

**Preliminary Report of the 2004 Field Season  
at Lamanai, Belize:  
The Maya Archaeometallurgy Project  
and  
Lamanai Archaeological Project Field School**

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## Abstract

The following is a preliminary report of the 2004 Field Seasons at Lamanai, Belize by the Maya Archaeometallurgy Project and Lamanai Archaeological Project Field School. The theoretical background of the Maya Archaeometallurgy Project (MAP) is presented in summary form, along with a more detailed discussion of the methods and results of archaeological investigations in the Terminal Postclassic-Spanish Colonial Period occupation zone at Lamanai. Archaeological research on the nature of Maya metallurgy was conducted as part of a continuing program aimed at educating college students in archaeological field methods at the site of Lamanai. This report summarizes the findings from archaeological excavations at Str. N11-27, a small structure located north of two principal Terminal Postclassic-Spanish Colonial Period structures at Lamanai: N11-3 and N11-18. It is likely that Str. N11-18 represents the residence of Lamanai's *cacique*, or Spanish Colonial Period native authority. Str. N11-27 may represent an outbuilding of sorts for the residents of Str. N11-18.

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## Introduction

This report presents the results of archaeological research in 2004 at the Maya site of Lamanai, located in the Orange Walk District of Belize (Figure 1). This field season comprises the fourth season of the Maya Archaeometallurgy Project (MAP), a research program initiated in 1999.

The 2004 field season was sponsored by the University of North Carolina at Wilmington and operated under a permit issued by the Belize Department of Archaeology to Drs. Elizabeth A. Graham and Scott E. Simmons. The 2004 archaeology program lasted a total of six weeks. During this time a four-week archaeological field school session was held between June 10 and July 8, 2004. A total of fourteen students from various US universities were enrolled in the archaeology field school at Lamanai. Dr. Scott E. Simmons and Ms. Laura Howard served as Co-Directors of the 2004 field school in archaeology at Lamanai.

The field schools at Lamanai have been directed by Dr. Elizabeth Graham from 1998 to 2000 and by Dr. Scott Simmons from 2001 to 2004. Under the direction of Dr. Simmons the field schools in archaeology at Lamanai have been part of a larger research program known as the Maya Archaeometallurgy Project (MAP). The MAP is a research program focused on studying the specialized production of copper and bronze objects in the Maya Lowland area during Postclassic and Spanish Colonial times. Since its inception in 1999 a central goal of this project has been to understand the relationships that existed between copper production and socioeconomic differentiation and interdependence among the Maya (Simmons 1999; Simmons and Howard 2003). A larger goal for the research project is to provide insights into the relationships that existed between craft production, socioeconomic integration, and cultural evolution in state-level societies.

The research conducted by Drs. Graham and Simmons builds on twelve years of archaeological research directed by Dr. David M. Pendergast, Curator Emeritus of the Royal Ontario Museum (ROM), between 1974 and 1986. During the course of this large-scale, ambitious project, Dr. Pendergast and his associates succeeded in defining the site's chronology, settlement characteristics and range of material culture types and architectural features (Pendergast 1981, 1984, 1986a, 1986b, 1990, 1991). This important research project documented the long duration of Maya occupation at Lamanai. Maize pollen recovered in sediments in the area known as "the Harbour" indicates that the first Maya peoples settled at Lamanai by roughly 1500 BC (Pendergast 1991:338).

The results of archaeological research revealed a long, unbroken sequence of Maya occupation at Lamanai through Preclassic and Classic times (Pendergast 1981). Excavations in the vicinity of the project camp also revealed that Lamanai survived the demographic and sociopolitical collapse that occurred at so many other major Maya sites in the Southern Lowland area during the ninth century AD. Dating of several prominent



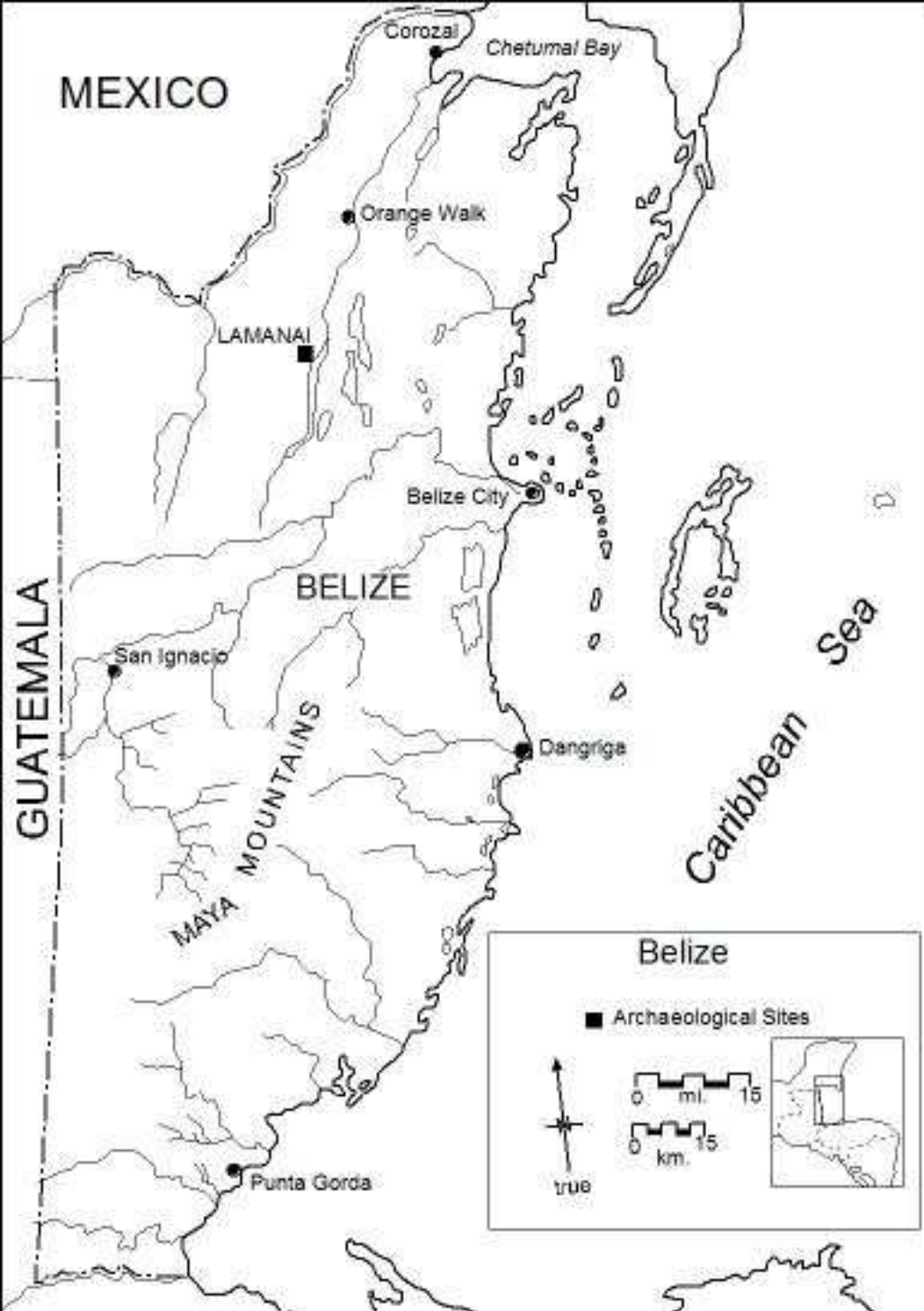


Figure 1  
Belize and the location of Lamanai

structures near the lagoon indicated that not only did Lamanai continue to be occupied beyond this period of major cultural transformations, but in a great many regards life at the site during Postclassic times was as vibrant and dynamic as it had ever been (Pendergast 1986b, 1990).

The work of Dr. Pendergast at Lamanai has encouraged further investigations at the site in recent years in a variety of research areas, including household archaeology, ceramic analyses, symbolic flaked lithic tools and, as mentioned above, archaeometallurgy (Simmons 1999, 2004; Simmons and Howard 2003). Research conducted since 1997 by Dr. Elizabeth Graham has focused on investigations in both Classic Period and Late Postclassic Period areas of the site (Graham 2004).

Lamanai was the focus of concentrated, yet intermittent, Spanish involvement beginning in the first half of the sixteenth century (Graham et al. 1989; Jones 1989, 1998; Pendergast 1986a). Following Spanish withdrawal from Belize in the eighteenth century, British interest in Lamanai revolved around an ill-fated millworks for sugarcane processing during the last quarter of the nineteenth century. Had the sugarcane operation been a successful enterprise, Lamanai may have been occupied for even longer. As it stands now, Lamanai bears the distinction of being the longest continuously occupied site in the Maya Lowland area.

During the latter part of the Royal Ontario Museum's project at Lamanai, the Spanish Colonial Period site center became a prominent focus of research, particularly the area around the two Spanish churches for which the nearby village of Indian Church is named. A variety of copper artifacts had already been recovered in the area of Early and Middle Postclassic occupation, located north of the Spanish churches. Elaborate copper-tin and copper-arsenic bronze wirework bells, filigree finger rings, buttons, and ornaments were recovered, almost exclusively from burial contexts, in Structures N10-2 and N10-4 (Pendergast 1981, 1986b; Simmons, Pendergast and Graham n.d.).

These copper objects had begun to arrive at Lamanai by the twelfth century, primarily from sources in West Mexico (Hosler 1994). Metal artifacts appear at Lamanai in considerable quantity in both the Middle Postclassic period and the years of the Terminal Postclassic and early Spanish Colonial periods. The two eras of major occurrence were separated by a hiatus of nearly two centuries in which metal objects seem to have disappeared almost entirely from Lamanai's artifact inventory, and at the same time seem to have assumed an at least partially different meaning in the community's life (Simmons, Pendergast and Graham n.d.).

The research conducted during the field school in archaeology at Lamanai during 2004 has contributed much information toward our understanding of the nature of Maya metallurgy. Future research at Lamanai is also expected to provide further insights into this largely unknown Maya technology and the role it played in the political economy of the site in Terminal Postclassic and Spanish Colonial times.

## Theoretical Foundations and Research Goals for the MAP

The relationships between economic organization and social evolution have fascinated anthropologists for some time. Production is an essential part of all economic systems, and the study of this particular aspect of economic organization can reveal much about the nature of ancient as well as modern social and political complexity. Specialization, defined by Wilk (1996:60) as “the ability to produce more efficiently by dividing labor among individuals or groups,” is considered by many researchers to be an integral part of the political economy of complex societies (Brumfiel and Earle 1987; Clark and Parry 1990; Earle 1987; Costin 1991; Costin and Hagstrum 1995; Peregrine 1991; Stein and Blackman 1993).

The interrelated development of economic specialization and socioeconomic complexity is well documented in both the Old and the New Worlds (Childe 1951; Sanders and Webster 1988; Wattenmaker 1998). As Webster et al. (1993:288) have noted, “patterns of economic specialization, if reconstructed properly, provide effective barometers of cultural evolution.” Understanding patterns of cultural evolution in human societies has been a concern for anthropologists for over a century (Fried 1967; Morgan 1877; Pfeiffer 1977; Service 1971, 1975; Steward 1951, 1955). By studying the relationships that existed between craft production and the maintenance of socioeconomic complexity at Lamanai, the proposed research will contribute to our understanding of how human societies adapted to changing social, political and economic conditions and why this process of evolution occurred.

An important goal of this research project is to examine current theoretical models focusing on the relationships between craft specialization and socioeconomic complexity. Data derived during the course of the Maya Archaeometallurgy Project at Lamanai are being used to examine four specific organizational parameters of craft specialization, described as 1) the *intensity* of production, 2) the *constitution* of the production unit, 3) the *concentration* of production, and 4) the *context* of production (Costin 1991:8-9; Costin and Hagstrum 1995:620). During up-coming field seasons research will continue on our immediate focus of examining evidence related to the last parameter of specialization, which refers to the nature of control over production and distribution (Costin 1991:8).

Brumfiel and Earle (1987:1) have noted that most discussions of craft specialization, exchange and social complexity have centered on three models: a "commercial development" model, an "adaptationist" model, and a "political" model. The last model is concerned with the political economy, whereby elites control key aspects of the economy, especially exchange mechanisms and craft specialization, in an effort to create and maintain their power base (McAnany 1989:358). Finely crafted and exotic goods, particularly sumptuary objects associated with divine power, are seen as essential to ruling authority (Brumfiel 1987; DeMarrais et al. 1996; Helms 1979, 1993).

Following the political model of craft specialization (Brumfiel and Earle 1987:1; Earle 2002), attached specialization arises when elites exert considerable control over the production of certain craft items. Attached specialists produce high-value wealth objects,

often from rare or exotic materials, for the exclusive use and benefit of their elite patrons or sponsors. Control of productive activities has been cited as a means by which elites could legitimate their power, authority and connections to supernatural deities (Brumfiel 1987; Costin 1991; Earle 1987). Close spatial proximity of specialist household structures and/or production areas to elite residential or administrative areas is seen as an archaeological indicator of attached specialization (Brumfiel and Earle 1987:5; Costin 1991:25; Earle 1987:72). Additionally, the distributions of high-value wealth goods throughout site areas should be limited, as research at other Maya centers, such as Palenque (Rands and Bishop 1980:43), Copán (Webster et al. 1993:353) and Tikal (Moholy-Nagy 1997:308), has shown.

We want to know what role specialized crafting, in this case the production of copper objects, played in the political economy of Lamanai during Terminal Postclassic and early Spanish Colonial times. Ultimately, we will be examining Earle's (2002:1) assertion that the political economy is "channeled to create wealth and finance institutions of rule" in light of the data we obtain about the nature of copper metallurgy at Lamanai. Did powerful individuals in the community control or oversee the work of craftspeople engaged in this new productive activity as a way to create wealth for themselves and legitimate their rule? The identification and investigation of copper workshop remains believed to be located in the immediate vicinity of the residence one of the most powerful individuals in Lamanai's late precolumbian community would provide key insights into this particular question.

