- organization of production at Colha.

The appearance of flaked stone symbols in tomb and cache contexts at Altun Ha begins in the Early Classic Period (AD 250- AD 600) and ends by the Early Postclassic (AD 1000). However, the vast majority of elaborate forms at Altun Ha occur in contexts that date to the Late Classic (AD 550- AD 850). At Lamanai, the appearance of forms in cache contexts dates to the Late and Terminal Classic (AD 600- 950). It may be that some of the forms were produced prior to that time period. It appears that production of explicitly symbolic forms in northern Belize ceases by the Terminal Classic or Early Postclassic Period. There is little evidence for their production after AD 950.

Hypothesis Two

It is hypothesized that variation in color, texture, and the presence of inclusions in raw material comprising individual artifacts can be combined with morphological and technological data to initiate a consideration of production loci. It seems apparent that all raw materials originated from the chert bearing zone of northern Belize. Moreover, it is hypothesized that overall differences in the raw material comprising the assemblages will support the notion for multiple intra- regional sources of chert, and in turn at least two broadly defined production localities.

Implications of Hypothesis Two

Flaked stone symbols, like all forms of material culture, are bounded by technology, raw material, time, and space. By examining the raw material that comprises the three assemblages in the present study, we can begin to at least narrow the sources of the raw material. This macro- level analysis cannot reveal

specific quarry sites or production loci. Instead the comparison provides further indication for shifts in raw material usage and more indirectly, production locus. NAA has revealed intra- regional patterning in terms of local chert composition (Tobey 1986; Cackler et al. 1999). However, overall homogeneity of the chert has made further refining of individual sources extremely difficult. It is posited that raw material composition links assemblages to changing quarrying and production loci within the complex political economic history of northern Belize.

Results

The results of the technological study presented in Chapter Seven, that in part focused on the appearance and texture of raw materials comprising each of the assemblages, revealed significant differences between them. It seems clear now that the chert that comprises the assemblage from Colha is local. It appears primarily as uniform tan brown (honey brown), banded, and mottled pale brown and brown chert. The majority of the assemblage is comprised of fine to very fine textured raw material. The raw material was likely quarried in and around Colha, likely as part of the quarrying activity integral to the intensive craft production of utilitarian tool forms. Some of the finished forms were likely introduced into horizontal socioeconomies of exchange that resulted in the appearance of Colha materials at other sites in the region. Forms were also likely produced for acquisition and display by local elites.

The Altun Ha raw materials exhibit a distinct appearance as well. Archaeological survey undertaken during the early 1980's and the mid- 1990's documented lithic workshop deposits located outside the site center. These deposits yielded raw material that was distinct in appearance. The raw material in these deposits is similar to the artifacts recovered in tomb and cache contexts in the site center. The raw material appears much darker and more mottled in

appearance. There are much fewer artifacts that are comprised of banded chert. There are more moderately fine textured and coarse textured materials in the Altun Ha assemblage. It seems apparent that the artifacts in the Altun Ha assemblage were likely produced from locally quarried raw material. The materials were then crafted and finished in workshop areas in the central precinct or on the periphery, perhaps in the area to the north of the site at Chicawate.

The Lamanai raw materials are similar in some respects to the Altun Ha materials. There are more dark gray and dark blue mottled materials with also artifacts comprised of dark brown chert. There are far more moderately fine and coarse textured chert comprising the assemblage. There are also several artifacts that appear banded in appearance and quite thin. In comparison to the other materials, these artifacts may have been imported. The location of Lamanai on the New River perhaps provided a water link to lithic production sites located to the east, in the chert bearing zone. In any case, because no lithic workshop deposits have been documented around Lamanai, it is suggested that the raw material may have been imported, perhaps in macroblade or macroflake- blade form. It is likely that a center the size of Lamanai had craft communities that possessed the technological knowledge to produce symbolic forms, if they had access to the quality raw material. On the other hand, the late and limited appearance of the materials in archaeological contexts may indicate that finished forms were acquired from elite or craft communities associated with Altun Ha.

Certainly parallels in other forms of material culture such as ceramics as well as public architecture evidence the close relationship between Altun Ha and Lamanai. It seems reasonable to posit that flaked stone symbols were part of large- scale gift exchanges between elites from each site. It is posited here that these exchanges took place within the context of public ritual and feasting. In any case, crafters of flaked stone were producing prestige items that were important to

solidifying a number of political- economic relationships during the Late Classic Period.

Hypothesis Three

It is hypothesized that technological and morphological comparison of the flaked stone symbols from Altun Ha, Colha, and Lamanai will identify a highly standardized lithic technology developed from macroblade and macroflake- blade technology prevalent among the craft community at Colha during the Late Preclassic (400 BC- AD 250) and through the Classic Period (AD 250- AD 850).

Implications of Hypothesis Three

Technological standardization will be assessed utilizing both metric measurements of individual pieces, as well as metric measurements of flake scars present on each piece. Moreover, flake scar terminations, the presence of initial striking platforms and platform remnants, curvature of the piece in relation to the original macroblade or macroflake- blade, and the presence of cortex and (or) thermal alteration are the variables which were examined in the technological study. While artifact morphology will provide the basis for the typology based on repetition of form, descriptive statistics based on the technological data are employed to document technological patterns present in each assemblage.

Results

As shown in the technological analysis presented in Chapter Seven, there are significant differences between the three assemblages under comparison. Clearly the largest individual artifacts are present in the Lamanai assemblage. This indicates a number of things. The first is that the crafters who produced the artifacts may have been concerned about breaking the artifact during production.

Therefore they stopped short of the intensive tertiary thinning and margin trimming seen in greater quantities in the Colha and Altun Ha assemblages. Although a number of individual artifacts from Lamanai do show extensive tertiary thinning and edge trimming. The overall larger dimensions of the Lamanai assemblage may indicate that larger macroblades were being worked by crafters associated with Lamanai.

At Colha, it is apparent that biface macroblade technology was being employed during the Late Preclassic and Protoclassic Periods to produce flaked stone symbols. By the Early Classic, there is little evidence of lithic production. However, Late Classic contexts yielded bifacially worked forms as well as an extensive array of notched blades. Overall, the metric data shows that the assemblage is smaller than the other two assemblages. However, the chronology of forms represented to some degree a sequence in the sense that flaked stone symbols are present both early and late in time. Moreover, an elaborated blade technology is also prevalent in the Colha assemblage.

The Altun Ha assemblage, for the most part reflects a mid- point between the assemblages from Lamanai and Colha. Altun Ha, by far exhibits the largest number of artifacts. As well, the range of forms within the assemblage is also the greatest at Altun Ha. In contrast, the lithic technology at Altun Ha is perhaps most uniform. Biface macroblade technology as well as the use large chert nodules dominates that assemblage from Altun Ha. It seems likely that these locally produced artifacts were part of a political economy that linked craft communities to the elite, both at the site and perhaps between sites.

Hypothesis Four

It is hypothesized that many artifacts were painted and (or) adorned with appliqués, perhaps as part of a process of personification. Moreover, the presence

of preserved textiles indicates that some artifacts may have been bundled prior to deposition. A macro- analysis of the surfaces of artifacts comprising the three assemblages indicates the presence of staining, residues, thermal alteration, and surface polish. It is hypothesized that samples of pigment selected from Altun Ha and Lamanai will yield similar elemental and mineralogical composition.

Implications of Hypothesis Four

If these materials were decorated, handled extensively, and (or) personified via emically based cosmological prescriptions, they possessed substantial cultural value. Materials characterization analysis employing scanning electron microscopy, energy dispersive spectroscopy, and x- ray diffraction procedures will provide data that may indicate composition and perhaps standardization of both pigments and textile technology.

Results

As Chapter Six and Seven have shown, the production process, followed in turn by the processes of acquisition, use, and ultimately deposition for individual artifacts was complex. A significant number of artifacts in the Lamanai and Altun Ha assemblage exhibit pigments ranging from yellow to orange- red, dark red, and dark red brown in color. In two of the specimens from Lamanai, artifacts were clearly painted to depict specific images (see Appendix). The same is true of several specimens from the Altun Ha assemblage. Moreover, three specimens from Altun Ha exhibited textiles adhering to the cortex present on each of the artifacts.

A number of specimens in the Altun Ha and Lamanai assemblages also exhibit surface alteration and what appear to be residues. These areas of discolored chert often correspond to areas that would be where features such as

the eyes or ears of specific anthropomorphic or zoomorphic forms would be. This surface alteration and remnants of residues suggests elaboration in the production process that goes beyond stone working, to include both painting and application of other materials.

In terms of extensive use and handling, a number of specimens from the Altun Ha and the Lamanai assemblage exhibit heavy use related polish, striations, abrasion, and (or) burnishing. In the monolithic axe from Altun Ha, it is clear that the handle was extensively used. Indeed, even the blade on this particular specimen has been re- worked (see Chapter Six). In general, the cortex present on the interior of ring forms from all of the sites exhibits alteration. This may indicate shaping of the cortex for mounting or hafting of the artifacts.

Ongoing materials characterization analysis has documented the pigments as being comprised primarily of iron- oxide (earth pigments). What remains in doubt is the binding vehicle of these pigments. In many cases these are organic materials. Ongoing research will hopefully reveal the composition of the binding vehicle of these pigments. Analysis of the textile samples has revealed that both green and red pigments are present on the surfaces of the textiles. Further research will focus on the composition of the pigments on the textiles. Indeed, it is a goal of the project to subject portions of each of the textile samples to radiocarbon analysis in an attempt to obtain a chronological date for the materials.

Hypothesis Five

Classic Period lowland Maya iconography present on ceramics, mural art, as well as carved stone and wood exhibits numerous forms that are similar to lithic forms originating from Altun Ha, Colha, and Lamanai. Individual forms can be linked to tangible cultural themes that run through Maya art. Themes include legitimating particular cosmological and (or) historical events and characters.

These include animals that played important roles in mythology and transformation, captives, sacrifice, as well as eclipses and celestial events. The assignment of meaning to individual and groups of flaked stone symbols was part of a transmission and legitimation of an iconography of power. Moreover, the themes reflected in individual artifacts were constitutive of the social relations of production and acquisition. Indeed, the meanings of a particular specimen changed with the social context in which they were utilized.

Implications of Hypothesis Five

By examining individual forms within a context of what we know about ancient Maya worldview, we can begin to understand how the Maya used a variety of media to access knowledge and produce and legitimate a specific ideology. Moreover, the production of these forms also helped the individual and (or) community of crafters who produced them create their own social identity. Thus, by gaining a further understanding of the meaning inscribed in these symbols, we gain a clearer understanding of those who created them, as well as those who consumed them, whatever the precise social context of use. Systematic comparison with iconographic representation will include juxtaposing individual lithic forms with examples from other Classic Period Maya media from a number of lowland Maya sites.

Results

As Chapter Six illustrates, individual and groups of artifact forms exhibit correlation with themes prevalent in other forms Maya artistic media. Carved stone monuments from Yaxchilan were implemented as comparative data for a number of forms in the assemblages under study here. Depictions of captives, ball players, women, and elaborate staff ends appearing in the monuments at

Yaxchilan parallel the themes present in flaked stone. Moreover, the images and depictions appearing on polychrome painted ceramics were also used as an interpretive framework in the analysis of zoomorphic forms. A number of images from the previous literature were also compared with forms from the assemblages. These were primarily zoomorphic forms and wayob, or animal- human incarnations.

It seems clear from the analysis presented in Chapter Six, symbolically the assemblages can be divided into five groups. These include naturalized forms that depict historical personages that were captured in warfare events as well as individuals who were sacrificed. The assemblages also include forms that served as incarnations and (or) depictions of wayob. Wayob were the transformative creatures that moved between the human and animal world. Several of the specimens also appeared to depict k' awil as a small statue or idol. These forms likely had power attached to them associated with the deity or supernatural represented.

Other forms likely symbolized celestial events such as eclipses and planetary convergence as well as the supernatural characters with which these events and (or) bodies were associated. A large number of forms, such as trefoil and tetrafoil forms, or ring forms appear to serve as more abstracted indices of a cultural aesthetic. These forms legitimate themes that are not overt, but are implied forms of common knowledge, such as how the world was organized. Finally, a number of forms likely served as either ritual or actual functioning weaponry. What is clear that these artifacts are not eccentric, in that they are unusual or devoid of meaning. Indeed, the symbolic value of flaked stone artifacts occurs on three levels: as representation, as objects that reflect structural principles, and as objects whose meaning changed in specific historical moments.

ANCIENT MAYA FLAKED STONE SYMBOLS: CLOSING COMMENTS

This dissertation has attempted to re- position a class of ancient Maya material culture that has been to some degree neglected through the decades of research undertaken within Maya archaeology. While over twenty- five years ago Professor Gordon Willey called for a thorough and systematic analysis of this artifact class, such an analysis never seemed to come to fruition. Certainly, the description of artifacts recovered from individual sites has been critical to documenting specific assemblages. As this study has tried to assert, these data are invaluable in the important task of regional comparative analysis. However, eccentric lithics were for the most part seen as interesting curiosities whose meaning we could never access or interpret.

If this dissertation accomplishes one thing, it is to persuade researchers to at least consider their position with respect to varying classes of material culture, as well as to perhaps expand traditional lines of archaeological inquiry. In an attempt to construct an interpretive framework for the artifacts under study here, a boundary in terms of analytical approach has been breached. By implementing contextual- descriptive and broad comparative approaches, as well as integrating symbolic and technological data, I have attempted to some degree to construct individual artifact histories. These histories, while never complete, begin to broach important considerations such as the social relations of production and acquisition as well as the symbolic and ritual contexts of use and deposition.

Ultimately, this kind of consideration necessitated the introduction of a political- economic framework that focused on culture and history as the interplay of institutions and actors through time and based not in the individual accumulation or expenditure of material wealth. In this sense, I have tried to move away from an approach that spoke of universalizing economic systems based in notions of supply and demand. Instead I have tried to introduce a frame of

reference based in a limited way in the ethnohistoric literature so prevalent in Maya studies as well as in generalized ethnographic analogy drawn from specific cultural examples present in works within the broader discipline of anthropology. In doing so, it is hoped that a clearer perspective on a frequently occurring, yet enigmatic class of ancient Maya material culture has been presented.

Appendix: Artifact Descriptions and Selected Images

Artifact Grouping: Anthropomorphic Forms

Anthropomorphic Forms: Captives

ah194
RP35/12
Site: Altun Ha
Dimensions (cm) L: 38.3 W: 10.0 Th: 3.6
Technological type: Biface (elongated)
Presence of cortex: Yes
Raw material appearance: Dark brown and very pale brown
Presence of polish/ thermal alteration/ coloration: Yes, very pale brown circular stain/ surface alteration visible on one medial surface
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 38 *ill. 41*
Breakage patterns/ notes: This specimen is made of very fine textured chert with few inclusions. The lateral margins exhibit extensive stacked microflaking and edge crushing. Feather terminated scarring is prevalent away from the margins on the medial surfaces of the specimen. Margins on the interior of the notches formed by the arms and legs exhibit stacked step and hinge terminated flake scarring. Of note is the location of surface alteration (coloration) on one medial surface, this appears to indicate the location of the heart of the individual.
Presence of pigments/ residues: None

ah232
RP35/19
Site: Altun Ha
Dimensions (cm) L: 41.1 W: 10.7 Th: 3.7
Technological type: Biface (elongated)
Presence of cortex: Yes
Raw material appearance: Pale gray brown mottled with inclusions
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in literature: Pendergast 1990: 40 *ill. 41*

Breakage patterns/ notes: This specimen is made of moderately fine textured chert with extensive oval fossil inclusions. Void filling chalcedonies are apparent in the inclusions. Lengthy feather terminated flake scars are prevalent across the medial surfaces of specimen. Steep hinge fractures located on one margin at the proximal end of specimen creates the facial profile. At the notches of arms and legs, extreme edge crushing and stacked step and hinge scarring are prevalent. Of note is the large inclusion that appears to depict the location of the heart of the individual.
Presence of pigments/ residues: None

ah163
RP131/6
Site: Altun Ha
Dimensions (cm) L: 22.9 W: 9.2 Th: 2.6
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled dark brown/ brown and blue/ pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-51/2 cache floor 3 (Terminal Classic AD 800- 825)
Appearance in the literature: Pendergast 1990: 231 *ill. 231*
Breakage patterns/ notes: The specimen is made of very fine textured chert. There is some patination visible at the proximal end of the artifact. The medial surfaces of the specimen exhibit broad flake scars, primarily feather terminated. Some hinge terminations are present on several of the lengthiest flake scars. The lateral margins exhibit short feather terminated flake scarring. The margins do not show extensive edge attrition or crushing. However, located in the notches formed by the intersection of the arms and legs, edge crushing and localized step and hinge terminated fractures are present.
Presence of pigments/ residues: None

ah8
RP137/55
Site: Altun Ha
Dimensions (cm) L: 45.6 W: 9.5 Th: 2.2
Technological type: Biface (elongated)
Presence of cortex: No
Raw material appearance: Dark brown mottled with blue gray very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure F-1/1 cache in floor 1 (Late Classic AD 700)
Appearance in literature: Pendergast 1990: 250 *ill. 250*

Breakage patterns/ notes: The specimen is made of very fine textured chert. Lateral margins show primarily short feather terminated flake scarring. The proximal end of the specimen is thicker and exhibits some edge crushing and battering along the margins, which may indicate the location of the primary striking platform on the original macroblade. Lengthy feather terminated flake scarring predominates across the medial surfaces of the specimen. The specimen exhibits a snap fracture across its medial distal portion that was likely undertaken to fit the artifact into the cache (Pendergast 1998: personal communication).
Presence of pigments/ residues: Faded red brown and yellow green pigment residues are clearly adhering to the dorsal surface of the specimen. Red brown pigment is present on both dorsal and ventral surfaces. The painted area gives the impression of a line starting below left arm and extending up into the facial area and headdress. Pigment also covers elongated mid- section with colors that are less clear.

ah303
RP163/4
Site: Altun Ha
Dimensions (cm) L: 34.2 W: 10.5 Th: 1.7
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded pale gray brown and gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/2 cache above floor 1 (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: The specimen is made of very fine textured chert and is marked by lengthy feather terminated flake scars across both medial surfaces. Shorter step and hinge terminated flake scarring is more prevalent along the lateral margins. Also along the margins, stacked step and hinge terminated flake scarring and edge crushing are visible on the margins parallel to one another and along the interior of the notches. Of note is the shape of the head that may indicate a headdress, but also may be an indication of cranial modeling. Also of note is the position of the feet, which appear to indicate movement, or at least a naturalized posture.
Presence of pigments/ residues: None

ah194RP35/12

ah232RP35/19

ah237
RP164/98
Site: Altun Ha
Dimensions (cm) L: 53.6 W: 18.0 Th: 4.2
Technological type: Biface (elongated)
Presence of cortex: Yes
Raw material appearance: Mottled brown gray and dark brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: The specimen is most impressive because it is so large. Likely produced from a large macroblade. The specimen is made of very fine textured chert with a number of fossil inclusions. Large feather and hinge terminated flake scars are present on the medial surfaces of the specimen. Along the lateral margins, localized areas of stacked step and hinge scarring and feather terminated scarring are visible. Some edge crushing visible at intersection of arms and legs.
Presence of pigments/ residues: None

ah190
RP164/123
Site: Altun Ha
Dimensions (cm) L: 30.8 W: 12.3 Th: 2.9
Technological type: Biface
Presence of cortex: Yes, vertical incised lines are visible cortex dorsal surface
Raw material appearance: Brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache III (Late Classic AD 675)
Appearance in literature: Pendergast 1982: 104 *ill. 107*
Breakage patterns/ notes: The specimen is made of fine textured chert with moderate quantities of inclusions. A striking platform remnant is visible at the proximal terminus of the specimen as part of the headdress. Extensive cortex is visible on dorsal and ventral surfaces. Flake scarring is marked by relatively short feather terminated scars across the medial surfaces if the specimen. Interior of notches along lateral margins show edge crushing and localized step and hinge terminated flake scarring. The lateral margins of the head of the figure show what appears to be pressure flaking. It appears that a fossil inclusion delineates the eye in profile.
Presence of pigments/ residues: None

ah237RP164/98

ah303RP163/4

ah224
RP305/1
Site: Altun Ha
Dimensions (cm) L: 30.2 W: 9.6 Th: 2.3
Technological type: Biface
Presence of cortex: No
Raw material appearance: Brown tan and brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/5 cache (Late Classic AD 650)
Appearance in literature: Pendergast 1982: 81 *ill. 83*
Breakage patterns/ notes: The specimen is made of very fine textured uniform chert. Relative to the artifact, the flake scars are lengthy and exhibit feather terminated scarring across the medial surfaces of the specimen. Feather terminated flaked scarring is also prevalent along the lateral margins of what appears to be the torso of the figure. Along the lateral margins of the legs, localized edge crushing is visible. In the notch where the legs intersect, extensive stacked step and hinge flake scarring is visible.
Presence of pigments/ residues: None

ah311
RP314/132
Site: Altun Ha
Dimensions (cm) L: 25.4 W: 21.0 Th: 3.5
Technological type: Biface
Presence of cortex: Yes, distal terminus of one leg
Raw material appearance: Pale gray tan brown and red
Presence of polish/ thermal alteration/ coloration: Yes, red coloration visible on the dorsal surface
Context: Structure E-54/9 burial (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1990: 150 *ill. 115*
Breakage patterns/ notes: This specimen is made of coarse textured materials with no inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. Along the lateral margins, shorter stacked flake scarring is visible. Some shorter feather terminated flake scarring is present along the margins as well. Edge crushing and stacked step terminated flake scarring are visible in the arm and leg notches. Of note is the material coloration visible on one medial surface. It is unclear if this coloration is cultural in origin. The position of arms and legs appears to indicate a captive form.
Presence of pigments/ residues: None

ah310
RP314/134
Site: Altun Ha
Dimensions (cm) L: 19.2 W: 14.2 Th: 2.1
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Pale brown and dark reddish brown
Presence of polish/ thermal alteration/ coloration: Yes, red coloration visible at the distal portion of one leg
Context: Structure E-54/9 burial (Late Classic AD 850- 875)
Appearance in literature: Pendergast 1990: 150 *ill. 115*
Breakage patterns/ notes: The specimen is made of very fine textured chert with no visible inclusions. Lengthy feather terminated flake scars are visible across the medial surfaces of the specimen. The lateral margins exhibit much shorter flake scars with hinge and step terminations. Some highly localized edge crushing is visible along the margins and in the notches formed by the arms and legs. What appears to be pressure flake scarring is visible along the margins formed by the arms of the figure.
Presence of pigments/ residues: The specimen exhibits surface alteration and what appears to be pigment staining and residues. The specimen exhibits yellow pigment visible across the right leg.

ah308
RP314/135
Site: Altun Ha
Dimensions (cm) L: 20.1 W: 10.2 Th: 2.0
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Very pale gray brown and pale reddish brown
Presence of polish/ thermal alteration/ coloration: Yes, med. surface red brown
Context: Structure E-54/9 burial (Late Classic AD 850- 875)
Appearance in literature: Pendergast 1990: 150 *ill. 115*
Breakage patterns/ notes: The specimen is made of moderately fine textured material with few visible inclusions. Lengthy hinge terminated scarring is visible across the medial portion of the artifact. Shorter feather terminated flake scarring is also visible both across the medial portion and along the lateral margins. Stacked step and hinge terminated scarring is visible on the interior of the notches. Cortex is visible at the proximal terminus of artifact. Of note is the upturned profile with simple headdress and the apparent serpent head formed by the surface coloration across the dorsal medial surface.
Presence of pigments/ residues: None

ah224RP305/1

ah308RP314/135

r77
LA244/6
Site: Lamanai
Dimensions (cm) L: 37.0 W: 10.8 Th: 3.8
Technological type: Biface (elongated)
Presence of cortex: No
Raw material appearance: Dark brown and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache (Late- Term. Classic AD 800- 900)
Appearance in literature: n/a
Breakage patterns/ notes: The specimen is made of very fine textured chert with few visible fossil inclusions. Moderate to lengthy feather terminated flake scars are present across the medial surfaces of the specimen. Lateral margins exhibit little stacked step and hinge scarring. Shorter feather terminated flake scars predominate. Flake scarring appears to delineate an eye. Of note are the upturned profile and the positioning of the arms and legs.
Presence of pigments/ residues: None

Anthropomorphic Forms: Ball Players

ah26
RP98/19
Site: **Altun Ha**
Dimensions (cm) L: 21.3 W: 8.9 Th: 1.8
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled tan and very pale gray and brown gray
Presence of polish/ thermal alteration/ coloration: Yes, very pale gray patina
Context: Structure E-3/1 cache (Late Classic AD 600- 900)
Appearance in literature: Pendergast 1990: 66 *ill. 115*
Breakage patterns/ notes: The specimen is made of moderately fine textured chert with a moderate number of inclusions and is patinated a very pale gray white. In general, the specimen is finely flaked with the lateral margins showing step and hinge terminated flake scarring. Very little edge crushing or attrition is visible along the margins. The medial surfaces of the specimen exhibit feather terminated flake scarring. The overall form of the piece is subtly dynamic, with one foot positioned to the side, and the arms drawn up rather than bound behind the image. These traits, when considered in tandem with the presence of the yoke around the waist, support the ball player classification.
Presence of pigments/ residues: None

ah92
RP98/33
Site: Altun Ha
Dimensions (cm) L: 22.3 W: 8.4 Th: 1.8
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled very pale gray and banded gray
Presence of polish/ thermal alteration/ coloration: Patination present
Context: Structure E-3/1 cache (Late Classic AD 600- 900)
Appearance in the literature: Pendergast 1990: 66 *ill. 115*
Breakage patterns/ notes: The specimen is made of fine textured material. Lateral margins exhibit little edge crushing or attrition. However, on the interior of the notch formed by the intersection of the legs, localized stacked step and hinge terminated flakes scarring and edge crushing are visible. Also, edge crushing and short feather terminated scarring are visible at the proximal terminus (head) of the specimen. This area is thicker than the other portions of the artifact. The form of the piece is subtly active, indicated by the positioning of the feet and arms. The yoke around the waist supports an interpretation of a ball player figure.
Presence of pigments/ residues: None

ah1
RP176/26
Site: Altun Ha
Dimensions (cm) L: 29.0 W: 9.5 Th: 2.4
Technological type: Biface
Presence of cortex: Yes, two areas visible at each terminus
Raw material appearance: Brown gray with gray
Presence of polish/ thermal alteration/ coloration: Yes, red brown with yellow
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 131 *ill. 133*
Breakage patterns/ notes: This specimen is made of moderately fine textured raw material. Fairly large quantities of inclusions are visible in the material. The medial surfaces exhibit moderately lengthy feather terminated flake scars visible. The lateral margins exhibit step and hinge scarring, especially prevalent on the interior of notches. Of note are waves of the bulb of percussion visible on the ventral surface at one terminus. These waves indicate that the head of the specimen is the distal portion of the original macro flake blade.
Presence of pigments/ residues: There is a dark brown colored area visible at one terminus. This material appears to be organic and may have held an appliqué in place.

ah138
RP176/30
Site: Altun Ha
Dimensions (cm) L: 37.5 W: 17.8 Th: 3.6
Technological type: Biface
Presence of cortex: Yes, at proximal terminus
Raw material appearance: Mottled brown dark brown and brown tan
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 131 *ill. 135*
Breakage patterns/ notes: This specimen is made of very fine textured chert that exhibits few visible inclusions. The medial surfaces of the specimen and the legs show feather terminated flake scarring. The lateral margins, especially the upper torso, exhibit stacked step and hinge terminated flake scarring and edge crushing. In profile, the artifact exhibits a slight curve indicating production on a macroblade. Of note are the movement implied by the positioning of the feet, as well as the location of the margin prominence.
Presence of pigments/ residues: None

ah36
RP176/31
Site: Altun Ha
Dimensions (cm) L: 23.8 W: 9.4 Th: 2.0
Technological type: Biface
Presence of cortex: Yes, small quantity located at proximal terminus
Raw material appearance: Gray brown/ mottled light gray/ banded pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in literature: Pendergast 1982: 131 *ill. 133*
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured inclusions. Of note is a large hinge terminated flake scar that on the dorsal medial surface. It appears to be with a large inclusion. Lateral margins exhibit some localized areas of stacked step and feather terminated flake scarring. The interior of the notches at the arms and legs exhibit edge crushing and stacked flake scarring. The headdress and profile, the positioning of the arms and feet link this anthropomorphic form to the ball player and (or) captive classification.
Presence of pigments/ residues: None

ah92RP98/33

ah138RP176/30

ah79RP528/5

ah29RP657/5

ah79
RP528/5
Site: Altun Ha
Dimensions (cm) L: 34.4 W: 13.5 Th: 3.1
Technological type: Biface
Presence of cortex: Yes, at proximal terminus as striking platform remnant
Raw material appearance: Mottled blue gray brown and black
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in literature: Pendergast 1990: 368 *ill. 371*
Breakage patterns/ notes: The specimen is made of fine textured chert. The lateral margins exhibit localized edge crushing and stacked flake scarring, especially prevalent on the interior of the notches. Symmetrical feather terminated flake scars are visible across the medial surfaces of the artifact. Proximal terminus appears to exhibit a remnant of the primary striking platform. The distal terminus of one leg exhibits a snap fracture. Of note is the movement that is implied by the positioning of the arms and the legs. Also of note is the surface alteration and coloration of the stone located near the center of the artifact. As seen in other artifacts, these alterations appear as part of a naturalistic representation.
Presence of pigments/ residues: None

ah29
RP657/5
Site: Altun Ha
Dimensions (cm) L: 20.1 W: 9.7 Th: 2.0
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded tan and gray to very pale gray white
Presence of polish/ thermal alteration/ coloration: Patina visible each surface
Context: Structure C-16/1 cache (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 216
Breakage patterns/ notes: The specimen is made of fine textured chert that exhibits banding. The medial surfaces are finely flaked with feather terminated flake scarring most prevalent. Edge crushing and stacked step and hinge scarring are visible on the interior of the notches formed by each arm and the legs. Of note is the profile of the nose visible at the proximal terminus of the specimen. The presence of a simple, flat headdress is consistent with specimen **ah237**, classified as a captive. The position of the feet and arms imply movement of form.
Presence of pigments/ residues: None

r110
LA694/31
Site: Lamanai
Dimensions (cm) L: 35.5 W: 15.0 Th: 3.1
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Dark brown and dark gray brown
Presence of polish/ thermal alteration/ coloration: Yes, dark brown coloration
Context: Structure N10-15/8 axial cache beneath north central staircase of the structure (Late Classic AD 850- 900)
Appearance in literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. Along the medial surfaces of the specimen lengthy feather terminated flake scarring is prevalent. The lateral margins exhibit shorter feather terminated flake scarring with some localized areas of step and hinge terminated scarring and edge crushing. The margins at the distal and proximal termini exhibit attrition, but it is unlikely that extensive platform set up and thinning was necessary. Of note are the headdress and facial profile.
Presence of pigments/ residues: None, but dark brown coloration is visible across surfaces where cortex is present.

Anthropomorphic Forms: Gendered Forms

ah273
RP175/3
Site: Altun Ha
Dimensions (cm) L: 27.8 W: 17.0 Th: 3.2
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled dark brown and very pale blue gray
Presence of polish/ thermal alteration/ coloration: Yes, patina on right margin
Context: Structure B-4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: The specimen is made of fine textured chert with few inclusions. The inclusions that are visible are large and oval shaped. The medial surfaces of the specimen exhibit relatively large feather terminated flake scars. The lateral margins exhibit short stacked feather, hinge, and step terminated flake scars with localized edge crushing. The interior margins of the legs exhibit short feather terminated flake scars and some stacked flake scarring.
Presence of pigments/ residues: None

ah277
RP175/11
Site: Altun Ha
Dimensions (cm) L: 33.4 W: 15.4 Th: 3.4
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Tan brown very pale gray brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: The specimen is made of moderately coarse textured chert with extensive inclusions. The medial dorsal surface of the specimen exhibits a ridge with feather terminated flake scars visible on either side of the ridge. The lateral margins exhibit edge crushing and shorter feather and hinge terminated flake scarring. Stacked flake scarring and edge crushing is much more prevalent on the interior of the notch.
Presence of pigments/ residues: None

ah274
RP175/15
Site: Altun Ha
Dimensions (cm) L: 27.3 W: 14.6 Th: 3.1
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled dark brown very pale blue gray
Presence of polish/ thermal alteration/ coloration: Yes, patina dorsal surface
Context: Structure B-4/3 tomb wall cache I (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 124 *ill. 127*
Breakage patterns/ notes: The specimen is made of very fine textured chert with few inclusions. The medial surfaces of the artifact exhibit lengthy feather terminated flake scars. The lateral margins exhibit shorter feather terminated flake scarring and localized stacked flake scarring and edge crushing. The notch at the interior of the legs exhibits extensive stacked step and hinge terminated flake scarring and edge crushing. Thinning in the form of feather terminated flake scars is apparent at the proximal terminus.
Presence of pigments/ residues: None

ah277RP175/11

ah274RP175/15

ah184
RP188/12
Site: Altun Ha
Dimensions (cm) L: 27.8 W: 13.0 Th: 2.8
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Mottled brown gray/ pale brown/ banded brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: The specimen is made of very fine textured chert with no inclusions. Flake scarring along the interior of the notches formed by the arms and legs exhibit stacked step and hinge terminated flake scarring. The flake scarring is visible in tandem with edge crushing. Feather terminated flake scarring is prevalent along the lateral margins, with highly localized edge crushing and stacked flake scarring also visible.
Presence of pigments/ residue: None

r72
LA395/
Site: **Lamanai**
Dimensions (cm) L: 25.5 W: 12.9 Th: 2.5
Technological type: Biface
Presence of cortex: Yes, localized area on distal terminus of artifact
Raw material appearance: Mottled dark brown and blue white
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: The specimen is made of fine textured chert with a minimal quantity of inclusions. The lateral margins exhibit short feather terminated flake scars and localized edge crushing. Heavy stacked step and hinge terminated flake scarring is visible on the interior of the notches. Lengthy feather terminated flake scarring is prevalent across the medial surfaces of the specimen. The artifact exhibits significant curvature in profile, indicating production on a macroblade. Of note is the proximal terminus that exhibits short feather terminated flake scars. The face/ head appears to be facing forward.
Presence of pigments/ residues: Extensive pigment is visible on the medial and medial distal portions of the dorsal surface. The pigment is dark reddish brown in color and is primarily located along the margins of the notch formed at the intersection of the legs.

Anthropomorphic Forms: Depictions of Sacrifice

ah165
RP34/34
Site: Altun Ha
Dimensions (cm) L: 23.6 W: 14.1 Th: 3.1
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Mottled pale brown/ brown gray/ banded browns
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in literature: Pendergast 1990: 24
Breakage patterns/ notes: This specimen is made of fine textured chert with some banding visible. The medial surfaces of the artifact exhibit lengthy flake scars that in general are feather terminated. Flake scarring located closer to the margins is for the most part shorter and exhibits both step and hinge terminations. The notches formed by the arms and legs exhibits stacked flake scarring, and edge crushing is also visible. The distal terminus of the right leg exhibits cortex and appears to be a remnant of the original striking platform. Of note are the splayed orientation of the arms and legs and upward facial profile.
Presence of pigments/ residues: None

ah258
RP38/55
Site: Altun Ha
Dimensions (cm) L: 30.2 W: 25.5 Th: 4.2
Technological type: Biface
Presence of cortex: Yes, cortex incised circle- spiral, upper right quadrant
Raw material appearance: Mottled tan brown and strong brown
Presence of polish/ thermal alteration/ coloration: Yes, red around cortex.
Context: Structure E-1/3 cache in tomb chamber (Late Classic AD 600)
Appearance in literature: Pendergast 1990: 28
Breakage patterns/ notes: The specimen is made of fine texture chert exhibiting a moderate number of inclusions. The specimen exhibits relatively lengthy feather terminated flake scars present across the medial surfaces. Along the lateral margins, localized step and hinge scarring and a small amount of edge crushing are visible. Of note is the red coloration around the cortical portion of the artifact. Moreover, a series of incised circle- spiral lines is visible on the cortex located on one medial surface. Of note is the subtle upturned facial profile. The form is exceptional in the violence implied in the form when considered as a whole.
Presence of pigments/ residues: None

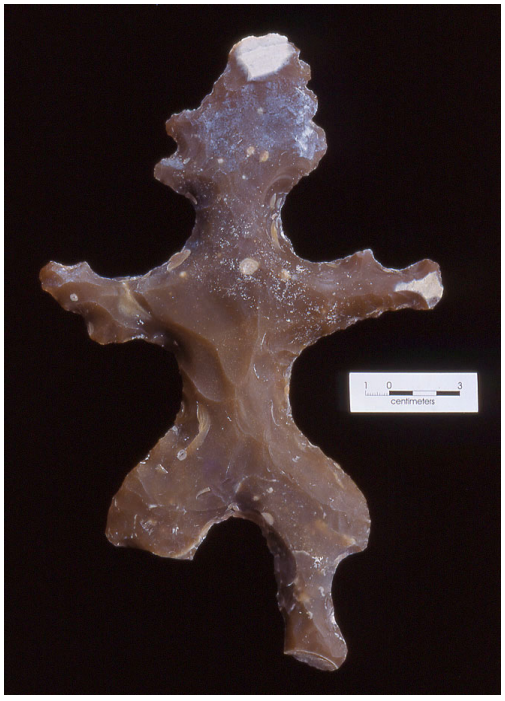
ah209
RP188/5
Site: Altun Ha
Dimensions (cm) L: 24.2 W: 13.6 Th: 2.4
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Brown tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: The specimen is made of very fine textured chert with a few oval shaped inclusions. Lengthy feather terminated flake scars predominate across the medial surfaces of the specimen. Shorter feather terminated flake scars are visible along the lateral margins, with localized areas of stacked flake scarring and edge crushing visible. Of note is the splayed positioning of the arms and legs, as well as the upturned facial profile located at the proximal terminus of the artifact.
Presence of pigments/ residues: None

ah187
RP188/9
Site: Altun Ha
Dimensions (cm) L: 25.4 W: 15.0 Th: 2.8
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled gray brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: The specimen is made of very fine textured material with a number of oval shaped coarse textured inclusions. Short feather terminated flake scars are present at the proximal terminus. These appear to be pressure flaked. This pattern of short feather terminated flake scarring is similar along the lateral margins. In the notches formed by the intersection of the arms and legs, the artifact exhibits edge crushing and stacked step and hinge terminated flake scarring. Lengthy hinge terminated flake scars are visible on the medial surfaces of the legs. Also, lengthy feather terminated flake scarring predominates across the medial surfaces of the specimen. Of note are the upturned facial profile and the splayed position of the arms and legs.
Presence of pigments/ residues: None

r76
LA/unknown
Site: Lamanai
Dimensions (cm) L: 28.5 W: 12.5 Th: 4.0
Technological type: Biface
Presence of cortex: Yes, note positioning of cortex on medial portion of artifact
Raw material appearance: Tan brown and dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured material with few inclusions. Across the medial surfaces of the specimen, lengthy feather and hinge terminated flake scars are visible. Along the lateral margins, shorter feather terminated scarring is present, with some edge crushing. Similar to other forms, the interiors of the notches exhibit stacked step and hinge terminated scarring and edge crushing. Of note is the subtle yet detailed facial profile formed by feather terminated flake scarring.
Presence of pigments/ residues: None

r15
LA694/9
Site: Lamanai
Dimensions (cm) L: 26.8 W: 16.9 Th: 3.4
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Tan brown dark brown and very dark gray
Presence of polish/ thermal alteration/ coloration: Yes, faded red color visible on the ventral surface
Context: Structure N10-15/8 stair cache (Terminal Classic AD 875)
Appearance in literature: n/a
Breakage patterns/ notes: The specimen is made of very fine textured chert with a number of circular inclusions. Lateral margins exhibit stacked step and hinge terminated flake scarring, especially prevalent in the notches of the arms and legs. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring, which is also present on the proximal surface (head) and the legs. Of note is the subtle yet detailed upturned facial profile.
Presence of pigments/ residues: None

ah187RP188/9



r15LA694/9

Anthropomorphic Forms: Generalized Depictions

ah287
RP175/5
Site: Altun Ha
Dimensions (cm) L: 28.6 W: 8.1 Th: 2.1
Technological type: Biface (elongated form)
Presence of cortex: No
Raw material appearance: Mottled pale blue gray and brown and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine textured chert with few inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated and symmetrical flake scarring. The lateral margins exhibit shorter feather, step, and hinge terminated scarring. Some highly localized areas of stacked step and hinge scarring and edge crushing are visible. This scarring is most prevalent on the interior of the notch at one terminus of the form. Of note is the circular inclusion on one medial surface that appears to delineate an eye of the form in profile.
Presence of pigments/ residues: None

ah279
RP175/13
Site: Altun Ha
Dimensions (cm) L: 34.8 W: 9.2 Th: 2.7
Technological type: Biface (elongated)
Presence of cortex: No
Raw material appearance: Mottled brown gray/ pale yellow/ pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/3 tomb wall cache I (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 122 *ill. 127*

Breakage patterns/ notes: This specimen is made of moderately fine textured chert. Flake scarring visible across the medial surfaces of the specimen is comprised of primarily symmetrical feather terminated flake scars. Along the lateral margins, shorter stacked step and hinge terminated scarring is visible along with some highly localized areas of edge crushing. The notch at the distal terminus, or tail, exhibits edge crushing on the interior. Of note is the large circular inclusion that appears to delineate the eye of the form in profile.
Presence of pigments/ residues: None

ah278
RP175/16
Site: Altun Ha
Dimensions (cm) L: 26.6 W: 13.1 Th: 2.4
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled brown with blue gray and brown pale brown
Presence of polish/ thermal alteration/ coloration: Yes, staining on one surface
Context: Structure B-4/3 tomb wall cache I (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 124 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars. The lateral margins show shorter feather, step, and hinge terminated scarring, especially prevalent along the interior of curves and notches of the margins. There is also highly localized edge crushing visible in these areas. Of note is the circular stain near one margin of the medial surface. The stain appears to delineate an eye of the form in profile.
Presence of pigments/ residues: None

ah170
RP256/50
Site: Altun Ha
Dimensions (cm) L: 28.2 W: 10.4 Th: 2.5
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Brown dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91

Breakage patterns/ notes: The specimen is made of very fine textured chert with circular inclusions. The artifact is thick with lengthy feather terminated flake scars present across the medial surfaces. The lateral margins exhibit shorter stacked step and hinge terminated scarring and edge crushing and attrition. However, the notch formed at the intersection of the leg and the body exhibits little edge crushing, suggestive of the uniformity of the material. Of note is the presence of a headdress as well as the positioning of the arms and legs.
Presence of pigments/ residues: None

ah164
RP256/49
Site: Altun Ha
Dimensions (cm) L: 23.9 W: 7.9 Th: 2.0
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled pale blue gray with gray banding and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen is made of fine textured chert with several large circular inclusions that exhibit void filling chalcedony on the interiors. In general, the piece is relatively thick with the mid- section steeply sloped forming the medial ridge. Across the medial surface of the specimen are relatively lengthy feather terminated flake scars. Also present in this area are shorter flake scars that terminate in hinges. Along the lateral margins, shorter step and hinge flake scarring occurs, often stacked and in tandem with edge crushing. This pattern is especially prevalent in the notches of the arms and the legs. Of note is the detailed facial profile and headdress.
Presence of pigments/ residues: None

ah312
RP314/130
Site: Altun Ha
Dimensions (cm) L: 23.7 W: 11.2 Th: 2.8
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded pale brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-54/9 burial (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1990: 150 *ill. 115*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Along the medial surfaces of specimen symmetrical feather and hinge terminated flake scarring is visible. Along both lateral margins, feather terminated flake scarring is present and is interspersed with stacked step and hinge scarring. The interior of the large notch exhibits stacked step and hinge scarring and edge crushing.
Presence of pigments/ residues: None

ah307
RP314/131
Site: Altun Ha
Dimensions (cm) L: 19.2 W: 9.8 Th: 2.0
Technological type: Biface (notched)
Presence of cortex: Yes, at one terminus
Raw material appearance: Banded pale brown and pale gray
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration
Context: Structure E-54/9 burial (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1990: 150 *ill. 115*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The lateral margins exhibit shorter feather terminated flake scars along with stacked step and hinge scarring visible on the interior of the notches. The specimen appears to have been thermally altered and is curved in profile. Of note is the snap fracture visible at the terminus of one appendage.
Presence of pigments/ residues: None

ah170RP256/50

ah164RP256/49

ah324
RP364/74
Site: Altun Ha
Dimensions (cm) L: 40.5 W: 11.8 Th: 3.2
Technological type: Biface (elongated)
Presence of cortex: Yes, at distal terminus of one leg
Raw material appearance: Banded gray brown/ dark brown and very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: This specimen is made of fine textured chert with no visible inclusions. Lengthy feather terminated flake scars predominate across the medial surfaces of the specimen. Along the lateral margins, due to the overall thickness of the artifact, stacked step and hinge scarring is prevalent and extensive edge crushing is visible. Of note are the elaborate headdress and also the waist yoke present on the specimen.
Presence of pigments/ residues: None

Anthropomorphic Forms: Exaggerated Depictions and Facial Profiles

ah166
RP98/29
Site: Altun Ha
Dimensions (cm) L: 14.4 W: 7.4 Th: 1.6
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Mottled very pale brown/ gray with pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-3/1 cache (Late Classic AD 600- 900)
Appearance in the literature: Pendergast 1990: 67 *ill. 115*
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured inclusions visible in the matrix of the material. The medial surfaces exhibit feather terminated flake scarring. The lateral margins exhibit shorter feather terminated flake scars as well as short step and hinge scarring. Stacked step and hinge scarring and edge crushing are visible on the interior of the notches. However, there is little edge crushing present on interior of the notch.
Presence of pigments/ residues: None

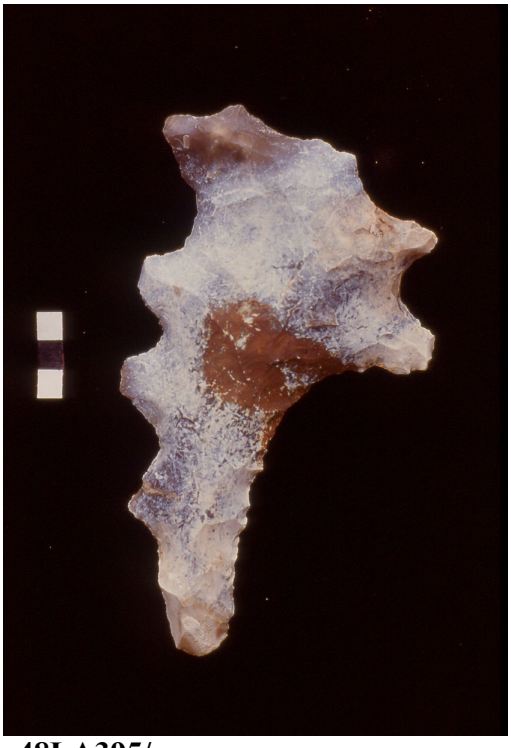
ah125
RP176/27
Site: Altun Ha
Dimensions (cm) L: 17.2 W: 9.1 Th: 2.3
Technological type: Biface (perforated)
Presence of cortex: Yes, interior of perforation
Raw material appearance: Gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 131 *ill. 133*
Breakage patterns/ notes: The specimen is made of very fine textured chert with a number of circular inclusions. The proximal terminus exhibits what appears to be a striking platform remnant. Also of note is the void around which the specimen was produced. The lateral margins of the specimen exhibit stacked flake scarring, battering, and edge crushing especially prevalent near the thick proximal end. Specimen exhibits lengthy feather terminated flake scars across the medial surfaces. Interiors of the notches also exhibit stacked step and hinge terminated scarring.
Presence of pigments/ residues: None

ah52
RP176/28
Site: Altun Ha
Dimensions (cm) L: 23.6 W: 7.1 Th: 2.2
Technological type: Biface (notched)
Presence of cortex: Yes, at proximal terminus, striking platform remnant
Raw material appearance: Gray brown light gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 131 *ill. 133*
Breakage patterns/ notes: This specimen is made of fine textured chert. Coarse textured material is present in the matrix of the material as well. The proximal terminus exhibits a striking platform remnant, indicating the piece was produced from a macroblade. On the interior of the notches, edge crushing and stacked step terminated flake scarring are visible. Flake scarring visible on the edge prominences exhibits feather terminated flake scarring. Of note are the subtlety of the facial profile and the positioning of the arms and legs, as if seated in a cross-legged position.
Presence of pigments/ residues: None

cr25
CH100/177
Site: Colha
Dimensions (cm) L: 13.7 W: 11.7 Th: 1.8
Technological type: Flake
Presence of cortex: No
Raw material appearance: Mottled tan pale brown and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Colha surface collection
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert and exhibits a striking platform and bulb of percussion. The medial dorsal surface of the specimen exhibits a large hinge terminated flake scar. The lateral margins exhibit extensive microflaking and stacked step and hinge terminated flake scarring, most prevalently on the interior of notches.
Presence of pigments/ residues: Yes, the specimen exhibits hair adhering to the dorsal surface. It is posited that the piece represents the profile of an individual with a forelock. The hair is present behind the forelock and is brown in color. Of note is the likelihood that hair has a post- depositional origin (during storage).

r44
LA395/
Site: Lamanai
Dimensions (cm) L: 15.7 W: 11.0 Th: 2.3
Technological type: Flake (perforated)
Presence of cortex: Yes, on interior of perforation
Raw material appearance: Mottled brown gray and very pale gray and blue
Presence of polish/ thermal alteration/ coloration: Yes, pale yellow color
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The specimen exhibits flake scarring on one medial surface. Both dorsal and ventral margins exhibit flake scarring. The scarring along margins consist primarily of short feather terminated flake scars. The medial dorsal surface exhibits a few relatively lengthy feather terminated flake scars. Of note is the striking platform present at the proximal terminus. The flake appears to have been produced around a void in the material that delineates the eye of the form. The nose of profile is not present, as indicated by snap fracture on one lateral margin.
Presence of pigments/ residues: None

cr25CH100/



r48LA395/

r48
LA395/
Site: Altun Ha
Dimensions (cm) L: 18.8 W: 10.2 Th: 1.8
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Dark brown and pale blue gray patination
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert that is patinated to a pale bluish gray color. The lateral margins of the specimen exhibit short feather terminated flake scarring as well as stacked step and hinge scarring which is also visible. The stacked flake scarring is especially prevalent on the interior of the margin notches. The medial surfaces of the specimen exhibit both short and moderate length feather terminated flake scarring.
Presence of pigments/ residues: Yes, an oval shaped area of red and dark red pigment is visible on both surfaces of the specimen. The area of pigment on the dorsal surface is 2.8 cm in diameter.

Artifact Grouping: Zoomorphic Forms

Zoomorphic Forms: Mammalian and Amphibian Depictions

ah242
RP0/7
Site: Altun Ha
Dimensions (cm) L: 19.5 W: 12.1 Th: 2.8
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled very pale blue gray with very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert that appears to have been patinated. The medial surfaces of the specimen exhibit both lengthy and short feather terminated flake scars. The lateral margins exhibit localized step and hinge terminated flake scars. Of note is the portion of the specimen that appears to have represented the head. This area now exhibits what appears to be a snap fracture that is extensively re- worked. Short feather

terminated flake scars are visible along the margins. These appear to have been formed by pressure flaking. The current form appears to be a headless dog.
Presence of pigments/ residues: None

ah116
RP34/49
Site: Altun Ha
Dimensions (cm) L: 27.8 W: 15.7 Th: 4.2
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled pale yellow brown gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of fine textured chert with visible oval shaped inclusions. The lateral margins exhibit edge crushing and stacked step and hinge terminated flake scarring. The medial surfaces of the specimen do not exhibit extensive thinning, but show some lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

ah198
RP35/15
Site: Altun Ha
Dimensions (cm) L: 29.0 W: 12.1 Th: 3.7
Technological type: Biface
Presence of cortex: Yes, the cortex exhibits cut marks, carving, and incising.
Raw material appearance: Banded pale gray and very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 41*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Along the lateral margins stacked step and hinge terminated flake scarring is visible. Edge crushing and stacked flake scarring is more prevalent on the interior of the notches and along the facial profile. Across the medial portion of the specimen, relatively lengthy feather terminated flake scars predominate. Note the smoothing marks and incised lines visible on the cortex that defines nose of the form. In addition, note carving and incising of the cortex that delineates the eye.
Presence of pigments/ residues: None

ah218
RP35/26
Site: Altun Ha
Dimensions (cm) L: 30.7 W: 12.8 Th: 3.3
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Banded dark gray brown and gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 43*
Breakage patterns/ notes: This specimen is made of fine textured chert with small inclusions visible. Lengthy feather terminated flake scarring is present on the medial surfaces of the specimen. In addition, lengthy hinge fractures are visible away from the margins. Overall, the specimen is quite thick. The lateral margins exhibit localized areas of stacked step and hinge terminated flake scarring. Of note is the cortex that forms the eye of the feline form.
Presence of pigments/ residues: None

ah46
RP38/56
Site: Altun Ha
Dimensions (cm) L: 24.2 W: 11.4 Th: 2.9
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded brown/ pale brown/ pale red and pale brown
Presence of polish/ thermal alteration/ coloration: Yes, pale red/ red color
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring, especially prevalent on the interior of notches around the perimeter of the form. The medial surfaces exhibit some lengthy feather terminated flake scarring. Of note is the pale red and red coloration visible across the medial surfaces of the specimen.
Presence of pigments/ residues: None, but see above regarding red coloration.

ah116RP34/49

ah198RP35/15

ah43
RP98/32
Site: Altun Ha
Dimensions (cm) L: 15.8 W: 7.0 Th: 1.5
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled pale gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-3/1 cache (Late Classic AD 600- 900)
Appearance in the literature: Pendergast 1990: 67 *ill. 115*
Breakage patterns/ notes: This specimen is made of very fine textured material with some linear inclusions. The lateral margins exhibit some attrition and stacked flake scarring, especially prevalent on the interior of the notches. Across the medial surfaces of the specimen, relatively short feather terminated flake scarring is visible. Feather terminated scarring is also visible along the margins. Of note is the right margin on ventral surface. This margin exhibits an area of stacked step and hinge terminations. The stacked flake scarring seems to have prevented further thinning of the specimen.
Presence of pigments/ residues: None

ah120
RP137/53
Site: Altun Ha
Dimensions (cm) L: 25.9 W: 15.0 Th: 2.6
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Mottled dark brown/ blue gray/ brown/ red brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure F-1/1 cache located beneath floor 1 (Late Classic AD 700)
Appearance in the literature: Pendergast 1990: 250 *ill. 241*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The specimen exhibits symmetrical feather terminated flake scarring across the medial surfaces. The interior of the notches along the lateral margins exhibits stacked step and hinge terminated flake scarring and edge crushing. Of note is the flake scar that defines the eye in facial profile.
Presence of pigments/ residues: Yes, red brown pigment is visible at the medial distal portion of the specimen.

ah234
RP164/118
Site: Altun Ha
Dimensions (cm) L: 25.2 W: 16.2 Th: 3.4
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Banded gray brown and pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache III (Late Classic AD 675)
Appearance in literature: Pendergast 1982: 104 *ill. 107*
Breakage patterns/ notes: This specimen is made of fine textured chert with no visible inclusions. Lengthy feather and hinge terminated flake scars are visible across the medial surfaces of the specimen, around the cortex. The lateral margins exhibit localized and extensive stacked step and hinge terminated flake scarring. Overall, the artifact is thick and extensive thinning was not possible. Along the margins, short feather terminated flake scarring is also present. Of note is the positioning of the legs indicating a dynamic posture or movement.
Presence of pigments/ residues: None

ah204
RP164/91
Site: Altun Ha
Dimensions (cm) L: 28.1 W: 10.5 Th: 4.3
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded gray brown and strong brown
Presence of polish/ thermal alteration/ coloration: None
Context: B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: The specimen is made of fine textured chert with large oval shaped inclusions. Lengthy hinge and feather terminated flake scarring is visible across the thick medial portion of the specimen. The lateral margins are characterized by localized step and hinge terminated flake scarring frequently occurring in association with edge crushing. Of note is the subtle feather terminated flake scarring that defines the facial profile.
Presence of pigments/ residues: None

ah283
RP175/2
Site: Altun Ha
Dimensions (cm) L: 25.5 W: 10.8 Th: 2.4
Technological type: Biface
Presence of cortex: No
Raw material appearance: Pale brown tan/ banded brown and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine and coarse textured chert with no visible inclusions. Flake scarring occurring on the medial surfaces of the specimen is comprised of lengthy feather terminated flake scars. Along the lateral margins shorter hinge and step terminated flake scarring are visible, as well as some local areas of edge crushing present along the interiors of margin notches. Of note is the ventral or flat surface face that exhibits coarse textured chert and more step and hinge scarring across the medial surface.
Presence of pigments/ residues: None

ah284
RP175/4
Site: Altun Ha
Dimensions (cm) L: 26.5 W: 14.3 Th: 2.3
Technological type: Biface
Presence of cortex: Yes, small areas at distal and proximal termini.
Raw material appearance: Mottled pale blue gray/ pale gray/ blue gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B- 4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine textured chert with no visible inclusions. Medial surfaces of the artifact are marked by lengthy feather terminated flake scarring. Several lengthy step terminated scars are also visible on one surface. Along the lateral margins, shorter step, hinge, and feather terminated flake scarring is visible. More intensive stacked flake scarring and edge crushing are visible along the lateral margins.
Presence of pigments/ residues: None

ah234RP164/118

ah204RP164/91

ah282
RP175/6
Site: Altun Ha
Dimensions (cm) L: 24.6 W: 14.6 Th: 2.2
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded brown strong brown/ pale gray brown/ gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: The specimen is made of fine textured chert with some oval shaped and coarse textured inclusions. Lengthy feather and hinge terminated flake scarring is visible across the medial surfaces of the specimen. Lateral margins exhibit short feather and step terminated flake scarring. Some short symmetrical feather terminated scarring is visible in what appears to be the head area. Relatively speaking, the artifact is thin in cross section.
Presence of pigments/ residues: None

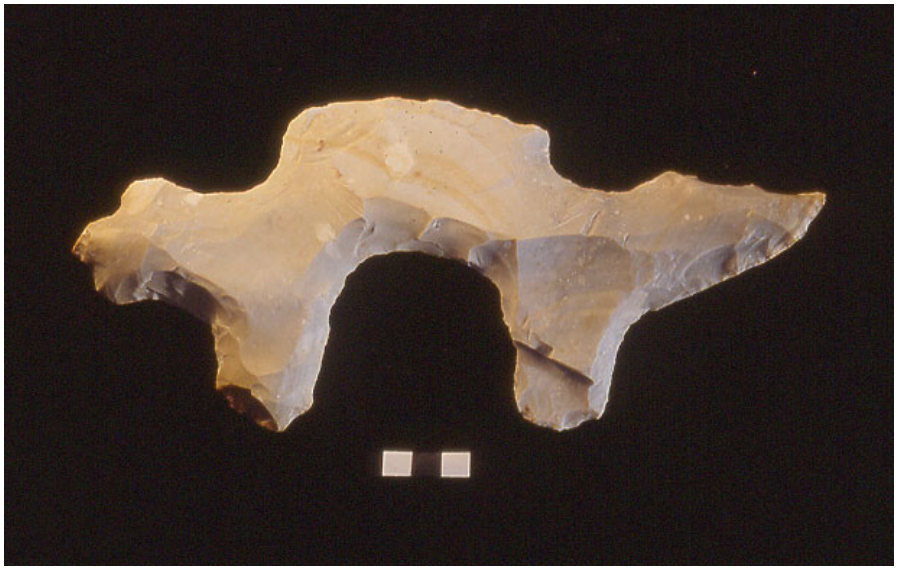
ah275
RP175/14
Site: Altun Ha
Dimensions (cm) L: 25.4 W: 8.3 Th: 2.5
Technological type: Biface
Presence of cortex: Yes, small portion located at distal terminus
Raw material appearance: Brown pale gray/ brown/ mottled pale brown gray
Presence of polish/ thermal alteration/ coloration: Yes, circular brown stain visible at the proximal end
Context: Structure B-4/3 wall cache I (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with oval shaped inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The lateral margins exhibit localized stacked step and hinge terminated scarring, as well as edge crushing. Both are both prevalent on the interior of the margins. Of note is the faint circular staining mentioned above.
Presence of pigments/ residues: None

ah94
RP176/32
Site: Altun Ha
Dimensions (cm) L: 19.4 W: 12.2 Th: 2.1
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Mottled pale brown/ yellow brown/ pale red/ red
Presence of polish/ thermal alteration/ coloration: Yes, red/ red yellow visible
Context: Structure B-4/4 wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 132 *ill. 135*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit short feather terminated flake scars. The lateral margins exhibit short feather terminated flake scars and localized areas of stacked step and hinge terminated flake scarring, especially prevalent on the interior of the notches. Of note is the striking platform present at the proximal terminus. Also of note is the deep reddish brown coloration visible at the distal end of the specimen. It is unclear whether this is caused by thermal alteration or staining of the material.
Presence of pigments/ residues: None

ah91
RP176/39
Site: Altun Ha
Dimensions (cm) L: 26.4 W: 11.0 Th: 2.3
Technological type: Biface
Presence of cortex: Yes, located at distal terminus
Raw material appearance: Banded pale gray/ gray/ yellow brown/ mottled grays
Presence of polish/ thermal alteration/ coloration: Yes, clear sheen visible
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in literature: Pendergast 1982: 132 *ill. 135*
Breakage patterns/ notes: This specimen is made of fine textured chert with few visible inclusions. The lateral margins, especially on the interior of the notches, exhibit stacked step and hinge scarring and edge crushing. The parallel margins exhibit short feather terminated scarring that indicate thinning efforts. The medial surfaces of the specimen exhibit few lengthy feather terminated flake scars. The specimen has a slight curve in profile and striking platform remnant. This indicated specimen was produced on a macroblade. Of note is large hinge fracture visible on the rear leg of the specimen.
Presence of pigments/ residues: None

ah205
RP200/403
Site: Altun Ha
Dimensions (cm) L: 22.2 W: 10.3 Th: 3.1
Technological type: Biface
Presence of cortex: No
Raw material appearance: Gray and dark gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb (latter part of Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 77*
Breakage patterns/ notes: This specimen is made of fine textured chert with oval shaped inclusions visible. In general, the specimen is thick but is also quite narrow. Flake scarring is generally short, often ending in small hinges across the medial surfaces of the specimen. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring and areas of edge crushing. Of note are the short feather terminated flake scars visible along the surface of what appears to be the tail of the specimen.
Presence of pigments/ residues: None

ah247
RP200/407
Site: Altun Ha
Dimensions (cm) L: 26.4 W: 17.2 Th: 2.8
Technological type: Biface
Presence of cortex: Yes, small amount on proximal terminus
Raw material appearance: Banded pale brown gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb (latter part of Early Classic AD 550)
Appearance in literature: Pendergast 1979: 76 *ill. 77*
Breakage patterns/ notes: This specimen is made of fine textured material with oval inclusions. Across the medial surfaces of the specimen, feather terminated flake scars are most prevalent. Lateral margins exhibit stacked step and hinge-terminated flake scarring, as well as highly localized areas of edge crushing. Some short feather terminated flake scarring is visible along what appears to be the tail of the form.
Presence of pigments/ residues: None



ah91RP176/39

ah247RP200/407

ah191
RP206/1
Site: Altun Ha
Dimensions (cm) L: 26.0 W: 13.7 Th: 2.4
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Banded tan brown/ brown gray/ orange brown
Presence of polish/ thermal alteration/ coloration: Orange brown coloration visible on one surface and associated with the cortex.
Context: Structure B-4/1 tomb wall cache II (Late Classic AD 750- 775)
Appearance in the literature: Pendergast 1982: 117 *ill. 107*
Breakage patterns/ notes: This specimen is made of very fine textured chert with few visible inclusions. Lengthy feather terminated flake scars are present along the medial surfaces of the specimen. Along the lateral margins, especially in the notches, small areas of edge crushing and stacked step terminated scarring are visible. The parallel margins exhibit short feather terminated flake scars, especially the margin that forms the back of the specimen. Of note is the shape of the cortical area that suggests and eye, as well as the coloration/ staining encircling the cortex.
Presence of pigments/ residues: None

ah159
RP256/52
Site: Altun Ha
Dimensions (cm) L: 28.0 W: 11.6 Th: 2.5
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled gray/ light gray/ brown/ pale gray
Presence of polish/ thermal alteration/ coloration: Color at prox. terminus
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit feather terminated flake scars. The lateral margins, especially on the interior of the notches, exhibit stacked step and hinge terminated flake scarring. Of note are the lengthy parallel feather terminated flake scars at one terminus. These almost appear to be pressure flaking. At the least, the scarring exhibits intensive thinning efforts. Also of note is the circular coloration in the same area suggesting perhaps an eye in profile.
Presence of pigments/ residues: None

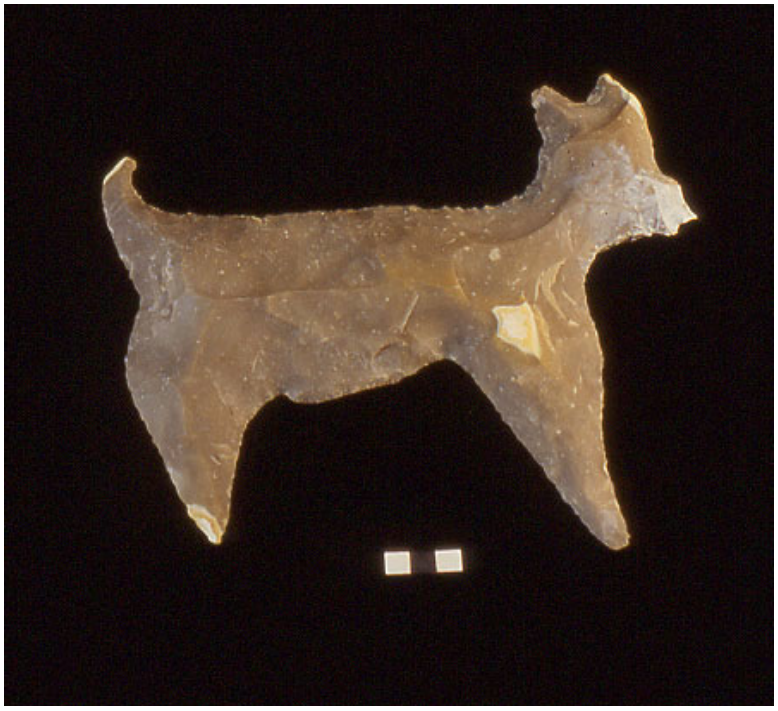
ah272
RP266/1
Site: Altun Ha
Dimensions (cm) L: 25.7 W: 20.8 Th: 3.7
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Tan brown and very pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: B-4/1 tomb (Late Classic AD 750- 775)
Appearance in the literature: Pendergast 1982: 117 *ill. 107*
Breakage patterns/ notes: This specimen is made of very fine textured chert with oval shaped inclusions also visible. The specimen appears to exhibit extensive patination. The medial surfaces of the specimen exhibit relatively lengthy feather terminated flake scarring. Along the lateral margins there are also feather terminated flake scars. However, the interior of the notches exhibit relatively lengthy step and hinge terminated flake scars. Also visible along these areas of the margins are localized edge crushing and attrition.
Presence of pigments/ residues: None

ah196
RP305/4
Site: Altun Ha
Dimensions (cm) L: 17.4 W: 10.2 Th: 1.6
Technological type: Biface (notched)
Presence of cortex: Yes, cortex area exhibits incised oval shaped area
Raw material appearance: Tan brown and banded tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/5 cache (Late Classic AD 650)
Appearance in literature: Pendergast 1982: 81 *ill. 83*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The lateral margins on the interior of the notches exhibit extensive edge crushing and some step and hinge terminated flake scarring. Feather terminated flake scars are present along the medial surfaces of specimen. Of note is an oval shaped incised area in the cortex.
Presence of pigment/ residue: None

ah66
RP306/7
Site: Altun Ha
Dimensions (cm) L: 26.7 W: 11.7 Th: 2.5
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, exhibits variation in color
Raw material appearance: Brown and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 82 *ill. 83*
Breakage patterns/ notes: This specimen is made of very fine textured raw material. There are few visible inclusions. Flake scarring along lateral margins is consistent with the pattern seen in other artifacts in the assemblage. Localized stacked flake scarring and edge crushing are prevalent along the interior of the notches. The specimen exhibits a curve in profile with fewer flake scars visible on the ventral surface. This indicates that the form was produced on a macroblade. Of note is the different color of the cortex at proximal terminus of the specimen.
Presence of pigments/ residues: None

ah306
RP314/129
Site: Altun Ha
Dimensions (cm) L: 20.3 W: 12.0 Th: 2.3
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Banded pale brown gray/ gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-54/9 burial (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1990: 150 *ill. 115*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Flake scarring is more prevalent on the dorsal surface. Flake scarring on the medial dorsal surface is primarily short and feather terminated with some step scarring also prevalent. The lateral margins exhibit short feather terminated and stacked step and hinge terminated flake scarring. Short feather terminated flake scarring that appears to be pressure flaking is visible at both termini. Of note is the striking platform visible at proximal terminus. The curvature in profile and the presence of a striking platform indicates that the specimen was produced on a macroflake- blade
Presence of pigments/ residues: None

ah159RP256/52



ah288aRP364/50

ah288a
RP364/50
Site: Altun Ha
Dimensions (cm) L: 24.3 W: 21.2 Th: 3.5
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 68 *ill. 69*
Breakage patterns/ notes: This specimen is made of fine textured materials with extensive small oval inclusions. Lengthy flake scars predominate over the medial surfaces of the artifact. Of note is a large hinge terminated scar across the back of the form. Shorter flake scarring is present on the appendages of the form. Along the lateral margins, localized step and hinge scarring is prevalent. Localized and stacked flake scarring also occurs at inward curving areas and on the interior of the notches. Edge crushing is present both in notches and along parallel margins. Of note is the facial profile and cortex present on what appears to be the ears.
Presence of pigments/ residues: None

ah289
RP364/52
Site: Altun Ha
Dimensions (cm) L: 40.5 W: 16.3 Th: 3.2
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded pale gray brown gray and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in literature: Pendergast 1982: 70 *ill. 69*
Breakage patterns/ notes: This specimen is made of very fine textured chert with no visible inclusions. Lengthy feather terminated flake scarring is prevalent across the medial surfaces of the specimen. Smaller and symmetrical feather terminated flake scarring is visible on the appendages of the form. This is especially true along what might be considered the back of the form and the tail. Along the lateral margins, smaller step and hinge terminated scarring is visible with localized areas of stacked flake scarring and small amounts of edge crushing. Of note is the overall natural depiction of the form, specifically the tail and mouth which required a high level of skill to produce.
Presence of pigments/ residues: None

