



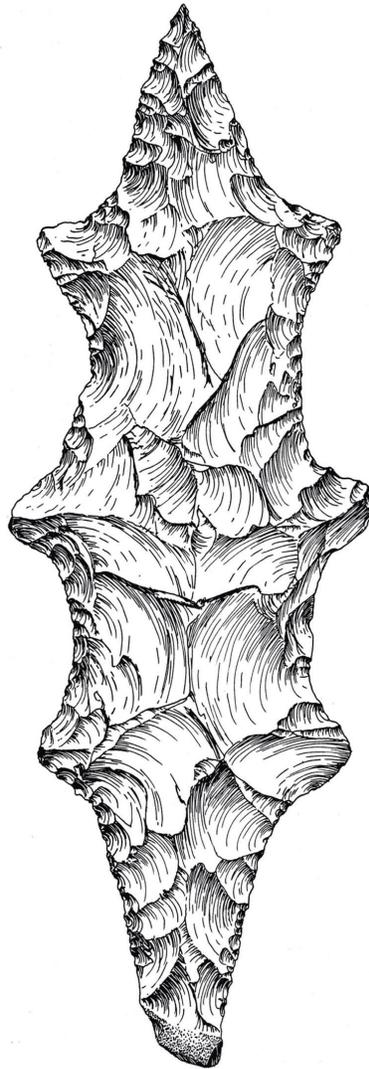
Mono y Conejo

**Journal of the Mesoamerican
Archaeological Research Lab**

The University of Texas at Austin

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Editorial Statement

Mono y Conejo, the Journal of the Mesoamerican Archaeological Research Laboratory publishes contributions on original research throughout greater Mesoamerica. *Mono y Conejo* provides a public medium for the description and reporting of anthropological interests. Flexible in format, the journal accepts and publishes works on archaeology, art history, ethnohistory and related cultural historical issues. Published at irregular intervals, each issue constitutes a single volume.

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**Greetings and welcome from the editors
of *Mono y Conejo*: Journal of the
Mesoamerican Archaeological
Research Laboratory**

Dear Friends and Colleagues:

On behalf of the staff and students of the Mesoamerican Archaeological Research Laboratory (MARL) at the University of Texas at Austin, we send our greetings and welcome you as reader and participant to our first edition of the MARL journal! The journal, called *Mono y Conejo* is, as most of you probably know, Spanish for monkey and rabbit. The name evokes the animal characters that traditionally have been associated with scribes in Mesoamerican cultures. We decided to use the Spanish names of these characters to indicate the close links between MARL's work and the cultures, both ancient and contemporary, of Mexico and Central America. Moreover, we hope to have researchers and students from across the region contribute to the journal, as well as to publish selected articles and reviews in Spanish.

First, we want to answer a question many of you may be asking: What is this new publication all about? *Mono y Conejo* is designed to be an informal medium of exchange that facilitates interaction between researchers, students, and the interested public. The primary goal of the journal is to publish in a reasonable period of time short reports that update readers on the progress of various research projects currently being undertaken by MARL affiliates, as well as researchers from other institutions. As you know, research conducted by MARL staff is focused primarily on the archaeology of different parts of Mesoamerica, but we hope to publish contributions in art history, ethnohistory, linguistics, and cultural anthropology as well. *Mono y Conejo* is also interested in publishing book reviews of contemporary works in the fields mentioned above. Please see our contributions policy located on the final page of this issue.

Another feature of future issues of *Mono y Conejo* will be a short biography and bibliography of an individual who has made significant contributions to the field of Mesoamerican studies. We will focus on scholars that have had a direct impact on our own work, as well as those scholars whose work, while invaluable to the field, may not be as well known as some of the 'major players' in Mesoamerican studies.

It is our hope that by featuring a respected predecessor in future editions, we bring to the reader specific titles of classic works of Mesoamerican archaeology, art history, and anthropology that otherwise may be forgotten. Perhaps more importantly, we also acknowledge the contributions of these individuals.

Another goal of the journal is to keep you, the reader, updated with regard to research opportunities at MARL. As you all may know, MARL has had a longstanding research interest in the archaeology of the Maya lowlands on the Programme for Belize lands located in northwestern Belize. The Programme for Belize Archaeological Project (PFBAP) has field work opportunities for undergraduate and graduate students, as well as a volunteer program. Students can earn up to nine hours of college credit per summer session! All work undertaken by the PFBAP is accomplished through the permission and assistance of the Department of Archaeology, Government of Belize. Please see the Introduction to MARL in this issue and (or) the MARL web page at the University of Texas at Austin for more information.

In each edition of *Mono y Conejo* we hope to bring you a concise and insightful set of readings that will keep you abreast of selected research being undertaken in Mesoamerica. It is hoped that the research reports, featured scholars section, and book reviews will appeal to your interest in this fascinating part of the world. We invite you to join the staff and students here at MARL in the pursuit of knowledge and the rewards of engagement and participation.

With warm regards,

Fred Valdez
Richard Meadows

Editors
Austin, Texas
Spring 2003

Introduction to the Mesoamerican Archaeological Research Lab

Fred Valdez
Director, Mesoamerican Archaeological
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Introduction

As we welcome you to the new Journal of the Mesoamerican Archaeological Research Laboratory, *Mono y Conejo*, we think it is important to introduce you, the reader, to the place of origin of this new publication. MARL is a specialized research unit within the Texas Archeological Research Laboratory at the University of Texas at Austin. The idea of MARL began several years ago and received great encouragement from University Provost Sheldon Ekland Olson, then Dean of the College of Liberal Arts here at UT. Indeed, we had the good fortune to have Provost Ekland Olson visit us at the Programme for Belize Archaeological Project a few summers ago!

Our current Dean, Richard Lariviere has recognized MARL as a distinct research unit with interests in “greater” Mesoamerica. Dean Lariviere has been very supportive of our efforts here at the University of Texas and in our international endeavors. Associate Deans Neil Foley and Brian Roberts, and Assistant Dean Kathy Foster have been especially enthusiastic and supportive of MARL, especially with regard to getting the word out, so to speak, about our research programs and projects.

The mission of MARL is to facilitate student and professional archaeological, anthropological, and related research in “greater” Mesoamerica, which is defined as frontier and neighboring regions of Mesoamerica, as well as Mesoamerica proper. This area includes most of Texas, as well as the Southwest and Southeast US in the north to Nicaragua, Costa Rica and Panama in the south. We at MARL welcome researchers, students, and the public with similar interests to join us in fieldwork, publication, and conversation. The MARL web page, located at <http://uts.cc.utexas.edu/~marl/> is maintained and updated periodically to keep interested folks informed with regard to MARL activities and research opportunities.

Current research undertaken by the staff and students of MARL stems from a longstanding interest in the archaeology of the ancient Maya. When I began teaching at the University of Texas, our research focus expanded rapidly as students expressed interest in conducting research in central and northeast Mexico, and south Texas, in addition to our continued efforts on the Programme for Belize lands in northwest Belize.

This culmination of efforts has resulted in a number of theses and dissertations that focus on the numerous cultural historical periods and geographical areas

that comprise “greater” Mesoamerica. The efforts of these students, past and present, have been integral to the growing body of data research projects working with MARL have generated. This data is invaluable in addressing specific questions surrounding the cultures and peoples of this unique part of the world. However, like most scientific and humanistic endeavors, we have perhaps raised more questions than we have answered. It is the dedicated efforts of students and staff that pave the way for this continued search for knowledge.

Current staff and student projects here at MARL will be featured in this and future volumes of *Mono y Conejo*. We look forward to your questions, comments, and contributions in the months and years ahead. It is our sincere hope that many other researchers, both affiliated with MARL and the University of Texas as well as from other institutions take the opportunity to engage in dialogue through continued research updates and publication.

A critical component of the MARL’s evolution is the Programme for Belize Archaeological Project. The field work conducted on the PFB lands has fostered our continued interest in ancient Maya culture and society. In addition, the work of staff and students there has reinforced MARL’s commitment to active student research. A history of the PFB and its links with MARL are outlined below.

Programme for Belize Archaeological Project

The Programme for Belize Archaeological Project (PFBAP) is an active research project with opportunities for volunteers and students. Based out of the Mesoamerican Archaeological Research Laboratory at the University of Texas at Austin, PFBAP is located in a tropical forest setting in northwestern Belize. The project currently offers Spring and Summer field sessions.

The PFBAP has been operating in Belize since 1992 on a conservation reserve of more than 250,000 acres owned by a Belizean enterprise known as the Programme for Belize. We hold a 20-year concession with the Programme for Belize to conduct archaeological research on the property. One of the significant goals of the archaeological research is to continue survey and reconnaissance for the purpose of documenting prehistoric Maya settlement and historical activities. These findings are then reported to PFB so that they may better manage and protect archaeological resources within their holdings. All archaeological research is conducted only after a (yearly) permit has been issued to the PFBAP from the Department of Archaeology, Government of Belize.

Within the research period since 1992, we have documented five (5) major centers and more than 50 smaller sites and settlements. Among the topics researched are settlement distributions between sites, issues of water and soil management by the ancient inhabitants, chronological developments at specific sites, and issues of political integration and autonomy between large and small centers.

Students and volunteers with the PfbAP are often exposed to the various aspects of research and encouraged to participate when opportunities arise.

The PfbAP research is conducted from a permanent camp, the R.E.W. Adams Archaeological Research Facility, which maintains a 32-bed dorm building, an enclosed laboratory and storage area, several cabana-type structures, and an enclosed kitchen/dining facility. We employ several cooks and some field help to assist with more labor intensive chores. The operation of this type of field camp allows scholars, students, and volunteers to focus more on research issues, lectures, and site visits.

Within the structure of the PfbAP are a number of collaborating researchers. Thus, at least five significant projects are running during the course of summer research at the REWA Research Facility. This particular system of research project overlap allows for very interesting collaboration and exchange of ideas between various research components. The PfbAP beyond its own research agenda, assists in facilitating other research projects in the area including Boston University's investigations at the grand site of La Milpa, the Blue Creek Project's research just north of the Pfb property, the Chan Chich archaeological investigations and the Punta de Cacao Project

located on Gallon Jug property immediately south of Pfb. We assist these other programs of research through sharing of equipment, assisting with transportation logistics, and at times with the analyses of certain artifact categories.

Mono y Conejo

Part of the continued efforts to publish research updates and research results of the PfbAP and other current projects across "greater" Mesoamerica, the Mesoamerican Archaeological Research Laboratory (MARL) at The University of Texas at Austin is pleased to initiate a Journal, *Mono y Conejo*. In addition to publishing the Journal of the MARL, we also will be publishing research monographs that include Interim Reports, site specific studies, and collections of papers concerning a specific topical/theoretical interest. MARL also serves as the distribution point for available Rio Azul Reports edited by R.E.W. Adams and the soon to be published Ixcario Regional Reports. The availability of the various MARL publications will be posted on the Web site.

Thank you for taking the time to review *Mono y Conejo*, we at MARL hope that you will enjoy this first issue and that you will support our efforts with your continued interest!



Adapting historical archaeology for the study of Spanish colonial rancho communities in South Texas and Northeastern Mexico

Mary Jo Galindo
The University of Texas at Austin

The historic archaeology of South Texas and Northeastern Mexico can be traced back a mere 50 years to the limited excavations and surveys undertaken when Falcon Dam and Reservoir were constructed as a bi-national project. In March 1951 the River Basin Surveys at the Smithsonian Institution conducted emergency excavations of three sites, including two historic ones, in what became the first major archaeological investigation in the area (Hartle and Stephenson 1951). Unfortunately, the artifacts from these excavations lay unanalyzed until recently (Bonine 2001). Fortunately, this analysis joins investigations at Cabaseño Ranch, which is associated with the Nuevo Santander community of Revilla or Guerrero (Pertulla, et al. 1999), and research of a more ethnographic nature focusing on Mier, Tamaulipas, Mexico (Galindo 1999). Thus, historical archaeology in South Texas and Northeastern Mexico is well-positioned, considering recent theoretical developments in the discipline, to incorporate these new ideas into the emerging field.