The area of the site in the immediate vicinity of the two Spanish churches has produced compelling evidence of Postclassic and Spanish Colonial Period elite occupation, both in the forms of architectural remains and burials. A number of the latter have yielded status artifacts including bells, tweezers, buttons, rings and other copper alloyed ornaments. In terms of copper production activities, all of the mis-cast pieces, prills, production failures and pieces of scrap sheet copper, as well as three ingots, have been found in this particular area of the site. Understanding the associations between copper production materials, elite residential remains, and elite status objects of copper and alloyed copper (bronze) is an important, on-going research focus of the MAP. It is hoped that archaeological information on these will help provide a better understanding of how Maya political and economic realms intersected in late precolumbian and early Spanish Colonial times.

A broader goal of the Maya Archaeometallurgy Project at Lamanai is to provide some insights into several questions regarding the relationships between craft specialization and socioeconomic complexity. First, did control over the production of some exotic, finely crafted goods provide a means by which elite members of complex societies could maintain a certain degree of economic power and social status following periods of intense social, political and economic instability? One such period in Mesoamerica, known as the Classic Maya "collapse," witnessed profound transformations in various elements of Maya society during the centuries after around AD 900. In the Southern Lowlands, chief among these changes was widespread demographic shifts away from Maya centers and the attendant decline in power of the elite class.

In sharp contrast, archaeological evidence obtained during excavations conducted at Lamanai indicates that the site was not abandoned after AD 900. Moreover, it is clear that elites living at Lamanai in Postclassic times still retained a certain degree of power and status (Pendergast 1981, 1986b, 1991, 1993). As a result, Lamanai provides an excellent venue for the study of specialized craft production and the role it played in the maintenance of social, economic and political complexity following periods of great instability and stress in state-level societies.

To summarize, the main goals of the Maya Archaeometallurgy Project at Lamanai are to:

- Determine how metal production was organized through time. We're particularly interested in the *context* of production, and especially in determining whether copper metalsmiths worked independently, were attached to local elites or worked within some other kinds of productive contexts
- Understand the specific nature of productive activities, such as the creation of molds, smelting, casting, and annealing techniques, and recycling behavior
- Examine current models that focus on the relationships between craft production, political economies and socioeconomic complexity and contribute to the discourse on these topics through the research of the MAP

Since V. Gordon Childe's research into the nature of specialized copper production and the role that metallurgy played in the development of complex societies in Europe a number of such studies have continued in various regions of the Old World (Al-Saa'd 2000; Brown 1995; Bronson 1996; Chapman 1996; Childe 1936, 1942, 1951, 1958; Earle 2002; Levy and Shalev 1989; Rothenberg and Blanco-Freeijeiro 1981; Sheehan 1999; White and Piggott 1996). In contrast, research on copper metallurgy in the New World has focused almost exclusively on areas in West Mexico (Hosler 1985, 1986, 1994, 1995; Pollard 1987) and South America (Donnan 1973; Graffam et al. 1994, 1996; Hosler 1994; Lechtman 1985; Shimada 1994) and the relationships between the two areas.

A prominent gap exists in our knowledge of metalworking and its role in the production and maintenance of social and economic complexity in the Maya Lowland area. Data derived during the course of the Maya Archaeometallurgy Project will be used to address issues regarding the relationships between craft production, political economies, and cultural evolution.

#### Maya Metallurgy – Summary Overview of the Current State of Knowledge

Copper metallurgy began in the Great Lakes region of North America by around 4,000 years ago, and in the Andean region by 3500 years ago. In lower Central America, metallurgy began by around AD 200-300, but it wasn't until roughly 400 years later that the technology was introduced into Mesoamerica. By AD 800 copper metallurgy was flourishing in West Mexico (Hosler 1994:12). It was the metallurgical technology that developed in West Mexico, in the states of Jalisco, Nayarit, Guerrero, Michoacan, and Mexico, that spread to other regions of Mesoamerica, including the Maya Lowlands, in

Late Postclassic times. Native copper deposits are not found in appreciable quantities within the Maya Area. Copper artifacts, and later the technology needed to produce them, were imported from areas within West Mexico and Lower Central America to the Maya Lowlands.

Metallurgy appeared relatively late in precolumbian Mesoamerica (Hosler 1986, 1994, 1995; Lechtman 1985), and copper objects did not begin arriving at Maya Lowland sites until very late in precolumbian times (Bray 1977; Hosler 1986, 1994; Pendergast 1962; West 1994). The Maya site of Lamanai, Belize has yielded more copper and copper alloyed artifacts from controlled archaeological excavations than any other Lowland Maya site (Pendergast 1990; Simmons and Pendergast n.d.). A total of 168 copper and copper-tin bronze objects have been excavated thus far at Lamanai (Simmons 1999).

Beginning in Middle Postclassic times, copper artifacts imported from West Mexico made their appearance at Lamanai (Hosler 1994, 1995; Pendergast 1981, 1984, 1986b, 1990, 1991). By the 13<sup>th</sup> Century AD copper-tin bronze objects were arriving at Lamanai from both West Mexico and lower Central America. The local southeastern Mesoamerican metalworking tradition was characterized by lost wax cast status ornaments; some of these were from copper-gold alloys, others were from copper-tin bronze or copper-arsenic bronze, but all were made from a very pure copper. These objects include elaborate plain-walled bells, filigree finger rings and filigree buttons.

During the Spanish Colonial Period, Maya groups at Lamanai were producing their own copper objects, and Pendergast (1991:339-340) has suggested that the Terminal Postclassic Period residents of Lamanai probably developed metallurgy prior to the arrival of the Spanish, although this assumption remains to be tested. The strongest evidence for copper production at Lamanai consists of six copper ingots or pigs and a variety of mis-cast bells recovered from terminal Postclassic and Historic Period deposits. We wonder why Lamanai's metalsmiths began producing copper objects in the Terminal Postclassic and/or Spanish Colonial Periods when they could have continued to import finished copper objects from West Mexico and elsewhere.

#### Previous Investigations in the Terminal Postclassic and Contact Period Zone

##### *The Royal Ontario Museum's Lamanai Archaeological Project*

During the first years of the 12-year span of the ROM Lamanai archaeological project, Pendergast and his associates concentrated much of their efforts on the investigation of monumental architecture in the civic-ceremonial core of the site, located in what is now the northern portion of the Lamanai Archaeological Reserve (Pendergast 1981). Some archaeological work was also conducted on the two Spanish mission churches, located south of the Preclassic and Classic Period civic-ceremonial center, during this time.

In addition, an important Early-Middle Postclassic structure group (N10-1, N10-2 and N10-4), perhaps the civic-ceremonial center at Lamanai during this time, was investigated near the shore of the lagoon. It was during the excavation of these structures

that a number of copper and copper-tin/copper-arsenic bronze artifacts first came to light at Lamanai (Pendergast 1981). Pyriform and globular bells, cutwork finger rings, bell-headed pins, and elaborate button-like ornaments were among the 25 copper and bronze objects recovered during the excavation of Structures N10-2 and N10-4. All were recovered in burial contexts, interred with individuals that had enjoyed some degree of prominence in Lamanai's Postclassic society (Simmons, Pendergast and Graham n.d).

In the latter stages of this project, areas to the south, comprising the Late Postclassic and Spanish Colonial Period zone, were the focus of investigations by the ROM team (Pendergast 1991, 1993). An extensive structure identification and mapping project, led by Dr. Stan Loten and Mr. Claude Belanger, was undertaken at the inception of the ROM project in 1974, and continued throughout the term of Pendergast's investigations at Lamanai. Over 940 structures were identified and mapped during this time (Pendergast, personal communication 2000).

The ROM project was very successful in identifying the occupation history of the site, the construction sequences of numerous monumental architectural remains, the vast array of both locally produced and imported material culture, and the importance of the site as an locus of Maya political and economic life in northern Belize for many centuries. Pendergast demonstrated that Lamanai had developed into an important social and economic center, encouraged in large part by the emergence of powerful elites, by Late Preclassic times. The results of his investigations at the site indicated that Lamanai continued to prosper and develop into a prominent Maya center during the Classic Period (Pendergast 1981).

Perhaps most surprising was the realization that Lamanai had not been completely abandoned in the ninth and tenth centuries AD as so many other neighboring sites in the Southern Lowland area had been. Instead of evidence of decline and decay, Pendergast and his associates found that Lamanai continued to be a vibrant, dynamic community up through the time of initial Spanish contact and into the mid-seventeenth century. New building construction projects in Terminal Classic times resulted in the creation of the ballcourt (Strs. N10-40 & N10-41) and the refurbishment of portions of Structure N10-9, an important temple that probably was the center of Maya ritual life at Lamanai during Terminal Classic and Early Postclassic times (Pendergast 1981).

Public works projects in Early and Middle Postclassic times, albeit smaller in scale than those in preceding centuries, resulted in the construction of Strs. N10-2 and N10-4. Robust trade in commodities such as copper with peoples both within and outside the Maya area was also evident, as were indications that political leadership was still strong and steady throughout Postclassic times (Pendergast 1991).

The final years of the ROM project were focused on investigations of areas in the heart of the Terminal Postclassic and Spanish Colonial Period community. Chief among the areas investigated were the Structure N11-4 group, and Structure N11-18. These were investigated by Pendergast and his associates in 1983 and 1984 (Pendergast 1984).

*1999 - The first field season of the Maya Archaeometallurgy Project*

The results of the first full season of the Maya Archaeometallurgy Project, which took place in June and July 1999, have already been discussed in detail (Simmons 1999). The 1999 field season was supported by the H. John Heinz Fund Grant Program for Latin American Archaeology. The following is a summary overview of the 1999 season, particularly the work around Structure N11-18, so that the larger context of investigations in the area that was the focus of work in 2001 and 2002 can be more easily understood.

During the 1999 season the goals of the MAP included surveying a large area of the Terminal Postclassic-Spanish Colonial occupation zone and identifying possible areas of Maya metal production. Slightly more than half of the 1999 field season was spent conducting a survey over a substantial area of the N12 and N13 grid block at Lamanai. Much of the metal that was found appears to be British sheet pieces of copper associated with the failed late 19<sup>th</sup> century sugarcane operation (Pendergast 1981). However, the areas in which several other notable copper objects were recovered, including a 500g oblong, roughly rectangular copper object were found, await further investigation (Simmons 1999).

Another prominent goal of the work in 1999 was to re-locate Str. N11-18, the principal Terminal Postclassic Period structure at Lamanai (Pendergast 1991). The results of excavations in 1984 at this important structure provided sufficient research grounds for relocating the structure, the area around which had long-since been overgrown in thick, very dense secondary forest growth complete with all manner of nearly impenetrable vines, brush and small to medium sized trees.

Given the ephemeral nature of the architectural remains of Structure N11-18 (see Pendergast 1984), its relocation was a fairly challenging endeavor, particularly since none of the facing stones that form its most prominent architectural components rise more than roughly 15 cms above the existing ground surface. In addition, the extremely dense, secondary bush in the area made spotting the inconspicuous structural remains difficult as well. Nevertheless, Structure N11-18 was relocated during the last half of the 1999 field season. Metal detector survey was conducted in previously unexcavated areas around the structure, predominantly on its northern side.

The Terminal Postclassic-Spanish Colonial Period occupation zone at Lamanai also happened to be the locus of intensive occupation by Guatemalan and Salvadoran refugees who had fled the political turmoil in their countries during late 1983 and early 1984. Unfortunately, the Guatemalan and Salvadoran refugees who settled in this archaeologically fascinating area of the site were prodigious consumers of canned meat products, the now-buried metal containers for which quite effectively preclude any successful magnetic-based differentiation between Terminal Postclassic and Spanish Colonial Period Maya copper artifacts and that mid-1980's refuse.

Two 1x1 m excavation units were placed in the extensive midden deposit abutting that portion of the structure that had been identified as the north wall (Simmons 1999). This midden had first been identified during testing in the mid-1980's and had yielded a



number of copper artifacts, among a great many other types of Terminal Postclassic Maya artifacts Pendergast (1984). Testing in this midden in 1999 was aimed at identifying various magnetic anomalies identified during metal detector survey of the area (Simmons 1999). Bells comprised the majority of the copper artifacts recovered from the midden testing in 1999, but several other metal artifacts were recovered as well (Table 1).

Table 1. Summary of Copper and other Metal Objects Recovered during 1999

<u>Artifact Type</u>	<u>Small Find Numbers</u>	<u>Total</u>
<u>Cu artifacts</u>		
<i>Bells</i>	Whole: LA 1232/1, 1234/1	2
	Miscast: LA 1238/1, 1240/1, 1242/1, 1243/1, 1244/1, 1246/1	6
<i>Sheet</i>	LA 1241/1	1
<i>Ring</i>	LA 1230/1	<u>1</u>
		10
<u>Unidentified Metal</u>		
<i>Needle</i>	LA 1236/1	1
	Total metal artifacts recovered in 1999	- <b><u>11</u></b>

*2001 - The second field season of the Maya Archaeometallurgy Project*

The principal aim of the 2001 season was to continue architectural clearing of previously unknown portions of Str. N11-18 in order to explore possible copper production areas associated with the structure. Another aim was to work toward completing the architectural documentation of this important Contact Period structure, believed by Pendergast (1985) to be the residence of the principal Colonial Period Maya authority at Lamanai, the cacique. The areas investigated in 2001 included sections of the building located both to the east and to the north of the area excavated by the ROM in 1983. The 2001 MAP investigations at Str. N11-18 lasted a total of eight weeks, from May to August 2001.

The results of investigations in 2001 suggested that either Str. N11-18 extended further east and north of the northern and easternmost areas of the building exposed by Dr. Pendergast and his associates (Simmons and Howard 2003: Figure 3) or that another structure was constructed immediately adjacent to (northeast of) Str. N11-18. Given the very close proximity of architectural features identified in 2001, it is likely that these features represent some kind of addition to the structure. This addition probably had a

perishable roof, was open on its sides, and had identical floor ballast and retaining stones as those excavated by Pendergast in 1984 (see below).