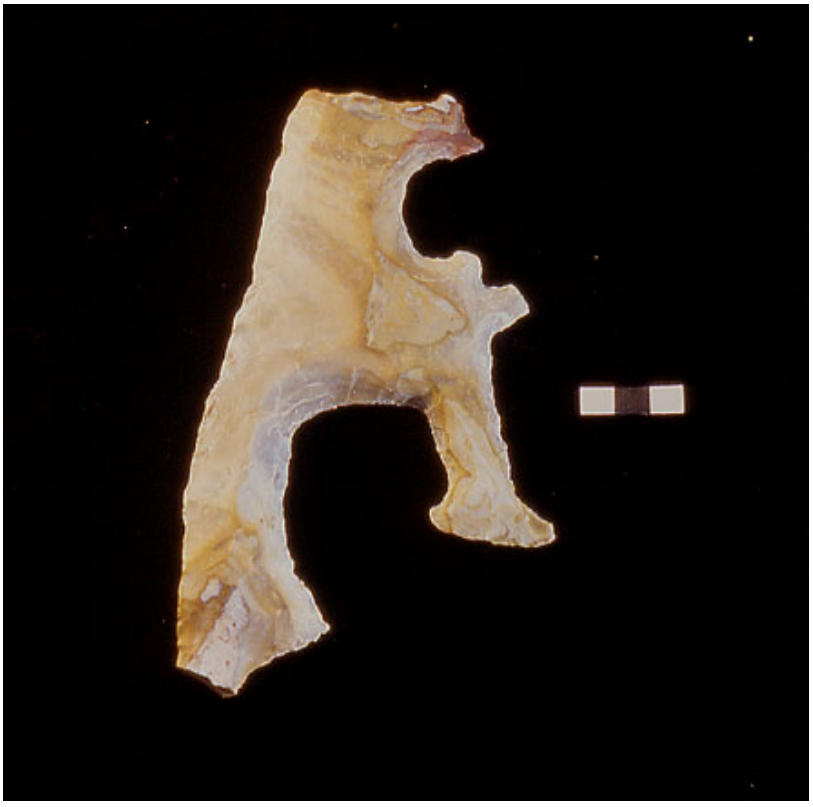
ah292
RP364/55
Site: Altun Ha
Dimensions (cm) L: 20.5 W: 16.4 Th: 2.7
Technological type: Biface
Presence of cortex: Yes, small amounts of cortex at distal terminus
Raw material appearance: Mottled dark brown and brown gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 70 *ill. 69*
Breakage patterns/ notes: This specimen is made of very fine textured material. The specimen is curved in profile indicating that it was produced on a macro flake- blade. Lengthy feather terminated flake scarring is visible along the dorsal medial surface of the specimen. The lateral margins, especially along the interior of the notches, show stacked and short step and hinge terminated flake scarring. Localized areas of edge crushing are also visible along the margins.
Presence of pigments/ residues: None

ah325
RP364/57
Site: Altun Ha
Dimensions (cm) L: 22.8 W: 16.6 Th: 2.9
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 70 *ill. 69*
Breakage patterns/ notes: This specimen is made of very fine textured chert with no visible inclusions. Lengthy step and hinge terminated flake scars are visible across the medial surfaces of the specimen. Also, feather terminated scarring is visible across the medial surfaces. Along the lateral margins, shorter feather terminated scarring is visible. Stacked step and hinge scarring is visible in this area. There is little edge crushing visible along the margins.
Presence of pigments/ residues: None

ah95
RP528/39
Site: Altun Ha
Dimensions (cm) L: 23.1 W: 13.1 Th: 3.6
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of moderately fine textured material with coarse textured inclusions. The medial surfaces of the specimen exhibits some step and hinge terminated flake scarring. The lateral margins exhibit edge crushing and localized stacked step and hinge scarring. Overall, the specimen is thick. Of notes is that the chert underneath the very pale gray patina is tan brown in color. Also of note is that the head of the form is severed from the body by a snap fracture.
Presence of pigments/ residues: None

ah115
RP528/12
Site: Altun Ha
Dimensions (cm) L: 19.8 W: 10.6 Th: 1.8
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded yellow brown/ brown/ pale brown and gray
Presence of polish/ thermal alteration/ coloration: Yes, pale red/ yellow brown
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 368 *ill. 371*
Breakage patterns/ notes: This specimen is made of fine textured material. Lateral margins exhibit short feather terminated flake scars in association with stacked step and hinge terminated scarring. Edge crushing is also visible along the curved and notched areas. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. Of note is the material coloration. The red areas appear to be hematite staining and the pale gray and brown areas appear to have been part of perhaps what were appliqués that are no longer present.
Presence of pigments/ residues: None visible, but see above regarding surface alteration and coloration of raw material.

ah292RP364/55



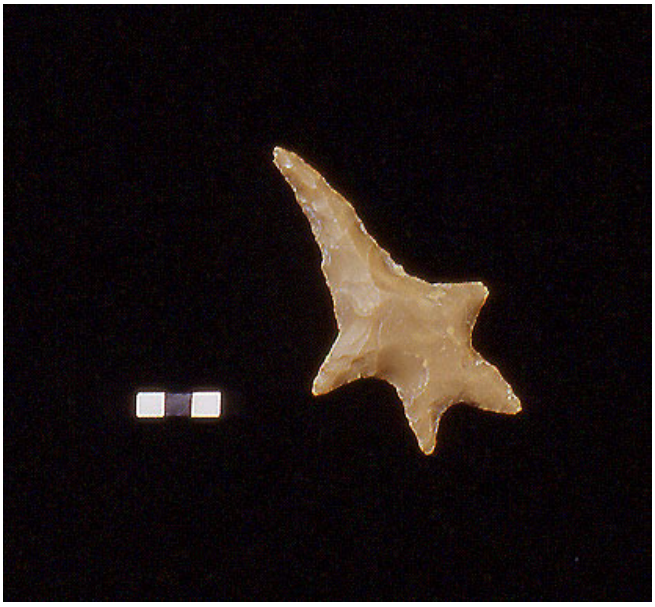
ah115RP528/12

ah67
RP694/4
Site: Altun Ha
Dimensions (cm) L: 24.8 W: 12.2 Th: 3.8
Technological type: Biface (notched)
Presence of cortex: Yes, located at proximal and distal termini
Raw material appearance: Mottled pal gray tan and tan brown pale brown
Presence of polish/ thermal alteration/ coloration: Yes, polish on one terminus
Context: Structure K-33/3 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 364 *ill. 363*
Breakage patterns/ notes: This specimen is made of fine textured chert. Along the lateral margins, localized areas of stacked step and hinge scarring are visible. This scarring is most prevalently along the interior of notch that delineates the legs of the form. Relatively lengthy feather terminated flake scarring is prevalent across the medial surfaces of the form. As well, shorter feather terminated flake scarring predominates along the tail. Of note is the striking platform that forms the head, and what appears to be natural coloration visible across one medial surface.
Presence of pigments/ residues: None

cr40
CH2012/13: 15
Site: Colha
Dimensions (cm) L: 13.1 W: 7.4 Th: 1.6
Technological type: Biface
Presence of cortex: No
Raw material appearance: Tan brown
Presence of polish/ thermal alteration/ coloration: No, but material exhibits a clear sheen across the medial surfaces
Context: Operation 2012 cache in western structure in the main plaza of the central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: Probst 1984: 13 *ill. 47*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Lateral margins exhibit significant attrition and edge crushing. Localized areas of stacked step and hinge flake scarring are visible. The edge crushing is visible in the notches of the specimen. Across the medial surface of the specimen both feather terminated flake scars and hinge terminated flake scars are visible.
Presence of pigments/ residues: None

cr46
CH3060/surface cache
Site: Colha
Dimensions (cm) L: 19.2 W: 8.4 Th: 2.1
Technological type: Biface
Presence of cortex: No
Raw material appearance: Very pale brown and brown yellow and light gray
Presence of polish/ thermal alteration/ coloration: Yes, coloration/ staining visible on medial dorsal surface (possibly thermal alteration)
Context: Surface cache dated tentatively to the Late Classic (after AD 600)
Appearance in the literature: Eaton et al. 1994: 262 *ill. 263*
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins show step and feather terminated flake scarring. In localized areas along the margins, stacked step and hinge scarring and edge crushing are both visible. The medial surfaces of the specimen exhibit lengthy and symmetrical feather terminated flake scarring. Of note is the coloration of brown/ yellow/ and pale gray as well as pale red at proximal terminus. The coloration exhibits a curvilinear form down the medial axis of the specimen.
Presence of pigments/ residues: None

r78
LA/unknown
Site: Lamanai
Dimensions (cm) L: 37.5 W: 18.5 Th: 3.5
Technological type: Biface (notched)
Presence of cortex: Yes, small amounts along medial portion of specimen
Raw material appearance: Very pale gray and dark grayish brown
Presence of polish/ thermal alteration/ coloration: Yes, orange brown staining visible on one medial surface
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with few inclusions. The specimen appears to be heavily patinated. There is little stacked flake scarring present along the lateral margins. Lengthy hinge terminated flake scarring is visible on the interior of the notches. Lengthier feather terminated flake scars are visible on the medial surfaces of the specimen. Of note is what appears to be polish on the medial portion of the specimen that may indicate extensive handling.
Presence of pigments/ residues: None



cr40CH2012/13:15

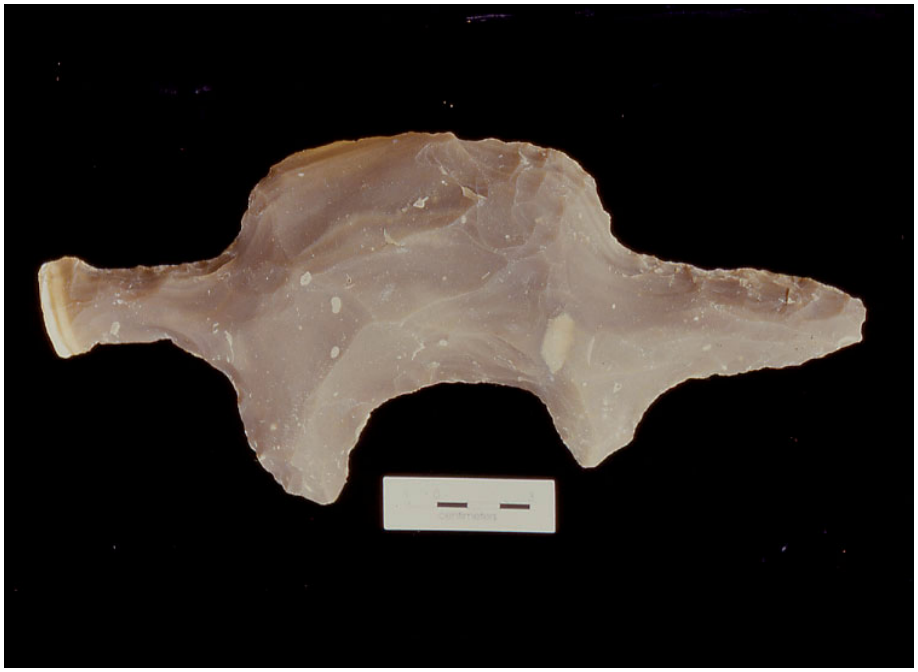
cr46CH3060/

r13
LA/unknown
Site: Lamanai
Dimensions (cm) L: 27.2 W: 15.9 Th: 4.5
Technological type: Biface
Presence of cortex: Yes, localized areas at nose and tip of tail
Raw material appearance: Dark brown tan brown and very pale brown
Presence of polish/ thermal alteration/ coloration: Yes, color one surface
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. Along the lateral margins, heavy step and hinge terminated flake scarring is visible. Overall, the specimen is thick. Across the medial surfaces of the specimen, lengthy feather and hinge terminated flake scarring is visible. Of note is the coloration on the forelegs and the facial area. Also of note is the human profile suggesting a form that may be a supernatural or *wayob*. Finally, the specimen exhibits a snap fracture across medial portion.
Presence of pigments/ residues: None

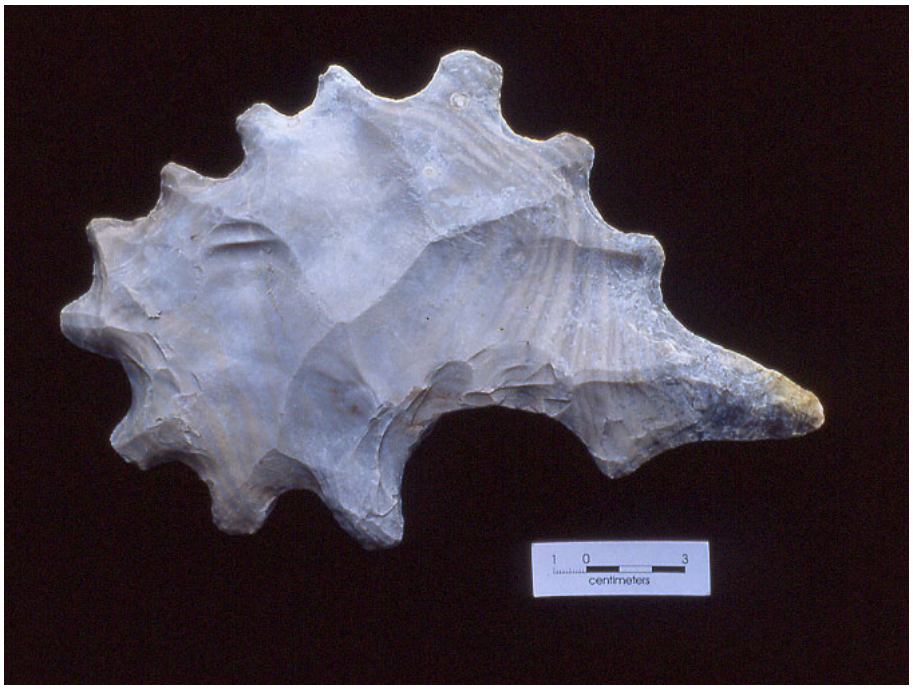
r79
LA244/2
Site: Lamanai
Dimensions (cm) L: 31.5 W: 19.0 Th: 4.5
Technological type: Biface
Presence of cortex: Yes, at distal terminus of hind leg/ striking platform
Raw material appearance: Mottled gray and pale gray
Presence of polish/ thermal alteration/ coloration: Yes, polish visible one leg
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with oval shaped coarse textured inclusions. Lengthy feather terminated flake scars are visible across the medial surfaces of the specimen. Lateral margins show shorter flake scarring. Of note is the striking platform present on the distal end of the hind leg.
Presence of pigments/ residues: None

r33
LA244/16
Site: Lamanai
Dimensions (cm) L: 26.3 W: 11.2 Th: 3.9
Technological type: Biface (notched)
Presence of cortex: Yes, across the striking platform
Raw material appearance: Banded gray brown/ tan brown with light gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert with some oval shaped inclusions. Lengthy feather terminated flake scars are visible across the medial surfaces of the specimen. Shorter feather terminated flake scarring is visible along the lateral margins. Localized areas of stacked flake scarring and edge crushing are also visible along the margins. Of note is the striking platform present at the proximal terminus of the form.
Presence of pigments/ residues: None

r80
LA244/22
Site: Lamanai
Dimensions (cm) L: 34.0 W: 15.5 Th: 4.5
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Banded brown/ gray/ pale brown/ dark yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, polish visible around medial portion of the specimen
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine and coarse textured chert with oval shaped coarse textured inclusions. Extensive and stacked step and hinge terminated flake scarring is visible along the lateral margins of the specimen. Lengthier feather terminated flake scars are present across medial surfaces of the specimen. Of note are the unusual color scheme and the facial profile that appears to be anthropomorphic in form.
Presence of pigments/ residues: None



r33LA244/16



r43LA395/

r28
LA395/
Site: Lamanai
Dimensions (cm) L: 30.3 W: 18.0 Th: 3.7
Technological type: Biface (notched)
Presence of cortex: Yes, small quantity on one protrusion
Raw material appearance: Very pale gray/ brown and bluish gray and tan brown
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown color
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert that exhibits fairly extensive patination. The specimen exhibits extensive hinge and step scarring along the lateral margins, indicating thinning efforts. Localized areas of edge crushing and stacked flake scarring are visible on the interior of the notches and the curves. Across the medial surfaces, lengthy feather terminated flake scarring is prevalent. Also visible along the protrusions is short feather terminated flake scarring, which also appears along lateral margins.
Presence of pigments/ residues: None

r43
LA395/
Site: Lamanai
Dimensions (cm) L: 23.6 W: 15.4 Th: 3.1
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Banded tan brown and pale gray and pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The specimen shows curvature in profile indicating it was produced on a macroflake- blade. Heavy stacked step and hinge terminated flake scarring visible along lateral margins and in the interior of the notches. Localized edge crushing is visible in these areas as well. Lengthy feather terminated flake scarring is visible across the medial surfaces of the specimen.
Presence of pigments/ residues: None

Zoomorphic Forms: Birds and Bird- like Depictions

ah197
RP35/28
Site: Altun Ha
Technological type: Biface (notched)
Dimensions (cm) L: 29.4 W: 27.1 Th: 5.2
Presence of cortex: Yes
Raw material appearance: Mottled blue gray and brown dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 42 *ill. 43*
Breakage patterns/ notes: The specimen is made of very fine textured chert. Lateral margins exhibit localized stacked step and hinge scarring. Lengthy step and hinge terminated flake scars are also visible. Symmetrical and lengthy feather terminated scarring is visible across the medial surfaces. Short feather terminated flake scars are also visible on the medial surfaces. Of note is the cortex and yellow pigment that appears to delineate the eye of the specimen.
Presence of pigments/ residues: Yes, a yellowish brown pigment is present on the cortex that delineates the eye of the form.

ah195
RP35/29
Site: Altun Ha
Dimensions (cm) L: 27.7 W: 23.2 Th: 2.8
Technological type: Biface (tetrafoil)
Presence of cortex: No
Raw material appearance: Mottled pale gray and very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 42 *ill. 43*
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured inclusions also visible. The lateral margins of the stem exhibits symmetrical feather terminated flake scarring with localized edge crushing. The interiors of the notches along the margins exhibit localized stacked step and hinge terminated flake scarring. The medial surfaces of the specimen exhibit short feather terminated flake scarring.
Presence of pigments/ residues: None

ah7
RP131/9
Site: Altun Ha
Dimensions (cm) L: 12.6 W: 9.6 Th: 1.3
Technological type: Biface (notched)
Presence of cortex: Yes, extensive cortex visible across one medial surface
Raw material appearance: Mottled brown and blue gray with very pale brown
Presence of polish/ thermal alteration/ coloration: None
Context: Structure E-51/2 cache beneath floor 3 (T. Classic AD 800- 825)
Appearance in the literature: Pendergast 1990: 231
Breakage patterns/ notes: This specimen is made of very fine textured chert. The specimen is comprised of a flake that shows little medial flake scarring. However, both the dorsal and ventral surfaces exhibit flaking along the lateral margins. The lateral margins exhibit stacked step and hinge terminated flake scarring and some edge crushing, especially prevalent on the interior of the notches. Of note is the striking platform remnant for the flake that is visible at one terminus. Also of note is a snap fracture at terminus of one appendage.
Presence of pigments/ residues: Yes, a circular organic residue is visible on one surface. This residues may have held and appliqué in place. On the ventral surface extensive gray and brown residue is visible across the surface. If this material is residue, it may have held the specimen in place on some form of mount.

ah137
RP256/54
Site: Altun Ha
Dimensions (cm) L: 23.3 W: 7.9 Th: 2.9
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Dark brown and tan brown
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen is made of very fine textured chert with numerous visible inclusions. The lateral margins exhibit feather, step, and hinge terminated flake scarring. However, short feather terminated flake scars are most visible. Stacked flake scarring and edge crushing are visible on the interior of the largest notch. In this area, there are numerous short flake scars with sudden hinge fracturing, suggesting difficulty in thinning. Across the medial surfaces of the specimen, short and moderate length feather terminated flake scarring is most prevalent.
Presence of pigments/ residues: None

ah107
RP304/6
Site: Altun Ha
Dimensions (cm) L: 26.0 W: 8.3 Th: 2.5
Technological type: Biface (serrated)
Presence of cortex: Yes
Raw material appearance: Mottled brown and pale brown with brown tan
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 81 *ill. 83*
Breakage patterns/ notes: This specimen is made of fine textured material with some coarse textured inclusions. The lateral margins exhibit stacked microflaking and edge crushing, most prevalent on the interior of serrations. On the edge prominences, short feather terminated flake scars are most prevalent. A large amount of cortex is present at the distal terminus. Of note is the profile of the head that appears to depict a bird- like form.
Presence of pigments/ residues: None

cr44
CH2024/7- 3
Site: Colha
Dimensions (cm) L: 9.7 W: 6.7 Th: 0.9
Technological type: Macroflake
Presence of cortex: No
Raw material appearance: Banded yellow brown dark brown/ pale brown/ gray
Presence of polish/ thermal alteration/ coloration: Yes, yellow coloration visible at the proximal terminus
Context: Operation 2024 domestic platform (Late Preclassic 400 BC- AD 250)
Appearance in literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with some small oval shaped inclusions visible. The form exhibits a clear sheen across the surfaces. The presence of a striking platform, bulb of percussion, and curvature of the piece indicates that specimen was produced on a macroflake. The lateral margins exhibit flake scarring, likely to strengthen the edges. On the interior of the notch at the distal end, localized step and hinge terminated scarring is visible. Across the medial dorsal surface, relatively short feather terminated flake scars are prevalent. Of note is the yellow coloration mentioned above.
Presence of pigments/ residues: None

r14
LA/unknown
Site: Lamanai
Dimensions (cm) L: 30.7 W: 11.5 Th: 3.3
Technological type: Biface
Presence of cortex: Yes, small area visible at one terminus
Raw material appearance: Dark brown with brown tan and pale gray brown
Presence of polish/ thermal alteration/ coloration: Yes, polish visible on stem
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces exhibit moderately lengthy symmetrical feather terminated flake scarring along the stem. Some hinge scarring is also visible on the medial surfaces of the specimen. The lateral margins exhibit stacked step and hinge terminated scarring and edge crushing, especially prevalent on the interior of the notches as well as at the intersection of the arms. Of note is the cortex and coloration visible on one medial surface.
Presence of pigments/ residues: Yes, there is a small circular area of residue at the terminus that appears to be the head of the form, possibly part of an appliqué delineating the eye of the bird.

r81
LA395/
Site: Lamanai
Dimensions (cm) L: 13.5 W: 11.0 Th: 11.0
Technological type: Reduced core
Presence of cortex: Yes, used to highlight the eye in profile
Raw material appearance: Pale gray brown and pale brown yellowish brown
Presence of polish/ thermal alteration/ coloration: Yes, strong brown and yellowish brown coloration visible on one medial surface
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. Flake scarring consists of lengthy parallel flake scars that have been removed from the core. In general, the form is unique in that it is a bust rather than a profile or plan view. There is some stacked step and hinge scarring and edge crushing along the lateral margins, likely formed as part of platform preparation. Of note is the void and inclusions that are used to delineate the eye, as well as the presence of cortex located behind the eye.
Presence of pigments/ residues: None

r14LA/

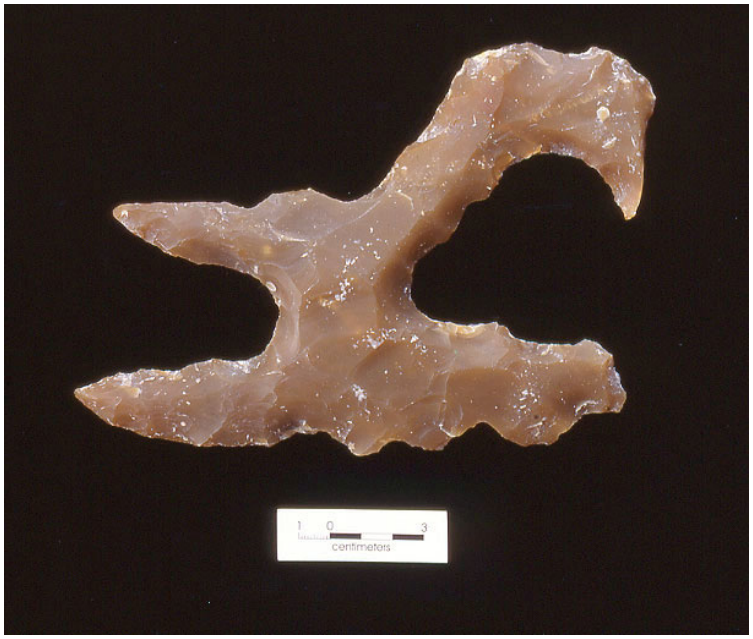
cr44CH2024/7-3

r81LA395/

r31
LA682/11
Site: Lamanai
Dimensions (cm) L: 15.4 W: 11.1 Th: 2.2
Technological type: Biface
Presence of cortex: Yes, small quantity at distal end of specimen
Raw material appearance: Banded dark brown gray light gray and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-15/6 axial cache beneath north staircase
(Late Classic AD 800)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. Along the medial surfaces of the specimen, short and relatively lengthy feather terminated flake scarring is visible. Along the lateral margins, short feather terminated flake scars are most prevalent. Closer to the margins, shorter hinge terminated flake scars are visible and some edge crushing is prevalent. Of note are the few flake scars visible on what appears to be the "wing" of the form. In effect, flake scarring only appears along the margins in this area of the specimen in order to strengthen the edges of the margins.
Presence of pigments/ residues: None

r17
LA694/3
Site: Lamanai
Dimensions (cm) L: 17.5 W: 12.8 Th: 2.1
Presence of cortex: Yes, small quantity on one medial surface
Raw material appearance: Tan brown dark brown
Presence of polish/ thermal alteration/ coloration: Yes, stain on one surface
Context: Structure N10-15/8 axial cache located beneath north staircase
(Terminal Classic AD 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. Across the medial surfaces of the specimen, flake scarring is primarily feather terminated. The lateral margins exhibit short feather terminated flake scars, with some localized areas of stacked flake scarring and edge crushing. Of note is the combination of two forms (composite) depicted in this specimen, namely a bird resting on the back of a crocodile. Also of notes is the small flake scar that appears to delineate the eye of the bird.
Presence of pigments/ residues: None

r31LA682/11



r17LA694/3

Zoomorphic Forms: Crocodiles and Crocodile- like Depictions

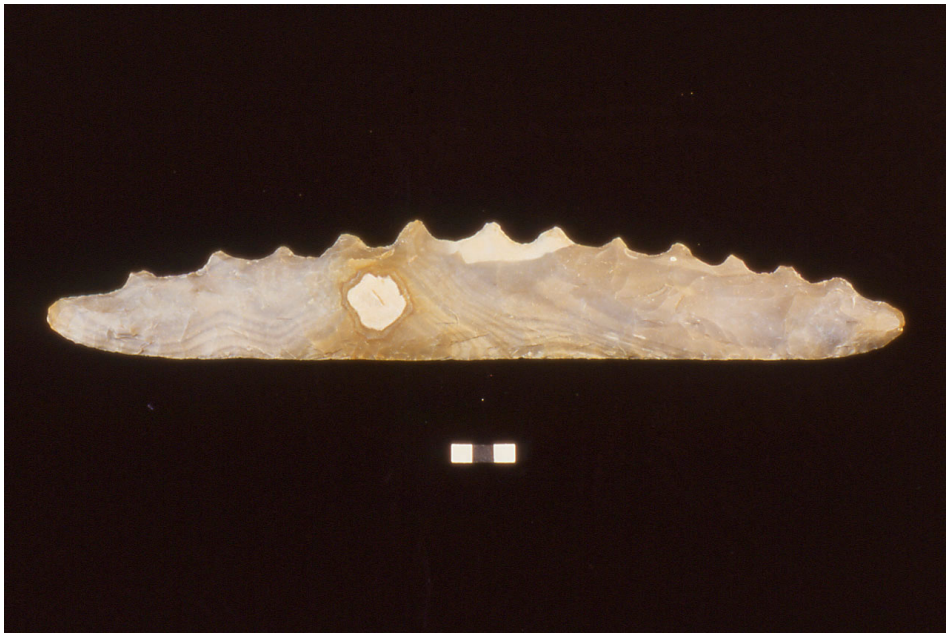
ah200
RP35/24
Site: Altun Ha
Dimensions (cm) L: 43.4 W: 8.1 Th: 4.4
Technological type: Biface (elongated/ serrated)
Presence of cortex: Yes
Raw material appearance: Banded tan brown and pale tan gray
Presence of polish/ thermal alteration/ coloration: Yes, coloration on cortex
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 43*
Breakage patterns/ notes: This specimen is made of both fine and coarse textured material with coarse textured inclusions. Overall, the specimen is thick with large and numerous stacked hinge and step terminated flake scarring present on the interior of the notches. The prominences along margins exhibit primarily feather terminated flake scarring. Larger feather terminated flake scars are visible on the medial surfaces of the specimen. These flake scars also terminate at the cortex present on the medial dorsal surface. Of note is the feather terminated flake scarring visible on what appears to be the snout of the crocodile. Flaking in this area no doubt was undertaken to help define this feature of the form.
Presence of pigments/ residues: No

ah226
RP35/25
Site: Altun Ha
Dimensions (cm) L: 40.2 W: 8.8 Th: 2.8
Technological type: Biface (elongated/ notched)
Presence of cortex: Yes, appears to form an eye in profile
Raw material appearance: Mottled very pale brown/ brown gray/ strong brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 43*
Breakage patterns/ notes: This specimen is made of moderately coarse textured material with oval inclusions. Overall the specimen is thick. Along the lateral margins, feather terminated flake scarring with localized step and hinge scarring visible. Extensive stacked flake scarring is absent. Along the margin prominences, feather terminated flake scars predominate. Feather terminated flake scarring is visible along both surfaces portion of specimen. Note is cortex mentioned above.
Presence of pigments/ residues: None

ah181
RP35/27
Site: Altun Ha
Dimensions (cm) L: 41.2 W: 7.1 Th: 2.5
Technological type: Biface (serrated/ thin)
Presence of cortex: Yes, appears to form an eye in profile
Raw material appearance: Banded gray dark gray pale gray and brown
Presence of polish/ thermal alteration/ coloration: Yes, brown near cortex
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 43*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The specimen is serrated with short symmetrical feather terminated flake scars along the margin prominences. Edge crushing and step and hinge scarring are visible on the interior of the serrations. The opposite margin is straight with primarily feather terminated scarring prevalent. Edge crushing is also present in association with stacked microflaking along this margin. Of note is the cortex that appears to delineate the eye of the form in profile.
Presence of pigments/ residues: Yes, what appears to be a residue, gray in color on the interior of the cortical area that forms the eye of the form.

ah12
RP98/28
Site: Altun Ha
Dimensions (cm) L: 20.6 W: 6.6 Th: 1.3
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled very pale brown and tan gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-3/1 cache (Late Classic AD 600- 900)
Appearance in the literature: Pendergast 1990: 67 *ill. 115*
Breakage patterns/ notes: This specimen is made of fine textured chert. Some coarse textured inclusions are also visible. Lateral margins exhibit edge crushing and stacked step and hinge terminated flake scarring, especially prevalent on the interior of the notches. Across the medial surfaces of specimen, short feather terminated flake scarring predominates.
Presence of pigments/ residues: None

ah200RP35/24



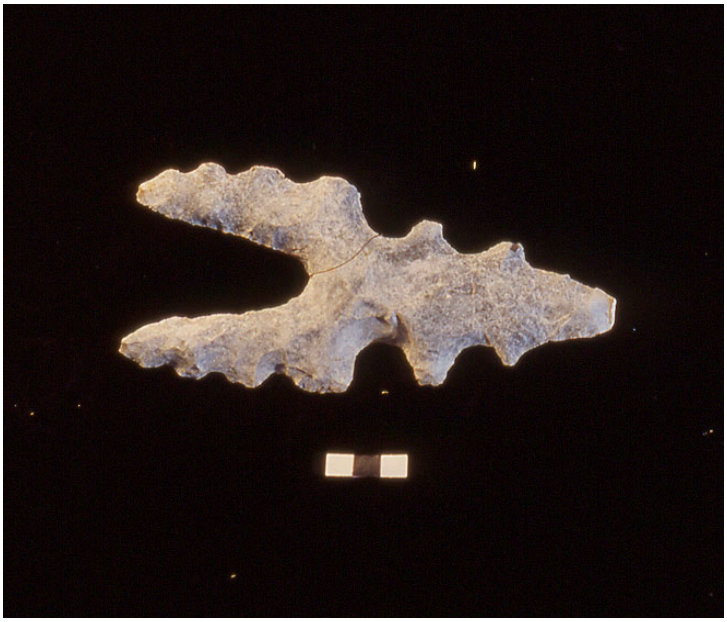
ah181RP35/27

ah157
RP102/5
Site: Altun Ha
Dimensions (cm) L: 18.8 W: 8.3 Th: 1.7
Technological type: Biface (notched/ bifurcated)
Presence of cortex: Yes, at proximal terminus of specimen
Raw material appearance: Mottled blue gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/1 cache (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured material that is patinated to blue gray. There appears to be a striking platform remnant visible at what appears to be the proximal terminus of the specimen. In general, the flake scarring across the medial surfaces of the specimen are wide and exhibit feather terminations. The lateral margins are comprised of notched areas that exhibit stacked step and hinge terminated fractures. This patterning is especially prevalent along the interior of the notches. Short feather terminated scarring is present on the margin prominences.
Presence of pigments/ residues: None

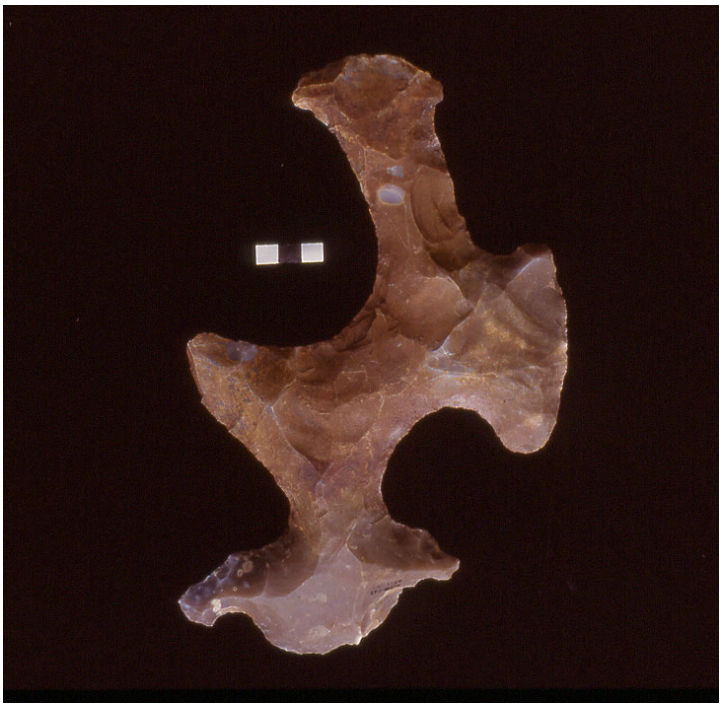
ah156
RP102/8
Site: Altun Ha
Dimensions (cm) L: 24.7 W: 9.3 Th: 2.2
Technological type: Biface (notched)
Presence of cortex: Yes, small portion at proximal terminus
Raw material appearance: Mottled very pale brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/1 cache (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured chert and is incomplete. One portion of the specimen that appears to represent the mandible exhibits a snap fracture. Feather terminated flake scarring is present across the medial surfaces of the specimen. Lateral margins show shorter feather terminated flake scarring. There is some stacked step and hinge scarring visible on the interior of the margin notches, and a large hinge fracture is present on the interior of the notch that depicts the mouth.
Presence of pigments/ residues: None

ah169
RP131/8
Site: Altun Ha
Dimensions (cm) L: 20.3 W: 7.8 Th: 1.8
Technological type: Biface (notched)
Presence of cortex: Yes, small quantity at one terminus
Raw material appearance: Mottled dark brown and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-51/ 2 cache beneath floor 3 (T. Classic AD 800- 825)
Appearance in the literature: Pendergast 1990: 231
Breakage patterns/ notes: This specimen is made of very fine textured chert. There are numerous inclusions visible. The medial surfaces exhibit relatively lengthy feather terminated flake scarring. A large hinge scar is visible on one surface. The lateral margins exhibit extensive step and hinge scarring and edge crushing, most prevalent in the notches. Margin prominences exhibit short feather terminated flake scarring. Of note is what appears to be the original striking platform visible at the proximal terminus.
Presence of pigments/ residues:

ah42
RP137/52
Site: Altun Ha
Dimensions (cm) L: 28.4 W: 17.6 Th: 3.4
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Dark brown with large quantities of pigment
Presence of polish/ thermal alteration/ coloration: No
Context: Structure F-1/1 cache beneath floor 1 (Late Classic AD 700)
Appearance in the literature: Pendergast 1990: 250 *ill. 241*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Circular inclusions are also visible. Lateral margins show little attrition and (or) edge crushing. However, in the large notch thought to be the mouth of the form, a series of stacked step and hinge scars are visible. Across the medial surfaces of the specimen, lengthy feather terminated flake scarring is visible.
Presence of pigments/ residues: Yes, large quantities of pigments are present on the specimen. The head and mouth of the form appear to be colored dark reddish brown. Also present on the head is what appears to be yellow pigment. Also of note are the texture of the pigments and the evidence of application and associated deterioration.



ah157RP102/5



ah42RP137/52

ah300
RP163/6
Site: Altun Ha
Dimensions (cm) L: 20.5 W: 8.0 Th: 1.6
Technological type: Biface (serrated/ notched)
Presence of cortex: No
Raw material appearance: Mottled gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/2 cache located above floor 1 (E. Postclassic AD 1000)
Appearance in literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured chert with what appears to be a circular inclusion that delineates the eye of the form. Across the medial surfaces of the specimen, feather terminated flake scars of moderate length are prevalent. Along the lateral margins, specifically on the interior of the notches, stacked step and hinge flake scarring and some edge crushing are present.
Presence of pigments/ residues: None

ah222
RP164/121
Site: Altun Ha
Dimensions (cm) L: 39.7 W: 7.8 Th: 4.1
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Mottled brown gray
Presence of polish/ thermal alteration/ coloration: Yes, strong brown coloration visible at the distal terminus
Context: Structure B-4/2 tomb subfloor cache III (AD 675)
Appearance in the literature: Pendergast 1982: 104 *ill. 107*
Breakage patterns/ notes: This specimen is made of moderately fine textured material with few inclusions. Overall, the specimen is very thick with symmetrical feather terminated flake scarring visible extending from the margins to the interior of both the dorsal and ventral surfaces. The lateral margins exhibit extensive edge attrition and crushing with stacked step and hinge terminated flake scarring visible, most prevalent on the interior of the serrations.
Presence of pigments/ residues: None

ah238
RP164/115
Site: Altun Ha
Dimensions (cm) L: 40.8 W: 8.9 Th: 3.8
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Uniform tan brown and strong brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache III (Late Classic AD 675)
Appearance in literature: Pendergast 1982: 102 *ill. 105*
Breakage patterns/ notes: This specimen is made of fine textured chert. Overall, the specimen is relatively thick. The medial portion of the specimen exhibits lengthy feather terminated and some hinge terminated flake scars. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring, as well as edge crushing. Of note are the cortex on the medial portion of specimen and the cortex present on the striking platform. The presence of the platform indicates production on a macroflake- blade. Also of note is the large area of cortex that appears to delineate an eye in profile.
Presence of pigments/ residues: None

ah118
RP176/13
Site: Altun Ha
Dimensions (cm) L: 22.7 W: 8.0 Th: 3.4
Technological type: Biface (serrated)
Presence of cortex: Yes
Raw material appearance: Mottled gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of coarse textured chert with oval and circular inclusions. The lateral margins exhibit stacked step and hinge terminated flake scarring on the interior of the serrations, primarily in the form of stacked microflaking (small step and hinge terminated flake scars) as well as edge crushing. The medial surfaces of the specimen exhibit relatively lengthy feather terminated flake scars, shorter feather terminated scarring is also visible on the margin prominences. Of note is the large circular inclusion that forms what appears to be an eye in profile. Also of notes is the striking platform present at proximal terminus of the specimen.
Presence of pigments/ residues: None

ah238RP164/115

ah118RP176/13

ah59
RP176/15
Site: Altun Ha
Dimensions (cm) L: 22.8 W: 7.9 Th: 2.4
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded gray brown/ brown/ dark gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of very fine textured chert with a low density of inclusions visible. The lateral margins exhibit some stacked step and hinge terminated flake scarring. On the interior of the notches, edge crushing is also visible. Short feather terminated flake scarring is prevalent on the edge prominences of the lateral margins. The medial surfaces exhibit moderately lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

ah117
RP176/29
Site: Altun Ha
Dimensions (cm) L: 25.0 W: 11.3 Th: 2.7
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Mottled gray pale brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 131 *ill. 135*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with coarse textured inclusions. Ovoid inclusions are also visible. The lateral margins of the specimen exhibit a similar breakage pattern in terms of local areas of edge crushing and stacked flake scarring on the interior of the notches. Lengthy and shorter hinge fractures are especially visible on the interior of the large notch delineating the mouth of the form. The medial surfaces exhibit more lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

ah58
RP176/35
Site: Altun Ha
Dimensions (cm) L: 32.6 W: 8.9 Th: 2.1
Technological type: Biface (notched)
Presence of cortex: Yes, small quantity at one terminus
Raw material appearance: Banded brown/ gray with mottled dark gray and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 132 *ill. 83*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert but exhibits an extensive quantity of large circular inclusions. Coarse textured chalcedony is present on the interior of the inclusions. The lateral margins exhibit localized areas of stacked microflaking and some edge crushing, especially prevalent on the interior of the notches. The medial surfaces exhibit relatively lengthy feather terminated flake scarring. Of note is the bicephalic form as indicated by the symmetrical appearance of both termini.
Presence of pigments/ residues: None

ah72
RP176/36
Site: Altun Ha
Dimensions (cm) L: 34.5 W: 9.2 Th: 2.3
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, a small portion at one terminus
Raw material appearance: Mottled brown dark gray and pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 132 *ill. 133*

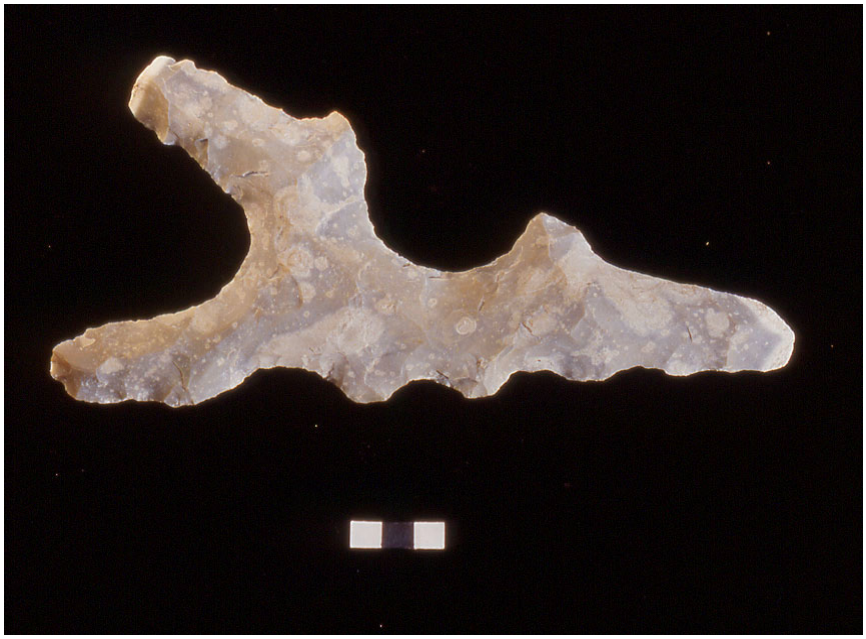
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with circular inclusions. Along the lateral margins, feather terminated flake scars are visible along the edge prominences and stacked step and hinge scarring and edge crushing are visible along the interior of the notches. Across the medial surfaces of the specimen, more lengthy feather terminated flake scarring is visible. Of note is the striking platform remnant at one terminus. This suggests that the specimen was produced on a macroflake- blade.
Presence of pigments/ residues: None

ah221
RP188/11
Site: Altun Ha
Dimensions (cm) L: 33.4 W: 15.2 Th: 2.8
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled pale brown and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: This specimen is made of very fine textured chert with no inclusions. Medial portion of the specimen exhibits relatively lengthy feather terminated flake scarring. Along the lateral margins stacked step and hinge scarring is present on the interior of the notches. There are also shorter feather terminated flake scars visible at the distal and proximal ends of the form. Short feather terminated flake scarring is visible on the edge prominences of the lateral margins.
Presence of pigments/ residues: None

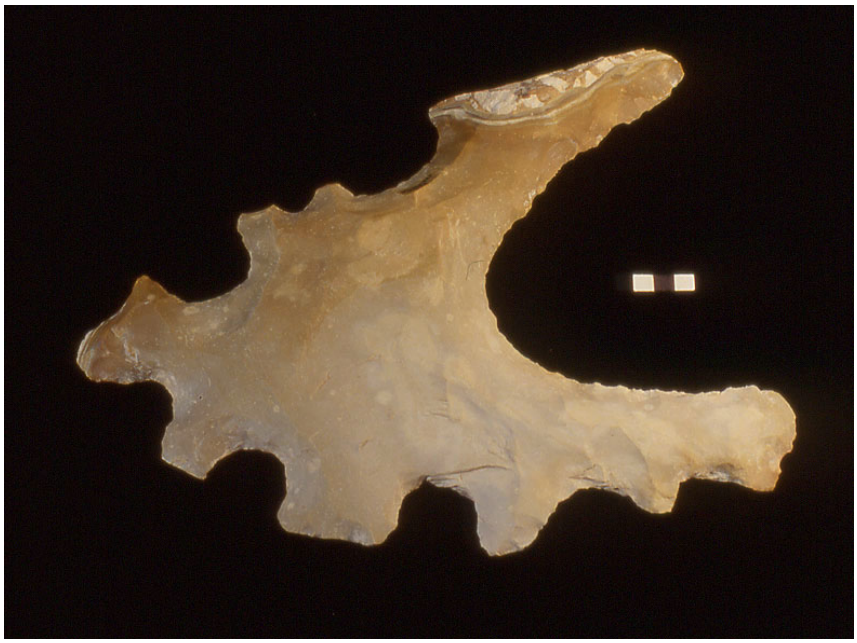
ah217
RP213/2
Site: Altun Ha
Dimensions (cm) L: 33.2 W: 24.0 Th: 4.6
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Strong brown pale brown and pale gray
Presence of polish/ thermal alteration/ coloration: Yes, brown coloration associated with cortex
Context: Structure B-4/5 tomb subfloor cache I (AD 750- 775)
Appearance in the literature: Pendergast 1982: 119 *ill. 125*

Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured inclusions. On the medial surfaces of the specimen, lengthy feather and hinge terminated flake scars are visible. Along the lateral margins, most prevalently on the interior of the notches, extensive stacked step and hinge terminated flake scarring is visible. On the margin prominences, feather terminated flake scarring is present. Of note is the cortex and large notch that appears to delineate the eye and the open mouth of the form.
Presence of pigments/ residues: None

ah135
RP256/67
Site: Altun Ha
Dimensions (cm) L: 30.7 W: 6.4 Th: 2.8
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, exhibits two cut marks located at one terminus
Raw material appearance: Tan brown and brown very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache II (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 92
Breakage patterns/ notes: The specimen is made of very fine textured chert. Along the lateral margins, flake scarring is comprised of stacked step and hinge terminated scarring and edge crushing. This pattern is especially prevalent on the interior of the notches and serrations. Edge prominences exhibit short feather terminated scarring. Along the medial surfaces of the specimen, lengthy feather terminated scarring is most prevalent. Of note are the two parallel cut marks on the cortex that appears to delineate the snout of the form.
Presence of pigments/ residues: None



ah117RP176/29



ah221RP188/11

ah147
RP528/11
Site: Altun Ha
Dimensions (cm) L: 26.5 W: 9.1 Th: 1.8
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Mottled gray/ pale gray/ dark brown banded gray
Presence of polish/ thermal alteration/ coloration: Yes, circular brown stain appears to form the eye of the specimen
Context: Structure K-33/1 cache (Post abandonment AD 1000)
Appearance in literature: Pendergast 1990: 368 *ill. 365*
Breakage patterns/ notes: This specimen is made of moderately fine textured material with coarse textured inclusions. Across the medial portion of the specimen feather terminated flake scars are visible. Several hinge fractures are also present on the medial portion of the specimen. The lateral margins, especially on the interior of the notches, exhibit short stacked step and hinge terminated flake scarring and edge crushing. Some feather terminated scarring is also present on the margins. Of note are the facial profiles and the circular stain that appears to depict the eye of the specimen in profile.
Presence of pigments/ residues: None

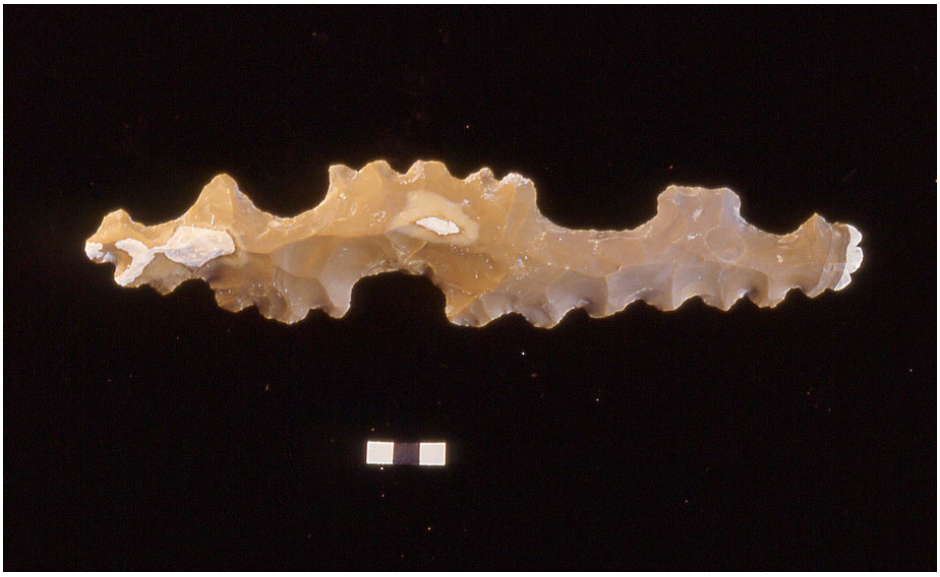
r86
LA240/17
Site: Lamanai
Dimensions (cm) L: 47.3 W: 8.4 Th: 4.5
Technological type: Biface (elongated/ notched)
Presence of cortex: Yes
Raw material appearance: Dark brown and pale tan brown with pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/8 large axial cache beneath staircase (located above N10-9/9) (also dated to the Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of coarse textured material. The lateral margins exhibit extensive edge abrasion and edge crushing. Stacked step and hinge terminated flake scarring is also prevalent on the interior of the notches along the margins. Along the medial portion of the specimen, lengthy feather terminated and hinge terminated flake scars are prevalent. The circular area of cortex that is visible is small in overall surface area.
Presence of pigments/ residues: None

r40
LA244/19
Site: Lamanai
Dimensions (cm) L: 38.2 W: 5.9 Th: 3.8
Technological type: Biface (notched/ elongate)
Presence of cortex: Yes
Raw material appearance: Mottled tan brown and dark brown with banded gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. Overall, the specimen is thick. The medial surfaces of the specimen exhibit relatively lengthy feather terminated flake scarring. The lateral margins exhibit stacked step and hinge terminated flake scarring and edge crushing. Edge crushing is more prevalent on the interior of the notches. Of note is the striking platform remnant visible at one terminus.
Presence of pigments/ residues: None

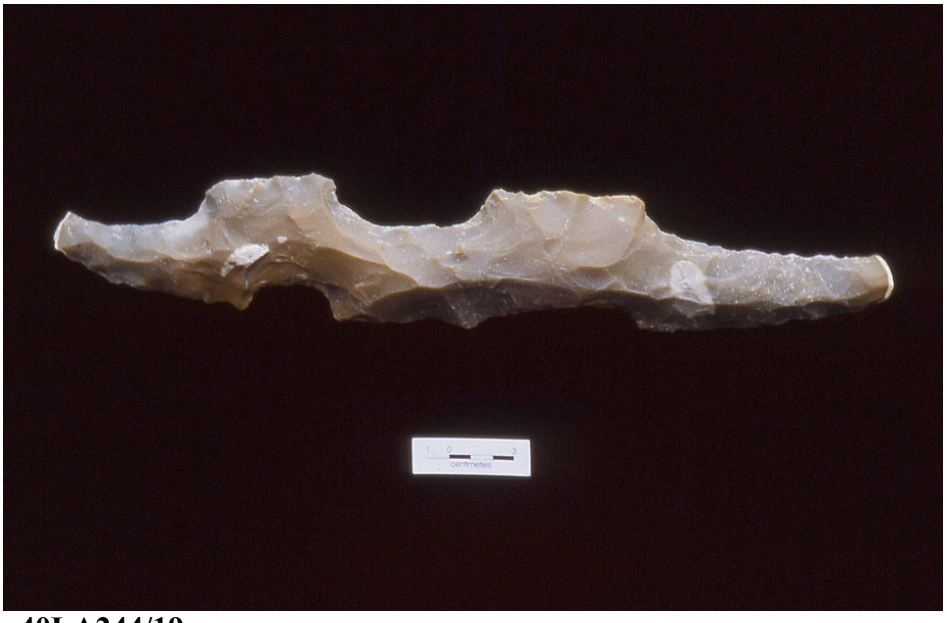
r58
LA244/14
Site: Lamanai
Dimensions (cm) L: 41.2 W: 7.3 Th: 4.2
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded dark brown gray and pale tan gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: The specimen is made of coarse textured chert. Overall, the specimen is relatively thick. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring. As well, larger hinge terminated scarring indicates thinning efforts that were eventually abandoned. Relatively lengthy feather terminated flake scarring is prevalent along the medial surfaces of the specimen. At what appears to be the snout of the form, shorter feather terminated flake scarring is more apparent, indicating thinning and shaping efforts. Of note is the canine that extends from what appears to be the maxilla of the form visible in the notch representing an open mouth. This illustrates a subtlety of execution that must be considered for each specimen.
Presence of pigments/ residues: None

r2
LA395/
Site: Lamanai
Dimensions (cm) L: 27.5 W: 15.6 Th: 3.3
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded brown gray/ pale brown gray/ pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in literature: n/a
Breakage patterns/ notes: The specimen is made of fine textured chert with coarse textured chert also prevalent in the material matrix. The presence of the coarse textured material made the artifact very difficult to flake. Across the medial surfaces of the specimen, lengthy feather terminated flake scarring is visible. Also prevalent is a large hinge terminated flake scar on the medial surface of the specimen. The lateral margins contrast with each other. One margin exhibits shorter feather terminated flake scars. The opposite margin exhibits heavy step and hinge terminated flake scarring. The stacked flake scarring appears to have prevented further thinning efforts. Edge crushing is visible on the margins.
Presence of pigments/ residues: None

r70
LA395/
Site: Lamanai
Dimensions (cm) L: 15.2 W: 7.7 Th: 1.7
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Mottled dark brown blue gray and very pale gray
Presence of polish/ thermal alteration/ coloration: Yes, small area of coloration
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine grain chert. Across the medial surfaces of the specimen, lengthy feather terminated flake scarring predominates. Along the lateral margins, localized microflaking is visible. Stacked step and hinge scarring and edge crushing is apparent on the interior of the notches. Of note are several hinge scars visible along one medial surface of the form. Also of note is the eye that is delineated by the coloration of the material. The specimen appears to depict a crocodile head.
Presence of pigments/ residues: None



ah135RP256/67



r40LA244/19

r29
LA694/
Site: Lamanai
Dimensions (cm) L: 24.8 W: 9.5 Th: 1.9
Technological type: Biface (notched)
Presence of cortex: None
Raw material appearance: Banded gray brown and pale brown gray
Presence of polish/ thermal alteration/ coloration: Non
Context: Structure N10-15/8 axial cache beneath n. staircase (T. Classic AD 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse oval shaped inclusions. The medial surfaces of the specimen exhibit short feather terminated flake scars. The lateral margins exhibit short feather and stacked step and hinge terminated flake scarring. Edge crushing is more prevalent on the interior of the notches, but overall there is little attrition visible.
Presence of pigments/ residues:

Zoomorphic Forms: Elongated Serpent and Serpent- like Depictions

ah180
RP35/14
Site: Altun Ha
Dimensions (cm) L: 42.6 W: 8.0 Th: 2.4
Technological type: Biface (notched)
Presence of cortex: None
Raw material appearance: Mottled gray pale gray and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 41*
Breakage patterns/ notes: This specimen is made of fine textured material with coarse textured oval shaped inclusions. The lateral margins exhibit large notches, the interiors of which exhibit steep edge angles and short step and hinge terminated flake scarring with edge crushing also visible. The parallel margins exhibit more feather terminated flake scarring. The medial portion of the specimen exhibits lengthy feather terminated flake scars. Of note is the composition of forms, with the anthropomorphic profile visible at one terminus and the head and open mouth of the serpent visible at opposite terminus.
Presence of pigments/ residues: Yes, it appears there is calcium carbonate adhering to the medial portion of the specimen. It is unclear if this material was placed purposefully.

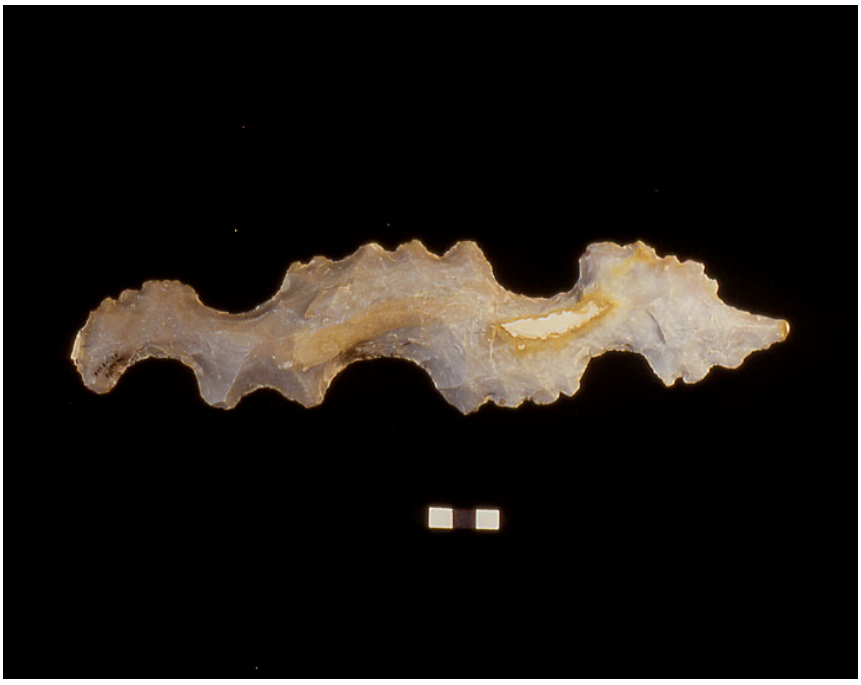
ah227
RP35/20
Site: Altun Ha
Dimensions (cm) L: 42.6 W: 8.0 Th: 2.4
Technological type: Biface (elongated/ notched/ serrated)
Presence of cortex: No
Raw material appearance: Mottled gray and pale gray
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown coloration visible
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in literature: Pendergast 1990: 40 *ill. 41*
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse- grained circular inclusions. The specimen is curved in profile and was clearly produced on a macro flake blade. The medial portion of the specimen exhibits lengthy feather and hinge terminated flake scarring. Shorter feather terminated flake scarring is present at both termini. Along the lateral margins, short stacked step and hinge terminated scarring is visible on the interior of the notches. Edge prominences exhibit primarily feather terminated flake scarring. Edge crushing is prevalent at both termini and at localized areas along the margins.
Presence of pigments/ residues: None

ah214
RP35/23
Site: Altun Ha
Dimensions (cm) L: 31.8 W: 8.0 Th: 3.6
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Mottled gray brown/ pale bluish gray/ pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in literature: Pendergast 1990: 40 *ill. 43*
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit notching, with short feather terminated flake scarring present along the serrated portions of the margin as well as stacked flake scarring on the interior of the notches. Edge crushing is also visible in these areas. Across the medial surfaces of the specimen short feather and hinge terminated flake scars are visible. Of note is the cortex and the surrounding yellowish brown area, also the symmetrical feather terminated flake scarring at what is termed the snout of the form. Also of note is the cortex and striking platform remnant visible at the opposite terminus.
Presence of pigments/ residues: None

ah255
RP38/60
Site: Altun Ha
Dimensions (cm) L: 23.5 W: 21.6 Th: 3.5
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Very pale brown gray/ mottled pale brown/ brown
Presence of polish/ thermal alteration/ coloration: Yes, pale red coloration
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with few fossil inclusions. Along the medial surfaces of the specimen lengthy feather terminated flake scars are prevalent. Lateral margins are characterized by stacked step and hinge terminated flake scarring, especially on the interior of the serrations. There is edge crushing present in these areas. Along the medial surfaces of the specimen, lengthy feather terminated flake scarring is visible. Of note is the profile of a human face emerging from the open mouth of the serpent. Also of note is the pale red coloration visible at the terminus of what appears to be the tail of the form.
Presence of pigments/ residues: None

ah63
RP131/11
Site: Altun Ha
Dimensions (cm) L: 28.8 W: 8.2 Th: 2.3
Technological type: Biface (notched)
Presence of cortex: Yes, small areas at each terminus
Raw material appearance: Mottled dark brown and blue gray; brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-51/2 cache floor 3 (T. Classic AD 800- 825)
Appearance in the literature: Pendergast 1990: 231
Breakage patterns/ notes: This specimen is made of fine textured chert with a low density of circular, coarse textured inclusions visible in the matrix. The lateral margins exhibit stacked step and hinge terminated flake scarring and edge crushing, most prevalent on the interior of the notches. Edge prominences exhibit for the most part, short feather terminated flake scars. A series of abrupt hinge scars are also visible on one margin, indicating difficulty in thinning the specimen. The medial surfaces exhibit lengthy feather terminated flake scarring. Of note is the striking platform visible at the proximal terminus, indicating the specimen was produced on a macroflake- blade.
Presence of pigments/ residues: None

ah227RP35/20



ah214RP35/23

ah186
RP164/93
Site: Altun Ha
Dimensions (cm) L: 38.7 W: 13.1 Th: 3.6
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, small quantity located at one terminus
Raw material appearance: Very pale gray and mottled gray and gray brown
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown coloration visible on one medial surface
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: This specimen is made of moderately fine to coarse textured chert with extensive oval shaped inclusions. The lateral margins exhibit short feather terminated flake scarring on edge prominences. Stacked step and hinge flake scarring and edge crushing is visible on the interior of the notches. Lengthy feather terminated and step and hinge scarring is visible on the medial surfaces of the specimen. Of note is the small area of cortex at one terminus that appears to delineate the eye of the form in profile. Also of note is the discoloration to yellowish brown visible at one terminus.
Presence of pigments/ residues: None

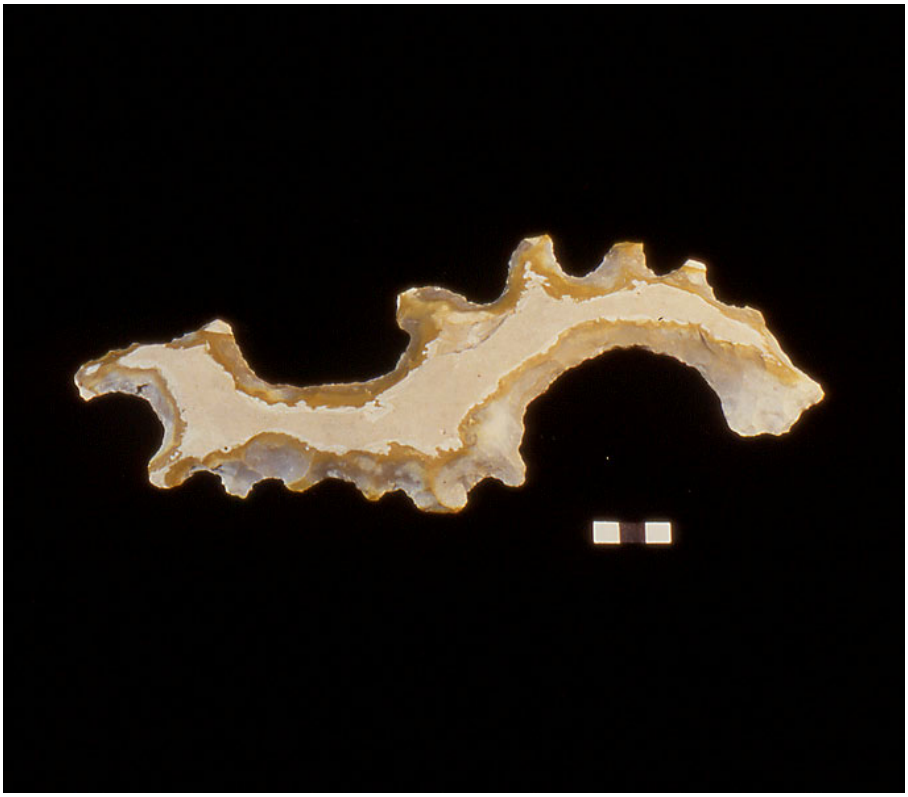
ah203
RP164/117
Site: Altun Ha
Dimensions (cm) L: 30.2 W: 9.8 Th: 2.6
Technological type: Biface (notched)
Presence of cortex: Yes, visible along medial portion of specimen
Raw material appearance: Tan brown and pale gray
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown coloration visible around cortex
Context: Structure B-4/2 tomb subfloor cache III (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 102 *ill. 107*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Lateral margins on the interior of the notches exhibit stacked step and hinge terminated scarring as well as edge crushing. Larger feather terminated flake scarring is also present, as well as flake scars that terminate at the edge of the cortex. Little flake scarring is present on the medial surfaces of specimen due to extensive cortex visible there. Of note is notch at one terminus that delineates the open mouth of the form. Small area of cortex appears to delineate eye of the form in profile.
Presence of pigments/ residues: None

ah220
RP164/122
Site: Altun Ha
Dimensions (cm) L: 41.6 W: 9.1 Th: 2.8
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Pale brown/ brown/ mottled brown/ strong brown
Presence of polish/ thermal alteration/ coloration: Yes, brown/ red coloration
Context: Structure B-4/2 tomb subfloor cache III (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 104 *ill. 107*
Breakage patterns/ notes: This specimen is made of fine textured chert with oval inclusions. The medial surfaces exhibit lengthy feather terminated flake scarring. Lateral margins exhibit stacked step and hinge terminated flake scarring, most prevalent along the interior of the notches, but also visible along the parallel margins. Of note is the red coloration on what appears to be the head of the form. Also of note is the cortex delineating what appears to be the eye of the form.
Presence of pigments/ residues: None

ah280
RP175/9
Site: Altun Ha
Dimensions (cm) L: 35.0 W: 15.1 Th: 3.4
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Mottled pale blue gray/ pale gray/ brown/ pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/3 tomb chamber (Late Classic AD 825)
Appearance in the literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive coarse textured circular inclusions present. The lateral margins exhibit edge crushing and stacked flake scarring on the interior of the notches. Medial surfaces of the specimen exhibit lengthy feather terminated flake scarring and some hinge flake scars. Of note is the striking platform remnant with cortex visible at one terminus. Also of note is the perspective that appears to delineate the mouth of the serpent.
Presence of pigments/ residues: None

ah281
RP175/10
Site: Altun Ha
Dimensions (cm) L: 35.5 W: 7.5 Th: 2.6
Technological type: Biface (elongated/ notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Pale gray/brown strong brown/very pale brown gray
Presence of polish/ thermal alteration/ coloration: Yes, pale gray/brown yellow
Context: Structure B-4/3 tomb chamber (Late Classic AD 825)
Appearance in literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: The specimen is made of moderately fine textured chert with coarse textured areas also present. The lateral margins exhibit stacked step and hinge terminated flake scarring visible along the interior of the notches and the serrations. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. Of note is the cortex that delineates the eye of the form, as well as what appears to be the striking platform remnant located at the same terminus. Some apparent surface alteration and coloration is visible near the eye. This coloration also appears to depict and eye of the form in profile.
Presence of pigments/ residues: None

ah131
RP176/23
Site: Altun Ha
Dimensions (cm) L: 23.2 W: 7.2 Th: 2.9
Technological type: Biface (notched)
Presence of cortex: Yes, visible at one terminus
Raw material appearance: Dark brown and brown gray with tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with extensive coarse textured chert also present in the matrix. The lateral margins exhibit stacked step and hinge terminated flake scarring, most prevalent on the interior of the notches. Extensive edge crushing is visible on the interior of the notches. Edge prominences exhibit little flake scarring. The medial surfaces of the specimen exhibit lengthy and moderately lengthy feather terminated flake scarring.
Presence of pigments/ residues: None



ah203RP164/117

ah281RP175/10

ah72
RP176/36
Site: Altun Ha
Dimensions (cm) L: 34.5 W: 9.2 Th: 2.3
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Mottled brown and dark gray/ pale gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 132 *ill. 133*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert. The specimen exhibits a high density of circular inclusions. The inclusions exhibit coarse textured material. The lateral margins exhibit feather terminated flake scarring along the edge prominences. Stacked step and hinge flake scarring and edge crushing are visible on the interior of the margin notches. The medial surfaces of the specimen show some short and lengthy feather terminated flake scarring and short hinge terminated flake scars. Of note is the cortex present at the proximal terminus that is also part of perhaps the primary striking platform remnant. The presence of the striking platform indicates that the specimen was produced on a macroblade.
Presence of pigments/ residues: None

ah252
RP200/387
Site: Altun Ha
Dimensions (cm) L: 32.5 W: 13.0 Th: 2.5
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled pale gray brown and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: The specimen is made of fine textured chert. In general, the specimen is finely flaked with feather terminated flake scarring prevalent on the medial surfaces of the form. On the interior of the notches and curves, there is extensive but short, stacked step and hinge terminated flake scarring with localized edge crushing. Of note is the composition of the form, marked by the emergence of a human profile from the open mouth of the serpent. This specimen has parallels with other serpent forms depicted in Maya art.
Presence of pigments/ residues: None

ah76
RP256/56
Site: Altun Ha
Dimensions (cm) L: 41.6 W: 7.7 Th: 3.8
Technological type: Biface (notched)
Presence of cortex: Yes, at proximal terminus on striking platform
Raw material appearance: Banded dark brown/ pale brown gray mottled/ brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with a high density of circular coarse textured inclusions visible. The medial surfaces exhibit feather terminated flake scars as well as lengthy step and hinge terminated flake scars visible on one medial surface. The lateral margins exhibit stacked step and hinge terminated flake scarring and edge crushing, most prevalent on the interior of the notches. Along the edge prominences, short feather terminated flake scars are prevalent. Of note is the striking platform visible at the proximal terminus, indicating that the specimen was produced on a macroblade.
Presence of pigments/ residues: None

ah249
RP266/2
Site: Altun Ha
Dimensions (cm) L: 31.3 W: 9.8 Th: 1.8
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Banded brown gray/gray/ blue gray/very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/1 tomb chamber (Late Classic AD 750- 775)
Appearance in the literature: Pendergast 1982: 117 *ill. 107*
Breakage patterns/ notes: This specimen is made of fine textured material with some coarse textured and oval shaped inclusions visible. The specimen exhibits lengthy feather terminated flake scarring across the medial surfaces. Along the lateral margins and the interior of the notches, short stacked step and hinge terminated scarring is visible in association with edge crushing. Of note is what appears to be the bicephalic form of the specimen, although the presence of cortex that appears to delineate an eye in profile at one terminus.
Presence of pigments/ residues: None

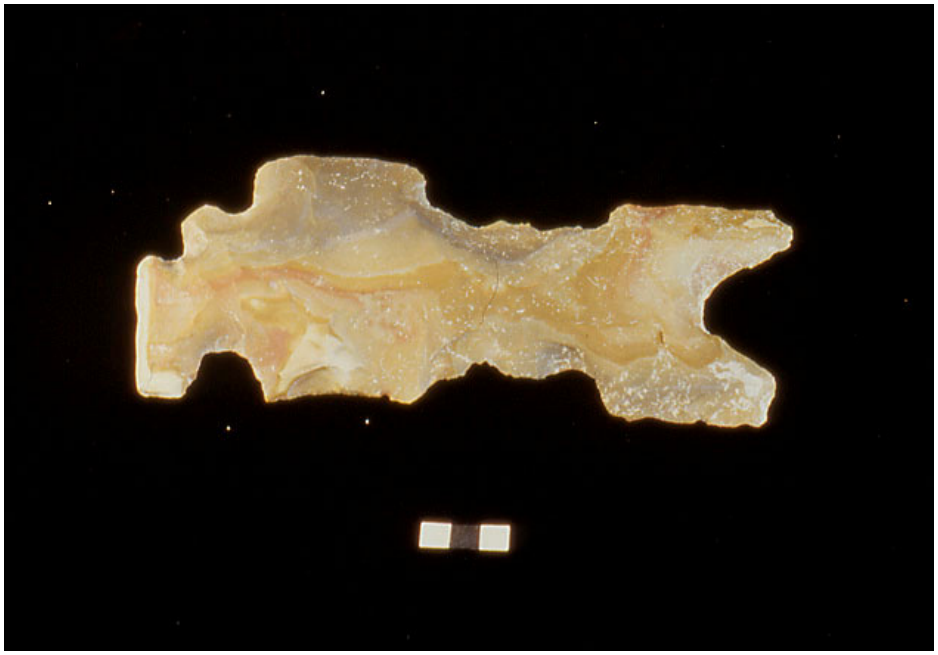
ah103
RP306/2
Site: Altun Ha
Dimensions (cm) L: 27.2 W: 8.7 Th: 1.9
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Brown tan brown and dark brown gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 82 *ill. 83*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The color of the raw material determines that it clearly originated in northern Belize. Along the lateral margins, the specimen exhibits notching, the interiors of which exhibit edge crushing and stacked step and hinge terminated flake scarring. Overall, the specimen is curved in profile with a striking platform present at the proximal terminus. This indicates that the form was produced on a macroblade. The medial surfaces of the specimen exhibit both lengthy and short feather terminated flake scarring with short hinge scars also visible. Of note is the circular area of cortex that appears to delineate an eye of the form in profile.
Presence of pigments/ residues: None

ah313
RP314/128
Site: Altun Ha
Dimensions (cm) L: 23.1 W: 9.0 Th: 2.0
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Pale gray brown/ dark gray/ brown and red
Presence of polish/ thermal alteration/ coloration: Yes, red pale red dark gray
Appearance in the literature: Pendergast 1990: 150 *ill. 115*
Context: Structure E-54/ 9 burial (Late Classic AD 850- 875)
Breakage patterns/ notes: This specimen is made of very fine textured chert with few visible inclusions. The medial surfaces exhibit lengthy feather terminated flake scarring. Along the lateral margins feather terminated flake scarring is visible, as well as stacked step and hinge scarring is apparent. The interiors of the notches exhibit stacked scarring and edge crushing. Of note is the coloration on the surfaces that appears in the shape of a serpent with an open mouth, as well as the cortex and platform remnant present at one terminus. The presence of striking platform indicates production on macroflake- blade.