The current trend in historical archaeology is towards a multi-disciplinary approach, rooted in anthropology and history, which focuses on illuminating the daily life of ordinary people whose lives have been traditionally ignored (Orser and Fagan 1994). As well, theoretical development has led to an exploration of subjects such as gender and ethnicity, which had not previously been attempted through archaeology. It is through this trend of theoretical development that historical archaeology, as an emerging sub-discipline, has been able to mature with new-found confidence, in part by re-affirming our unique contribution to the greater body of knowledge, namely the diachronic perspective and the material culture dimensions of our work. What remains is for historical archaeologists to successfully apply provocative theoretical stances with equally innovative methodological developments.

Theoretical positions can be difficult to translate to an analysis of the archaeological record at a given historical site, depending on the kinds of artifacts recovered and the types of relevant archival material available. This article summarizes the current direction archaeology is taking and compares this trajectory with what has been accomplished to date by historical archaeologists in the area of South Texas and Northeastern Mexico, where Spanish colonial ranching developed during the eighteenth century. What

follows is a summary of the definition of historical archaeology as put forth by Charles E. Orser, Jr. and Brian M. Fagan (1994) and an application of their theoretical concept to the artifacts from the previously mentioned 1951 excavations of two sites that likely represent a single colonial rancho on a *porción* associated with Mier, Tamaulipas, Mexico. Additionally, I offer avenues of future research that involve deconstructing, or at least challenging, several popular myths that persist about the region, involving settlement patterns and the ethnic composition of the *pobladores* (or original settlers).

An emerging definition of historical archaeology

Orser and Fagan's (1994) definition of historical archaeology is based on three past definitions, from which they construct a new comprehensive one. The first has its roots in historic preservation and is characterized by the study of a period, such as classical, medieval, etc. It relied on a distinction between historic and pre-historic that correlated to literate v. non-literate. Further definitions were developed to describe situations where literate people had contact with and wrote about non-literate ones.

A second past definition of historic archaeology describes it as a method that uses diverse sources of information, while incorporating approaches from both history and anthropology. Ethnohistory emerges as the study of the past using non-Western indigenous historical records, and especially, oral tradition. Ethnohistory often focuses on people who are known to have existed in history but who are known largely through the writings of outsiders. Oral history is historical tradition, often in the form of genealogies.

The final past definition cited by Orser and Fagan focuses on a specific historical topic and the concept of a world system. James Deetz (Orser and Fagan 1994) defines historical archaeology as the archaeology of the spread of European culture throughout the world since the fifteenth century and its impact on indigenous people. The world system of trade, travel, and transportation facilitated the spread of ideas and people. The variation of settlement in the colonies is considered proof of the significant influence of indigenous people on the Europeans.

Historical archaeology, as recently defined by Orser and Fagan (1994), is a multidisciplinary field that shares a special relationship with the formal disciplines of anthropology and history, focuses its attention on the post-prehistoric past, and seeks to understand the global nature of modern life. They define the term post-prehistoric, the opposite of prehistoric, to signify that the world was a different place after Europeans took Western culture to various places on the globe, but without privileging literacy or giving it a primary role in shaping recent history. The focus on the global nature of modern life may prove to be an important facet of our work. Although we study the minute and particular, it is possible to have insights based

on small-scale researches that allow insights into the larger issues of world history (Orser and Fagan 1994).

The past studied by historical archaeologists is still unfolding and, thus, is relevant to the present, especially in the borderlands where cultures overlap. We have the ability to concentrate on named, known people from the historical record and add a dimension to their lives based on the archaeological record. In this way we document the daily lives of people known previously only in a general sense. By emphasizing the small-scale, the minute and particular, we are better prepared to document the lives of non-elite people, as well as to contribute to discussions of ethnicity and gender.

Mapping material culture and archival documents theoretically

The known material record for South Texas and Northeastern Mexico consists primarily of the collection at TARL from excavations by the Smithsonian Institute in 1951, which have only recently analyzed (Hartle and Stephenson 1951, Bonine 2001). It is to these artifacts that the following discussion will refer, although I am aware that more recently collected and analyzed materials exist (Pertulla 1999). Mindy Bonine (2001) approached the data looking for cultural processes at the household level by considering all six one-room, stone structures to be part of the same rancho settlement.

In terms of the direct historical approach, our interpretation is hindered as the grantee's family does not appear in subsequent records from Mier (Galindo 1999). However, comparative data from other sources can help us infer the nature of life on the rancho of porción 55 (1817 Mier Census as cited in Galindo 1999). Although there are limits to the amount of information artifacts from excavations 50 years ago can contribute, what is important for the present discussion are the general classes of artifacts available to the archaeologist and methods of analysis that realize the promise of the above definition of the practice.

Alternatively, extensive archival sources are available regarding the colony of Nuevo Santander in general and Mier in particular (i.e., church marriage, birth, and death records, and city, state, and national archives). It has been possible for scholars to examine the marriage, inheritance, and settlement patterns of the pobladores (Galindo 1999), as well as to document the presence of Native Americans and African Americans in the founding of Mier (Herrera Casasús 1998).

Archaeology in South Texas has another obligation to fulfill: To contribute to the deconstruction of South Texas history as regards Nuevo Santander. The colony has been ignored in the past when scholars consider the Spanish colonial influence in Texas (Tjarks 1974, for example). Thus, Nuevo Santander gets left out of Texas history, despite the 24 porciones of Mier on the north bank of the Rio Grande

that were officially recognized by Texas as the legal property of the descendants of Spanish settlers after the 1848 Treaty of Guadalupe Hidalgo. Land was granted to Spanish colonists on both banks of the Lower Rio Grande—from Laredo to Brownsville—and these pobladores practiced some of the earliest livestock raising in Texas. The contributions of Nuevo Santander open-range, livestock ranchers go ignored, despite the debt owed to these early vaqueros by the nineteenth-century Anglo cattle industry. Therefore, historical archaeology is uniquely poised to illuminate alternative narratives of South Texas history. One example is that of Starr County, which includes almost one-third of the total land granted by the Spanish Crown to the inhabitants of Mier.

How does all this relate to the theory behind Orser and Fagan's definition? Let's look at specifics, primarily the connections between a multidisciplinary historical archaeology rooted in anthropology and history and the practice of historical archaeology in South Texas to date. The links are evident in recent works (Bonine 2001, Galindo 1999, Herrera Casasús 1998), even as it began as rescue archaeology in the 1950s.

Two challenges to the historical archaeologist in this respect are: 1. The archives are not available translated, except in rare cases, therefore, the Spanish language is requisite, as is familiarity with Spanish colonial terms and abbreviations; and 2. Information in the archives is often difficult to locate or access, except on rare occasions where sources located at the Benson Latin American Collection or Texas General Land Office contain compilations, translations, or copies.

One avenue open to future scholars in this region is to create a multidisciplinary forum or network for researchers to facilitate communication among the varying approaches. It could be as simple as an annual conference or thematic presentations at one of the existing conferences, but it would serve to encourage interest in the region and to build a network of scholars in varying disciplines and make possible continued multidisciplinary approaches. Concentrating interest by the establishment of annual field schools to excavate rancho sites in South Texas would also provide graduate students with the opportunity of sustained research.

The second part of Orser and Fagan's definition (1994) deals with the concept of a post-prehistoric past, a term that signifies that the world was a different place after Europeans took Western culture to various places on the globe, but without privileging literacy or giving it a primary role in shaping recent history. I interpret this to mean the intersection, or more properly, the collision between history (or popular myth) and anthropology. This is the location where archaeology can facilitate the deconstruction of history. Orser and Fagan's definition has several applications for South Texas archaeology in this regard.

Ethnic composition of pobladores

For example, very little is known about the Native American and African American population that contributed to the settlement at Mier beyond baptismal records and racial designations in census data (Herrera Casasús 1998). These documents often yield conflicting or incomplete information. Oral tradition holds that the pobladores were mostly of Spanish ancestry, were well-educated, and spoke a proper form of Spanish (Gonzalez 1998). The earliest census known for Mier (provided in the following table) seems to support part of this scenario, namely that the pobladores were mostly of Spanish ancestry.

TABLE 1
Census of Mier, 1779¹

	Spanish	Mestizo	Indian
Men	114	23	30
Women	113	26	30
Boys	243	55	40
Girls	228	44	27
Totals	698	148	127
	71.73%	15.21%	13.05%

Total population = 973

¹ Guerra 1989:31.

Other sources, however, reveal a different story. Consider the following table that lists racial designations as registered in the 1788 Census of Mier, just nine years later:

TABLE 2
Racial Designations as Registered in 1788
Census for Mier²

Designation	Population	Percentage of Total
Spanish, Indian, Indomestizos	556	58.0%
Black	102	10.6%
Mulattos	200	20.9%
Lobos	100	10.4%
Total Population	958	100.0%

² Herrera Casasús 1998:70

The figures don not lend themselves to easy comparison, but what is apparent, is that within nine years African American and Afro-mestizo categories grow from zero to 42% of this population. It is also significant that total population actually decreased by 15, thus, they must be replacing the earlier population. In other words, Spanish, Indian, and Indomestizos went from being 100% of the population to constituting only 58% of it in nine years. The historical record is silent at this point until the next available census in 1853. By then Mier’s population is recorded as 5,082 with no African Americans or Afro-

mestizos. The questions remain: Where did the African American and Afro-mestizo population come from, settle, and either go, or else, how were they integrated into the society? How are these changes in population reflected in the material record? These are all valid avenues of inquiry for historical archaeologists and involve issues that must be approached from more directions than just the archives.

Settlement patterns of pobladores

Historical sources and oral history also offer conflicting information about the exact nature of settlement in Nuevo Santander. Where did the population concentrate? Within the boundaries of the town central, or on rancho settlements? Requirements for land tenure included the provisions that settlers must reside on the land, protect it from Native American attack, and construct homes (preferably of stone). Individual porciones were not assigned in Mier or elsewhere in the colony until 1767, some 14 years after the initial colonists arrived. However, we know from the historical record that 19 families already lived on one or more ranchos in the vicinity of Mier in 1749 and probably as early as 1734. These people would already have established ranchos by the time that settlement at Mier was made official in 1753. Furthermore, settlers who arrived in 1753 with livestock would have required sufficient pastures. Class or wealth also plays a role in the rural vs. urban settlement pattern of Spanish colonial society. The more affluent families were able to hire workers to run the rancho, while the family resided in town with the advantages of increased security and more social activities like school and church (Gonzalez 1998). Archaeology is uniquely positioned to answer these questions about the nature of early colonial settlement. Excavations at a wide-range of ranchos, a comprehensive rural regional settlement survey, an assessment of the construction dates of extant historical structures in central Mier, and further research of archival material, are all viable approaches to these research questions.

This brings us to the final part of Orser and Fagan’s definition, which seeks to understand the global nature of modern life. This means that the results of small-scale research can allow insights into the larger issues of world history. The recent past, as studied by historical archaeologists, is still unfolding and thus is relevant to the present, especially in the borderlands where cultures contact. The Rio Grande River has served to unite populations for centuries, if not millennia, before European settlement. In reality, this geographical feature has been a divider for only 150 years of its existence (from the Treaty of Guadalupe Hidalgo until NAFTA). In this way archaeology in South Texas and Northeastern Mexico can contribute to a better understanding of contemporary border culture by studying the interconnections of past settlements, trade networks, and cultural exchange. Such discussion would naturally include considerations of class, ethnicity, and gender; all of which would have influenced

past developments and continue to impact contemporary borderland culture and society.