Although a copper production area was not found during the 2001 field season, more copper objects, including evidence for on-site productive activities in the form of mis-cast copper bells, were recovered in both midden and floor ballast deposits (Table 2). Five of the eight copper artifacts recovered during the 2001 season were production failures, mis-cast during lost-wax casting activities (see Simmons and Howard 2003: Figures 43-45). The presence of these artifacts lends further support to the idea that copper production was taking place at Lamanai, probably in the immediate vicinity of Str. N11-18.

Table 2. Summary of Copper Objects Recovered during 2001

<u>Artifact Type</u>	<u>Small Find Numbers</u>	<u>Total</u>
<i>Bells</i>	Whole: LA 1578/1	1
	Miscast: LA 1580/19, LA 1580/20, LA 1576/10, LA 1566/1	4
<i>Needles</i>	Whole: LA 1581/25	1
	Miscast: LA 1580/18	1
<i>Fishhook</i>	LA 1575/2	1
Total		<b><u>8</u></b>

Excavations in 2001 also resulted in further delineating architectural features of Str. N11-18. Specifically, several lines of vertically set cut limestone blocks, identical in form and aligned similarly to vertically set stones identified at Str. N11-18 by Pendergast in 1984, were identified in 2001. Lines A, C & E were found to be oriented roughly parallel (on an approximate N-S azimuth) to the easternmost line of vertically set stones identified in 1984 (Simmons and Howard 2003:15). Lines A and B were found to intersect these N-S stone alignments at roughly right angles, forming square-shaped architectural features. In addition to the lines of vertically set limestone block a line of large, flat limestone slabs, some evidently modified, were found beneath Line D, oriented at approximately the same azimuth (Simmons and Howard 2003: Figures 21-23). Roughly between 5-10 cms. of lighter brown soil was found immediately beneath Line D, separating these two architectural features. This deposit of dense silty clay appears on stratigraphic as well as artifactual grounds to pre-date other construction features identified in this particular area, making it likely that the linear limestone slab feature pre-dates the use of Str. N11-18.

Concentrations of fist sized and slightly larger pieces of unmodified limestone and soil were found associated with the square alignments of vertically set limestone

blocks in 2001. The presence of Cib and Yglesias ceramic bowl fragments mixed in with this rubble and soil matrix suggests that this material was used as construction fill that was brought in by the Maya sometime during Terminal Postclassic/Spanish Colonial times. Specifically, these deposits most likely represent floor ballast material that was used to create elevated platforms retained by the facing stones identified as Lines A-F (Simmons and Howard 2003: Figure 3).

The lines of limestone blocks set 'on edge' (rather than on their broad, flat surfaces) at Str. N11-18 are identical to those identified in late deposits elsewhere at Lamanai (Pendergast 1986b) and appear to be fairly common Late Postclassic-Spanish Colonial Period architectural features. These "typical vertically set facing stones" (Pendergast 1986b:241) retaining earth and rubble fill are also found at several other Maya sites in northern and western Belize with similar late occupation components. These sites include nearby Chau Hiix (Andres and Pyburn 2004) and Progresso Lagoon (Oland 2002; Masson 1997, 2000) as well as Santa Rita Corozal (Chase and Chase 1988), and Tipu (Graham 1991; Graham and Bennett 1989). Indeed, the presence of vertically set stones as facings for low platforms is likely indicative of fifteenth-century or later Maya architecture in Belize (Pendergast, Jones and Graham 1993:70).

Testing conducted west of Str. N11-18 and north of Str. N11-3 (Simmons and Howard 2003:Figure 2) established the horizontal and vertical extent of midden deposits extending north of Str. N11-3. This large midden north of Str. N11-3 had been tested by Pendergast (1984) in trenching north of Str. N11-3, an important Late Postclassic and Contact Period building that probably pre-dates the construction of Str. N11-18. Our intent in 2001 was to test the expansive 'off-platform' area located immediately to the north of Str. N11-3 for evidence of copper production.

Following re-clearing of secondary growth that had returned after initial clearing of the area in 1999, metal detector survey was conducted in this area at the beginning of the 2001 season using the same Garrett Master Hunter metal detector with a 12" Crossfire II searchcoil. The results of the metal detector survey suggested that copper objects might be present in several 'off-platform' areas north of Str. N11-3. The excavation of two 2 m<sup>2</sup> blocks as well as a 4 x 2.5 m area produced several copper objects, including a complete fish hook (Simmons and Howard 2003: Figure 38).

Excavations north of Str. N11-3 also yielded evidence of perishable structures that dated to the Spanish contact period. These structures lacked the substantial stone rubble and earth platforms that were typical of others structures dating to this period, but several burials were recovered in association with what must have been at least one rather small and barely discernable structure. Several possible post features, seen as cylindrical depressions in the limestone bedrock, were recorded in this area. One of the burials was a flexed human interment while the other appears to have been that of a dog, located approximately 60 cms. southwest of the human burial (Simmons and Howard 2003:19-25). Stratigraphically it appears that both burials were interred by excavations through the upper dark midden deposit and the underlying lighter brown, densely packed silty clay.

Since the midden deposit dates to Terminal Postclassic-Spanish Colonial times these burials, and presumably the perishable residence with which they were associated, are contemporaneous with the occupation of Str. N11-18. Again, very little 'off-platform' testing was conducted at Lamanai during the twelve-year ROM project directed by Dr. Pendergast. These finds are therefore notable for several reasons, not the least of which is that future investigations in areas of the Spanish zone having no discernable above-ground architectural remains can nonetheless be rewarding, particularly since they might yield evidence of various aspects of Maya domestic life at the site during the time of Spanish contact.

*2002 - The Third Field Season of the Maya Archaeometallurgy Project*

The third field season of the MAP again centered on the area of Str. N11-18. This was a comparatively short, four-week project that included excavations both at Str. N11-18 and preliminary testing of a previously unrecorded structure located approximately 12 meters north of Str. N11-18, designated Str. N11-27 (Simmons and Howard 2003). Excavations continued to the north and east of the areas investigated at Str. N11-18 in 2001 (Simmons and Howard 2003: Figure 3). Additional floor ballast deposits were encountered immediately east of the areas around Str. N11-18 investigated by Pendergast in 1984. It appears that these deposits are associated with a structure that was either attached or located immediately north and east of Str. N11-18. Most likely the floor ballast material, comprised of earth and limestone rubble retained by vertically set limestone blocks, represents a structural addition to Str. N11-18 (see above discussion).

In addition to the work conducted at Str. N11-18, excavations were also expanded at nearby Str. N11-27, which is located approximately 12-15 meters north of Str. N11-18. This apparently small structure was identified during clearing of brush and other secondary growth in the latter part of the 2002 field season. The structure was not recorded by Pendergast during his investigations in this particular area of the site in 1984. This is likely because no structural remains were initially visible above ground after clearing of the area, either in 1984 or in 2002. Once the leaf litter had been removed in 2002, however, several stones that appeared to have been modified were noted in this area.

Faint magnetic anomalies were noted during the metal detector survey conducted in this particular area, which appears topographically as a low rise that slopes to the east, toward the lagoon (topographic map in preparation). These faint anomalies usually signal the presence of more deeply buried (not near-surficial) metal objects. Usually the modern (1980's) aluminum tins and other metal (usually steel) refuse present in the area (see above discussion) produce fairly strong magnetic anomalies that are easily identified by the metal detector and verified with limited probing of the ground surface by MAP team members.

Excavations at Str. N11-27 in 2002 consisted of the removal of approximately 25 cms of dark silty loam in a 2 m<sup>2</sup> area that appeared to represent the approximate mid-

point of the low topographic rise. A total of five copper prills and a probable copper bell clapper were recovered in this 2 m<sup>2</sup> area (Table 3), confirming our suspicions of this area based on the results of metal detector survey. These copper artifacts were recovered from floor ballast deposits consisting of soil mixed with mostly fist-sized limestone rubble. The presence of this material and associated artifacts confirmed that this low topographic rise was indeed a Maya structure. The recovery of Yglesias sherds in the platform construction fill indicates a late occupation date of somewhere after approximately AD 1450 (Graham 1987, 2004).

Table 3. Summary of Copper Objects Recovered during 2002

<u>Artifact Type</u>	<u>Small Find Numbers</u>	<u>Total</u>
<i>Bells</i>	Whole: LA 2070/5, LA 2044/4	2
<i>Bell clapper</i>	LA 2081/2	1
<i>Prills</i>	LA 2081/1, LA 2096/1, LA 2096/2, LA 2106/1, LA 2106/2	5
Total		<b><u>8</u></b>

In addition to the 2 m<sup>2</sup> area excavated at the high point of this particular topographic rise, a 1x 3 m trench was excavated 4 meters east of the 2 m<sup>2</sup> unit in an attempt to locate additional structural remains that would help delineate Str. N11-27. Substantially high densities of rubble core, comprised of generally larger than fist-sized stones, were encountered in this trench up to roughly 40 cms below the present ground surface. Artifact densities were generally low throughout the E-W length and depth of the trench. No vertically set or other possible facing or platform retaining stones were identified in this trench, however, suggesting that we had not reached the eastern ‘edge’ of this platform. No additional work was conducted in this area in 2002.

In sum, the results of MAP investigations in 2002 included identification of a structure immediately north of the principal Spanish Contact Period residence, Str. N11-18. This newly recorded structure, N11-27, was tentatively found to date to at least the earlier period of occupation of Str. N11-18 based on the presence of Yglesias pottery sherds. No Spanish or other European cultural materials was recovered during limited testing of this structure in 2002, thus it is uncertain if the structure was in use after first Spanish contact at Lamanai, which probably occurred sometime after 1544. Although only limited testing of Str. N11-27 was conducted in 2002, the recovery of clear evidence of copper production in the form of five (and possibly six) copper prills was quite encouraging, and provided the impetus for future testing of the structure in following field seasons.

### Research Goals and Methods for the 2004 Field Season

The research goals for the 2004 field season were to 1) continue the process of completing the architectural documentation of Str. N11-27 through horizontal exposure of construction features, 2) search for additional evidence of metalworking activities, specifically the production of copper and bronze objects, in and around Str. N11-27 and 3) document the spatial and functional relationships between Structures N11-18 and N11-27 and Maya copper production activities.

Since an important goal of the work was to identify possible copper production areas at the site, horizontal or block excavation was the primary method of subsurface investigation conducted in 2004. In addition, some limited trenching was undertaken in 2004 for the purposes delineating architectural features of Str. N11-27 and identifying possible midden deposits that might yield the same kinds of copper production failures (such as mis-cast bells) and raw materials (such as copper pigs and scrap sheet pieces) found in the north side midden of Str. N11-18. Most excavation blocks measured 2m<sup>2</sup>; trenches varied in total length but measured .50 m in width.

During 2004 the MAP investigations were designated Op 04-02 (see Table 2) and Str. N11-27 was the focus of these investigations. The ‘Sub-op’ designation has not been used in the past at Lamanai, although ‘Operation’ is a designation used for specific investigations undertaken in various parts of the site. In general, the field and lab methods used to conduct the 2004 Field School excavations are those designed and currently utilized by the Lamanai Archaeological Project (LAP). Archaeological investigations of Lamanai by David Pendergast began in 1974 and Elizabeth Graham became the Principal Investigator in 1996.

The foundation of all field and laboratory work at Lamanai is based on the initial excavation of the site and further developed and improved by Dr. Graham and the LAP staff. The current system utilized consists of a detailed field and laboratory manual that provides reference material for students, staff, and researchers. The LAP system primarily consists of Operation, Lot, Small Find, and Artifact Count Forms (see Appendix 1). One important component of the manual provides information on understanding and identifying the assessment/context of an area under investigation and provides examples of those generally encountered at Lamanai.