Presence of pigments/ residues: None, but again of note is the serpent- like form of red staining visible on the dorsal surface of specimen. This form appears to be depicted from a three- quarter perspective rather than complete frontal view.

ah318
RP364/49
Site: Altun Ha
Dimensions (cm) L: 32.6 W: 10.8 Th: 2.7
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled dark gray brown and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 68 *ill. 69*
Breakage patterns/ notes: This specimen is made of fine textured chert with a moderate number of small circular inclusions. The medial surfaces of the specimen exhibits feather and hinge terminated scarring. Overall, the specimen is finely flaked. The lateral margins exhibit short feather terminated flake scars. Stacked step and hinge flake scarring is apparent on the interior of the crescent. Edge crushing is also visible along the lateral margins.
Presence of pigments/ residues: None

ah323
RP364/75
Site: Altun Ha
Dimensions (cm) L: 37.3 W: 14.3 Th: 3.2
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded pale gray brown and pale yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: This specimen is made of very fine textured chert with ovoid inclusions. The specimen exhibits feather terminated flake scarring across the medial surfaces and also along the lateral margins. There are short feather terminated flake scars and some stacked step and hinge scarring on the interior of the notches. Edge prominences show short feather terminated flake scarring. Of note is the form of the specimen that shows both technological skill and knowledge of serpent symbolism as represented in the sky serpent. Also of note is open mouth and small flake scarring that delineates the eye in profile.
Presence of pigments/ residues: None



ah313RP314/128

ah323RP364/75

ah314
RP364/79
Site: Altun Ha
Dimensions (cm) L: 37.2 W: 8.8 Th: 3.2
Technological type: Biface (elongated/ notched)
Presence of cortex: No
Raw material appearance: Mottled gray and pale gray and pale red
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: The specimen is made of relatively coarse textured material with oval shaped fossil inclusions. The specimen is relatively thick, with the medial surfaces exhibiting lengthy feather terminated flake scarring. The lateral margins exhibit extensive and stacked step and hinge terminated flake scarring. Edge crushing is present along the lateral margins as well. The interior of the margin notches exhibit stacked flake scarring and edge crushing. Edge prominences exhibit short feather terminated flake scarring.
Presence of pigments/ residues: None

ah90
RP528/2
Site: Altun Ha
Dimensions (cm) L: 37.5 W: 12.8 Th: 3.7
Technological type: Biface (elongated/ notched)
Presence of cortex: Yes
Raw material appearance: Mottled pale brown and very pale brown with yellow
Presence of polish/ thermal alteration/ coloration: Polish, medial proximal end
Context: Structure K-33/1 (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 368 *ill. 365*
Breakage patterns/ notes: The specimen is made of very fine textured chert. Short and lengthy feather terminated flake scars are present along the lateral margins. Also short hinge and step terminated flake scars are visible along the margins. There is extensive cortex on the medial surfaces of the specimen. Very few flake scars are visible on the medial surfaces of the specimen due to the presence of cortex. Of note is the appearance of polish mentioned above. It appears that the form was handled extensively, perhaps as a staff.
Presence of pigments/ residues: Yes, extensive yellow pigment is present on the dorsal surface of the specimen. The yellow pigment is primarily applied to the cortex and appears in the shape of a serpent. The serpent is wide at the head and trails off to a narrow tail. Of note is the head of the serpent has been removed via a scraping motion, while the remainder of the serpent is intact.

ah151
RP528/10
Site: Altun Ha
Dimensions (cm) L: 47.2 W: 6.2 Th: 2.1
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled dark brown gray mottled with blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 368 *ill. 371*
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen is both narrow and thin with short feather terminated flake scarring visible across the medial surfaces of the specimen. Along the lateral margins feather terminated flake scarring and short hinge and step scarring is evident. Edge crushing is present along the interior of the notches. Of note is that the distal terminus appears to delineate a head and eye of the form in profile.
Presence of pigments/ residues: None

r65
LA/unknown
Site: Lamanai
Dimensions (cm) L: 37.0 W: 5.8 Th: 2.1
Technological type: Biface (narrow)
Presence of cortex: No
Raw material appearance: Mottled dark brown and gray
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in literature: n/a
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert. Because the specimen is so narrow, medial flake scars are relatively short and feather terminated. The specimen is snapped into three pieces, marked by snap fractures. Along the margins, there is a moderate amount of edge abrasion, edge crushing, and stacked microflaking. Of note are the feather terminated flake scars present at one terminus, which appear to be pressure flakes. This may also be part of an original striking platform remnant. Also of note is the circular inclusion that appears to depict an eye.
Presence of pigments/ residues: No clear evidence visible

ah90RP528/2

r65LA/

r85
LA/unknown
Site: Lamanai
Dimensions (cm) L: 42.0 W: 14.0 Th: 3.2
Technological type: Biface (elongated/ notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Brown and dark brown
Presence of polish/ thermal alteration/ coloration: Yes, dark brown
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit lengthy and shorter feather terminated flake scarring. The lateral margins exhibit short feather terminated flake scarring. There are also minor stacked step and hinge scarring on the interior of the notches. A small amount of edge crushing is also visible on the interior of the notches. Overall, the specimen is very finely flaked from quality material. Of note is the cortex and surface alteration visible on the terminus. The cortex appears to delineate an eye of the form in profile.
Presence of pigments/ residues: None

r87
LA240/16
Site: Lamanai
Dimensions (cm) L: 46.0 W: 9.5 Th: 3.4
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Dark gray/ brown/ pale brown and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/8 large axial cache beneath staircase (located above N10-9/9) (Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with circular fossil inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars and also some shorter hinge terminated scarring. Along the lateral margins, extensive thinning is present. Both stacked step and hinge terminated flake scarring is present on the interior of the notches. Some edge crushing is present in these areas as well.
Presence of pigments/ residues: None

r6
LA244/8
Site: Lamanai
Dimensions (cm) L: 30.2 W: 7.2 Th: 3.3
Technological type: Biface (elongated/ notched)
Presence of cortex: Yes
Raw material appearance: Dark brown and dark brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 large axial cache under central staircase (Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with small oval inclusions. Lateral margins exhibit stacked step and hinge terminated scarring and edge crushing visible on the interior of the notches. Lengthy and short feather terminated flake scars are present on the medial portion of the specimen. Extensive cortex present on the medial surfaces of the specimen prevented lengthy flake scars from forming. Of note are the shape of the head and the snout of the beast, which terminates in a small area of cortex.
Presence of pigments/ residues: None

r36
LA244/13
Site: Lamanai
Dimensions (cm) L: 35.0 W: 8.1 Th: 3.7
Technological type: Biface (elongated/ notched/ serrated)
Presence of cortex: Yes, at one terminus formed by striking platform
Raw material appearance: Banded dark gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 large axial cache under central staircase (Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of coarse textured material. The specimen is curved in profile indicating production on a macroflake- blade. Along the lateral margins extensive abrasion is visible. Short step and hinge terminated flake scarring and edge crushing are both present on the interior of the notches. Short feather terminated flake scars are present on the edge prominences. Lengthy feather terminated flake scars are prevalent on the medial surfaces of the specimen. Of note is the striking platform that exhibits cortex at the proximal terminus of the form.
Presence of pigments/ residues: None

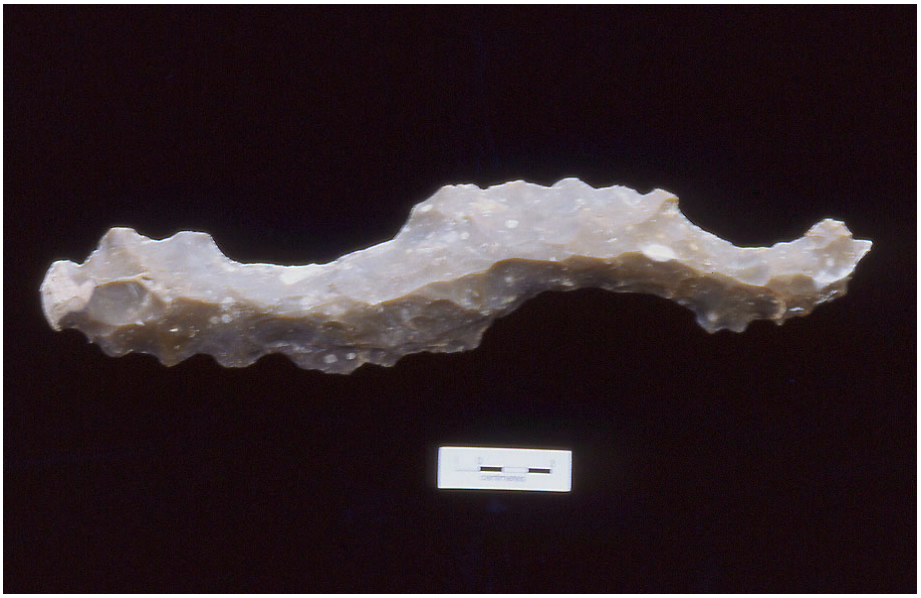
r41
LA244/20
Site: Lamanai
Dimensions (cm) L: 34.3 W: 6.8 Th: 4.1
Technological type: Biface (elongated/ notched)
Presence of cortex: Yes
Raw material appearance: Mottled dark brown and light gray with tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 large axial cache beneath central staircase (Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is produced from moderately fine textured material with circular coarse textured inclusions. The lateral margins exhibit stacked step and hinge flake scarring along the interior of the notches. Short feather terminated flake scars are present on both medial surfaces. Of note is the step terminated flake scar that appears to delineate any eye in profile. Also of note is the cortex visible at one terminus that appears to be a striking platform remnant.
Presence of pigments/ residues: None

r51
LA395/
Site: Lamanai
Dimensions (cm) L: 27.5 W: 5.6 Th: 2.1
Technological type: Biface (elongated/ notched)
Presence of cortex: No
Raw material appearance: Mottled tan brown and yellowish brown
Presence of polish/ thermal alteration/ coloration: Yes, strong/ pale brown coloration is visible on one surface of the specimen
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. Each of the medial surfaces exhibit symmetrical feather terminated flake scarring. Along the lateral margins, shorter feather terminated flake scars are visible on the interior of the notches and on the edge prominences. Also visible are short stacked step and hinge terminated flake scars and edge crushing on the interior of the notches. Of notes is the coloration to a strong brown visible around the perimeter of the form. The strong brown and yellow brown appears to be staining.
Presence of pigments/ residues: None

r56
LA395/
Site: Lamanai
Dimensions (cm) L: 42.7 W: 9.4 Th: 2.8
Technological type: Biface (elongated)
Presence of cortex: No
Raw material appearance: Mottled dark brown blue and very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert with extensive patination present. Lengthy feather terminated flake scars are visible across the medial portion of the specimen. Shorter feather terminated flake scars are also visible, most prevalently at the proximal terminus, where there is a remnant of a striking platform visible. Along the lateral margins, short feather terminated flake scars are visible, with some localized stacked step and hinge terminated flake scarring visible on the interior of the notches. Feather terminated flake scars are present on the edge prominences. A snap fracture is present at the distal terminus of the specimen.
Presence of pigments/ residues: Yes, extensive reddish brown pigment is visible across the medial portion of the specimen. Intensity of deposition is thick on one surface, but material is also present on the opposite surface in lesser quantities.

Zoomorphic Forms: Non- elongated Serpent- like Depictions

ah96
RP98/20
Site: Altun Ha
Dimensions (cm) L: 17.4 W: 6.6 Th: 1.4
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Mottled pale brown with gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-3/1 cache (Late Classic AD 600- 900)
Appearance in the literature: Pendergast 1990: 66 *ill. 115*
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit short feather terminated flake scarring with some localized areas of stacked microflaking and some edge crushing. This pattern is especially prevalent on the interior of the notch and the serrations. The medial surfaces exhibit short to moderate length feather terminated flake scarring.
Presence of pigments/ residues: None

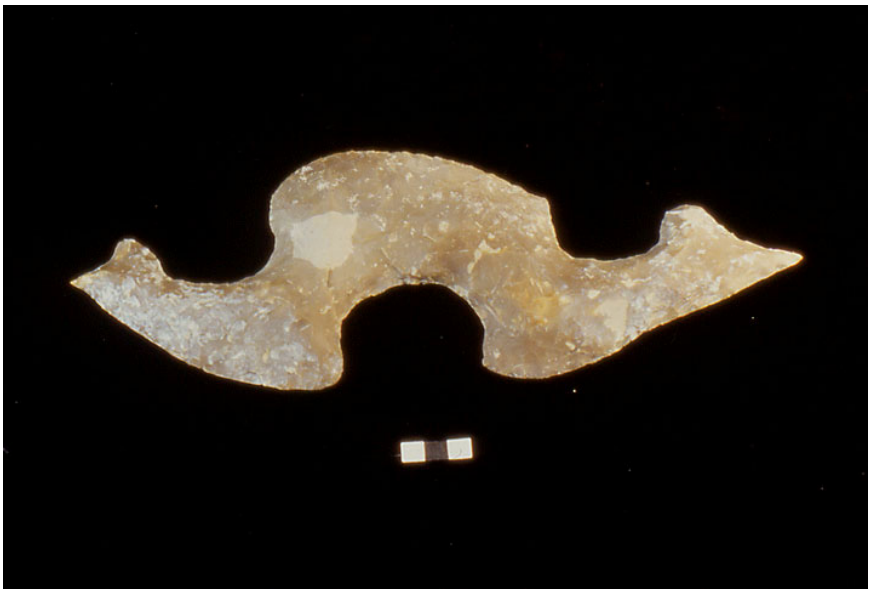


r41LA244/20

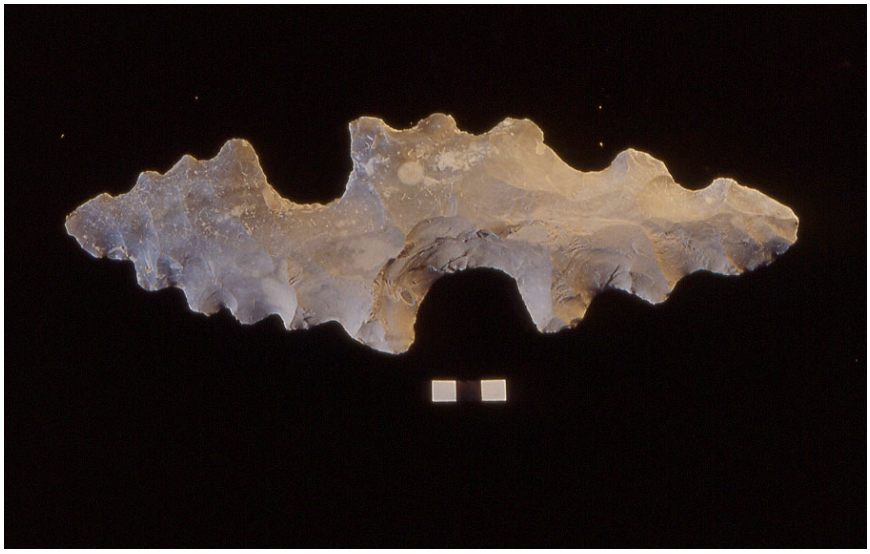
r56LA395/

ah62
RP131/2
Site: Lamanai
Dimensions (cm) L: 30.3 W: 10.1 Th: 2.8
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Mottled brown and blue gray with pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-51/2 cache underneath floor 3 (T. Classic AD 800- 825)
Appearance in the literature: Pendergast 1990: 231
Breakage patterns/ notes: This specimen is made of moderately coarse to coarse textured chert with extensive circular inclusions visible. The lateral margins exhibit stacked step and hinge terminated flake scarring and edge crushing. The stacked flake scarring and edge crushing are more prevalent on the interior of the notches. The edge prominences exhibit short feather terminated flake scars. The medial surfaces exhibit short and moderately lengthy feather terminated flake scarring. Of note is one terminus that exhibits a series of parallel feather terminated scarring that appears to be caused by pressure flaking.
Presence of pigments/ residues: None

ah124
RP131/4
Site: Altun Ha
Dimensions (cm) L: 23.7 W: 8.1 Th: 2.2
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Mottled dark brown and blue gray
Presence of polish/ thermal alteration/ coloration: No
Appearance in the literature: Pendergast 1990: 231
Context: Structure E-51/2 cache beneath floor 3 (Terminal Classic AD 800- 825)
Breakage patterns/ notes: This specimen is made of fine textured materials. The specimen exhibits a curve in profile indicating production on a macroflake- blade. Lateral margins exhibit short feather terminated flake scars and stacked step and hinge terminated scarring and edge crushing, most prevalent on the interior of the notches. Feather terminated flake scarring is prevalent on the edge prominences. A large hinge terminated flake scar is visible in association with the single notch on the right dorsal margin. The medial surfaces of the specimen exhibits lengthy feather terminated flake scars.
Presence of pigments/ residues: None



ah318RP364/49



ah62RP131/2

ah44
RP176/22
Site: Altun Ha
Dimensions (cm) L: 22.8 W: 9.9 Th: 3.0
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Mottled pale gray with gray brown and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of fine textured material with more coarse textured inclusions also prevalent. Lateral margins show step and hinge scarring, especially prevalent on the interior of the large notch. Also feather terminated flake scarring is visible on the medial surfaces of the specimen. It appears that the coarse texture of the material hindered thinning efforts. The specimen is curved in profile indicating production on a macroflake- blade. Of note is the snail- like appearance of the form in outline.
Presence of pigments/ residues: None

ah208a
RP188/6
Site: Altun Ha
Dimensions (cm) L: 31.7 W: 15.2 Th: 2.8
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, at distal terminus
Raw material appearance: Banded pale gray brown and gray brown
Presence of polish/ thermal alteration/ coloration: Yes, brown at both termini
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Flake scarring along the medial surfaces of the specimen is lengthy feather and hinge terminated flake scarring. Along the lateral margins, primarily on the interior of the notches, exhibit stacked step and hinge terminated scarring. Edge crushing is also visible on the interior of the notches. Also prevalent is the short feather terminated flake scars visible along the lateral margins on the interior of the large notch. Of note is the outline of the form at one terminus that appears to depict the head of the specimen.
Presence of pigments/ residues: None

ah48
RP196/38
Site: Altun Ha
Dimensions (cm) L: 27.0 W: 10.0 Th: 2.4
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Mottled blue gray and dark brown gray
Presence of polish/ thermal alteration/ coloration: Strong brown prox. terminus
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 132 *ill. 133*
Breakage patterns/ notes: This specimen is made of fine textured chert with a fairly large quantity of circular inclusions also visible. There is a striking platform remnant located at one terminus. The presence of the striking platform and the curvature of the specimen in profile is evidence that the piece was produced on a macroflake- blade. The lateral margins overall show little edge crushing and attrition. However, on the interior of the notches, stacked microflaking and edge attrition is visible. Along the medial surfaces of the specimen, lengthy feather terminated flake scarring is visible.
Presence of pigments/ residues: Yes, at one terminus there is a circular area approximately 1.0 cm in diameter that exhibits a reddish brown residue that may have been part of an appliqué depicting the eye of the specimen.

ah290
RP364/53
Site: Altun Ha
Dimensions (cm) L: 41.3 W: 9.2 Th: 3.0
Technological type: Biface (elongated/ notched)
Presence of cortex: No
Raw material appearance: Pale yellow and brown with pale gray and pale red
Presence of polish/ thermal alteration/ coloration: Yes, pale red/ red color
Appearance in the literature: Pendergast 1982: 70 *ill. 69*
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Breakage patterns/ notes: This specimen is made of very fine textured chert. Along the medial surfaces of the specimen, flake scars are generally lengthy feather terminated scars with some hinge terminated flake scarring also visible. The lateral margins exhibit shorter step and hinge terminated scarring with stacked flake scarring also visible. Highly localized areas of edge crushing are also visible, especially on the interior of the large notch.
Presence of pigments/ residues: None although staining/ coloration is present.

ah130
RP616/1
Site: Altun Ha
Dimensions (cm) L: 28.8 W: 12.0 Th: 2.7
Technological type: Biface (notched/ bicephalic form)
Presence of cortex: Yes
Raw material appearance: Mottled very pale brown/ blue gray yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-8/3 cache (latter part of Early Classic AD 500- 550)
Appearance in the literature: Pendergast 1979: 110 *ill. 110*
Breakage patterns/ notes: This specimen is made of fine textured material. There are also coarse textured inclusions present. The lateral margins are marked by step and hinge terminated scarring visible on the interior of the notches. Localized areas of edge crushing are present. Along the medial surfaces of the specimen, lengthy feather terminated flake scars are prevalent. Of note is the bicephalic form of the specimen similar to beasts depicted in carved stone sculpture. Also of note is the facial profile visible at each terminus.
Presence of pigments/ residues: None

ah15
RP616/5
Site: Altun Ha
Dimensions (cm) L: 24.1 W: 7.3 Th: 2.0
Technological type: Biface (serrated)
Presence of cortex: Yes
Raw material appearance: Mottled pale gray and blue gray
Presence of polish/ thermal alteration/ coloration: Yes, strong brown
Context: Structure A-8/3 cache (latter part of Early Classic AD 500- 550)
Appearance in the literature: Pendergast 1979: 110 *ill. 110*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert striking platform. The medial surfaces of the specimen exhibit short feather terminated flake scarring. The lateral margins exhibit short feather terminated scarring and stacked step and hinge scarring. Stacked scarring and some small amounts of edge crushing are more prevalent on the interior of the large notch.
Presence of pigments/ residues: None

ah144
RP616/6
Site: Altun Ha
Dimensions (cm) L: 32.4 W: 10.1 Th: 2.6
Technological type: Biface (notched/ bicephalic form)
Presence of cortex: No
Raw material appearance: Mottled brown and blue gray and dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-8/3 cache (latter part of Early Classic AD 500- 550)
Appearance in the literature: Pendergast 1979: 110 *ill. 110*
Breakage patterns/ notes: This specimen is made of fine textured chert. The surface of the form appears to exhibit patination from brown to blue gray. Along the lateral margins edge crushing is prevalent in close association with step and hinge terminated flake scarring. Across the medial surfaces of the specimen, broad feather terminated flake scars are visible. Feather terminated flake scarring is also prevalent along the lateral margins. Of notes is the bicephalic form of the specimen. Also of note is the facial profile appearing at each terminus, with flake scars depicting the location of the eyes.
Presence of pigments/ residues: None

r34
LA240/15
Site: Lamanai
Dimensions (cm) L: 44.8 W: 12.0 Th: 3.4
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, very small quantity
Raw material appearance: Dark brown gray and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/8 large axial cache beneath staircase (located above N10-9/9) (also dated to Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of moderately coarse texture materials with small coarse textured circular inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars as well as some hinge terminated flake scars. The lateral margins exhibit short feather terminated flake scars. On the interior of the serrations, stacked flake scarring and edge crushing are visible.
Presence of pigments/ residues: None

Zoomorphic Forms: Centipedes and Scorpions

ah302
RP163/1
Site: Altun Ha
Dimensions (cm) L: 21.5 W: 11.8 Th: 1.7
Technological type: Biface (notched/ serrated)
Presence of cortex: None
Raw material appearance: Mottled brown and pale blue gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/2 cache above floor 1 (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with extensive inclusions. More lengthy feather terminated flake scarring is visible across the medial surfaces of the specimen. Stacked step and hinge terminated flake scarring is present on the interior of serrations and most prevalently on the interior of the large notch along the lateral margins. Shorter feather terminated scarring is prevalent on the margin prominences.
Presence of pigments/ residues: None

ah192
RP164/97
Site: Altun Ha
Dimensions (cm) L: 49.4 W: 11.0 Th: 3.2
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Mottled very pale gray brown/ mottled brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: This specimen is made of coarse textured chert with extensive circular inclusions. Along the lateral margins, short feather terminated flake scarring is most prevalent on the edge prominences. On the interior of the prominences, localized areas of stacked step and hinge terminated flake scars. Larger step terminated flake scars are also present near the lateral margins and on the interior of the notches. Across the medial surfaces of the specimen, feather and hinge terminated flake scars are present.
Presence of pigments/ residues: None

ah286
RP175/1
Site: Altun Ha
Dimensions (cm) L: 26.3 W: 8.7 Th: 1.9
Technological type: Biface (barbed)
Presence of cortex: Yes
Raw material appearance: Mottled brown and pale blue gray and pale brown
Presence of polish/ thermal alteration/ coloration: Yes, strong brown coloration visible on one surface
Context: Structure B-4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine textured chert that is highly mottled in appearance. Some areas of coarse textured material are also visible. The medial surfaces of the specimen exhibit relatively lengthy feather terminated flake scarring. Some hinge scarring is also visible in this area. Along the lateral margins, there are shorter feather and step terminated flake scars. Some highly localized edge crushing is visible on the interior of the barbs/ notches. Of note are the strong brown coloration and the very pale gray area in the center of the stained area. The coloration appears to delineate an eye in profile.
Presence of pigments/ residues: None

ah285
RP175/7
Site: Altun Ha
Dimensions (cm) L: 29.7 W: 10.0 Th: 2.2
Technological type: Biface (notched/ barbed)
Presence of cortex: Yes
Raw material appearance: Mottled very pale blue gray and brown gray
Presence of polish/ thermal alteration/ coloration: Yes, strong brown/ pale gray coloration is visible on one surface
Context: Structure B-4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The lateral margins exhibit shorter hinge and feather terminated scarring with some stacking and edge crushing visible on the interior of the notches/ barbs. Of note is the strong brown coloration with very pale gray is visible.
Presence of pigments/ residues: None

ah155
RP176/18
Site: Altun Ha
Dimensions (cm) L: 26.5 W: 7.6 Th: 2.5
Technological type: Biface (notched)
Presence of cortex: Yes, small quantities visible at both termini
Raw material appearance: Dark brown and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of fine textured chert with circular inclusions visible in the matrix. The medial surfaces of the specimen exhibit relatively lengthy feather terminated flake scars. The lateral margins, primarily along the interior of the notches, exhibit localized areas of edge crushing and stacked step and hinge terminated flake scarring. The edge prominences show short and moderately lengthy feather terminated flake scarring. Of note is the overall thickness of the specimen, suggesting difficulty in thinning.
Presence of pigments/ residues: None

ah152
RP176/40
Site: Altun Ha
Dimensions (cm) L: 27.3 W: 6.6 Th: 1.6
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled brown gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 132 *ill. 133*
Breakage patterns/ notes: This specimen is made of fine textured chert that is mottled. There are two areas of coarse textured materials also present. The specimen is finely flaked and thin. Across the medial surfaces of the specimen lengthy feather terminated flake scarring is present. Along the lateral margins, localized step and hinge scarring are especially prevalent on the interior of the notches. Shorter feather terminated flake scarring is visible along the edge prominences. Of note is the curvature of the form in profile that indicates production on a macroblade.
Presence of pigments/ residues: None

ah302RP163/1

ah192RP164/97

ah49
RP304/7
Site: Altun Ha
Dimensions (cm) L: 28.7 W: 6.3 Th: 2.5
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Brown tan
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 81 *ill. 83*
Breakage patterns/ notes: This specimen is made of very fine textured material. The lateral margins exhibit some stacked step and hinge scarring and also edge crushing on the interior of the notches. Across the medial surfaces of the specimen, lengthy feather terminated flake scarring is visible. Of note is a large circular inclusion near the distal terminus of the specimen, which appears to be a hollow area.
Presence of pigments/ residues: Yes, some brown residue is visible on the interior of the coarse textured inclusion located at the distal terminus.

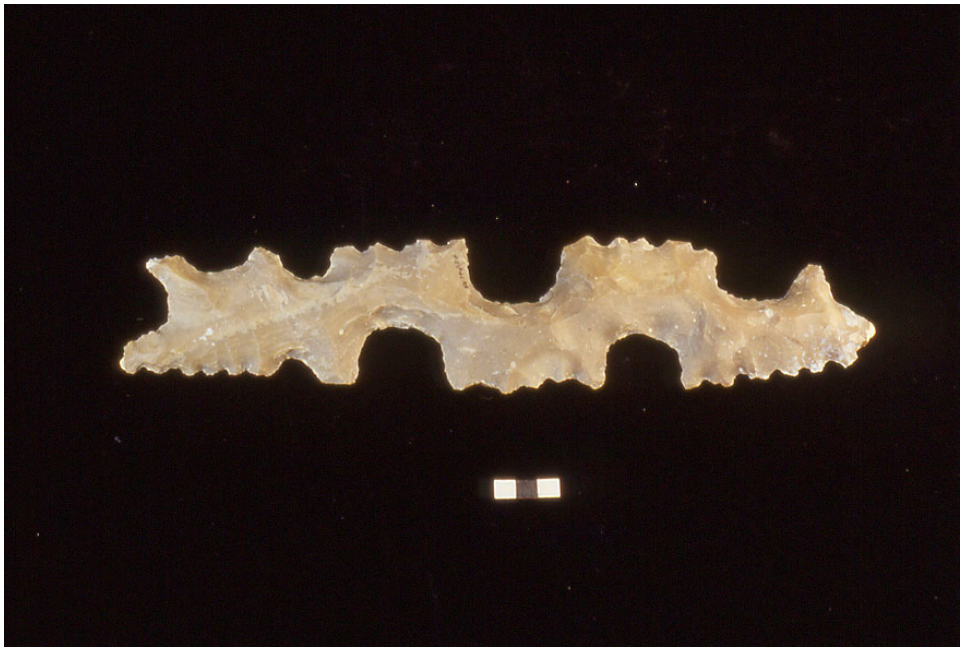
ah225
RP305/3
Site: Altun Ha
Dimensions (cm) L: 24.5 W: 8.2 Th: 1.8
Technological type: Biface (notched)
Presence of cortex: Yes, at proximal terminus
Raw material appearance: Brown and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/5 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 81 *ill. 83*
Breakage patterns/ notes: This specimen is made of very fine textured material. Lengthy and short feather terminated flake scarring is visible on both medial surfaces. Hinge terminated flake scarring is visible along the lateral margins. Edge crushing is visible on the interior of the notches along lateral margins. Of note is the curvature of the form in profile and the striking platform present at the proximal terminus of the specimen. The curvature indicates the specimen was produced on a macroblade.
Presence of pigments/ residues: None

ah291
RP364/54
Site: Altun Ha
Dimensions (cm) L: 36.4 W: 7.8 Th: 2.6
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Mottled dark brown/ and banded brown pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 70 *ill. 69*
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured inclusions. Across the medial surfaces of the specimen feather terminated flake scarring predominates. Along the lateral margins, stacked step and hinge terminated flake scarring predominates, especially on the interior of the notches. Along the edge prominences, shorter feather terminated flake scarring is present. In these areas, edge crushing is also visible. Of note is the notch at one terminus. This notch appears to depict the mouth of the form.
Presence of pigments/ residues: None

r1
LA/unknown
Site: Lamanai
Dimensions (cm) L: 21.5 W: 13.0 Th: 2.4
Technological type: Biface
Presence of cortex: No
Raw material appearance: Brown dark brown and gray
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. Across the medial surfaces of the specimen lengthy feather terminated flake scarring is visible. Along the lateral margins, shorter feather terminated flake scarring is present, although very little step and hinge terminated scarring is visible. Some stacked flake scarring and edge crushing are visible on the interior of the crescent.
Presence of pigments/ residues: None

r35
LA240/18
Site: Lamanai
Dimensions (cm) L: 33.1 W: 8.5 Th: 3.3
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Dark gray brown banded with gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/8 large axial cache beneath staircase
(located above N10-9/9) (Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured material with several areas that exhibit coarse texture as well. Across the medial surfaces of the specimen, lengthy feather terminated flake scars are visible. Notches are present along the margins. However, stacked hinge scarring is visible away from the margins. Along the lateral margins, shorter feather terminated flake scars are prevalent. On the interior of the smaller notches, extensive edge crushing is present. Of note is the striking platform present at proximal terminus of the form.
Presence of pigments/ residues: None

r92
LA244/10
Site: Lamanai
Dimensions (cm) L: 35.0 W: 9.5 Th: 2.9
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Very dark gray brown and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with a moderate density of fossil inclusions present in the material. Some coarse textured material is also visible. The lateral margins exhibit serrations with stacked microflaking and edge crushing on the interior of the serrations. The edge prominences exhibit short feather terminated flake scarring. The medial surfaces of the specimen exhibit lengthy irregular feather terminated flake scarring. The specimen is curved in profile indicating that the form was produced on a macroblade or macroflake- blade.
Presence of pigments/ residues: None



ah291RP364/54

r35LA240/18

Zoomorphic Forms: Marine Forms, Fish, and Fish- like depictions

ah11
RP98/26
Site: Altun Ha
Dimensions (cm) L: 20.3 W: 9.4 Th: 2.1
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Very pale brown and yellow tan
Presence of polish/ thermal alteration/ coloration: Yes, pale red brown/ yellow
Context: Structure E-3/1 cache (Late Classic AD 600- 900)
Appearance in the literature: Pendergast 1990: 67 *ill. 115*
Breakage patterns/ notes: This specimen is made of fine textured chert with some areas that exhibit coarse textured inclusions. Along the lateral margins, heavy step and hinge scarring are both visible, most prevalently on the interior of the notches. On both the interior of the notches and the prominences of the serrations, flake scarring is comprised mainly of short feather terminated flake scars. More lengthy feather terminated flake scars are visible on the medial surfaces of the form. Of note is the coloration present across medial surfaces. This may be eroded pigment, but in general the appearance of the coloration is inconclusive.
Presence of pigments/ residues: None

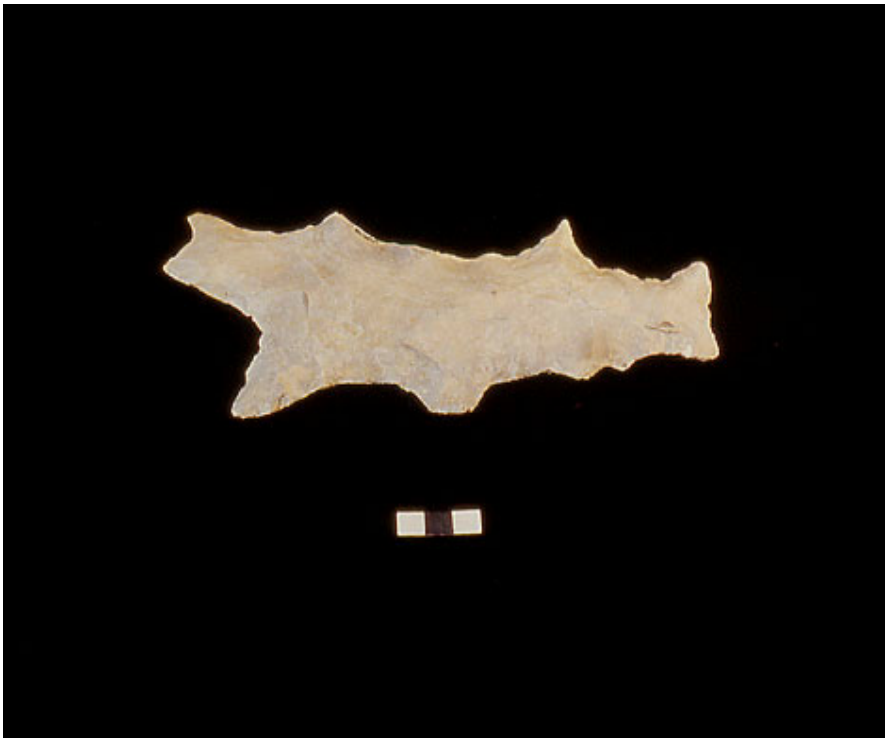
ah276
RP175/12
Site: Altun Ha
Dimensions (cm) L: 20.3 W: 9.1 Th: 2.4
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled pale gray brown and very pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/3 tomb wall cache I (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine textured chert with some circular coarse textured inclusions present. The medial surfaces of the exhibit both feather and hinge terminated flake scarring. The lateral margins exhibit step scarring and edge crushing. The edge crushing is highly localized on the interior of the large notch.
Presence of pigments/ residues: None

ah119
RP176/14
Site: Altun Ha
Dimensions (cm) L: 26.0 W: 9.1 Th: 2.7
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Dark gray brown and banded brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with a number of coarse textured inclusions present. The small amount of cortex present at one terminus is likely a striking platform. The lateral margins show shorter feather terminated flake scarring. On the interior of the notches, stacked step and hinge flake scarring is visible. Edge crushing is also visible in this area. Across the medial surfaces of the specimen, more lengthy feather terminated flake scars are prevalent. Of note is the curved area at one terminus that appears to depict an eye in profile.
Presence of pigments/ residues: None

ah109
RP176/10
Site: Altun Ha
Dimensions (cm) L: 24.0 W: 8.7 Th: 3.2
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Mottled dark brown gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of coarse textured material. The form is relatively thick and slightly curved. Along the lateral margins, the presence of step and hinge terminated flake scarring suggest difficulty in thinning the specimen. The lateral margins also exhibit edge crushing. Across the medial surfaces of the specimen, short feather terminated flake scarring is present. Of note is the large, circular, coarse textured inclusion present on the medial surface. This circular inclusion appears to depict an eye in profile.
Presence of pigments/ residues: None

ah270
RP364/46
Site: Altun Ha
Dimensions (cm) L: 39.4 W: 14.8 Th: 3.3
Technological type: Biface (notched)
Presence of cortex: Yes, small quantity at one terminus
Raw material appearance: Mottled brown gray/ banded brown tan/ pale brown
Presence of polish/ thermal alteration/ coloration: Yes, pale red/ orange stain
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 68 *ill. 69*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The lateral margins exhibit localized stacked flake scarring and edge crushing. Short feather terminated flake scars are visible on the edge prominences and appendages. Of note is the exceptionally fine flaking visible on the appendages. Also of note is the elaborate form of the specimen, perhaps a representation of a supernatural creature.
Presence of pigments/ residue: Yes, pale red and black residue visible on one medial surface.

ah223
RP510/1
Site: Altun Ha
Dimensions (cm) L: 30.9 W: 16.4 Th: 4.0
Technological type: Biface (notched/ perforated)
Presence of cortex: Yes
Raw material appearance: Brown and pale brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-44/4 cache (no chronological information available)
Appearance in the literature: Pendergast 1990: 184 *ill. 250*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with large coarse textured inclusions. Lengthy feather terminated flake scars are visible across the medial surfaces of the specimen. The lateral margins exhibit step and hinge terminated flake scarring and also extensive areas of edge crushing. Portions of the distal terminus exhibit short feather terminated flake scarring that appears similar to pressure flaking. Of note is the "tail" that seems to exhibit some pigments. Also of note is the perforation that appears to depict an eye of the form.
Presence of pigments/ residues: Yes, there are yellow and brown pigments visible on the cortical area of what appears to be the "tail" of the specimen.



ah276RP175/12

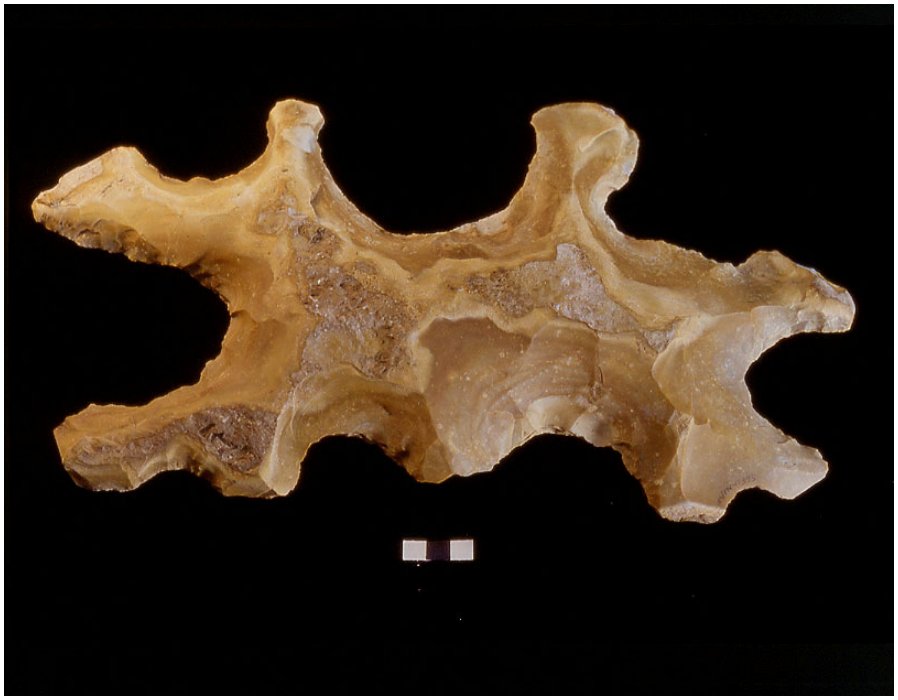
ah270RP364/46

ah133
RP528/6
Site: Altun Ha
Dimensions (cm) L: 38.5 W: 21.2 Th: 5.3
Technological type: Biface (notched)
Presence of cortex: Yes, extensive cortex visible on the medial surfaces
Raw material appearance: Banded brown/ pale brown/ brown yellowish brown
Presence of polish/ thermal alteration/ coloration: Yes, yellowish brown
Context: Structure K-33/1 (Post abandonment after AD 1100)
Appearance in the literature: Pendergast 1990: 368 *ill. 371*
Breakage patterns/ notes: The specimen is made of fine textured material with extensive cortex present. Circular fossil inclusions are also present. The lateral margins of the specimen exhibit heavy flake scarring and attrition, especially on the interior of the notches. These areas exhibit extensive stacked step and hinge scarring and edge crushing. There is little feather terminated scarring visible across the medial surfaces of the specimen, perhaps due to the extensive cortex present. Instead flake scars extend from the margins to the interior of the medial surfaces, terminating in cortex. The specimen, while not finely flaked, show skill in how the form was shaped using more intensive, less frequent hammer strokes. Of note are the prominences extending from one margin, depicting the eyes of the form.
Presence of pigments/ residues: None

r54
LA244/11
Site: Lamanai
Dimensions (cm) L: 28.5 W: 10.0 Th: 2.7
Technological type: Biface
Presence of cortex: Yes, at one terminus
Raw material appearance: Pale gray and gray and banded brown gray
Presence of polish/ thermal alteration/ coloration: Yes, strong brown color
Context: Structure N10-9/9 large axial cache beneath central staircase (Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: The specimen is made of very fine textured chert with circular inclusions. The medial surfaces of the specimen exhibit lengthy and symmetrical feather terminated flake scarring. Along the lateral margins, shorter feather terminated flake scars are also visible. Some stacked microflaking and edge crushing are also visible along the lateral margins.
Presence of pigments/ residues: Yes, a series of parallel lines, pale red in color extend diagonally 3.0 cm across the cortex at one terminus.

r5
LA395/
Site: Lamanai
Dimensions (cm) L: 38.6 W: 22.3 Th: 4.3
Technological type: Biface
Presence of cortex: No
Raw material appearance: Very pale blue and blue gray with brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive patination. Across the medial portion of the specimen, lengthy feather terminated flake scars are visible. Along the lateral margins, shorter feather terminated flake scars are present. Some localized areas of edge crushing are visible along the margins. At the distal terminus, a series of thin parallel feather terminated flake scars are visible, perhaps giving the impression of a tail. Of note are the protrusions at the opposite terminus that appear to depict the eyes of the form. The specimen overall is heavy and again is effective in portraying the desired effect with few flake scars.
Presence of pigments/ residues: None

r61
LA395/
Site: Lamanai
Dimensions (cm) L: 23.3 W: 15.0 Th: 6.3
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Blue gray and brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature:
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen is not carefully thinned, with few flake scars across the medial surfaces. The lateral margins exhibit extensive abrasion, especially on the interior of the notch. Of note is the extensive stacked flake scarring on the interior of the notch. Some short feather and hinge terminated flake scarring is visible along the margins located on either side of the notch.
Presence of pigments/ residues: None



ah133RP528/6

r5LA395/

Artifact Grouping: Crescent Forms

Two Pronged Crescents (knuckle- dusters)

ah5
RP34/40
Site: Altun Ha
Dimensions (cm) L: 39.3 W: 8.6 Th: 3.0
Technological type: Biface (narrow/ two pronged)
Presence of cortex: Yes, small quantity at one terminus
Raw material appearance: Mottled brown and gray
Presence of polish/ thermal alteration/ coloration: Yes, polish on one prong
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with extensive inclusions. The lateral margins exhibit step and hinge scarring and localized edge crushing. Flake scarring and edge attrition are most obvious along the interior of the crescent in association with short feather terminated flake scarring. Across the medial surfaces of the specimen, short feather terminated flake scars are visible and prevalent. It appears that the flake scarring is symmetrical on the medial surfaces. Of note is the striking platform remnant visible at one terminus.
Presence of pigments/ residue: Yes, some slight traces of residue visible at the distal end of one prong. The residue is brown and orange in color with some pale brown residue that may be some kind of adhesive.

ah162
RP38/46
Site: Altun Ha
Dimensions (cm) L: 33.8 W: 9.2 Th: 2.6
Technological type: Biface (narrow/ two pronged)
Presence of cortex: No
Raw material appearance: Banded very pale brown/ yellow/ gray/ banded gray
Presence of polish/ thermal alteration/ coloration: Yes, polish on one surface
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28
Breakage patterns/ notes: This specimen is made of very fine textured chert. Flake scarring is marked by lengthy feather terminated scars located across the medial surfaces of the specimen. Also, shorter parallel feather terminated flake scars are visible extending from the margins into the interior of the specimen. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring. Edge crushing is prevalent on the interior of the crescent. Of note is the polish

visible on one medial surface of the specimen, near the crescent. It appears that this area exhibit use wear and likely indicates how the specimen was held. This supports the interpretation of what is termed a knuckle- duster.
Presence of pigments/ residues: None

ah259
RP38/54
Site: Altun Ha
Dimensions (cm) L: 46.1 W: 16.2 Th: 2.9
Technological type: Biface (narrow/ two pronged)
Presence of cortex: No
Raw material appearance: Mottled very pale gray and yellowish gray with gray
Presence of polish/ thermal alteration/ coloration: Yes, red brown staining visible at one terminus
Context: Structure E-3/1 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of moderately fine textured material with few fossil inclusions. Lengthy feather terminated flake scars are visible across the medial surfaces of the specimen and on the prongs. On the interior of the margins of the crescent, there is step and hinge terminated flake scarring. Feather terminated flake scarring is also visible along the margins of the prongs, with stacked flake scarring and microflaking more prevalent.
Presence of pigments/ residues: None

ah250
RP200/393
Site: Altun Ha
Dimensions (cm) L: 36.0 W: 9.8 Th: 2.7
Technological type: Biface (narrow/ two pronged)
Presence of cortex: No
Raw material appearance: Mottled gray brown and pale gray with strong brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb (latter part of the Early Classic AD 550)
Appearance in literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with several large oval shaped inclusions. The lateral margins exhibit feather, step, and hinge terminated flake scars, with feather terminated scarring most prevalent along the parallel margins. Stacked flake scarring and edge crushing are more prevalent on the interior of the crescent. Along the medial surfaces, symmetrical feather terminated flake scarring predominates extending in many cases from the margin to the interior of the surface.
Presence of pigments/ residues: None

ah263
RP200/405
Site: Altun Ha
Dimensions (cm) L: 33.1 W: 8.8 Th: 2.0
Technological type: Biface (narrow/ two pronged)
Presence of cortex: No
Raw material appearance: Banded pale brown and brown gray with brown
Presence of polish/ thermal alteration/ coloration: Yes, one margin pale gray
Context: Structure A-1/1 tomb (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 77*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The surfaces of the specimen are marked by extremely fine flaking with symmetrical feather terminated flake scarring visible on both prongs. The interior margin of the crescent, edge crushing and stacked flake scarring is visible. Of note is the oval shaped area that exhibits coloration overlapping crescent margin to both medial surfaces. The area is pale gray in color with a strong brown colored band visible around the perimeter.
Presence of pigments/ residues: None

ah317
RP364/47
Site: Altun Ha
Dimensions (cm) L: 41.8 W: 6.5 Th: 3.5
Technological type: Biface (narrow/ two pronged)
Presence of cortex: No
Raw material appearance: Mottled dark yellowish brown/ pale yellowish brown
Presence of polish/ thermal alteration/ coloration: Yes, yellowish brown
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 68 *ill. 69*
Breakage patterns/ notes: This specimen is made of fine textured material. The specimen is finely flaked with symmetrical feather terminated flake scarring present on both prongs. Along the central medial surfaces, hinge and feather terminated scarring are prevalent. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring with localized areas of edge crushing.
Presence of pigments/ residues: None

ah162RP38/46

ah259RP38/54

ah329
RP364/73
Site: Altun Ha
Dimensions (cm) L: 38.2 W: 8.3 Th: 3.1
Technological type: Biface (narrow/ two pronged)
Presence of cortex: Yes, at one terminus
Raw material appearance: Banded pale brown/ pale gray and very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: The specimen is made of very fine textured chert with some visible inclusions. Flake scarring is symmetrical feather terminated scarring along the medial surfaces of the specimen. The lateral margins exhibit some step and hinge scarring that appears stacked along and to some degree, away from the margins. Also prevalent along the margin on interior of the crescent are short stacked flake scars and localized edge crushing.
Presence of pigments/ residues: None

ah88
RP528/16
Site: Altun Ha
Dimensions (cm) L: 54.3 W: 5.7 Th: 3.3
Technological type: Biface (narrow/ two pronged)
Presence of cortex: No
Raw material appearance: Pale brown gray and brown with gray brown
Presence of polish/ thermal alteration/ coloration: Yes, dark brown coloration
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert that also exhibits patination. The lateral margins are finely flaked and exhibit some edge crushing and stacked microflaking. This pattern is similar on the interior of the crescent. The medial surfaces exhibit relatively lengthy feather terminated flake scarring. One terminus exhibits a snap fracture. Of note is the large dark brown stain that appears to exhibit texture, but is inconclusive.
Presence of pigments/ residue: Yes, large oval shaped brown area of residue visible on the medial surfaces of the crescent.

ah160
RP528/28
Site: Altun Ha
Dimensions (cm) L: 36.4 W: 10.2 Th: 2.6
Technological type: Biface (narrow/ two pronged)
Presence of cortex: No
Raw material appearance: Mottled pale gray/ very pale brown/ gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert with some patination. Both prongs exhibit symmetrical feather terminated flake scarring across the medial surfaces. The crescent also exhibits feather terminated scarring on the medial surfaces. On the lateral margins, a more diverse array of breakage is present, including localized areas of stacked microflaking and edge crushing. This is especially prevalent on the interior margin of the crescent, where short step and hinge terminated flake scars predominate.
Presence of pigments/ residue: None

ah99
RP694/2
Site: Altun Ha
Dimensions (cm) L: 30.4 W: 7.4 Th: 2.5
Technological type: Biface (serrated/ two prongs)
Presence of cortex: No
Raw material appearance: Mottled pale brown and gray
Presence of polish/thermal alteration/ coloration: No
Context: Structure K-33/3 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 364 *ill. 363*
Breakage patterns/ notes: This specimen is made of fine textured chert with bands of coarse textured chert. Also, there is a high density of circular inclusions also present. The lateral margins exhibit stacked step and hinge terminated flake scarring, most prevalent on the interior of the crescent. The margins of the prongs are more finely flaked with short feather terminated flake scarring most prevalent, though stacked microflaking is also present. Short and moderately lengthy feather terminated flake scarring are visible across both medial surfaces.
Presence of pigments/ residues: None

ah160RP528/28

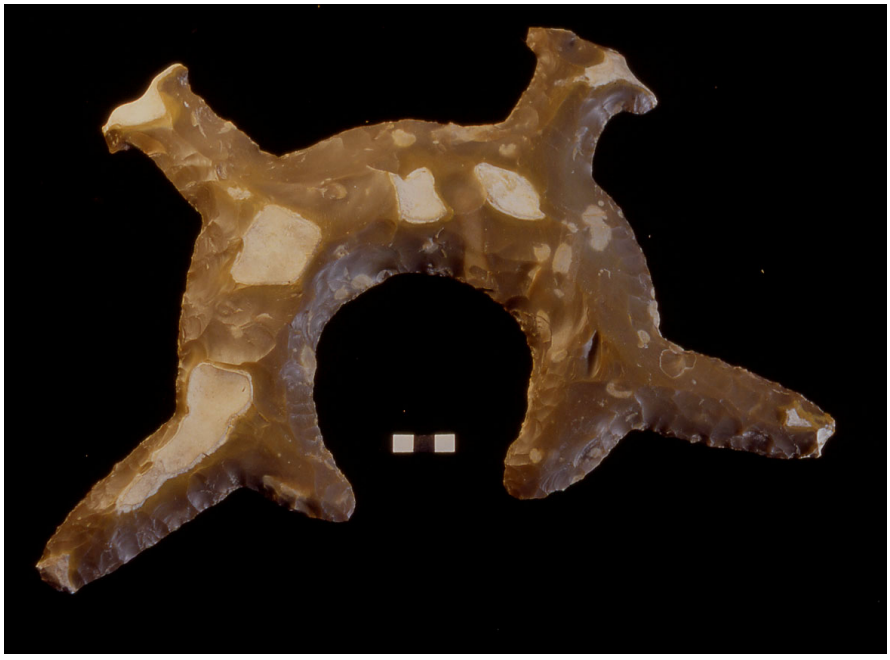
Crescent Forms: Two Pronged and Serrated Crescents

ah100
RP/unknown
Site: Altun Ha
Dimensions (cm) L: 40.0 W: 16.1 Th: 3.8
Technological type: Biface
Presence of cortex: Yes, localized areas on medial surfaces of the specimen
Raw material appearance: Dark brown and brown
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured and uniform chert with few inclusions. Lengthy feather terminated flake scars predominate on the medial surfaces of the specimen. The lateral margins on the interior of the crescent exhibit localized stacked step and hinge terminated flake scarring and some edge crushing. The exterior margins exhibit microflaking and edge crushing, but much less edge crushing in general is present. The medial surfaces of the prongs exhibit short feather terminated flake scarring.
Presence of pigments/ residues: None

ah145
RP34/36
Site: Altun Ha
Dimensions (cm) L: 29.7 W: 8.5 Th: 2.6
Technological type: Biface (serrated/ two pronged)
Presence of cortex: No
Raw material appearance: Mottled gray and very pale gray with brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in literature: Pendergast 1990: 24
Breakage patterns/ notes: This specimen is made of fine textured chert with circular inclusions. Flake scarring visible along the lateral margins shows extensive step and hinge terminated scarring, most prevalent along the interior of the crescent. This margin also exhibits edge crushing. The lateral margins on the prongs show microflaking that terminates in hinges, but also shows feather terminated flake scarring away from the margins. The medial surfaces of the specimen exhibit predominantly feather terminated flake scarring. Of note is the snap fracture visible at the intersection of one prong and the main crescent, as well as the large step fracture visible on one the margin of the crescent.
Presence of pigments/ residues: None

ah126
RP256/57
Site: Altun Ha
Dimensions (cm) L: 24.7 W: 14.8 Th: 2.8
Technological type: Biface (serrated/ two pronged)
Presence of cortex: Yes
Raw material appearance: Banded brown and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen appears to be a zoomorphic form, but clearly fits in to the crescent grouping. The specimen is made of very fine textured chert with no fossil inclusions. The lateral margins exhibit some short feather terminated flake scars along the curve of the crescent. On the interior of the crescent, some localized areas of step and hinge scarring is visible. Along the serrations, localized areas of stacked flake scarring are visible. The edge prominences show little feather terminated scarring. Across the medial surfaces of the specimen, lengthier feather terminated flake scars predominate, but also a large hinge fracture is visible on one medial surface.
Presence of pigments/ residues: None

ah322
RP364/77
Site: Altun Ha
Dimensions (cm) L: 40.2 W: 10.8 Th: 2.8
Technological type: Biface (serrated/ two pronged)
Presence of cortex: Yes, small amount on one medial surface and at one terminus
Raw material appearance: Mottled gray brown/ very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with extensive ovoid inclusions. On the medial surfaces of the specimen lengthier feather terminated flake scarring predominates. On the lateral margins, the interior of the crescent exhibits edge crushing and stacked step and hinge terminated flake scarring. On the margin prominences short feather terminated flake scarring predominates. On the interior of the serrations, short, stacked step and hinge scarring is visible.
Presence of pigments/ residues: None



ah100RP/

ah322RP364/77

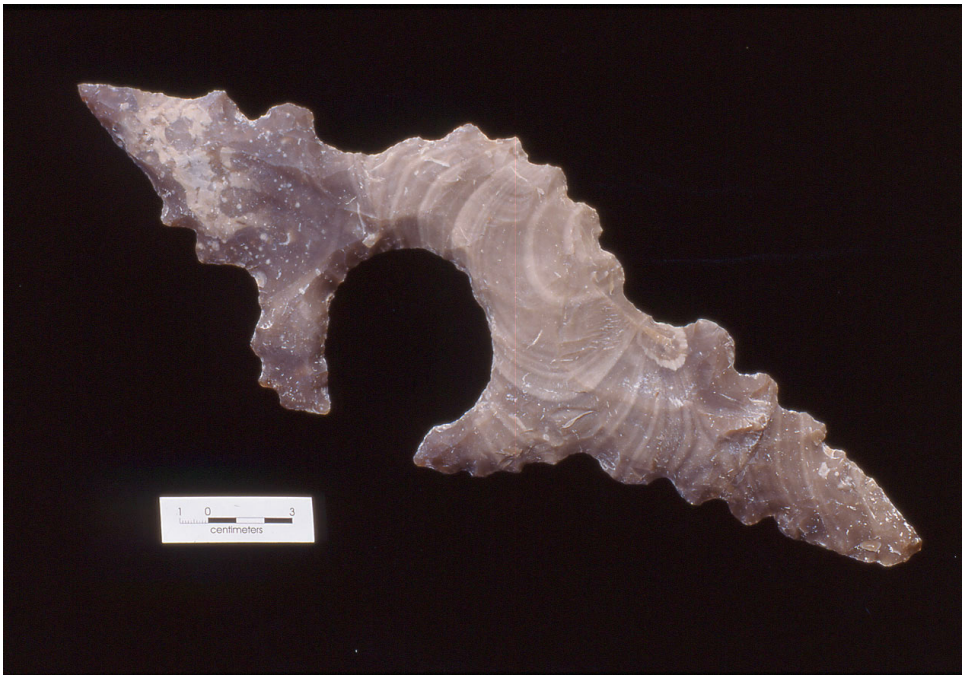
ah315RP364/80

ah315
RP364/80
Site: Altun Ha
Dimensions (cm) L: 35.8 W: 9.3 Th: 3.3
Technological type: Biface (serrated/ two pronged)
Presence of cortex: Yes, small areas visible at each terminus
Raw material appearance: Pale gray brown yellow with brown yellow
Presence of polish/ thermal alteration/ coloration: Yes, color yellowish brown
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with several large inclusions. The medial surfaces of the specimen exhibit broad feather terminated flake scars. Along the lateral margins shorter feather terminated flake scarring is visible. On the interior of the crescent, stacked step and hinge terminated flake scarring is visible. Also visible are some areas of edge crushing. The interiors of the serrations exhibit some edge crushing and the margin prominences exhibit short feather terminated scarring. Of note is the striking platform visible at one terminus.
Presence of pigments/ residues: None

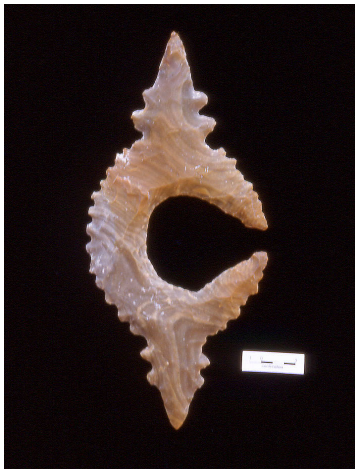
r12
LA/unknown
Site: Lamanai
Dimensions (cm) L: 34.6 W: 12.4 Th: 2.1
Technological type: Biface (serrated/ two pronged)
Presence of cortex: No
Raw material appearance: Banded gray/ pale gray/ grayish brown and dark gray
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert with few inclusions. The banding is very well defined and is clearly northern Belize chert. The specimen exhibits heavy step and hinge scarring along the lateral margins. Edge crushing is visible on the interior of the serrations and the interior of the crescent. The interior of the crescent also exhibits short feather terminated flake scarring originating at the edge of the margin. The specimen is thin, with relatively lengthy feather terminated flake scarring present across the medial surfaces of the specimen. Short feather terminated flake scars are present at both termini as well as the medial surfaces. Of note is the form of the artifact that suggests perhaps a depiction of a celestial event, such as a planetary convergence. This specimen is a contrast from the knuckle- duster forms.
Presence of pigments/ residues: None

r73
LA69/
Site: Lamanai
Dimensions (cm) L: 33.5 W: 15.5 Th: 1.9
Technological type: Biface (serrated/ two pronged)
Presence of cortex: No
Raw material appearance: Banded gray and pale gray with strong brown
Presence of polish/ thermal alteration/ coloration: Yes, strong brown staining
Context: Structure N10-4 burial (Late Postclassic likely interred circa AD 1400)
Appearance in the literature: Pendergast 1981: 47- 48 (burials described)
Breakage patterns/ notes: This specimen is made of very fine textured chert. Overall, the specimen is finely flaked with margin attrition, most prevalent on the interior of the crescent. The margin on the interior of the crescent exhibit extensive stacked step and hinge terminated flake scarring in the form of microflaking and short feather terminated flake scarring away from the margin. The interiors of serration on exterior margin also exhibit stacked microflaking. The medial surfaces of the specimen exhibit both short and lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