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Preclassic Maya spouted vessels: a contextual analysis

Terry Powis

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Spouted vessels or “chocolate pots”, as they have been dubbed by Mayanists, have been recovered from a number of lowland Maya sites. Geographically, they are widely distributed in the New World from the American Southwest, throughout Mesoamerica and Central America, and into South America. Temporally, spouted vessels span in date from the Preclassic or Formative to historic and modern times. They first appear in Mesoamerica during the early Middle Preclassic period (800-400 B.C.) in both the Maya lowlands and highlands. They become more widespread in the Late Preclassic and Protoclassic periods (400 B.C. - A.D. 250), extending into the southeast Maya periphery, central depression of Chiapas, central Veracruz, and the Valley of Oaxaca. Their distribution decreases significantly throughout the Classic and Postclassic periods in the Maya area but gain in popularity with the Tarascans and Huastecs in later times. The purpose of this paper is to provide information on the distribution of spouted pots in both space and time across the Maya area and to discuss their function using contextual data from a number of lowland sites. Comparative data from other regions of Mesoamerica are also discussed. Whole vessels recovered from primary contexts, like burials, caches, and middens are used in this study.

Distribution in Space and Time

Compared to the occurrence of other forms in Preclassic Maya ceramic assemblages, spouted vessels are rare but diagnostic forms of the period. They are predominantly found in the southern lowlands with the highest frequency recorded at sites located in northern Belize, the Upper Belize River Valley, and the Peten. Northern Belize sites have reported the highest number of spouted vessels from Middle and Late Preclassic burials and caches. A total of thirteen have been recovered at Colha (Valdez 1987) and seven at Cuello (Kosakowsky 1987). The sites of K'axob (McAnany et al. 1999) and Lamanai (Pendergast 1981) have each produced five Late Preclassic spouted jars from special deposits. Two intact vessels have been recovered from Protoclassic Tomb 2 at Chan Chich (Robichaux 1998) as well as one specimen from Protoclassic Tomb 5 at Blue Creek (Tom Guderjan, pers. comm., 1999).

In the Peten, four have been found in burial contexts at Tikal (Culbert 1993), including a nubbin-footed, spouted effigy jar with an Usulután style body found in Burial 85 in Structure 5D-Sub-1-1st (Coggins 1975). At Altar de Sacrificios, Adams (1971) reported

five redware spouted jars derived from a Late Preclassic trash pit in Mound 26. The Upper Belize River Valley region has produced a number of spouted vessels in Middle Preclassic deposits. However, to date, most of the 60+ specimens recovered from primary and secondary contexts at the sites of Barton Ramie (n=10), Blackman Eddy (n=24), Cahal Pech (n=18), and Pacbitun (n=7) consist of tubular spout fragments and lip-to-lip strap handles.

In the Guatemalan highlands, spouted vessels have been reported in various Middle Preclassic contexts. They have also been found in Late Preclassic burials at Los Mangales (Sharer and Sedat 1987).

Comparative Data from Across Mesoamerica

Elsewhere in Mesoamerica, Formative period spouted jars and bowls have been found in burials, caches, refuse pits, and construction fill deposits. In the southeast Maya periphery, Middle Formative spouted vessels have been recovered at Chalchuapa (Sharer 1978) as well as Late Formative ones at Yarumela (Joesink-Mandeville 1987) and Playa de los Muertos (Kennedy 1986)(see Figure 1).

In the central depression of Chiapas a number of sites have been reported with spouted vessels dating to the Late Preclassic period, including Mirador, Chiapa de Corzo, and Santa Rosa. At Chiapa de Corzo, several spouted jars have been recovered from Late Preclassic burials and caches. For example, Protoclassic Caches 5-6, 5-12, and 5-13 in Mound 5 contained numerous bridge-spout jars with anthropomorphic faces, stucco painted designs, and polychrome surfaces (Lowe 1962). At Izapa, three Late Formative spouted jars have been found, including two Usulután resist wares with mammiform spouts found in an urn burial in Mound 30d; they are presumed to have been imported from either El Salvador or Guatemala (Lowe et al. 1982).

In the Valley of Oaxaca, a number of Late Formative sites have produced spouted vessels. They are generally bridge-spout human effigy jars placed in elite burials, like these ones from Tomaltepec and Abasolo (Marcus and Flannery 1996). Bridge-spout jars have been recovered from one of the most famous Zapotec royal burials, Tomb 104 at Monte Alban, which is dated to Period III. They were placed alongside other pottery forms which Marcus and Flannery (1996) called a “complete table setting” for a Zapotec lady or lord, including bowls, vases, jars, ladles, and sauce boats.

In southern Veracruz, black ware jars with supported spouts are found in Protoclassic burials in Trench 30 at Cerro de la Mesas (Coe 1965; Drucker 1943) and Trench 4 at Tres Zapotes (Coe 1965). In central Mexico, Late Formative spouted vessels are not as common, but redware examples have been found at Tlatilco (Pina Chan 1971), blackwares at Cholula

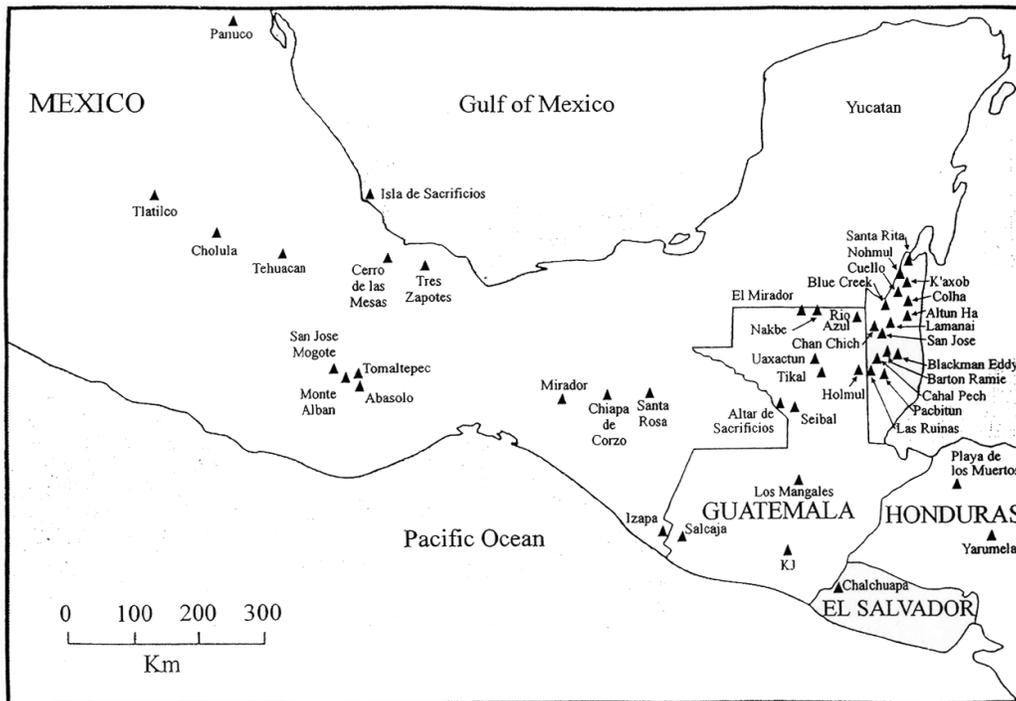


Figure 1. Map of sites with spouted vessels

(Noguera 1956), and grayware specimens in the Tehuacan Valley (MacNeish et al. 1970). In the Tehuacan Valley, most of the spouted vessels served either decorative or symbolic functions, as some of the spouts were not hollow at all or were hollow at one end and not at the other.

Function and Meaning

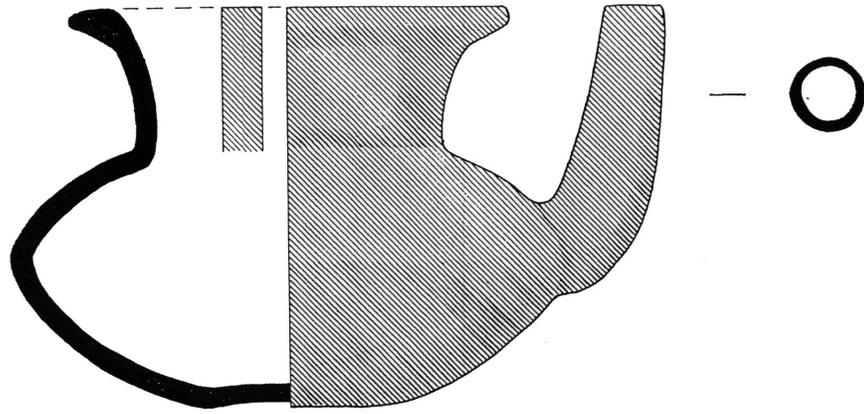
With an overview of the spatial and temporal distribution of spouted vessels across the Maya region and elsewhere in Mesoamerica, it is necessary to briefly discuss their function and meaning in Preclassic Maya society. Given the steep vertical angle and the overall height of the spout relative to the rim, it would have been difficult to pour liquids from the spout into another container without spilling some of the contents out of the main vessel orifice. The only exception(s) to this would be if there was a tall restricted neck on the vessel and/or the level of the liquid contained within was kept below the neck/shoulder break. Clearly, some examples, like two from Colha, would have no problem with pouring liquid contents while others could not have been functionally useful.

Given this functional information, it has recently been suggested by McAnany et al. (1999) that the spouts of these vessels acted as an orifice for the introduction of air into the body of the vessel which would have aided the frothing of chocolate (*Theobroma cacao*) for consumption. I am not completely satisfied with this interpretation. In Classic Maya times tall cylindrical vases and bowls were used by elite members of society to prepare, contain, and pour chocolate drinks. The process for frothing chocolate, as pictorially represented on ceramic vessels was accomplished by pouring the liquid from one vessel

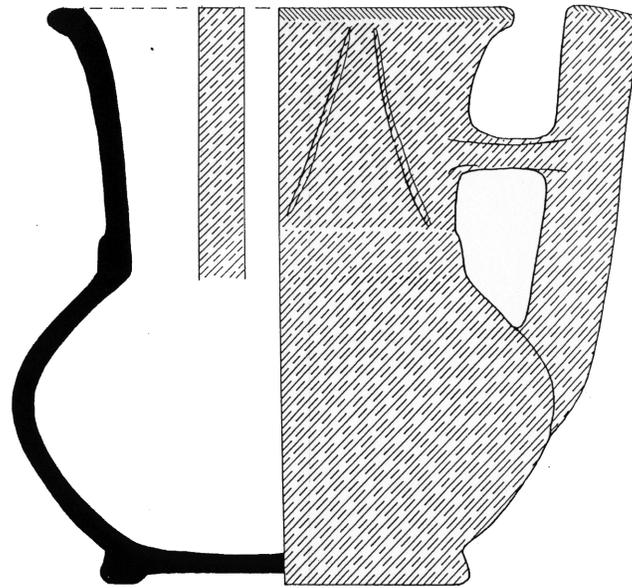
into another to raise the foam, which was considered the most desirable part of the drink - not only by the Maya, but also by the Aztecs as well (Coe and Coe 1996). In early Colonial times, Yucatec Maya spoke of *yom cacao* meaning 'chocolate foam'. They also spoke of *t'oh haa, haa* being a word for chocolate as well as water, *t'oh* meaning to pour from one vessel into another from a height (Coe and Coe 1996). With a long history of using tall cylindrical vases for frothing chocolate drinks, from Early Classic through Colonial times, it is difficult to believe that spouted jars were used for the same function during the earlier Preclassic period. In fact, spouted pots would not have been particularly useful for frothing chocolate given their rather small vessel orifices and presence of lip-to-lip strap handles. Functionally, it would be very hard to pour the liquid contents from one spouted vessel into another from any height. Furthermore, since the foam remains the most highly prized part of the cacao beverage, this type of vessel would have concealed the foam below the neck/shoulder break compared to open cylindrical bowls (see Figure 2).