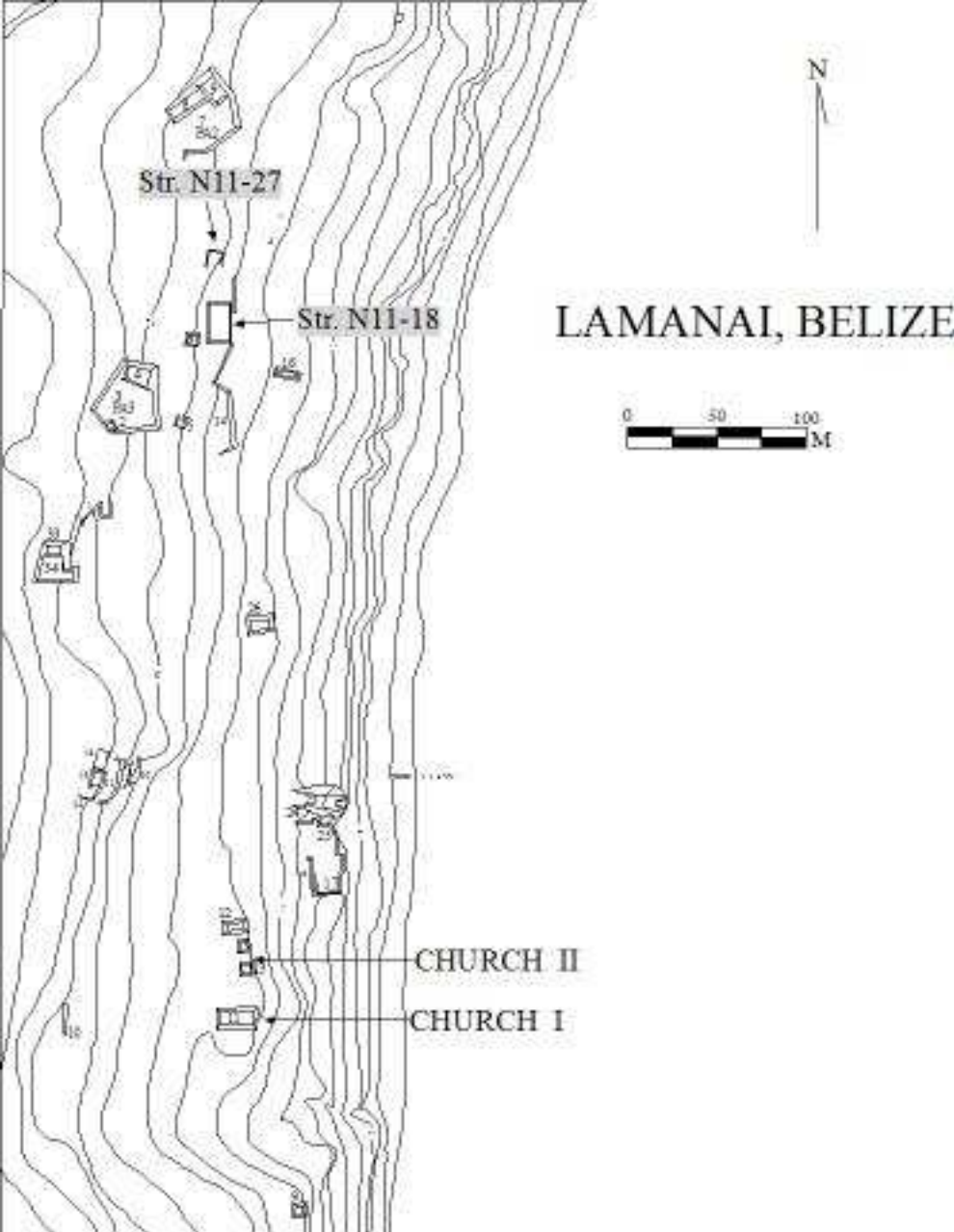


Figure 2  
Site Plan  
Lamanai, Belize

Table 4. Description of Field and Laboratory Recording Procedures\*

<b>LAP System</b>	<b>2004 Field Season designations used</b>	<b>Description</b>
<b>OPERATION</b>	OP 04-02	OP indicates an operation, the 04 indicates the year in which the operation was assigned and carried out. The second number is assigned in chronological order and indicates the number of operations that have been assigned that year. For 2004 the field school excavation was the 2 <sup>nd</sup> operation assigned. Each distinct area under investigation is assigned a separate operation that will track all lot numbers, burials, vessels, et al that are assigned for that project.
<b>LOTS</b>	LA 2900 – LA 2938	Lot numbers are then assigned and numbered sequentially within each operation. A lot is a distinct area under investigation and can include, but is not limited to, an architectural feature, a 10-20 cm (or other) arbitrary level of soil, or any other significant deposit. A lot form is filled out (Appendix 1) for each distinct area under investigation and provides information such as thickness of deposit, date of deposit, and relationship to datum and/or surface. A master list of lots is maintained for reference and to aide in assignment of open lot numbers.
<b>SMALL FINDS</b>		Culturally and/or temporally significant artifacts, termed small finds, are pulled from their lot and given a distinct catalog number. For example, a copper prill was recovered which has a catalog number of LA 2936/7, it was the seventh significant (diagnostic) find in lot LA 2936. Attribute analyses are conducted and a separate form is completed for each small find that contains information such as the dimension, weight, provenience, and illustration (Appendix 1). A master small find list is maintained for reference and ease in assignment of catalog numbers. All small finds are labeled and stored in the secure bodega at Lamanai.
<b>BURIALS</b>		Burial control numbers have typically been assigned according to the structure number, Burial N11-27/1 is the first burial recovered from Structure N11-27. There are detailed field and laboratory forms that require all human remains to be systematically recorded. All relevant lots are recorded.

\* Copies of all Operations forms, Lot Record forms, Small Finds forms are found in Appendix 1.

### Field Methods

During the 2004 field school season a total of 9 units were systematically excavated. Unit dimensions vary but the majority measured either 2m<sup>2</sup> in area. Excavation units were tied into a horizontal grid system that has as its benchmark (0,0) point the northeast corner of Structure N11-3. Therefore, all excavation units situated north and east of the northeast corner of Str. N11-3 were given a N/E coordinate. No excavations were conducted south of Str. N11-18. Excavation unit coordinates were referenced using the grid coordinate of the southwest corner of each unit.



Vertical elevations were taken from several temporary datum points, all of which were established from either one of our two permanent, concrete benchmarks. One of these is situated near the northeast corner of Str. N11-18, serving as the vertical datum for excavations in the area of Strs N11-18 and N11-27; its elevation above mean lagoon level is 14.50m aml or 'above mean lagoon level.'

Generally speaking, all lots within the units were trowelled and any visible cultural material was hand collected in a zinc tray. All soil excavated during the 2004 field season was screened through ¼" metal mesh, and soil color descriptions were based on the Munsell Soil Color Chart. Artifact trays were transported to the laboratory for processing. Students enrolled in the Lamanai Archaeological Project's field school generally carried out the majority of the fieldwork with help from four local field assistants from Indian Church and San Carlos.

Excavations followed natural stratigraphic deposits in 2004. If discrete soil deposits exceeded 20 cm in depth then arbitrary 5, 10 or 20 cm levels were excavated within those deposits in order to maintain some horizontal control over the locations of artifacts within those strata. All excavated cultural material, including modern refuse, was collected in the field for processing in the archaeology laboratory. Once counted and briefly described in the laboratory, however, modern trash was discarded.

The field school curriculum dictates that the first week of the course be reserved for introductions to Maya archaeology, archaeology at the site of Lamanai and in our specific research area, and the methods utilized by the LAP. As a result, excavations did not begin until the second week of the program. Required fieldwork for participants includes tape and compass mapping, leveling with the transit and level, detailed archaeological note taking, plan and profile drawing, soil description and excavation techniques. Laboratory work for field school students is described below. Excavations in 2004 were concentrated in one specific area of Structure N11-27 (Figure 3). As discussed below, excavations were conducted in this area to delineate the architectural features of this structure and investigate the presence of any possible copper production areas associated with this structure. A total of 39 separate lots were excavated at Str. N11-27 during the 2004 field season (Table 2).

### Laboratory Methods

All excavated cultural material was transported in zinc trays from the field to the laboratory at the Lamanai Field Research Centre where the artifacts were washed, dried, sorted, and analyzed. The LAP procedures include sorting all washed artifacts by material, with the intent being that artifacts permanently stored by material makes them easier to locate for future analysis. It is during this phase that culturally and/or temporally significant finds, termed Small Finds, are separated from other cultural material in their respective lots. Each Small Find is designated by its Lot number and a specific catalog number, such as a copper prill recovered in 2004, designated LA 2936/7. A corresponding analysis form is filled out for each Small Find recovered at Lamanai (see Appendix 1).

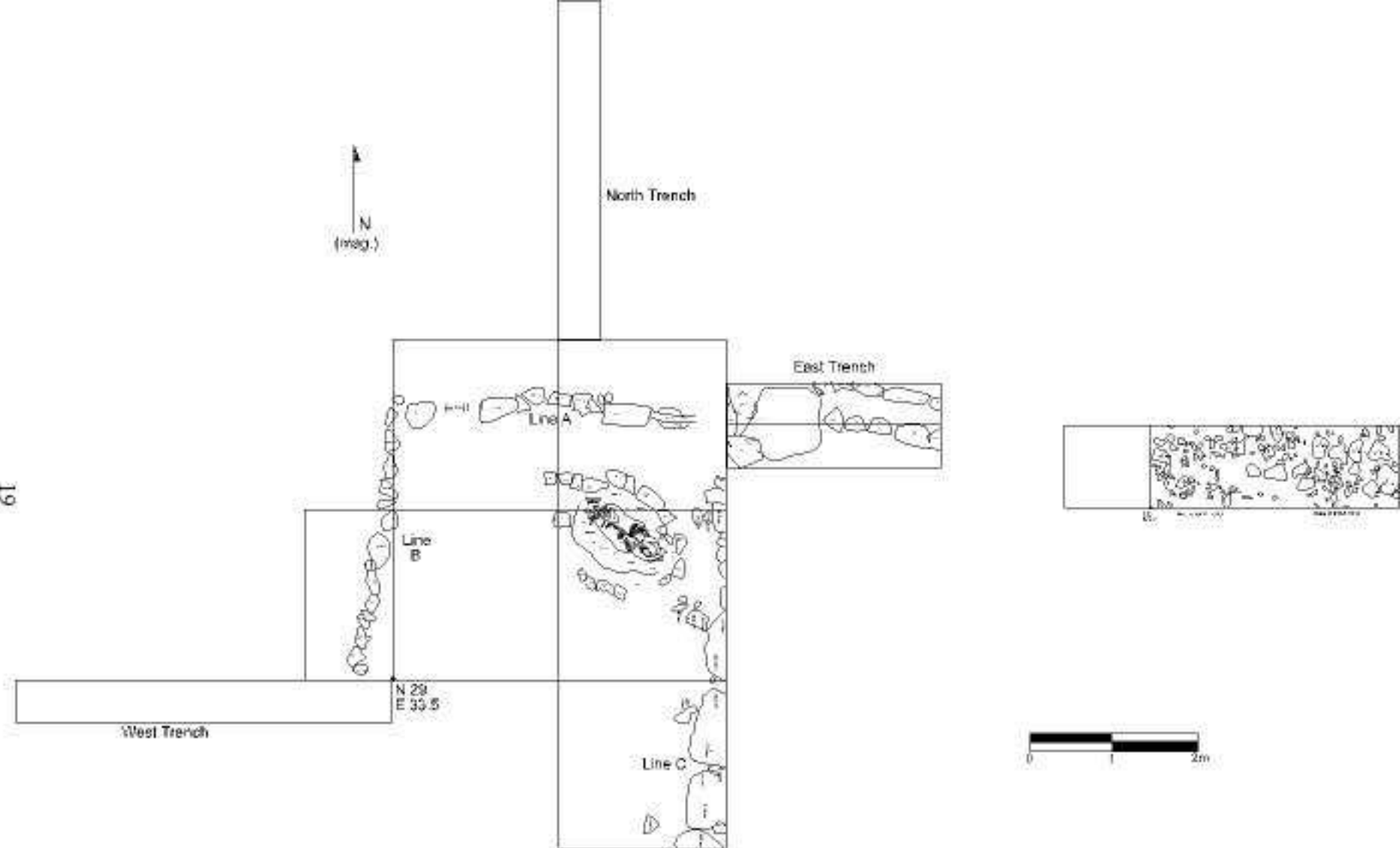


Figure 3  
 Str. N11-27 excavated areas, 2004  
 Operation 04-02, Lamanai, Belize

Although Lot and Operation Records are considered field forms they are completed while laboratory processing is taking place. Also, during laboratory processing Lot and Small Finds Records are entered into LAP's archaeological database software program, *Superbase*. Both Lot Record and Small Finds summary information are presented in Appendix 2 and Appendix 3, respectively. Other cultural material that is not considered a Small Find, such as ceramic sherds, chert flakes, obsidian blades, bone, and shell, were sorted by lot and counted and recorded on the LAP Artifact Count Form (Appendix 4). The importance of proper laboratory processing is stressed to all students and each participant in LAP's field school is required to complete every step of laboratory processing in order to expose them to these procedures as well as assist with assuring that all initial lab work is completed for each season. The material is well labeled and stored in secure plastic packing boxes with snap-tight lids at the on-site bodega in the Lamanai Archaeological Reserve.

#### Research Results from the 2004 MAP Field Season

The following section presents a summary of the results of excavations at Str. N11-27, the primary focus of archaeological investigations in 2004. Another focus of work during the 2004 field season involved laser transit mapping of the areas investigated in 2001, 2002 and 2004. The data collected during this mapping are still being processed so that a digitized version of a site plan for this particular area is in preparation and will hopefully be ready for publication in the near future. This section of the preliminary report is organized into three sections. The first section addresses the results of field investigations at Str. N11-27, the focus of MAP research in 2004. The next section presents a discussion of stratigraphic deposits found both within and immediately adjacent to the structure. A preliminary discussion of the types of cultural material encountered during excavations at Str. N11-27 will also be presented in this second section of the report. The last section of the research results from the 2004 MAP field season focuses on dating, and preliminary assessments of dates of occupation of Str. N11-27 will be offered.

#### *Excavations at Structure N11-27*

During the clearing of low, secondary brush and vegetation roughly 10 m north of Str. N11-18 we encountered a low topographic rise in 2002 that appeared to represent another structure. No structures (aside from the remains of those used by Guatemalan refugees in 1984) had previously been identified in this area during the ROM mapping program (see Figure 2). Our clearing activities in 2002, however, suggested that it might be useful to test this area because its proximity to Str. N11-18 suggested the possibility of its contemporaneity. In addition it was hoped that investigations in this area might provide more substantive information on Maya copper production at Lamanai.

Subsurface testing took place during 2002 in two areas of this low rise (see above discussion). In one of these areas an excavation unit measuring 2m<sup>2</sup> in size was placed on the flat, fairly level part of the low rise north at N 29.0 E 35.5. It was here that we

found additional compelling evidence of on-site copper metallurgy during the 2002 field season. The first 10 cm lot excavated in this 2m<sup>2</sup> unit, LA 2080 consisted mainly of the kinds of smaller, unmodified pieces of limestone we have encountered in the upper lots of the area excavated in 2001 and 2002 north and east of Str. N11-18. In 2004 we encountered only minimal evidence of disturbance in the upper 10-15 cms in Op 04-02. In fact, both articulated mammal phalanges of an as-yet unidentified species were found in LA 2080, as well as a discrete cluster of ceramic sherds from the same vessel.

In the northeast quarter of the unit the core stones were absent from a fairly small area measuring roughly 15-20 cms in diameter. Removal of the soil in this 'gap' in core stones revealed the top of a human skull. Several teeth, including two incisors, were also noted (but not removed) next to the skull, confirming that the cranial bones were human. As this burial was encountered at the very end of the 2002 field season only a portion of the top of the skull was exposed and recorded (Figure 4).



Figure 4

The top of the human skull encountered here is seen immediately right of the north arrow in the approximate centre of this image. The core stones left of and below the arrow were removed to reveal a largely intact portion of what appears to be a plaster floor. Two very small copper pellets, probably prills, were recovered in the burial fill lot (LA 2096), while two others were recovered in Lot LA 2106, the soil directly above the level of the probable plaster floor.