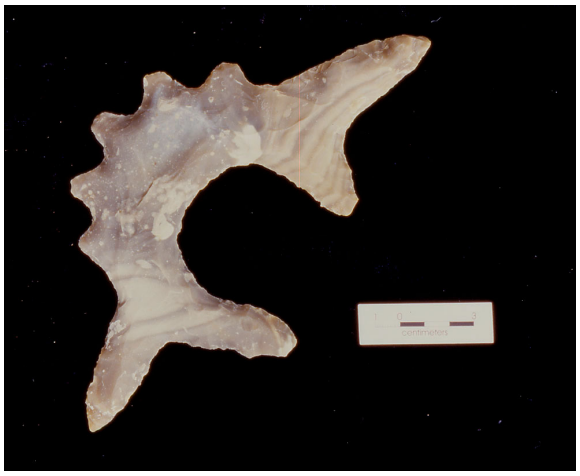
r30
LA682/
Site: Lamanai
Dimensions (cm) L: 21.2 W: 12.3 Th: 1.8
Technological type: Biface (serrated/ two pronged)
Presence of cortex: Yes, small quantity on one medial surface
Raw material appearance: Banded pale gray and dark brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-15/6 small axial cache north stair (L. Classic AD 850)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with crystallized inclusions. The lateral margins exhibit a similar breakage pattern as other specimens. Short feather terminated flake scars are visible along the lateral margins, with stacked microflaking and edge crushing also prevalent. Across the medial surfaces, lengthy feather terminated flake scars are visible. Several lengthy hinge terminated flake scars are visible on one medial surface.
Presence of pigments/ residues: None



r12LA/



r73LA69/



r30LA682/

Crescent Forms: Double Crescent Forms

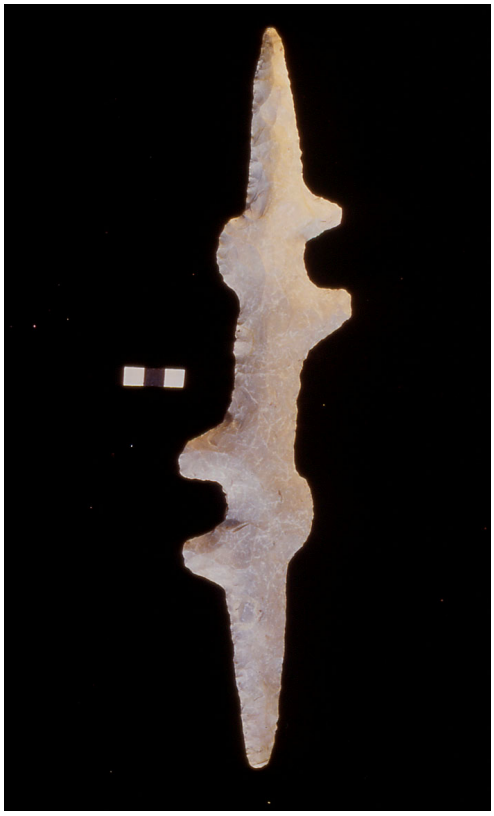
ah69
RP34/39
Site: Altun Ha
Dimensions (cm) L: 31.4 W: 6.8 Th: 2.8
Technological type: Biface (elongated/ narrow)
Presence of cortex: Yes
Raw material appearance: Mottled gray/ pale brown and pale brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of fine textured chert with a more coarse textured area visible along one lateral margin. The specimen is relatively thick and bi- convex in cross section with localized step and hinge scarring stacked along both lateral margins. This breakage pattern is especially prevalent on the interior of the crescents. Edge crushing is also visible in this area of the margin. One lateral margin exhibits extensive stacked scarring indicating coarse textured material that could not be thinned. Medial surfaces of the specimen exhibit short feather terminated flake scarring.
Presence of pigments/ residues: None

ah264
RP200/385
Site: Altun Ha
Dimensions (cm) L: 33.0 W: 7.4 Th: 2.6
Technological type: Biface (notched/ elongated)
Presence of cortex: No
Raw material appearance: Uniform brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with some oval shaped inclusions visible. The specimen is relatively thick with localized stacked step and hinge terminated flake scarring present along the lateral margins. Extensive stacked step and hinge terminated scarring and edge crushing are visible on the interior of the crescent notches. Lengthy and short feather terminated flake scarring are visible along the medial surfaces of the specimen. Also, some short symmetrical feather terminated flake scars are visible along the stem.
Presence of pigments/ residues: None

ah266
RP200/386
Site: Altun Ha
Dimensions (cm) L: 38.0 W: 6.7 Th: 2.1
Technological type: Biface (elongated/ narrow)
Presence of cortex: Yes
Raw material appearance: Mottled gray and pale brown with very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with extensive inclusions. Overall, the specimen is narrow and the surfaces exhibit both feather, step, and hinge terminated scarring. The lateral margins exhibit localized stacked flake scarring and edge crushing, most prevalent on the interior of the crescents. At the terminus of the stem connecting the two crescents, short and symmetrical feather terminated flake scarring originates behind the edge attrition and extends inward to the medial ridge.
Presence of pigments/ residues: None

ah161
RP528/26
Site: Altun Ha
Dimensions (cm) L: 36.0 W: 6.4 Th: 2.6
Technological type: Biface (elongated/ narrow)
Presence of cortex: No
Raw material appearance: Mottled very pale gray/ gray/ pale yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 (Post abandonment AD 1100)
Appearance in literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert that exhibits coarse textured inclusions. The specimen overall is narrow but relatively thick with short feather terminated flake scars visible across the medial surfaces. Along the lateral margins, flake scarring is more diverse, with stacked step and hinge terminated scarring visible. The margins also exhibit feather and hinge terminated scarring with hinge fractures and edge crushing also visible. Edge crushing/ attrition is more prevalent on the interior of the notches.
Presence of pigments/ residues: None

ah266RP200/386



ah161RP528/26

Crescent Forms: Serrated, Barbed, and Single Pronged Crescents

ah219
RP0/6
Site: Altun Ha
Dimensions (cm) L: 21.3 W: 17.2 Th: 2.5
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Mottled pale gray and very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure J-9 cache
Appearance in literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. The margins exhibit heavy and lengthy step and hinge terminated flake scarring. On the interior of the large notch extensive stacked step scarring is visible in association with extensive edge crushing. The medial surfaces exhibit larger feather terminated flake scarring.
Presence of pigments/ residues: None

ah112
RP98/27
Site: Altun Ha
Dimensions (cm) L: 15.3 W: 10.4 Th: 2.4
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Mottled very pale brown and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-3/1 cache (Late Classic AD 600- 900)
Appearance in the literature: Pendergast 1990: 67 *ill. 115*
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen is thickness along the main portion and thins out at each terminus. The lateral margins exhibit localized areas of stacked flake scarring and edge crushing, most prevalent on the interior of the serrations. The interior of the crescent along the margin exhibits extensive stacked step and hinge scarring and edge crushing. The medial surfaces exhibit short feather terminated flake scarring.
Presence of pigments/ residues: None

ah2
RP102/9
Site: Altun Ha
Dimensions (cm) L: 15.0 W: 11.5 Th: 1.4
Technological type: Biface (serrated/ one prong)
Presence of cortex: Yes, small quantity visible on one surface
Raw material appearance: Mottled pale gray/ blue/ pale blue
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces exhibit little flake scarring. The lateral margins exhibit extensive and short feather terminated flake scarring with localized areas of edge crushing and stacked microflaking, especially prevalent on the interior of the serrations. Of note is the curvature of the specimen in profile that suggests it was produced on a macroflake.
Presence of pigments/ residues: None

ah108
RP131/1
Site: Altun Ha
Dimensions (cm) L: 15.8 W: 9.3 Th: 2.3
Technological type: Biface (serrated/ one pronged)
Presence of cortex: No
Raw material appearance: Mottled dark brown with blue gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-51/1 cache underneath floor 3 (AD 800- 825)
Appearance in the literature: Pendergast 1990: 231
Breakage patterns/ notes: This specimen is made of very fine textured chert with few inclusions. The medial surfaces of the specimen exhibit short and lengthy feather terminated flake scarring. The lateral margins exhibit stacked step and hinge scarring and edge crushing, most prevalent on the interior of the crescent where stacked flake scarring is clearly visible. This breakage pattern is also visible on the interior of the serrations along lateral margins, though the areas are much smaller.
Presence of pigments/ residues: None

ah301
RP163/3
Site: Altun Ha
Dimensions (cm) L: 24.6 W: 19.4 Th: 2.2
Technological type: Biface (serrated/ one prong)
Presence of cortex: No
Raw material appearance: Banded very pale brown and brown with tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/2 cache above floor 1 (Early Postclassic AD 900- 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars. The interiors of the crescent along the margins exhibit localized stacked step and hinge terminated flake scarring. Edge prominences show short feather terminated flake scarring for the most part.
Presence of pigments/ residues: None

ah14
RP256/53
Site: Altun Ha
Dimensions (cm) L: 25.2 W: 13.8 Th: 4.1
Technological type: Biface (elongated/ one prong)
Presence of cortex: No
Raw material appearance: Tan brown and mottled tan brown and pale brown
Presence of polish/ thermal alteration/ coloration: Yes, polish and staining appear to delineate an eye of the specimen
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen is thick, the medial surfaces of the specimen illustrate numerous step and hinge flake scars on one margin. There are also hinge scars on the medial surfaces of the specimen. Along the prong, symmetrical feather terminated flake scarring predominates. The lateral margins show stacked microflaking and edge crushing, especially prevalent on the interior of the crescent. Of note is the coloration and staining that appears to depict an eye in profile. Also, extensive polish visible on the prong suggests that the specimen was handled extensively.
Presence of pigments/ residues: None

ah301RP163/3

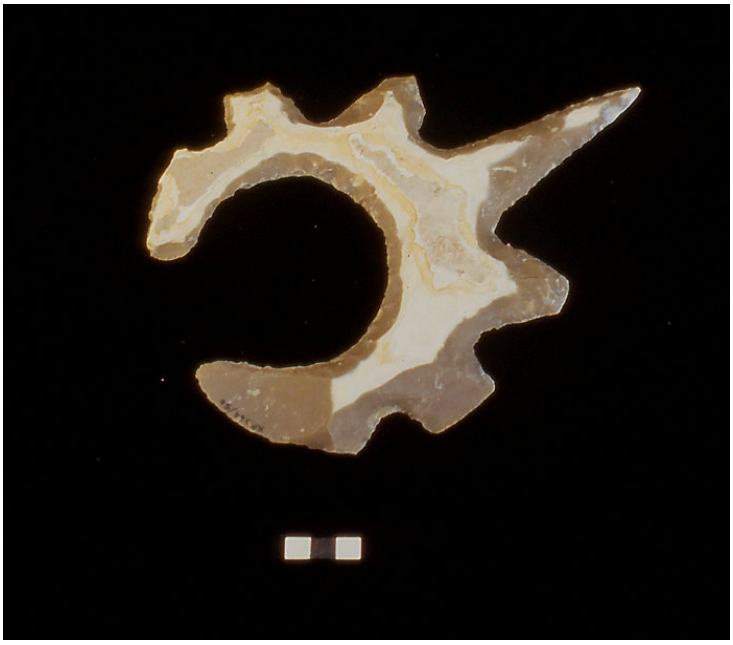
ah14RP256/53

ah122
RP256/59
Site: Altun Ha
Dimensions (cm) L: 37.1 W: 23.2 Th: 3.5
Technological type: Biface (serrated/ one prong)
Presence of cortex: Yes, on one medial surface
Raw material appearance: Brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache II (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen is made of very fine textured chert with extensive inclusions and some coarse textured areas also visible. The lateral margins exhibit feather terminated flake scarring interspersed with short step and hinge scarring. On the interior of the crescent and the serrations there are areas of stacked step and hinge terminated flake scarring. On the interior of the crescent, edge crushing is also visible. Of note is the oval shaped area of cortex that may depict an eye in profile.
Presence of pigments/ residues: None

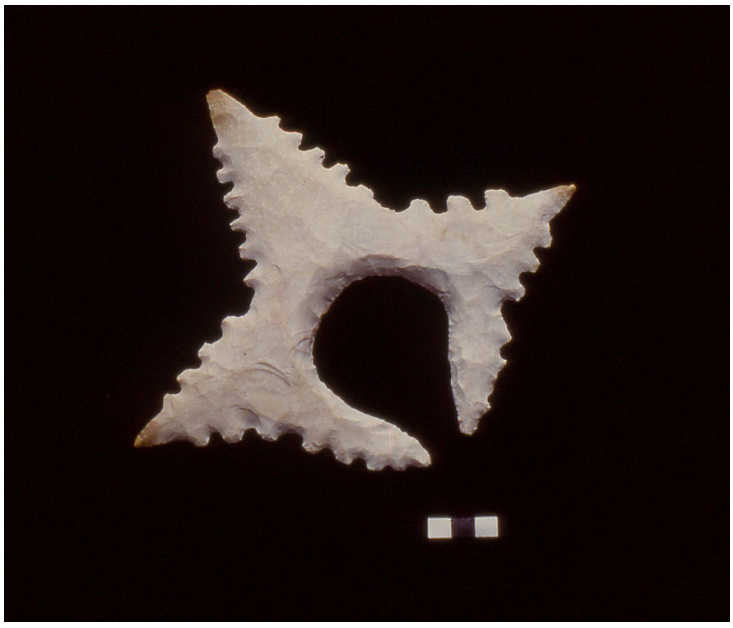
ah326
RP364/56
Site: Altun Ha
Dimensions (cm) L: 23.4 W: 18.5 Th: 1.7
Technological type: Biface (notched/ one prong)
Presence of cortex: Yes, extensive cortex on medial surface
Raw material appearance: Dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 70 *ill. 69*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The lateral margins exhibit short feather terminated flake scarring and short stacked step and hinge scarring, especially prevalent on the interior of the crescent. There is little edge crushing visible. The interiors of the notches exhibit extensive stacked step and hinge terminated flake scarring. The medial surfaces exhibit short feather terminated flake scarring, especially prevalent on the single prong. The specimen may be a personified form.
Presence of pigments/ residues: Yes, yellow pigment residue is visible on the cortex.

ah32
RP528/1
Site: Altun Ha
Dimensions (cm) L: 50.0 W: 48.7 Th: 5.8
Technological type: Biface (serrated)
Presence of cortex: Yes
Raw material appearance: Pale brown and gray with yellow brown and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 368 *ill. 365*
Breakage patterns/ notes: This massive specimen is made of coarse textured chert. The lateral margins exhibit heavy and stacked step and hinge terminated flake scarring. Also on the interior of the serrations, stacked step and hinge scarring are also visible. Feather terminated flake scars are also visible on the lateral margins, specifically on the edge prominences. On the medial surfaces, short and lengthy feather terminated flake scars predominate. Of note is the large area of cortex visible on the dorsal surface.
Presence of pigments/ residues: None

ah87
RP528/8
Site: Altun Ha
Dimensions (cm) L: 38.7 W: 21.2 Th: 3.8
Presence of cortex: Yes
Raw material appearance: Mottled gray/ blue gray with brown/ strong brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 368 *ill. 371*
Breakage patterns/ notes: This specimen appears to be a partial production failure as shown by the large snap fracture along one lateral margin. One margin is faceted and appears to have been struck numerous times with little flake scarring produced. The specimen is made of moderately fine textured chert with circular inclusions that are likely fossils. The lateral margins are not finely flaked. The interior of the crescent exhibits stacked step and hinge terminated flake scarring. On the exterior margin, localized areas of stacked flake scarring and edge crushing are visible. Across the medial surfaces of the specimen lengthy feather terminated flake scars are prevalent.
Presence of pigments/ residues: None



ah326RP364/56



ah30RP657/10

ah30
RP657/10
Site: Altun Ha
Dimensions (cm) L: 23.3 W: 20.6 Th: 2.0
Presence of cortex: No
Raw material appearance: Mottled very pale gray white and some tan brown
Presence of polish/ thermal alteration: No
Context: Structure C-16/1 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 216
Breakage patterns/ notes: This specimen is made of fine textured chert with multiple inclusions. In general, the specimen is finely flaked with little attrition visible along the margins. The interior of the crescent exhibits some step and hinge scarring necessary in order to shape the crescent. Interior of serrations exhibit stacked microflaking, while the edge prominences exhibit short feather terminated flake scarring. One area of the ventral surface could not be thinned evidenced by step terminations around the area. In general, the medial surfaces exhibit lengthy and short feather terminated flake scarring.
Presence of pigments/ residue: None

r18
LA/unknown
Site: Lamanai
Dimensions (cm) L: 26.3 W: 13.8 Th: 3.2
Technological type: Biface (serrated/ one prong)
Presence of cortex: Yes
Raw material appearance: Mottled dark gray and dark brown
Presence of polish/ thermal alteration/ coloration: Polish visible at the terminus of one prong
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of coarse textured chert with small circular inclusions visible. The specimen exhibits a snap fracture at the medial portion of the crescent, thus a large portion is missing. The lateral margins exhibit stacked flake scarring, most prevalent on the interior of the crescent where step and hinge terminated flake scarring is most prevalent. The external margin along the interior of serrations also exhibits extensive stacked flake scarring. The one prong actually is finely flaked along its medial surface, though step and hinge scarring is visible along the margins. The medial surfaces of the specimen exhibit relatively lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

r75
LA/unknown
Site: Lamanai
Dimensions (cm) L: 36.0 W: 26.0 Th: 3.9
Technological type: Biface (serrated/ one prong)
Presence of cortex: Yes
Raw material appearance: Brown and brown gray
Presence of polish/ thermal alteration/ coloration: No
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of coarse textured chert with numerous inclusions. One medial surface exhibits a large area of cortex, but also is marked by lengthy and short feather terminated flake scarring. The lateral margins exhibit some feather terminated scarring, but more prevalent are steep step and hinge scars, especially on the interior of the serration. The interior of the crescent exhibits feather terminated scarring and localized areas of stacked microflaking and edge crushing closer to the edge of the margin. Of note is that the cortex appears to be burnished and smoothed via abrasion.
Presence of pigments/ residues: None

r8
LA694/38
Site: Lamanai
Dimensions (cm) L: 17.0 W: 15.4 Th: 2.2
Technological type: Biface (barbed crescent)
Presence of cortex: No
Raw material appearance: Brown gray and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10- 15/8 cache beneath north staircase (T. Classic AD 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The appearance of the material marks it as originating in northern Belize. The medial surfaces of the specimen exhibit lengthy and short feather terminated flake scarring. The lateral margins exhibit short feather terminated flake scarring with localized areas of stacked step and hinge terminated scarring and edge crushing. Of note short is the feather terminated scarring visible on barbs.
Presence of pigments/ residues: None

r18LA/

r8LA694/38

Crescent Forms: Simple Crescents

ah35
RP38/59
Site: Altun Ha
Dimensions (cm) L: 23.6 W: 21.7 Th: 3.1
Technological type: Biface
Presence of cortex: Yes, small quantity on one margin
Raw material appearance: Mottled pale brown gray/ brown yellow/ gray brown
Presence of polish/ thermal alteration/ coloration: Yes, some dark yellow brown visible on one surface
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in literature: Pendergast 1990: 28
Breakage patterns/ notes: This specimen is made of fine textured chert with numerous inclusions. The lateral margins exhibit edge crushing and localized step and hinge scarring, as well as short feather terminated flake scarring, especially prevalent on the interior of the crescent. The exterior lateral margin is finely flaked with some localized areas of stacked flake scarring. In general, the medial surfaces exhibit large feather terminated flake scars. Of note is the surface coloration, one very pale gray area appears to depict an eye and the second is an area of yellowish brown coloration that may indicate iron staining.
Presence of pigments/ residues: None

ah328
RP364/62
Site: Altun Ha
Dimensions (cm) L: 27.0 W: 5.8 Th: 3.8
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded pale gray and brown pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache III (Late Classic AD 600)
Appearance in literature: Pendergast 1982: 70 *ill. 69*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Lengthy feather terminated flakes scars are most apparent on the medial surfaces of the specimen. Overall the specimen is thick. Along the lateral margins, the interior of the crescent shows extensive stacked step and hinge terminated flake scarring. This pattern is also visible on the external margin, though short feather terminated flake scarring is more prevalent on this margin. Localized areas of edge crushing are also present on both margins.
Presence of pigments/ residues: None

ah55
RP545/3
Site: Altun Ha
Dimensions (cm) L: 15.0 W: 6.7 Th: 3.1
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Pale brown and gray; dark brown and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with some coarse textured inclusions. The lateral margins exhibit stacked step and hinge terminated flake scarring. This pattern is especially prevalent along the interior of the crescent. Also stacked step and hinge scarring is visible on the exterior margin. More lengthy feather terminated flake scarring is visible across the medial surfaces of the specimen.
Presence of pigments/ residues: None

ah38
RP593/7
Site: Altun Ha
Dimensions (cm) L: 19.7 W: 8.3 Th: 4.3
Technological type: Biface
Presence of cortex: No
Raw material appearance: Gray/ pale brown with dark yellowish brown
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown coloration visible on one surface
Context: Structure C-13/7B cache (Early Classic AD 400- 450)
Appearance in the literature: Pendergast 1982: 192
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured chert also visible. The ventral surface exhibits no medial flake scarring. This combined with the striking platform remnant located at one terminus indicates the specimen was produced on a macroflake- blade. The lateral margin on the interior of the crescent exhibits extensive short feather terminated flake scarring and stacked step and hinge scarring. The exterior margin is finely flaked with some edge attrition visible, but is marked by feather terminated flake scarring. Broad feather terminated flake scars are visible on both medial surfaces.
Presence of pigments/ residues: Yes, reddish and dark brown residue visible. More prevalent is the dark yellowish brown staining visible on the dorsal surface of specimen.

ah56
RP593/12
Site: Altun Ha
Dimensions (cm) L: 14.2 W: 5.6 Th: 2.4
Technological type: Biface
Presence of cortex: Yes, extensive area across one medial surface
Raw material appearance: Mottled gray dark brown; banded pale brown/ brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-13/7E cache
Appearance in the literature: Pendergast 1982: 192
Breakage patterns/ notes: This specimen is made of fine textured chert. Circular inclusions are visible but not extensive. The lateral margins exhibit stacked step and hinge terminated flake scarring, primarily on the interior of the crescent. Some edge crushing is visible adjacent to the stacked flake scarring. The specimen exhibits lengthy flake scars across the ventral surface of the specimen. Dorsal and ventral surfaces are determined by the slight curve of the specimen visible in profile. This curvature also indicates that the specimen was produced on a macroflake- blade.
Presence of pigments/ residues: None

ah93
RP694/15
Site: Altun Ha
Technological type: Biface (narrow)
Presence of cortex: Yes, very small quantity on medial surfaces
Raw material appearance: Mottled pale gray lightly banded gray yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/3 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 364 *ill. 365*
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured inclusions. The specimen is narrow and bi- convex in cross section but is finely flaked. The interior margin of the crescent shows stacked microflaking and edge crushing. However, there is little lengthy step and hinge scarring visible. Along the exterior margin, edge crushing is prevalent with short, stacked microflaking but overall, no obvious attrition. More prevalent along the exterior margin, short barbs on the same margin, and the medial surfaces in general are broad symmetrical feather terminated flake scarring.
Presence of pigments/ residues: None

ah35RP38/59

ah93RP694/15

ah57
RP697/7
Site: Altun Ha
Technological type: Biface
Presence of cortex: Yes, small quantity on one margin
Raw material appearance: Mottled very pale brown/ tan brown/ gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/6 cache beneath floor (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 362 *ill. 363*
Breakage patterns/ notes: This specimen is made of fine textured chert interspersed with much more coarse textured material. Inclusions are large but infrequent. The lateral margins exhibit localized stacked step and hinge terminated flake scarring. However, the exterior margin is much thinner than that located on the interior of the crescent. The interior of the crescent exhibits more numerous areas of stacked flake scarring. The medial surfaces of the specimen exhibit broad flake scarring with feather and hinge terminations.
Presence of pigments/ residues: None

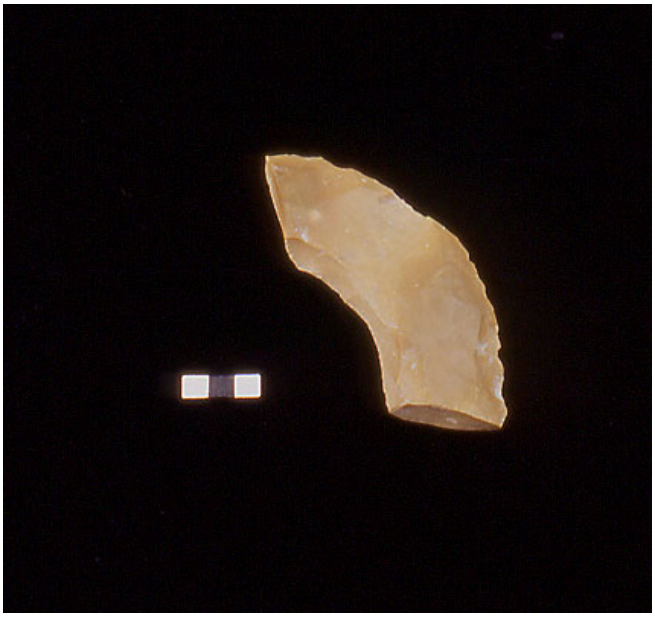
cr24
CH2002/1- 1
Site: Colha
Dimensions (cm) L: 10.5 W: 8.4 Th: 1.5
Technological type: Biface
Presence of cortex: No
Raw material appearance: Dark brown with yellow and pale yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, sheen or polish visible across the medial surfaces of the specimen
Context: Operation 2002 large platform and workshop deposit located just south of the central precinct (Late Preclassic 400 BC- AD 250)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with fairly large oval shaped inclusions visible in the matrix of the material. The specimen exhibits a snap fracture at one end, indicating it is incomplete. Indeed, the complete form may or may not be a crescent form. The medial surfaces of the specimen exhibit short and moderately lengthy feather terminated flake scarring. The lateral margins exhibit some attrition with stacked microflaking in the form of step and hinge terminated flake scarring. Extensive stacked flake scarring is visible on the interior of the crescent. One terminus exhibits margin thinning and a small notch, the interior of which exhibits stacked microflaking. Of note is the sheen across the surfaces of the specimen.
Presence of pigments/ residues: None

cr73
CH2002/1- 3
Site: Altun Ha
Dimensions (cm) L: 10.2 W: 4.8 Th: 1.9
Technological type: Biface
Presence of cortex: No
Raw material appearance: Tan brown and pale brown with pale brown red
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration
Context: Operation 2002 large platform and workshop deposit located just south of the central precinct (Late Preclassic 400 BC- AD 250)
Appearance in the literature: Probst 1984: 7- 8 *ill. 52*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert. There are snap fractures at each end of the form, indicating that the form is incomplete. Some coarse textured chert is visible in the matrix of the material. The specimen is not finely flaked, and exhibits relatively lengthy flake scars that terminate as hinges and steps. The lateral margins exhibit extensive hinge and step terminated flake scars. The areas adjacent to the snap fractures exhibit localized stacked scarring and edge crushing.
Presence of pigments/ residues: None

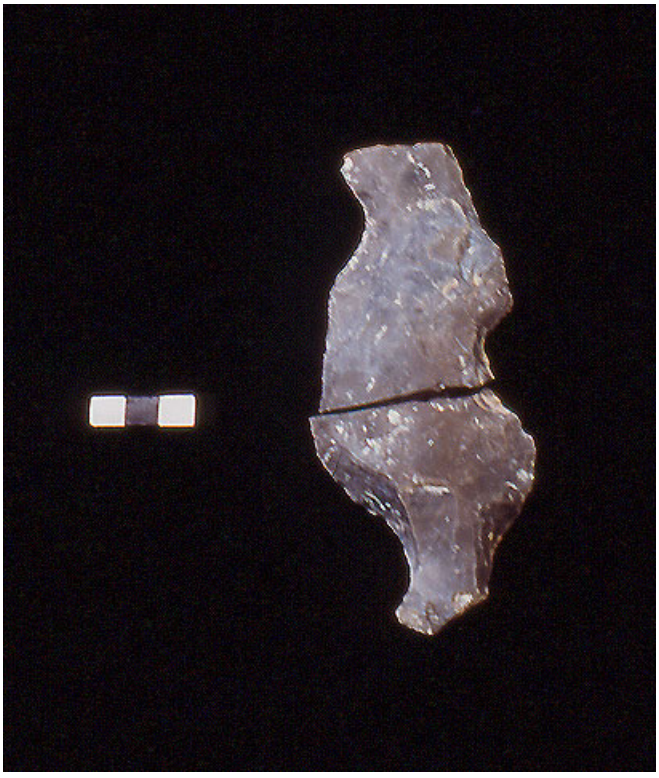
cr26
CH2008/12- 3
Site: Altun Ha
Dimensions (cm) L: 14.6 W: 5.0 Th: 2.0
Technological type: Biface
Presence of cortex: No
Raw material appearance: Uniform tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2008 domestic platform (Late Classic AD 600- 800)
Appearance in the literature: Escobedo 1981: 116; Probst 1984: 9 *ill. 49*
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit some edge attrition. The exterior margin of the curve exhibits edge crushing and sporadic step and hinge terminated flake scarring. The interior margin exhibits more extensive edge crushing with larger stacked flake scarring visible. The medial surfaces exhibit relatively lengthy feather terminated flake scarring. Of note are the two snap fractures visible at each end of the specimen. These fractures indicate that the specimen is incomplete.
Presence of pigments/ residues: None

cr70
CH2012/13- 15(4)
Site: Colha
Dimensions (cm) L: 14.3 W: 6.1 Th: 1.9
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded dark brown and gray; dark blue gray
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration/ burning is visible on the surfaces of the specimen
Context: Operation 2012 cache in west structure of main plaza in central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 11- 12(10A and 10B) *ill. 38*
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen has been burned extensively. The specimen exhibits a snap fracture across the medial surface, but both pieces clearly fit together. The lateral margins show primarily short feather terminated flake scarring as well as stacked step and hinge terminated flake scarring and edge crushing visible on the interior of the crescent. The medial surfaces exhibit short and moderate length feather terminated flake scarring. Both ends of the specimen exhibit snap fractures. Pot lid fractures are present on both medial surfaces.
Presence of pigments/ residues: None

cr71
CH4001/1- 1
Site: Colha
Dimensions (cm) L: 6.3 W: 3.4 Th: 1.0
Technological type: Biface
Presence of cortex: No
Raw material appearance: Uniform tan brown
Presence of polish/ thermal alteration/ coloration: Yes, polish/ therm. alt.
Context: Operation 4001 workshop deposit (Late Preclassic 400 BC- AD 250)
Appearance in the literature: Probst 1984: 14 *ill. 49*
Breakage patterns/ notes: This specimen is made of very fine textured chert with few inclusions visible. The specimen exhibits a snap fracture across the base of the specimen, indicating the form is incomplete. The specimen is finely flaked with some stacked microflaking visible along the lateral margins. Short feather terminated flake scarring is also visible on the lateral margins, specifically on the interior of the curve/ notch. The medial surfaces exhibit short to moderate length feather terminated flake scarring. Of note is an area of polish and staining that indicates the specimen has been thermally altered.
Presence of pigments/ residues: No



cr26CH2008/12-3



cr70CH2012/13-15

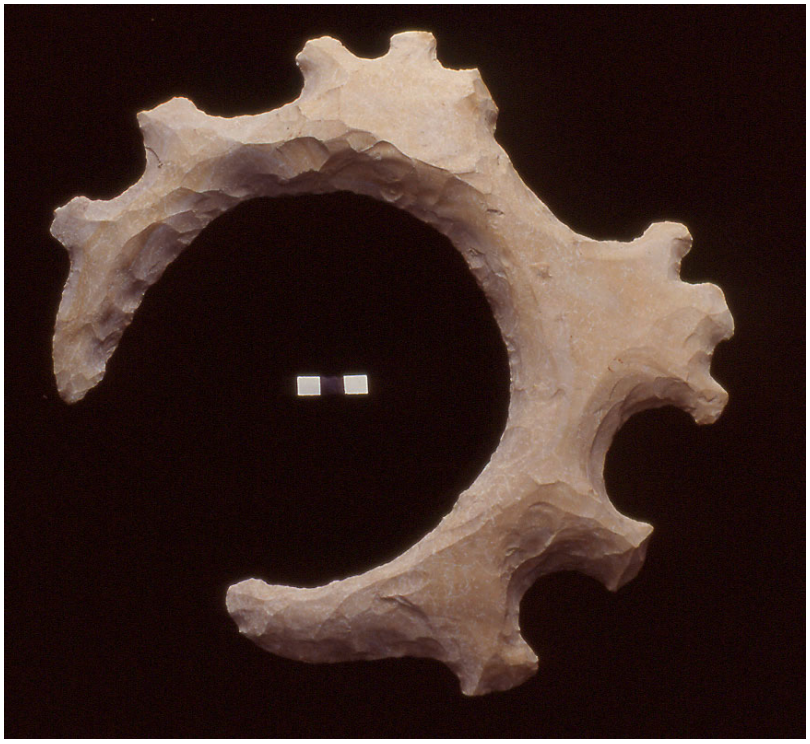
Crescent Forms: Personified Crescents (Celestial/ Earth Monsters)

ah20
RP34/53
Site: Altun Ha
Dimensions (cm) L: 30.8 W: 26.3 Th: 4.0
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled pale brown and very pale brown with brown
Presence of polish/ thermal alteration/ coloration: Yes, subtle color changes
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of fine textured chert that exhibits large quantities of linear inclusions. The lateral margins on the interior of the crescent shows extensive step and hinge terminated flake scarring that appears stacked. The exterior margin, specifically on the interior of the notches shows a similar breakage pattern. The edge prominences exhibit more short feather terminated flake scarring. The medial surfaces of the specimen exhibit broad and lengthy feather terminated flake scarring. Of note is the slight coloration visible on one edge prominence near terminus. This suggests an eye in profile.
Presence of pigments/ residues: None

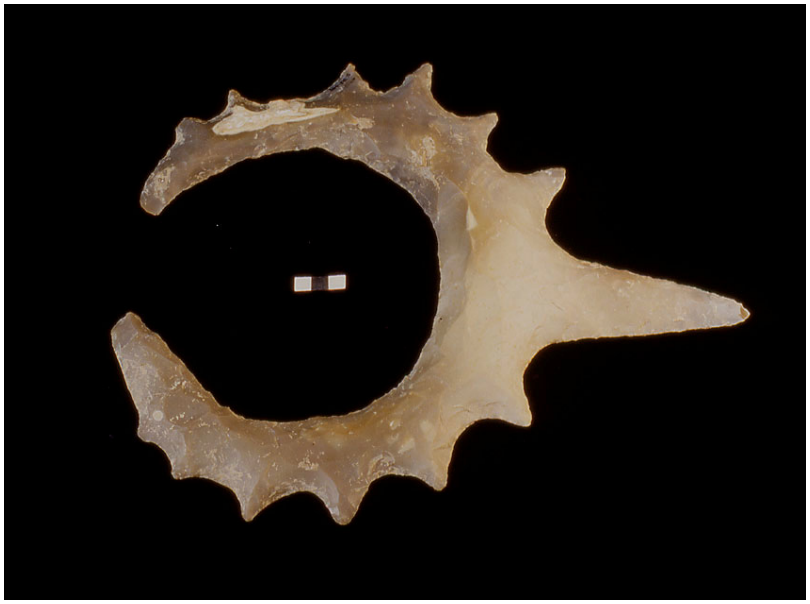
ah230
RP35/11
Site: Altun Ha
Dimensions (cm) L: 19.6 W: 18.1 Th: 2.1
Technological type: Biface (serrated)
Presence of cortex: Yes, appears to delineate an eye in profile
Raw material appearance: Mottled brown gray and pale blue gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 38 *ill. 41*
Breakage patterns/ notes: This specimen is made of fine textured chert with oval shape coarse textured inclusions. Across the medial surfaces of the specimen lengthy feather and hinge terminated flake scars are visible. The interior of the crescent exhibits stacked step and hinge terminated flake scarring and edge crushing along the margin. The opposite margin, on the exterior, localized stacked flake scarring and edge crushing is visible on the interior of the notches. The medial surfaces of the edge prominences exhibit short feather and hinge terminated scarring. Of note is location of cortex that appears to delineate an eye.
Presence of pigments/ residues: None

ah183
RP35/30
Site: Altun Ha
Dimensions (cm) L: 36.4 W: 30.0 Th: 3.8
Technological type: Biface (barbed/ one prong)
Presence of cortex: Yes, appears delineate eye in profile
Raw material appearance: Dark gray brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 42 *ill. 43*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The lateral margins of the prong exhibit small feather terminated flake scarring executed to thin this portion of the specimen. Along the margins, the edge prominences exhibit short feather terminated flake scarring. The interior of the barbs and the interior margin of the crescent exhibit short, stacked step and hinge terminated flake scarring. Medial surfaces exhibit primarily feather terminated flake scarring. Of note is the cortex that appears on one medial surface. The cortex is oblong in shape and narrow with yellowish brown banding around the perimeter, this area appears to delineate an eye.
Presence of pigments/ residues: None

ah288
RP38/66
Site: Altun Ha
Dimensions (cm) L: 28.4 W: 8.6 Th: 4.2
Technological type: Biface (barbed)
Presence of cortex: Yes, medial surfaces exhibit parallel incised lines- scraping
Raw material appearance: Pale tan brown and pale tan brown
Presence of polish/ thermal alteration/ coloration: Yes, dark yellow/ brown
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of fine textured chert. Extensive cortex is visible on the medial surfaces. The medial surfaces are also marked by lengthy feather terminated flake scarring. However, many flake scars on medial surfaces exhibit step and hinge terminations caused by the medial cortex. The lateral margins exhibit a similar breakage pattern in that the interior of the crescent and the interiors of the notches exhibit stacked microflaking and edge crushing. The edge prominences exhibit less obvious stacked flake scarring and more prevalent feather terminated flake scarring. Of note is the pale area that appears to delineate an eye.
Presence of pigments/ residues: Yes, there two primary areas of pale yellow pigment visible on the cortex of one medial surface.



ah20RP34/53



ah183RP35/30

ah245
RP38/68
Site: Altun Ha
Dimensions (cm) L: 43.4 W: 33.8 Th: 5.8
Technological type: Biface (barbed/ one prong)
Presence of cortex: Yes, exhibit parallel, incised lines indicating scraping
Raw material appearance: Banded brown and pale brown
Presence of polish/ thermal alteration/ coloration: Yes, red/ brown on cortex.
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is large and appears to be a personified form. The specimen is comprised of fine textured chert that exhibits extensive hollows in the surface of the material. These hollows hindered the thinning process. Along the lateral margins, extensive stacked step and hinge terminated flake scarring and edge crushing are visible on the interior of the crescent and the interior of the notches. Medial surfaces of the prong exhibit short feather terminated flake scarring. Of note is stain on cortex that appears to depict an eye.
Presence of pigments/ residues: There is coloration present on the cortex that may be pigment residue.

ah241
RP38/69
Site: Altun Ha
Dimensions (cm) L: 19.6 W: 19.0 Th: 4.0
Technological type: Biface (barbed/ one prong)
Presence of cortex: No
Raw material appearance: Banded pale gray brown and gray
Presence of polish/ thermal alteration/ coloration: Yes, very pale gray coloration/ stain visible on one medial surface
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. Along the lateral margins, especially on the interior of the crescent are areas of stacked step and hinge terminated scarring. Some edge crushing is also visible on the interior of the barbs. The medial surfaces of the specimen and the barbs exhibit feather terminated flake scarring. Of note are several areas of discoloration that appear to perhaps depict the location of an appliqué, perhaps part of the eye.
Presence of pigments/ residues: None

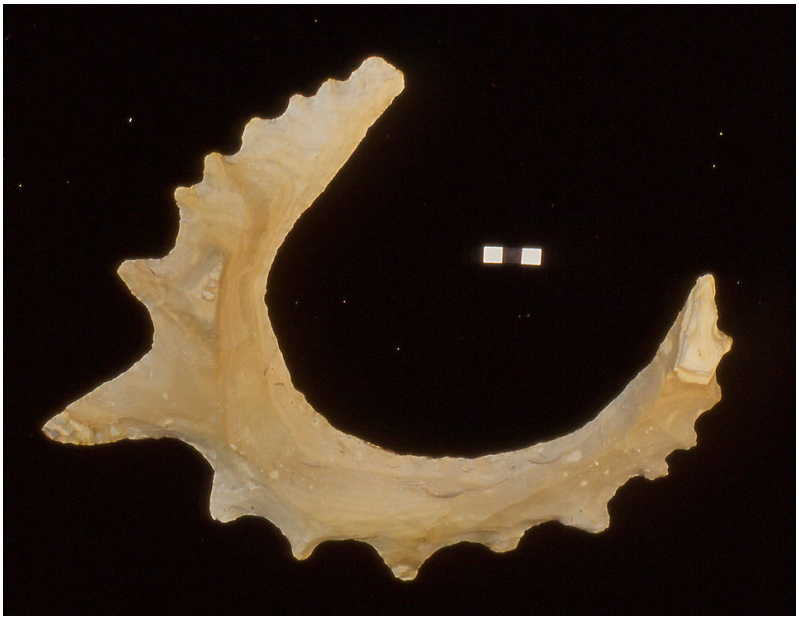
ah150
RP131/5
Site: Altun Ha
Dimensions (cm) L: 21.0 W: 20.5 Th: 3.2
Technological type: Biface (notched)
Presence of cortex: Yes
Raw material appearance: Banded pale/ dark brown gray/ gray/ strong brown
Presence of polish/ thermal alteration/ coloration: Yes, brown on cortex
Context: Structure E-51/ 2 cache beneath floor 3 (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1990: 231
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margin on the interior of the crescent exhibits hinge terminated flake scarring away from the margin and localized areas of edge crushing along the margin. The external margin shows stacked step and hinge terminated flake scarring on the interior of the notches along with edge crushing. Short feather terminated flake scarring is visible along the edge prominences. The medial surfaces of the specimen exhibit feather terminated flake scarring.
Presence of pigments/ residues: None

ah149
RP131/12
Site: Altun Ha
Dimensions (cm) L: 14.3 W: 14.2 Th: 2.5
Technological type: Biface (notched)
Presence of cortex: Yes, across medial surfaces
Raw material appearance: Mottled dark brown and brown
Presence of polish/ thermal alteration/ coloration: Strong brown coloration is visible around areas where cortex is present
Context: Structure E-51/ 2 cache beneath floor 3 (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1990: 231
Breakage patterns/ notes: This specimen is made of fine textured chert. Overall, the specimen is thick with lengthy flake scars visible across the medial surfaces. The lateral margins exhibit step and hinge terminated flake scarring in association with edge crushing, most prevalent on the interior of the crescent and the interior of the notches. Lateral margins also exhibit lengthy hinge and step scarring terminating at the cortex on the medial surface. The specimen exhibits coarse textured inclusions.
Presence of pigments/ residues: None

ah240
RP164/94
Site: Altun Ha
Dimensions (cm) L: 37.0 W: 32.1 Th: 4.0
Technological type: Biface (notched/ one prong)
Presence of cortex: No
Raw material appearance: Banded pale gray brown/ pale brown/ very pale gray
Presence of polish/ thermal alteration/ coloration: Yes, very pale gray (may depict an eye in profile)
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The lateral margins, on the exterior of the crescent exhibit edge crushing and stacked step and hinge terminated flake scarring. The interior of the crescent exhibits extensive stacked step and hinge terminated flake scarring and edge crushing. Of note are the two areas of pale gray coloration that may depict eyes of the form.
Presence of pigments/ residues: None

ah193
RP188/7
Site: Altun Ha
Dimensions (cm) L: 30.8 W: 6.2 Th: 3.2
Technological type: Biface (serrated)
Presence of cortex: Yes
Raw material appearance: Mottled gray/ pale gray/ pale brown/ yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown near cortex visible on one medial surface
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured inclusions. The lateral margins exhibit stacked step and hinge terminated flake scarring visible primarily on the interior of the notches. The interior margin of the crescent exhibits extensive stacked step and hinge terminated flake scarring. Both margins exhibit edge crushing. The medial surfaces of the specimen exhibit primarily feather terminated flake scars, some of which extend from the margins to the interior of one surface. Of note is the discoloration around the cortical areas.
Presence of pigments/ residues: None

ah288RP38/66



ah240RP164/94

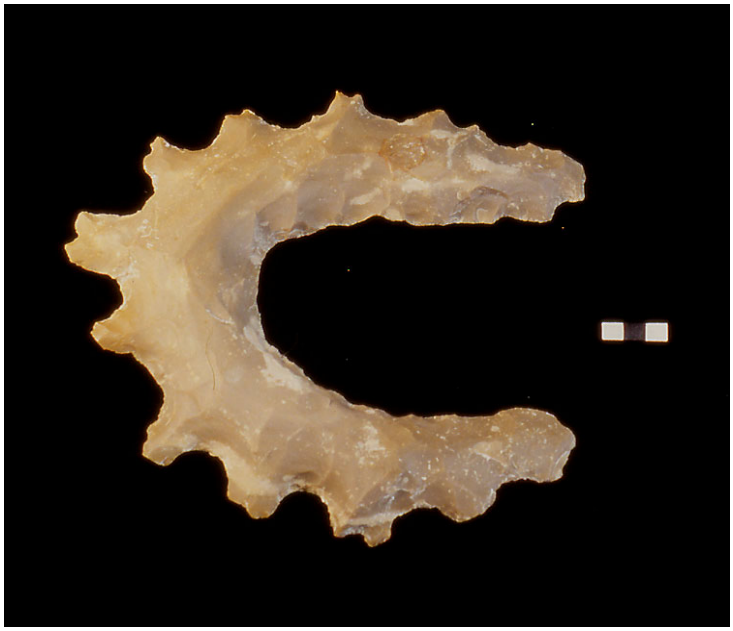
ah212
RP188/8
Site: Altun Ha
Dimensions (cm) L: 23.1 W: 18.7 Th: 3.2
Presence of cortex: Yes, small quantity at both termini
Raw material appearance: Banded brown/ pale brown/ mottled pale brown yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown coloration visible on one medial surface
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured fossil inclusions. Large hinge and feather terminated flake scars are present across the medial surfaces of the specimen. A large hinge fracture is visible near the exterior margin on one surface. The interior of the notches and the crescent exhibit stacked flake scarring associated with edge crushing. A snap fracture is present at one terminus if the crescent. Of note is the area around the cortex colored yellow brown. The very pale brown area appears to depict an eye in profile.
Presence of pigments/ residues: None

ah181a
RP213/3
Site: Altun Ha
Dimensions (cm) L: 29.1 W: 21.8 Th: 3.8
Technological type: Biface (notched/ perforated)
Presence of cortex: Yes
Raw material appearance: Banded gray brown/ very pale gray with tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/5 tomb subfloor cache I (Late Classic AD 750- 775)
Appearance in the literature: Pendergast 1982: 119 *ill. 125*
Breakage patterns/ notes: This specimen is made of very fine textured chert with some coarse textured inclusions. The lateral margins on the edge prominences exhibit primarily short feather terminated flake scarring. The interior of the notches exhibit more edge crushing and short stacked step and hinge terminated flake scarring. The interior of the crescent exhibits a similar breakage pattern. The medial surfaces exhibit lengthy feather terminated flake scarring. Of note is the circular cortical area that is perforated. The area exhibits gouge marks on the interior of the cortex. This area may have at one time exhibited an appliqué that depicted an eye of the specimen.
Presence of pigments/ residues: None

ah216
RP305/5
Site: Altun Ha
Dimensions (cm) L: 23.8 W: 22.0 Th: 3.6
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Mottled gray and gray brown with pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/5 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 81 *ill. 83*
Breakage patterns/ notes: This specimen is made of fine textured material with some coarse textured inclusions. Lengthy feather terminated flake scars are most prevalent across the medial surfaces of the specimen. Along the lateral margins, short, stacked step and hinge terminated flake scarring are visible. On the interior of the crescent short feather and hinge scars are visible away from the margins and stacked flake scarring is present on the margin proper with some edge crushing visible. On the interior of the notches, this pattern is also visible. Edge prominences exhibit short feather terminated flake scarring.
Presence of pigments/ residues: Yes, an area of circular brown residue approximately 2.0 cm in diameter is visible on one medial surface. This area appears to be an adhesive that may have been part of the eye of personified form.

ah309
RP314/133
Site: Altun Ha
Dimensions (cm) L: 25.4 W: 21.0 Th: 3.5
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Banded pale brown/ brown/ pale gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-54/9 burial (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1990: 150 *ill. 115*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Lengthy feather terminated flake scars are prevalent over the medial surfaces of the specimen. Shorter feather terminated flake scars are present on the interior of the crescent in association with edge crushing. Along the exterior margins, short feather terminated flake scars are present on edge prominences. On the interior of the serrations, stacked flake scarring and edge crushing are visible.
Presence of pigments/ residues: Yes, appears more like a stain, but is certainly cultural in origin. The brown coloration on one medial surface, approximately 3.0 cm in diameter is clearly eroded pigment. The area delineated an eye in profile that suggests an earth monster.

ah181aRP213/3



ah216RP305/5

ah305
RP314/136
Site: Altun Ha
Dimensions (cm) L: 16.5 W: 7.1 Th: 1.9
Technological type: Biface (serrated)
Presence of cortex: Yes
Raw material appearance: Tan brown and pale yellow
Presence of polish/ thermal alteration/ coloration: Yes, p. yellow around cortex
Context: Structure E-54/9 burial (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1990: 150 *ill. 115*
Breakage patterns/ notes: This specimen is made of very fine textured chert that clearly originates from northern Belize. The specimen exhibits relatively lengthy feather terminated flake scarring on the medial surfaces of the specimen. The interior of the crescent exhibits stacked step and hinge scarring and edge crushing. Uniform feather terminated flake scarring is also visible on the interior of the crescent. The interiors of the serrations exhibit step and hinge scarring and edge crushing. Edge prominences exhibit short feather terminated scarring. Of note is the cortex that appears to depict the eye of the form.
Presence of pigments/ residues: None

ah256
RP364/72
Site: Altun Ha
Dimensions (cm) L: 32.5 W: 7.8 Th: 4.2
Technological type: Biface (narrow/ elongated)
Presence of cortex: Yes, small quantity on one medial surface
Raw material appearance: Banded pale gray brown/ brown gray/ strong brown
Presence of polish/ thermal alteration/ coloration: Yes, red coloration
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: The specimen is made of fine textured chert with a moderate number of inclusions visible. Edge damage is extensive with the interior of crescent exhibiting edge crushing and stacked step and hinge terminated flake scarring. The exterior margin exhibits short feather and hinge terminated flake scarring originating at the edge of the margin and extending inward. Localized stacked microflaking and edge crushing is visible along these margins as well. Lengthy feather terminated flake scarring is prevalent on the medial surfaces. Of note is the extensive pale red and red coloration/ staining visible on medial surfaces. This coloration occurs in association with the cortex.
Presence of pigments/ residues: None

ah330
RP364/69
Site: Altun Ha
Dimensions (cm) L: 26.2 W: 20.1 Th: 4.0
Technological type: Biface (barbed)
Presence of cortex: Yes
Raw material appearance: Mottled pale blue gray/ dark brown/ yellowish brown
Presence of polish/ thermal alteration/ coloration: Yes, very pale gray and red
Context: Structure B-4/7 tomb wall cache III (Late Classic AD 600)
Appearance in literature: Pendergast 1982: 70 *ill. 71*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The flake scarring on the lateral margins, interior of the crescent exhibits stacked microflaking and short hinge terminated flake scarring. Short feather terminated flake scars are also visible in this area. The exterior margin exhibits barbs, the interior of which exhibits short step and hinge terminated flake scarring and stacked microflaking. The prominences exhibit feather terminated flake scarring. The medial surfaces exhibit some feather terminated scarring, but cortex predominates on both surfaces. Of note is the red and pale red coloration at the terminus of one barb as well as very pale gray area visible at one terminus.
Presence of pigments/ residues: None

ah25
RP528/18
Site: Altun Ha
Dimensions (cm) L: 41.4 W: 39.5 Th: 7.2
Technological type: Biface (barbed/ one prong)
Presence of cortex: No
Raw material appearance: Pale gray/ brown gray/ blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 371*
Breakage patterns/ notes: This specimen is made of fine textured chert with some inclusions and what appears to be patination. The lateral margins, specifically on the interior of the crescent there is extensive stacked step and hinge terminated scarring visible. Shorter feather terminated flake scars are also visible in this area. The external margins, on the interior of the barbs exhibit stacked microflaking and edge crushing. The edge prominences exhibit shorter feather terminated flake scars on medial surfaces with edge crushing along the margins. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring for the most part. Of note is the circular feather terminated flake scar visible on one medial surface. This scar appears to depict an eye in profile.
Presence of pigments/ residues: None

ah123
RP528/38
Site: Altun Ha
Dimensions (cm) L: 21.8 W: 21.2 Th: 3.5
Technological type: Biface (barbed)
Presence of cortex: Yes
Raw material appearance: Mottled very pale brown and very pale gray
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown/pale gray
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert that exhibits patination. The lateral margins along the interior of the crescent exhibits steep edge angles and stacked flake scarring and edge crushing. The interiors of the notches exhibit a similar breakage pattern with lengthy hinge terminated scarring visible. The medial surfaces of the edge prominences exhibit short feather terminated flake scars, with some hinge scarring also visible. The medial surfaces exhibit for the most part short feather terminated flake scarring. Of note are the areas of cortex and the coloration, including the circular coloration that appears to depict an eye in profile.
Presence of pigments/ residues: None

r9
LA/unknown
Site: Lamanai
Dimensions (cm) L: 18.4 W: 14.4 Th: 2.4
Technological type: Biface (barbed)
Presence of cortex: Yes, one small area appears to delineate an eye in profile
Raw material appearance: Brown and tan brown with gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen are finely flaked with short feather terminated flake scars visible. Along the interior of the crescent, shorter feather terminated flake scars are visible away from the margins. Closer to the edge, stacked microflaking is visible and edge crushing is present. The exterior of the specimen exhibits short feather terminated flake scarring and some localized areas of stacked microflaking and edge crushing. Of note is the small area of cortex and coloration near one terminus, which appears to depict an eye.
Presence of pigments/ residues: None

r10
LA/unknown
Site: Lamanai
Dimensions (cm) L: 16.0 W: 12.5 Th: 2.2
Presence of cortex: No
Raw material appearance: Tan brown and brown
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert with few fossil inclusions. The lateral margins on the interior of the crescent exhibit relatively few areas of stacked flake scarring and edge crushing. The medial surfaces exhibit both short and lengthy feather terminated flake scarring. Some edge crushing is visible on the interior of the barbs in association with stacked step and hinge terminated scarring. Of note are the circular flake scars located near one terminus. These flake scars appear to depict an eye in profile.
Presence of pigments/ residues: None

r55
LA244/12
Site: Lamanai
Dimensions (cm) L: 36.6 W: 19.2 Th: 4.8
Technological type: Biface (barbed)
Presence of cortex: Yes
Raw material appearance: Tan brown and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured northern Belize chert. The interior of the crescent exhibits extensive stacked step and hinge terminated flake scarring and edge crushing. A similar pattern is visible on the interior of the barbs. The edge prominences exhibit short feather terminated flake scarring. The medial surfaces of the specimen exhibit short feather terminated flake scars. Of note is the form of specimen that resembles a zoomorphic form.
Presence of pigments/ residues: None

r9LA/

r10LA/

r11
LA395/
Site: Lamanai
Dimensions (cm) L: 22.0 W: 21.5 Th: 3.5
Technological type: Biface (barbed)
Presence of cortex: No
Raw material appearance: Brown/ tan brown/ very pale gray/ gray
Presence of polish/ thermal alteration/ coloration: Yes, staining delineates eye
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert that clearly originated from northern Belize. The lateral margins exhibit short, stacked flake scarring and edge crushing on the interior of the crescent. The interior of the barbs indicates stacked step and hinge scarring. The prominences exhibit short feather terminated flake scars. The medial surfaces of the specimen exhibit both short and lengthy feather terminated flake scarring. Of note is circular staining/ coloration visible on one medial surface that appears to depict an eye of the form.
Presence of pigments/ residues: None

r53
LA395/
Site: Lamanai
Dimensions (cm) L: 27.8 W: 22.6 Th: 3.2
Technological type: Biface (barbed)
Presence of cortex: No
Raw material appearance: Very pale gray white and dark blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive patination visible. The interior of the crescent exhibits some stacked step and hinge scarring with feather terminated flake scarring also visible. Along the edge, there are some areas of edge crushing. The area on the interior of the barbs exhibit short feather terminated flake scarring. The prominences exhibit short feather terminated flake scarring. The medial surfaces exhibit relatively lengthy feather terminated flake scarring. Of note of course are the numerous pigments visible on one surface, but also the oval shaped area that does not exhibit pigment, in the same area. This appears to depict an eye in profile.
Presence of pigments/ residues: Yes, extensive dark reddish brown and orange yellow pigment visible on one medial surface. The pigment outlines the form of the specimen, suggesting what may represent a solar eclipse.

Crescent Forms: Serrated and (or) Barbed Crescents

ah97
RP102/6
Site: Altun Ha
Dimensions (cm) L: 17.2 W: 5.4 Th: 2.1
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Mottled pale brown/ very pale brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/1 cache (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with some coarse textured inclusions. The interior margin of the crescent exhibits edge crushing and some localized step and hinge terminated flake scarring. This pattern is also present on the opposite margin on the interior of the notches. The edge prominences exhibit short feather terminated flake scars on the lateral margins. The medial surfaces exhibit moderate to lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

ah168
RP102/7
Site: Altun Ha
Dimensions (cm) L: 13.2 W: 11.3 Th: 1.1
Technological type: Biface (serrated)
Presence of cortex: Yes, extensive cortex visible on one medial surface
Raw material appearance: Brownish yellow and pale gray
Presence of polish/ thermal alteration/ coloration: Yes, yellow/ red visible
Context: Structure A-5/1 cache (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured chert. There is little flake scarring visible on either dorsal or ventral surface. Short feather terminated flake scarring are visible on the interior of the crescent. Also in this area, step and hinge scarring are also visible along this margin. Little edge crushing is visible. The lack of flake scarring on the medial surfaces indicates that the specimen was produced on a flake that was only bifacially thinned to strengthen the lateral margins. Of note is the yellow coloration visible on one medial surface and a small area of red coloration on the same surface.
Presence of pigments/ residues: None

ah85
RP148/1
Site: Altun Ha
Dimensions (cm) L: 15.6 W: 7.8 Th: 2.3
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes
Raw material appearance: Mottled gray pale brown and brown strong brown
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit edge crushing and stacked microflaking (step and hinge terminated scarring), especially prevalent on the interior of the notches. Only a small amount of stacked flake scarring is visible. The presence of the striking platform indicates the specimen was produced on a macroflake- blade. The medial portion of the dorsal surface exhibits cortex, with feather terminated flake scarring visible around the cortex. Of note is the textile fragment adhering to the dorsal surface as well as the pigment present on the surface of the textile fragment.
Presence of pigments/ residues: Yes, green and red pigment visible on the surface of the textile fragment. The textile fragment is adhering to the medial dorsal surface of the specimen and is approximately 2.0 cm in diameter.

ah302a
RP163/7
Site: Altun Ha
Dimensions (cm) L: 20.2 W: 12.0 Th: 2.2
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Mottled very pale gray/ brown/ pale yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/2 cache above floor 1 (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit feather terminated flake scarring and two relatively lengthy hinge terminated flake scars visible on one medial surface. The interiors of the notches on the margins exhibit stacked step and hinge scarring and edge crushing. Short stacked microflaking is visible on the interior of the serrations. Of note is the overall form of the specimen that may depict a zoomorphic form.
Presence of pigments/ residues: None

ah299
RP163/8
Site: Altun Ha
Dimensions (cm) L: 18.0 W: 14.7 Th: 1.8
Presence of cortex: No
Raw material appearance: Banded brown gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/2 cache above floor 1 (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit moderately lengthy feather terminated flake scars. On the interior of the notches stacked step and hinge scarring and edge crushing. A similar breakage pattern is visible on the interior of the crescent. Also short feather terminated flake scars are visible on the interior of the crescent.
Presence of pigments/ residues: Yes, two small areas (each approximately 2.0 cm in diameter) of yellow pigment are visible on one medial surface of the specimen.

ah244
RP175/8
Site: Altun Ha
Dimensions (cm) L: 28.6 W: 15.0 Th: 4.4
Technological type: Biface (barbed)
Presence of cortex: No
Raw material appearance: Mottled pale blue gray/ brown/ very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/3 tomb chamber (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 122 *ill. 127*
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured inclusions. The lateral margins exhibit stacked step and hinge terminated flake scarring, especially on the interior of the crescent. Feather terminated flake scarring is more prevalent along the medial surfaces of the specimen. The lateral margin on the exterior exhibit short feather terminated flake scars in close association with stacked microflaking and edge crushing.
Breakage patterns/ notes: None

ah302aRP163/7

ah171RP176/37

ah171
RP176/37
Site: Altun Ha
Dimensions (cm) L: 19.0 W: 12.2 Th: 1.8
Technological type: Biface (serrated)
Presence of cortex: Yes
Raw material appearance: Mottled very pale brown/ pale gray/ yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, pale yellow brown
Context: Structure B-4/4 wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 132 *ill. 135*
Breakage patterns/ notes: This specimen is made of fine textured chert with cortex visible. There is little medial flake scarring on ventral surface. On the dorsal surface flake scarring is comprised of short and feather terminated flake scarring. Along the lateral margins flake scarring is relatively short in length with feather terminated and stacked step and hinge terminated scarring also visible. The interior of the crescent exhibits short feather terminated flake scars in close association with edge crushing. Stacked microflaking is visible on the interior of the serrations. Of note are the cortex and the coloration visible around the perimeter of the cortex.
Presence of pigments/ residues: None

ah235
RP188/10
Site: Altun Ha
Dimensions (cm) L: 24.7 W: 13.7 Th: 2.7
Technological type: Biface (serrated)
Presence of cortex: Yes
Raw material appearance: Banded brown gray and pale brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: This specimen is made of very fine textured chart with some small inclusions visible. Lengthy feather terminated flake scarring is visible on the medial surfaces of the specimen. Along the lateral margins the notches exhibit stacked step and hinge terminated flake scarring and edge crushing. Edge prominences exhibit short feather terminated flake scarring. Of note is striking platform visible at proximal terminus
Presence of pigments/ residues: None

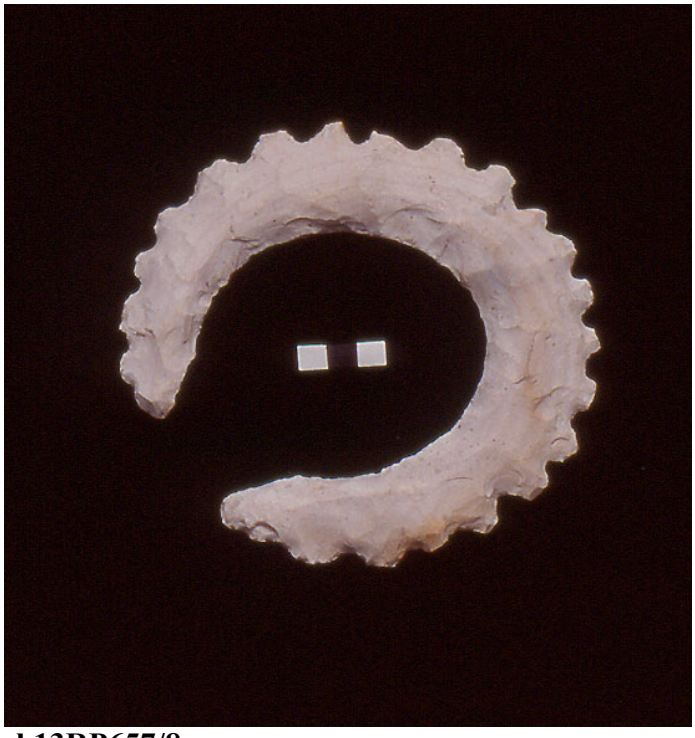
ah298
RP200/402
Site: Altun Ha
Dimensions (cm) L: 29.8 W: 6.8 Th: 3.1
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Gray brown and pale gray
Presence of polish/ thermal alteration/ coloration: Yes, polish visible at termini
Context: Structure A-1/1 tomb chamber (latter part of Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 77*
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive coarse textured inclusions. There are extensive hinge and step scarring on the interior margin. Stacked flake scarring and edge crushing are prevalent on this margin as well. Lengthier feather terminated flake scarring is visible across the medial surfaces of the specimen. Stacked microflaking and edge crushing is visible on the interior of the notches. Of note is the polish visible on the extremities of the specimen.
Presence of pigments/ residues: None

ah71
RP528/44
Site: Altun Ha
Dimensions (cm) L: 22.5 W: 8.3 Th: 3.2
Technological type: Biface (barbed)
Presence of cortex: None
Raw material appearance: Mottled very pale brown/ pale blue gray/ pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of fine textured chert that is heavily patinated. The interior margin of the crescent exhibits a steep edge angle with stacked step and hinge terminated flake scarring as well as edge crushing. The medial surfaces of the barbs exhibit short feather terminated flake scarring. The interiors of the barbs exhibit edge crushing and stacked microflaking. Across the medial surfaces, short and lengthy feather terminated flake scarring is prevalent.
Presence of pigments/ residues: None

ah139
RP528/19
Site: Altun Ha
Dimensions (cm) L: 28.0 W: 5.4 Th: 3.4
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled very pale brown and pale brown
Presence of polish/ thermal alteration/ coloration: Yes, pale red brown
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen is narrow and lateral margins exhibit stacked step and hinge scarring and edge crushing. This breakage pattern is most apparent on the interior of the crescent, though the external margin also exhibits step and hinge scarring. Perhaps more prevalent is the short feather terminated flake scarring visible on the edge prominences. Medial surfaces of the specimen also exhibit short feather terminated flake scarring. Of interest is the narrow band of pale red brown on the medial surface of the specimen and at one terminus. Also of note is the snap fracture present at one terminus. Coloration appears to be serpent- like in form.
Presence of pigments/ residues: No clear indication, see above regarding coloration.

ah13
RP657/8
Site: Altun Ha
Dimensions (cm) L: 17.0 W: 15.7 Th: 1.7
Technological type: Biface
Raw material appearance: Banded very pale gray pale gray and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-16/1 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 216
Breakage patterns/ notes: This specimen is made of fine textured chert and is covered with what appears to be patination. The specimen exhibits heavy step and hinge terminated flake scarring on the interior margin of the specimen. The exterior margin exhibits a similar breakage pattern on the interior of the serrations with short feather terminated flake scars more prevalent on the edge prominences. Also along both margins, larger hinge fractures are visible indicating a difficult thinning process. Across the medial surfaces of the specimen short feather terminated flake scars are visible.
Presence of pigments/ residues: None

ah298RP200/402



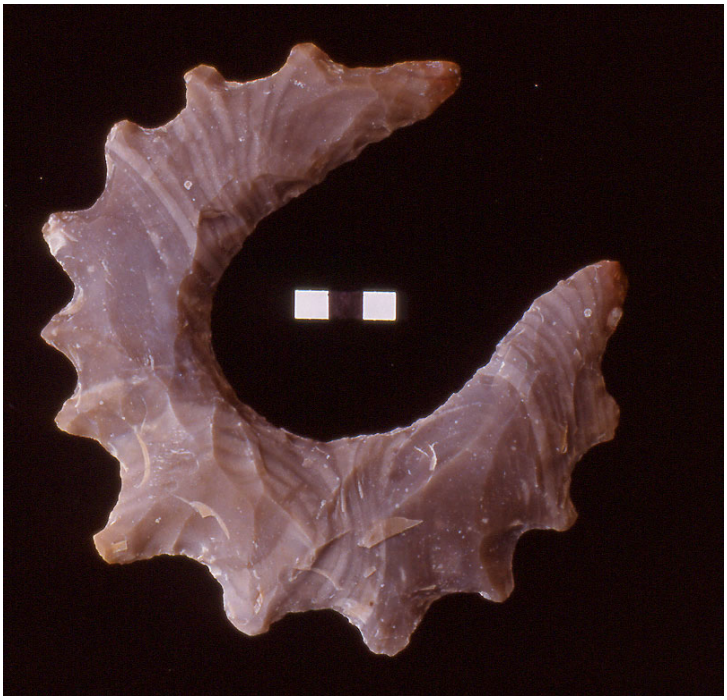
ah13RP657/8

r32
LA/unknown
Site: Lamanai
Dimensions (cm) L: 18.8 W: 17.2 Th: 2.7
Technological type: Biface (barbed)
Presence of cortex: No
Raw material appearance: Banded gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. Heavy step and hinge scarring is present on the interior margin of the crescent in association with edge crushing. The interiors of the barbs exhibit a similar breakage pattern, with stacked flake scarring prevalent. Edge prominences show short feather terminated flake scarring. Across the medial portion of the specimen, short and lengthy feather terminated flake scarring is prevalent with larger step and hinge scars also visible.
Presence of pigments/ residues: None

r74
LA244/23
Site: Lamanai
Dimensions (cm) L: 32.0 W: 29.0 Th: 4.2
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Dark brown gray pale brown gray and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert with small circular inclusions. The exterior margin exhibits short feather terminated flake scarring on the interior of the notches with stacked step and hinge terminated flake scarring also visible. The edge prominences exhibit short feather terminated flake scarring. The interior of the crescent exhibits extensive stacked step and hinge terminated flake scarring with edge crushing. The edge angle on the interior of the crescent is very steep.
Presence of pigments/ residues: None

r82
LA244/25
Site: Lamanai
Dimensions (cm) L: 29.5 W: 26.5 Th: 3.8
Technological type: Biface (barbed)
Presence of cortex: No
Raw material appearance: Mottled dark brown with pale gray
Presence of polish/ thermal alteration/ coloration: Yes, polish visible one barb
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with a moderate density of inclusions visible in the matrix of the material. The interior of the crescent exhibits heavy step scarring and edge crushing. This breakage pattern is similar along the exterior margin between the barbs. The margins of the barbs exhibit short feather terminated flake scars and some short stacked microflaking as well as some edge crushing. Edge crushing is most prevalent along the margins of the barbs. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. Of note is the polish visible on the largest barb. This may be evidence that the specimen was hafted.
Presence of pigments/ residues: None

r42
LA395/
Site: Lamanai
Dimensions (cm) L: 27.4 W: 17.5 Th: 4.5
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled blue gray/very pale gray/ banded brown gray
Presence of polish/ thermal alteration/ coloration: Oval brown gray area
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The distal portion of one barb exhibits a snap fracture. The exterior margin is finely flaked with short feather terminated flake scarring visible on the edge prominences as well as on the interiors of the notches. The interior of the crescent exhibits a steep edge angle with stacked step and hinge terminated flake scarring visible. The medial surfaces exhibit lengthy feather terminated flake scarring with short feather terminated flake scarring visible closer to the margins. Of note is an circular area near one terminus that may depict an eye of a personified crescent.
Presence of pigments/ residues: None



r32LA/

r82LA244/25

r71
LA395
Site: Lamanai
Dimensions (cm) L: 21.0 W: 15.0 Th: 2.8
Technological type: Biface (barbed)
Presence of cortex: No
Raw material appearance: Tan brown and brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with some inclusions visible. There are some irregularities in color along the outer margin where material is more orange brown and yellow in color. Along the lateral margins, especially on the interior of the barbs, short stacked step scarring is visible. Medial surfaces of the barbs exhibit short feather terminated flake scarring. More lengthy feather terminated flake scars are visible across both medial surfaces. On the interior of the crescent, steep edge angles and extensive stacked step and hinge terminated flake scarring occurs in close association with edge crushing.
Presence of pigments/ residues: None

Artifact Grouping: Barbed and Serrated Rings

ah31
RP34/41
Site: Altun Ha
Dimensions (cm) L: 18.4 W: 7.5 Th: 3.0
Technological type: Biface (perforated ring)
Presence of cortex: Yes, cortex on the interior of the ring
Raw material appearance: Mottled pale yellow brown and pale gray with gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is a unique form, comprised of moderately fine textured chert. The chert exhibits some coarse inclusions and numerous linear inclusions. It is anomalous in that the crafter utilized a void in the chert create the ring. Flakes were removed alternately in a bi- polar fashion so that the flake scars run parallel to one another. On the perimeter of the ring there is extensive battering supporting the previous interpretation. Most of the flake scars on the exterior of the ring are feather terminated.

Presence of pigments/ residues: Yes, on the interior of the ring on the cortex, two bands of brown material approximately 3.0 cm thick are visible. It is unclear if this material is cultural in origin.