In the Early, Middle, and Late Classic periods there is glyphic evidence found on many vessels, including an example from Rio Azul, that clearly demonstrates chocolate was being prepared as frothy beverages, and that elite individuals had exclusive access to them. According to David Stuart (1988), a glyph compound (the fish fin) found in the Primary Standard Sequence (PSS) text on cylindrical vases indicated that these vessels were used in the production and consumption of chocolate drinks. Barbara Macleod (1990) has nicknamed this glyph compound as "the recipe" or the actual contents of the vessel. While

a.



b.



c.

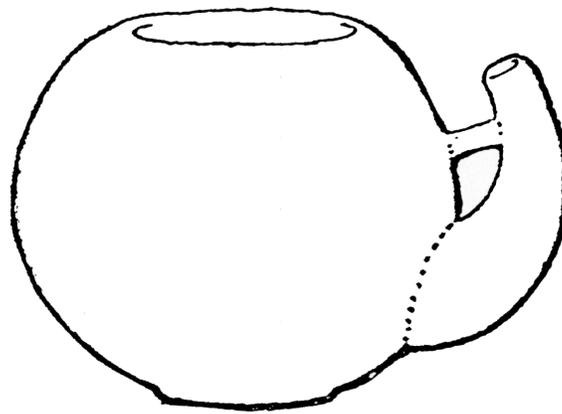


Figure 2a., b., c., Spouted vessels from selected sites in northern Belize

Classic Period vessels have epigraphic evidence to indicate what contents were contained inside there is little data for the function of spouted vessels from Preclassic contexts.

Spouted vessels have been referred to many times in print as “chocolate pots” and the implication is that all jars and bowls with spouts functioned as vessels related to chocolate production and consumption. Without any supporting contextual, residual, phytolith, or iconographic analyses being conducted to either confirm or deny this for these Preclassic vessels it is difficult to understand how this phrase has become so entrenched in the literature. So, where did Maya archaeologists get the notion that Preclassic Maya spouted vessels were used for chocolate drinks? Or, specifically, why have Mayanists used spouted vessels synonymously with the phrase “chocolate pots”?

One of the earliest references to the phrase that I have been able to locate comes from Thomas Gann’s 1918 report on “The Maya Indians of Southern Yucatan and Northern British Honduras”. He found a few spouted vessels in burials at the site of Santa Rita Corozal. But why did he use the phrase ‘chocolate pot’ to refer to these spouted vessels? It is most probable that his use of the phrase may stem from the likeness of the Preclassic Maya spouted pots to European hot chocolate pots. There is a strong resemblance between the two forms, and I believe this is how the phrase became part of the literature in Maya archaeology. Archaeologists working in other parts of Mesoamerica do not refer to them as chocolate pots, but simply as spouted vessels - thereby leaving the functional interpretation open.

There is no ethnographic data from either the highlands or the Yucatan Peninsula to support the idea that spouted vessels were used for chocolate drinks. In fact, spouted vessels or *pichingas*, as they are called by modern Maya groups living in highland Guatemala, are used as water bottles (Reina and Hill 1978). In the Yucatan, spouted vessels occur as double-spouted jars, supporting the functional interpretation that the modern Maya used them as water containers or coolers (Thompson 1974).

Today, indigenous people across Mesoamerica use small, open bowls or *jicaras*, made of either ceramic or gourd to drink chocolate in both private and public ritual ceremonies (Thompson 1958; Tozzer 1966). Generally, they use a grooved wooden beater (called a *molinillo* in Spanish) for the production of the much-prized foam. The use of the *molinillo* was likely introduced by the Spanish. Written Spanish documents do not mention the method of pouring from one vessel to another to produce the coveted foam on the drink, which appears to be the exclusive Mesoamerican practice prior to the conquest (see Coe and Coe 1996).

The main issue here is whether the Preclassic Maya drank frothy cacao. If the Preclassic Maya had knowledge of chocolate production, then how were they making it?

What type of vessel(s) served this function? Recent chemical testing indicates that spouted vessels from Colha, Belize contain cacao residue (Powis et al. 2002). However, a number of other questions arise if indeed spouted vessels were used by Preclassic elite Maya in cacao consumption. One particularly perplexing question about spouted jars is why did this vessel form abruptly change to tall cylindrical vases and bowls in the Early Classic period? It is interesting to note that just before spouted vessels decreased in popularity, there was an explosion of new varieties being produced at Maya sites (e.g. Lamanai), including the increased use of effigies, the number of slips applied, and the addition of bridge supports and ring bases. Why then, after nearly 1,200 years of popularity, did spouted jars radically decrease in use around the Maya area, especially if they were involved with elite production of chocolate? One idea would be Teotihuacan’s influence on the Early Classic period Maya. We know economic and cultural exchange occurred between Teotihuacanos and the Maya. There is ceramic evidence of chocolate drinking at Teotihuacan based on a carved vase fragment which shows one of the Maya Hero Twins hunting a quetzal perched in a cacao tree; this same fragment has appliques shaped like cacao beans attached to the bottom exterior edges (Coe and Coe 1996). Teotihuacan also likely controlled the rich cacao-growing orchards on the Pacific Coast during the Early Classic. Given this information, is it possible that tall cylindrical vessels replaced spouted jars for cacao drinking in the Early Classic period? Is it possible that Teotihuacan influenced the Maya in the production and consumption of cacao drinking? Could the tradition of making it a frothy drink been introduced from highland Mexico during the Early Classic? If so, this would have made the spouted vessel obsolete.

Therefore, it may be conjectured that the appearance of the tripod cylindrical vase as an introduction from highland Mexico came with the introduction of frothy cacao. What we may be seeing, then, is a change in function and ideology in the ways in which cacao was produced and consumed in the Maya area during the Preclassic/Classic Period transition where a local or regional vessel form (i.e. spouted pot) was replaced with another, extraregional one (i.e. cylinder vase). The recent chemical evidence suggests that Preclassic spouted vessels at Colha were used for serving a cacao-based beverage (Powis et al 2002).

It is important to reiterate what is known about the spouted vessel form. We know that some spouted vessels were probably functional and used as serving vessels, but many more of them were not and only had decorative or symbolic functions. Using contextual data, nearly 90% of spouted vessels found across Mesoamerica came from special deposits like burials and caches and associated with elite individuals. It remains unclear at this time whether

their inclusion as offerings was a primary or secondary function. I agree with McAnany et al. (1999) that Maya spouted vessels typically co-occur with other vessels in burials and caches. They are rarely found alone and therefore belong to what may be called a “complete table setting” like the example recovered from a Late Preclassic elite burial at Lamanai. McAnany et al. (1999) have recently suggested that spouted vessels recovered from burials at K’axob may have been “signature” pieces in that “they contain special characteristics such as modeling, gadrooning, and applique” to individualize them. Essentially, this practice of personalized vessel use is found later in the Classic period with the PSS glyphic text encircling the rim of cylindrical vessels which identifies a titled individual for whom the drinking vessel was made. Therefore, the customized spouted vessels may be the precursor to the individualized vessels of Classic period elites.

In conclusion, limited chemical testing of spouted vessels, dubbed as “chocolate pots”, on archaeologically recovered vessels from the Maya site of Colha suggests that indeed some of these vessels may have been used to hold a cacao-based drink (Powis et al. 2002). However, it is by no means clear that all spouted jars and bowls as such were used in this way. It is only through further residue analysis, for example, that a determination of what kind(s) of liquids were held in these uniquely shaped vessels. The idea that spouted vessels were used solely to hold and/or froth chocolate during the Preclassic period is certainly a possibility. However, they could have been used to hold a variety of liquids, including water, honey, and fermented beverages as well.

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From eccentric lithics to material symbols: aspects of ancient Maya cultural production in northern Belize

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The ancient Maya produced and surrounded themselves with material culture that played an active part in both the structuration and negotiation of social and political relationships. This meant that varying kinds of material culture had an intrinsic value to the individuals and communities that both produced and acquired it. An important category of ancient Maya material culture that has received little attention in terms of comparative analysis is the “eccentric” lithic category made from locally available chert.

Recent research has revealed that eccentrics are indeed explicitly symbolic forms that exhibit correlates with depictions present in other forms of ancient Maya media (Meadows 1998, 2001a, 2001b). Despite widespread historical and popular usage, the term eccentric is clearly a misnomer and in many ways obscures the fact that these artifacts were part of a process of cultural production and possessed meaning and concomitant cultural value.

Cultural production in ancient Maya society

The three assemblages of eccentrics, referred to in the present study as flaked stone symbols, were recovered from the sites of Lamanai, Altun Ha, and Colha, Belize (see Hester and Shafer 1994; Pendergast 1979, 1982, 1990; Shafer and Hester 1983, 1991). Individual artifacts from these three important but very different sites located in or near the northern Belize chert bearing zone (**cbz**) occur as a range of anthropomorphic, zoomorphic, supernatural, celestial, as well as more abstract forms (see Meadows 2001). Assemblages were recovered archaeologically in sealed contexts, either interred in dedicatory or termination caches located on the primary axis of structures as well as beneath plaza floors (see Meskill 1994; Pendergast 1979, Probst 1984). Symbolic forms also occur in caches both around and within numerous types of burials, including tombs, crypts, cysts, and simple interments (Pendergast 1979, 1982, 1990).

It is argued here that flaked stone symbols 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 of commodities, but instead from the manipulation and assertion of genealogies and history. At least some flaked stone symbols indeed were part of elite public displays and

perhaps war events, and others may have been used in restricted access ritual or elite domestic ritual. Their appearance in caches and burials helped link the interred with local history and larger cosmological events and (or) characters (see Freidel et al. 1993; Schele and Freidel 1990; Schele and Miller 1986).

Technological and political economic meaning

A closer examination of mode(s) of cultural production provides insight into how material symbols are manipulated and utilized across cultural settings. For example, the appearance of flaked stone symbols in Maya burial and cache contexts suggests group identity in the form of ancestor veneration (Iannone 1992; Iannone and Conlan 1993; see also McAnany 1995). In such contexts, the presence of flaked stone symbols index the cultural hegemony of the ancient Maya elite. Moreover, the production of an implement was also the result of the efforts of individual and groups of craft specialists that were linked to elite patrons, but may not have been part of elite houses (see Helms 1993; also Shafer 1979, 1982, 1994).

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 social and political alliances (Helms 1993). The culturally embedded practice of technological knowledge is an integral part of the process of assigning meaning to material culture. By recognizing signature forms and technologies of flaked stone symbols, spatial and temporal parameters for their production and use can be assigned. Moreover, we can begin to assess the complexity of symbolic knowledge demonstrated by the makers of these objects.

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; King and Potter 1994). It is posited that the social relations of production that mediated the acquisition of flaked stone symbols comprised a complex local political economy that linked contrasting communities.

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 macro blade and macro flake blade technology in northern Belize.

It is clear from the data that the appearance of this technology emerged earliest at the site of Colha, and later within the 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). Artifact forms made from Colha cherts appear at sites in the Peten and in the Yucatan (Hester and Shafer 1994; Rice 1987) It is posited that this technology was later elaborated upon by crafters at Colha as well as other locations in the region (Gibson 1989; Shafer and Hester 1983, 1991). It was later during the Classic Period (AD 250- AD 900) that explicitly symbolic forms begin to appear at Altun Ha and Lamanai in large quantities.