In 2003 we reported that excavations in the 2x2 m unit located at N 29 E 35.5 resulted in the recovery of additional evidence of on-site copper metallurgy at Lamanai, specifically in very close proximity to Str. N11-18, the building believed to have been the residence of Lamanai's *cacique* (Simmons and Howard 2003). Five very small pellets that appear very likely to be copper or alloyed copper prills were found during excavations in this unit. One of these is shown in Figure 5. In addition to the five prills, another copper pellet, slightly larger in size than those five prills, was recovered from Lot LA 2081, the second 10 cm level in this excavation unit.



Figure 5

Probable copper prill (LA 2096/2). This artifact was recovered in 2002 in human burial fill in a 2m<sup>2</sup> excavation unit, Str. N11-27. Prills are formed when molten metal drops solidify into small pellets. The presence of five copper prills, along with a copper bell clapper, led MAP research to focus further research attention on Str. N11-27 in 2004.

Fieldwork in 2004 was initiated with the idea that broader, areal investigations at Str. N11-27 might yield further evidence of on-site copper metallurgy. We anticipated recovering more copper prills as well as other copper objects that would provide additional information on the nature of Maya metallurgy. Table 4 shows that five copper objects were recovered at Str. N11-27 in 2004. One of these, a scrap piece of apparent sheet copper, is shown in Figure 5.

All of the probable copper artifacts recovered during excavations in 2004 at Str. N11-27 can be considered production debris, adding further support to the idea that copper production was taking place somewhere in the immediate vicinity of Strs. N11-18 and N11-27. The deposits in which these objects were recovered, however, are floor ballast, which suggests that the earth and stone used for platform construction was brought in from elsewhere, a point that will be discussed later in this report.

Table 5. Summary of Copper Objects Recovered during 2004

<u>Artifact Type</u>	<u>Small Find Numbers</u>	<u>Total</u>
<i>Prills</i>	LA 2909/6, LA 2936/7	2
<i>Scrap pieces</i>	LA 2909/7, LA 2924/12, LA 2932/1	3
	Total	<u>5</u>

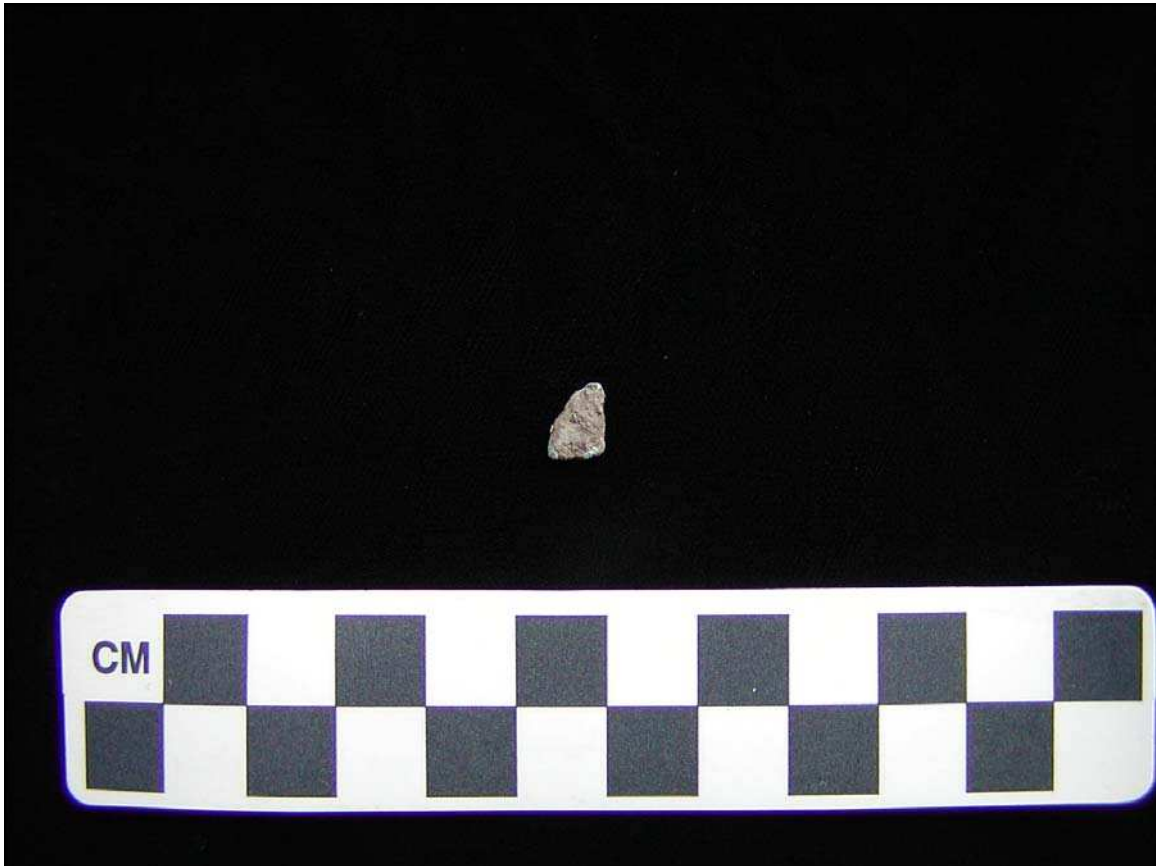


Figure 6  
Probable sheet copper fragment (LA 2909/7). This artifact was recovered in floor ballast deposits in the second 10 cm lot excavated in a 2m<sup>2</sup> excavation unit, Str. N11-27.

As part of the areal or horizontal excavation strategy for 2004, four 2m<sup>2</sup> units were laid out and excavated immediately north, south and west of the initial 2m<sup>2</sup> unit excavated in 2002 (Figure 3). In addition, a 1 x 2 m area, a 1 x 2.5 m area, and two trenches measuring .50 x 6 m and .50 x 4.5 m were excavated in 2004. Excavation of the trenches was aimed at identifying any possible midden materials that might be associated with this particular structure. The recovery of a number of copper bells, rings, needles, and scrap pieces in the midden located immediately north of Str. N11-18, located roughly 15 meters to the south, led us to believe that such materials might also be recovered in midden associated with Str. N11-27.

The upper lots excavated in the 2m<sup>2</sup> units as well as in the trenches were found to be only slightly disturbed as a result of various activities by the Guatemalan and Salvadorean refugees that settled in this particular area of the site in 1983 and 1984 (Pendergast 1985). Pieces of modern plastic, metal cans (particularly aluminum sausage tins), glass rum and beer bottles, clothing, vinyl flooring, and a multitude of other 1980's materials are typically present in the upper 10-15 cms of the lots we excavated in the area. Although some modern material was recovered in Lots LA 2900-2903, which represent the upper 10 cm lots excavated in Str. N11-27, there was comparatively little evidence overall of disturbance.

#### **Architectural Features of Str. N11-27**

Loose, unorganized concentrations of generally small to fist-sized pieces of limestone began to appear near the base of Lots LA 2900-2904, 2906, 2908 and 2921. These lots likely represent Post Abandonment Accumulation (PAA), which is the dark (10YR 3/1) silty loam layer that witnessed the most disturbance in modern times. The PAA layer extends roughly 10-15 cms below ground surface in this particular area of the site (Simmons and Howard 2003) and it is at roughly this depth range where pieces of limestone began to be encountered. Figure 7 shows the surface of the fist-sized limestone pieces that apparently served as floor ballast material along with packed soil. As mentioned above, modern disturbance was noted in this soil deposit in OP 04-02, as it has been throughout much of the Spanish Church Zone (Simmons and Howard 2003; Pendergast 1985).

Excavation of the limestone and earth floor ballast in the 2 m<sup>2</sup> unit situated in the central portion of Str. N11-27 revealed three lines of stone that intersect at roughly right angles (Figure 8). Unlike the lines of stone described above at nearby Str. N11-18 and at a number of Terminal Postclassic structures identified at Lamanai (and other Belizean sites with late occupation components), these were not vertically set stone blocks that made up these architectural features. Instead, these lines of stone appeared to be unmodified, irregularly shaped pieces of limestone of varying size. The stones of Lines A & B, which appear to delineate the edges of the northern and western platform of Str. N11-27, are comprised of limestone cobbles of varying size and shape. The line of stones that appear to define the eastern edge of Str. N11-27's platform, Line C are likewise irregular in shape, but it should be noted that the stones of Line C have only partially been excavated (Figures 7, 9 & 10).



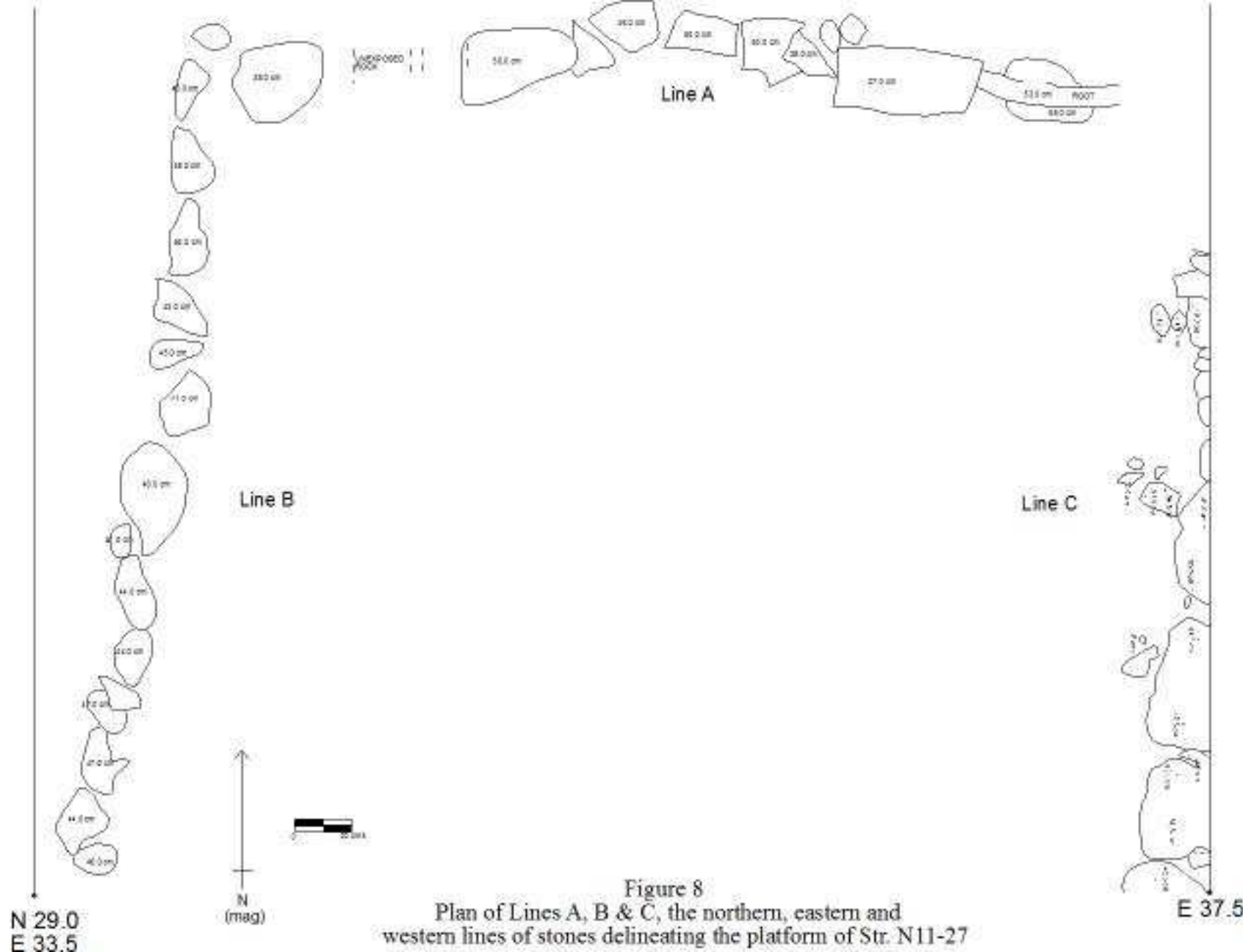
Figure 7

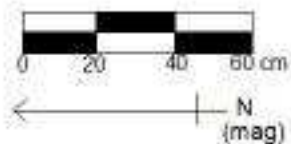
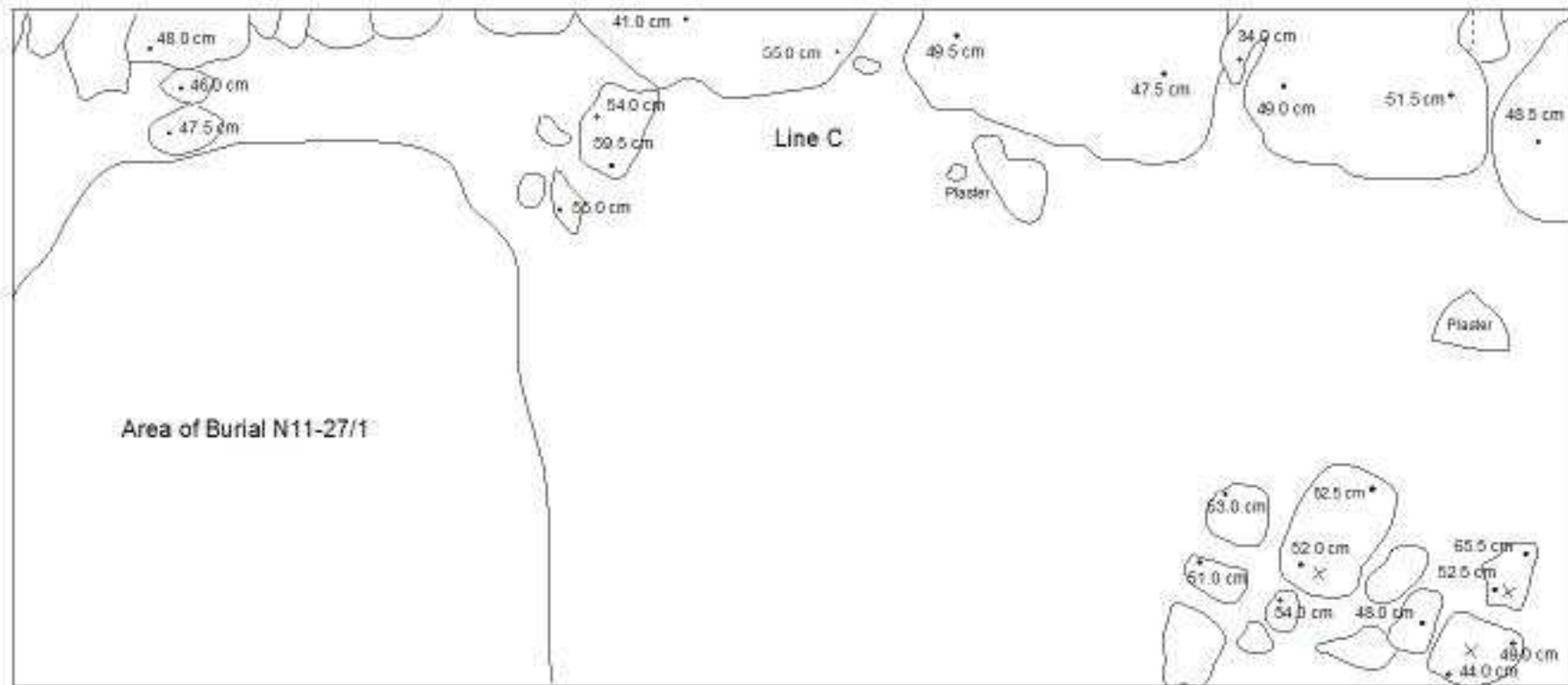
Surface of Lot LA 2930, approximately 10-15 cms below present ground surface. Note the line of comparatively large stones on the east side of this 2 m<sup>2</sup> unit (at bottom of image). This line appears to represent the east face of the platform of Str. N11-27, and was designated Line C.