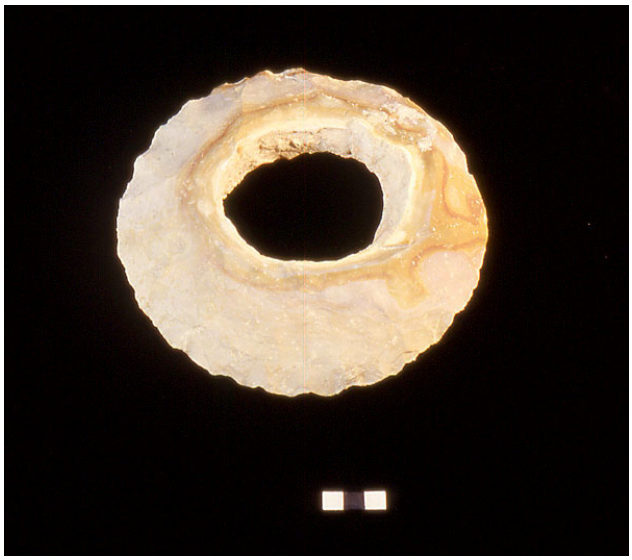
ah182
RP35/21
Site: Altun Ha
Dimensions (cm) L: 28.7 W: 17.9 Th: 4.8
Technological type: Biface (perforated/ one prong)
Presence of cortex: Yes
Raw material appearance: Mottled gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 41*
Breakage patterns notes: This specimen is made of fine textured chert with extensive cortex visible on the interior of the ring. This area also exhibits parallel striations or gouges on the cortex. The medial surfaces of the specimen exhibit short and lengthy feather terminated flake scarring. Lateral margins exhibit short feather terminated flake scars and short, stacked microflaking, especially prevalent on the interior of the serrations. The edge prominences exhibit short feather terminated flake scarring. Edge crushing is prevalent on the margins.
Presence of pigments/ residues: None

ah215
RP35/22
Site: Altun Ha
Dimensions (cm) L: 23.0 W: 21.2 Th: 2.6
Technological type: Biface (perforated/ serrated)
Presence of cortex: Yes, interior of perforation
Raw material appearance: Banded very pale brown/ pale brown/ strong brown
Presence of polish/ thermal alteration/ coloration: Pale red visible one surface
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 41*
Breakage patterns/ notes: This specimen is made of fine textured chert. There is cortex on the interior of the ring with striations present as well. This appears to be evidence of scraping on the cortex that clearly altered the material. Lengthy feather terminated flake scars are predominant on the medial surface of the specimen. Along the margins, on the interiors of the serrations edge crushing and stacked microflaking is visible. Edge prominences exhibit short feather terminated flake scarring. Of note is a pale red stain on both the cortex and one medial surface and striations present on the cortex, as mentioned in the above section.
Presence of pigments/ residues: None

ah257
RP38/52
Site: Altun Ha
Dimensions (cm) L: 18.8 W: 18.0 Th: 4.2
Technological type: Biface (perforated)
Presence of cortex: Yes
Raw material appearance: Very pale brown and brown
Presence of polish/ thermal alteration/ coloration: Extensive staining
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars. The lateral margins exhibit stacked step and hinge terminated fractures as well as localized areas of extensive edge crushing. Of note is the elaborate staining/ color scheme comprised of yellow brown, red, and pale red banded on medial surfaces. Also pale red coloration is visible on the cortex.
Presence of pigments/ residues: Yes, pale red and yellow brown banded coloration is visible on medial surface. Classification as pigment/ residues is uncertain because there is no texture present on the surface of the specimen.

ah185
RP164/92
Site: Altun Ha
Dimensions (cm) L: 21.2 W: 12.5 Th: 3.3
Technological type: Biface (perforated/ one prong)
Presence of cortex: Yes, interior of the ring
Raw material appearance: Banded brown/ strong brown mottled pale blue gray
Presence of polish/ thermal alteration/ coloration: Yes, polish and coloration
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: This specimen is made of fine textured chert with some inclusions. The specimen appears with both coloration and sheen that appears thermally altered. The cortex present on the interior of the perforation exhibits striations/ incising visible in the form of parallel lines. The lateral margins show primarily short feather terminated flaking scarring and stacked microflaking. The medial surfaces exhibit short and moderate length feather terminated flake scarring.
Presence of pigments/ residues: None

ah215RP35/22



ah257RP38/52

ah210
RP164/96
Site: Altun Ha
Dimensions (cm) L: 21.0 W: 20.2 Th: 3.0
Technological type: Biface (perforated/ serrated)
Presence of cortex: Yes, interior of perforation
Raw material appearance: Banded very pale brown gray/ brown gray
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured inclusions. The medial surfaces of the specimen exhibit lengthy feather and hinge terminated flake scarring. Along the lateral margins on the interior of the serrations, stacked microflaking and edge crushing predominate. The edge prominences exhibit feather terminated flake scarring.
Presence of pigments/ residues: None

ah98
RP657/9
Site: Altun Ha
Dimensions (cm) L: 14.5 W: 13.4 Th: 2.8
Technological type: Biface (perforated/ serrated)
Presence of cortex: Yes, interior of perforation
Raw material appearance: Very pale tan and brown strong brown
Context: Structure C-16/1 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 216
Breakage patterns/ notes: This specimen is made of fine textured chert flaked around what appears to be a void in the parent material. Cortex is visible on the interior of the perforation. The interior margin around the void exhibits localized stacked flake scarring and some edge crushing. The exterior margin exhibits localized stacked microflaking on the interior of the serrations and short feather terminated flake scarring visible on edge prominences. The medial surfaces exhibit short and moderate length feather terminated flake scarring.
Presence of pigments/ residues: Yes, a red and dark reddish brown pigment is visible on one medial surface of the specimen. Strong brown pigment also appears visible. The strong brown pigment is a desiccated version of the red pigment.

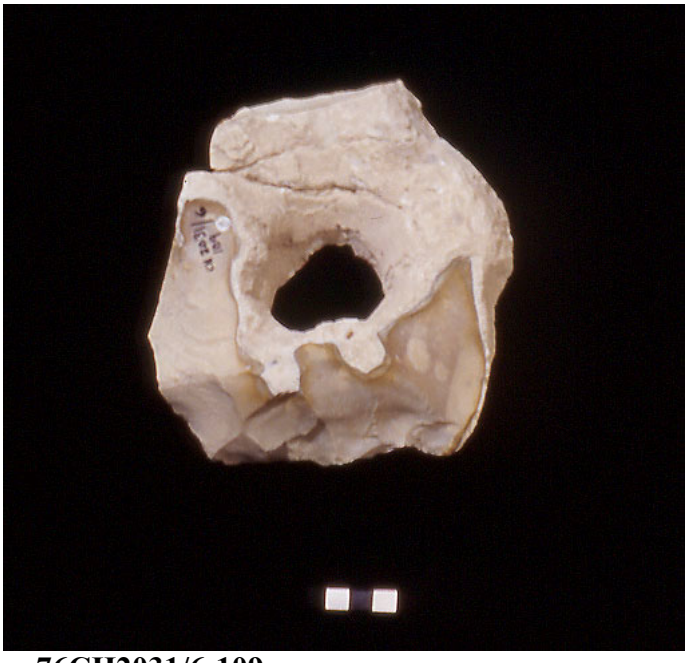
ah33
RP694/6
Site: Altun Ha
Dimensions (cm) L: 18.8 W: 6.7 Th: 3.3
Technological type: Biface (perforated)
Presence of cortex: Yes, interior of the ring
Raw material appearance: Banded very pale gray and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/3 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 364 *ill. 365*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The exterior margin is finely flaked with short feather terminated flake scarring most prevalent. There are also very localized areas of stacked microflaking and lengthy hinge terminated scarring associated with the margin. The medial surfaces of the specimen exhibit step and hinge terminated scarring, but for the most part lengthy feather terminated flake scarring predominates. Of note are the extensive striations present on the cortex. The extensive striations indicate that the interior cortex was shaped purposefully. They indicate that an object may have been running through the middle of the specimen. Perhaps the specimen was hafted in this way. Each gouge is approximately 0.2 cm in width and covers the entire cortical area.
Pigments/ presence: None

ah167
RP184/1
Site: Altun Ha
Technological type: Biface (narrow/ serrated/ perforated)
Presence of cortex: Yes, on interior of ring and on striking platform
Raw material appearance: Mottled brown/tan brown/ gray with pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert that exhibits some patination. The medial surfaces of the specimen exhibit short and lengthy feather terminated flake scarring. The lateral margins exhibit serrations, the interior of which exhibit stacked step and hinge terminated flake scarring. The edge prominences exhibit short feather terminated flake scarring for the most part. Of note are the incised lines around the interior of the cortex. Also of note is the snap fracture present along one exterior margin.
Presence of pigments/ residues: None

cr75
CH2012/13- 15
Site: Colha
Dimensions (cm) L: 31.5 W: 23.4 Th: 5.3
Technological type: Biface (serrated/ perforated)
Presence of cortex: Yes, visible on the interior of the ring
Raw material appearance: Mottled tan brown and some very pale gray blue
Presence of polish/ thermal alteration/ coloration: No
Context: Structure 2012 cache in western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 12 *ill. 45*; Shafer 1991: 38 *pl. 39*
Breakage patterns/ notes: The specimen is made of very fine textured chert with oval inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. Also large hinge scars are visible on one medial surface. The lateral margins exhibit step, hinge, and feather terminated flake scarring on the interior of the serrations. In these areas, larger hinge and step scarring are also visible slightly away from the margin. The edge prominences exhibit short feather terminated flake scarring. Along the interior margin around the cortex there are step and hinge scars visible, also a fairly well defined areas of edge crushing are present.
Presence of pigments/ residues: None

cr76
CH2031/6- 109
Site: Colha
Dimensions (cm) L: 19.8 W: 13.7 Th: 5.2
Technological type: Biface preform (perforated)
Presence of cortex: Yes
Raw material appearance: Pale gray brown pale gray and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2031 burial/ cache in main plaza of the central precinct (Late Preclassic 400 BC- AD 250)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen appears to be a macroflake produced around a void in the limestone. The specimen is made of fine and coarse textured chert and can be considered a preform. At the proximal terminus, a truncated striking platform remnant is visible. At distal terminus, there is an area of flake removal and edge alteration. A series of step and hinge scars are visible. Stacked step and hinge scarring on the margin are visible. Of note is the coarse textured material, cortical in appearance that occurs throughout the specimen. This material may have hindered further thinning efforts.
Presence of pigments/ residues: None

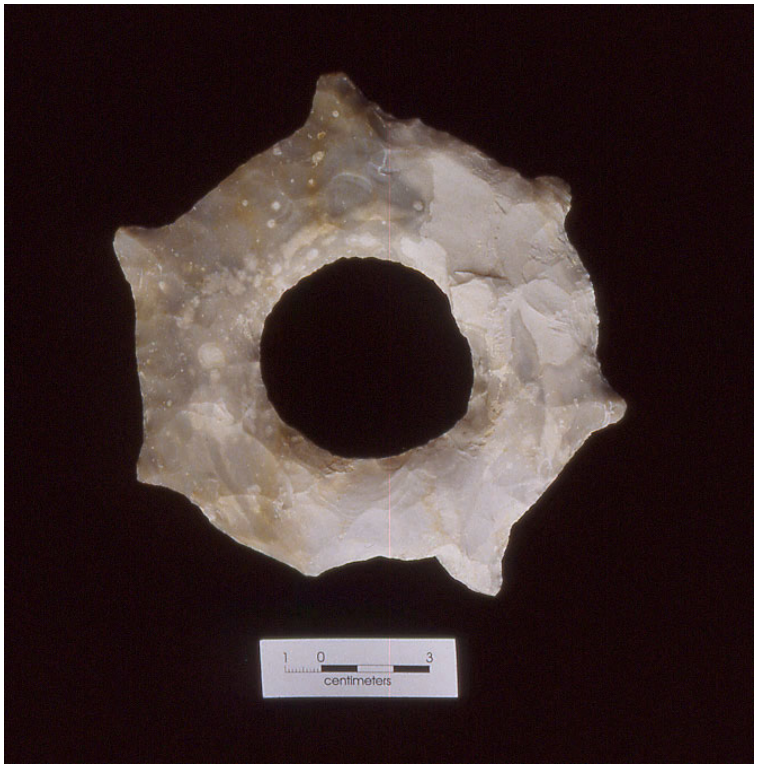
cr75CH2012/13-15



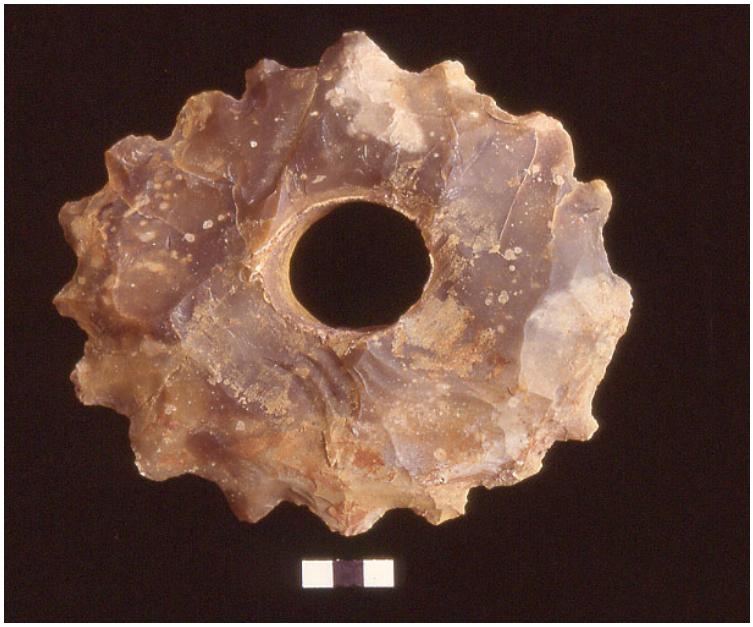
cr76CH2031/6-109

r45
LA/unknown
Site: Lamanai
Dimensions (cm) L: 15.2 W: 11.3 Th: 2.0
Technological type: Biface (perforated)
Presence of cortex: No
Raw material appearance: Mottled brown gray/ very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of both fine and coarse textured chert. Inclusions are visible in the fine textured material. The medial surfaces of the specimen exhibit short feather terminated flake scarring. A large step scar is visible on one medial surface. The lateral margins exhibit shorter feather terminated flake scarring. The exterior margin also exhibits some stacked microflaking and edge crushing. The interior margin exhibits a similar pattern.
Presence of pigments/ residues: None

r62
LA240/14
Site: Lamanai
Dimensions (cm) L: 19.7 W: 16.8 Th: 3.2
Technological type: Biface (serrated/ perforated)
Presence of cortex: Yes, on interior of ring
Raw material appearance: Mottled very dark gray brown/ brown with pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/8 large axial cache beneath staircase (located above N10-9/9) (dated to Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured inclusions. The lateral margins exhibit step and hinge scarring on the interior of the serrations. On the edge prominences, short feather terminated flake scarring is visible. Across the medial surfaces, lengthy feather terminated flake scars are visible as well as some lengthy hinge terminated fractures are present. A large hinge fracture is visible on one medial surface.
Presence of pigments/ residues: Yes, orange yellow, red, and yellow pigments are visible on the medial surfaces of the specimen. The cortex present in the interior of the ring is also covered in pigment.



r45LA/



r62LA240/14

r89
LA694/24
Site: Lamanai
Dimensions (cm) L: 15.0 W: 10.5 Th: 1.8
Technological type: Biface (perforated)
Presence of cortex: No
Raw material appearance: Mottled tan brown/ gray brown with pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-15/8 one of two caches beneath north stairway
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured material with some coarse textured inclusions. The interior margins exhibit stacked step and hinge scarring. The exterior margin exhibits stacked step and hinge terminated flake scars and edge crushing. Some large hinge scars are also visible. Across the medial surfaces of the specimen short and moderate length feather terminated flake scars predominate.
Presence of pigments/ residues: None

Artifact Grouping: Non- Perforated Star Forms

ah75
RP34/52
Site: Altun Ha
Dimensions (cm) L: 20.2 W: 18.0 Th: 2.8
Technological type: Biface (eight barbs)
Presence of cortex: Yes
Raw material appearance: Mottled pale brown gray/ dark brown/ yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown coloration visible on one surface
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of fine textured chert with an elaborate color scheme visible on the medial dorsal surface. The lateral margins exhibit some short feather terminated flake scarring and lengthier step and hinge scarring on the interior of the barbs/ notches. The medial dorsal surface exhibits lengthy feather terminated flake scarring. The ventral surface exhibits little medial flake scarring. Along with the curvature of the specimen, this indicates that the specimen was produced on a macroflake. Of note is yellow brown and yellow staining present on dorsal surface around cortex.
Presence of pigments/ residues: See above regarding staining/ coloration.

ah228
RP35/2
Site: Altun Ha
Dimensions (cm) L: 19.3 W: 16.8 Th: 3.0
Technological type: Biface (nine barbs)
Presence of cortex: No
Raw material appearance: Mottled pale gray/ very pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 38 *ill. 41*
Breakage patterns/ notes: This specimen is made of fine textured chert with some oval shaped coarse textured inclusions. Lengthy flake scars are visible across the medial surfaces of the specimen. Shorter feather terminated flake scars are present along the lateral margins. Some edge crushing is visible on the interior of the barbs/ notches, but not extensive. It appears as if the specimen was produced on a macroflake due to the curvature of the specimen in profile.
Presence of pigments/ residues: None

ah54
RP38/58
Site: Altun Ha
Dimensions (cm) L: 22.2 W: 20.8 Th: 4.3
Technological type: Biface (nine barbs)
Presence of cortex: Yes, small quantity present distal end of one barb
Raw material appearance: Banded brown/ pale brown gray/ pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert. The lateral margins exhibit some localized areas of stacked flake scarring primarily on the interior of the barbs/ notches. The flaking on the margins of the prominences is primarily feather terminated. The specimen exhibits lengthy feather and hinge terminated scarring across the medial surfaces. Appears to have been produced on a macroflake due to curvature of the specimen in profile.
Presence of pigments/ residues: None

ah47
RP137/50
Site: Altun Ha
Dimensions (cm) L: 20.0 W: 18.0 Th: 2.8
Technological type: Biface (nine barbs)
Presence of cortex: No
Raw material appearance: Banded brown/ gray/ yellowish brown/ pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure F-1/1 cache beneath floor 1 (Late Classic AD 700)
Appearance in the literature: Pendergast 1990: 250 *ill. 241*
Breakage patterns/ notes: This specimen is made of fine textured chert. The curvature of the specimen and lack of flake scars on the ventral surface indicate that the piece was produced on a macroflake. The lateral margins exhibit little stacked flake scarring, but instead exhibit short feather terminated flake scarring. The medial dorsal surface exhibits short and lengthy feather terminated flake scarring.
Presence of pigments/ residues: Yes, a brown residue with texture is visible on the dorsal surface of two of the barbs. Where the residue has deteriorated, the surface of the chert has been turned a yellow brown color.

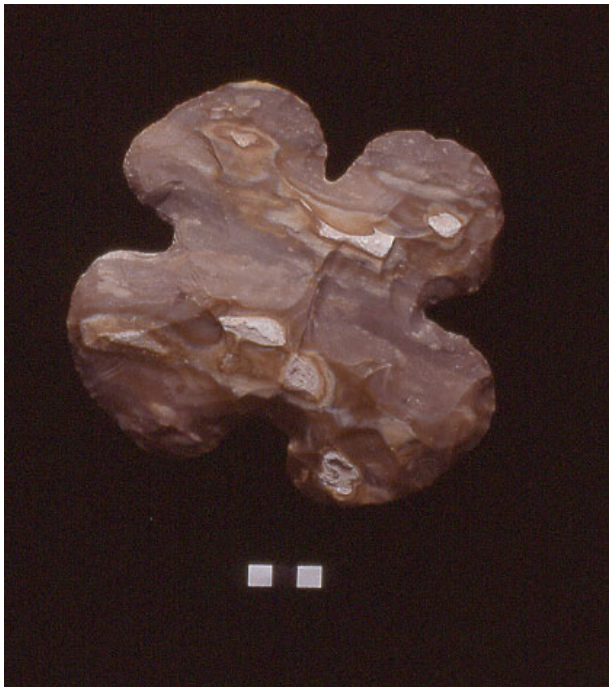
ah296
RP200/388
Site: Altun Ha
Dimensions (cm) L: 22.2 W: 21.3 Th: 2.7
Technological type: Biface (nine barbs)
Presence of cortex: Yes, small quantity on medial dorsal surface
Raw material appearance: Mottled yellow brown/ very pale brown/ pale red
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive oval coarse textured inclusions. The medial surfaces of the specimen exhibit lengthy feather and hinge terminated flake scarring. The lateral margins exhibit short step and hinge terminated flake scarring and some localized areas of stacked scarring and edge crushing, prevalent on the interior of the barbs. Edge prominences exhibit short feather terminated flake scarring. Of note are a series of incised lines visible on the cortex.
Presence of pigments/ residues: None

ah75RP34/52

ah296RP200/388

ah17
RP256/51
Site: Altun Ha
Dimensions (cm) L: 20.0 W: 20.0 Th: 3.6
Technological type: Biface (tetrafoil)
Presence of cortex: Yes, visible on one medial surface
Raw material appearance: Banded gray/ brown with pale gray/ yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen is made of fine textured chert with a small number of inclusions. The medial surfaces of the specimen exhibit lengthy feather and hinge terminated flake scars. The grain of the stone as illustrated by extensive banding may have hindered thinning efforts. The interior of the notches on the lateral margins exhibit significant edge crushing and stacked step and hinge terminated flake scarring. Outer margins, on edge prominences exhibit little edge attrition but short feather terminated flake scarring is present. Of note is the rare color scheme created by banding, form of ki'in sign.
Presence of pigments/ residues: None

ah10
RP256/66
Site: Altun Ha
Dimensions (cm) L: 19.0 W: 18.0 Th: 2.5
Technological type: Biface (nine barbs)
Presence of cortex: Yes, small quantity at distal end of one barb
Raw material appearance: Banded pale brown/ pale gray/ very pale brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache II (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 92
Breakage patterns/ notes: This specimen is made of very fine textured chert with some coarse textured portions also present. There is little flake scarring visible on the medial surfaces. Lateral margins exhibit short feather, step, and hinge terminated flake scarring. Edge attrition and crushing is not extensive along the lateral margins. Of note is the curve of the specimen in profile indicating it was produced on a macroflake.
Presence of pigments/ residues: None



ah17RP256/51

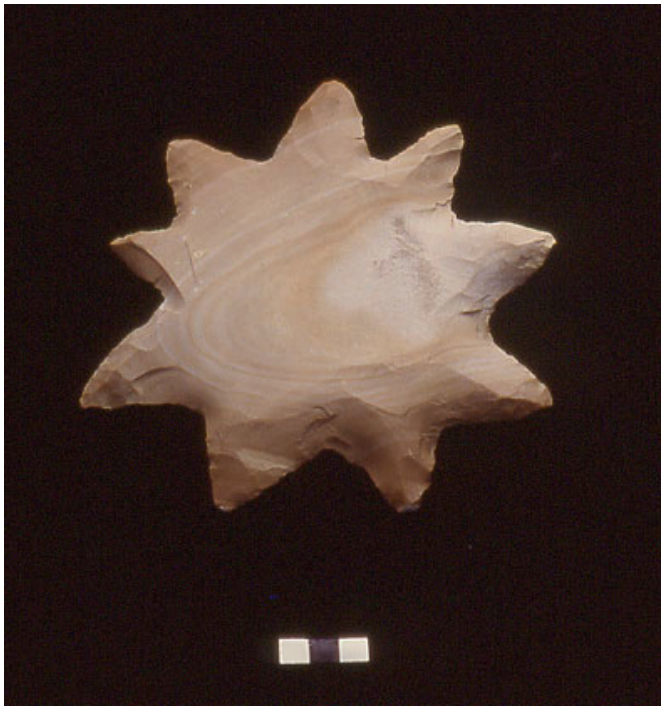
r49LA244/24

ah213
RP305/2
Site: Altun Ha
Dimensions (cm) L: 16.6 W: 16.5 Th: 2.0
Technological type: Biface (ten barbs)
Presence of cortex: No
Raw material appearance: Strong brown/ brown yellow with pale brown
Presence of polish/ thermal alteration/ coloration: Brown yellow stain on visible on one medial surface
Context: Structure B-4/5 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 81 *ill. 83*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces exhibit lengthy feather and hinge terminated flake scarring. The edge prominences on the lateral margins exhibit short feather terminated flake scarring. The interiors of the notches exhibit localized areas of edge crushing but no extensive areas of stacked microflaking. Of note is the strong yellow brown staining on medial surfaces.
Presence of pigments/ residues: None

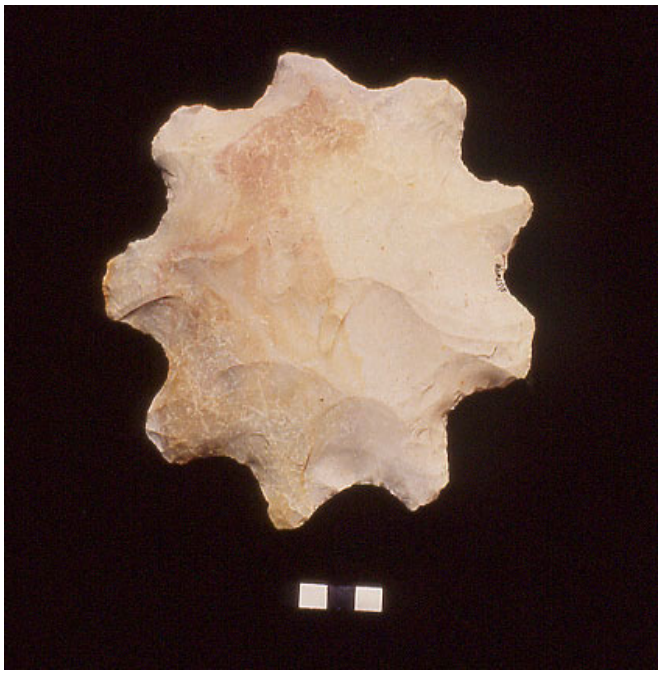
ah51
RP528/36
Site: Altun Ha
Dimensions (cm) L: 23.4 W: 22.3 Th: 3.7
Technological type: Biface (nine barbs)
Presence of cortex: No
Raw material appearance: Pale gray and pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of fine textured chert with some inclusions. The lateral margins exhibit stacked step and hinge scarring, most prevalent on the interior of the notches/ barbs. The edge prominences exhibit primarily short feather terminated flake scars. The medial surfaces do not exhibit extensive flake scarring. Short feather terminated flake scars are visible near the margins but not across the central surfaces. The specimen appears to have been produced on a macroflake.
Presence of pigments/ residues: Yes, a circular reddish brown residue approximately 3.0 cm in diameter is visible on one medial surface.

ah132
RP694/14
Site: Altun Ha
Dimensions (cm) L: 21.3 W: 20.7 Th: 4.1
Technological type: Biface (nine barbs)
Presence of cortex: No
Raw material appearance: Banded gray dark gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/3 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 364 *ill. 365*
Breakage patterns/ notes: This specimen is made of very fine textured chert with circular inclusions visible. The specimen exhibits broad and lengthy feather terminated flake scars across the medial surfaces. The specimen exhibits both feather terminated and stacked step and hinge terminated flake scarring along the lateral margins. This pattern is most prevalent on the interior of the barbs between the prominences. Edge crushing is more prevalent in this area also. The edge prominences exhibit short feather terminated flake scarring on the medial surfaces.
Presence of pigments/ residues: None

ah41
RP697/2
Site: Altun Ha
Dimensions (cm) L: 19.3 W: 16.3 Th: 3.7
Technological type: Biface (nine barbs)
Presence of cortex: No
Raw material appearance: Pale brown and pale gray with red to reddish yellow
Presence of polish/ thermal alteration/ coloration: Yes, red staining visible
Context: Structure K-33/6 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 362 *ill. 363*
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit little edge attrition or stacked flake scarring. Though the notches between the edge prominences show some edge crushing and stacked microflaking. The medial surfaces exhibit broad feather and a few hinge terminated flake scars. Of note is the pale red staining visible on one medial surface of the specimen. It clearly outlines a seated figure with headdress in profile. There is no texture to the stain, but appears to be cultural in origin.
Presence of pigments/ residues: See note on staining/ coloration above.



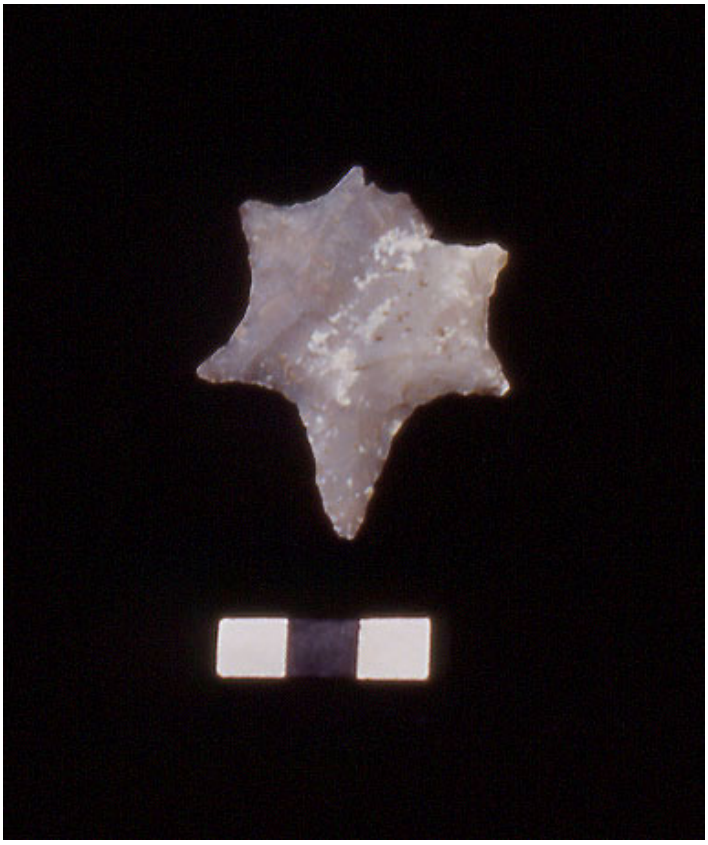
ah10RP256/66



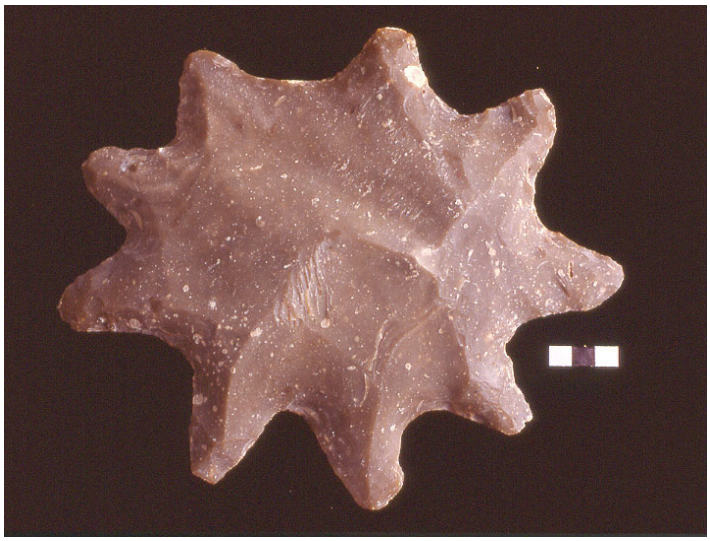
ah41RP697/2

cr54
CH2001/11- 11
Site: Colha
Dimensions (cm) L: 5.5 W: 4.4 Th: 0.6
Technological type: Biface (six barbs)
Presence of cortex: No
Raw material appearance: Gray and dark gray
Presence of polish/ thermal alteration/ coloration: Yes, specimen is burned
Context: Operation 2001 domestic platform/ lithic workshop deposit (Early Postclassic AD 1100)
Appearance in the literature: Probst 1984: 6 *ill. 51*
Breakage patterns/ notes: This specimen is made of fine textured chert that has been extensively burned which changed the color of the specimen and caused pot lid fractures across the medial surfaces. Short feather terminated flake scarring is visible across the medial surfaces. The lateral margins exhibit little edge crushing but localized step and hinge terminated flake scarring is visible, primarily between the barbs. Of note is snap fracture at distal end of one barb.
Presence of pigments/ residues: None

r63
LA240/19
Site: Lamanai
Dimensions (cm) L: 24.9 W: 21.0 Th: 3.8
Technological type: Biface (nine barbs)
Presence of cortex: Yes, ventral surface
Raw material appearance: Brown dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/8 large axial cache beneath staircase (located above N10-9/9) (dated to the Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with numerous small circular inclusions visible. The medial dorsal surface exhibits broad feather terminated flake scars. The lateral margins exhibit short feather and step and hinge terminated flake scarring. Stacked flake scarring is most prevalent on the interior of the barbs/ notches. The ventral surface exhibits a large area of cortex that exhibits pigments in several forms.
Presence of pigments/ residues: Extensive pigment is visible on the ventral surface of the specimen. There are two colors, yellow and red. The yellow pigment appears in the form of a profile that exhibits an eye in profile that may have at one time had an inlay of some sort. The second is a dark red that is much more deteriorated but shows outline of what may be a serpent form.



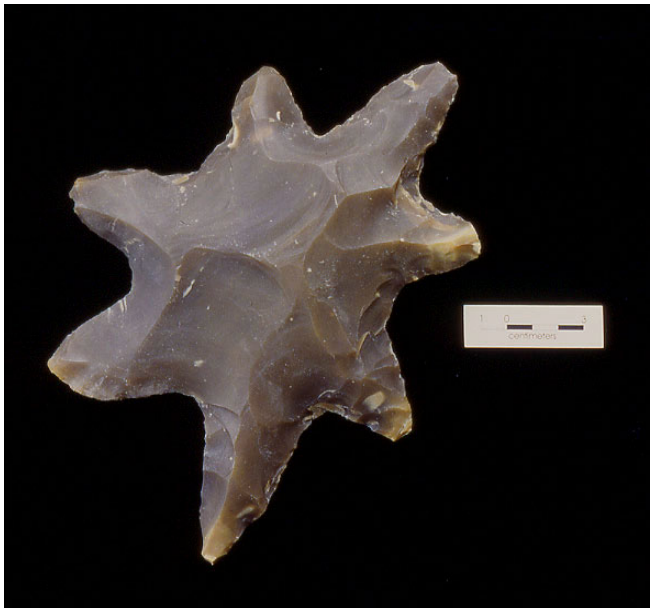
cr54CH2001/11-11



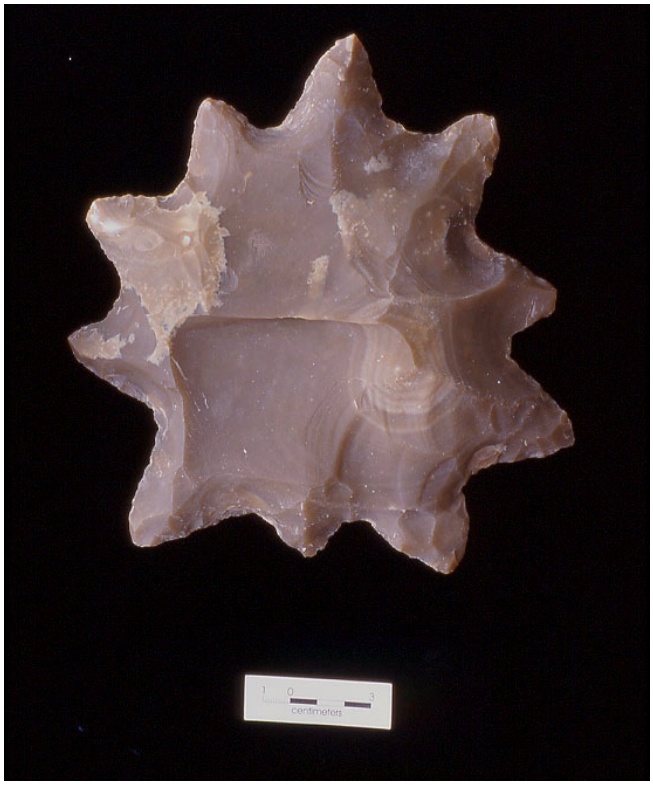
r63LA240/19

r4
LA240/21
Site: Lamanai
Dimensions (cm) L: 21.8 W: 16.3 Th: 2.9
Technological type: Biface (seven barbs)
Presence of cortex: Yes, very small quantity at distal ends of two barbs
Raw material appearance: Dark gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/8 large axial cache beneath staircase (located above N10-9/9) (dated to the Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. Broad feather terminated flake scars are visible across the medial surfaces of the specimen. Closer to the lateral margins, shorter feather terminated flake scars are visible. Some stacked microflaking and edge crushing are present along the margin proper. Short hinge terminated flake scars are visible on the interior of the barbs/ notches. Of note is the form of the specimen that hints at a zoomorphic form, but overall is unclear.
Presence of pigments/ residues: None

r84
LA244/15
Site: Lamanai
Dimensions (cm) L: 20.0 W: 19.0 Th: 2.8
Technological type: Biface (ten barbs)
Presence of cortex: None
Raw material appearance: Banded brown and pale brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert with some fossil inclusions. The medial surfaces exhibit broad feather terminated flake scars. A large hinge scar is visible on the medial dorsal surface. The lateral margins exhibit shorter feather terminated flake scars along the edge prominences. The interior of the notches/ barbs exhibit stacked microflaking and edge crushing.
Presence of pigments/ residues: None



r4LA240/21



r84LA244/15

r49
LA244/24
Site: Lamanai
Dimensions (cm) L: 15.7 W: 15.2 Th: 2.3
Technological type: Biface
Presence of cortex: No
Raw material appearance: Brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The lateral margins exhibit short feather terminated flake scarring and some hinge scarring. The margins proper exhibit stacked microflaking and edge crushing, most prevalent on the interior of the notches. Of note is the form, possible of a ki'in sign.
Presence of pigments/ residues: None

Artifact Grouping: Perforated Star Forms

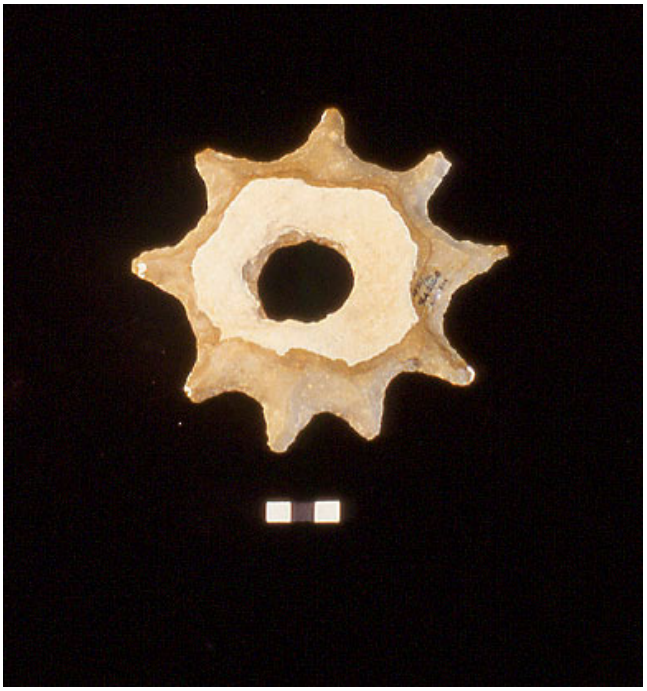
ah231
RP35/1
Site: Altun Ha
Dimensions (cm) L: 19.5 W: 16.2 Th: 1.8
Technological type: Biface (perforated/ seven barbs)
Presence of cortex: Yes
Raw material appearance: Mottled brown gray pale gray and yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown stain
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 38 *ill. 41*
Breakage patterns/ notes: This specimen is made of fine textured chert with some inclusions visible. The specimen exhibits cortex on the interior of the perforation. The cortex exhibits evidence of scraping and smoothing. On the interior margin of the perforation edge crushing is present. The medial surfaces of the specimen around the cortex exhibit short feather terminated flake scarring. Along the lateral margins short feather terminated flake scars are visible especially prevalent on the edge prominences. On the interior of the notches some stacked microflaking is visible as well as edge crushing.
Presence of pigments/ residues: None

ah206
RP35/32
Site: Altun Ha
Dimensions (cm) L: 16.8 W: 16.7 Th: 2.5
Technological type: Biface (perforated/ nine barbs)
Presence of cortex: Yes
Raw material appearance: Brown with dark brown around perimeter of cortex
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 42 *ill. 43*
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with small circular inclusions. There is extensive cortex around the perforation, the interior of which shows evidence of scraping and smoothing. Also, chert present in the perforation exhibits extensive stacked step and hinge terminated flake scarring and edge crushing. The exterior lateral margins exhibit short feather terminated flake scarring, especially prevalent on edge prominences. The interiors of the notches exhibit stacked microflaking and edge crushing.
Presence of pigments/ residues: None

ah208
RP164/90
Site: Altun Ha
Dimensions (cm) L: 19.4 W: 17.0 Th: 3.2
Technological type: Biface (perforated/ seven barbs)
Presence of cortex: Yes, interior of the perforation
Raw material appearance: Banded very pale gray/ pale brown/ strong brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert. The cortex is present on the interior of the perforation that also exhibits evidence of scraping and smoothing. On the ventral surface, the cortex exhibits incised lines in the hollow area where the cortex was removed. Across the medial surfaces of the specimen, short feather terminated flake scars with some hinge scarring visible. On the lateral margins, the interiors of the notches exhibit stacked step and hinge scarring and edge crushing. One margin in particular exhibits a series of stacked hinge scars oriented toward the interior of the medial surface.
Presence of pigments/ residues: None

ah211
RP164/116
Site: Altun Ha
Dimensions (cm) L: 17.1 W: 15.2 Th: 2.3
Technological type: Biface (nine barbs)
Presence of cortex: Yes, visible on the interior of perforation and medial surface
Raw material appearance: Mottled very pale brown pale brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache III (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 102 *ill. 107*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with coarse textured inclusions. The interior of the perforation exhibits cortex that appears burnished and smoothed. The medial surfaces exhibit feather terminated flake scars. On the exterior margin, short feather terminated flake scars are visible with some stacked microflaking and edge crushing more prevalent on the interior of the barbs/ notches.
Presence of pigments/ residues: None

ah297
RP200/384
Site: Altun Ha
Dimensions (cm) L: 20.6 W: 20.4 Th: 3.6
Technological type: Biface (perforated/ eight barbs)
Presence of cortex: Yes, interior of perforation
Raw material appearance: Banded pale gray pale yellow brown/ gray brown
Presence of polish/ thermal alteration/ coloration: Yellow brown band visible
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 74 *ill. 75*
Breakage patterns/ notes: The specimen is made of moderately fine textured chert with numerous inclusions. The interior of the perforation exhibits extensive cortex that has been smoothed and scraped. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. Shorter feather terminated scarring is visible on the edge prominences. The lateral margins, specifically the interior of the notches/ barbs exhibits stacked step and hinge terminated flake scarring and edge crushing. The lateral margins of the barbs exhibit short feather terminated scarring and some edge crushing.
Presence of pigments/ residues: None



ah206RP35/32

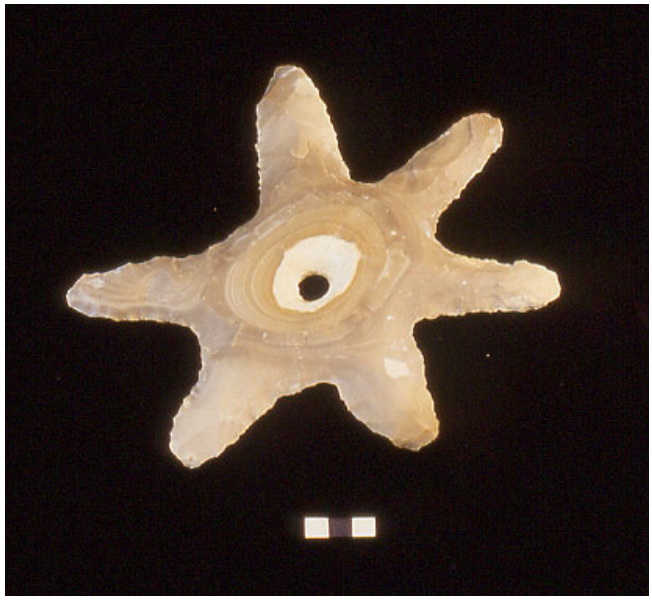
ah208RP164/90

ah207
RP206/2
Site: Altun Ha
Dimensions (cm) L: 22.5 W: 13.7 Th: 2.1
Technological type: Biface (six barbs)
Presence of cortex: Yes, interior of perforation
Raw material appearance: Banded pale gray brown/ gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/1 tomb chamber (Late Classic AD 750- 775)
Appearance in the literature: Pendergast 1982: 117 *ill. 107*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The cortex present on the interior of the perforation exhibits scraping and smoothing. The medial surfaces exhibit feather terminated flake scarring. The lateral margins exhibit short feather terminated flake scarring is prevalent. The margins also exhibit some stacked microflaking and edge crushing. Of note is a striking platform remnant visible at the terminus of one barb.
Presence of pigments/ residues: None

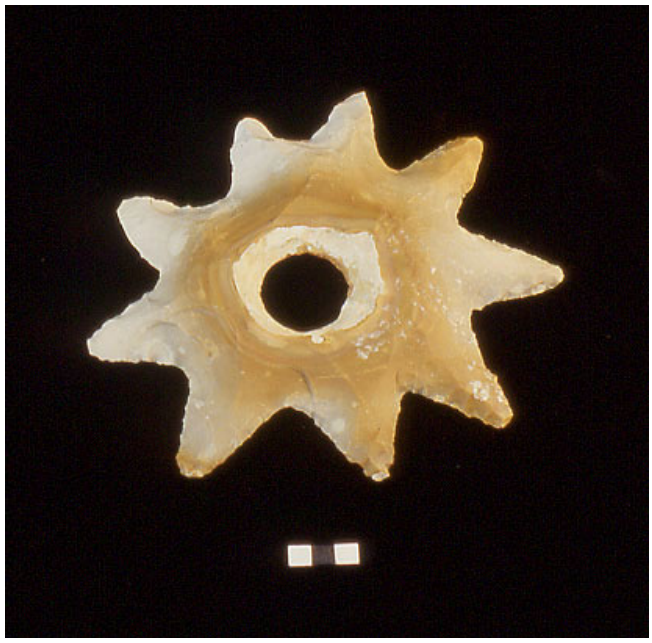
ah293
RP364/51
Site: Altun Ha
Dimensions (cm) L: 22.1 W: 19.4 Th: 3.2
Technological type: Biface (nine barbs)
Presence of cortex: Yes, interior of the perforation
Raw material appearance: Banded strong brown and brown with very pale gray
Presence of polish/ thermal alteration/ coloration: Some red banding visible
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 68 *ill. 69*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The cortex present on the interior of the specimen exhibits scraping and smoothing. Edge crushing is visible in this area also. The medial surfaces exhibit feather and hinge terminated flake scarring. The lateral margins exhibit short step and hinge terminated scarring as well as edge crushing. Edge crushing and stacked flake scarring is more apparent on the interior of the notches/ barbs. Of note is a pale red banding around the perimeter of the perforation.
Presence of pigments/ residues: None

ah128
RP528/37
Site: Altun Ha
Dimensions (cm) L: 22.8 W: 15.3 Th: 3.3
Technological type: Biface (perforated)
Presence of cortex: Yes, on the interior of perforation
Raw material appearance: Mottled very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of very fine textured chert and exhibits numerous circular inclusions. The specimen is incomplete and exhibits snap fractures across the medial surface. The interior of the perforation exhibits heavy battering and stacked flake scarring. The cortex visible in this area exhibits striations as well. The exterior margins exhibit stacked step and hinge terminated flake scarring in the notches and short feather terminated flake scars on the edge prominences. Localized areas of edge crushing are visible on the exterior margins. The medial surfaces exhibit moderate and lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

ah9
RP593/6
Site: Altun Ha
Dimensions (cm) L: 23.0 W: 22.2 Th: 3.2
Technological type: Biface (perforated)
Presence of cortex: Yes, visible on the interior of the perforation
Raw material appearance: Banded tan brown and gray brown and orange brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-13/7B cache
Appearance in the literature: Pendergast 1982: 192
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit edge abrading and step and hinge terminated flake scarring. The medial surfaces of the specimen exhibit short and moderate length feather terminated flake scarring. Of note is that unlike other perforated forms, the specimen does not exhibit any striations or evidence of grinding on the cortex in present in the perforation.
Presence of pigments/ residues: None



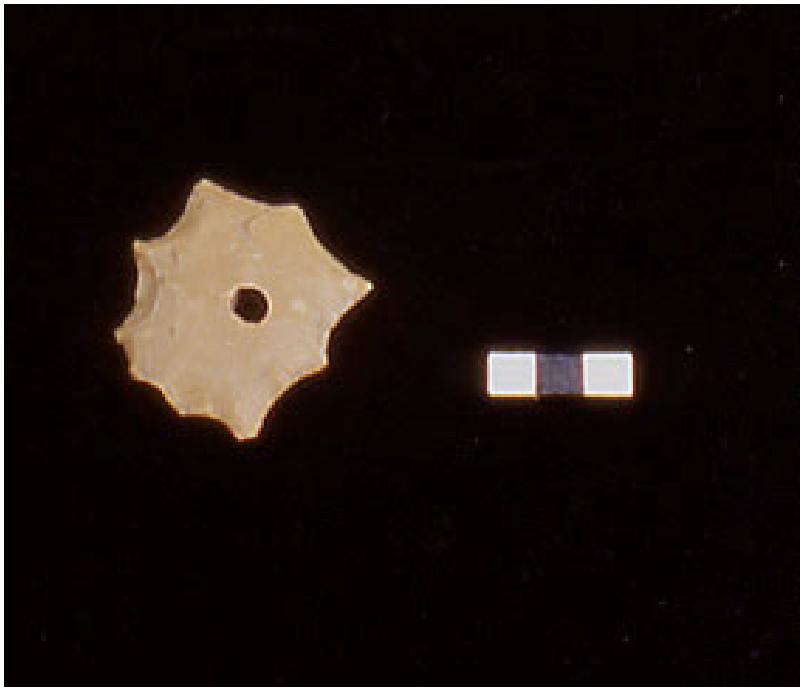
ah207RP206/2



ah293RP364/51

cr19
CH2032/9- 1
Site: Altun Ha
Dimensions (cm) L: 5.8 W: 4.6 Th: 1.0
Technological type: Biface (perforated)
Presence of cortex: Yes, on the interior of
Raw material appearance: Uniform tan brown
Presence of polish/ thermal alteration/ coloration: Yes, polish visible on both medial surfaces
Context: Operation 2032 workshop deposits (Early Postclassic AD 1000)
Appearance in the literature: Probst 1984: 15 *ill. 49*
Breakage patterns/ notes: This specimen is made of very fine textured chert with a void that was shaped into a circular perforation. Overall, the specimen is small and was likely produced on a moderately sized flake. The medial surfaces of the specimen exhibit short feather terminated flake scarring. The lateral margins exhibit stacked microflaking and very short feather terminated flake scars. Of note is the polish/ sheen across the surfaces indicating that this specimen may have been extensively handled.
Presence of pigments/ residues: None

r3
LA/unknown
Site: Lamanai
Dimensions (cm) L: 30.0 W: 20.8 Th: 4.5
Technological type: Biface (seven barbs)
Presence of cortex: Yes
Raw material appearance: Dark gray brown and brown
Presence of polish/ thermal alteration/ coloration: None
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with small circular inclusions visible. The interior of the perforation exhibits extensive stacked microflaking and edge crushing. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The exterior lateral margins exhibit short feather terminated scarring and short step and hinge terminated flake scarring. Some localized areas of edge crushing are visible, most prevalent on the interior of the barbs/ notches. Of note is the striking platform remnant visible at the distal terminus of one barb.
Presence of pigments/ residues: None



cr19CH2032/9-1

r3LA/

r83
LA244/9
Site: Lamanai
Dimensions (cm) L: 34.0 W: 31.5 Th: 4.7
Presence of cortex: Yes, interior of perforation
Raw material appearance: Dark gray brown with dark brown gray and tan gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive small circular coarse textured inclusions. Heavy step and hinge terminated flake scarring is visible on the interior of the barbs/ notches. Edge crushing is also visible in these areas as well as on the interior of the perforation. The medial surfaces of the specimen exhibit both short and lengthy feather terminated flake scarring. Short feather terminated scarring is visible on the margins of the edge prominences.
Presence of pigments/ residues: None

Artifact Grouping: Stemmed Disks

ah34
RP34/48
Site: Altun Ha
Dimensions (cm) L: 29.7 W: 12.0 Th: 3.7
Technological type: Biface (stemmed)
Presence of cortex: No
Raw material appearance: Mottled pale brown/ pale gray/ yellowish brown
Presence of polish/ thermal alteration/ coloration: Yellow/ brown staining visible at the distal terminus
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured material along the stem. There is extensive stacked step and hinge scarring, as well as feather terminated flake scarring along the margins of the stem. The margins of the disk exhibit short feather terminated flaked scarring. The medial surfaces of the stem exhibit parallel feather terminated flake scarring. The medial surfaces of the disk exhibit short and relatively lengthy feather terminated flake scars.
Presence of pigments/ residues: None

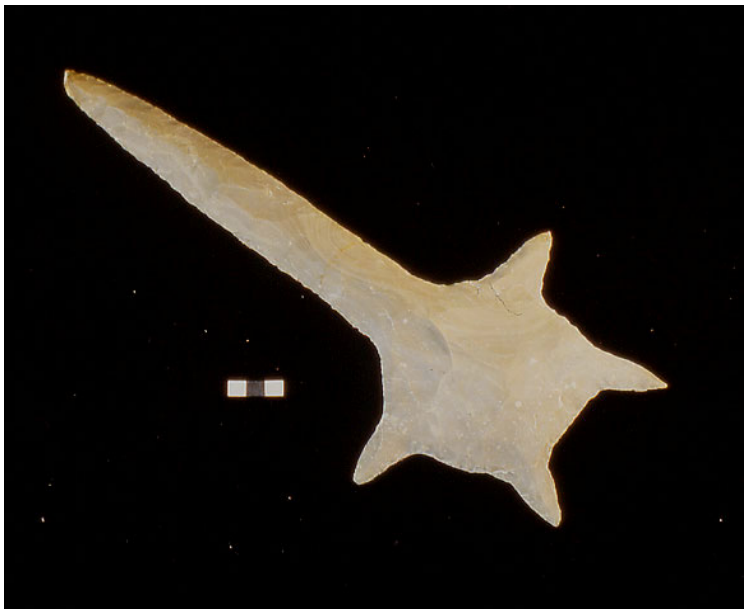
ah229
RP35/13
Site: Altun Ha
Dimensions (cm) L: 27.3 W: 12.7 Th: 3.6
Technological type: Biface (stemmed)
Presence of cortex: Yes, small quantity of cortex at terminus of stem
Raw material appearance: Mottled dark brown gray/ brown gray/ pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 41*
Breakage patterns/ notes: This specimen is made of fine textured chert. Lengthy feather terminated flake scars are visible along the medial surfaces of the disk. The stem exhibits primarily symmetrical feather terminated flake scarring and is bi- convex in cross section. The lateral margins exhibit primarily short feather terminated flake scars with localized areas of stacked step and hinge scarring. Some edge crushing is also visible on the lateral margins. Of note is the short stem that contrasts with other forms that exhibit longer stems.
Presence of pigments/ residues: None

ah254
RP38/65
Site: Altun Ha
Dimensions (cm) L: 39.3 W: 13.0 Th: 4.4
Technological type: Biface (stemmed)
Presence of cortex: No
Raw material appearance: Mottled very pale brown and very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of coarse textured chert. The medial surfaces exhibit feather and step terminated flake scars. Short symmetrical feather terminated flake scars are most prevalent along the length of the stem. The lateral margins exhibit numerous areas of stacked step and hinge terminated flake scarring and edge crushing. Stacked flake scarring is visible at the intersection of the stem and the disk. Overall the specimen is thick in cross section but is relatively narrow in width.
Presence of pigments/ residues: None

ah236
RP164/119
Site: Altun Ha
Dimensions (cm) L: 31.0 W: 16.0 Th: 3.0
Technological type: Biface (stemmed)
Presence of cortex: Yes, cortex visible on medial surface of the disk
Raw material appearance: Banded gray brown/ pale brown/ red and dark brown
Presence of polish/ thermal alteration/ coloration: Yes, red/ red yellow coloration visible on both medial surfaces
Context: Structure B-4/2 tomb subfloor cache III (Late Classic AD 674)
Appearance in the literature: Pendergast 1982: 104 *ill. 107*
Breakage patterns/ notes: This specimen is made of fine textured chert that has a complex surface alteration. The surfaces are covered with a clear sheen and reddish and dark reddish brown coloration that likely indicates thermal alteration. Flake scarring along the medial surfaces is comprised of lengthy feather terminated scarring. Along the stem, shorter symmetrical feather terminated flake scarring is more prevalent. The lateral margins of the stem exhibits highly localized stacked step and hinge terminated flake scarring. Edge crushing is also visible along the margins of the stem. Of note again is the pattern of coloration and cortex that was likely cultural in origin.
Presence of pigments/ residues: No, but see above for notation on color pattern.

ah251
RP200/392
Site: Altun Ha
Dimensions (cm) L: 40.1 W: 18.8 Th: 3.2
Technological type: Biface (stemmed/ barbed)
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Banded brown gray with gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of very fine textured chert with extensive small oval shaped inclusions visible. The medial surfaces of the disk exhibit lengthy feather and hinge terminated flake scars. The stem exhibits symmetrical feather terminated flake scarring on the medial surfaces. The lateral margins exhibit some stacked flake scarring as well as short feather terminated flake scars. There are localized areas of edge crushing visible where the barbs meet the margin of the disk. The lateral margins of the barbs exhibit short feather terminated flake scars. Note large hinge scar visible on medial surface of disk.
Presence of pigments/ residues: None

ah236RP164/19



ah251RP200/392

ah189
RP200/395
Site: Altun Ha
Dimensions (cm) L: 34.8 W: 13.3 Th: 3.2
Technological type: Biface (stemmed)
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Mottled pale brown and very pale brown
Presence of polish/ thermal alteration/ coloration: Yes, red yellow brown oval
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 77*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Lengthy feather terminated flake scarring is visible across the medial surface of the specimen. Also visible along the stem are symmetrical flake scars present on each side of the medial ridge. The medial surfaces of the disk exhibit short and lengthy feather terminated flake scarring. Along lateral margins of the disk, short feather terminated flake scarring is visible. Of note is the oval shaped red/ yellow/ brown area with a pale yellow area visible on interior. This area appears to be cultural in origin.
Presence of pigments/ residues: No clear pigments, but see above note regarding coloration present.

ah74
RP256/65
Site: Altun Ha
Dimensions (cm) L: 36.4 W: 13.1 Th: 4.1
Technological type: Biface (stemmed)
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Banded gray and brown with brown tan
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache II (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 92
Breakage patterns/ notes: This specimen is made of very fine textured chert. Low densities of circular inclusions are visible. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The stem exhibits a medial ridge with symmetrical feather terminated flake scars. The lateral margins exhibit some localized areas of step and hinge terminated flake scarring. Localized edge crushing is also visible along the lateral margins.
Presence of pigments/ residues: None

ah327
RP364/63
Site: Altun Ha
Dimensions (cm) L: 35.6 W: 20.1 Th: 3.0
Technological type: Biface (stemmed)
Presence of cortex: Yes
Raw material appearance: Mottled brown/ pale gray with dark brown/ dark red
Presence of polish/ thermal alteration/ coloration: Yes, dark red dark brown
Context: Structure B-4/7 tomb subfloor cache III (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 70 *ill. 71*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The flake scarring along the medial surfaces of the specimen are for the most part lengthy feather terminated flake scars. The lateral margins exhibit primarily short feather terminated flake scarring. Some areas of localized edge crushing are visible along the lateral margins as well. Of note is the complex color pattern visible along one medial surface of the specimen. This dark red may be the natural color of the material. In contrast, it appears that pale red pigment is present on the adjacent area of cortex.
Presence of pigments/ residues: Yes, appears to be pale red pigment visible on the cortex of medial surface of the specimen.

ah65
RP528/41
Site: Altun Ha
Dimensions (cm) L: 27.9 W: 12.3 Th: 3.3
Technological type: Biface (stemmed)
Presence of cortex: No
Raw material appearance: Mottled pale brown/ gray with dark gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen exhibits a hinge fracture at one terminus. At the location of this fracture a dark brown chert is visible beneath the surface color of the artifact. The lateral margins of the specimen exhibit short feather terminated flake scarring. Also present are some localized areas of edge crushing. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars. Some lengthy hinge fractures are also visible across the medial surfaces of the disk.
Presence of pigments/ residues: None

ah28
RP528/42
Site: Altun Ha
Dimensions (cm) L: 35.8 W: 13.7 Th: 3.4
Technological type: Biface (stemmed)
Presence of cortex: Yes, small area visible at one terminus
Raw material appearance: Mottled pale brown gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive coarse textured material visible in the matrix of the material. Some inclusions are also visible. The lateral margins of the stem exhibit extensive edge attrition and stacked step and hinge terminated flake scarring. The margins of the disk are much more finely flaked with little stacked flake scarring visible. The medial surfaces of the stem exhibit symmetrical and short feather terminated flake scarring. The surfaces of disk exhibit moderate and lengthy feather terminated flake scarring. Of note is the striking platform visible at proximal terminus.
Presence of pigments/ residues: Yes, a small area of brown material, circular in shape (approx. 1.4 cm in diameter) is visible on the medial dorsal surface. The residues appear to be organic but it is unclear whether residue is cultural in origin.

r95
LA244/21
Site: Lamanai
Dimensions (cm) L: 34.5 W: 12.3 Th: 4.1
Technological type: Biface (stemmed)
Presence of cortex: Yes, small quantity visible at distal terminus
Raw material appearance: Pale brown and brown with dark brown gray
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with numerous circular and coarse textured inclusions visible. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring on the disk portion as well as on the stem. Of note are the two hinge terminated flake scars visible on one medial surface of the disk. The lateral margins exhibit both feather terminated and hinge terminated flake scars. Also, localized areas of stacked microflaking and edge crushing are visible on the lateral margins. Of note is pale red coloration indicating that the disk was thermally altered.
Presence of pigments/ residues: None

Artifact grouping: Circular and Ovoid Disks

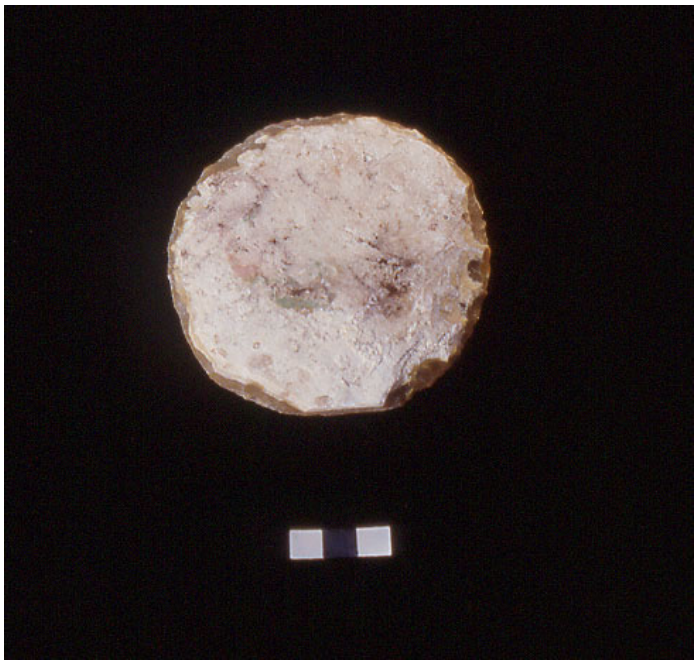
ah39
RP38/67
Site: Altun Ha
Dimensions (cm) L: 17.5 W: 10.5 Th: 3.9
Technological type: Biface
Presence of cortex: No
Raw material appearance: Pale brown and gray with dark gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28
Breakage patterns/ notes: This specimen is made of fine textured chert that exhibits both coarse and very fine textured material in the matrix of the specimen. The lateral margins of the specimen exhibit short feather terminated flake scarring as well as stacked flake scarring and edge crushing. The medial surfaces exhibit lengthy feather terminated flake scars, indicating that further thinning was not necessary. Though it appears this specimen was interred as a religious/ symbolic object, the technology is highly reminiscent of the technology utilized in the production of utilitarian tool forms.
Presence of pigments/ residues: None

ah294
RP200/409
Site: Altun Ha
Dimensions (cm) L: 16.5 W: 15.3 Th: 2.7
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled gray brown/ yellow brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 77*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The lateral margins exhibit short feather terminated and some step and hinge terminated flake scarring. There is little stacked microflaking or edge crushing visible on the lateral margins.
Presence of pigments/ residues: None

ah178
RP364/64
Site: Altun Ha
Dimensions (cm) L: 10.0 W: 9.6 Th: 2.0
Technological type: Biface
Presence of cortex: Yes, extensive quantity visible on the dorsal surface
Raw material appearance: Banded brown and tan brown on one medial surface
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache III (Late Classic AD 600)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert with cortex covering the entire dorsal surface. There is little flake scarring visible on the medial ventral surface. The lateral margins exhibit short feather terminated fake scars and localized areas of edge crushing and stacked microflaking formed in the process of strengthening the margins. Of note is the textile fragment that is adhering to the dorsal surface.
Presence of pigments/ residues: Yes, there is pigment residue on the dorsal surface of the specimen. More importantly is the small textile fragment adhering to the dorsal surface. The textile fragment is 3.2 cm in length and 1.6 cm in width. The fragment appears to exhibit both green and pale red pigment. This textile fragment is the focus of characterization analysis described in Chapter 7.

ah179
RP528/25
Site: Altun Ha
Dimensions (cm) L: 11.2 W: 10.1 Th: 2.3
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled very pale gray and pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 371*
Breakage patterns/ notes: This specimen is made of fine textured material that exhibits some patination. The specimen exhibits lengthy feather terminated flake scarring across the medial portion of the specimen. The margins exhibit shorter flake scarring, including feather terminated flake scarring and some stacked and hinge terminated flake scarring.
Presence of pigments/ residues: None

ah39RP38/6

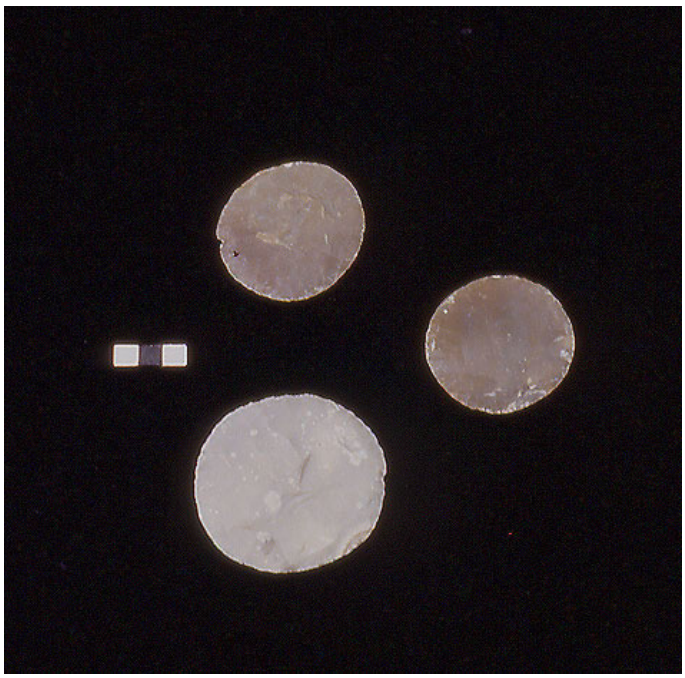


ah178RP64/64

ah16
RP528/43
Site: Altun Ha
Dimensions (cm) L: 24.2 W: 13.0 Th: 2.9
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded gray brown/ brown with gray/ pale blue gray
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown stain
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of very fine textured and moderately fine textured chert included in the matrix, as well as smaller coarse textured inclusions. The medial surfaces of the specimen exhibit lengthy and moderately lengthy feather terminated flake scarring. This suggests that thinning efforts were successful. The lateral margins exhibit short feather terminated flake scarring with some stacked microflaking. There are short hinge scars visible along the lateral margins.
Presence of pigments/ residues: Yes, circular area of brown residue that may have been part of an appliqué is visible on the medial dorsal surface, perhaps depicting an eye. If so, this specimen can be considered a zoomorphic form.

cr18
CH2012/13- 15
Site: Altun Ha
Dimensions (cm) L: 7.5 W: 7.4 Th: 1.6
Technological type: Biface
Presence of cortex: Yes, small quantity along one margin
Raw material appearance: Gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2012 series of caches central precinct (Late Preclassic)
Appearance in the literature: Probst 1984: 13 *ill. 47*
Breakage patterns/ notes: This specimen is made of very fine textured chert with a fairly dense quantity of circular coarse textured inclusions visible. The medial surfaces of the specimen exhibit relatively lengthy feather terminated flake scars. Several hinge scars are also visible on one medial surface. The lateral margins exhibit little edge attrition. Microflaking in the form of short half- moon shaped feather terminated flake scars are visible on the margins as well. There is also localized step and hinge scarring visible on margins as well.
Presence of pigments/ residues: None

ah16RP528/43



CH2012/13- 15 disks

cr22
CH2012/13- 15
Site: Colha
Dimensions (cm) L: 6.1 W: 6.0 Th: 0.8
Technological type: Biface
Presence of cortex: No
Raw material appearance: Uniform brown
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2012 cache in the western structure in main plaza of central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: Probst 1984: 13 *ill. 47*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit few flake scars. The scarring that is present occurs along the lateral margins. The margins exhibit short feather terminated flake scars and some edge crushing. The specimen was likely produced on a small flake.
Presence of pigments/ residues: None

cr23
CH2012/13- 15
Site: Colha
Dimensions (cm) L: 6.6 W: 6.5 Th: 1.2
Technological type: Biface
Presence of cortex: No
Raw material appearance: Dark brown with brown yellow
Presence of polish/ thermal alteration/ coloration: Yes, clear sheen on surfaces
Context: Operation 2012 cache in the western structure in main plaza of central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: Probst 1984: 1984 *ill. 47*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit short feather terminated flake scars. The lateral margins exhibit microflaking and some localized areas of stacked flake scarring. There is one localized area that exhibits stacked flake scarring and edge crushing. Of note is the sheen/ polish visible across the medial surfaces of the specimen.
Presence of pigments/ residues: None

Artifact Grouping: Bundled forms

ah68
RP176/20
Site: Altun Ha
Dimensions (cm) L: 20.7 W: 11.0 Th: 2.8
Technological type: Biface (stemmed/ serrated)
Presence of cortex: Yes, small quantity at each terminus
Raw material appearance: Mottled pale brown pale gray/ banded brown/ gray
Presence of polish/ thermal alteration/ coloration: Some dark brown visible at one terminus
Context: Structure B-4/4 wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of fine textured chert with circular and oval shaped inclusions. The lateral margins exhibit some edge crushing and stacked microflaking on the interior of the serrations and notches. Some short feather terminated flake scars are also visible along the lateral margins. The medial surfaces of the specimen exhibit lengthy feather and hinge terminated flake scarring. Of note is the striking platform remnant visible at the proximal terminus of the specimen.
Presence of pigments/ residues: None

ah154
RP306/1
Site: Altun Ha
Dimensions (cm) L: 24.6 W: 9.3 Th: 1.7
Technological type: Biface (stemmed)
Presence of cortex: Yes
Raw material appearance: Brown and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 82 *ill. 83*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Across the medial surfaces of the specimen lengthy feather terminated flake scars are visible. A deep hinge fracture is visible on the medial dorsal surface terminating at the cortex. The lateral margins exhibit localized areas of stacked microflaking and edge crushing, especially prevalent on the interior of the notches. The edge prominences and the stem exhibit short feather terminated flake scarring. Of note is the curve of the specimen in profile that indicated production on a macroblade.
Presence of pigments/ residues: None

ah113
RP306/3
Site: Altun Ha
Dimensions (cm) L: 22.8 W: 10.7 Th: 2.5
Technological type: Biface (stemmed)
Presence of cortex: No
Raw material appearance: Banded tan brown and gray/ very pale gray and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1982: 82 *ill. 83*
Breakage patterns/ notes: This specimen is made of very fine textured chert with numerous ovoid and circular inclusions as well as coarse material visible in the matrix. The lateral margins exhibit localized areas of stacked step and hinge terminated flake scarring. There are also short feather terminated flake scars along the margins of the stem. Edge crushing is visible on the interior of the notches at the distal terminus. The medial surfaces of the specimen exhibit finely flaked and lengthy feather terminated flake scarring. Symmetrical feather terminated flake scars are visible along the stem. Of note is the curve in profile that indicates that specimen was produced on a macroflake- blade.
Presence of pigments/ residues: None

r7
LA/unknown
Site: Lamanai
Dimensions (cm) L: 26.2 W: 13.0 Th: 2.5
Technological type: Biface (stemmed)
Presence of cortex: No
Raw material appearance: Mottled gray brown and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert with some moderately coarse textured inclusions. The medial surfaces of the specimen exhibit short and lengthy feather terminated flake scars. Also several deep hinge fractures are visible on the medial surfaces of the specimen. The lateral margins exhibit short feather terminated flake scars on the stem. This breakage pattern is similar on the bundle portion, both on the interior of the shallow notches. There are some localized areas of edge crushing and stacked microflaking on lateral margins. Note snap fracture visible at one terminus.
Presence of pigments/ residues: None

ah154RP306/1

r7LA/

Artifact Grouping: Serpent Staffs, Axes, and Axe- like Depictions

ah64
RP38/64
Site: Altun Ha
Dimensions (cm) L: 25.8 W: 12.5 Th: 3.6
Technological type: Biface (stemmed)
Presence of cortex: No
Raw material appearance: Mottled pale gray/ pale brown with gray
Presence of polish/ thermal alteration/ coloration: Yes, dark red brown stain
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28
Breakage patterns/ notes: This specimen is made of fine textured chert with small quantities of coarse textured inclusions. The specimen is bi- convex in cross section and is relatively thick. The lateral margins exhibit localized areas of stacked microflaking and edge crushing. On the medial surfaces there are several localities where abrupt step and hinge scarring is visible. For the most part, moderate length symmetrical feather terminated flake scarring is visible on the medial surfaces. Of note is the striking platform remnant at one terminus. Also of note is the circular dark reddish brown coloration visible at one terminus.
Presence of pigments/ residues: None

ah248
RP200/408
Site: Altun Ha
Dimensions (cm) L: 30.4 W: 11.6 Th: 3.9
Technological type: Biface (stemmed)
Presence of cortex: Yes, small area visible on medial surface
Raw material appearance: Banded brown gray/ gray/ strong brown/ pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 77*
Breakage pattern/ notes: This specimen is made of fine textured chert with some coarser textured material included in the matrix. The lateral margins exhibit feather and stacked step and hinge terminated scarring visible. Lateral margins on the interior of curves/ notches exhibit extensive stacked microflaking and edge crushing. Symmetrical feather terminated flake scars are visible on the medial surfaces of the stem. Across the medial surfaces are moderate length feather terminated flake scars. Of note is the small area of cortex on one medial surface, delineating the eye of what appears to be a serpent head.
Presence of pigments/ residues: None

ah4
RP382/4
Site: Altun Ha
Dimensions (cm) L: 30.0 W: 23.2 Th: 2.5
Technological type: Biface (stemmed/hafted)
Presence of cortex: Yes, small area at one terminus
Raw material appearance: Mottled gray/ pale brown/ banded gray/ pale gray
Presence of polish/ thermal alteration/ coloration: Yes, extensive polish present along what appears to be a hafting area.
Context: Structure H-1/2 cache (Late Classic AD 600- 900)
Appearance in the literature: Pendergast 1990: 288
Breakage patterns/ notes: This specimen is made of very fine textured chert with a heavy sheen visible across both the haft and the blade. Also of visible is the discoloration visible along the haft. Heavy polish is present along this portion of the specimen indicating extensive handling. The lateral margins along the stem/haft are smoothed and polished. Polish is also visible along the medial surfaces of the blade. The stem/haft exhibits symmetrical and parallel feather terminated scarring. The medial surfaces of the blade exhibit lengthy feather terminated flake scarring. Some stacked flake scarring and edge crushing are visible in localized areas and on the interior of the curve. Of note is the reworking of the distal end of the blade where gray colored chert is visible.
Presence of pigments/ residues: Yes, it appears that some blue/ green pigments are visible on one surface of the biface.

ah136
RP554/3
Site: Altun Ha
Dimensions (cm) L: 30.4 W: 13.5 Th: 4.0
Technological type: Biface (stemmed)
Presence of cortex: Yes, small area visible on medial surface
Raw material appearance: Very pale gray brown and very pale yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-13/1 cache
Appearance in the literature: Pendergast 1982: 198
Breakage patterns/ notes: This specimen is made of fine textured chert that appears heavily patinated to a very pale gray brown. The lateral margins exhibit extensive step and hinge terminated scarring, especially on the interior of curve. Parallel feather terminated flake scars are visible along the stem. The medial surfaces also exhibit extensive feather terminated flake scarring. Note the cortex and medial surface, depicting the eye of what appears to be a serpent head.
Presence of pigments/ residues: None

ah248RP200/408

ah136RP554/3

ah60
RP694/5
Site: Altun Ha
Dimensions (cm) L: 24.8 W: 14.5 Th: 3.5
Technological type: Biface
Presence of cortex: Yes, small area at one terminus
Raw material appearance: Mottled gray and pale brown; brown
Presence of polish/ thermal alteration/ coloration: Yes, polish/ brown stain visible on one terminus
Context: Structure K-33/3 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 364 *ill. 363*
Breakage patterns/ notes: This specimen is made of moderate to fine textured chert with a low density of circular inclusions. The lateral margins exhibit short symmetrical feather terminated flake scarring, especially prevalent along the lateral margins. Also localized areas of stacked flake scarring and edge crushing are also visible. The medial surfaces of the specimen exhibit short and lengthy feather terminated flake scarring. Of note is a dull polish visible at the distal terminus of the stem. This suggests extensive handling. Also a brown stain is visible at the opposite terminus. Unclear if this stain is cultural in origin.
Presence of pigments/ residues: None

cr47
CH3060/1
Site: Altun Ha
Dimensions (cm): L: 20.5 W: 8.3 Th: 1.5
Technological type: Biface (stemmed)
Presence of cortex: No
Raw material appearance: Very pale brown/ pale gray/ dark yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, gray and brown
Context: Surface cache in the 3000 quadrant (Late Classic AD 600- 900)
Appearance in the literature: Eaton et al. 1994: 258- 260 *ill. 250*
Breakage patterns/ notes: This specimen is made of very fine textured chert that exhibits patination. The lateral margins exhibit short feather terminated flake scarring, on one margin prominence a series of short parallel flake scars that appears to have been the result of pressure flaking. Localized areas of stacked microflaking and edge crushing are also present on the lateral margins. The medial surfaces are finely flaked and exhibit short and moderate length feather terminated flake scarring. Of note is the coloration across one medial surface and a similar coloration at one terminus.
Presence of pigments/ residues: None

cr47CH3060/

Artifact Grouping: Tetrafoils

ah18
RP38/62
Site: Altun Ha
Dimensions (cm) L: 22.7 W: 20.6
Technological type: Biface
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Very pale brown/ brown/ banded gray and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/3 tomb subfloor cache 1 (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28
Breakage patterns/ notes: This specimen is made of moderately fine textured material. One surface exhibits inclusions. The medial surfaces of the specimen exhibit lengthy flake scars. The lateral margins exhibit edge crushing and stacked flake scarring, especially prevalent at the intersection of the appendages of the piece. Of note is the striking platform remnant visible at the terminus of one of the appendages.
Presence of pigments/ residues: A small area that exhibits what appear to be traces of red pigment is visible on one surface. However, the traces are highly eroded and are not clearly visible.

ah84
RP102/10
Site: Altun Ha
Dimensions (cm) L: 18.3 W: 14.8 Th: 2.9
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Pale brown with pale gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-5/1 cache (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert. The lateral margins exhibit stacked microflaking and edge crushing, especially prevalent on the interior of the notches as well as the serrations. The medial surfaces of the specimen exhibit feather terminated flake scars that are moderate in length. This may be a depiction of a zoomorphic form, but the outline of the form is not clearly defined.
Presence of pigments/ residues: Yes, a dark brown residue is visible at the terminus of one of the prongs. The brown residues exhibit texture on both dorsal and ventral surfaces of the specimen.

ah70
RP137/51
Site: Altun Ha
Dimensions (cm) L: 24.3 W: 22.0 Th: 2.7
Technological type: Biface (serrated)
Presence of cortex: Yes, small area on one prong
Raw material appearance: Mottled pale gray/ pale brown/ gray/ pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure F-1/1 cache beneath floor 1 (Late Classic AD 700)
Appearance in the literature: Pendergast 1990: 250 *ill. 241*
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured material visible in the matrix of the material. The medial surfaces exhibit relatively lengthy feather terminated flake scarring. Also several lengthy hinge scars are visible extending from the margins to the interior of the surface. The lateral margins exhibit short feather terminated flake scarring as well as localized stacked microflaking and edge crushing, most prevalent at the intersections of the prongs. Of note are the cortex and pigments, as well as the outline of the form suggesting a bird or bat form.
Presence of pigments/ residues: Yes, extensive yellow and brownish yellow pigment visible across the medial surfaces of one prong. The pigment exhibits surface texture on both medial surfaces.