Eccentric lithics as material symbols

Another primary assumption of the current study is that individual artifacts both represent and structure meaning systems (see Lesure 1999; Robb 1998, ed. 1999). In this sense, individual forms are linked with visual representations in other ancient Maya artistic media (see Figures 1- 3). 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 and painted as part of a complex production process. Small samples of cloth were recovered from two artifacts, indicating that some were wrapped and (or) bundled prior to deposition (see Plitnikas 2001). Further analysis of pigment and cloth samples supports the broader 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 reproduction of specific social relations in a political economic context (see Godelier 1996; Helms 1993; Weiner 1992; Robb 1999).

Political economy and cultural production

A framework based on the fact 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 (see Marcus 1993; also Demarest 1992). In order to disentangle the appearance of 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 1984; also King 2000).

Assessing aspects of political economy depends on political hierarchy and socioeconomic division of labor. It is posited here that flaked stone symbols were the products of an economy of social and political relationships that cannot be explained simply 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 exotic items 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, in part, the place of elites in a power hierarchy. An integral part of the process of cultural production are modes by which power relations are resisted and negotiated. During the Late Preclassic and Protohistoric Periods (400 BC- AD 250), 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 painted ceramics, carved jades, obsidian, and to some degree flaked stone symbols (see Scarborough 1985; Schele and Freidel 1990; see also Demarest 1992).

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 (see Schele and Miller 1986; Schele and Freidel 1990; Freidel et al. 1993).

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 (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 and distribution 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 this process of legitimation, as well as constitutive in terms of

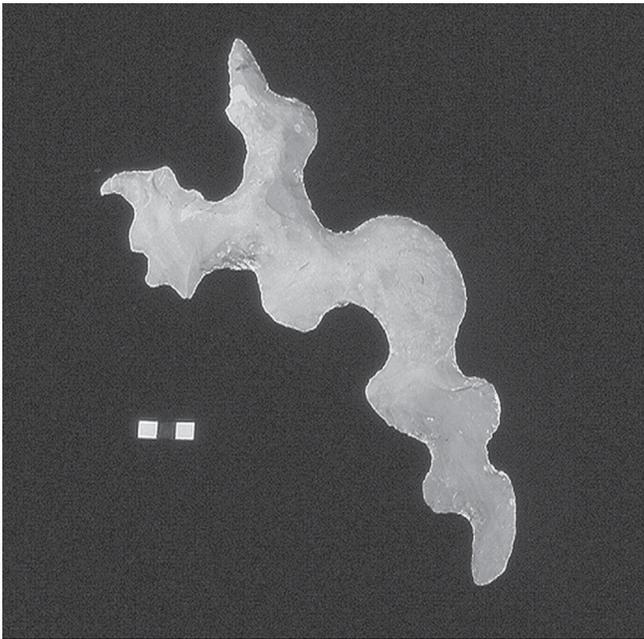


Figure 1. 'Eccentric' as Vision Serpent and emerging ancestor, from Altun Ha, Belize.

structuring how crafters, artisans, the elites, and those that viewed elite displays were able to think about the world around them. An important part of power relations are 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 that produced the images so critical to the legitimation and naturalization of the elite order to whom they were closely bound did so with expectation inherent in any cultural context. Aside from the desire to express knowledge that art satisfies in those who produce 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.

Maya political economy and craft specialization in northern Belize

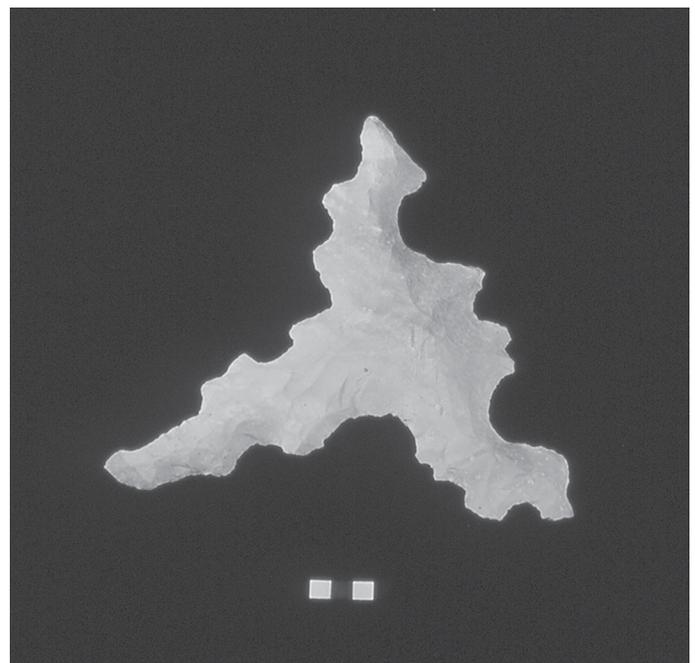
In northern Belize the appearance of one dominant center is in doubt, not only because the sites in this region do not exhibit numerous hieroglyphic texts, but also because there are such a plethora of what Marcus (1993) might term second order centers in the region (Hammond 1974; Hammond 1981; Scarborough 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 similarity at Altun Ha and Lamanai, separated by 20 km distance, suggests that political alliances between the elites at each center were in place by the Early Classic (see Pendergast 1992, also 1998 for similarities and differences in cache contents at each site).

With respect to lithic production, centers like Altun Ha and Lamanai are located on the periphery of 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). The producer-consumer model arises from the notion that specific sites were responsible for producing lithic implements and regional sites were consuming them in a variety of activities and settings. Moreover, non-utilitarian, symbolic forms such as the stemmed macro-blade 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 evidences the appearance of an increasingly complex political hierarchy in the eastern lowlands during the Late Preclassic. Locally produced non-utilitarian forms were acquired by elites at centers in different parts of the lowlands for ritual consumption. In this sense, both stemmed macro-blades and flaked stone symbols were produced at Colha for local use and later, for export. The appearance of finely flaked bifacial

Figure 2. Emerging ancestor from Altun Ha, Belize



symbolic forms in cache and burial contexts at Colha is clearly the earliest appearance of flaked stone symbols (eccentrics) in the eastern lowlands (250 BC- AD 200).

During the Early Classic (AD 250- AD 600), elaborate flaked stone symbols produced on local cherts appear in tomb and cache contexts at Altun Ha. The chronological gap between the limited number of forms in Late Preclassic and Protoclassic contexts at Colha and the numerous forms in Early Classic contexts at Altun Ha begs the question of waning production at Colha and the subsequent re-organization of production at Altun Ha during the Classic Period. As Shafer and Hester (1983, 1991) have articulated, large deposits of lithic production debris have been observed at a rural area located just north of Altun Ha known as Chicawate. Two surveys conducted in the early 80's and in the mid- 90's by Kelly and Valdez (1981) and Meadows (1997) resulted in documentation of production debris and finished utilitarian implements in large numbers, as well as ceramics that date tentatively to the Late Classic Period.

Shafer and Hester (1983, 1991) posit the production of lithic implements shifted to Chicawate from Colha during the Classic Period. In a local context, this is a similar process described in Marcus's (1993) model of shifting political integration. As the elite at Altun Ha consolidated power, residents from the region may have moved to the areas surrounding the center. At the same time, the archaeological evidence tells us that production declined at Colha. Altun Ha, which is located at the southern end of the **cbz** became the focus of the production of chert implements. Indeed, during the Early Classic the large scale production of flaked stone symbols at Chicawate or perhaps at Altun Ha, was being undertaken utilizing macro blade and macro flake- blade technology developed at Colha.

Again, 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 royal tombs and elite caches in the monumental center at Altun Ha and later in large caches at Lamanai. It is posited here that these items were acquired during large scale gift exchanges with non-elite chert crafters. These exchanges were part of a complex regimen of gift exchange that encompassed material items that we cannot label under the rubric of commodity.

Discussion

Along these lines, we can look to anthropology for explanations of political economic relationships that had little, if nothing to do with commodity exchange or tribute extraction. Instead, the acquisition of these items was part of a process of 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

likely had with communities of artisans and craft specialists. The transfer of possession of these objects was also a powerful form ideological legitimation. At the same time it produced a social link between the crafter and the elite recipient.

In one of the most important works in anthropology, Marcel Mauss (1966) examines the forms of gift exchange seen in what he terms primitive societies and emphasizes the cyclical process of gift giving and receiving, which he defines as prestations. We might also term these societies non-capitalist societies. In examining acquisition of prestige items among non-capitalist complex 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, entertainments, 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).

Mauss (1966: 31) employs the ethnographic example of the Tlingit and Haida on the Northwest coast of North America to articulate the definition of agonistic prestation, also known more popularly as the potlatch. These groups, although not state level societies, were certainly complex in both material culture production, political economy, 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 trance. During these festivals, 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 competitive.

Mauss found this kind of total prestation appearing also in Melanesia and Papua, New Guinea. However, gifting appears in less radical forms in West Africa, Polynesia, and Malaya (Mauss 1966). Mauss also uses the example from Samoa to contrast agonistic versus non-agonistic prestation. Samoan society exhibited total prestation that is non-agonistic. 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 is a term that defines both authority and wealth (Mauss 1966: 6).



Figure 3. K'awil with serpent foot, Altun Ha, Belize

Mauss focused on the repetitive cycle of giving and receiving. This kind of exchange is perhaps most clearly defined in the Moari 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 the 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.

In his critique of Mauss, Godelier (1999) disputes the translation of hau, which Godelier states was more specific in terms of the form of hau that 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 spirit of the gods and the dead are the true owners of material possessions. This interpretation moves toward ideological first principles, which cannot be verified. 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. A prime motivation for giving and return giving is the power of the gods, the spirit of the thing becomes the prime motivation for the cycle of exchange and obligation.

Broadly speaking, the process in 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. For example, among the aforementioned societies in North America, objects cannot be separated from the men who exchange them. The communion, alliance and obligation

are indissoluble (Mauss 1966: 31). These alliances are embodied as giving, receiving, and repaying. However, the economy of gift exchange fails to conform to the laws of a substantivist or utilitarian economic model. Such important considerations are often disregarded in assessments of economic processes of the ancient Maya.

As Weiner has argued, we must acknowledge that cosmology acts directly on social life, mediating society's unresolved problems (Weiner 1992: 5). However, we must 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 a 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. Thus, exchange value is not determined by cosmological links.

Weiner (1992) asserts that the paradox of keeping while giving creates an illusion of cultural production, of re-introducing the same things and concepts. This is undertaken in an effort to give permanence in a social world that is constantly in a state of flux (Weiner 1992: 8). Perhaps more immediately relevant to 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. The 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. One of the strategies pointed out by LeCount (1999) are the aggrandizing efforts of individuals and communities of Maya elites using ceramics as articles of wealth. The desire exists in such contexts to give more than can be given to illustrate the debt of the individual to the gods and to the dead. Godelier asserts plainly that all power contains kernels of the imaginary (Godelier 1992: 31). However, Godelier also points out that not all wealth enters into gift exchange. Of importance are 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.

Whatever the value of an object, things given have power that is not alienated from the object. However, Godelier asserts that the most accurate cultural metaphor is logic rather than religion or spirit. The example of the potlatch among the Kwakiutl as complex sumptuary redistribution and destruction is relevant here. The great objects, the core of cosmological and political power do

not move, are not exchanged. However, it is argued that 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 (1999) points to archaic states to elucidate the economic power of gift exchange. During the reign of the pharaoh, the individual was the pivot on which society revolved. The populace comprising the social hierarchy were destined to pay their primordial debt through tribute and labor. The emergence of power hierarchies promoted the reproduction of life in order for classes to emerge. Other examples of 'state-level' and asymmetrical relations between communities based in both reciprocity and obedience are clear. Godelier points to the ancient Rig Veda and the book of Leviticus to illustrate that obligation of men to the gods and their earthly incarnations are part of the process of social or cultural production (Godelier 1999: 199). However, 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).