excavated, so they undoubtedly will be larger in size, although probably not significantly larger. Further excavations planned for the 2005 field season will concentrate on the area to the east so that this extent of the structure can be completely delineated and better understood with regard to its architectural characteristics.

Excavations south of Line A, and between Lines A & C, i.e., on the 'inside' portion of the structure platform, revealed that the unorganized mass of limestone rocks and earth that appear to represent floor ballast extend up to the inside edges of the lines of stone that delineate the structure platform. This material, however, was not found in excavations 'outside' the lines of stone that appear to represent the platform faces of Str. N11-27. In fact, excavations in trenches that extend to the north and west of the structure yielded very little in the way of limestone cobbles or smaller pieces, adding further support to the idea that the structure platform is defined by these lines of stones to the north, west and east (Figure 8).



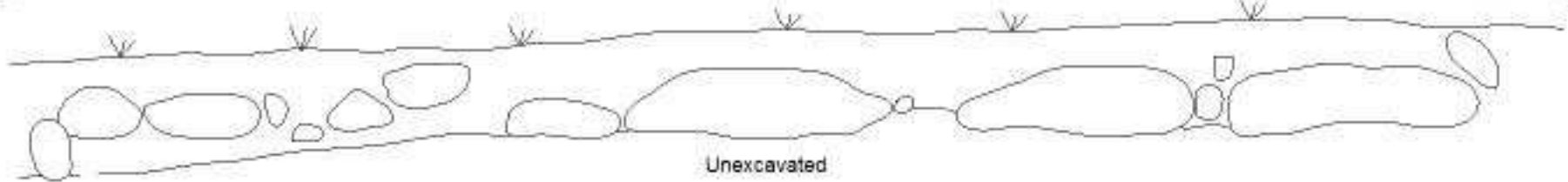




- x Possible Cut Stones
- Points of Elevation

Figure 9  
Plan of Line C Stone Alignment

28



∨ Ground Surface

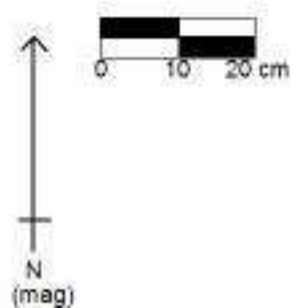
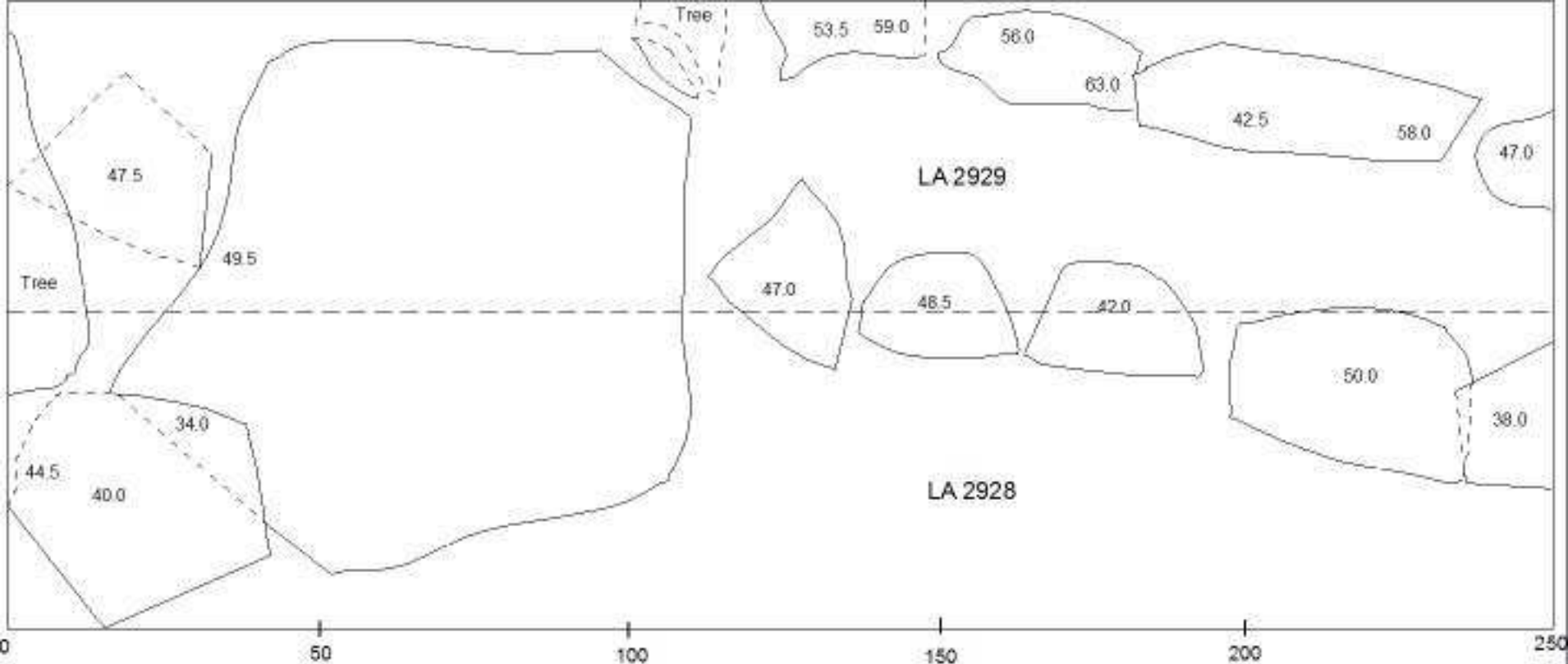
Figure 10  
Profile view of Line C, Str. N 11-27

The platform of Str. N11-27 appears to be defined by Lines A, B and C. These lines of stone differ from those identified in the northern portion of nearby Str. N11-18 in that they are not vertically set lines of cut limestone block. Instead, these apparent platform facing stones appear to be unmodified, irregularly-shaped limestone cobbles of varying size (Figure 8). Some stones, such as those of Line C, are relatively large stones on the order of approximately 90 x 50 cms in size, while those of the opposite platform face, Line B, are comparatively quite small, typically at around 20 x 15 cms in size (Figures 8, 9 & 10). The N11-27 structure platform was made up of materials that consisted of fist-sized limestone pieces, dark, rich humic soil, and artifacts that were present in the soil and caught up when the earth was brought in to create the platform. The earth and artifacts in it were presumably brought in from a nearby area, but all we can say at present is that the presence of late Yglesias ceramic sherds suggests the material used to build up the Str. N11-27 platform came from somewhere in the Spanish Church Zone. Logic alone, specifically for reasons based on economy of effort, suggests the material came from somewhere close to the structure itself.

In general, artifact densities in the PAA lots excavated at Str. N11-27 (Lots LA 2900, 2901, 2902, 2903, 2909, 2911, 2912, and 2914) were fairly high (see Appendix 4). Notable was the absence of modern or late historic (British sugar plantation era) artifacts in the second 10 cm lots excavated in Str. N11-27 (Lots LA 2909, 2911, 2912 and 2914). Glass, metal, plastic and other modern refuse from the 1983-1984 Guatemalan/Salvadoran settlement was confined to the upper 10-12 cms below the present ground surface. Below this the PAA included Yglesias and other as yet unidentified ceramic sherds, lithic waste flakes. Small numbers of obsidian (usually blade) pieces, freshwater and some marine shell and bone (see Appendix 4). Artifact densities were particularly high in Lots LA 2912 (396 total) and LA 2914 (502 total). Ceramic material formed a fairly significant percentage of the total number of artifacts encountered in each lot, with 54% in Lot LA 2911 and 74% in Lot LA 2914.

Excavations in a 1 x 2.5 m trench located on the eastern side of the area excavated in 2004 (Figure 3) revealed additional architectural features that may or may not be associated with Str. N11-27. What appear now to be two parallel lines of stone were encountered in this trench, as was the earth and fist-sized limestone floor ballast material. A very large, flat slab of limestone, along with several other small blocks, were found in the extreme western part of this trench, close to what appears to be the northeast corner of Str. N11-27 (Figure 11).

Presently too little of this particular area of the site has been excavated to make any broad, interpretive statements about these architectural features. It is possible, particularly given their spatial proximity and stratigraphic location, that these lines of stone are associated with Str. N11-27. We may find in the 2005 season that these lines even form an integral portion of Str. N11-27 that lies to the east and possibly also to the north of the area we investigated in 2004. Removal of the upper 10 cm deposit of PAA in this area revealed numerous pieces of limestone of varying size and shape; few, if any, showed obvious signs of intentional modification (Figure 12).



Plan View of Lot LA 2928/LA 2929



Figure 12

East Trench under excavation; base of Lot LA 2908 and LA 2913 in progress. View North. Several of the larger stones in Line D (diagonal line at center) were visible above the present ground surface. Note the mass of apparent floor ballast stones in the upper right portion of the image. Also, several of the large limestone slabs were becoming visible at this point in center and left side of image (see Figure 11).

Unorganized masses of stone such as those identified just below the existing ground surface in this 1 x 2.5 m trench were identified in a trench excavated immediately to the east in 2002 (Figure 3). These stones were called core stones then (Simmons and Howard 2003:48) but they may represent floor ballast stones, either for an eastern portion (extension?) of Str. N11-27 or for another discrete architectural unit of some kind, perhaps another structure. Excavation of the upper lots in this trench (LA 2906, 2908, 2913 and 2916) revealed at least one line of limestone blocks, designated Line D, as well as another possible line of stones located parallel to Line D and slightly to the north. The second, parallel line of stones was designated Line E (Figure 11). Artifact densities were fairly light in the upper 10 cm deposit of PAA (Lots LA 2906 and LA 2908). Even fewer artifacts were recovered in the deposit that was found to be directly overlying the densely packed limestone pieces found on either sides of Lines D and E. Figure 13 shows the surface of the third excavated lot in this trench, LA 2920.

The large, flat block of apparently unmodified limestone found at the western end of the 1 x 2.5 m trench excavated in 2004 appears similar in some respects to those large, flat limestone slabs that were identified in the 2001 and 2002 field season in the northern portion of Str. N11-18 (Simmons and Howard 2003: Figures 20-23). Stratigraphically, however, the large block found in 2004 is higher, or closer to the present ground surface (Figure 13), than are those N11-18 stones. Still, it is possible that there may be some kind of functional, if not temporal, association between these curious architectural features, as they appear to form two roughly parallel alignments that each extend between 6-7 m in total length.

### **Burial N11-27/1**

Further excavations in the area that appears to be the central portion of Str. N11-27 revealed additional information on the human burial that had been encountered in 2002. Clearing of PAA deposits in what appears to be the central portion of Str. N11-27 revealed the post-cranial skeletal remains of the individual, whose head was to the southeast (Figure 14). The legs of the individual appear to have been bundled to allow for placement within the cut in the limestone plaster floor through which the burial pit was excavated.

The results of excavations in 2002 suggested that fill material, consisting of generally small pieces of limestone along with soil, covered the skull and appendicular skeleton. Lot LA 2938 was assigned for the skeletal material, although all of the skeletal material encountered in 2002 and 2004 was left *in situ* (Figure 14). The work completed in 2004 confirmed that platform fill material was brought in to build up what appears now to be the main (and possibly only) platform of Str. N11-27. It appears that limestone plaster served as flooring for the structure and a roughly 80 cm (E-W) x 40 cm (N-S) cut was made through this plaster to serve as the burial crypt for this individual.

Large chunks of limestone were used by the Maya to outline the burial, and although some appear to either have been robbed in the past it is likely that the crypt consisted of a circular outline of these stones. Figure 15 shows the relationship between



Figure 13

Base of Lot LA 2920, East Trench, Op 04-02. View North. Note large limestone slabs with Line D abutting largest slab in image. Line D may be an eastern extension of Line A, which appears to represent the north platform face of Str. N11-27 (see Figure 3). Densely packed, most fist-size limestone pieces are present on both the north and south sides of Line D, and these stones along with the dark brown soil matrix, may represent floor ballast material of the kind found immediately west of this trench.

the burial, the crypt stones and the extent of the plaster floor. The individual appears to be resting on either the back or back/left side with its head to the southeast. The left arm was found under the rib cage and the right arm was found extending to the south, palm facing up. The legs of the individual are both bent; the right femur was found between the left femur and left tibia and fibula (Figure 15). At present we do not know the sex of the individual nor do we have any other osteobiographical information. The remains were not exhumed; the skeletal material was only exposed and recorded and once this was completed the skeletal material was re-buried.