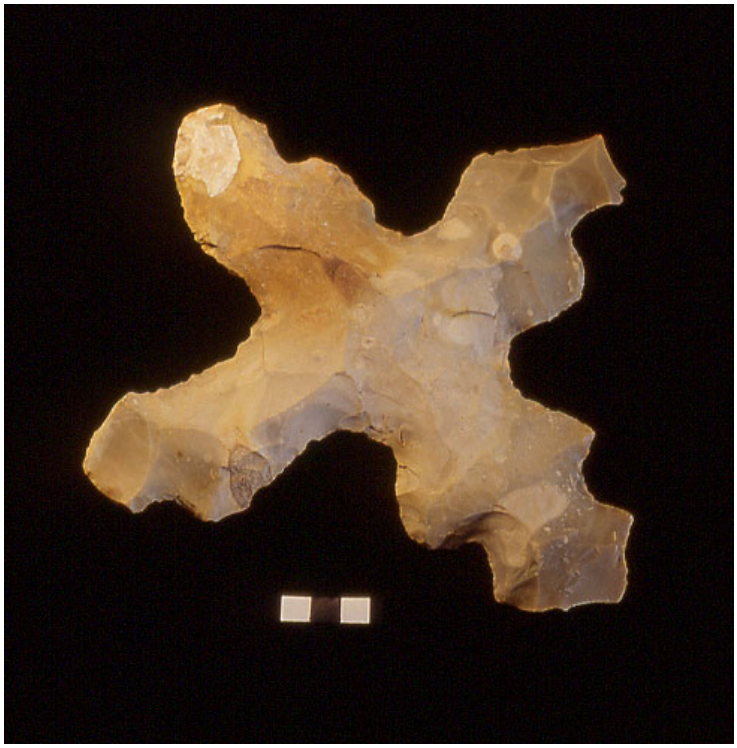
ah188
RP164/120
Site: Altun Ha
Dimension (cm) L: 32.7 W: 30.8 Th: 3.9
Technological type: Biface
Presence of cortex: Yes, small area at termini of two prongs
Raw material appearance: Banded pale brown/ brown with mottled brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache III (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 104 *ill. 107*
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive oval shaped inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars, with hinge terminated scarring also visible. Along the lateral margins, localized areas of edge crushing and stacked microflaking are visible. Symmetrical and parallel feather terminated flake scarring are visible extending from margins to the medial surface of specimen.
Presence of pigments/ residues: None

ah110
RP176/21
Site: Altun Ha
Dimensions (cm) L: 19.5 W: 14.0 Th: 2.7
Technological type: Biface
Presence of cortex: Yes, large quantity across one medial surface
Raw material appearance: Tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The lateral margins exhibit stacked step and hinge scarring as well as edge crushing. This pattern is especially prevalent at the intersection of the prongs. The medial surfaces show some lengthy feather terminated flake scarring. Though extensive cortex visible on medial surfaces prevented further thinning efforts. On the dorsal surface, a deep step fracture is visible terminating in cortex. The curvature of the specimen in profile indicates that the specimen was produced on a macroflake- blade. Of note is the striking platform remnant visible at the terminus of one prong.
Presence of pigments/ residues: None

ah239
RP188/4
Site: Altun Ha
Dimensions (cm) L: 28.7 W: 25.4 Th: 2.8
Technological type: Biface
Presence of cortex: Yes, small area on one medial surface
Raw material appearance: Mottled dark gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 121 *ill. 125*
Breakage patterns/ notes: This specimen is made of very fine textured chert that exhibits extensive inclusions. The specimen exhibits lengthy feather terminated flake scarring across the medial surfaces of the specimen. Some hinge terminated flake scars are also visible across the medial surfaces. The lateral margins exhibit short feather terminated scarring as well as localized areas of stacked microflaking and edge crushing. Some of the shorter feather terminated scarring appears to be pressure flaked.
Presence of pigments/ residues: None

ah295
RP200/390
Site: Altun Ha
Dimensions (cm) L: 27.3 W: 26.7 Th: 3.8
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Mottled pale brown and brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces exhibit primarily feather terminated flake scars of moderate length as well as extending from the lateral margins to the interior of the surface. The lateral margins exhibit shorter step and hinge terminated scarring that along one prong are extensively stacked. Localized areas of stacked microflaking and edge crushing are present in the notches formed at the intersection of the prongs.
Presence of pigments/ residues: None

ah127
RP256/69
Site: Altun Ha
Dimensions (cm) L: 27.4 W: 24.0 Th: 4.0
Technological type: Biface
Presence of cortex: Yes, small area at the terminus of one prong
Raw material appearance: Banded brown/ gray with tan brown/ pale brown
Presence of polish/ thermal alteration/ coloration: Yes, pale brown on prong
Context: Structure B-4/6 tomb subfloor cache II (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 92
Breakage patterns/ notes: This specimen is made of very fine textured chert with some circular inclusions visible. The specimen overall is finely flaked, but is thick in cross section. The lateral margins exhibit extensive step and hinge terminated flake scarring, as well as short feather terminated scarring. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. For the most part, the flake scarring along the prongs is parallel and symmetrical.
Presence of pigments/ residues: None



ah70RP137/51

ah295RP200/390

ah319
RP364/48
Site: Altun Ha
Dimensions (cm) L: 34.9 W: 29.0 Th: 3.8
Technological type: Biface (serrated)
Presence of cortex: Yes, small area located at distal terminus
Raw material appearance: Banded pale brown gray and brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 68 *ill. 69*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit relatively lengthy flake scarring that extend from the margins to the interior of each of the prongs. The feather terminated flake scarring is parallel and symmetrical. The lateral margins, especially at the intersection of the prongs, exhibit extensive stacked step and hinge terminated flake scarring. Edge crushing is also prevalent in these areas as well. The interiors of the serrations exhibit stacked flake scarring and edge crushing. The edge prominences exhibit short feather terminated flake scars.
Presence of pigments/ residues: None

ah78
RP528/35
Site: Altun Ha
Dimensions (cm) L: 29.5 W: 27.0 Th: 5.2
Technological type: Biface
Presence of cortex: Yes, small area at distal terminus of one prong
Raw material appearance: Banded very pale gray and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert with gray patina visible. The lateral margins exhibit localized stacked step and hinge terminated flakes scarring and some edge crushing, most prevalent at the intersection of the prongs. There are also short parallel feather terminated flake scars extending from the margin to the interior of the medial surface. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars. Some lengthy hinge scars are also visible on the medial surface.
Presence of pigments/ residues: None

ah129
RP616/2
Site: Altun Ha
Dimensions (cm) L: 27.0 W: 18.4 Th: 3.5
Technological type: Biface (serrated)
Presence of cortex: Yes, small areas at the termini of each of the prongs
Raw material appearance: Mottled bluish gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-8/3 cache (latter part of the Early Classic AD 500- 550)
Appearance in the literature: Pendergast 1979: 110 *ill. 110*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert. The lateral margins exhibit short feather terminated flake scarring as well as short hinge terminated scarring. Localized areas of edge crushing and stacked micro flaking, most prevalent at the intersection of the prongs. The medial surfaces exhibit moderate length feather terminated flake scars. One surface shows several lengthy hinge scars that indicate thinning efforts were hindered.
Presence of pigments/ residues: None

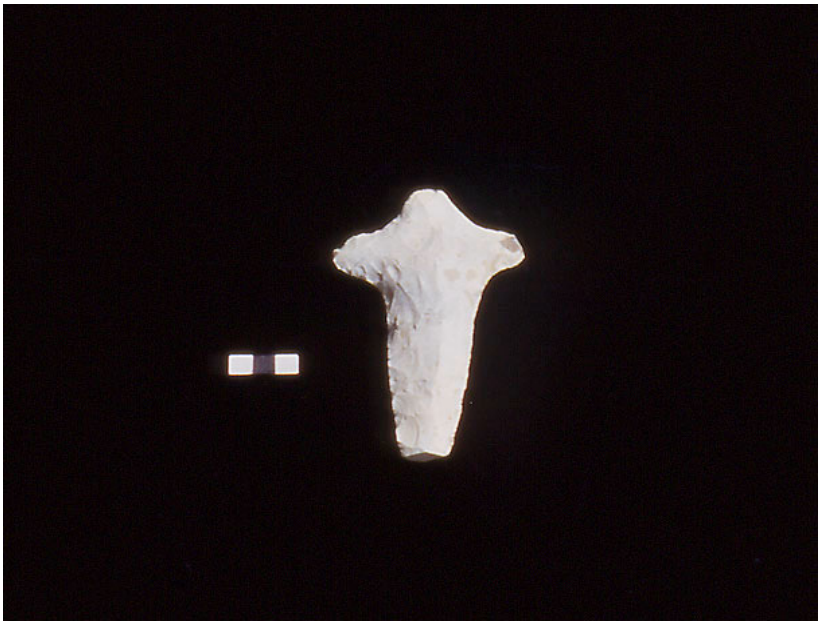
ah40
RP694/3
Site: Altun Ha
Dimensions (cm) L: 27.5 W: 26.7 Th: 4.6
Technological type: Biface
Presence of cortex: Yes, small area on terminus of one prong
Raw material appearance: Mottled gray/ pale brown with banded gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/3 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 364 *ill. 363*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with small areas of coarser textured chert as well as circular fossil inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. Most of these flake scars extend from the margins to the interior of the medial surface. The lateral margins exhibit short feather terminated flake scarring, as well as stacked step and hinge scarring is also present in localized areas. Of note is striking platform present at the terminus of one prong.
Presence of pigments/ residues: None

ah77
RP697/8
Site: Altun Ha
Dimensions (cm) L: 27.3 W: 22.4 Th: 3.8
Technological type: Biface
Presence of cortex: Yes, small areas visible at the termini of the prongs
Raw material appearance: Mottled very pale gray and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/6 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 362 *ill. 363*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert. Some coarse textured inclusions are prevalent in the matrix of the chert. The lateral margins exhibit localized areas of stacked step and hinge terminated flake scarring. Lengthy feather terminated flake scarring is prevalent across the medial surfaces of the specimen.
Presence of pigments/ residues: None

cr6
CH2008/8- 1(148)
Site: Altun Ha
Dimensions (cm) L: 12.7 W: 8.4 Th: 1.9
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled pale yellow brown with some pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2008 domestic platform in large plazuela group
(L. Classic AD 600- AD 850)
Appearance in the literature: Escobedo 1981: 116 *ill. 117*;
Probst 1984: 9 *ill. 50*
Breakage patterns/ notes: This specimen is made of fine textured chert with very few inclusions. Overall, the specimen is finely flaked as exhibited by the lengthy feather terminated flake scars across the medial surfaces. The stem also exhibits symmetrical feather terminated flake scars. Lateral margins exhibit edge attrition and some stacked flake scarring. Of note is the brown chert visible below the pale brown surface (patination).
Presence of pigments/ residues: None

r88
LA240/20
Site: Lamanai
Dimensions (cm) L: 28.7 W: 24.3 Th: 3.9
Technological type: Biface
Presence of cortex: Yes, visible at terminus of one appendage
Raw material appearance: Mottled dark gray brown and pale brown
Presence of polish/ thermal alteration/ coloration: Yes, polish one appendage
Context: Structure N10-9/8 large axial cache beneath staircase (located above N10-9/9) (dated to Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with coarse textured inclusions present on the interior of the material. The medial surfaces of the specimen exhibits symmetrical feather terminated flake scarring starting from the margins and moving into the interior of the appendages. The lateral margins exhibit extensive areas of stacked step and hinge scarring as well as edge crushing. This pattern is most prevalent at the intersection of the appendages. Of note is polish visible at the distal end of one of the appendages, indicating that the form may have been handled extensively.
Presence of pigments/ residues: None

r59
LA244/3
Site: Lamanai
Dimensions (cm) L: 31.6 W: 29.0 Th: 5.5
Technological type: Biface (serrated)
Presence of cortex: Yes, small area present on one medial surface
Raw material appearance: Mottled dark brown gray and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive small and larger circular inclusions visible. The specimen is thick and exhibits moderate and lengthy feather terminated flake scars on the medial surfaces. Several lengthy hinge scars are also visible on the medial surfaces. The lateral margins exhibit short, stacked flake scarring with edge crushing most prevalent on the interior of the serrations. The edge prominences exhibit short feather terminated scarring. Of note is a snap fracture visible at the distal terminus of one prong.
Presence of pigments/ residues: None



cr6CH2008/8-1(148)

r50LA244/7

r50
LA244/7
Site: Lamanai
Dimensions (cm) L: 25.0 W: 20.7 Th: 3.0
Technological type: Biface
Presence of cortex: Yes, small area on one medial surface
Raw material appearance: Tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The lateral margins exhibit short parallel feather terminated flake scarring. Some stacked step and hinge scarring is also prevalent, especially at the intersection of the prongs. The medial surfaces exhibit short and lengthy feather terminated flake scarring. Some short hinge scarring is also visible on the medial surfaces. Of note is a snap fracture at the terminus of one appendage.
Presence of pigments/ residues: None

Artifact Grouping: Trefoils

ah45
RP34/50
Site: Altun Ha
Dimensions (cm) L: 30.3 W: 25.4 Th: 3.7
Technological type: Biface
Presence of cortex: Yes, small quantities visible at the termini of two prongs
Raw material appearance: Mottled pale brown/ gray/ banded tan brown/ gray
Presence of polish/ thermal alteration/ coloration: Yes, red/ orange stain
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of moderately fine textured material with some linear inclusions visible on both surfaces. The lateral margins exhibit extensive step and hinge terminated flake scarring, especially prevalent at the intersection of the appendages. Lengthy feather terminated flake scars are visible across the medial surfaces of the specimen. Of note is a striking platform remnant visible at the terminus of one prong. It appears as if the staining/ coloration may be the result of exposure to iron oxide, present in large quantities in soils and ground water in the region.
Presence of breakage patterns/ residues: None

ah199
RP35/18
Site: Altun Ha
Dimensions (cm) L: 25.4 W: 22.2 Th: 4.1
Technological type: Biface
Presence of cortex: Yes, small area of cortex on termini of each prong
Raw material appearance: Banded pale gray brown gray/ brown/ gray/ brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/1 tomb subfloor cache I (Late Classic AD 675- 700)
Appearance in the literature: Pendergast 1990: 40 *ill. 41*
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured inclusions. The specimen is very thick in cross section. The medial surfaces of the specimen exhibits lengthy feather terminated flake scarring. Along the lateral margins, little edge crushing and stacked microflaking is visible. Some short feather terminated flake scars extend from margins to the interior of the surface.
Presence of pigments/ residues: None

ah253
RP38/63
Site: Altun Ha
Dimensions (cm) L: 26.2 W: 24.0 Th: 3.8
Technological type: Biface
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Mottled gray brown with very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of fine textured chert with no inclusions visible. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars with short stacked flaking visible along the lateral margins. At the intersection of the appendages, stacked flake scarring is prevalent with edge crushing also visible along this portion of the margins.
Presence of pigments/ residues: None

ah202
RP164/89
Site: Altun Ha
Dimensions (cm) L: 25.0 W: 19.1 Th: 3.5
Technological type: Biface
Presence of cortex: Yes, small quantity at one terminus
Raw material appearance: Uniform tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Lengthy feather and hinge terminated flake scars are abundant across the medial surfaces of the specimen. The specimen is relatively thick in cross section and exhibits localized stacked step and hinge scarring. The specimen also exhibits localized edge crushing visible on the lateral margins. This pattern is most prevalent at the intersection of the appendages.
Presence of pigments/ residues: None

ah271
RP200/394
Site: Altun Ha
Dimensions (cm) L: 28.0 W: 27.6 Th: 3.3
Technological type: Biface
Presence of cortex: Yes, small area visible on the medial surface of one prong
Raw material appearance: Banded pale brown/ brown with mottled gray/ brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The specimen exhibits symmetrical feather terminated flake scarring extending from the lateral margins to the interior of the medial surfaces. The lateral margins exhibit step and hinge terminated flake scarring and edge crushing, especially prevalent at the intersection of the appendages. Stacked microflaking is visible in localized areas along the margins of the appendages.
Presence of pigments/ residues: None

ah199RP35/18

ah271RP200/394

ah114
RP256/55
Site: Altun Ha
Dimensions (cm) L: 29.7 W: 27.6 Th: 3.6
Technological type: Biface (elongated)
Presence of cortex: Yes, small quantity at terminus of one prong
Raw material appearance: Banded pale brown and brown gray with pale brown
Presence of polish/ thermal alteration/ coloration: Dark brown around cortex
Context: Structure B-4/6 tomb subfloor cache I (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 91
Breakage patterns/ notes: This specimen is made of moderately fine textured chert, with several oval shaped inclusions visible. The lateral margins exhibit step and hinge terminated flake scarring, especially prevalent at the intersection of the prongs. In these areas, edge crushing is also visible. There is short feather terminated flake scarring present along the margins as well. The medial surfaces exhibit short feather terminated flake scarring. Of note are two areas of brown and very pale gray coloration visible adjacent to areas of cortex.
Presence of pigments/ residues: None

ah331
RP364/68
Site: Altun Ha
Dimensions (cm) L: 33.2 W: 19.6 Th: 3.0
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Banded brown gray with yellow brown near cortex
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache III (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 70 *ill. 71*
Breakage patterns/ notes: This specimen is made of very fine textured chert. Lengthy feather terminated flake scarring is prevalent across the medial surfaces of the specimen. The lateral margins exhibit short parallel feather terminated flake scarring as well as hinge scarring. Localized areas of stacked micro flaking and edge crushing are also visible along the lateral margins. This specimen may depict an abstracted zoomorphic form.
Presence of pigments/ residues: Yes, a small area (0.5 cm in diameter) of yellow pigments is visible on the cortex. This area appears to delineate and eye.

ah53
RP528/40
Site: Altun Ha
Dimensions (cm) L: 25.4 W: 23.6 Th: 3.6
Technological type: Biface
Presence of cortex: Yes, small are visible at the terminus at one prong
Raw material appearance: Mottled pale gray/ very pale brown/ gray/ brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of fine textured chert with two large areas of coarse textured material visible. The lateral margins exhibit localized areas of stacked step and hinge terminated flake scarring. Also short parallel feather terminated flake scars are also present on the lateral margins. Medial surfaces exhibit for the most part lengthy feather terminated flake scarring. There are also broad hinge terminated flake scars visible on both medial surfaces.
Presence of pigments/ residues: None

ah19
RP528/45
Site: Altun Ha
Dimensions (cm) L: 27.7 W: 16.6 Th: 3.5
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled pale brown/ gray
Presence of polish/ thermal alteration/ coloration: Yes, red/ pale red banding visible on one medial surface
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 373*
Breakage patterns/ notes: This specimen is made of very fine textured chert with extensive small circular inclusions. The lateral margins exhibit extensive attrition and stacked step and hinge terminated flake scarring. Numerous small hinge terminated flake scars along the margin indicate difficulty in thinning. The margins and medial surfaces exhibit short and moderate length feather terminated flake scarring. Of note is the extensive red and pale red coloration/ staining, especially prevalent on the medial surfaces of one prong. It appears that the staining is cultural in origin by the forms visible outlined by the staining. Though there is no texture, this appears to be highly eroded pigment.
Presence of pigments/ residues: See above notes

ah83
RP554/1
Site: Altun Ha
Dimensions (cm) L: 21.0 W: 17.1 Th: 3.4
Technological type: Biface
Presence of cortex: Yes, visible at distal termini of two prongs
Raw material appearance: Pale brown and yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, red thermal alt.
Context: Structure C-13/1 cache
Appearance in the literature: Pendergast 1982: 198
Breakage patterns/ notes: This specimen is made of fine textured material and appears to exhibit some patination. The specimen is thick in cross section. The lateral margins exhibit localized areas of stacked step and hinge terminated flake scarring. Also, short parallel feather terminated flake scars are also visible along the margins. The medial surfaces exhibit more lengthy feather terminated flake scars. Of note is the pale gray and brown with yellow brown coloration near the termini of two of the prongs. Also in this area is a pale red and red stain that may be an indication of thermal alteration.
Presence of pigments/ residues: None

ah143
RP554/2
Site: Altun Ha
Dimensions (cm) L: 25.4 W: 24.0 Th: 4.1
Technological type: Biface
Presence of cortex: Yes, at terminus of one prong
Raw material appearance: Mottled pale gray/ very pale brown gray
Presence of polish/ thermal alteration/ coloration: Yes, pale yellow and pale red visible on one medial surface.
Context: Structure C-13/1 cache
Appearance in the literature: Pendergast 1982: 198
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen is thick in cross section with lengthy feather terminated flake scars visible across the medial surfaces of the specimen. The lateral margins exhibit localized areas of edge crushing and stacked step and hinge flake scarring. Also lengthy hinge fractures are visible extending from the margins to the interior of the surfaces. Of note is the extensive pale red and pale yellow banding visible on one medial surface.
Presence of pigments/ residues: Yes, although the staining does not exhibit texture. Though the pale yellow and pale red-banded pattern appears clearly to be cultural in origin.

ah101
RP554/4
Site: Altun Ha
Dimensions (cm) L: 23.2 W: 11.8 Th: 3.2
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled gray and pale brown with some pale red
Presence of polish/ thermal alteration/ coloration: Yes, polish and pale red staining visible on one medial surface
Context: Structure C-13/1 cache
Appearance in the literature: Pendergast 1982: 199
Breakage patterns/ notes: This specimen is made of very fine textured chert. The lateral margins exhibit flake scarring with localized areas of stacked step and hinge scarring and edge crushing. The medial surfaces exhibit short and moderately lengthy feather terminated flake scarring. Of note is polish visible at the distal ends of two of the appendages.
Presence of pigments/ residues: None

ah121
RP554/5
Site: Altun Ha
Dimensions (cm) L: 22.2 W: 21.4 Th: 4.0
Technological type: Biface
Presence of cortex: Yes, small quantity at distal terminus
Raw material appearance: Very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-13/1 cache
Appearance in the literature: Pendergast 1982: 199
Breakage patterns/ notes: This specimen is made of very fine textured chert that appears to be heavily patinated. The lateral margins exhibit stacked step and hinge terminated flake scarring and edge crushing, especially prevalent at the intersection of the appendages. There are also a number of short but highly defined flake scars that terminated as hinges along the margins. The medial surfaces exhibit moderately lengthy feather terminated flake scars.
Presence of pigments/ residues: None

ah141
RP554/6
Site: Altun Ha
Dimensions (cm) L: 25.0 W: 22.1 Th: 3.3
Technological type: Biface
Presence of cortex: Yes, small area at terminus of one prong
Raw material appearance: Mottled very pale gray and very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-13/1 cache
Appearance in the literature: Pendergast 1982: 199
Breakage patterns/ notes: This specimen is made of fine textured chert that has been patinated to a very pale brown and gray. The specimen is thick in cross section and exhibits extensive localized stacked step and hinge terminated flake scarring along the lateral margins. The stacked flake scarring occurs in tandem with edge crushing. Also prevalent are lengthier hinge and step terminated flake scarring away from the margins. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

ah111
RP554/7
Site: Altun Ha
Dimensions (cm) L: 23.8 W: 21.5 Th: 4.2
Technological type: Biface
Presence of cortex: Yes, present at terminus of one prong
Raw material appearance: Mottled very pale brown and pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-13/1 cache
Appearance in the literature: Pendergast 1982: 199
Breakage patterns/ notes: This specimen is made of fine textured material that appears to be patinated to some degree with tan brown chert visible beneath the surfaces. The lateral margins exhibit lengthy feather terminated flake scarring extending from the margins to the interior of the medial surfaces. Shorter stacked step and hinge terminated flake scarring is also visible in localized areas. The medial surfaces exhibit some feather terminated flake scarring. Of note is the striking platform remnant at distal end of one appendage.
Presence of pigments/ residues: None

ah142
RP694/12
Site: Altun Ha
Dimensions (cm) L: 22.1 W: 19.0 Th: 3.7
Technological type: Biface
Presence of cortex: Yes, small area at the terminus of one prong
Raw material appearance: Mottled very pale brown gray with yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/3 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 364 *ill. 365*
Breakage patterns/ notes: This specimen is made of fine textured chert that appears patinated in color to a very pale gray brown. The artifact is relatively thick in cross section with lengthy feather and step terminated flake scars visible across the medial surfaces. Along the lateral margins, there are both feather terminated flake scars as well as localized areas of edge crushing visible. Some stacked microflaking occurs in tandem with edge crushing.
Presence of pigments/ residues:

ah50
RP697/3
Site: Altun Ha
Technological type: Biface
Presence of cortex: Yes, visible at the terminus of each appendage
Raw material appearance: Pale brown and gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/6 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 362 *ill. 363*
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit some attrition and edge crushing, but few areas where flake scarring has become stacked. Lengthy and symmetrical flake scarring is visible on the medial surfaces of the specimen. The thickness of the specimen indicates that there was little effort to thin the piece. Of note is the striking platform visible at the terminus of one appendage.
Presence of pigments/ residues: None

ah19RP528/45

ah83RP554/1

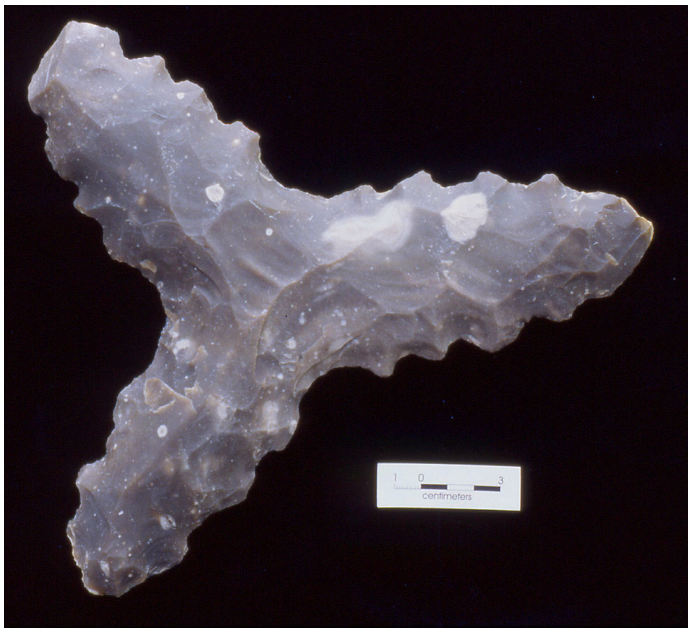
cr55
CH4001/1- 4(5)
Site: Colha
Dimensions (cm) L: 5.7 W: 5.6 Th: 1.1
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded dark brown and brown tan
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 4001 workshop deposit (Late Preclassic BC 400- AD 250)
Appearance in the literature: Probst 1984: 15 *ill. 49*;
Shafer and Oglesby 1981: 215 *ill. 215*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The specimen exhibits a snap fracture at one terminus and is incomplete. The medial surfaces exhibit short feather terminated flake scars. The lateral margins exhibit short feather terminated flake scarring with stacked micro flaking and edge crushing visible at the intersection of the appendages.
Presence of pigments/ residues: None

r16
LA/unknown
Site: Lamanai
Dimensions (cm) L: 32.6 W: 21.8 Th: 4.7
Technological type: Biface (barbed)
Presence of cortex: Yes, small area visible on one medial surface
Raw material appearance: Mottled dark brown / gray/ pale brown/ tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The chert exhibits a relatively high density of circular inclusions. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars. The lateral margins exhibit short feather terminated flake scars extending from the margin to the interior of the surface. This scarring occurs in tandem with stacked step and hinge terminated flake scarring and edge crushing. This is especially prevalent on the interiors of the large notches.
Presence of pigments/ residues: None

r38
LA240/22
Site: Altun Ha
Dimensions (cm) L: 25.2 W: 21.6 Th: 2.8
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Dark gray with gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/8 large axial cache beneath staircase (located above N10-9/9) (also dated to Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of moderately fine textured chert. The specimen exhibits a high density of circular inclusions visible on the medial surfaces. The lateral margins exhibit short feather terminated flake scarring on the edge prominences. The interiors of the serrated areas exhibit stacked microflaking and edge crushing. The medial surfaces exhibit lengthy feather and hinge terminated flake scarring. Of note is a snap fracture visible at the terminus of one appendage.
Presence of pigments/ residues: None

r60
LA244/17
Site: Altun Ha
Dimensions (cm) L: 28.6 W: 28.0 Th: 4.7
Technological type: Biface (serrated)
Presence of cortex: Yes, cortex visible on medial surface of one prong
Raw material appearance: Banded gray brown/ dark gray brown/pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit little evidence of extensive abrasion. Short feather terminated flake scarring is present along the margins both on the interior of the serrations and the edge prominences. Some edge crushing is visible on the interior of the serrations and at localized areas near the intersection of the appendages. The medial surfaces exhibit more lengthy feather terminated flake scars with some lengthier hinge terminated scarring also visible. Of note is the cortex on a medial surface of one appendage.
Presence of pigments/ residues: None

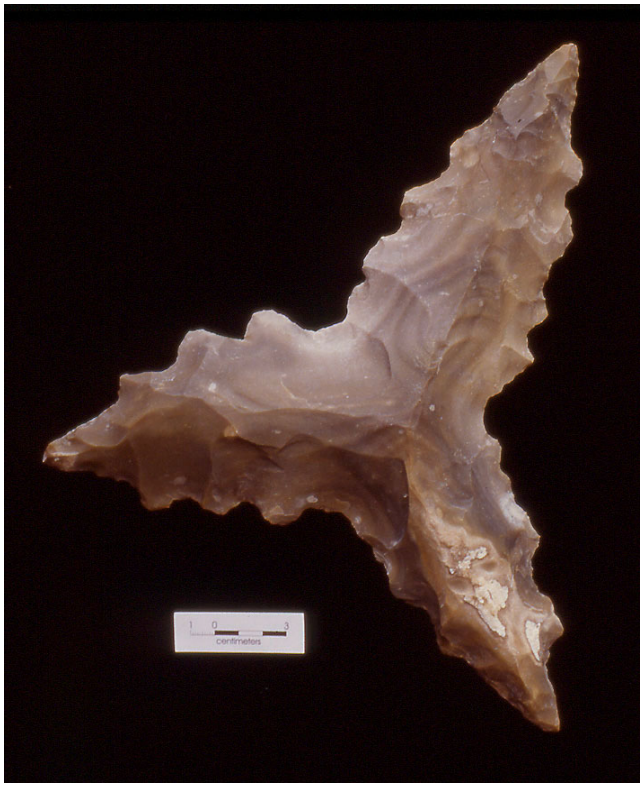
cr55CH4001/1/3(175)



r38LA240/22

r64
LA244/26
Site: Lamanai
Dimensions (cm) L: 32.0 W: 22.0 Th: 4.2
Technological type: Biface (serrated)
Presence of cortex: Yes, visible on one medial surface of the specimen
Raw material appearance: Dark gray brown and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of both moderately coarse and moderately fine textured chert with some portions of the specimen exhibiting small circular inclusions. The lateral margins exhibit stacked step and hinge terminated flake scarring and edge crushing. This breakage patterns is most prevalent on the interior of the serrations and the one large notched present on the specimen. On the edge prominences of the lateral margins, short feather terminated scarring is more prevalent. The medial surfaces exhibit moderately lengthy feather terminated flake scarring. Several hinge scars terminate at the cortex present on one medial surface. Of note is snap fracture on one appendage.
Presence of pigments/ residues: None

r39
LA244/27
Site: Lamanai
Dimensions (cm) L: 33.8 W: 17.0 Th: 4.5
Technological type: Biface (serrated)
Presence of cortex: Yes, cortex visible on one medial surface
Raw material appearance: Mottled dark gray/ brown chert/ pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-9/9 axial cache under staircase
(Terminal Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with numerous small circular inclusions. The medial surfaces exhibit lengthier feather terminated and hinge terminated flake scarring. Along the lateral margins, feather terminated flake scars extend from the margin to the interior of the medial surfaces. Stacked microflaking and edge crushing are visible, most prevalently on the interior of the serrations. Lengthy feather terminated flake scars are visible on the medial surfaces. In addition, some hinge scars are also visible on the medial surfaces. Of note is the snap fracture visible at the terminus of one appendage.
Presence of pigments/ residues: None



r60LA244/17

r64LA244/26

Artifact Grouping: Bident and Trident forms

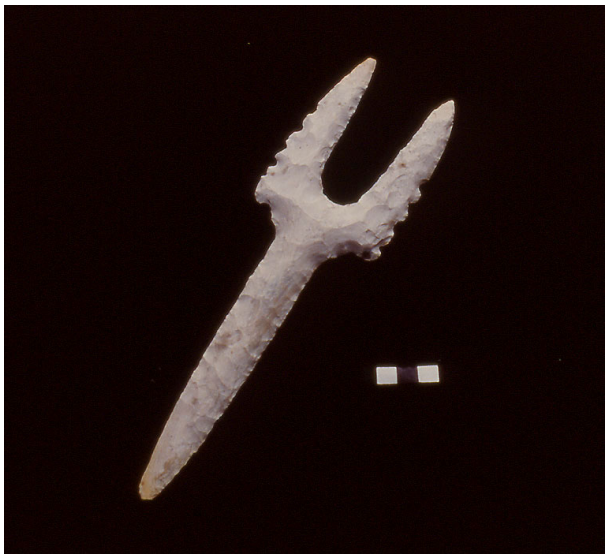
ah106
RP/unknown
Site: Altun Ha
Dimensions (cm) L: 24.0 W: 7.0 Th: 1.5
Technological type: Biface (stemmed/ notched)
Presence of cortex: Yes, small area visible at distal terminus
Raw material appearance: Mottled gray brown and pale gray brown
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration visible at one terminus
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The surface of the specimen is finely flaked with short and moderate length feather terminated flake scarring most prevalent. The lateral margins exhibit short feather terminated flake scarring. The interiors of the notches exhibit more edge crushing and stacked microflaking.
Presence of pigments/ residues: None

ah3
RP205/5
Site: Altun Ha
Dimensions (cm) L: 19.6 W: 9.8 Th: 2.2
Technological type: Biface (stemmed/ three prongs)
Presence of cortex: No
Raw material appearance: Mottled tan brown with some pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: E-7/5 cache
Appearance in the literature: Pendergast 1990: 86
Breakage patterns/ notes: This specimen is made of fine textured material. The lateral margins exhibit localized stacked microflaking and edge crushing, especially prevalent on the interior of the notches formed by the prongs. On the medial surfaces of the specimen lengthy feather terminated flake scarring is visible.
Presence of pigments/ residues: None

ah158
RP657/3
Site: Altun Ha
Dimensions (cm) L: 21.4 W: 6.9 Th: 1.2
Technological type: Biface (stemmed/ three prongs)
Presence of cortex: No
Raw material appearance: Very pale brown mottled with pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-16/1 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 216
Breakage patterns/ notes: This specimen is made of fine textured chert that is patinated to a very pale brown. The material appears gray beneath the surface of the specimen. Overall, the specimen is finely flaked with moderate to lengthy feather terminated flake scars visible across the medial surfaces of the specimen. The lateral margins exhibit short feather terminated flake scars. Some areas of the margins exhibit stacked flake scarring. The interiors of the margin notches exhibit the most visible stacked scarring and edge crushing.
Presence of pigments/ residue: None

ah21
RP657/6
Site: Altun Ha
Dimensions (cm) L: 26.7 W: 7.4 Th: 1.5
Technological type: Biface (stemmed/ serrated)
Presence of cortex: Yes, small area visible at one terminus
Raw material appearance: Mottled pale brown / blue gray/ banding visible
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-16/1 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 216
Breakage patterns/ notes: The specimen is made of very fine textured chert that is patinated to a very pale bluish gray. The specimen is finely flaked showing few areas of stacked step and hinge scarring. The lateral margins of the stem exhibit short parallel feather terminated flake scarring. The interior of the notch does exhibit heavy edge crushing and flake scarring. The medial surfaces also exhibit for the most part short feather terminated flake scarring.
Presence of pigments/ residues: None

ah106RP/unknown



ah21RP657/6

r46
LA682/9
Site: Altun Ha
Dimensions (cm) L: 22.6 W: 7.1 Th: 1.9
Technological type: Biface (stemmed)
Presence of cortex: Yes, small area present at one terminus
Raw material appearance: Banded dark brown gray with very dark gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-15/6 small axial cache north staircase
(Late Classic AD 800)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit short and lengthier feather terminated flake scarring. The lateral margins exhibit short parallel flake scars along the stem and the two prongs. As well localized areas of stacked microflaking and edge crushing are visible, especially prevalent on the interior of the notch created by the two prongs.
Presence of pigments/ residues: None

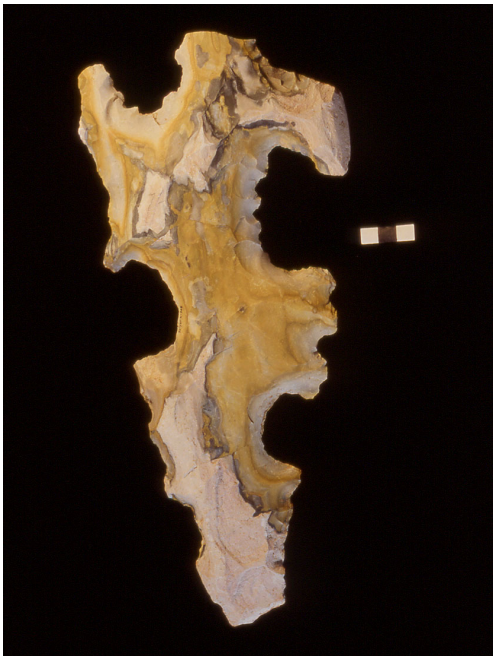
Artifact Grouping: Stemmed Forms with Notches/ Profiles

ah82
RP176/24
Site: Altun Ha
Dimensions (cm) L: 28.2 W: 10.0 Th: 2.4
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded pale brown/ pale gray/ pale gray/ red brown
Presence of polish/ thermal alteration/ coloration: Yes, thermal alteration
Context: Structure B-4/4 wall cache II (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured chert with a low density of fossil inclusions visible in the matrix of the material. The large snap fracture at one terminus may indicate a production failure. The margins of the fracture appear to be re- worked. The lateral margins exhibit localized areas of stacked step and hinge terminated flake scarring. The medial surfaces exhibit lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

ah81
RP528/4
Site: Altun Ha
Dimensions (cm) L: 33.2 W: 19.7 Th: 2.9
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, small area visible on one margin
Raw material appearance: Tan brown and mottled very pale blue gray
Presence of polish/ thermal alteration/ coloration: Yes, red thermal alt.
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 368 *ill. 365*
Breakage patterns/ notes: This specimen is made of fine textured chert. Low densities of inclusions are visible in the matrix in the material. The lateral margins exhibit stacked step and hinge terminated flake scarring and extensive edge crushing. This pattern is most prevalent on the interior of the notches and the serrations. The medial surfaces exhibit lengthy feather and some hinge terminated flake scars. Of note is what appears to be a human profile emerging from a large notch present on one margin. This specimen exhibits red coloration that appears to have been caused by thermal alteration. Also of note is a snap fracture visible at one terminus of the specimen.
Presence of pigments/ residues: None

ah146
RP528/20
Site: Altun Ha
Dimensions (cm) L: 24.0 W: 11.0 Th: 1.6
Technological type: Biface (stemmed/ notched)
Presence of cortex: Yes, two areas visible on the medial surfaces
Raw material appearance: Mottled very pale brown/ very pale gray/ pale yellow
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert that exhibits more coarse textured inclusions visible. The chert appears to be patinated to the present appearance. The medial surfaces of the specimen exhibit short feather terminated flake scars, most especially prevalent on the stem. The lateral margins exhibit patterned feather terminated flake scarring. Also short step and hinge terminated flake scarring is visible in close association with edge crushing. This is especially prevalent on interiors of the notches. Of note is the form of the specimen, similar to a human profile with a headdress.
Presence of pigments/ residues: None

ah81RP528/4



ah86RP528/9

ah86
RP528/9
Site: Altun Ha
Dimensions (cm) L: 33.7 W: 16.5 Th: 3.8
Technological type: Biface (notched)
Presence of cortex: Yes, extensive area visible on medial surfaces
Raw material appearance: Yellow brown and gray with pale gray
Presence of polish/ thermal alteration/ coloration: Yes, yellow brown/ black
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 371*
Breakage patterns/ notes: This specimen is made of fine textured chert. The medial surfaces of the specimen exhibit moderate and lengthy feather terminated flake scarring. Some hinge terminated scarring is also visible on the medial surfaces. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring and short feather terminated flake scarring. Stacked flake scarring is most prevalent on the interiors of the notches. Note the extensive coloration, black and yellow brown medial surfaces. Also note snap fracture at distal terminus.
Presence of pigments/ residues: Pale red pigment appears on the cortex. Though texture is not apparent, pigment is clearly visible over the surfaces of the cortex.

cr29
CH2002/1- 3
Site: Colha
Dimensions (cm) L: 17.7 W: 8.8 Th: 2.6
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded gray and pale gray; pale yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, polish distal terminus
Context: Operation 2002 plazuela group and workshop deposit located just south of the central precinct (Late Preclassic 400 BC- AD 250)
Appearance in the literature: Probst 1984: 6- 7 *ill. 52*
Breakage patterns/ notes: This specimen is made of fine textured chert with a low density of inclusions. The specimen exhibits a snap fracture at one terminus, indicating that it is incomplete. The lateral margins exhibit little edge attrition in the form of edge crushing, but exhibit extensive areas of step and hinge terminated flake scarring, especially prevalent on the interiors of the margin notches. The distal terminus is thinned and exhibits short feather terminated flake scarring. The medial surfaces exhibit primarily feather terminated flake scarring with some hinge scars also visible. Of note is thermal alteration visible at one terminus. Also of note is the pale yellow brown stain near the distal end.
Presence of pigments/ residues: None

cr67
CH2012/13- 15(9)
Site: Colha
Dimensions (cm) L: 10.1 W: 5.0 Th: 1.6
Technological type: Biface
Presence of cortex: No
Raw material appearance: Dark gray
Presence of polish/ thermal alteration/ coloration: Yes, burned
Context: Operation 2012 cache in western structure of main plaza of central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: Probst 1984: 11- 12 *ill. 42*
Breakage patterns/ notes: This specimen is made of fine textured chert that has been radically altered by burning across the medial surfaces. Numerous pot lid fractures are visible on the specimen. Some short feather terminated flake scarring is visible on the lateral margins. Edge crushing is visible along the margins as well. Of note is a snap fracture at one end of the specimen indicating the specimen is incomplete.
Presence of pigments/ residues: None

Artifact Grouping: Bi- pointed, Elongated, and Notched Forms

ah243
RP34/35
Site: Altun Ha
Dimensions (cm) L: 34.0 W: 5.0 Th: 2.8
Technological type: Biface (elongated/ notched)
Presence of cortex: No
Raw material appearance: Mottled pale gray brown and gray with pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 24
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with numerous inclusions visible in the matrix of the material. The specimen is notched along the lateral margins and exhibit localized step and hinge terminated flake scarring, primarily stacked in the notches. Other portions of the lateral margins exhibit step and hinge scarring and short feather terminated flake scars. The medial surfaces exhibit moderately lengthy feather terminated flake scarring.
Presence of pigments/ residues: None

ah233
RP164/95
Site: Altun Ha
Dimensions (cm) L: 43.3 W: 8.3 Th: 2.4
Technological type: Biface (elongated/ notched)
Presence of cortex: No
Raw material appearance: Banded gray brown and pale gray with brown
Presence of polish/ thermal alteration/ coloration: Yes, strong brown present
Context: Structure B-4/2 tomb subfloor cache I (Late Classic AD 675)
Appearance in the literature: Pendergast 1982: 101 *ill. 105*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert. Extensive oval shaped inclusions are visible in the matrix of the material. The medial surfaces of the specimen exhibit lengthy feather terminated flake scars. The lateral margins exhibit localized stacked step and hinge scarring and edge crushing. Of note is the brown coloration around the perimeter of the very pale gray area visible on one medial surface. This coloration is similar to other areas visible on other specimens in assemblages. It is unclear if they are cultural in origin.
Presence of pigments/ residues: None

ah153
RP176/17
Site: Altun Ha
Dimensions (cm) L: 27.3 W: 7.2 Th: 2.4
Technological type: Biface (serrated)
Presence of cortex: Yes, small area visible at one terminus
Raw material appearance: Mottled brown pale gray/ very pale gray/ pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of coarse textured chert that exhibits patination visible on the medial surfaces. The specimen is relatively thick and is bi- convex in cross section. The medial surfaces exhibit lengthy feather terminated flake scars. The lateral margins exhibit short parallel feather terminated flake scars extending from the margins to the interior surface of the specimen. Localized areas of stacked step and hinge terminated flake scarring and edge crushing are also visible, most prevalent on the interior of the serrations. The specimen is curved in profile and was produced on a macroflake- blade.
Presence of pigments/ residues: None

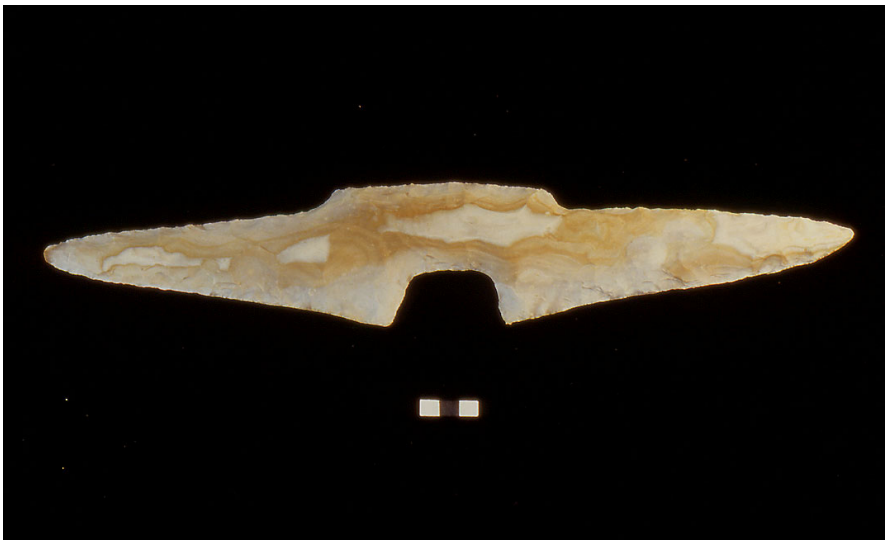
ah80
RP176/19
Site: Altun Ha
Dimensions (cm) L: 23.0 W: 6.3 Th: 2.6
Technological type: Biface (notched)
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Banded gray/ pale gray/ banded brown/ pale brown
Presence of polish/ thermal alteration/ coloration: None
Context: Structure B-4/4 tomb wall cache I (Late Classic AD 850- 875)
Appearance in the literature: Pendergast 1982: 130 *ill. 133*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with some coarse textured inclusions visible. The lateral margins exhibit localized areas of stacked microflaking and edge crushing, especially on the interiors of the notches. The medial surfaces exhibit short and lengthy feather terminated flake scars. Of note is the striking platform visible at one terminus.
Presence of pigments/ residues: None

ah265
RP200/391
Site: Altun Ha
Dimensions (cm) L: 43.2 W: 4.7 Th: 3.0
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled gray and pale gray with very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 25*
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured material visible in the matrix. There are extensive and circular shaped inclusions also visible. The lateral margins exhibit stacked step and hinge terminated flake scarring and edge crushing. The medial surfaces of the specimen exhibits symmetrical feather terminated flake scarring. Edge crushing and stacked flake scarring are visible at corners of the notches.
Presence of pigments/ notes: None

ah267
RP200/396
Site: Altun Ha
Dimensions (cm) L: 34.8 W: 4.8 Th: 2.0
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled brown/ pale brown blue gray/ strong brown
Presence of polish/ thermal alteration/ coloration: Yes, strong brown stain visible on one medial surface
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 25*
Breakage patterns/ notes: This specimen is made of fine textured chert with a low density of oval shaped inclusions visible. The specimen exhibits symmetrical feather terminated flake scarring along the medial surfaces of the specimen. Along the lateral margins, feather terminated flake scarring is prevalent with some short hinge scarring also visible. Localized areas of edge crushing are also visible along the margins. Of note is a small area of strong brown orange brown on one surface.
Presence of pigments/ residues: None

ah321
RP364/76
Site: Altun Ha
Dimensions (cm) L: 36.2 W: 4.7 Th: 2.6
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded gray and pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: This specimen is made of fine textured chert. Some coarse textured inclusions are also visible in the matrix of the material. The medial surface exhibit feather terminated flake scarring of moderate length. The lateral margins exhibit shorter step and hinge terminated flake scarring and localized areas of edge crushing. This pattern is most prevalent on the interior of the notches, where stacked step and hinge scarring are most prevalent.
Presence of pigments/ residues: None

ah243RP34/35



ah233RP164/95

ah175
RP528/33
Site: Altun Ha
Dimensions (cm) L: 42.8 W: 5.1 Th: 2.6
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled very pale gray/ pale brown/ pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert. The surfaces of the specimen have been patinated in appearance. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring. The lateral margins are finely flaked with shorter feather terminated flake scars. Some localized areas of step and hinge terminated scarring. Also some areas of edge crushing are also visible. Of note are two snap fractures visible at opposite termini of the specimen.
Presence of pigments/ residues: None

ah140
RP694/1
Site: Altun Ha
Dimensions (cm) L: 39.3 W: 6.5 Th: 3.1
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Banded gray brown/ pale gray brown/ pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/3 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 364 *ill. 363*
Breakage patterns/ notes: This specimen is made of fine textured material with few inclusions. The specimen exhibits moderately lengthy feather terminated flake scarring along the medial surfaces of the specimen. The lateral margins exhibit shorter step and hinge terminated flake scarring with edge crushing also visible in localized areas. This pattern is most prevalent on the interior of the notches, where stacked flake scarring is most prevalent.
Presence of pigments/ residues: None

Artifact Grouping: Elongated, Stemmed, and Narrow Forms (Staff Ends)

ah177
RP34/33
Site: Altun Ha
Dimensions (cm) L: 40.4 W: 5.8 Th: 2.8
Technological type: Biface (lenticular)
Presence of cortex: No
Raw material appearance: Mottled pale brown and gray with pale yellow brown
Presence of polish/ thermal alteration/ coloration: Yes, red/ yellow brown
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 24
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert. The flake scarring visible across the medial surfaces are primarily lengthy and feather terminated. The lateral margins exhibit shorter step and hinge terminated flake scarring. Overall, the margins are finely flaked but some localized areas exhibit edge crushing. Specimen is bi- convex in cross section. Of note is the apparent red coloration that appears to indicate thermal alteration. This coloration is visible at each terminus. Also of note are the textile fragments as described below.
Presence of pigments/ residues: Yes, two areas that exhibit textile fragments. The larger fragment on the medial surface exhibits green dye on the cloth. The dimensions of the fragments are as follows: Fragment near medial surface- 1.7 cm by 0.6 cm. The dimensions of fragment closest to terminus are: 0.8 cm by 0.5 cm.

ah24
RP34/38
Site: Altun Ha
Dimensions (cm) L: 35.8 W: 4.3 Th: 2.7
Technological type: Biface (lenticular)
Presence of cortex: No
Raw material appearance: Mottled brown and gray with pale gray
Presence of polish/ thermal alteration/ coloration: Yes, polish visible on both surfaces and on both termini
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of fine textured chert with linear inclusions visible in the matrix. The specimen is narrow and bi- convex in cross section. The medial surfaces exhibit symmetrical short and moderate length feather terminated flake scars. The lateral margins also exhibit short feather

terminated flake scarring. Also short stacked step and hinge terminated flake scarring and localized areas of edge crushing are present along the lateral margins. Of note is the polish visible across the medial surfaces and at each terminus as mentioned above. The specimen appears to have been handled.
Presence of pigments/ residues: None

ah23
RP34/44
Site: Altun Ha
Dimensions (cm) L: 33.4 W: 4.9 Th: 3.0
Presence of cortex: No
Raw material appearance: Mottled gray and pale gray with dark gray brown
Presence of polish/ thermal alteration/ coloration: Yes, polish on med. surfaces
Context: Structure E-1/2 tomb wall cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 26
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen exhibits a large number of inclusions throughout. The lateral margins exhibit edge attrition and step and hinge scarring. The medial surfaces exhibit lengthy feather terminated flake scarring. Of note is the polish visible across the medial surfaces. This suggests that the specimen may have been hafted.
Presence of pigments/ residues: None

ah260
RP38/57
Site: Altun Ha
Dimensions (cm) L: 39.0 W: 5.7 Th: 2.6
Technological type: Biface (lenticular)
Presence of cortex: No
Raw material appearance: Banded brown/ gray/ mottled pale blue gray/ brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of fine textured chert with some circular inclusions visible in the matrix. Patination to a pale bluish gray is visible. Overall, the specimen is finely flaked with moderately lengthy feather terminated flake scars visible on the medial surfaces of the specimen. The margins exhibit short step and hinge flake scarring, as well as short feather terminated flake scarring. Some edge crushing is visible along the margins, but is not extensive.
Presence of pigments/ residues: None

ah246
RP38/70
Site: Altun Ha
Dimensions (cm) L: 24.7 W: 4.5 Th: 2.6
Technological type: Biface (blade- like)
Presence of cortex: Yes, visible at proximal terminus
Raw material appearance: Very pale brown/ mottled brown gray/ brown
Presence of polish/ thermal alteration/ coloration: Yes, gray and brown color visible **Context:** Structure E-1/3 tomb subfloor cache I (Late Classic AD 600)
Appearance in the literature: Pendergast 1990: 28 *ill. 29*
Breakage patterns/ notes: This specimen is made of fine textured chert patinated to a very pale brown and gray. The medial surfaces of the specimen exhibit symmetrical moderately lengthy feather terminated flake scarring. What appears to be pressure flaking is visible along the lateral margins. Stacked step and hinge terminated flake scarring is visible in these areas. Of note is the gray and brown area near the proximal terminus that may indicate surface alteration. Also of note is the striking platform visible at the proximal terminus.
Presence of pigments/ residues: None

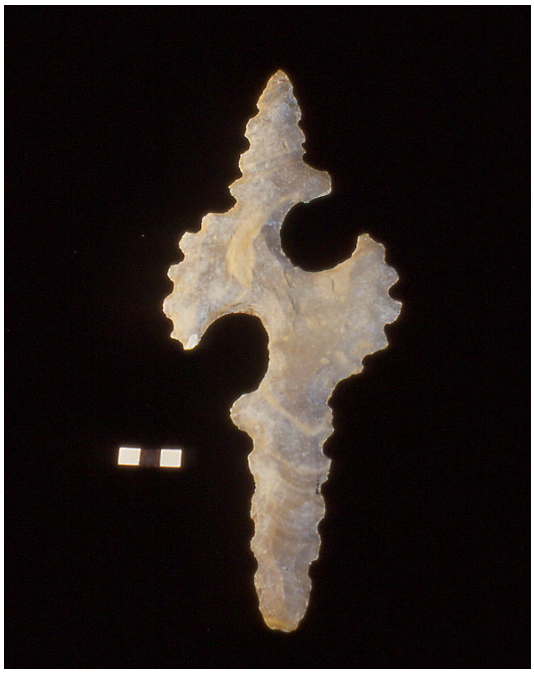
ah6
RP131/3
Site: Altun Ha
Dimensions (cm) L: 27.5 W: 7.1 Th: 2.4
Technological type: Biface
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Mottled dark blue gray with very pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-51/2 cache floor 3 (T. Classic AD 800- 825)
Appearance in the literature: Pendergast 1990: 231
Breakage patterns/ notes: This specimen is made of fine textured chert. One large inclusion is visible on medial dorsal surface. Lengthy feather terminated and several hinge terminated flake scars are visible on the medial surfaces. The lateral margins exhibit little flake scarring. On the interiors of the serrations, some localized areas of stacked microflaking are visible with some edge crushing. Of note is what appears to be a striking platform located at the termination of the stem.
Presence of pigments/ residues: Some dark brown residue visible on one medial surface. It is unclear whether this material is cultural in origin.

ah304
RP163/2
Site: Altun Ha
Dimensions (cm) L: 31.2 W: 11.9 Th: 1.8
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, small area visible at one terminus
Raw material appearance: Banded pale brown and gray with brown
Presence of polish/ thermal alteration/ coloration: Yes, pale brown one surface
Context: Structure A-5/2 cache above floor 1 (Early Postclassic AD 1000)
Appearance in the literature: Pendergast 1979: 170 *ill. 171*
Breakage patterns/ notes: This specimen is made of fine textured chert with coarse textured inclusions visible in the material. Patination is also visible on the surface of the specimen. The medial surfaces of the specimen exhibit relatively lengthy feather terminated flake scarring. Also hinge and step scarring are also visible on the medial surfaces. Along the lateral margins, stacked micro flaking and edge crushing are present, especially on the interior of the notches and to a lesser extent the serration. The edge prominences exhibit short feather terminated flake scars. Of note is the pale brown coloration on one medial surface. This area may depict an eye of a zoomorphic form.
Presence of pigments/ residues: None

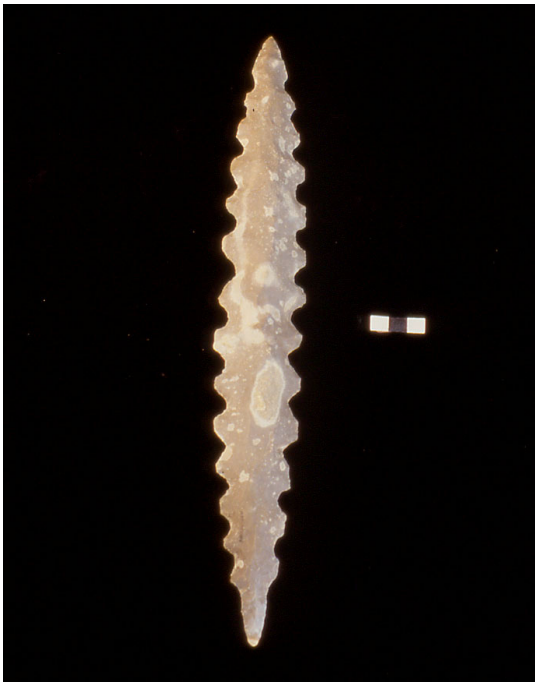
ah173
RP166/2
Site: Altun Ha
Dimensions (cm) L: 29.2 W: 6.5 Th: 1.8
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled dark brown/ pale blue gray/ very pale gray
Presence of polish/ thermal alteration/ coloration: Yellow/ brown at one end
Context: Structure D-2/1 burial (Terminal Classic AD 900)
Appearance in the literature: Pendergast 1990: 10
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen exhibits some coarse textured inclusions. The medial surfaces exhibit lengthy feather terminated flake scarring. Lengthy hinge terminated scarring is also visible on one surface. Along the lateral margins short, stacked step and hinge scarring is visible, especially prevalent on the interior of the notches. Associated with stacked scarring are some localized areas of edge crushing, also most prevalent on the interior of the notches. Of note is the yellow brown stain located at one terminus. Unclear whether stain is cultural in origin.
Presence of pigments/ residues: None

ah269
RP200/389
Site: Altun Ha
Dimensions (cm) L: 39.2 W: 3.5 Th: 2.0
Technological type: Biface (lenticular)
Presence of cortex: Yes, small area at one terminus
Raw material appearance: Mottled very pale gray and pale gray brown
Presence of polish/ thermal alteration/ coloration: Yes, polish and thermal alteration visible on one medial surface
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen exhibits feather terminated flake scarring across the medial surfaces. The lateral margins exhibit localized areas of stacked step and hinge terminated flake scarring. Edge crushing is also prevalent along the lateral margins. Of note is the polish visible near one terminus and the pale red and red coloration visible at each terminus.
Presence of pigments/ residues: None

ah268
RP200/404
Site: Altun Ha
Dimensions (cm) L: 37.1 W: 4.7 Th: 2.4
Technological type: Biface (serrated)
Presence of cortex: No
Raw material appearance: Mottled dark brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 75*
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with extensive coarse textured oval shape inclusions. The specimen exhibits short symmetrical feather terminated flake scarring across the medial surfaces. The lateral margins exhibit short feather terminated flake scarring and stacked microflaking and edge crushing, prevalent on the interior of the serrations.
Presence of pigments/ residues: None



ah304RP163/2



ah268RP200/404

ah262
RP200/406
Site: Altun Ha
Dimensions (cm) L: 35.8 W: 7.8 Th: 2.0
Technological type: Biface (serrated)
Presence of cortex: Yes, small circular area visible on one margin
Raw material appearance: Mottled tan brown and very pale gray brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-1/1 tomb chamber (latter part of the Early Classic AD 550)
Appearance in the literature: Pendergast 1979: 76 *ill. 77*
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive oval inclusions. Across the medial surfaces of the specimen lengthier feather terminated flake scarring are visible. Both termini exhibit symmetrical short feather terminated flake scarring. The lateral margins exhibit primarily short feather terminated flake scarring with some very localized stacked microflaking and edge crushing also visible.
Presence of pigments/ residues: None

ah134
RP256/64
Site: Altun Ha
Dimensions (cm) L: 23.4 W: 9.2 Th: 2.3
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache II (Late Classic AD 650- 750)
Appearance at the literature: Pendergast 1982: 92
Breakage patterns/ notes: This specimen is made of very fine textured chert with numerous circular inclusions visible. The lateral margins exhibit stacked step and hinge terminated scarring and edge crushing, most prevalent along the interior of the notches. The edge prominences exhibit feather terminated flake scars. The specimen is relatively thick in cross section with lengthy feather and hinge terminated flake scarring across the medial surfaces. Of note is the large snap fracture visible at what appears to be the proximal terminus.
Presence of pigments/ residues: None

ah61
RP256/68
Site: Altun Ha
Dimensions (cm) L:18.3 W: 18.1 Th: 3.8
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded gray and brown with tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure B-4/6 tomb subfloor cache II (Late Classic AD 650- 750)
Appearance in the literature: Pendergast 1982: 92
Breakage patterns/ notes: This specimen is made of very fine textured chert with some coarse textured inclusions visible across the medial surfaces. The lateral margins of the specimen exhibit short and moderate in length feather terminated flake scarring. There are also short hinge terminated flake scars adjacent to the feather terminated scarring, as well as localized areas of edge crushing. The medial surfaces of the specimen are marked by lengthy feather terminated flake scarring and several lengthy hinge terminated flake scars.
Presence of pigments/ residues: None

ah320
RP364/78
Site: Altun Ha
Dimensions (cm) L: 39.3 W: 7.8 Th: 3.1
Technological type: Biface (barbed)
Presence of cortex: Yes
Raw material appearance: Uniform tan brown
Presence of polish/ thermal alteration/ coloration: Yes, red/ pale red visible at one terminus
Context: Structure B-4/7 tomb subfloor cache IV (Late Classic AD 600)
Appearance in the literature: Pendergast 1982: 72 *ill. 71*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The piece is relatively thick. The medial surfaces exhibit feather terminated flake scarring of moderate length. The lateral margins exhibit short feather terminated flake scarring and stacked step and hinge scarring. Some localized edge crushing is visible near the margins. Of note is the cortical area along medial surface. The cortical area exhibits a hollow area, the interior of which possesses a yellowish brown residue. Also of note is the red stain visible at one terminus. This specimen may be a representation of a personified blood letter.