It is clear that Classic Period Maya society exhibited all the complexities of state level social organization. However, it is important to separate complexity with implicit assumptions of supply and demand. It is posited here that flaked stone symbols were not acquired via a market system or produced in concert with abstract laws of supply and demand. Instead, flaked stone symbols were produced and acquired as part of the process of obligation between elites and between crafters and elites. While commodity exchange may have occurred at some level, there is no evidence that a market system existed. And while market places likely did, exchange that occurred within the confines was not part of a capitalist mode of production.

The notion of obligation has relevance among the ancient Maya. 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, elites changed the common strategy of displaying wealth and prestige items. Instead, she posits that the elites funneled elaborately decorated pottery through the 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 pageant and festival. 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.

The complexity of a political economy of production and acquisition of elaborate material objects in the past is clear. 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 Classic Period banquets were moments of political negotiation within and between elite communities. Great works of art, prestige objects of exotic and local origin orchestrated within a ritualized setting provided the impetus for political obligation and alliance, between elites and between elites and their skilled craft and artisan communities. The craft skills necessary to polychrome ceramics or other works of art necessitated the spending of 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 elite 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 was 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 or art was not a process of spending social currency, but instead was a complex social manifestation of shifting political agendas and carefully tended relationships, that 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 political contexts.

Indeed, Reents-Budet (1998) compares the crafting of painted polychrome vessels with iron tool crafting tradition of Toro of Western Uganda. A closer analogy may be the symbolic forms crafted from chert as depicted in the assemblages under study here (Reents-Budet 1998: 73). The production of polychrome ceramics was likely local and situational. Of course when the glyphic sequence of the painted polychrome is deciphered, it is asserted by Reents-Budet, the artisans leave the ranks of anonymous and join the creatures that are recognized as immortal creators. During this time, 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 producers of particular of objects.

In this example, the identities of individual artists are defined in the painting that actually made the vessel proper. As well, so was the cosmological legitimation seen in the multiple references to creation (Rents- Budet 1998: 78). Workshops of elite goods have been documented within the confines of elite households at Maya site of Aguateca (Inomata 1995). What has been termed the scribes 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 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, through introducing the interrelated writings of Mauss, Godelier, and Weiner we can begin to consider the production and acquisition of flaked stone symbols as part of an economy of political relationships that may have had little if nothing to do with universalizing notions of wealth accumulation implicit in our own analyses.

The notion of gift and counter gift, or keeping while giving emphasizes the local and political contexts of production and acquisition of some classes of material culture. At the same time, cosmology provided the legitimacy of both keeping and giving and the obligations inherent in each. Yet, we must not fall into a teleology. As Weiner (1992) and Godelier (1999) have successfully argued, there is internal logic by which cosmology is critical, but not the source of ultimate causation. Keeping while giving is grounded in social reality in which obligation was the mode through which political economic interdependence was perpetuated and relationships were negotiated.

Rents- Budet's (1998) important work provides the link between often studied and elaborate Maya painted polychrome ceramics, the political and social importance of the crafter, and cosmological linkages. However, it is argued here that the idea that craft items were 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 posited here that the abstracted notion of keeping while giving manifest in social forms such as agonistic prestation present a better explanatory tool than the idea of spending accumulated social currency, which mimics a dominant discourse that may be invalid across cultural contexts.

In northern Belize, we possess both a long term sequence of flaked stone and macro flake blade technology, as well as its 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 suggest that flaked stone symbols began to be a medium in which political and economic relationships were negotiated and likely legitimated by cosmological references in symbolic form.

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 Ha 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 undertaken. What is clear is the complexity of the production process, evidenced by pigments and textile fragments present on the surfaces of individual artifacts.

Concluding remarks

It is argued here that during the Early Classic, 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 in and around Altun Ha. There, the chert craft communities elaborated existing technology and symbolic knowledge in the solidification of political relationships. Relationships that were formed by the mutual obligations between the crafters and their patrons.

During the Early Classic and into the Late Classic, at Lamanai architectural and material culture similarities illustrate the cultural and likely political relationships that existed between the elites at Lamanai and Altun Ha. I suggest that large scale gift exchanges solidified these relationships. The large assemblages of flaked stone symbols at both sites reference complex technological and symbolic knowledges that necessitated production. In turn, complex political economic relationships, it is thought, were critical in the process of acquisition and consumption. Like many things archaeological, the current discussion raises more questions than answers. However, what is not in doubt is that the contexts of final deposition of flaked stone symbols indicate that political relationships, based in a shifting and negotiated social reality, preceded and contributed to the acquisition and interment of these material symbols.

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An introduction to the Brownsville-Barril complexes and the A. E. Anderson collection

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The Brownsville and Barril complexes are the names given to the remains left by the scarcely studied indigenous groups who occupied the Rio Grande delta at the extreme southern tip of Texas approximately during the time period of A.D. 1100-1700 (MacNeish 1958). Geographically, the cultural extent of the complexes is from the northern portion of the Rio Grande delta in east central Willacy County to the north end of the Laguna Madre in northern Tamaulipas, and from the coastal barrier islands in the east to 32 km inland to the west (MacNeish 1958; Prewitt 1974) (Figure 1).

The low-lying tropical delta area was one of the last parts of northeastern Mexico to be settled by the Spanish. They did not turn their attention to the Rio Grande delta until 1747, about 150 years after they first established towns in Nuevo Leon and Coahuila. The mid-eighteenth century accounts suggest that as many as 50 named Indian groups lived in the Rio Grande delta (Campbell 1988; Salinas 1986). These culturally distinct Indian groups are often collectively referred to in the literature as Coahuiltecos. Based on the archeological record of the preceding centuries, the basic lifeway seen by the Spanish when they entered the region was little different from that of the later prehistoric peoples (Salinas 1990). There is little evidence of Archaic and earlier occupations in the Rio Grande delta probably because earlier evidence has been deeply buried by flood deposits or destroyed by hurricanes.

The Rio Grande delta of today bears scarce resemblance to its appearance prior to the twentieth century. The great river has been reduced to a trickle by upstream dams and heavy agricultural demand. The fertile soils and mix of marsh, waterways, and raised areas have been homogenized—the smaller waterways filled in, the clay dunes flattened, and the area covered by expanses of agricultural fields, orchards, and urban areas. The majority of the archeological record has been destroyed, particularly the most fragile and most visible materials that were once common on and near the surface. The once untouched region of coastal northeastern Tamaulipas is rapidly being developed as the borderlands population grows.

The Late Prehistoric indigenous peoples of the Rio Grande Delta were seasonal logistical hunters, fishers, shellfish collectors, and plant gatherers as the seasons, tides, and food supplies dictated (Hester 1976; Ricklis and Cox 1998). They lived in a semi-arid, semi-tropical environment

and camped on small rises (usually clay dunes) along the many bays, lagoons, oxbow lakes, and estuaries (Anderson 1932, n.d.). From these waterways, they harvested shellfish and fish for food and seashells as raw material. The Rio Grande delta is almost devoid of natural stone—instead it is built of mud carried down the river by floods and sand pushed up from the Gulf of Mexico by hurricanes and strong currents. Having no naturally occurring chert, the Brownsville-Barril people used seashells to fashion an amazing variety of shell tools and ornaments including projectile points shaped from conch shell, carved conch shell pendants, olive shell tinklers/bells, freshwater and marine shell beads, and other tool forms (Chandler and Kumpe 1992, 1993; Chandler and Kumpe 1995; T. R. Hester 1969; Hester 1978; Hester 1995).

These shell artifacts were traded to more settled peoples further to the south in northeastern Mexico along the periphery of Mesoamerica (Ekholm 1944; Hester 1988, 1994). In exchange, the Brownsville peoples received flint and exotic items including pottery (see Figure 2), jade, and obsidian that are rarely found in Texas beyond the Rio Grande Delta (Wagner and Valdez 2000). In fact, this is one of the most interesting archaeological questions about the area: What was the nature of trade and contact between these nomadic delta peoples and the Mesoamerican cultures to the south?

The people of the Rio Grande delta were also distinctive in the manner in which they buried their dead. Individuals were often buried in tightly flexed or occasionally in extended positions, and graves were located away from living areas. The deceased was accompanied by offerings such as shell beads and pendants, animal and human bone awls, and bone beads or tubes used as jewelry. With some burials, red ochre was strewn over the burial. Others included the aforementioned Mesoamerican trade goods such as prehistoric Huastec pottery vessels from the Tampico, Mexico region, obsidian arrow points from sources in central Mexico, and greenstone jewelry, also from Mexico (Hester 1969a & b; Hester et al. 1991; Hester and Rogers 1971; Hester and Rueckling 1969).

The A. E. Anderson Collection

The A. E. Anderson notes, maps, and artifact collection is the single most important resource of regional data presently available for continued research on the Brownsville and Barril complexes. From 1808 to 1841, A.E. Anderson, an engineering draftsman in Brownsville, Texas, collected approximately 2,500 artifacts and recorded approximately 400 prehistoric site localities. The work of this advocational archaeologist eventually resulted in an extensive collection catalog, notes, and a drafted map of the sites observed in the U.S., in addition to a brief article (Anderson 1932).

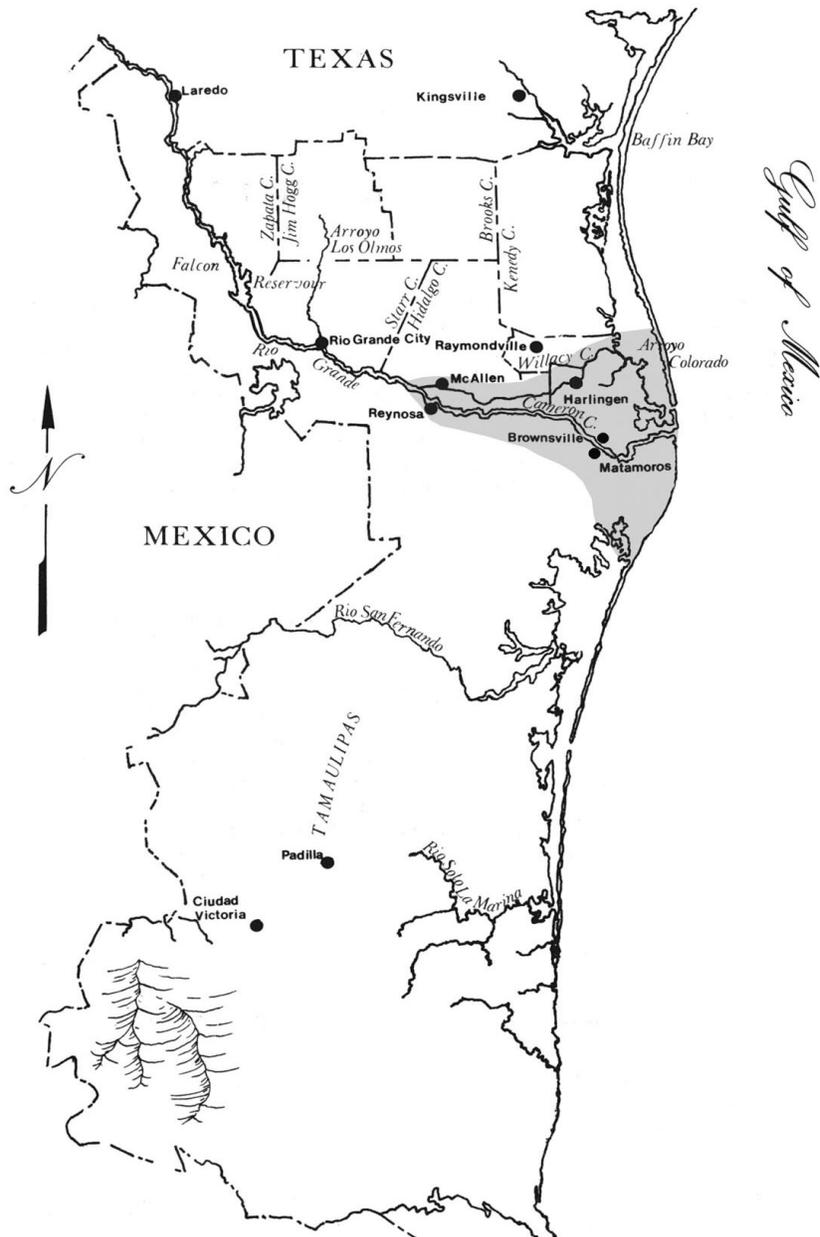


Figure 1. Regional map of the Brownsville- Barril Complexes of South Texas and Northeast Tamaulipas, shaded area represents study area (adapted from Mallouf, Baskin, and Killen 1977)