It should be noted that some of the most compelling evidence we have to date for on-site copper production comes from fill material associated with this burial. As mentioned briefly above, the burial fill likely represents floor ballast material that was

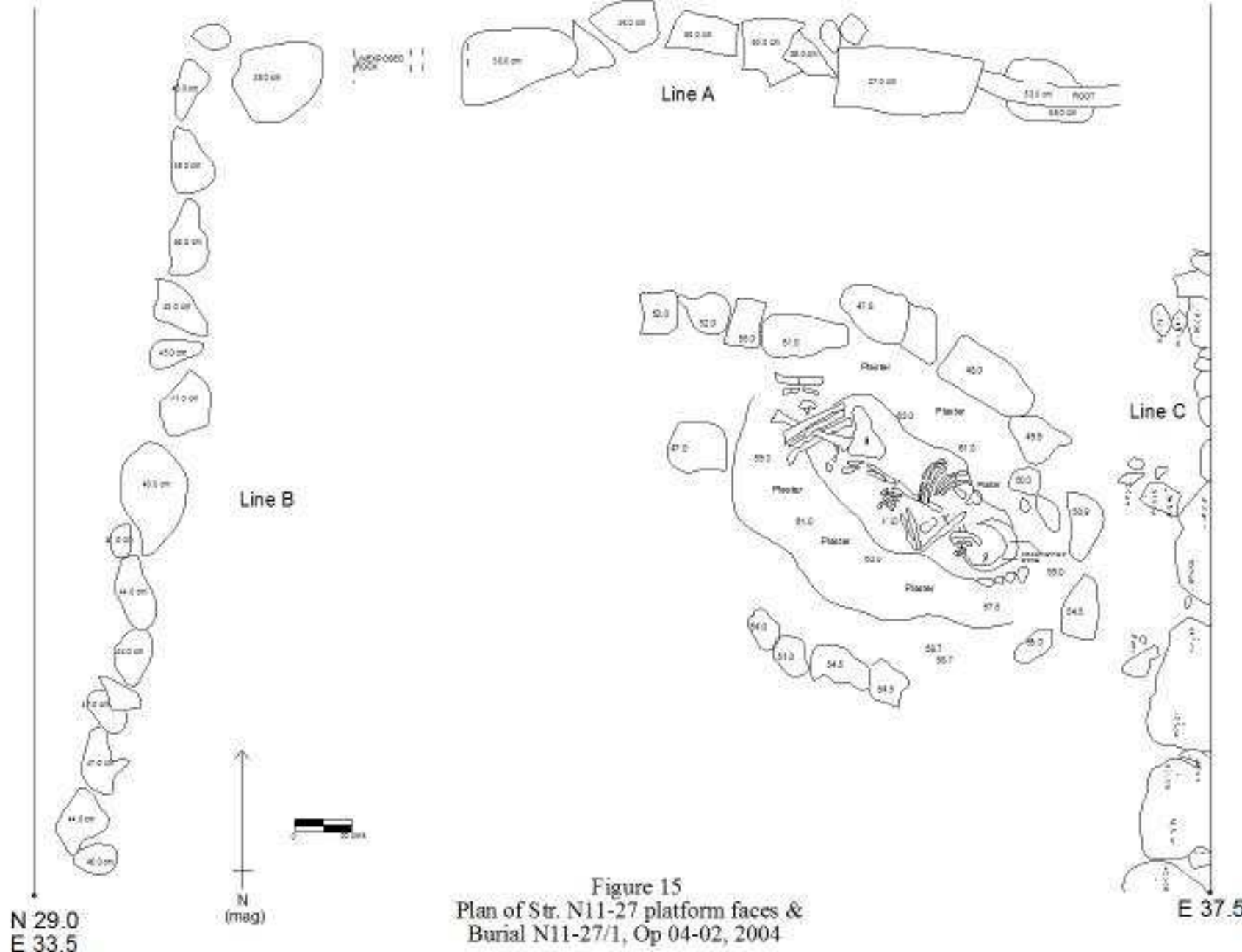




Figure 14

Overview of Str. N11-27 and Burial N11-27/1 after excavation. Top of image is north. The probable outlines of the building can be seen in the lines of stones that appear to have formed retaining walls for the earth and stone platform of the structure. Only a small area of floor ballast, composed of earth and fist-sized pieces of limestone, is unexcavated in this image; it is located in the upper left of the image at the intersection of the north and west lines of stones, Lines A & B, respectively. The east line of stones (Line C) has been partially exposed (under tape measure on right side of image). No line of stones to the south has been identified, as yet. Note that the pit for Burial N11-27/1 was cut through a portion of a probable plaster floor and that the burial itself is surrounded on its north and east sides by what are likely crypt stones, some of which also appear immediately south of the plaster flooring.

excavated for the interment and then backfilled. Small pieces of plaster, likely from the floor that was cut through for the interment, were recovered in the burial fill (Lots LA 2096, from the 2002 field season and LA 2932, from the 2004 field season). If this is so, as it seems most likely to be, then the earth that was used to construct the Str. N11-27 platform contained the copper prills and small scrap sheet pieces that were recovered in 2002. It makes sense that this earth, as well as the fist-size limestone pieces that make up the platform, originated from somewhere nearby Str. N11-18. As noted above, several



metal pellets, apparently copper prills, were recovered near the skull of the individual in 2002. Two Small Finds, LA 2932/1, a possible copper fragment and LA 2932/2, a small side-notched projectile point, were recovered in the burial fill, however these do not appear to have been intentionally buried grave goods.

Figures 16 and 17 show that the extent of the apparent plaster floor through which the burial cut was made is fairly limited within what appear to be the platform edges of Str. N11-27. Like the human burial identified north of nearby Str. N11-3 in 2001 (Simmons and Howard 2003:19-24), Burial N11-27/1 was not found in an extended or supine position, suggesting that if the individual had been a member of the Spanish Period community during the 16<sup>th</sup> or 17<sup>th</sup> centuries they had not been baptized, as apparently all baptized individuals at both Lamanai and Tipu were laid to rest in extended positions (Graham, Pendergast and Jones 1989; Graham 1991; Graham and Bennett 1989; Pendergast 1991). Another, more likely alternative is that the burial, as well as at least one period of Maya occupation of Str. N11-27 itself, pre-dates Spanish Contact.

Str. N11-27 appears on architectural and stratigraphic grounds to have undergone at least two separate construction episodes. As noted above, Burial N11-27/1 was cut through a plaster floor, only remnants of which appear to remain *in situ* (Figures 14-17). No evidence of intact plaster flooring was found in excavations outside the immediate area of Burial N11-27/1, but it is possible that the floor extended across a larger area of Str. N11-27, or that the structure was expanded out and its latest construction phase was its largest. Stratigraphically, the plaster floor and the burial itself were covered by earth and fist-sized limestone pieces, which probably represents floor ballast deposited during the last (apparently second) construction episode of the structure. It was probably during this time that the platform facing stones (Lines A, B & C) were laid to serve as retaining walls for the earth and stone platform. As mentioned above, it was not clear at the close of the 2004 field season if Line C represents an outer platform face or some sort of inner architectural feature, in which case Str. N11-27 would extend further to the east, into areas that we could not test in 2004. These areas to the east, as well as areas to the west and south, will be tested in coming field seasons.

#### *Stratigraphy and Artifacts from the 2004 MAP Field Season*

The stratigraphy noted in both the Uptown and Downtown areas north of Strs. N11-3 and N11-18, described in 2003 (Simmons and Howard), is similar to that observed in areas located outside the Str. N11-27 platform in 2004. In the extramural areas of Str. N11-27 Post Abandonment Accumulation (PAA) made up the uppermost soil deposit. This soil was characterized as a very dark brown (10YR 3/1) silty loam with varying densities of cultural material. Very few pieces of limestone of any size were noted in this PAA deposit, although some modern material was present. Likewise, little evidence of disturbance, other than the modern pieces of bottle glass and plastic was observed.



Figure 16

Close-up image of Burial N11-27/1. Note the crypt stones party encircling the burial. Crypt stones apparently were robbed on the east and west sides, with a few remaining to the south. Also note the broken, inverted metate in upper left corner of image. It is not clear if this served as a crypt stone or was simply part of the floor ballast of the last phase of occupation of Str. N11-27.

The soil deposit identified below the PAA deposit in Op 04-02 is a dark brown (7.5YR 3/2) sticky silt with some clay that measures between roughly 10-20 cms in thickness (Figures 18 & 19). This deposit may well represent an occupation surface of sorts, but this is not entirely clear at this point. It is well-compacted across Op 04-02 and artifact densities in the lots of this stratum are considerably lower than those of the upper PAA stratum. Generally speaking, the artifacts encountered in this stratum appear to be more poorly preserved than those found in the upper stratum, the post abandonment accumulation soil. Ceramic artifacts were generally weathered and eroded in appearance, with only vestiges of slip adhering to their surfaces. In addition, most sherds were lying flat or horizontally in this soil, as if they had been lying on some kind of occupation surface. Faunal preservation is not nearly as good, with many fewer bones and much smaller fragments of bones present than in the PAA deposit.

N31  
E 35.5

N31.5  
E 37.5

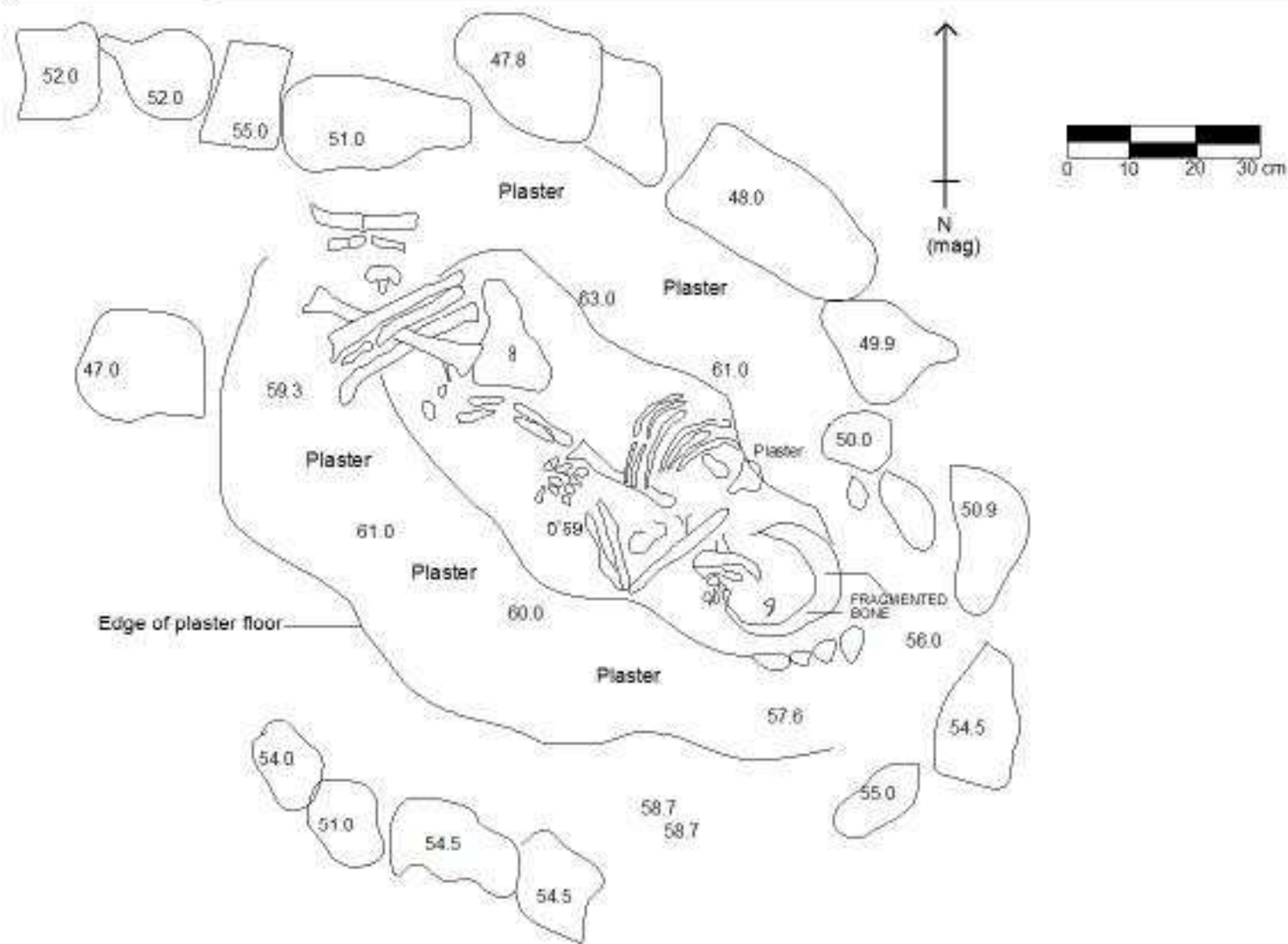


Figure 17  
Detail plan view of Burial N11-27/1  
Op 04-02, 2004

The overall condition of the artifacts recovered from this stratum suggests that they were exposed to weathering agents, specifically sun and rain, and their generally small size might be a result of trampling over a period of time. These lines of evidence suggest that this compacted brown silty clay soil may represent an occupation surface that pre-dates the intensive use of this area of the site in Late Postclassic and early Spanish Colonial times. Given that Terminal Classic Period midden deposits have been identified in this area of the site (Simmons and Howard 2003:31-32) it is not surprising that cultural material was found at depths of up to 50 cms below the present ground surface.