Presence of pigments/ residues: Yes, yellowish brown residues visible on the interior of the cortex. This appears to be part of an adhesive that may have delineated an eye.

ah316
RP477/1
Site: Altun Ha
Dimensions (cm) L: 34.7 W: 11.0 Th: 1.4
Technological type: Biface (notched)
Presence of cortex: Yes, small area at base of the stem
Raw material appearance: Brown and brown gray with very pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure E-44/2 cache (Terminal Classic AD 925- 975)
Appearance in the literature: Pendergast 1990: 1982 *ill. 241*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with extensive oval shaped inclusions visible in the material. Blue gray patina is visible on the surfaces of the specimen. Across the medial surfaces of the specimen, lengthy feather terminated flake scarring predominates. Broad hinge scars are also visible on the medial surfaces. The lateral margins exhibit localized areas of stacked step and hinge scarring and edge crushing, most prevalent on the interior of the notches.
Presence of pigments/ residues: None

ah73
RP528/7
Site: Altun Ha
Dimensions (cm) L: 33.8 W: 10.8 Th: 3.4
Technological type: Biface (barbed)
Presence of cortex: No
Raw material appearance: Banded pale gray/ brown/ very pale gray pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 368 *ill. 371*
Breakage patterns/ notes: This specimen is made of moderately fine textured chert. Across the medial surfaces, the flake scars are relatively lengthy. The lateral margins exhibit extensive stacked step and feather terminated flake scarring, with edge crushing also present. Feather terminated flake scars are more prevalent on the edge prominences. Steep step fractures are also visible along the margins. Note what may be a striking platform present at one terminus.
Presence of pigments/ residues: None

ah172
RP528/29
Site: Altun Ha
Dimensions (cm) L: 36.7 W: 5.1 Th: 1.8
Technological type: Biface (notched/ elongated)
Presence of cortex: No
Raw material appearance: Mottled pale blue gray/ very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of fine textured chert that exhibits extensive patination. There are also extensive inclusions visible in the matrix of the material. The specimen is finely flaked with feather terminated flake scars prevalent across the medial surfaces. Along the lateral margins shorter feather terminated flake scars are visible as well as step and hinge scarring.
Presence of pigments/ residues: None

ah174
RP528/27
Site: Altun Ha
Dimensions (cm) L: 29.6 W: 4.7 Th: 1.5
Technological type: Biface (stemmed/ notched)
Presence of cortex: No
Raw material appearance: Mottled pale blue gray with very pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 369 *ill. 372*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The surface has been heavily patinated to the present appearance. The chert below the surface is dark brown as seen in cross section of the snap fracture at the distal terminus. The medial surfaces of the specimen exhibits relatively short feather terminated flake scarring. The lateral margins exhibit shorter step and hinge terminated flake scarring. The interior of the notches exhibit more stacked flake scarring and edge crushing.
Presence of pigments/ residues: None

ah262RP200/68

ah73RP528/7

ah22
RP616/4
Site: Altun Ha
Dimensions (cm) L: 56.8 W: 5.0 Th: 3.3
Technological type: Biface (narrow/ lenticular)
Presence of cortex: No
Raw material appearance: Mottled blue gray/ brown and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure A-8/3 cache (latter part of the Early Classic AD 500- 550)
Appearance in the literature: Pendergast 1979: 110
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive inclusions visible. The piece is very narrow but overall is not thin. The lateral margins exhibit localized areas of stacked step and hinge terminated flake scarring. This stacking prevents further thinning without endangering the specimen. The lateral margins exhibit attrition. The medial surfaces exhibit symmetrical feather terminated flake scarring of short and moderate length. Also short step and hinge scars are also present on the medial surfaces. Of note are two areas of brown stains that are oval in shape. The stains are diffuse, part of residue.
Presence of pigments/ residues: None clearly evident.

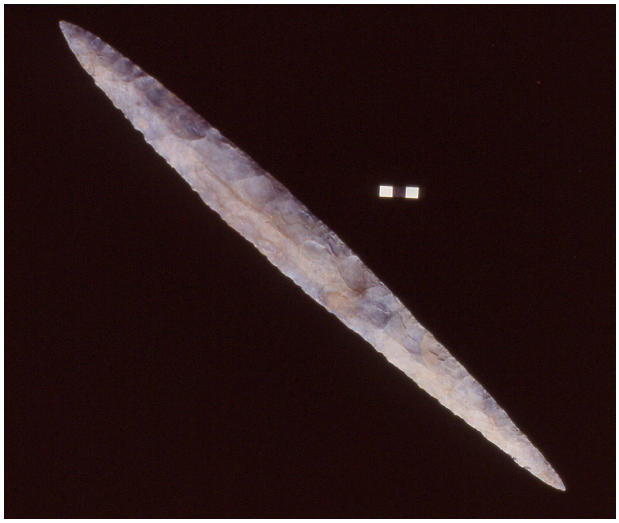
ah27
RP616/7
Site: Altun Ha
Dimensions (cm) L: 36.6 W: 8.8 Th: 2.1
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Mottled gray and pale gray with pale brown
Presence of polish/ thermal alteration/ coloration: Yes, polish/ dark red visible at one terminus
Context: Structure A-8/3 (latter part of the Early Classic AD 500- 550)
Appearance in the literature: Pendergast 1979: 110 *ill. 110*
Breakage patterns/ notes: This specimen is made of fine textured chert. The specimen exhibits a moderate quantity of inclusions. The lateral margins exhibit stacked step and hinge terminated scarring, especially prevalent on the interiors of the notches. The edge prominences exhibit short feather terminated flake scarring. The medial surfaces exhibit symmetrical short and lengthy feather terminated flake scarring. Both termini are very finely flaked that appears to have originated from pressure flaking. Of note is dark red coloration visible at one terminus, likely the result of thermal alteration. Note polish visible on one medial surface.
Presence of pigments/ residues: None

ah148
RP657/7
Site: Altun Ha
Dimensions (cm) L: 25.8 W: 5.3 Th: 1.7
Presence of cortex: No
Raw material appearance: Mottled very pale brown and very pale gray
Presence of polish/ thermal alteration/ coloration: Yes, strong brown/ gray
Context: Structure C-16/ 1 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 216
Breakage patterns/ notes: This specimen is made of heavily patinated moderately fine textured material. The medial surfaces of the specimen exhibit short feather terminated flake scarring with hinge terminated flake scarring also present. Flake scarring along the lateral margins consists of short feather terminated scarring along the edge prominences. Extensive stacked step and hinge scarring and edge crushing are visible on the interiors of the notches. Of note is coloration visible at one terminus. Unclear if coloration is cultural.
Presence of pigments/ residues: None

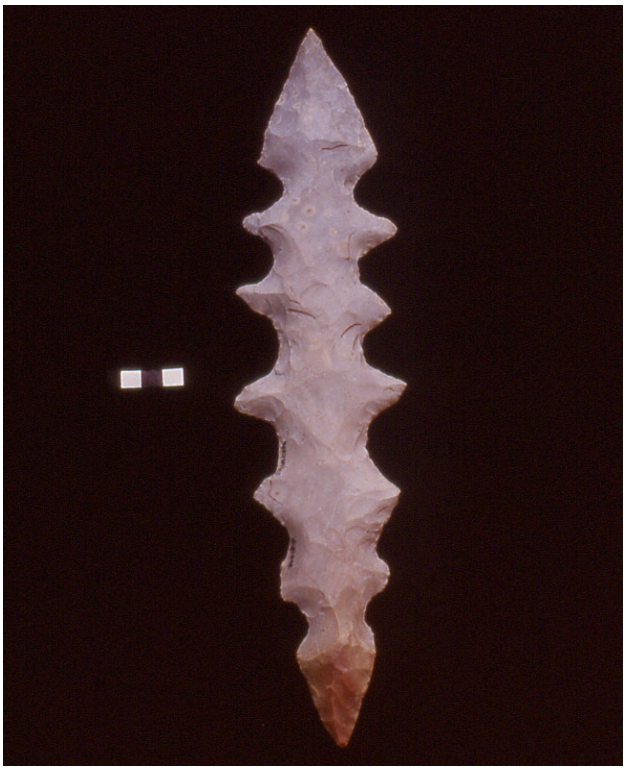
ah102
RP657/1
Site: Altun Ha
Dimensions (cm) L: 58.5 W: 6.6 Th: 1.7
Technological type: Biface (notched/ serrated)
Presence of cortex: No
Raw material appearance: Mottled very pale brown and brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure C-16/1 cache (Late Classic AD 800- 825)
Appearance in the literature: Pendergast 1982: 216
Breakage patterns/ notes: This specimen is made of fine textured chert. Overall, the specimen is finely flaked with both short and lengthy feather terminated flake scarring. The lateral margins exhibit steep and stacked flake scarring as well as edge crushing, especially prevalent on the interior of the notches and serrations. Of note is what appears to be a striking platform remnant visible at the base of the stem of the specimen.
Presence of pigments/ residues: Yes, extensive brown residue is covering the entire specimen. However, it is unclear whether this residue is cultural.

ah176
RP697/7
Site: Altun Ha
Dimensions (cm) L: 29.5 W: 5.1 Th: 1.8
Technological type: Biface (lenticular)
Presence of cortex: No
Raw material appearance: Mottled very pale gray with pale blue gray
Presence of polish/ thermal alteration/ coloration: No
Context: Structure K-33/6 cache (Late Classic AD 650)
Appearance in the literature: Pendergast 1990: 362 *ill. 363*
Breakage patterns/ notes: This specimen is made of fine textured chert. There is also coarse textured material visible in the matrix and is patinated to a mottled pale blue gray. The specimen is finely flaked with lengthy feather terminated flake scarring visible across the medial surfaces. The lateral margins exhibit shorter step and hinge terminated scarring. Many of these flake scars are stacked that prevented further thinning.
Presence of pigments/ residues: None

ah201
RP728/1
Site: Altun Ha
Dimensions (cm) L: 24.8 W: 5.4 Th: 1.6
Technological type: Biface (serrated)
Presence of cortex: Yes, small area at one terminus
Raw material appearance: Mottled very pale gray and gray brown
Presence of polish/ thermal alteration/ coloration: Yes, a small area of thermal alteration is visible on one medial surface
Context: Structure K-35/1 cache (Post abandonment AD 1100)
Appearance in the literature: Pendergast 1990: 387 *ill. 373*
Breakage patterns/ notes: This specimen is made of very fine textured chert. The medial surfaces exhibit feather terminated flake scarring. The lateral margins exhibit edge crushing and stacked flake scarring, localized primarily to the interiors of the serrations. The stem exhibits short feather terminated flake scarring. Of note is the dark red area that appears to be thermally altered.
Presence of pigments/ residues: None



ah22RP616/4



ah27RP616/7

cr42
CH78A- 180
Site: Colha
Dimensions (cm) L: 12.9 W: 3.3 Th: 1.1
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Brown and tan brown
Presence of polish/ thermal alteration/ coloration: No
Context: n/a
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of a very fine textured chert with few inclusions visible. The medial surfaces of the specimen exhibit short and moderately lengthy feather terminated flake scarring. The lateral margins exhibit localized edge crushing and stacked step and hinge terminated flake scarring. Edge attrition is most prevalent on the interior of the notches.
Presence of pigments/ residues: None

cr64
CH2002/1- 3(149)
Site: Colha
Dimensions (cm) L: 10.1 W: 4.3 Th: 1.6
Technological type: Biface (notched)
Presence of cortex: No
Raw material appearance: Tan brown and pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2002 platform and workshop deposit just south of the central precinct (Late Preclassic BC 400- AD 200)
Appearance in the literature: Probst 1984: 7 *ill. 54*
Breakage patterns/ notes: This specimen is made of fine textured chert with a low density of circular inclusions visible in the material. The specimen is incomplete as exhibited by a snap fracture across the medial portion. The lateral margins exhibit few feather terminated flake scarring but extensive edge crushing. On the interior of the notches stacked step and hinge terminated flake scarring and more edge crushing are both visible. The medial surfaces exhibit irregular feather terminated flake scarring. The specimen appears to take a curvilinear form.
Presence of pigments/ residues: None

cr16
CH2003/22- 9
Site: Colha
Dimensions (cm) L: 24.0 W: 2.9 Th: 2.3
Technological type: Biface (elongated)
Presence of cortex: Yes, visible at one terminus
Raw material appearance: Uniform brown
Presence of polish/ thermal alteration/ coloration: Yes, sheen over surfaces
Context: Operation 2003 domestic platform (Protoclassic AD 150- AD 250)
Appearance in the literature: Day and Laurens 1981: 82; Gibson 1986: 111-113 *ill. 256*; Probst 1984: 8 *ill. 51*
Breakage patterns/ notes: This specimen is made of very fine textured chert that exhibits a clear sheen or polish that may indicate thermal alteration. The specimen is plano- convex in cross section with short symmetrical and parallel feather terminated flake scarring covering much of the surfaces. The lateral margins exhibit extensive edge crushing and stacked microflaking. Some step and hinge terminated scars are visible, but the scarring is primarily feather terminated. The medial ridge of the specimen also exhibits edge attrition and flake scarring. Most of the flake scarring is exceedingly uniform and appears to be the result of pressure flaking. Of note are three parallel, incised lines that run laterally across the cortex located at the proximal terminus of the specimen. The lines extend from 1.2 to 2.0 cm in length and are 0.2 cm apart.
Presence of pigments/ residues: None

cr68
CH2012/13- 15(6)
Site: Colha
Dimensions (cm) L: 12.7 W: 5.1 Th: 1.6
Technological type: Biface (stemmed)
Presence of cortex: No
Raw material appearance: Dark gray
Presence of polish/ thermal alteration/ coloration: Yes, artifact is burned
Context: Operation 2012 cache/ feature in western structure inn the main plaza of the central precinct (Late Classic AD 600- AD 900)
Appearance in the literature: Probst 1984: 11- 12 *ill. 38*
Breakage patterns/ notes: This specimen is made of fine textured chert that has been extensively burned as indicated by the dark gray coloration and extensive pot lid fractures visible on the medial surfaces. The lateral margins exhibit pot lid fractures. The margins do exhibit extensive short feather terminated flake scarring and edge crushing. The medial surfaces exhibit short feather terminated scarring.
Presence of pigments/ residues: None

cr42CH78A-180

cr16CH2003/22-9

cr37
CH2012/F15
Site: Colha
Dimensions (cm) L: 25.0 W: 6.9 Th: 2.0
Technological type: Biface (stemmed/ notched)
Presence of cortex: No
Raw material appearance: Mottled brown/ pale gray/ yellowish gray and brown
Presence of polish/ thermal alteration/ coloration: Yes, polish and staining
Context: Structure 2012 cache in western structure in the main plaza of the central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: Gibson 1986: 137 *ill. 255*; Probst 1984: 10 *ill. 48*
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured inclusions. The lateral margins exhibit moderate to heavy attrition with feather terminated scarring and also step and hinge flake scarring. The stacked step and hinge terminated flake scarring is more prevalent on the interior of the notches. Edge crushing is also more prevalent on the interior of the notches. The medial surfaces exhibit lengthy feather terminated flake scarring. Broad hinge terminated flake scars are also visible on the medial surfaces. Short feather terminated flake scars are visible at one terminus. This scarring appears to be pressure flaking. Note yellow brown staining and polish on medial surfaces.
Presence of pigments/ residues: None

cr65
CH2024/7- 6
Site: Colha
Dimensions (cm) L: 6.4 W: 5.0 Th: 1.6
Technological type: Biface
Presence of cortex: Yes
Raw material appearance: Banded gray/ brown/ tan brown and yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2024 workshop deposit (Late Preclassic 400 BC- AD 250)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. As illustrated by the snap fracture at the base of a short stem, the specimen is incomplete but appears to be the distal portion of a staff end. The lateral margins exhibit edge crushing with a number of step and hinge scars on the medial surfaces. Localized areas of the margins exhibit stacked step and hinge terminated flake scarring. Medial surfaces exhibit irregular feather terminated flake scars.
Presence of pigments/ residues: Yes, appears to be an oval shaped brownish-white residue is visible on the cortex. Residue area- 1.8 cm in diameter.

cr60
CH2025/18- 3
Site: Colha
Dimensions (cm) L: 10.9 W: 4.9 Th: 2.3
Technological type: Biface (elongated/ incomplete)
Presence of cortex: No
Raw material appearance: Mottled gray brown with pale blue white inclusions
Presence of polish/ thermal alteration/ coloration: Yes, artifact is burned
Context: Operation 2025 domestic platform and workshop deposit
(dated to the Early Classic AD 250- AD 600)
Appearance in the literature: Probst 1984: 11 *ill. 50*
Breakage patterns/ notes: This specimen is made of fine textured chert with a number of visible inclusions. The lateral margins of the biface are extensively altered with frequent stacked step and hinge terminated micro flaking visible on the interior of the notches. The notches exhibit stacked step scarring. The medial surfaces are not flat and exhibit irregular flake scarring. Of note are the pot lid fractures visible on one medial surface indicating the specimen was burned. Also of note is the snap fracture at one terminus indicating the specimen is incomplete.
Presence of pigments/ residues: None

cr21
CH2031/116 (89- 4)
Dimensions (cm) L: 22.9 W: 8.5 Th: 3.6
Technological type: Biface
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Mottled pale gray/ very pale brown/ very pale yellow
Presence of polish/ thermal alteration/ coloration: Yes, pale yellow stain visible on one surface
Context: Operation 2031 cache/ burial in the plaza floor of the central precinct (Protoclassic AD 150- 250)
Appearance in the literature: Hester and Shafer 1991; Meskill 1992: 136
Breakage patterns/ notes: This specimen is made of moderately fine textured chert with some coarse textured material also visible. The medial surfaces exhibit lengthy feather terminated flake scars. The lateral margins exhibit shorter feather terminated flake scars with some localized areas of stacked step and hinge terminated scarring. Of note is the pale yellow staining on one medial surface. It is unclear whether this is cultural in origin.
Presence of pigments/ residues: None

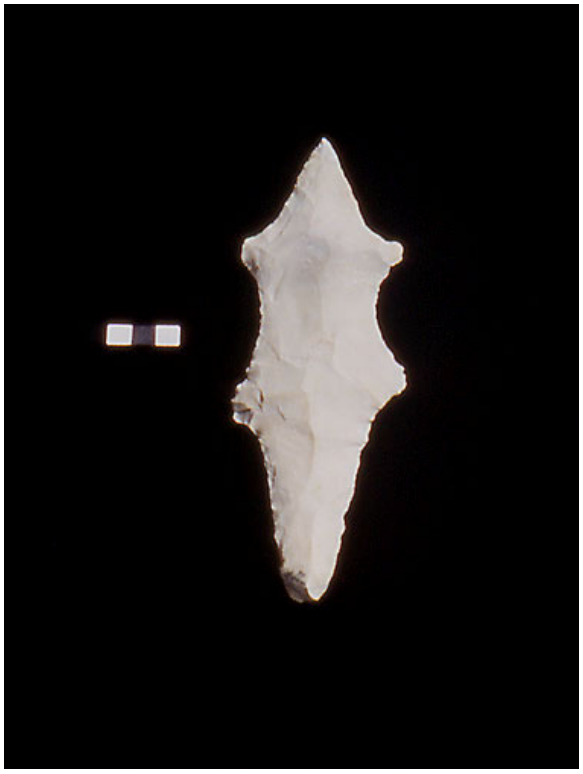
cr37CH2012/F15

cr21CH2031/116(89-4)

cr1
CH2031/5- 116
Site: Colha
Dimensions (cm) L: 46.4 W: 15.2 Th: 3.6
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled very pale gray/ gray/ banded gray/ brown
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2031 cache/ burial in the plaza floor of the central precinct (Protoclassic AD 150- AD 250)
Appearance in the literature: Hester and Shafer 1991; Meskill 1992: 136
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse texture inclusions visible. It appears if the specimen is patinated to its present color. Generally, the specimen is finely flaked with lengthy feather terminated flake scarring across the medial surfaces of the specimen. The lateral margins are relatively thin but also exhibit localized areas of stacked step and hinge terminated flake scarring and edge crushing. One terminus appears to exhibit the remnant of the original striking platform of the macro flake blade from which the specimen was produced.
Presence of pigments/ residues: None

cr2
CH2031/5- 116
Site: Colha
Dimensions (cm) L: 20.7 W: 6.9 Th: 2.2
Technological type: Biface
Presence of cortex: Yes, small area at one terminus
Raw material appearance: Mottled pale gray/ pale brown/ pale yellow brown
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2031 cache/ burial in plaza floor central precinct (Protoclassic AD 150- AD 250)
Appearance in the literature: Hester and Shafer 1991; Meskill 1992: 136
Breakage patterns/ notes: This specimen is made of fine textured chert that is patinated to a very pale gray. Overall, the flake scars across the medial surfaces are lengthy and feather terminated. The lateral margins exhibit short feather terminated scarring and little edge attrition. However, one margin exhibits heavy flake scarring in the form of stacked step and hinge terminated flake scarring.
Presence of pigments/ residues: None

cr1CH2031/5- 116



cr2CH2031/5- 116

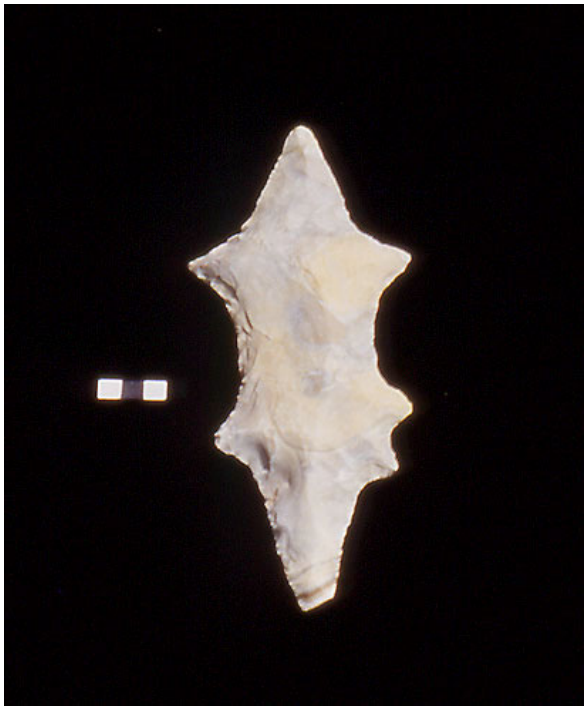
cr7
CH2031/5- 116
Site: Colha
Dimensions (cm) L: 23.7 W: 10.0 Th: 2.7
Technological type: Biface
Presence of cortex: Yes, small area at one terminus
Raw material appearance: Banded gray mottled brown/ pale gray/ pale yellow
Presence of polish/ thermal alteration/ coloration: No
Context: Operation 2031 cache associated with burial in plaza of central precinct (Protoclassic AD 150- 250)
Appearance in the literature: Hester and Shafer 1991; Meskill 1992: 136
Breakage patterns/ notes: This specimen is made of fine textured chert with extensive areas of more coarse textured material also present. The medial surfaces exhibit moderate to lengthy feather terminated flake scarring. Broad hinge and step scars are also present on the medial surfaces. The lateral margins exhibit relatively little edge attrition in the form of crushing. However, there are numerous areas that exhibit stacked step and hinge terminated scarring
Presence of pigments/ residues: None

cr20
CH2031/5- 116
Site: Colha
Dimensions (cm) L: 27.0 W: 9.2 Th: 2.5
Technological type: Biface
Presence of cortex: Yes, visible at one terminus
Raw material appearance: Mottled pale gray with yellow brown and gray
Presence of polish/ thermal alteration/ coloration: Yes, pale yellow brown coloration visible at one terminus
Context: Operation 2031 cache associated with burial in plaza of central precinct (Protoclassic AD 150- 250)
Appearance in the literature: Hester and Shafer 1991; Meskill 1992: 136
Breakage patterns/ notes: This specimen is made of fine textured chert with some small circular inclusions are visible. Also coarse textured material is present in the matrix of the specimen. The medial surfaces exhibit lengthy feather terminated flake scarring with some broad hinge scars also visible. The lateral margins exhibit little edge attrition in the form of edge attrition. However, short feather terminated and stacked step and hinge terminated flake scarring are visible along the lateral margins. Of note is what appears to be a striking platform remnant visible at one terminus. Also of note are the pale yellow brown stains clearly visible across one medial surface. It is posited that this staining is part of a pigment stain that has deteriorated.

The form of the stain appears to be in the shape of a figure emerging from the edge of the specimen.
Presence of pigments/ residues: Yes, staining as eroded pigments visible on one medial surface. See comments above.

r90
LA244/18
Site: Lamanai
Dimensions (cm) L: 36.5 W: 5.4 Th: 3.2
Technological type: Biface (stemmed/ serrated)
Presence of cortex: No
Raw material appearance: Brown tan and dark gray brown
Presence of polish/ thermal alteration/ coloration: Yes, black staining present
Context: Structure N10-9/9 axial cache under staircase (T. Classic AD 850- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring and edge crushing, with feather terminated scarring apparent on what appears to be the stem. The medial surfaces exhibit symmetrical broad feather terminated flake scarring with step and hinge scars also visible.
Presence of pigments/ residues: None

r19
LA247/16
Site: Lamanai
Dimensions (cm) L: 32.7 W: 6.1 Th: 1.1
Technological type: Biface (thin/ lenticular)
Presence of cortex: No
Raw material appearance: Uniform dark brown
Presence of polish/ thermal alteration/ coloration: No
Context: Structure N10-4/46 burial (Late Postclassic AD 1350)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. Overall, the specimen is thin in cross section. The medial surfaces exhibit short and lengthy feather terminated flake scars. The lateral margins exhibit short feather terminated flake scarring and some local areas of stacked microflaking and edge crushing.
Presence of pigments/ residues: None



cr7CH2031/5- 116

cr20CH2031/5- 116

r27
LA395/
Site: Lamanai
Dimensions (cm) L: 30.8 W: 9.7 Th: 3.5
Technological type: Biface
Presence of cortex: No
Raw material appearance: Mottled very pale gray with pale brown gray
Presence of polish/ thermal alteration/ coloration:
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert that has been patinated to the present color. The medial surfaces of the specimen exhibit lengthy feather terminated flake scarring as well as hinge scarring. The lateral margins exhibit short feather, step, and hinge terminated flake scarring. Stacked flake scarring is also prevalent on the margins, most prevalently on the interiors of the notches. Edge prominences along the margins exhibit more finely flaked feather terminated scarring. This scarring is also visible at one terminus.
Presence of pigments/ residues: None

r47
LA395/
Site: Lamanai
Dimensions (cm) L: 27.0 W: 6.0 Th: 2.0
Technological type: Biface (narrow/ barbed)
Presence of cortex: No
Raw material appearance: Banded pale brown/ gray mottled dark brown/ gray
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. Overall, the specimen is narrow and is bi-convex in cross section. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring and edge crushing, especially prevalent on the interior of the barbs. The edge prominences exhibit short feather terminated flake scarring and to a much lesser degree edge crushing. The medial surfaces exhibit short symmetrical feather terminated flake scarring. At the terminus, short feather terminated flake scarring is prevalent. Of note is the snap fracture across one terminus.
Presence of pigments/ residues: Yes, a dark red pigment is visible at one terminus. The pigment exhibits texture and is uniform in color.

r27LA395/

r47LA395/

r52
LA395/
Site: Lamanai
Dimensions (cm) L: 27.4 W: 8.0 Th: 2.5
Technological type: Biface (notched/ barbed)
Presence of cortex: Yes, small area visible at one terminus
Raw material appearance: Mottled pale brown gray/ gray brown/ pale brown
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit symmetrical short feather terminated flake scarring. Short hinge and step terminated flake scarring are also prevalent on the interior of the notches. The medial surfaces exhibit more lengthy feather terminated flake scarring and several broad hinge scars. Of note is snap visible at terminus.
Presence of pigments/ residues: Yes, an approximately 25 mm wide band of highly eroded red pigment/ residue is visible near one terminus. The pigment/ residue exhibits texture, but has deteriorated so that the color is dispersed rather than intensive. It appears somewhat greasy and may be part of a hafting adhesive, but unclear.

r57
LA395/
Site: Lamanai
Dimensions (cm) L: 32.8 W: 9.8 Th: 2.6
Technological type: Biface (notched/ barbed)
Presence of cortex: No
Raw material appearance: Very pale brown and brown with pale gray
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with fine textured material also present in the matrix. The specimen's surfaces exhibit moderately lengthy symmetrical feather terminated flake scarring at each terminus, with broader feather and hinge terminated scarring toward the medial portion. The lateral margins exhibit short hinge terminated scarring with some stacked microfilming prevalent on the interior of the notches. The edge prominences exhibit short feather terminated flake scarring. Of note are the short snap fractures at terminus and area pigment/ residue below.

Presence of pigments/ residues: Yes, a highly eroded band of red pigment/ residue above one terminus. This area exhibits some texture, but again has deteriorated. The location of the band suggests that the pigment/ residue may have been part of a hafting element.

r91
LA395/
Site: Lamanai
Dimensions (cm) L: 32.5 W: 9.7 Th: 2.2
Technological type: Biface (notched/ barbed)
Presence of cortex: Yes
Raw material appearance: Dark gray brown and gray with pale brown gray
Presence of polish/ thermal alteration/ coloration: No
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of moderately coarse textured chert with extensive inclusions visible in the matrix of the material. The specimen is finely flaked with lateral margins exhibit little stacked flake scarring. The lateral margins exhibit short feather terminated flake scars with localized areas of stacked microflaking. The medial surfaces exhibit short and moderate length feather terminated flake scars. Of note is a snap fracture visible at base of stem.
Presence of pigments/ residues: None

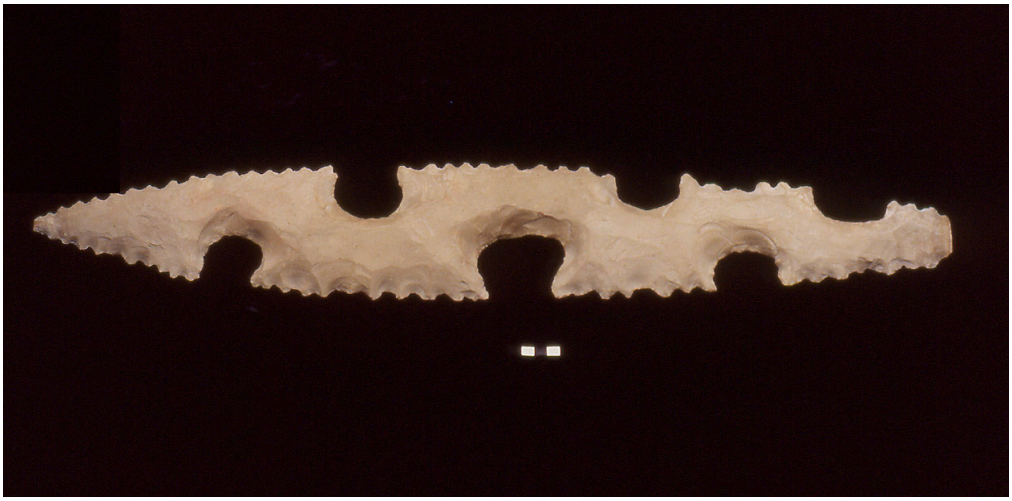
r93
LA395/
Site: Lamanai
Dimensions (cm) L: 31.4 W: 7.1 Th: 2.1
Technological type: Biface (narrow/ barbed)
Presence of cortex: Yes, small area at one terminus
Raw material appearance: Pale yellow brown and pale gray with gray
Presence of polish/ thermal alteration/ coloration: Yes, extensive polish visible on one terminus
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert. The lateral margins exhibit stacked step and hinge terminated flake scarring, especially prevalent where barbs intersect with the main portion of the specimen. The medial surfaces exhibit primarily short feather terminated flake scarring.
Presence of pigments/ residues: None

r52LA395/

r57LA395/

r94
LA395/
Site: Lamanai
Dimensions (cm) L: 29.5 W: 7.3 Th: 3.1
Technological type: Biface (barbed)
Presence of cortex: No
Raw material appearance: Mottled pale brown gray and dark gray brown
Presence of polish/ thermal alteration/ coloration: Yes, polish one terminus
Context: Cache 3 located beneath Altar 1 Plaza 2 (Late- Term. Classic deposit)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of fine textured chert with some coarse textured areas visible in the matrix. The medial surface of the specimen exhibit short and lengthy feather terminated flake scarring as well as hinge terminated flake scars that are moderate in length. Both the distal and proximal termini are finely flaked, with short symmetrical feather terminated flake scarring present. The lateral margins exhibit stacked microflaking and edge crushing, especially prevalent where the barbs intersect with the main body of the specimen.
Presence of pigments/ residues: None

r111
LA629/1
Site: Lamanai
Dimensions (cm) L: 76.5 W: 12.8 Th: 3.9
Technological type: Biface (notched/ serrated)
Presence of cortex: Yes, present at one terminus
Raw material appearance: Pale gray and gray brown
Presence of polish/ thermal alteration/ coloration: Yes, small area red area of coloration visible on one surface
Context: Structure N10- 28 axial cache located beneath staircase
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert that shows some uniform patination. The lateral margins exhibit extensive stacked step and hinge terminated flake scarring, especially prevalent on the interior of the notches and serrations. The medial surfaces exhibit lengthy feather and hinge terminated flake scarring. These are generally symmetrical and extend from the margin to the interior of the specimen. Of note is some red coloration visible on one medial surface, possible an area of thermal alteration.
Presence of pigments/ residues: None



r111LA629/1

r37LA682/12

r37
LA682/12
Site: Altun Ha
Dimensions (cm) L: 30.7 W: 8.5 Th: 2.1
Technological type: Biface
Presence of cortex: No
Raw material appearance: Banded gray and pale gray
Presence of polish/ thermal alteration coloration: Yes, some polish visible along the stem of the specimen
Context: Structure N10-15/6 one of two axial caches beneath north staircase (Late Classic AD 600- 900)
Appearance in the literature: n/a
Breakage patterns/ notes: This specimen is made of very fine textured chert. The specimen is finely flaked overall with short feather terminated flake scarring predominating across the medial surfaces. The lateral margins show stacked microflaking and edge crushing, but also are finely flaked. Short feather terminated flake scars are also visible along the margins. Edge crushing is a bit more prevalent on the interior of the notches close to one terminus. Of note is what appears to be polish that may indicate hafting.
Presence of pigments/ residues: None

Artifact Grouping: Notched and Stemmed Blades

(ah) b8
RP553/10
Site: Altun Ha
Dimensions (cm) L: 13.2 W: 4.1 Th: 1.5
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.7 Th: 4.1
Platform angle: 98 degrees
Presence of cortex: Yes, large area of brown cortex visible on dorsal surface
Raw material appearance: Brown and tan brown
Number of dorsal facets: 1
Context: Structure C-13/7 stone assemblage II
Appearance in the literature: Pendergast 1982: 194
Notes: This specimen is made of very fine textured chert with no inclusions visible. There is no indication of platform preparation visible. The specimen exhibits nine irregular notches along the lateral margins. There is no indication of surface alteration.

(ah) b1
RP553/23
Site: Altun Ha
Dimensions (cm) L: 13.9 W: 4.4 Th: 1.7
Technological type: Blade (notched)
Platform dimensions (cm) W: 2.6 Th: 1.7
Platform angle: 88 degrees
Presence of cortex: No
Raw material appearance: Mottled gray and pale gray
Number of dorsal facets: 3
Context: Structure C-13/7 stone assemblage II
(latter part of the Early Classic AD 400- 450)
Appearance in the literature: Pendergast 1982: 195
Notes: This specimen is made of coarse textured material with no inclusions visible. Short step terminated flake scars are visible around the striking platform, suggesting that the platform underwent preparation during production. The specimen exhibits thirteen notches that vary in width. There is no indication of surface alteration. Of note is the tapered distal terminus that gives the specimen a triangular appearance.

(ah) b9
RP553/75
Site: Altun Ha
Dimensions (cm) L: 16.3 W: 3.3 Th: 1.3
Technological type: Blade (notched)
Platform dimensions (cm) W: 2.4 Th: 1.1
Platform angle: 94 degrees
Presence of cortex: Yes, dorsal surface at the distal terminus
Raw material appearance: Mottled pale blue gray/ banded brown pale brown
Number of dorsal facets: 3
Context: Structure C-13/7 core material of the second structure
(latter part of Early Classic AD 400- 450)
Appearance in the literature: n/a
Notes: The specimen is made of fine textured chert with few inclusions visible. There is no indication of platform preparation visible. The specimen exhibits twelve irregular notches along the lateral margins. There is no evidence of surface alteration.

ah105
RP593/1
Site: Altun Ha
Dimensions (cm) L: 19.6 W: 4.9 Th: 1.9
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.2 Th: 1.5
Platform angle: n/a
Presence of cortex: Yes, small quantity visible at distal terminus
Raw material appearance: Mottled gray and brown gray
Number of dorsal facets: 2
Context: Structure C-13 cache 7A
Appearance in the literature: Pendergast 1982: 191
Notes: This specimen is made of fine textured material with elongated oval shaped inclusions present. It appears that the cortex is stained to a dark yellow brown. The lateral margins exhibit twelve notches that vary slightly in width. The interior of the notches exhibit short feather terminated flake scars and microflaking. There is little indication of striking platform preparation.

(ah) b6
RP593/3
Site: Altun Ha
Dimensions (cm) L: 17.3 W: 4.3 Th: 1.5
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.3 Th: 0.6
Platform angle: 90 degrees
Presence of cortex: Yes, small quantity on dorsal surface at the distal terminus
Raw material appearance: Banded brown and pale yellow brown
Number of dorsal facets: 4
Context: Structure C-13 cache 7A
Appearance in the literature: Pendergast 1982: 192
Notes: This specimen is made of fine textured material with no inclusions visible. The striking platform exhibits no indication of preparation. The specimen exhibits thirteen uniform notches. There is no evidence of surface alteration.

(ah) b2
RP593/13
Site: Altun Ha
Dimensions (cm) L: 15.0 W: 5.5 Th: 1.5
Technological type: Blade (notched/ stemmed)
Platform dimensions (cm) W: 0.9 Th: 0.3
Platform angle: 87 degrees
Presence of cortex: Yes, extensive quantity pale brown cortex dorsal surface
Raw material appearance: Banded gray and pale gray
Number of dorsal facets: 4
Context: Structure C-13 cache 7E
Appearance in the literature: Pendergast 1982: 192
Notes: This specimen is made of fine textured material with no inclusions visible. The striking platform exhibits no evidence of preparation. The specimen exhibits ten notches that are not uniform in size. The cortex is brown in color, but otherwise there is no surface alteration visible.

(ah) b7
RP593/16
Site: Altun Ha
Dimensions (cm) L: 20.5 W: 3.4 Th: 1.4
Technological type: Blade (notched/ stemmed)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: No
Raw material appearance: Mottled dark brown and pale blue gray
Number of dorsal facets: 4
Context: Structure C-13 cache 7E
Appearance in the literature: Pendergast 1982: 192
Notes: The specimen is made of fine textured material with no inclusions visible. The striking platform has been removed and the blade appears to be stemmed. However, there is no indication of polish on the stem. The specimen exhibits nineteen notches. There is no indication of surface alteration.

(ah) b4
RP593/17
Site: Altun Ha
Dimensions (cm) L: 16.3 W: 4.3 Th: 1.4
Technological type: Blade (notched/ stemmed)
Platform dimensions (cm) W: 1.4 Th: 0.8
Platform angle: 97 degrees
Presence of cortex: Yes, small quantity visible at distal terminus
Raw material appearance: Banded tan brown and brown gray
Number of dorsal facets: 3
Context: Structure C-13 cache 7E
Appearance in the literature: Pendergast 1982: 192
Notes: The specimen is made of very fine textured chert with no inclusions visible. The striking platform does not exhibit preparation. The stem is bifacially worked with short feather terminated flake scarring visible on the dorsal and ventral surfaces. However, the specimen exhibits no evidence of polish or surface alteration.

ah104
RP593/29
Site: Altun Ha
Dimensions (cm) L: 15.8 W: 4.7 Th: 1.7
Technological type: Blade (notched)
Platform dimensions (cm) W: 2.3 Th: 1.4
Platform angle: n/a
Presence of cortex: Yes, moderate quantity at the distal terminus
Raw material appearance: Mottled brown and pale brown
Number of dorsal facets: 5
Context: Structure C-13 cache 7G
Appearance in the literature: Pendergast 1982: 193
Notes: This specimen is made of fine textured material with extensive fossil inclusions visible primarily on the ventral surface. The lateral margins exhibits eight uniform notches that exhibit stacked micro flaking and edge crushing on the interior. There is no clear evidence of platform preparation. Also there is no indication of surface alteration.

(ah) b5
RP593/37
Site: Altun Ha
Dimensions (cm) L: 17.0 W: 4.5 Th: 1.2
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.3 Th: 0.7
Platform angle: 87 degrees
Presence of cortex: Yes, extensive quantity on dorsal facet
Raw material appearance: Banded brown and yellow brown
Number of dorsal facets: 2
Context: Structure C-13 cache 7G
Appearance in the literature: Pendergast 1982: 193
Notes: This specimen is made of fine textured material with no inclusions visible. The striking platform exhibits short step and feather terminated flake scars, indicating preparation. The specimen exhibits eleven uniform notches. There is no evidence of surface alteration.

(ah) b3
RP593/43
Site: Altun Ha
Dimensions (cm) L: 12.2 W: 5.0 Th: 1.1
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.6 Th: 0.9
Platform angle: 90 degrees
Presence of cortex: Yes, presence on distal terminus
Raw material appearance: Banded gray and pale gray
Number of dorsal facets: 3
Context: Structure C-13 cache 7G
Appearance in the literature: Pendergast 1982: 193
Notes: The specimen is made of fine textured material with no inclusions. The striking does no exhibit preparation. The specimen exhibits ten notches, though they are not uniform. There is no evidence of surface alteration.

cr15
CH2003/22- 9 (171)
Site: Colha
Dimensions (cm) L: 16.8 W: 6.0 Th: 2.3
Technological type: Blade (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: No
Raw material appearance: Banded brown and gray with some mottled gray
Number of dorsal facets: 4
Context: Operation 2003 structure located at the southeast corner of central precinct (Late Preclassic 400 BC- AD 250)
Appearance in the literature: Day and Laurens 1981: *ill. 81*;
Probst 1984: 8 *ill. 51*
Notes: This specimen is made of fine textured chert. The lateral margins show some attrition and the distal end exhibit short feather terminated flake scarring. There is no striking platform present. The lateral margins exhibit four notches that vary in width. There is stacked micro flaking on the interior of the notches. There appears to be a small area of polish visible at both the distal and proximal termini. No other surface alteration is visible.

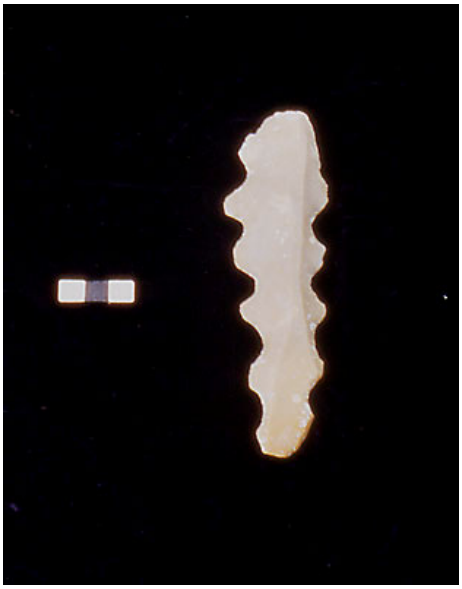
cr11
CH2012/5- 3
Site: Colha
Dimensions (cm) L: 20.3 W: 5.7 Th: 2.0
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.5 Th: 1.0
Platform angle: 88 degrees
Presence of cortex: Yes, extensive quantity on the dorsal surface
Raw material appearance: Tan brown chert
Number of dorsal facets: 2
Context: Operation 2012 cache located in western structure in main plaza of central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 14 *ill. 46*
Notes: This specimen is made of very fine textured chert with some oval shaped fossil inclusions visible. The lateral margins exhibit nine notches that are not uniform in width. There is ample evidence of edge attrition on the interior of the notches, with stacked microflaking and edge crushing visible. There is no evidence of surface alteration or platform preparation.

cr13
CH2012/5- 3
Site: Colha
Dimensions (cm) L: 14.7 W: 4.3 Th: 1.4
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.6 Th: 0.9
Platform angle: n/a
Presence of cortex: No
Raw material appearance: Pale brown gray and yellow brown
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 14 *ill. 46*
Notes: This specimen is made of fine textured chert with few circular fossil inclusions. The specimen exhibits nine uniform notches on the lateral margins. The interiors of the notches exhibit extensive microflaking and edge crushing. The right lateral margins exhibit heavy flake scarring at the proximal terminus of the specimen. There is evidence of platform preparation or surface alteration.

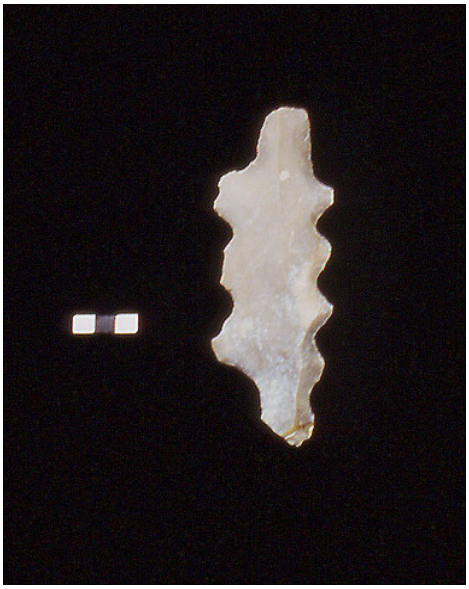
cr36
CH2012/5- 3 (164)
Site: Colha
Dimensions (cm) L: 16.6 W: 5.7 Th: 1.3
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.3 Th: 0.8
Platform angle: 87 degrees
Presence of cortex: Yes, very small quantity at distal terminus
Raw material appearance: Mottled brown gray/ pale blue gray with brown gray
Number of dorsal facets: 2
Context: Operation 2012 cache located in the stepped pyramid and platform on the western edge of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 14 *ill. 46*
Notes: This specimen is made of fine textured chert with several circular fossil inclusions visible in the matrix. The lateral margins exhibit short feather terminated flake scars along the edge prominences. Seven uniform notches are present along the margins. The interiors of the notches exhibit stacked microflaking and edge crushing. No surface alteration or striking platform preparation is visible.

cr15CH2003/22- 9(171)

cr11CH2012/5- 3



cr13CH2012/5- 3



cr36CH2012/5- 3(164)

cr49
CH2012/12- 21(2)
Site: Colha
Dimensions (cm) L: 18.5 W: 2.7 Th: 1.0
Technological type: Blade (stemmed)
Platform dimensions (cm) W: 1.2 Th: 0.5
Platform angle: 90 degrees
Presence of cortex: No
Raw material appearance: Banded gray and dark blue gray
Number of dorsal facets: n/a
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: n/a
Notes: This specimen is made of fine textured chert. The specimen exhibits flaking on the dorsal surface. This flaking is comprised of short feather terminated flake scarring. Some stacked flake scarring is visible along the lateral margins. There is no surface alteration or striking platform preparation visible.

cr50
CH2012/12- 21 (9)
Site: Colha
Dimensions (cm) L: 17.8 W: 3.1 Th: 1.5
Technological type: Blade
Platform dimensions (cm) W: 1.1 Th: 0.3
Platform angle: 86
Presence of cortex: No
Raw material appearance: Mottled gray brown/ blue gray/ yellow brown
Number of dorsal facets: n/a
Context: Operation 2012 cache in the western structure in the main plaza of the central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: n/a
Notes: This specimen is made of fine textured chert. The lateral margins do not exhibit any alteration. The distal end exhibits some staining to a yellow brown at the distal terminus. There is no evidence of platform preparation.

cr17
CH2012/13- 15 (1)
Site: Colha
Dimensions (cm) L: 15.7 W: 6.0 Th: 1.8
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.5 Th: 0.8
Platform angle: 87 degrees
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Mottled gray brown/ blue/ very pale gray
Number of dorsal facets: 3
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: Probst 1984: 11 *ill. 37*
Notes: This specimen is made of fine textured chert with linear inclusions visible in the material. The specimen exhibits twelve uniform notches along the lateral margins. Localized step and hinge fracturing and edge crushing are visible on the interior of the notches. Some microflaking is also visible at the distal end of the specimen. There is no surface alteration or platform preparation visible.

cr38
CH2012/13- 15 (2, 161)
Site: Colha
Dimensions (cm) L: 16.8 W: 5.0 Th: 1.5
Technological type: Blade (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: Yes, small quantity visible at distal terminus
Raw material appearance: Mottled pale brown very pale brown/ yellow brown
Number of dorsal facets: n/a
Context: Operation 2012 cache located in western structure in the main plaza of the central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: Probst 1984: 11 *ill. 37*
Notes: This specimen is made of fine textured chert. The proximal terminus exhibits a lateral snap that removed the striking platform. The lateral margin at the proximal end exhibits short feather terminated flake scarring. The margins also exhibit seven uniform notches. The interiors of the notches exhibit stacked microflaking and edge crushing. The medial distal surface exhibits a yellowish brown stain. There is no evidence of platform preparation visible.

cr3
CH2012/13- 15(3, 157)
Site: Colha
Dimensions (cm) L: 17.3 W: 6.6 Th: 1.7
Technological type: Blade (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Mottled very pale brown/ gray brown/ yellow brown
Number of dorsal facets: n/a
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- AD 850)
Appearance in the literature: Probst 1984: 11 *ill. 37*
Notes: This specimen is made of very fine textured material with some inclusions visible. The striking platform was removed. The specimen exhibits thirteen uniform notches. The lateral margins exhibit stacked microflaking and edge crushing on the interior of the notches. Short feather terminated flake scars are visible on the edge prominences. There is no evidence of surface alteration.

cr4
CH2012/13- 15 (7, 158)
Site: Colha
Dimensions (cm) L: 21.6 W: 8.4 Th: 3.4
Technological type: Blade (notched/ stemmed)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: Yes, at distal terminus
Raw material appearance: Mottled gray brown/ pale brown/ yellow brown
Number of dorsal facets: n/a
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 11 *ill. 39*
Notes: This specimen is made of very fine textured chert. The stem area exhibit bifacial flake scarring in the form of short feather terminated flake scars visible across the medial portion of the specimen. The specimen exhibits five uniform notches. The lateral margins exhibit short, stacked flake scarring and edge crushing on the interior of the notches. The stem also exhibits stacked flake scarring along the margins. There is no evidence of surface alteration.

cr3CH2012/13- 15(3, 157)

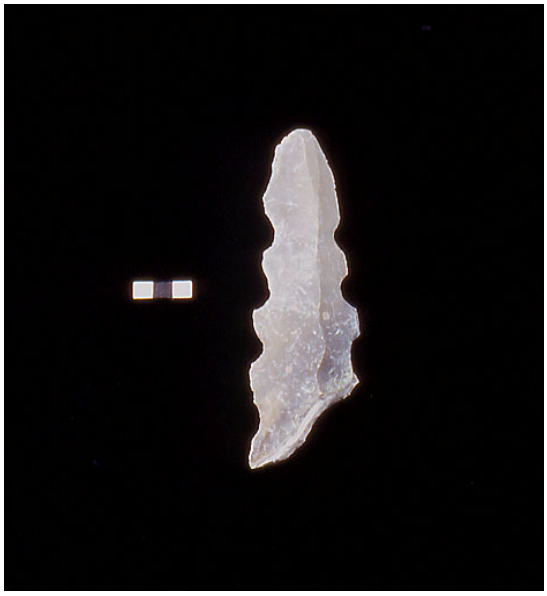
cr4CH2012/13- 15 (7, 158)

cr14
CH2012/13- 15 (8)
Site: Colha
Dimensions (cm) L: 14.9 W: 3.5 Th: 1.0
Technological type: Blade (notched)
Platform dimensions (cm) W: 0.8 Th: 1.0
Platform angle: n/a
Presence of cortex: Yes, small quantity visible on the right margin
Raw material appearance: Banded yellow brown/ yellow gray/ pale gray brown
Number of dorsal facets: 3
Context: Operation 2012 cache located in western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 11 *ill. 39*
Notes: This specimen is made of fine textured chert with linear inclusions visible in the material. The medial surface exhibits extensive attrition in the form of step and hinge scarring and edge crushing. The right lateral margin also exhibits extensive attrition and edge crushing. The margins exhibit eight uniform notches. The interiors of the notches exhibit edge crushing and stacked microflaking. There is no evidence of striking platform preparation or surface alteration.

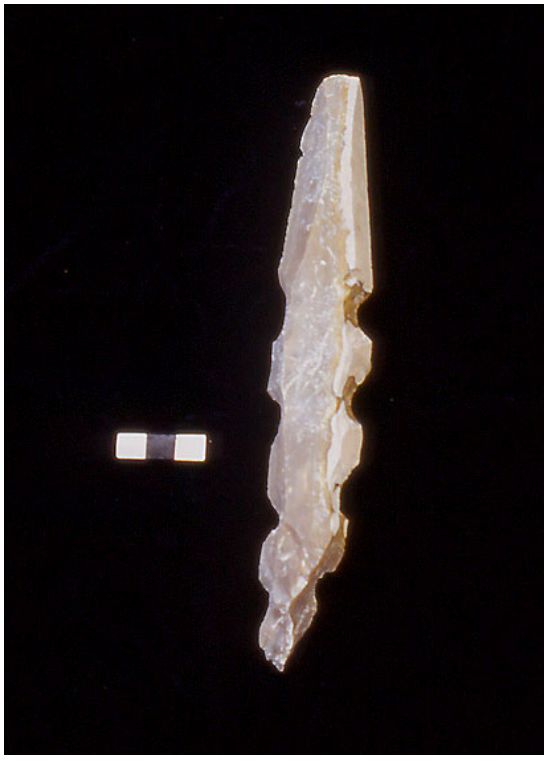
cr30
CH2012/13- 15 (10)
Site: Colha
Dimensions (cm) L: 18.7 W: 5.8 Th: 1.8
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.1 Th: 0.4
Platform angle: 85 degrees
Presence of cortex: Yes, visible at the distal terminus
Raw material appearance: Mottled gray/ very pale gray with dark brown gray
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 11 *ill. 40*
Notes: This specimen is made of fine textured chert with linear inclusions visible in the material. The lateral margins exhibit seven uniform notches. The notches exhibit stacked microflaking and edge crushing on their interior. There is no evidence of striking platform preparation or surface alteration.

cr35
CH2012/13- 15 (11, 361)
Site: Colha
Dimensions (cm) L: 17.7 W: 3.4 Th: 1.5
Technological type: Blade (notched)
Platform dimensions (cm) W: 0.4 Th: 0.4
Platform angle: 90 degrees
Presence of cortex: Yes, extensive cortex visible on dorsal surface
Raw material appearance: Banded tan brown and brown
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 11 *ill. 40*
Notes: This specimen is made of fine textured chert. The lateral margins exhibit no alteration. The specimen exhibits nine notches that vary in width. The interiors of the notches exhibit stacked microflaking and edge crushing. There is no evidence of surface alteration of platform preparation.

cr39
CH2012/13- 15 (15)
Site: Colha
Dimensions (cm) L: 21.1 W: 3.3 Th: 1.7
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.4 Th: 0.4
Platform angle: 87 degrees
Presence of cortex: Yes, cortex visible on the right margin of the specimen
Raw material appearance: Banded brown/ dark brown gray/ yellow brown
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 11 *ill. 40*
Notes: This specimen is made of fine textured chert. The lateral margins exhibit no edge alteration. However, the interior of the notches exhibits edge crushing and stacked microflaking. The distal end exhibits battering and attrition along the medial ridge. There is no evidence of striking platform preparation or surface alteration.



cr30CH2012/13- 15(10)



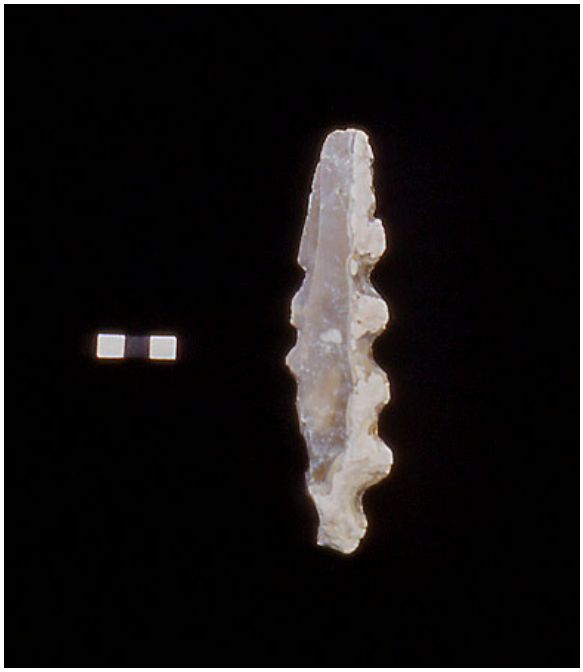
cr39CH2012/13- 15(12)

cr8
CH2012/13- 15 (13)
Site: Colha
Dimensions (cm) L: 18.7 W: 2.8 Th: 1.5
Technological type: Blade (notched/ stemmed)
Platform dimensions (cm) W: 1.3 Th: 1.1
Platform angle: n/a
Presence of cortex: Yes, extensive quantity visible across dorsal surface
Raw material appearance: Brown/ yellow brown/ gray brown/ very pale gray
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 11 *ill. 41*
Notes: The specimen is made of fine textured chert. The specimen exhibits fossil inclusions and a large area of cortex. The striking platform is intact that does not exhibit any evidence of preparation. The medial ridge of the blade exhibits heavy attrition comprised of microflaking and edge crushing. The lateral margins exhibit stacked step and hinge terminated flake scarring along the interior of the notches. The specimen exhibits twelve uniform notches along the lateral margins. There is no evidence of surface alteration.

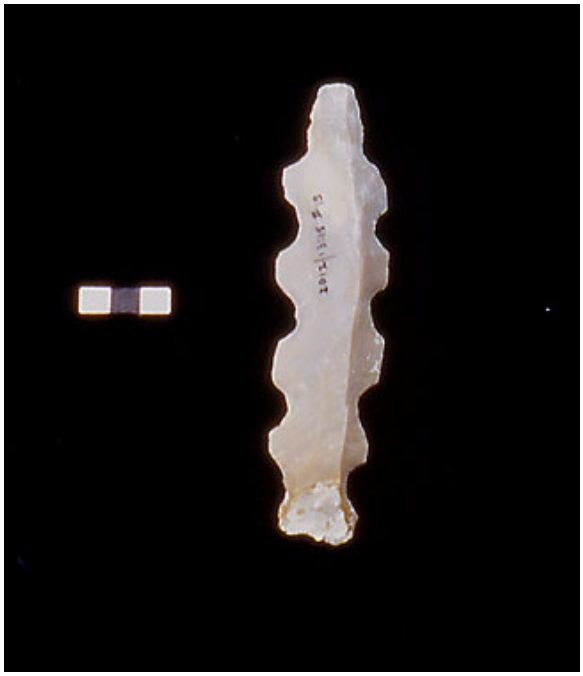
cr31
CH2012/13- 15 (14)
Site: Colha
Dimensions (cm) L: 16.8 W: 3.8 Th: 1.5
Technological type: Blade (notched)
Platform dimensions (cm) W: 0.8 Th: 0.6
Platform angle: 87 degrees
Presence of cortex: Yes, extensive quantity across dorsal surface of specimen
Raw material appearance: Mottled brown and pale brown with gray
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 11 *ill. 41*
Notes: This specimen is made of fine textured chert that exhibits oval shaped inclusions visible in the material. The lateral margins of the specimen show little edge attrition except for the interior of the notches. The margins exhibit seven notches that vary in width. Localized stacked microflaking and edge crushing is visible on the interior of the notches. There is no evidence of striking platform preparation or surface alteration.

cr5
CH2012/13- 15 (15)
Site: Colha
Dimensions (cm) L: 16.4 W: 3.6 Th: 1.5
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.2 Th: 0.5
Platform angle: n/a
Presence of cortex: Yes, small quantity visible at the distal terminus
Raw material appearance: Banded tan brown/ brown/ brown gray/ pale gray
Number of dorsal facets: 3
Context: Operation 2012 cache located in the stepped pyramid and platform on the western edge of the central precinct (Late Classic AD 600- 875)
Appearance in the literature: Probst 1984: 12 *ill. 41*
Notes: This specimen is made of very fine textured chert. The specimen exhibits eight uniform notches. The lateral margins exhibit no attrition, but the interiors of the notches exhibit stacked microflaking and edge crushing. The striking platform exhibits no evidence of preparation. There is no evidence of surface alteration visible.

cr10
CH2012/13- 15 (16)
Site: Colha
Dimensions (cm) L: 18.8 W: 2.8 Th: 1.4
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.2 Th: 0.9
Platform angle: 84 degrees
Presence of cortex: Yes, large quantity across the dorsal surface
Raw material appearance: Banded yellow brown and brown with pale brown
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 12 *ill. 41*
Notes: This specimen is made of fine textured chert with some fossil inclusions visible. The striking platform and bulb of percussion are present. The lateral margins exhibit nine uniform notches. The interiors of the notches exhibit stacked microflaking and edge crushing. There is no evidence of striking platform preparation or surface alteration visible.



cr31CH2012/13- 15 (14)



cr5CH2012/13- 15 (15)

cr34
CH2012/13- 15 (18, 129)
Site: Colha
Dimensions (cm) L: 16.4 W: 6.7 Th: 1.0
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.3 Th: 0.5
Platform angle: 92 degrees
Presence of cortex: No
Raw material appearance: Banded brown gray/ pale blue gray
Number of dorsal facets: n/a
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 12 *ill. 42*
Notes: This specimen is made of very fine textured chert with no inclusions. The lateral margins exhibit some short feather terminated flake scarring along the edge prominences. There are stacked microflaking and edge crushing on the interior of the notches. The specimen exhibits seven uniform notches along the lateral margins. There is no evidence of surface alteration or platform preparation.

cr9
CH2012/13- 15 (20)
Site: Colha
Dimensions (cm) L: 18.8 W: 6.5 Th: 2.3
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.8 Th: 0.6
Platform angle: 91 degrees
Presence of cortex: Yes, small quantity visible at distal terminus
Raw material appearance: Mottled brown/ gray with some very pale gray
Number of dorsal facets: n/a
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 12 *ill. 43*
Notes: This specimen is made of fine textured material with inclusions visible, with one large inclusion at distal terminus. The specimen exhibits eight uniform notches. The lateral margins exhibit stacked microflaking and edge crushing on the interior of the notches. The edge prominences exhibit short feather terminated flake scarring. There is no evidence of platform preparation or surface alteration.

cr32
CH2012/13- 15 (21)
Site: Colha
Dimensions (cm) L: 18.5 W: 6.9 Th: 1.8
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.1 Th: 0.4
Platform angle: 73 degrees
Presence of cortex: Yes, small quantity visible at the distal end of dorsal surface
Raw material appearance: Banded pale gray and pale brown with yellow brown
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 12 *ill. 43*
Notes: This specimen is made of very fine textured chert. Extensive cortex is visible on the dorsal surface. The proximal terminus is bifacially worked with short feather terminated flake scars visible across the medial surfaces. There is no visible platform preparation. The lateral margins exhibit five notches that vary in width. The interiors of the notches exhibit stacked microflaking and edge crushing. The edge prominences exhibit short feather terminated flake scarring and some hinge scarring. No surface alteration is visible.

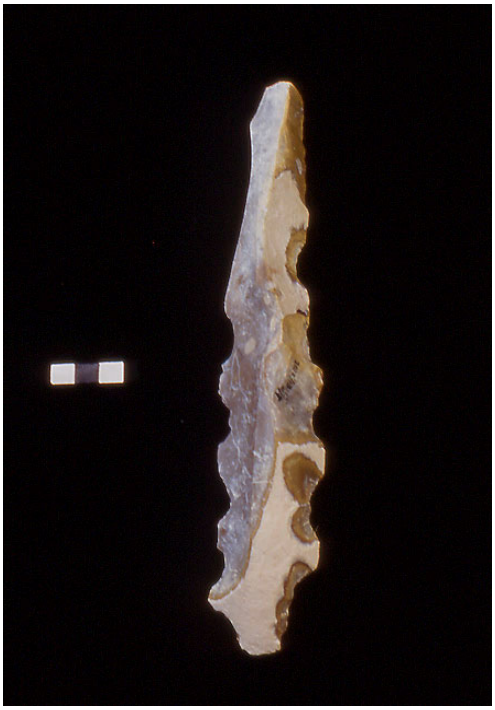
cr12
CH2012/13- 15 (22)
Site: Colha
Dimensions (cm) L: 17.3 W: 6.1 Th: 1.5
Technological type: Blades (notched)
Platform dimensions (cm) W: 1.5 Th: 0.6
Platform angle: 87 degrees
Presence of cortex: Yes, small quantity on right lateral margin of dorsal surface
Raw material appearance: Mottled pale gray brown and yellow brown
Number of dorsal facets: 3
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 12 *ill. 44*
Notes: This specimen is made of fine textured chert with linear and oval shaped fossil inclusions. Larger inclusions exhibit some more coarse textured material on the interior of the inclusions. The lateral margins exhibit eight notches, the interior of which exhibits extensive edge attrition. Some short feather terminated flake scars are visible on the edge prominences. There is no evidence of surface alteration or striking platform preparation.

cr32CH2012/13- 15(21)

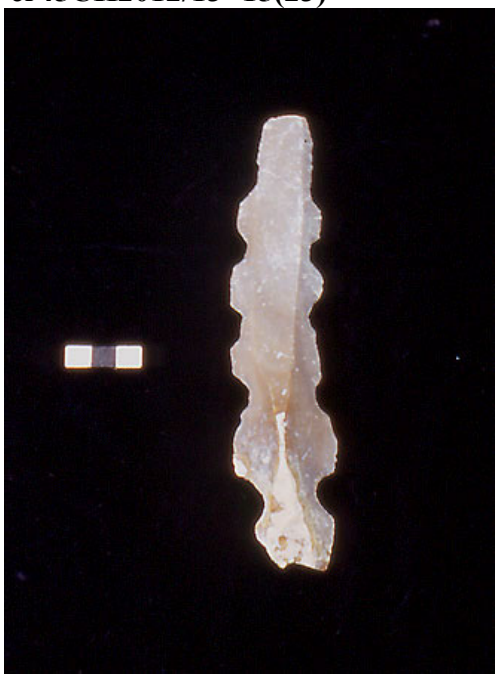
cr12CH2012/13- 15(22)

cr45
CH2012/13- 15 (23)
Site: Colha
Dimensions (cm) L: 24.3 W: 4.4 Th: 2.6
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.0 Th: 0.9
Platform angle: 96 degrees
Presence of cortex: Yes, extensive cortex visible on right margin dorsal surface
Raw material appearance: Mottled dark brown/ very pale brown/
dark yellow brown
Number of dorsal facets: 2
Context: Operation 2012 cache located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 12 *ill. 42*
Notes: This specimen is made of fine textured chert. The lateral margins exhibit nine notches that vary in width. The interiors of the notches exhibit edge crushing. There is no flake scarring on the edge prominences. There is extensive yellow brown staining visible at the proximal end of the specimen. There is no evidence of platform preparation.

cr33
CH2012/13- 15 (24, 128)
Site: Colha
Dimensions (cm) L: 19.3 W: 4.0 Th: 2.1
Technological type: Blade (notched)
Platform dimensions (cm) W: 1.4 Th: 0.6
Platform angle: 86 degrees
Presence of cortex: Yes, small quantity at the distal terminus
Raw material appearance: Gray brown and brown
Number of dorsal facets: 2
Context: Operation 2012 caches located in the western structure in the main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 12 *ill. 44*
Notes: This specimen is made of fine textured chert with oval shaped fossil inclusions present in the material. The lateral margins exhibit little alteration. The interiors of the notches exhibit stacked microflaking. There is no evidence of surface alteration or platform preparation.



cr45CH2012/13- 15(23)



cr33CH2012/13- 15(24, 28)

cr43
CH4044/1- 10
Site: Colha
Dimensions (cm) L: 14.7 W: 6.0 Th: 1.8
Technological type: Blade (notched/ stemmed)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: No
Raw material appearance: Pale gray and dark gray brown and gray
Number of dorsal facets: 4
Context: Operation 4044 platform (Late Classic AD 600- AD 850)
Appearance in the literature: n/a
Notes: This specimen is made of fine textured chert that exhibits small oval shaped inclusions. There is a snap fracture at the distal terminus that shows that specimen is incomplete. The lateral margins exhibit localized areas of step, hinge, and feather terminated flake scars. There are two notches along the margins, the interior of which exhibits stacked microflaking on the interior of the notches. This specimen is likely a part of a stemmed macroblade. There is no evidence of striking platform preparation or surface alteration.