Cultural Definitions

E. B. Sayles introduced the concept of a late prehistoric cultural component to the delta region, and recognized two distinct artifact assemblages- the Coahuilecan Branch and the Brownsville Phase (Sayles 1935). In the 1940's, Richard MacNeish reviewed the Anderson collection, revisited 14 of Anderson's sites, and gave a cursory look at 400 more (MacNeish 1958). MacNeish defined the Brownsville (MacNeish 1947) and later, (MacNeish 1958), Barril Complexes based on material culture remains, excavating at an additional 10 sites in Tamaulipas. MacNeish proposed a list of material cultural traits for the Brownsville and Barril cultures that has persisted with revisions including new data from surveys and some excavation. The primary difference between the two groups is the presence of shell arrow points made from columella spires in the Barril region and small triangular arrowpoints and stone and/or clay pipes in the Brownsville region (Jackson 1940; MacNeish 1958).

Mortuary Patterns

Anderson's field notes, early newspaper accounts, and salvage archaeology operations have initially defined the mortuary behavior of the Brownsville and Barril cultures. Anderson readily distinguished two types of burials- one being "body burials," or primary inhumations, and "bone burials," (secondary or bundle burials) (Anderson n.d.). As for placement of the burials, Anderson suggested that lone burials were the predominate custom. "...(T)he point of a hill commanding a good view seems to have been desirable" as well as the banks of old river channels or resacas, as they are called in the Rio Grande Valley (Anderson *ibid.*). He described the items recovered from the burials only in general terms: "Shell, stone, and occasionally bone [tempered] pottery and asphalt are the lasting materials encountered in the graves. Ornaments are more likely to be found in a child's grave than an adult's." (Anderson, *ibid.*)(Figure 2).

The Hidalgo-Cameron County Boundary Cemetery Site and the Rio Hondo Cemetery Sites were both noted in local newspaper accounts. Both sites were uncovered during landscape modifications and were not visited by archaeologists. The Floyd Morris and Ayala cemeteries, located in Cameron and Hidalgo counties, respectively, were salvaged by University of Texas archaeology students. Hester (Hester and Rueckling 1969) aptly summarized the resulting data, proposing a list of mortuary traits. Subsequent salvage archaeology projects have verified this list and added one or two more traits. Hester and others have subsequently noted the need for more excavation data as well as a synthesis of the known mortuary data (Collins, et al. 1969; Day 1981; Day, et al. 1981; Hall, et al. 1987; Hester 1969; Hester and Rogers 1971; Prewitt 1974).

Site Typologies

The data presented by the salvage work of the Floyd Morris and Ayala cemeteries spurred the Texas Historical Commission to send Elton Prewitt to Cameron County to conduct an archaeological survey of the county. From March through May of 1970, Prewitt recorded 79 archaeological sites, having relocated many of Anderson's sites as well as recording a few new sites. The survey was primarily restricted to coastal zone of Cameron County. Prewitt's work confirms Anderson's observations and created a typology of five site types for the region based on microenvironments. This typology was tested, further modified with ground surveys and aerial photograph interpretation (Day 1981; Day, et al. 1981; Hall, et al. 1987), and proven to be very useful in all following archaeological contract projects in the region (Bousman, et al. 1990; Day 1981; Day, et al. 1981; Hester 1976; Kibler 2001). Bousman and Kibler, in addition to Hester, have proposed initial hunter-gatherer models with an emphasis on ecological adaptation and seasonality. All have acknowledged the need for further research and data before the proposed models could be adequately tested.

In 1983 and 1984, Martin Salinas studied the Anderson Collection and notes, as well as revisiting several of Anderson's recorded sites. While much of this research was not included in his excellent thesis on the ethnohistory of the delta, some of his notes are on file (Salinas 1986; Salinas 1990; Salinas n.d.). Two maps compiled by Salinas based on his research are the only maps of the known archaeological sites in the northeastern coastal Tamaulipas region (Salinas n.d.). Salinas has been one of the few researchers to consider both the Brownsville and Barril cultures when looking at the Late Prehistoric region. All other modern research has been confined to the U.S. due to contract and/or time constraints.

Ongoing Research

To date, no full examination of the crucial Anderson Collection exists. My current dissertation research involves the examination and analysis of the Anderson Collection artifacts, notes, and maps. A full record of all of the 2,500-plus artifacts is being created so that subsequent researchers will have a robust database from which to work, as the Anderson Collection is vast and not easily accessible without investing a considerable amount of time and preparation. Added to this will be the documentation and analysis of two large private collections of artifacts from the region by avocational archaeologists. Specific attention in the collection analysis is being paid to the shell artifacts. It has been suggested that the Brownsville and Barril Cultures were producing shell artifacts for trade to obtain resources and goods not readily available to them in their coastal adaptation. Prewitt has suggested that the size of the



Figure 2. Huastec black- on- white ceramic bowl found by A.E. Anderson in the Brownsville region.

shell remains at site 41CF8 in Cameron County may be evidence of a shell production area (Prewitt 1974, see also Meadows 1997).

Hester suggested that the people of the Brownsville complex may have produced shell artifacts for trade, engaging in an exchange networks with Huastecan peoples to the immediate south (Hester 1995). Past research into the notion of shell artifact production, specialization, and exchange cautions against the identification of shell production areas by volume alone: “Before inferring that on-site bead making occurred, analysts should be able to find a complete assemblage of materials, including all of the following: unambiguous bead banks (the first recognizable stage of production; see below), beads-in-production, certain kinds of detritus, finished beads, and drilling tools” (Arnold and Graesch 2001). Arnold and Graesch emphasize that there should be a consistent quantitative ratio in number between the aforementioned assemblage to argue for independent specialization as defined by various authors in the literature (Arnold 1987, 1992); Brumfiel and Earle 1987; Costin 1991). Given that microdrills have been documented (Chandler and Kumpe 1993; Meadows 1997) and that detritus not collected by Anderson from archaeological sites has been recovered (Don Kumpe, personal communication, 1999, 2001), the initial suggestions put forth by Hester and Prewitt need further study. By determining each archaeological site’s artifact assemblage from the combined data obtained from the analysis of the Anderson and private collections, the idea of shell bead production in the region can be addressed.

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Mano a mano: grinding implements from Colha, Belize

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The site of Colha lies in northern Belize within the rich wetland swamp margin of Cobweb swamp. The land is some of the most fertile and agriculturally favorable in the region. Colha is also within the large chert-bearing zone extending over a large portion of northern Belize, and encompassing the sites of Colha, Altun Ha, Kichpanha, and Sand Hill (Tobey, Shafer, and Hester 1994: 269). The rich geological and agricultural resources of the Colha area may have provided an appropriate setting for some of the earliest experimentation in cultivation, intensive production and settlement in the region (Iceland et al. 1995: 15)(Figure 1).

The earliest evidence of plant domestication in the Maya Lowland region of northern Belize may go back as far as 3400 B.C.. This was followed by a period of deforestation by 2500 B.C., most likely due to land clearance for maize agriculture (Poul et al. 1996: 363-365). There are several radiocarbon dates from the Cobweb swamp in the area of Colha spanning from approximately 3000-2000 B.C., which are associated with evidence of cultivation, forest clearance, and with distinctive chipped stone artifacts (Iceland et al. 1995: 11). This most likely represents the earliest intensification of settlement, land use, and production at Colha. There is a second, later, preceramic occupation known from the Late Archaic period of Colha dated from approximately 1500 B.C. to perhaps as late as 800 B.C., which is associated with a specific artifact type called a constricted uniface (Iceland et al. 1995: 11-13). This type of uniface was probably used for cutting wood and in association with environmental evidence of changing forest composition may indicate increasing agricultural intensification (Poul et al. 1996: 365-366).

The first recognizably Maya settlement in the area appears some time in the Early Middle Preclassic (Shafer 1994: 26). Colha was a relatively small Preclassic village, but it soon began to exploit local chert resources for trade purposes. By the Middle Preclassic (ca. 1000-250 B.C.), Colha was already producing specialized chert implements, probably at a small scale, but no formal workshop sites have been recovered from a Middle Preclassic context (Hester and Shafer 1989: 3; Shafer 1994: 26). By the Late Preclassic (ca. 250 B.C.- A.D. 250), Colha had become a major production center of chipped stone implements. Colha achieved a level of production and exportation unrivaled by any other known production site in the region (Shafer 1994: 27). The Late Preclassic lithic production workshops of Colha may have continued to produce chert implements in the Protoclassic and as late as the Early Classic although production would have been comparatively limited (Hester and Shafer 1989: 3).

In the Late Classic period (ca. A.D. 600-800), lithic workshops were increasingly numerous throughout northern Belize. Several clustered workshops are thought to have been associated with the site of Altun Ha. Production of unique chert implements continued at Colha, however, until its abandonment sometime after the Terminal Classic period (Hester and Shafer 1989: 15). Colha was once again occupied during the Early and Middle Postclassic periods and once again engaged in lithic tool production (Hester and Shafer 1989:15). With the arrival of the bow and arrow to the Maya Lowlands (ca. A.D. 1300), the need for massive quantities of large chert implements decreased. It is at this time that production of chipped stone items ceased at Colha and the site was permanently abandoned.

Analysis of materials

The current study assesses a portion of the assemblage of ground stone artifacts from Colha, Belize. The ground stone artifacts from Colha consist mainly of milling implements (manos and metates). This paper examines the hand-stones (manos) from various operations (1002, 2003, 2008, 2011, 2025, 2026, 2031, 3017) in Colha as well as two mano-like artifacts. The mano sub-assemblage contains 25 specimens, mostly fragmentary.

Analytical techniques

All manos were measured in several dimensions as was possible. In certain instances, some measurements could not be taken because of extreme curvature or breakage. All measurements taken are described in the tables for the each artifact and category. To be conservative, estimations of the actual dimensions of fragmentary materials were not attempted because estimations must assume symmetry. The facets (working surfaces) were measured using a flexible rule when feasible and described otherwise. The radii of the transverse curvatures were measured using a formagauge and a perimeter template. Radii were only recorded when they were less than 15cm. Measurements of longer radii were not carried out because the curvature is too slight and therefore accuracy is drastically reduced (Clark 1988: 97). For this same reason, longitudinal curvatures were not measured. Very few artifacts had curvatures which could be measured with any degree of accuracy and therefore, the longitudinal curvatures would not be comparatively useful. All dimensional measurements were made in centimeters and all weights were in grams.