Artifact Grouping: Notched and Perforated Flakes:

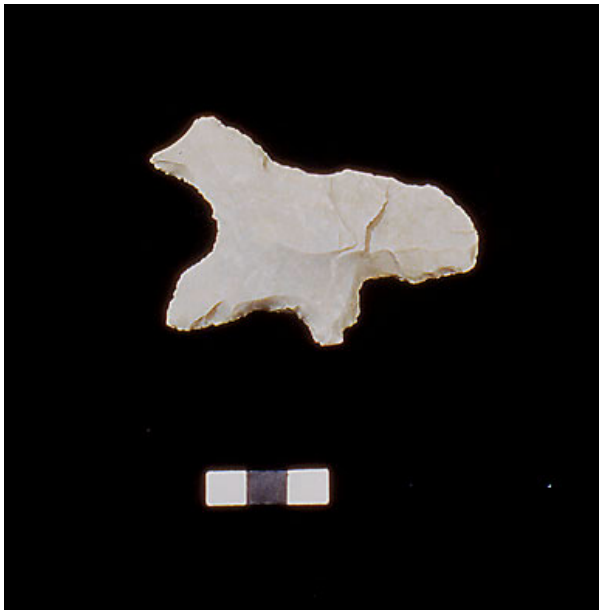
cr62
CH2012/12- 12 (166)
Site: Colha
Dimensions (cm) L: 8.5 W: 7.6 Th: 1.5
Technological type: Biface (notched)
Platform dimensions (cm) W: 1.6 Th: 0.8
Platform angle: 90 degrees
Presence of cortex: Yes, area visible on the dorsal surface
Raw material appearance: Mottled very pale gray/ gray brown/ pale gray brown
Number of dorsal facets: n/a
Context: Operation 2012 recovered from fill in western structure in main plaza of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 16 *ill. 47*
Notes: This specimen is made of fine textured chert that exhibits circular coarse textured inclusions in the matrix of the material. There is no flake scarring on either the dorsal or ventral surface. The lateral margins exhibit flake scarring with localized areas of edge crushing and stacked microflaking. There is no evidence of surface alteration or platform preparation.

cr57
CH2025/7- 1 (154)
Site: Colha
Dimensions (cm) L: 5.5 W: 5.2 Th: 0.6
Technological type: Flake (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: No
Raw material appearance: Gray
Number of dorsal facets: n/a
Context: Operation 2012 structure fill located in the stepped pyramid and platform on the western edge of the central precinct (Late Classic AD 600- 850)
Appearance in the literature: Probst 1984: 10 *ill. 50*
Notes: This specimen is made of fine textured chert. The striking platform is not present. The lateral margins exhibit localized step and hinge scarring and edge crushing on the interior of the notches. Dorsal surfaces exhibit short feather terminated flake scarring. There is no indication of surface alteration or striking platform preparation.

cr56
CH2031/2- 2 (167)
Site: Colha
Dimensions (cm) L: 8.4 W: 5.4 Th: 1.1
Technological type: Flake (notched)
Platform dimensions (cm) W: 0.8 Th: 0.2
Platform angle: 93 degrees
Presence of cortex: No
Raw material appearance: Banded pale tan brown and pale gray
Number of dorsal facets: n/a
Context: Operation 2031 cache in the main plaza in the central precinct (Late Preclassic 400 BC- AD 250)
Appearance in the literature: n/a
Notes: This specimen is made of fine textured chert. Flake scars across the dorsal surface are primarily short feather terminated flake scars. The lateral margins exhibit feather terminated flake scars with localized areas of stacked step and hinge terminated flake scarring. Some edge rounding and crushing is also visible on the interior of the notches. There is also very short, feather terminated flake scarring along the edge prominences. There is no evidence of surface alteration or striking platform preparation visible on the surfaces of the specimen.

cr48
CH4001/1- 3 (175)
Site: Colha
Dimensions (cm) L: 9.0 W: 6.7 Th: 0.7
Technological type: Flake (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: Yes, small quantity visible on the dorsal surface
Raw material appearance: Tan brown and yellow brown
Number of dorsal facets: n/a
Context: Operation 4001 lithic workshop deposit
(Late Preclassic 400 BC- AD 250)
Appearance in the literature: Probst 1984: 15 *ill. 49*
Notes: This specimen is made of very fine textured chert with some yellow brown along the cortex. The lateral margins exhibit little flaking along the edge prominences. The interiors of the notches exhibit both microflaking and edge crushing. Short feather terminated flake scarring is visible across the medial dorsal surface. There is no evidence of surface alteration or striking platform preparation visible.

cr72
CH4036/1- 1 (313)
Site: Colha
Dimensions (cm) L: 9.6 W: 5.0 Th: 1.9
Technological type: Flake (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: Yes, large quantity across the dorsal surface
Raw material appearance: Mottled pale gray/ gray and tan brown
Number of dorsal facets: n/a
Context: n/a
Appearance in the literature: n/a
Notes: This specimen is made of fine textured chert. The specimen is a tetrafoil in form. The lateral margins exhibit significant alteration with stacked step and hinge scarring as well as edge crushing. This pattern is most prevalent in the interior of the notches. There is no evidence of surface alteration or platform preparation visible.



cr56CH2031/2- 2(167)

cr48CH4001/1- 3(175)

cr41
CH4036/4- 4 (5, 210)
Site: Colha
Dimensions (cm) L: 13.5 W: 7.2 Th: 1.4
Technological type: Flake (notched)
Platform dimensions (cm) W: 0.9 Th: 0.4
Platform angle: 85 degrees
Presence of cortex: No
Raw material appearance: Banded pale yellow brown/ very pale gray
Number of dorsal facets: n/a
Context: n/a
Appearance in the literature: n/a
Notes: This specimen is made of very fine textured chert with coarse textured circular inclusions visible in the matrix of the material. The lateral margins are relatively thin and exhibit microflaking. On the interior of the very irregular notches, stacked microflaking and edge crushing are visible. Short and moderate length feather terminated flake scars are prevalent across the medial dorsal surfaces. If the specimen is oriented lengthwise the specimen appears as to depict a zoomorphic form. No evidence of surface alteration or platform preparation is visible on the specimen.

cr27
CH4040/18- 10 (206)
Site: Colha
Dimensions (cm) L: 12.0 W: 7.0 Th: 2.1
Technological type: Flake (notched)
Platform dimensions (cm) W: 2.0 Th: 1.3
Platform angle: 88 degrees
Presence of cortex: No
Raw material appearance: Banded pale brown and pale gray with brown
Number of dorsal facets: n/a
Context: n/a
Appearance in the literature: n/a
Notes: This specimen is made of very fine textured chert. Along the lateral margins exhibit five notches, the interior of which exhibit stacked step and hinge terminated scarring with edge crushing. The lateral margins exhibit little flake scarring visible on the edge prominences. There is a snap fracture at the distal terminus. No surface alteration or platform preparation is visible on the specimen.

cr28
CH4041/3- 1 (208)
Site: Colha
Dimensions (cm) L: 11.9 W: 11.0 Th: 1.6
Technological type: Flake (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: No
Raw material appearance: Pale gray brown chert with some reddish brown
Number of dorsal facets: n/a
Context: n/a
Appearance in the literature: n/a
Notes: This specimen is made of fine textured chert with large oval inclusions visible. The lateral margins exhibit some edge attrition and micro flaking in the form of short feather terminated flake scarring. Some localized areas of step and hinge scarring are also present. One margin is clearly a snap fracture indicating the specimen is incomplete. Localized area is reddish brown in color suggesting the specimen was thermally altered.

cr59
CH4045/2- 1
Site: Colha
Dimensions (cm) L: 8.0 W: 4.9 Th: 0.8
Technological type: Flake (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: Yes, small area visible at one terminus
Raw material appearance: Banded gray/ blue gray with gray/ pale gray
Number of dorsal facets: n/a
Context: Operation 4045 domestic platform and workshop deposit
(Late Classic AD 600- AD 850)
Appearance in the literature:
Notes: This specimen is made of very fine textured chert. The lateral margins exhibit stacked microflaking, most prevalent on the interior of the notches. There are three notches present that vary in width. Some short feather terminated flake scarring across the medial dorsal surface. There is no evidence of platform preparation or surface alteration.

cr41CH4036/4- 4 (5, 210)

r20LA694/25

r22
LA694/12
Site: Lamanai
Dimensions (cm) L: 6.2 W: 4.5 Th: 0.4
Technological type: Flake (notched/ perforated)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Tan brown and very pale brown
Number of dorsal facets: 5
Context: Structure N10-15/8 axial cache beneath north staircase (Terminal Classic AD 900)
Appearance in the literature: n/a
Notes: This specimen is made of very fine textured chert. There is no flake scarring across the medial surfaces of the specimen. The lateral margins exhibit notches, the interior of which exhibits edge attrition and some short feather terminated flake scarring. The perforation exhibits a similar pattern of flake scarring. The specimen exhibits a ring form. There is no indication of surface alteration.

r20
LA694/25
Site: Lamanai
Dimensions (cm) L: 12.5 W: 9.0 Th: 1.1
Technological type: Flake (notched/ perforated)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: No
Raw material appearance: Tan brown and pale brown
Number of dorsal facets: 4
Context: Structure N10-15/8 axial cache beneath north staircase (Terminal Classic AD 900)
Appearance in the literature:
Notes: This specimen is made fine textured brown chert. The dorsal surface exhibits moderately lengthy feather terminated flake scarring. The lateral margins exhibit some edge attrition but little stacked micro flaking. There is dark reddish blue staining present on one edge prominence. The striking platform is not present. The specimen appears to represent an anthropomorphic form with the perforated area representing an eye and the notch along the lateral margin representing a mouth.

r23
LA694/43
Site: Lamanai
Dimensions (cm) L: 10.2 W: 4.0 Th: 0.7
Technological type: Flake (notched)
Platform dimensions (cm) n/a
Platform angle: n/a
Presence of cortex: Yes, small quantity visible at one terminus
Raw material appearance: Uniform brown
Number of dorsal facets: 2
Context: Structure N10-15/8 axial cache beneath north staircase (Terminal Classic AD 900)
Appearance in the literature: n/a
Notes: This specimen is made of very fine textured chert. The medial surfaces of the specimen exhibit no flake scarring. One lateral margin exhibit short feather terminated flake scars. The opposite margins exhibit two notches, the interior of which exhibits microflaking and edge crushing. There is no evidence of surface alteration visible.

r21
LA694/51
Site: Lamanai
Dimensions (cm) L: 8.7 W: 6.6 Th: 0.7
Technological type: Flake (notched/ perforated)
Platform dimensions (cm) W: 0.7 Th: 0.6
Platform angle: n/a
Presence of cortex: No
Raw material appearance: Dark gray brown and tan brown
Number of dorsal facets: 6
Context: Structure N10-15/8 axial cache beneath north staircase (Terminal Classic AD 900)
Appearance in the literature: n/a
Notes: This specimen is made of very fine textured chert. There is no flake scarring across the medial surfaces of the specimen. The lateral margins exhibit edge attrition with some edge rounding and crushing. Shorter feather terminated flake scarring is visible along the margins. There is no indication of platform preparation or surface alteration.

References

Adams, Richard E.W. (editor)

1977 *The Origins of Maya Civilization*. School of the American Research Book, University of New Mexico Press. Albuquerque.

1986 *The 1984 Season: Rio Azul Reports Number 2*. The University of Texas at San Antonio.

1988 *The 1985 Season Rio Azul Reports Number 3*. The University of Texas at San Antonio.

1989 *The 1986 Season: Rio Azul Reports Number 4*. The University of Texas at San Antonio.

Adams, Richard E.W.

1971 *The Ceramics of Altar de Sacrificios*. Papers of the Peabody Museum of Archaeology and Ethnology Vol. 63 No. 1. Harvard University, Cambridge Massachusetts.

1990 Archaeological Research at the Lowland Maya City of Rio Azul. *Latin American Antiquity* 1: 23- 41.

1991 *Prehistoric Mesoamerica*. University of Oklahoma Press, Norman.

Adams, Richard E.W. and Richard Jones

1981 Spatial Patterns and Regional Growth among Classic Maya Cities. *American Antiquity* 46: 301- 322.

Adams, Richard E.W., and Fred Valdez, Jr.

1993 The Programme for Belize Archaeological Project: Report of Field Activities, 1992. The University of Texas at San Antonio.

Agurcia- Fasquelle, Ricardo, and William Fash

1991 Maya Artistry Unearthed. *National Geographic*: 94- 105.

Aldenderfer, Mark, L. Kimball, and A. Sievert

1988 Microwear Analysis in the Maya Lowlands: The Use of Functional Data in Complex Society Settings. *Journal of Field Archaeology* 15(4): 325- 346.

Andrews, Anthony P.
1983 *Maya Salt Production and Trade*. University of Arizona Press, Tucson.

1990 The Role of Trading Ports in Maya Civilization. In *Vision and Revision in Maya Studies*, edited by F.S. Clancy and P.D. Harrison: 159- 167. University of New Mexico Press, Albuquerque.

Appadurai, Arjun
1986 *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge University Press, Cambridge.

Ashmore, Wendy (editor)
1981 *Lowland Maya Settlement Patterns*. University of New Mexico Press, Albuquerque.

Aveni, Anthony F.
1990 *Skywatchers of Ancient Mexico*. University of Texas Press, Austin.

Bartlett, Mary Lee, and Patricia McAnany
2000 Crafting Communities: The Materialization of Formative Maya Identities. In *The Archaeology of Communities: A New World Perspective*, edited by Jason Yaeger and M. Andrea. Routledge Inc., London.

Barthes, Roland
1987 *Criticism and Truth*. University of Minnesota Press, Minneapolis

Beaubien, Harriet F.
1991 *Textile Fragments from Eccentric Flints, Copan*. Smithsonian Center for Materials Research and Education Report 5267. Smithsonian Institution, Washington D.C.

1993 *From Codex to Calabash: Recovery of Painted a Organic Artifact from Archaeological Site of Ceren, El Salvador*. JAIC 32: 153- 164.

Binford, Lewis R.
1962 Archaeology as Anthropology. *American Antiquity* 28: 217- 225.

1983 *In Pursuit of the Past: Decoding the Archaeological Record*. Thames and Hudson, New York.

1989 *Debating Archaeology*. Academic Press, San Diego.

Bourdieu, Pierre
1977 *Outline of a Theory of Practice*. Cambridge University Press, Cambridge.

1990 *The Logic of Practice*. Stanford University Press, Stanford.

Brumfiel, Elizabeth M.
1992 Breaking and Entering the Ecosystem: Gender, Class, and Faction Steal the Show. *Annual Review of Anthropology 94*: 554- 567.

1994 Factional Competition and Political Development in the New World: an Introduction. In *Factional Competition and Political Development in the New World*, edited by Elizabeth M. Brumfiel and J.W. Fox: 3- 13. Cambridge University Press, Cambridge.

Brumfiel, Elizabeth M., and Timothy K. Earle
1987 Specialization, Exchange, and Complex Societies: An Introduction. In *Specialization, Exchange, and Complex Societies*, edited by Elizabeth M. Brumfiel and T. K. Earle: 1- 10. Cambridge University Press, Cambridge.

Boxt, M.A., and C.L. Reedy
1985 Preliminary Thin Section Studies of Chert Artifacts from Northern Belize. *Journal of New World Archaeology* 5: 13- 23

Cackler, Paul R., M. Glasscock, H. Neff, H. Iceland, K. Pyburn, D. Hudler, T. Hester, and B. Mitchum- Chiarulli.
1999 Chipped Stone Artefacts, Source Areas, and Provenance Studies of the Northern Belize Chert- Bearing Zone. *Journal of Archaeological Science* 26: 389- 397.

Callahan, Errett
1979 The Basics of Biface Knapping in the Eastern Fluted Point Tradition: A Manual for Flintknappers and Analysts. *Archaeology of Eastern North America* 7: 1- 179.

Carmack, Robert
1981 *The Quiche' of Utatlan*. University of Oklahoma Press, Norman.

Chase, Arlen F.
1992 Elites and the Changing Organization of Classic Maya Society. In *Mesoamerican Elites: an Archaeological Assessment*, edited by D.Z. Chase and A.F. Chase: 30-49. University Oklahoma Press, Norman.

Chase, Arlen F., and Diane Z. Chase
1987 *Investigations at the Classic Maya City of Caracol, Belize: 1985- 1987*. Monograph 3. Precolumbian Art Research Institute, San Francisco.

Chase, Diane Z., and Arlen F. Chase (editors)
1988 *Excavations at Santa Rita Corozal, Belize*. Monograph 4. Precolumbian Art Research Institute, San Francisco.

1994 *Studies in the Archaeology of Caracol, Belize*. Monograph 7. Precolumbian Art Research Institute, San Francisco.

Childe, V. Gordon
1939 *The Dawn of European Civilization*. Paul, Trench, and Tubner Inc. London.

1944 *Progress in Archaeology*. Watts and Co., London

1951 *Social Evolution*. Watts and Co., London.

Christaller, Walter
1966 *Central Places in Southern Germany*. Prentice- Hall, Engelwood.

Clark, John E.
1995 Craft Specialization as an Archaeological Category. In *Research in Economic Anthropology Volume 16*, edited by Barry Isaac: 267- 284. JAI Press, Greenwhich.

Clark, John E., and William Parry
1990 Craft Specialization and Cultural Complexity. In *Research in Economic Anthropology Volume 12*, edited by Barry L. Isaac: 289- 346. JAI Press, Greenwhich.

Clark, John E., and Michael Blake
1994 The Power of Prestige: Competitive Generosity and the Emergence of Rank Societies in Lowland Mesoamerica. In *Factional Competition and Political Development in the New World*, edited by Elizabeth M. Brumfiel and John W. Fox: 17- 30. Cambridge University Press, Cambridge.

Coe, Michael
1965 A Model of Ancient Maya Community Structure in the Maya Lowlands. *Southwestern Journal of Anthropology* 21(2): 97- 114.

1982 *Old Gods and Young Heroes: The Pearlman Collection of Maya Ceramics*. The Isreal Museum, Jerusalem.

Coe, William R.
1959 Piedras Negras Archaeology: Artifacts, Caches, and Burials. Museum Monograph 18. University of Pennsylvania, Philadelphia.

1962 A Summary of Excavation and Research at Tikal, Guatemala: 1956- 1961. *American Anthropologist* 27: 479- 507.

1990 *Excavations in the Great Plaza, North Terrace, and North Acropolis of Tikal*. Tikal Report Number 14. University Museum, University of Pennsylvania, Philadelphia.

Coe, William R., and William Haviland
1982 *Introduction to the Archaeology of Tikal, Guatemala*. Tikal Report Number 12. University Museum, University of Pennsylvania, Philadelphia.

Coggins, Clemency C.
1975 *Painting and Drawing Styles at Tikal: An Historical and Iconographic Reconstruction*. Unpublished Ph.D. dissertation, Department of Anthropology, Harvard University, Cambridge.

Cohodas, Marvin
1991 Ballgame Imagery of the Maya Lowlands: History and Iconography. In the *Mesoamerican Ballgame*, edited by Vernon L. Scarborough and David R. Wilcox: 251- 288. University of Arizona Press, Tucson.

Collins, Michael B.
1975 Lithic Technology as a Means of Processual Inference. In *Lithic Technology: Making and Using Stone Tools*, edited by E. Swanson: 15- 34. Mouton, The Hague.

Crabtree, Don E.
1972 *An Introduction to Flintworking*. Idaho State Museum Occasional Paper Number 28. Idaho State Museum, Pocatello.

Crumley, Carole
1987 A Dialectical Critique of Hierarchy. In *Power Relations and State Formation*, edited by T.C. Patterson and C.W. Gailey: 155- 169. American Anthropological Association, Washington D.C.

Culbert, T. Patrick (editor)
1973 *The Classic Maya Collapse*. School of American Research. University of New Mexico Press, Albuquerque.

1991 *Classic Maya Political History: Hieroglyphic and Archaeological Evidence*. School of American Research Book. Cambridge University Press, Cambridge.

Dahlin, Bruce H.
1983 Climate and Prehistory on the Yucatan Peninsula. *Climate Change* 5: 245- 263.

Darch, Janice P.
1983 Vegetation Associations at Pulltrouser Swamp. In *Pulltrouser Swamp: Ancient Maya Habitat, Agriculture, and Settlement in Northern Belize*, edited by B.L. Turner II and Peter D. Harrison: 21- 29. University of Texas Press, Austin.

Dapples, E.C.
1979 Silica as an Agent in Diagenesis. In Diagenesis in Sediments and Sedimentary Rocks, edited by G. Larsen and G.V. Chillanger: 99- 141. Elsevier Scientific, Amsterdam.

Day, D. William, and Jane C. Laurens
1981 Excavations at Operation 2003. In *The Colha Project Second Season: The 1980 Interim Report*, edited by Thomas R. Hester, Jack D. Eaton, and H.J. Shafer: 71- 86. Center for Archaeological Research, University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

Demarest, Arthur A.
1984 La Ceramica Preclassica de El Mirador: Resultados Preliminarios y Analisis En Curso. In *Proyecto El Mirador de la Harvard University 1982- 1983: Un Informe Preliminar*, special edition of *Mesoamerica*.

1986 *The Archaeology of Santa Leticia and the Rise of Maya Civilzation*. Middle American Research Institute Publication 52. Tulane University, New Orleans.

1992 Ideology in Ancient Maya Cultural Evolution: The Dynamics of Galactic Polities. In *Ideology and Pre- Columbian Civilzations*, edited by Arthur A. Demarest and G. W. Conrad: 135- 158. School of American Research Advanced Seminar Series. School of American Research Press, Santa Fe.

Dreiss, Meredith L.
1988 *Obsidian at Colha, Belize: A Technological and Distributional Study Based on Trace Element Data*. Papers of the Colha Project Vol. 4. Texas Archeological Research Laboratory, University of Texas at Austin and the Center for Archaeological Research, The University of Texas at San Antonio.

Dockall, John E., and H.J. Shafer
1993 Testing the Producer- Consumer Model for Santa Rita, Corozal, Belize. *Latin American Antiquity* 4(2): 158- 179.

Durkheim, Emile
1984 *The Division of Labor in Society*. Free Press, New York.

1995 *Elementary Forms of the Religious Life*. Free Press, New York.

Eaton, Jack. D., T.R. Hester, F. Valdez Jr.
1994 Notes on Eccentric Lithics from Colha and Northern Belize. In *Continuing Archeology at Colha, Belize*, edited by T.R. Hester, Harry J. Shafer, and J.D. Eaton: 257- 267. Studies in Archeology 16. Texas Archeological Research Laboratory, University of Texas at Austin.

Escobedo, James T., Jr.
1981 Excavations at Operation 2008. In The Colha Project Second Season: 1980 Interim Report, edited by Thomas R. Hester, Jack D. Eaton, and H.J. Shafer: 105- 120. Center for Archaeological Research, University of Texas San Antonio and Centro Stidu e Ricerche Ligabue, Venezia, San Antonio.

Fash, William L.
1988 A New Look at Statecraft from Copan, Honduras. *Antiquity* 62 (234): 157- 169.

Fash, William L. and Robert J. Sharer
1991 Sociopolitical Developments and Methodological Issues at Copan, Honduras: A Conjunctive Perspective. *Latin American Antiquity* 2: 166- 187.

Follet, Prescott H.F.
1932 *War and Weapons of the Maya*. Middle American Research Institute Publication 4. Tulane University, New Orleans.

Fowler, Willliam R.
1991 Lithic Analysis as a Means of Processual Inference in Southern Mesoamerica: A Review of Recent Research. In *Maya Stone Tools: Selected Papers from the Second Maya Lithics Conference*, edited by Thomas R. Hester and Harry J. Shafer: 1- 20. Monographs in World Archaeology Number 1. Prehistory Press, Madison.

Freidel, David
1979 Culture Areas and Interaction Spheres: Contrasting Approaches to the Emergence of Civilization in the Maya Lowlands. *American Antiquity* 44: 6- 54.

Freidel, David, Linda Schele, and Joy Parker
1993 *Maya Cosmos: Three Thousand Years on the Shaman's Path*. William Morrow and Company, New York.

Fry, Robert E.
1979 The Economics of Pottery at Tikal, Guatemala: Models of Exchange for Serving Vessels. *American Antiquity* 44: 494- 512.

Fry, Robert E., and S.C. Cox
1974 The Structure of Ceramic Exchange at Tikal, Guatemala. *Journal of Field Archaeology* 1: 209- 225.

Gann, Thomas W.
1900 *Mounds in Northern Honduras*. Bureau of American Ethnology Annual Report 19(2): 655- 692.

1927 *Maya Cities: A Record of Exploration and Adventure in Middle America*. Duckworth, London.

Garber, James F.
1986 The Artifacts. In *Archaeology at Cerros, Belize Volume 1*, edited by Robin Robertson and David Freidel: 117- 126. Southern Methodist University Press, Dallas.

Gero, Joan M., and Margaret W. Conkey (editors)
1991 *Engendering Archaeology: Women and Prehistory*. Blackwell, Oxford.

Giddens, Anthony
1978 *Emile Durkheim*. Viking Press, New York.

1979 *Central Problems in Social Theory: Action, Structure, and Contradiction in Social Analysis*. University of California Press, Berkeley.

1984 *The Constitution of Society: Outline of the Theory of Structuration*. University of California Press, Berkeley.

Gibson, Eric C.
1982 An Analysis of the Late Classic Maya Settlement Pattern at Kichpanha, Belize. In *Archaeology at Colha, Belize: The 1981 Interim Report*, edited by Thomas R. Hester, Harry J. Shafer, and J. D. Eaton: 152- 166. Center for Archaeological Research, The University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

1986 *Diachronic Patterns of Lithic Production, Use, and Exchange in the Southern Maya Lowlands*. Unpublished Ph.D. dissertation. Department of Anthropology, Harvard University, Cambridge.

1989 The Organization of Late Preclassic Maya Lithic Economy in the Eastern Lowlands. In *Research in Economic Anthropology Vol. 4*, edited by P.A. McAnany and B.L. Isaac: 115- 138. JAI Press, Greenwhich.

Gifford, James C.
1976 Prehistoric Pottery Analysis at Barton Ramie in the Belize Valley. Memoirs of the Peabody Museum of Archaeology and Ethnology Volume 18. Harvard University, Cambridge.

Godelier, Maurice
1973 *Perspectives in Marxist Anthropology*. Cambridge University Press, Cambridge.

1986 *The Mental and the Material: Thought Economy and Society*. Thetford Press, Norfolk.

1999 *The Enigma of the Gift*. Polity Press, Cambridge.

Graham, Elizabeth (editor)
2000 *Lamanai Archaeological Project: The 1997- 2000 Seasons*. Report submitted to the Belize Department of Archaeology, Belmopan.

Graham, Elizabeth
1983 *The Highlands of the Lowlands: Environment and Archaeology in the Stann Creek District, Belize, Central America*. Unpublished Ph.D. dissertation. Department of Archaeology, Cambridge University, Cambridge.

1987 Resource Diversity in Belize and Its Implications for Models of Lowland Maya Trade. *American Antiquity* 52(4): 753- 767.

1987a Terminal Classic to Historic- Period Vessel Forms from Belize. In *Maya Ceramics: Papers from the 1985 Maya Ceramic Conference,* edited by Prudence M. Rice and Robert J. Sharer: 73- 98. Bureau of American Research International Series 345 (1): 73- 98.

1994 *The Highlands of the Lowlands: Environment and Archaeology in the Stann Creek District, Belize, Central America*. Monographs in World Archaeology 19. Prehistory Press, Madison and the Royal Ontario Museum, Toronto.

Grube, Nikolai

1992 Classic Maya Dance: Evidence from Hieroglyphs and Iconography *Ancient Mesoamerica* 3: 201- 218

1994 Epigraphic Research at Caracol, Belize. In *Studies in the Archaeology of Caracol, Belize*, edited by Diane Z. Chase and Arlen F. Chase: 83- 122. Pre- Columbian Art Research Institute Monograph 7, San Francisco.

Hartshorn, Gary, et al.

1984 *Belize Environmental Profile: A Field Study*. R. Nicolai and Associates, USAID Report. Belmopan, Belize.

Hammond, Norman (editor)

1973 *British Museum and Cambridge University Corozal Project, 1973 Interim Report*. Cambridge University, Cambridge.

1991 *Cuello: An Early Maya Community in Belize*. Cambridge University Press, Cambridge.

Hammond, Norman

1972 Obsidian Trade Routes in the Maya Area. *Science* 178: 1092- 1095.

1974 The Distribution of Late Classic Maya Major Ceremonial Centers in the Central Area. In Mesoamerican Archaeology: New Approaches, edited by Norman Hammond: 313- 334. University of Texas at Austin.

1975 *Maya Settlement Hierarchy in Northern Belize*. Contributions of the University of California Archaeological Research Facility Number 27: 40- 55. Berkeley.

1981 Settlement Patterns in Belize. In *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore: 157- 186. University of New Mexico Press, Albuquerque.

1983 Nohmul, Belize: 1982 Investigations. *Journal of Field Archaeology* 10: 245- 254.

Handsman, Russell G.
1991 Whose Art Was Found at Lepenski Vir? Gender Relations and Power in Archaeology. In *Engendering Archaeology: Women and Prehistory*, edited by Joan M. Gero and Margaret W. Conkey: 329-365. Blackwell, Oxford.

Haviland, William
1966 Maya Settlement Patterns: A Critical Review. *Archaeological Studies in Middle America Publication 26*. Middle American Research Institute, Tulane University, New Orelans.

1969 A New Population Estimate for Tikal, Guatemala. *American Antiquity*: 34: 429- 433.

1981 Dower Houses and Minor Centers at Tikal, Guatemala. In *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore: 89- 117. University of New Mexico Press, Albuquerque.

1988 *Excavations in the Residential Areas of Tikal: Non- elite Groups Without Shrines*. Tikal Reports Number 20. University Museum, University of Pennsylvania, Philadelphia.

Helms, Mary W.
1993 *Craft and the Kingly Ideal*. University of Texas Press, Austin.

Hester, Thomas R. (editor)
1979 *The Colha Project, 1979: A Collection of Interim Papers*. Center for Archaeological Research, The University of Texas at San Antonio.

Hester, Thomas R.
1982 The Maya Lithic Sequence in Northern Belize. In *Archaeology at Colha, Belize: The 1981 Interim Report,* edited by Thomas R. Hester, Harry J. Shafer, and J.D. Eaton: 39- 59. Center for Archaeological Research, University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

1985 The Maya Lithic Sequence in Northern Belize. In *Stone Tool Analysis: Essays in Honor of Don E. Crabtree*, edited by M. Plew, J. Woods, and M. Pavesic: 187-211. University of New Mexico Press, Albuquerque.

Hester, Thomas R., Jack D. Eaton, and H.J. Shafer (editors)
1981 *The Colha Project Second Season, 1980 Interim Report*. Center for Archaeological Research, The University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

Hester, Thomas R and N. Hammond (editors)
1976 *Maya Lithic Studies: Papers from the 1976 Field Symposium*. Special Report 4. Center for Archaeological Research, The University of Texas at San Antonio, San Antonio.

Hester, Thomas R., Harry B. Iceland, D.B. Hudler and H. J. Shafer
1996 The Colha Preceramic Project: Preliminary Results from the 1993-1995 Field Seasons. *Mexicon* 18: 45- 50.

Hester, Thomas R., and H. J. Shafer (editors)
1991 *Maya Stone Tools: Selected Papers from the Second Maya Lithics Conference*. Monographs in World Archaeology No. 1. Prehistory Press, Madison.

Hester, Thomas R., and Harry J. Shafer
1984 Exploitation of Chert Resources by the Ancient Maya of Northern Belize. *World Archaeology* 16: 157-173.

1991 *A Brief History of Archaeology at Colha: Goals and Research Directions*. Paper presented at the 47th International Congress of Americanists, New Orleans.

1992 Lithic Workshops Revisited: Comments on Moholy- Nagy. *Latin American Antiquity* 3: 243-248.

1994 The Ancient Maya Craft Community at Colha, Belize and Its External Relationships. In *Archaeological Views from the Countryside: Village Communities in Early Complex Societies*, edited by G.M. Schwartz and S.E. Falconer: 48-64. Smithsonian Institution Press, Washington and London.

Hester, Thomas R., Harry J. Shafer, and J.D. Eaton (editors)
1982 Archaeology at Colha, Belize: The 1981 Interim Report. Center for Archeological Research, The University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

Hodder, Ian (editor)
1982 *Symbolic and Structural Archaeology*. Cambridge University Press, Cambridge.

Hodder, Ian
1982 Sequences of Structural Change in the Dutch Neolithic. In *Symbolic and Structural Anthropology*, edited by Ian Hodder: 162- 177. Cambridge University Press, Cambridge.

1986 *Reading the Past: Current Approaches to Interpretation in Archaeology*. Cambridge University Press, Cambridge.

1990 *The Domestication of Europe*. Blackwell Press, Oxford.

1992 *Theory and Practice in Archaeology*. Routledge Inc., London.

Houk, Brett A. (editor)
1998 *The 1997 Season of the Chan Chich Archaeological Project*. Papers of the Chan Chich Archaeological Project Number 3. Center for Maya Studies, San Antonio.

2000 *The 1998 and 1999 Seasons of the Chan Chich Archaeological Project*. Papers of the Chan Chich Archaeological Project Number 4. Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Houk, Brett A.
1996 *Late Classic Site Planning at Dos Hombres, Belize*. Unpublished Ph.D. dissertation. Department of Anthropology, The University of Texas at Austin.

Houston, Stephen
1984 An Example of Homophony in Maya Script. *American Antiquity* 49: 790- 805.

Iannone, Gyles
1992 *Ancient Maya Eccentric Lithics: A Contextual Analysis*. Unpublished M.A. thesis. Department of Anthropology, Trent University, Peterborough.

Iannone, Gyles, and James Conlan
1993 *Elites, Eccentrics, and Empowerment in the Maya Area: Implications for the Interpretation of a Peripheral Settlement Cluster near Cahal Pech, Cayo District, Belize*. Papers from the Institute of Archaeology Vol. 4. University College, London.

Iceland, Harry B.
1997 *The Preceramic Origins of Maya Civilization: The Results of the Colha Preceramic Project in Northern Belize*. Unpublished Ph.D. dissertation. Department of Anthropology, University of Texas at Austin.

Inomata, Takeshi
1995 *Archaeological Investigations at the Fortified Center of Aguateca, El Peten, Guatemala: Implications for the Study of the Classic Maya Collpase*. Unpublished Ph.D. dissertation. Department of Anthropology, Vanderbilt University, Nashville.

Jacob, John S.
1991 *The Agroecological Evolution of Cobweb Swamp, Belize*. Preliminary report to the National Geographic Society for work Supported by Grant Number 4274-90, Texas A&M University, College Station.

1995 Ancient Maya Wetland Agricultural Fields in Cobweb Swamp, Belize: Construction, Chronology, and Function. *Journal of Field Archaeology* 22: 175- 190.

Jenkins, Richard
1996 *Social Identity*. Routledge Inc., New York.

Johnson, William C.
1983 The Physical Setting: Northern Belize and Pulltrouser Swamp. In *Pulltrouser Swamp: Ancient Maya Habitat, Agriculture, and Settlement in Northern Belize*, edited by B.L. Turner II and Peter D. Harrison: 8- 20. University of Texas Press, Austin.

Jones, Christopher
1991 Cycles of Growth at Tikal. In *Classic Maya Political History*, edited by T. Patrick Culbert: 102- 127. School of American Research, Cambridge University Press, Cambridge.

Jones, Grant D.
1987 *Maya Resistance to Spanish Rule: Time and History on a Colonial Frontier*. University of New Mexico Press, Albuquerque.

Jones, John
1994 Pollen Evidence for Early Settlement and Agriculture in Northern Belize. *Palynology* 18: 205- 211.

Joyce, Thomas A.
1932 The Eccentric Flints of Central America. *Journal of the Royal Anthropological Institute* 62: 17-26.

Kelley, David H.
1976 *Deciphering the Maya Script*. University of Texas Press, Austin.

Kelly, Thomas C.
1981 The Colha Regional Survey. In *The Colha Project, Second Season, 1980 Interim Report*, edited by Thomas R. Hester, J.D. Eaton, and Harry J. Shafer: 51-69. Center for Archaeological Research, The University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

1982 The Colha Regional Survey, 1981. In *Archaeology at Colha, Belize: The 1981 Interim Report*, edited by Thomas R. Hester, Harry J. Shafer, and J. D. Eaton: 85-97. Center for Archaeological Research, The University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

1993 Preceramic Projectile Point Typology for Northern Belize. *Ancient Mesoamerica* 4: 205- 227.

Kelly, Thomas C., Fred Valdez, Jr., and Thomas R. Hester
1979 Lithic Workshops in the Rockstone Pond Road # 2 Area 1979. In *The Colha Project, 1979: A Collection of Interim Papers*, edited by Thomas R. Hester: 169-172. Center for Archaeological Research, The University of Texas at San Antonio, San Antonio.

Kidder, A.V.
1947 *The Artifacts of Uaxactun, Guatemala*. Carnegie Institution Publication 576. Washington D.C.

King, Eleanor M.
2000 *The Organization of Late Classic Lithic Production at the Prehistoric Maya Site of Colha, Belize: A Study in Complexity and Heterarchy*. Unpublished Ph.D. dissertation. Department of Anthropology, University of Pennsylvania, Philadelphia.

King, Eleanor M. and Daniel Potter
1994 Small Sites in Prehistoric Maya Socioeconomic Organization: A Perspective from Colha, Belize. In *Archaeological Views from the Countryside: Village Communities in Early Complex Societies*, edited by Glen M. Schwartz and S.E. Falconer: 64-90. Smithsonian Institution Press, Washington.

King, M.E.
1979 The Prehistoric Textile Industry of Mesoamerica. In *Junius B. Bird Pre- Columbian Textile Conference*, edited by A.P. Rowe, E.P. Benson, and A.L. Schaffer: 205- 278. Textile Museum and Dumbarton Oaks, Washington D.C.

Kowalski, Jeffrey K.
1987 *The House of the Governor: A Maya Palace at Uxmal, Yucatan, Mexico*. University of Oklahoma Press, Norman.

LeCount, Lisa J.
1999 Polychrome Pottery and Political Strategies in Late and Terminal Classic Lowland Maya Society. *Latin American Antiquity* 10(3): 239- 258.

Lesure, Richard
1999 On the Genesis of Value in Early Hierarchical Societies. In *Material Symbols: Culture and Economy in Prehistory*, edited by John E. Robb. Center for Archaeological Investigations Occasional Paper 26. Southern Illinois University, Carbondale.

Lewenstein, Suzanne
1987 *Stone Tool Use at Cerros, Belize: Ethnoarchaeological and Use-Wear Evidence*. University of Texas Press, Austin.

Lohse, Jon C.
2001 *The Social Organization of a Late Classic Maya Community: Dos Hombres, Northwestern Belize*. Unpublished Ph.D. dissertation. Department of Anthropology, University of Texas at Austin.

Lopez Ramos, E.
1975 Geological Summary of the Yucatan Peninsula. In *Ocean Basins and Margins Volume 3: The Gulf of Mexico and the Caribbean*, edited By A.E.M. Nairn and F.G. Stehi: 257- 282. Plenum Press, New York.

Loten, H.S. and David M. Pendergast
1984 *A Lexicon for Maya Architecture*. Archaeology Monograph 8. Royal Ontario Musuem.

Lothrup, J. Mahler
1992 Textiles. In Artifacts from the Cenote of Sacrifice, Chichen Itza, Yucatan, edited by Clemency Coggins: 33- 90. Memoirs of the Peabody Museum of Archaeology and Ethnology Volume 10. Harvard University Press, Cambridge.

Lounsbury, Floyd G.
1974 The Inscriptions of Pakal's Sarcophagus Lid at Palenque. *Palenque Round Table Series* 3: 211- 224.

Lucie- Smith, Edward
1981 *The Story of Craft: Craftsman's Role in Society*. Cornell University Press, Ithaca.

Luedtke, Barbara E.
1992 *An Archaeologists Guide to Chert and Flint*. Archaeological Research Tools No. 7. Institute of Archaeology, University of California, Los Angeles.

Lundell, Cyrus
1937 *Vegetation of Peten*. Carnegie Instiution of Washington Publication 478. Washington D.C.

MacKinnon, J. Jefferson, and Susan M. Kepecs
1989 *Prehispanic Saltmaking in Belize: New Evidence*. American Antiquity 27(2): 216- 224.

MacNeish, Richard S., Jeffrey K. Wilkerson, A. Nelken- Turner
1980 *First Annual Report of the Belize Archaeological Reconnaissance*. Peabody Foundation, Andover.

Maldonado- Koerdell, Manuel
1964 Geohistory and Paleography of Middle America. In *Handbook of Middle American Indians Volume 1: Natural Environment and Early Cultures*, edited by R.C. West: 3- 32. University of Texas Press, Austin.

Malinowski, Bronislaw
1921 Primitive Economics of the Trobriand Society. *Economic Journal* 31: 1- 17.

Marcus, Joyce
1983 Lowland Maya Archaeology at the Crossroads. *American Antiquity* 48: 454- 483.

1993 Ancient Maya Political Organization. In *Lowland Maya Civilization in the Eighth Century A.D.,* edited by Jeremy A. Sabloff and John S. Henderson. Dumbarton Oaks Research Library and Collection, Washington D.C.

1995 Where is Lowland Maya Archaeology Headed*? Journal of Archaeological Research* 3(1): 3- 53.

Marx, Karl
1933 *Capital: Critique of Political Economy (1859)*. C.H. Kerr and Co., Chicago

Massey, Virginia K.
1994 Osteological Analysis of the Skull Pit Children. In *Continuing Archeology at Colha, Belize*, edited by Thomas R. Hester, Harry J. Shafer, and J.D. Eaton: 209- 220. Studies in Archeology 16, Texas Archeological Research Laboratory, University of Texas at Austin.

Masson, Marilyn A.
1997 Cultural Transformation at the Maya Postclassic Community of Laguna de On, Belize. *Latin American Antiquity* 8(4): 293-316.

Mathews, Peter
1985 Maya Early Classic Monuments and Inscriptions. In A *Consideration of the Early Classic Period in the Maya Lowlands*, edited by Gordon R. Willey and Peter Mathews: 5- 54. Institute for Mesoamerican Studies Publication 10, State University of New York at Albany.

Mauss, Marcel
1966 *The Gift: Forms and Functions of Exchange in Archaic Societies*. Cohen and West Ltd., London.

Maudslay, Alfred P.
1902 *Archaeology: Biologia Centrali- Americana Volume 1*. Milparton Publishing, London.

McAnany, Patricia
1986 Lithic Technology and Exchange among Wetland Farmers of the Eastern Maya Lowlands. Unpublished Ph.D. dissertation. Department of Anthropology, University of New Mexico, Albuquerque.

1989a Stone Tool Production and Exchange in the Eastern Maya Lowlands: The Consumer Perspective from Pulltrouser Swamp, Belize. *American Antiquity* 54(2): 332- 346.

1989b Economic Foundations: Paradigms and Concepts. In *Research in Economic Anthropology Volume 4*, edited by Patricia McAnany and Barry L. Isaac: 347- 372.

1991 Structure and Dynamics of Intercommunity Exchange. In *Maya Stone Tools: Selected Papers from the Second Maya Lithics Conference*, edited by Thomas R. Hester and H.J. Shafer: 271- 293. Monographs in World Archaeology No. 1. Prehistory Press, Madison.

1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Texas Press, Austin.

McKinney, Wilson
1985 *Representations of Lithic Artifacts in Maya Art*. Unpublished manuscript of file Texas Archeological Research Laboratory, University of Texas at Austin.

Meadows, Richard K.
1998 *The Chicawate Settlement Survey: 1997 Interim Report*. Unpublished Manuscript. Belize Department of Archaeology, Belmopan.

1998 *Specialized Production of Ancient Maya Eccentric Lithics: Technology and Socioeconomy as Local and Historical Knowledge*. Paper presented at the 97th Annual Meeting of the American Anthropological Association, Philadelphia.

Meadows, Richard K., and Diane E. Wilson
1997 *Late Classic Maya Household Production at Colha, Belize: Lithic and Osteological Evidence*. Paper presented at the 62nd Annual Meeting of the Society for American Archaeology, Nashville.

Meskill, Frances A.
1992 Ceramics and Context: A Protoclassic Perspective from the Sites of Kichpanha and Colha, Northern Belize. Unpublished M.A. thesis, Department of Anthropology, The University of Texas at San Antonio.

Michael, George H.
1989 Craft Specialization in the Early Postclassic of Colha. In *Research in Economic Anthropology Volume 4*, edited by Patricia McAnany and Barry L. Isaac: 139- 184. JAI Press, Greenwhich.

1993 *Evidence for Lithic Craft Specialization by the Classic Period Maya of the Upper Belize River Valley, Belize*. Unpublished Ph.D. dissertation. Department of Anthropology, University of California at Santa Barbara.

Mitchum, Beverly P.
1992 *Lithic Artifacts from Cerros, Belize: Production, Consumption, and Trade*. Unpublished Ph.D. dissertation. Department of Anthropology, Southern Methodist University, Dallas.

Mock, Shirley B.
1994 Destruction and Denouement during the Late- Terminal Classic: The Colha Skull Pit. In *Continuing Archeology at Colha, Belize*, edited by Thomas R. Hester, Harry J. Shafer, and J.D. Eaton: 221- 233. Studies in Archeology 16. Texas Archeological Research Laboratory, University of Texas at Austin.

Moholy- Nagy, Hattula
1997 Middens, Construction Fill, and Offerings: Evidence for the Organization of Classic Period Craft Production at Tikal, Guatemala. *Journal of Field Archaeology* 24: 293- 313.

Morley, Sylvanus G.
1938 *The Inscriptions of the Peten Volume 2*. Carnegie Instiution of Washington Publication 437, Washington D.C.

Pendergast, David M.
1979 *Excavations at Altun Ha, Belize 1964- 1970, Volume 1*. Royal Ontario Museum, Toronto.

1981 Summary of Excavations at Lamanai, Belize: 1974- 1981. *Journal of Field Archaeology* 8: 29- 53.

1982 *Excavations at Altun Ha, Belize 1964-1970, Volume 2*. Royal Ontario Museum, Toronto.

1986 Stability Through Change: Lamanai, Belize , from the Ninth to the Seventeenth Century. In *Late Lowland Maya Civilzation: Classic to Postclassic*, edited by Jeremy A. Sabloff and E.W. Andrews V. School of American Research, University of New Mexico Press, Albuquerque.

1990 *Excavations at Altun Ha, Belize 1964-1970, Volume 3*. Royal Ontarion Museum, Toronto.

1992 Noblesse Oblige: The Elites of Altun Ha and Lamanai, Belize. In *Mesoamerican Elites: An Archaeological Assessment*, edited by Diane Z. Chase and Arlen F. Chase: 61- 79. University of Oklahoma Press, Norman.

1993 Worlds in Collision: The Maya/ Spanish Encounter in Sixteenth and Seventeenth Century Belize. *In The Meeting of Two Worlds: Europe and the Americas*, 1492- 1650, edited by Warwick Bray: 104- 143. Proceedings of the British Academy 81, Oxford University Press, Oxford.

1998 Intercessions with the Gods: Caches and their Significance at Altun Ha and Lamanai, Belize. In *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*, edited by Shirley B. Mock: 55- 63. University of New Mexico Press, Albuquerque.

Plitnikas, Jill,

2000 *Pigment and Textile Samples from Altun Ha and Lamanai, Belize: Preliminary Technical Report*. SCMRE Report Number 5735. Smithsonian Institution, Washington D.C.

Pohl, Mary E., Paul R. Bloom, and K. Pope

1990 Interpretation of Wetland Farming in Northern Belize: Excavations at San Antonio, Rio Hondo. In *Ancient Maya Wetland Agriculture: Excavations on Albion Island, Northern Belize*, edited by Mary E. Pohl: 187- 254. Westview Press, Boulder.

Pohl Mary E., and John M. Pohl

1994 Cycles of Conflict: Political Factionalism in the Maya Lowlands. In *Factional Competition and Political Development in the New World*, edited by Elizabeth Brumfiel and John W. Fox: 138- 157. Cambridge University Press, Cambridge.

Potter, Daniel R.

1982 Results of the Second Year of Excavation at Operation 2012. In *Archaeology at Colha, Belize: The 1981 Interim Report*, edited by Thomas R. Hester, Harry J. Shafer, and J.D. Eaton: 98- 123. Center for Archaeological Research, University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

1993 Analytical Approaches to Late Classic Maya Lithic Industries. In *Lowland Maya Civilization in the Eight Century A.D.*, edited by Jeremy A. Sabloff and John S. Henderson: 273- 298. Dumbarton Oaks Research Library and Collection, Washington D.C.

Probst, John W.
1984 *Colha Eccentric Lithics*. Unpublished manuscript on file Texas Archaeological Research Laboratory, University of Texas at Austin.

Proskouriakoff, Tatiana
1950 *A Study of Classic Maya Sculpture*. Carnegie Institution of Washington Publication 593, Washington D.C.

1960 Historical Implications of a Pattern of Dates at Piedras Negras. *American Anthropologist* 25: 454- 475.

Puleston, Dennis E.
1974 Intersite Area in the Vicinity of Tikal and Uaxactun. In Mesoamerican Archaeology: New Approaches, edited by Norman Hammond: 303- 312. Duckworth, London.

1983 *The Settlement Survey of Tikal*. Tikal Reports Number 13. University Museum, University of Pennsylvania, Philadelphia.

Radcliffe- Brown, A.R.
1952 *Structure and Function in Primitive Society*. Cohen and West, London.

Rathje, William
1971 The Origin and Development of Lowland Classic Maya Civilization *American Antiquity* 36: 275- 285.

Reents- Budet, Dorie
1998 Elite Maya Pottery and Artisans as Social Indicators. In *Craft and Social Identity*, edited by C.L. Costin and R. P. Wright: 71- 93. Archaeological Papers of the American Anthropological Association Number 8, Arlington.

Rice, Don S.
1993 Eighth- Century Physical Geography, Eonvironment, and Natural Resources in the Maya Lowlands. In *Lowland Maya Civilization in The Eighth Century A.D*., edited by Jeremy A. Sabloff and John S. Henderson: 11- 62. Dumbarton Oaks Research Library and Collection, Washington D.C.

Rice, Prudence R.
1987 Economic Specialization and Exchange in the Lowland Maya Late Classic Period. In *Specialization, Exchange, and Complex Societies*, edited by Elizabeth M. Brumfiel and T.K. Earle: 76-85. Cambridge University Press, Cambridge.

Rick, John W.
1978 *Heat- Altered Cherts of the Lower Illinois Valley*. Northwestern University Archeological Program Prehistoric Records Number 2. Northwestern University, Evanston.

Ricketson, O.G., and E.B. Ricketson
1937 *Uaxactun, Guatemala, Group E, 1926- 1937*. Carnegie Institution of Washington, Washington D.C.

Robb, John E.
1998 The Archaeology of Symbols. *Annual Review of Anthropology* 27: 329- 346.

Robertson, Robin A., and David Freidel (editors)
1986 *Archaeology at Cerros, Belize, Volume 1*. Southern Methodist University Press, Dallas.

Robicsek, Francis
1978 *The Smoking Gods*. University of Oklahoma Press, Norman

Roemer, Erwin
1984 *Operation 2007: A Late Classic Maya Workshop at Colha, Belize*. Unpublished M.A. thesis. Department of Anthropology, Texas A&M University, College Station.

Roseberry, William
1989 *Anthropologies and Histories: Essays in Culture, History, and Political Economy*. Rutgers University Press, New Brunswick.

Rovner, Irwin
1976 *Lithic Sequences from the Maya Lowlands*. Unpublished Ph.D. dissertation. Department of Anthropology, University of Wisconsin, Madison.

Saitta, Dean J.
1991 Radical Theory and the Processual Critique. In *Processual and Postprocessual Archaeologies: Multiple Ways of Knowing the Past*, edited by Robert W. Preucel: 54- 62. Center for Archaeological Investigations Occasional Paper Number 10. Southern Illinois University, Carbondale.

Saitta, Dean J., and Randall H. McGuire
1996 Although They Have Petty Captains, They Obey Them Badly: The Dialectics of Prehispanic Western Pueblo Social Organization. *American Antiquity* 61: 197- 216.

Sanders, William T.
1977 Environmental Heterogeneity and the Evolution of Lowland Maya Civilization. In *The Origins of Maya Civilization*, edited by R.E.W. Adams, School of American Research, University of New Mexico Press, Albuquerque.

Sanders, William T., and Barbara Price
1968 Mesoamerica: The Evolution of a Civilization. Random House, New York.

Sanders, William T., and David Webster
1988 The Mesoamerican Urban Tradition. *American Anthropologist* 90(3): 521- 546.

Sabloff, Jeremy A.
1975 *Excavations at Seibal, Department of the Peten, Guatemala: The Ceramics*. Memoirs of the Peabody Museum of Archaeology and Ethnology Volume 13. Harvard University, Cambridge.

Scarborough, Vernon L.
1985 Late Preclassic Northern Belize: Context and Interpretation. In *Status, Structure, and Stratification: Current Archaeological Reconstructions*, edited by Marc Thompson, M.T. Garcia, F.J. Kense: 331- 344. Archaeological Association of the University of Calgary.

1986 Drainage Canal and Raised Field Excavations. In *Archaeology at Cerros, Belize Volume 1*, edited by Robin Robertson and David Freidel, Southern Methodist University Press, Dallas.

Schele, Linda
1982 *Maya Glyphs: The Verbs*. University of Texas Press, Austin.

Schele, Linda, and Mary E. Miller
1986 *The Blood of Kings: Dynasty and Ritual in Maya Art*. Kimbell Art Museum, Fort Worth.

Schele, Linda, and David Freidel
1990 *A Forest of Kings: The Untold Story of the Ancient Maya*. William Morrow, New York.

Schele, Linda, and Peter Mathews
1991 Royal Visits and Other Intersite Relationships. In *Classic Maya Political History: Hieroglyphic and Archaeological Evidence*, edited By T.Patrick Culbert: 226- 252. School of American Research, Cambridge University Press, Cambridge.

1998 *The Code of Kings: The Language of Seven Sacred Maya Temples and Tombs*. Scribner Press, New York.

Shafer, Harry J.
1979 A Technological Study of Two Maya Lithic Workshops at Colha, Belize. In *The Colha Project, 1979: A Collection of Interim Papers*, edited by Thomas R. Hester: 28- 78. Center for Archaeological Research, The University of Texas at San Antonio.

1982 Maya Lithic Craft Specialization in Northern Belize. In *Archaeology at Colha, Belize: The 1981 Interim Report*, edited by Thomas R. Hester, Harry J. Shafer, and J.D. Eaton: 31-38. Center for Archaeological Research, The University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

1982a A Preliminary Report on the Lithic Technology at Kichpanha, Northern Belize. In *Archaeology at Colha, Belize: The 1981 Interim Report*, edited by Thomas R. Hester, Harry J. Shafer, and J.D. Eaton: 1670 181. Center for Archaeological Research, The University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

1983 The Lithic Artifacts of the Pulltrouser Area: Settlements and Fields. In *Pulltrouser Swamp: Ancient Maya Habitat, Agriculture, and Settlement in Northern Belize*, edited by B. L. Turner and P.D. Harrison. University of Texas Press, Austin.

1985 A Technological Study of Two Maya Workshops at Colha, Belize. In *Stone Tool Analysis: Essays in Honor of Don E. Crabtree*, edited by M. Plew, J. Woods, and M. Pavesic: 277-315. University of New Mexico Press, Albuquerque.

1991 Late Preclassic Formal Stone Tool Production at Colha, Belize. In *Maya Stone Tools: Selected Papers from the Second Maya Lithic Conference*, edited by Thomas R. Hester and Harry J. Shafer: 31- 44. Monographs in World Archaeology Number 1, Prehistory Press, Madison.

1994 Community Wide Lithic Craft Specialization in the Late Preclassic Lowland Maya: A Case for Northern Belize. In *Continuing Archeology at Colha, Belize*, edited by Thomas R. Hester, Harry J. Shafer, and J.D. Eaton. Studies in Archeology 16, Texas Archeological Research Laboratory, University of Texas at Austin.

Shafer, Harry J., and Thomas R. Hester

1983 Ancient Maya Chert Workshops in Northern Central Belize, Central America. *American Antiquity* 51: 158-166.

1991 Lithic Craft Specialization and Product Distribution at the Maya Site of Colha, Belize. *World Archaeology* 23: 79-97.

Shafer, Harry J., and Fred M. Oglesby
1981 Test Excavations in a Colha Debitage Mound: Operation 4001. In *The Colha Project Second Season: The 1980 Interim Report*, edited by Thomas R. Hester, Jack D. Eaton, and H.J. Shafer: 195- 220. Center for Archaeological Research, University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

Shanks, Michael, and I. Hodder
1998 Processual, Postprocessual, and Interpretive Archaeologies. In *Reader in Archaeological Theory: Postprocessual and Cognitive Approaches*, edited by D.S. Whitley: 69- 95. Routledge Inc., London.

Shanks, Michael, and Christopher Tilley
1988 *Social Theory and Archaeology*. University of New Mexico Press, Albuquerque.

Sharer, Robert J.
1978 Archaeology and History at Quirigua, Guatemala. *Journal of Field Archaeology* 5: 51- 70.

1993 The Social Organization of the Late Classic Maya: Problems of Definitions and Approaches. In *Lowland Maya Civilization in the Eighth Century A.D.,* edited by Jeremy A. Sabloff and J.S. Henderson: 91- 109. Dumbarton Oaks Research Library and Collection, Washington D.C.

1994 *The Ancient Maya*. Stanford University Press. Stanford.

Shaw, Leslie
1992 *The Kichpanha Project: Summary of the 1990 Season*. Unpublished manuscript submitted to the Belize Department of Archaeology.

Shennan, Stephen J. (editor)
1989 *Archaeological Approaches to Cultural Identity*. One World Archaeology Series Number 10. Routledge Inc. London.

Shipley, Webster E.
1979 *Geology, Petrology, and Geochemistry of the Central Belize Batholith, Belize, Central America*. Unpublished M.A. thesis. Colorado School of Mines.

Shook, Edwin M., William R. Coe, V.L. Broman, and L. Satterthwaite
1958 *Tikal Reports 1- 4*. University Museum Monograph 15. University Museum, Unniversity of Pennsylvania, Philadelphia.

Siemens, Alfred H.
1978 Karst and the Pre- Hispanic Maya in the Southern Lowlands. In *Pre- Hispanic Maya Agriculture*, edited by Peter D. Harrision and B.L. Turner II: 117- 144. University of New Mexico Press, Albuquerque.

Smith, Adam
1937 *An Inquiry into the Nature and Causes of the Wealth of Nations*. The Modern Library, New York.

Smith, R.E.
1937 *A Study of Structure A- 1 Complex at Uaxactun*. Carnegie Institution of Washington Publication 456. Washington D.C.

1955 *Ceramic Sequence at Uaxactun, Guatemala*. Middle American Research Institute Publication 20, Tulane University, New Orleans.

Spinden, Herbert
1975 *A Study of Maya Art: Its Subject Matter and Historical Development*. Dover Publications, Inc. New York.

Steele, D. Gentry, Jack D. Eaton, and A.J. Taylor
1981 The Skulls from Operation 2011 at Colha: A Preliminary Examination. In *Archaeology at Colha, Belize: The 1981 Interim Report,* edited by Thomas R. Hester, Jack D., and Harry J. Shafer: 163- 172. Center for Archaeological Research, The University of Texas at San Antonio and Centro Studi e Ricerche Ligabue, Venezia, San Antonio.

Stein, Gil J., and M. James Blackman
1993 The Organizational Context of Specialized Craft Production in Early Mesopotamian States. In *Resarch in Economic Anthropology Volume 14*, edited by Barry L. Isaac: 29- 57. JAI Press Inc. Greenwhich

Steward, Julian H.
1955 *Theory of Culture Change: Methodology of Multilinear Evolution*. University of Illinois Press, Champagne- Urbana.

Stuart, David
1988 Blood Symbolism in Maya Iconography. In *Maya Iconography*, edited by Elizabeth Benson and G. Griffin: 175- 221. Princeton University Press, Princeton.

Taylor, Walter W.
1967 *A Study of Archeology*. Southern Illinois University Press, Carbondale.

Tedlock, Dennis
1985 *Popol Vuh: The Definitive Edition of the Mayan Book of the Dawn of Life and the Glories of Gods and Kings*. Simon and Schuster, New York.

1986 Creation in the Popol Vuh: a Hermeneutical Approach. In *Symbol and Meaning Beyond the Closed Community: Essays in Mesoamerican Ideas*, edited by Gary H. Gossen: 67- 82. Institute for Mesoamerican Studies, State University of New York, Albany.

1992 Myths, Math, and the Problem of Correlation in Maya Books. In *The Sky in Mayan Literature*, edited by Anthony Aveni: Oxford University Press, New York.

Thompson, J.E.S.
1939 *Excavations at San Jose, British Honduras*. Carnegie Institution of Washington Publication 506, Washington D.C.

1966 *The Rise and Fall of Maya Civilization*. University of Oklahoma Press, Norman.

1970 *Maya History and Religion*. University of Oklahoma Press, Norman.

Thompson, Marc
1996 Correlation of Maya Lithic and Glyphic Data. *Lithic Technology* 21 (2): 120- 133.

Tilley, Christopher (editor)
1993 *Interpretative Archaeology*. Berg, London.

Tilley, Christopher
1999 *Metaphor and Material Culture*. Blackwell Publisher, Oxford.

Tobey, Mark H.
1986 *Trace Element Investigations of Maya Chert from Belize*. Papers of the Colha Project Number 1. Center for Archaeological Research, The University of Texas at San Antonio.

Torrence, Robin
1981 Obsidian in the Aegean: Towards a Methodology for the Study of Prehistoric Exchange. Unpublished Ph.D. dissertation, Department of Anthropology, The University of New Mexico, Albuquerque.

Tozzer, Alfred M.
1913 *A Preliminary Study of the Prehistoric Ruins of Nakum, Guatemala*. Memoirs of the Peabody Museum of Archaeology and Ethnology Volume 5 Number 5. Harvard University, Cambridge.

1941 Landa's Relacion de Las Cosas de Yucatan. A Translation with edited notes by A.M. Tozzer. Papers of the Peabody Museum of Archaeology and Ethnology Number 18. Harvard University, Cambridge.

Trigger, Bruce G.
1990 *A History of Archaeological Thought*. Cambridge University Press, Cambridge.

Turner and Harrison (editors)
1985 *Pulltrouser Swamp: Ancient Maya Habitat, Agriculture, and Settlement in Northern Belize*. University of Texas Press, Austin.

Valdez, Fred, Jr.
1987 *The Prehistoric Ceramics of Colha, Northern Belize*. Unpublished Ph.D. dissertation. Department of Anthropology, Harvard University, Cambridge.

Valdez, Fred Jr., and Shirley B. Mock
1991 Additional Considerations for Prehispanic Saltmaking in Belize. *American Antiquity* 6(3):520-525.

Voorhies, Barbara
1982 An Ecological Model of the Early Maya of the Central Lowlands. In *Maya Subsistence: Studies in Memory of Dennis E. Puleston*, edited by K.V. Flannery: 65- 95. Academic Press, New York.

Wailes, Bernard
1996 V. Gordon Childe and the Relations of Production. In *Craft Specialization and Social Evolution*, edited by Bernard Wailes: 3- 16. University Museum, University of Pennsylvania, Philadelphia.

Walker, S.H.
1973 *Summary of Climatic Records for Belize*. Land Resources Division Supplementary Report 3. Her Majesty's Sationary Office, Surrey.

Wauchope, Robert
1934 *The House Mounds of Uaxactun*. Carnegie Institution of Washington D.C. Publication 502, Washington D.C.

Weiner, Annette B.
1992 *Inalienable Possessions: The Paradox of Keeping While Giving*. University of California Press, Berkeley.

West, Robert C.
1964 Surface Configuration and Associated Geology of Middle America. In Handbook of Middle American Indians Volume 1: Natural Environment and Early Cultures, edited by Robert C. West: 33- 83. University of Texas Press, Austin.

Wilk, Richard
1973 Operation 4, Colha. In *British Museum- Cambridge University Corozal Project 1973 Interim Report*, edited by Norman Hammond: 55- 60. Cambridge University, Cambridge.

1976 Survey and Excavations at Colha. In Archaeology in Northern Belize: British Museum- Cambridge University Corozal Project, 1974- 1975, edited Norman Hammond: 152- 183. Cambridge University, Cambridge.

Willey, Gordon R.
1972 *The Artifacts of Altar de Sacrificios*. Papers of the Peabody Museum of Archaeology and Ethnology Volume 64. Harvard University, Cambridge.

1978 *Artifacts of Seibal*. Memoirs of the Peabody Museum of Archeology and Ethnology Volume 14. Harvard University, Cambridge.

Willey, Gordon R., and Phillip Phillips
1958 *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.

Willey, Gordon R., William R. Bullard, J.B. Glass, and J.C. Gifford
1965 Prehistoric Maya Settlements in the Belize Valley. Papers of the Peabody Museum of Archaeology and Ethnology Volume 54. Harvard University, Cambridge.

Willey, Gordon R., and Jeremy Sabloff
1995 *A History of American Archaeology*. Thames and Hudson, London.

Wilson, Samuel M., Harry B. Iceland, and T.R. Hester
1998 Preceramic Connections between Yucatan and the Caribbean. *Latin American Antiquity* 9(4): 342- 353.

Whittaker, John C.
1994 *Flintknapping: Making and Understanding Stone Tools*. University of Texas Press, Austin.

Wobst, H. Martin
1977 Stylistic Behavior and Information Exchange. In *Papers for the Director: Research Essays in Honor of James B. Griffin*, edited by C.E. Cleland: 317- 342. Anthropological Papers, University of Michigan, Ann Arbor.

Wright, A.C., D.H. Romney, R.H. Arbuckle, and V.E. Vial
1959 *Land Use in British Honduras*. Her Majesty's Stationary Office, London.

Wright, Rita P. (editor)
1996 *Gender and Archaeology*. University of Pennsylvania Press, Philadelphia.

Yates, Tim Frameworks for the Archaeology of the Body. In *Interpretative Archaeology*, edited by Christopher Tilley: 31- 72. Berg, Oxford.

Vita

Richard Keith Meadows, Jr. was born November 3rd, 1967 in Evanston, Illinois. His parents are Richard and Gwendolyn Meadows of Naples, Florida. He has one brother, Andrew. Richard graduated from Naples High School in Naples, Florida in June 1985. After graduating from high school, he participated in an extended student tour of the Soviet Union. This trip had a significant impact on his worldview. In the fall of 1985, he attended Wake Forest University in Winston- Salem, North Carolina and graduated in 1989 with a B.A. in Anthropology with a minor in Politics. After graduation, Richard spent the next year living and working in the Community for Creative Non- Violence Federal City Shelter at 2nd and D Streets Northwest, Washington D.C. While at CCNV he engaged in local and national political lobbying efforts with activists from across the U.S. He also worked as a medic in the shelters thirty-six bed infirmary. After leaving CCNV in late 1990, Richard returned to Florida and began applying to graduate schools. In August 1991, he entered the graduate program in Applied Anthropology at the University of South Florida, located in Tampa Florida. He obtained his M.A. in August of 1995 with an emphasis in Public Archaeology. In August of 1996, he entered the graduate program at the University of Texas at Austin.

Richard gained extensive field experience in archaeology during his graduate work at USF. He worked primarily in southeastern North America, in Florida, North Carolina, Georgia, and Tennessee. He worked for the National Park Service in 1992 and also served as Field Director of the Apalachicola Archaeological Project in northwest Florida in 1993. While at USF, Richard had the opportunity to complete a semester long independent study in Central America. It was then his interest in the culture and archaeology of the Maya began. While finishing his thesis on a hunter- gatherer site in west central Florida,

he participated in archaeological fieldwork at the sites of Cerros and Caracol in Belize. After moving to Austin and beginning his doctoral work at the University of Texas, Richard conducted archaeological survey around the site of Altun Ha, northern Belize. He participated in several archaeological projects in Texas and Arkansas. He also served as Operation Director for the Chan Chich Archaeological Project at Chan Chich, Belize in 1997 and 1998. For the last several field seasons he has served as a lithic analyst for the Lamanai Archaeological Project. Richard will begin his teaching career in the very near future.

Permanent address: 354 Edgemere Way N.
Naples, Florida 34105

This dissertation was typed by the author on a Dell Dimension 4100 personal computer using Microsoft Word97 software.