The manos were grouped by raw material using common rock types and further description of material properties. Where possible, geological sources were postulated based on existing source studies. This analysis tries to distinguish manufacture with local and non-local raw materials (see Table 1).



Figure 1. Map of Maya region with inset of northern Belize chert bearing zone

Where possible, the probable method of use of the manos was discussed. This includes the form of the metate on which the manos were used. The distinction made is whether a mano was used on an unrestricted (flat surface) metate, or a restricted (basin) metate. Further, some of the manos are differentiated as either one-handed or two-handed use manos. Possible reuse is also discussed where applicable.

Typology

The typological system used in this analysis attempts to emphasize form. The materials were placed in categories according to their longitudinal cross-section and further divided into sub-categories by transverse cross-section using the templates provided by Clark in his study of lithic tools from Chiapas, Mexico (1988: 98-99). In some cases, the materials were too small to accurately describe the form in one or both cross-sections. These materials are treated together at the end of this analysis.

Discussion

The mano sub-assemblage in the study consists of 25 artifacts from eight operations and many different lots. Since the mano sub-assemblage is so small and most categories of manos are derived from several different operations, spatial and temporal form changes cannot accurately be examined. An examination of the forms and raw materials of the manos, however, may prove useful in

determining how and what sorts of local and non-local resources were being exploited.

Of the 25 manos and mano fragments included in the study, eight are made from basalt. Further, this group can be divided into two types of basalt; dense, non-vesicular basalt and a more porous, vesicular basalt. Modern ethnographic studies in the Chiapas, Mexico and in the highlands of Guatemala show that basalt is a highly prized material for metate and mano manufacture because of its hardness and because it incorporates relatively few grains into maize dough (Clark 1988: 83-84; Hayden 1987: 13-15). Modern metate users recognize various kinds of basalt as well. Dense basalt with few vesicles is said to last longer, require sharpening less often, and incorporate fewer grains into food. Historically, manos and metates made from the densest basalt have been more expensive because they are considerably more difficult to produce (Hayden 1987: 14-15). Sidrys, in a study of ground stone artifacts from northern Belize, defined three local and regional geological zones where common materials for ground stone manufacture are found. The location nearest northern Belize where basalt can be found is in the most distant zone, the volcanic region of southern Guatemala and northern Honduras (Sidrys 1983: 296).

There is a single mano fragment made from a coarse pink granite. Granite can be found in the second most distant geological zone in the Maya Mountains approximately 150km away (Sidrys 1983: 296).

Provenience	Material	Grain	Portion	Weight	Category/Sub-cat.	Use
1002/10 2	Chert	cryptocrystalline	end	380.08	Oval/Oval-symmetrical	not inferred
2003/S	Vesicular Basalt	fine/large vesicles	whole	316.98	Rectangular/Trapezoidal	one-handed, unrestricted
2003/18 F1	Limestone	fine	end	1166.4	Trapezoidal/Wedge-shaped	two-handed, st. restricted
2003/22 3	Quartzite	medium	medial	394.63	Incomplete	two-handed
2003/100	Vesicular Basalt	fine/large vesicles	whole	392.39	Rectangular/Rectangular	one-handed, unrestricted
2008/1 1	Chert	cryptocrystalline	end	698.99	Oval/Oval-symmetrical	two-handed, restricted
2008/1 1	Basalt	fine/no vesicles	end	480.84	Lenticular/ Oval-symmetrical	two-handed, restricted
2008/14 1	Granite	very coarse	end	686.39	Lenticular/Lenticular	two-handed, restricted
2008/15 1	Chert	cryptocrystalline	medial	900.63	Incomplete/Incomplete	not inferred
2011/4 1	Basalt	fine/few vesicles	end	407.68	Lenticular/Plano-convex	two-handed, unrestricted
2025/4 2	Chert	cryptocrystalline	end	683.95	Oval/Oval-symmetrical	two-handed, restricted
2025/4 4	Limestone	fine	medial	407.91	Incomplete	not inferred
2025/10 2	Schist	medium	end	446.19	Lenticular/Plano-convex bordered	two-handed, unrestricted
2025/18 3	Vesicular Basalt	medium/small vesicles	end	477.18	Rectangular/Triangular	one-handed, unrestricted
2026/6 7	Quartzite	coarse	medial	243.96	Incomplete	not inferred
2031/5 90	Chert	cryptocrystalline	whole	286.45	Spherical	not inferred
2031/5 161	Chert	cryptocrystalline	end	936.84	Oval/Oval-symmetrical	two-handed, restricted
2031/5 183	Quartzite	medium	end	394.97	Lenticular/Plano-convex bordered	two-handed, st. restricted
*2031/6 197	Vesicular Basalt	medium	medial	715.57	Incomplete/Oval-symmetrical	two-handed
*2031/7 141A	Vesicular Basalt	medium	end	325.24	Incomplete/Oval-symmetrical	two-handed
2031/7 108	Quartzite	medium	end	803.92	Elliptical-symmetrical/Oval-asymmetrical	two-handed, restricted
2031/7 180	Basalt	fine/no vesicles	end	476.69	Rectangular/Plano-convex bordered	two-handed, unrestricted
2031/7 182	Chert	cryptocrystalline	medial	730.13	Incomplete	two-handed
3017/6 2-3	Chert	cryptocrystalline	end	1192	Elliptical-symmetrical/Oval-symmetrical	two-handed
3017/6 7-2	Chert	cryptocrystalline	whole	608.03	Spherical	not inferred

Table 1. General information and categories - all weights are in grams

** These are two parts of the same mano.

Furthermore, from this same zone there is a single schist mano fragment and four quartzite mano fragments.

Granite, schist, and quartzite are all relatively hard materials, which are very good for manufacturing grinding implements.

The mano sub-assembly contains two manos made from limestone. The limestone used for the grinding implements is very dense and hard. This type of limestone is best for mano and metate manufacturing because it does not wear as fast as softer limestones (Willey 1972: 106). Limestone of varying hardness is found through out the local northern Belize region (Sidrys 1983: 296). The final raw material used is local chert found in the chert-bearing zone in which Colha lies. Chert is rarely used to manufacture milling implements, but is seen elsewhere. Two metates and four manos of chert from the site of Cuello and a single chert mano from the site of Chan Chich have been recovered (Hammond 1991: 189; Glaab

and Valdez 2000: 121). There are a total of seven chert mano fragments and two chert mano-like spheres from the Colha mano sub-assembly.

Mano form results from both manufacture and use. Ethnographic studies have shown that both form and raw material for a given production area tend to remain constant (Clark 1988: 95). It is problematic, however, to make generalizations on such a small sub-assembly. Instead, the approach taken in this study was to differentiate the forms of local and non-local manos. Form should generally follow location. The main consideration is the longitudinal axis since the grinding surfaces, and therefore, transverse cross-sections are shaped more by use than manufacture.

Of the chert manos and mano fragments large enough to categorize, excluding the spheroid mano-like artifacts, all were oval or elliptical-symmetrical in longitudinal cross-section and all were oval-symmetrical

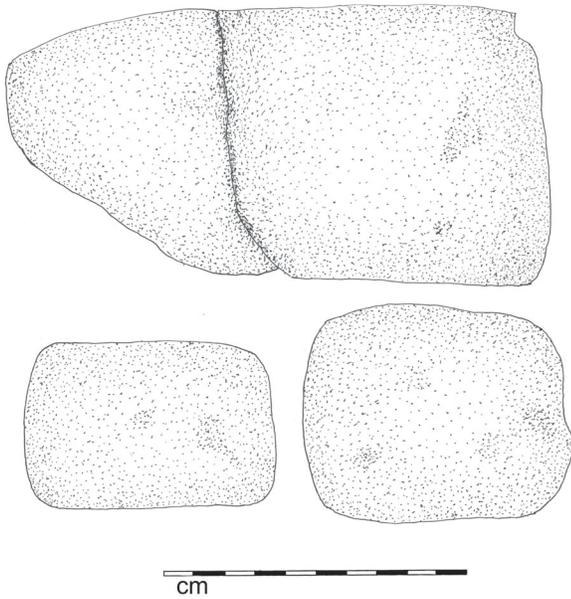


Figure 2. . Basalt manos (2031/7-141A, 2031/6-197) and (2003/100, 2003/S)

shaped in transverse cross-section. Both of these shapes are unique to this artifact. All non-local manos able to be categorized are either lenticular or rectangular in longitudinal cross-section with the exception of one elliptical-symmetrical quartzite mano. The non-local manos are very similar in that a majority have truncated ends. This may be a function of their transport. Squaring-off the ends of the manos reduces the total weight by eliminating unnecessary material. A larger sample size would be needed to further address this possibility, however.

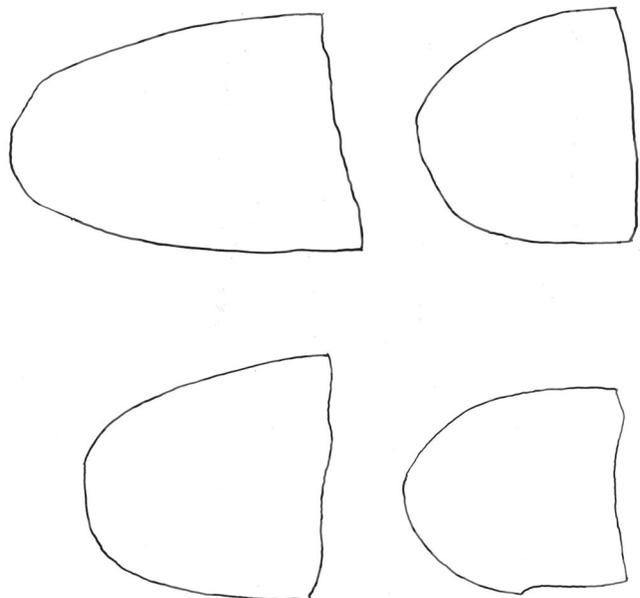
Patterns of reuse can be very informative in considering the comparative values of raw materials. No locally made manos show any signs of reuse as grinding implements. There is, however, some evidence of other reuse. The two spheroid mano-like artifacts (2031/5-90, 3017/67-2) may have been manos at one point before they were reused as hammer-stones. One other chert mano (2031/5-161) exhibits signs of bashing on one end possibly due to percussion. The patterns of reuse of non-local manos are more difficult to directly determine. Some possibilities, however, can be seen from the forms of the materials themselves. Three of the four vesicular basalt manos (2003/100, 2003/S, 2025/18-3) are extremely small and extremely worn compared to the rest of the mano sub-assembly. These are the only manos in the collection defined as one-handed manos. Considering the distance the basalt manos must have traveled, and their quality as

maize grinding implements, it is unlikely that such small manos would be imported from so far outside of the region. These manos may have been reduced from larger vesicular basalt manos similar to the remaining, two-handed vesicular basalt mano (2031/7-141A, 2031/6-197) (see Figures 2 & 3). More specific research on mano raw materials and reuse patterns will be necessary for this issue to be more fully developed.

Concluding remarks

This analysis has introduced several possibilities for future research. In addition to the previously discussed questions, an examination of the Colha metate sub-assembly may be able to expanded data on raw material import and use and the relative importance of different materials. This may also permit an examination of spatial and temporal variability of milling implements. Finally, an examination of the rate of attrition and use life of chert grinding implements would allow useful comparisons with other materials. These possible ground stone studies have the potential to increase knowledge of mano and metate use and manufacture, as well as to better define trade relations and agriculture in the Colha region.

Figure 3. Chert manos from various operations Colha, Belize



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