The deepest soil stratum encountered in Op 04-02 was a brown (7.5YR 3/4) silty clay that was sticky, very compacted and at times difficult to excavate. In the North Trench (Figure 20) a number of artifacts, mostly ceramic sherds, were recovered from this deepest soil deposit encountered in 2004. Nearly all of the artifacts were small to medium-sized and badly weathered. Chert flakes were generally small and were often patinated, although chert artifacts represented more than just a modest percentage of the total amount of cultural material recovered in Lots LA 2918 and LA 2923, the deepest lots excavated in the North Trench (Figure 20, Appendix 4). In the North Trench, our deepest excavations during the 2004 field season (at roughly 50 cms below ground surface) this compact brown silty clay deposit was found mixed with marl and/or small, broken pieces of limestone. Bedrock was not encountered in any area of Op 04-02.

Test excavations were conducted south of Str. N11-27 in order to examine the stratigraphic profile in this area of Op 04-02 and to check for the presence of other structural remains that might be associated temporally with either Strs. N11-18 or N11-27. A 1m<sup>2</sup> excavation unit was placed at N 25.0 E 30.5. Roughly 15-20 cms of dark brown silty loam (10YR 3/1) was found overlying a layer of lighter colored (7.5YR 3/2) sticky silt with some clay that ranged between roughly 10-15 cms in depth (Figure 21). Lots for the upper deposit of dark brown silty loam were LA 2926 and LA 2927 while the deeper, lighter colored deposit was LA 2931.

Artifact densities in each of these lots were not exceptionally high (Appendix 4). Bone counts, however, were comparatively high in each lot, comprising 40.2 % of the total number of objects in Lot LA 2926 and 46.4 % of the total count of objects from Lot LA 2927. Most of the bone in each of these two upper lots was fragmentary; very few whole bones were encountered. Interestingly, the amount of bone found in Lot LA 2927 (172) nearly matches the combined total of ceramic sherds and chert (182) recovered in this particular lot. In terms of soil texture and color the PAA deposits encountered in this area of the site are very similar to the midden deposits, making differentiation between the two sometimes difficult. Bone densities in midden deposits on the north side of Str. N11-18 have been found to be relatively high, and it is possible that the dark brown silty loam (10YR 3/1) encountered in this 1m<sup>2</sup> excavation unit represents a northern extension of the north side midden of Str. N11-18, located just 8 m to the southeast.

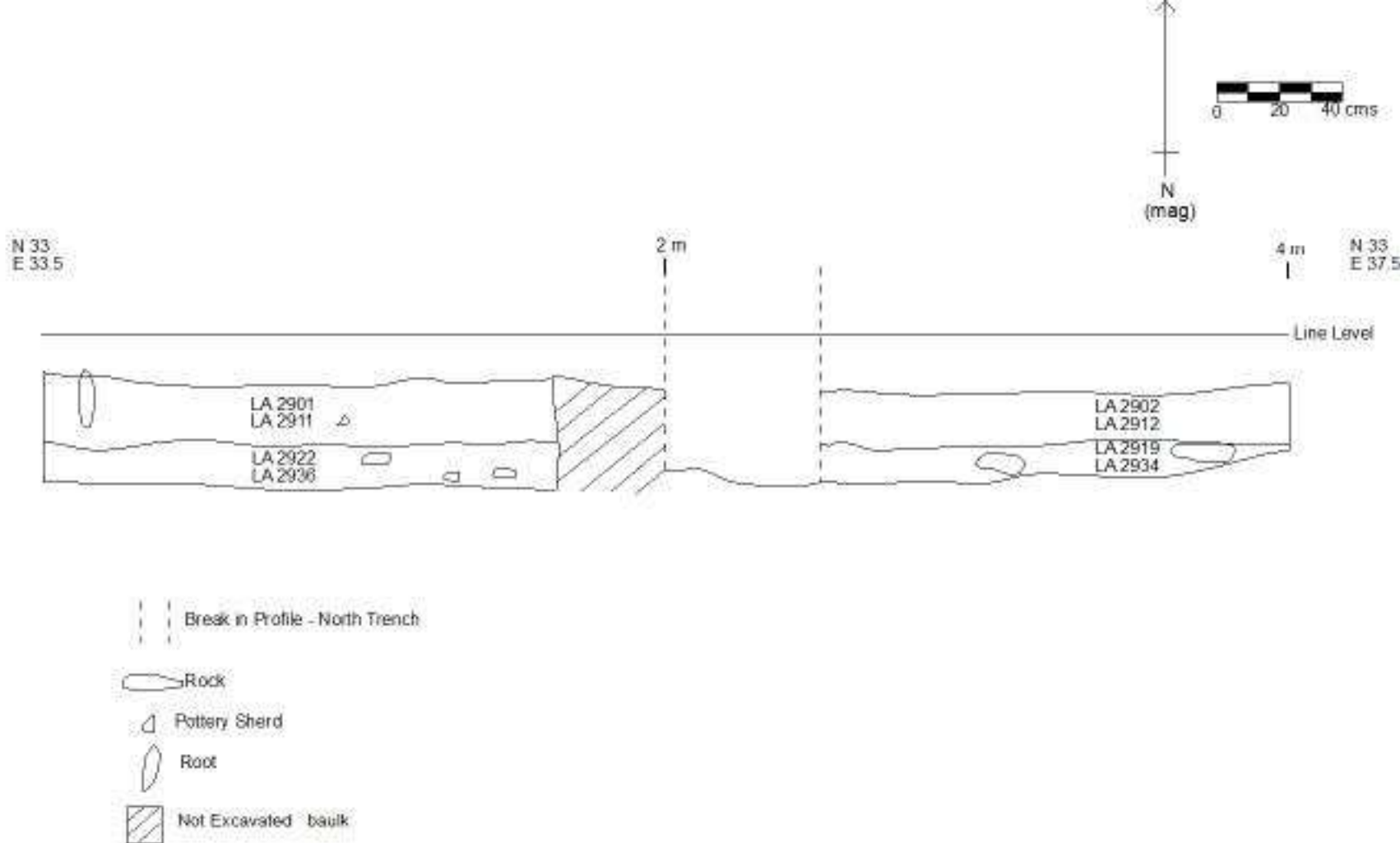
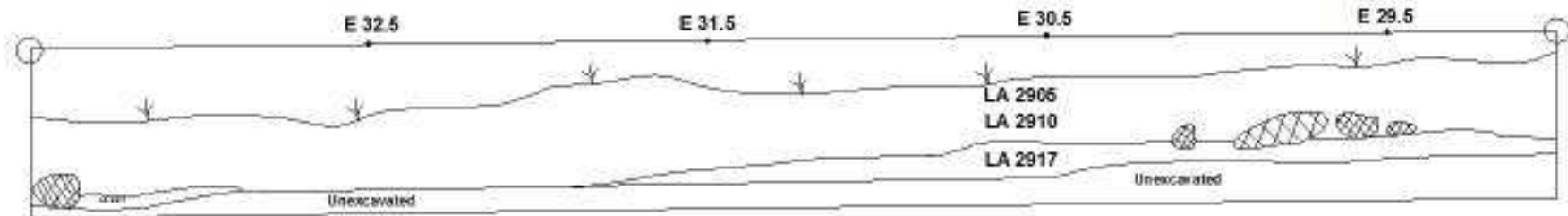



Figure 18  
Profile of N33.0 E35.5 to E37.5, located  
immediately north of Line A,  
the north platform face of  
Str. N11-27

N 29.0  
E 33.5

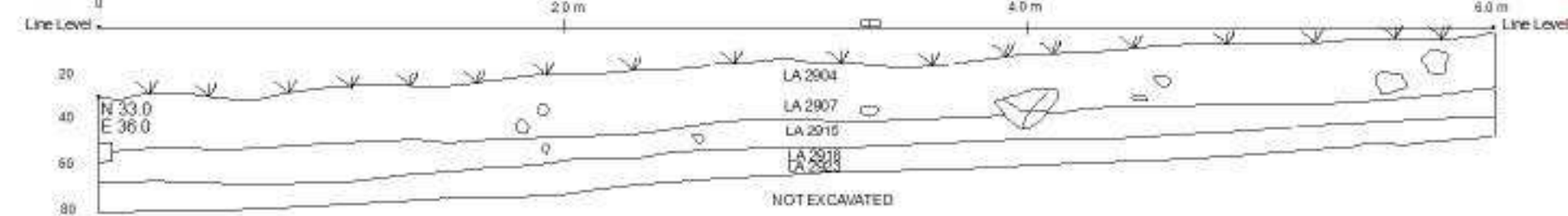


 - Stone

 - Ground Surface

Figure 19  
South Wall Profile of West Trench Lots  
LA 2905, LA 2910, LA 2917





Line Level @ 14.408 m aml

East Profile  
N33.0 E36.0



-  - Stone
-  - Ground Surface

Figure 20  
East Wall Profile of North Trench,  
Lots LA 2904, 2915, 2918, 2923

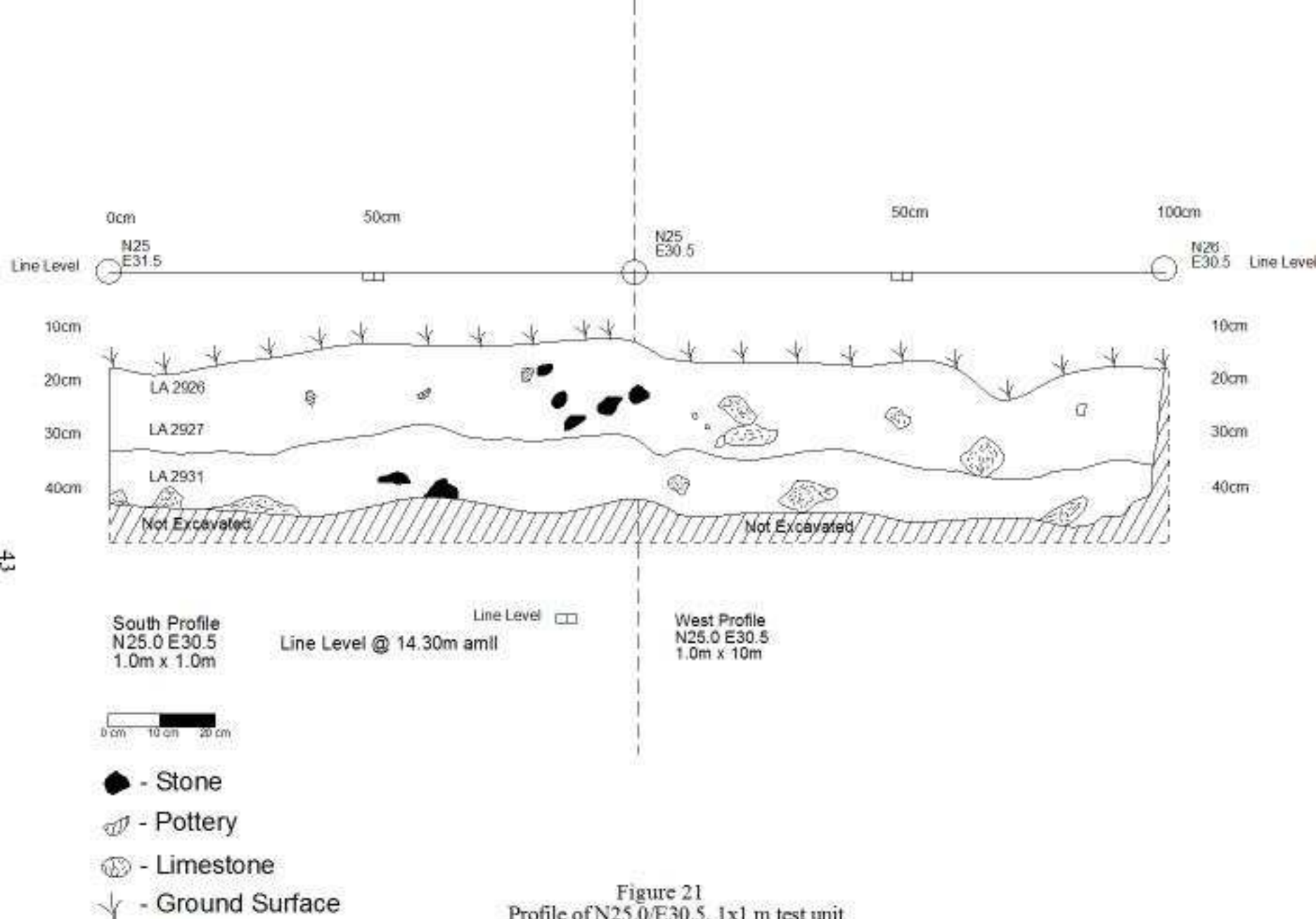


Figure 21  
Profile of N25.0/E30.5, 1x1 m test unit  
located immediately southwest  
of Str. N11-27

A layer of very densely packed layer of fist-sized pieces of unmodified limestone was found immediately below Lot LA 2931 (Figure 22). This deposit clearly is not a natural one and appears to represent floor ballast material of the kind that has been encountered elsewhere in this particular area of the site, namely at Strs. N11-18 and N11-27, between which this 1m<sup>2</sup> excavation unit is situated. No excavations were conducted below this layer of tightly packed limestone pieces as areal excavations are planned for this portion of the site in coming field seasons.

### *Dating*

Currently analyses of the ceramic artifacts recovered during 2004 are on-going and once these are completed we will be in a better position to understand when certain construction episodes took place in those areas of Str. N11-27 investigated in 2004. The question of dating, however, is complicated by the similarities that exist between the Terminal Postclassic and Spanish Colonial Period Maya ceramic assemblages (Graham 1987). The degree of temporal resolution that is afforded (or not) by the ceramic artifacts from these periods at Lamanai has been discussed elsewhere (Pendergast 1991:348).

Specifically, the presence of Yglesias ceramic sherds in deposits that contain Spanish ceramic and glass objects indicates that although this ceramic tradition began in Terminal Postclassic times, Yglesias vessels continued to be produced throughout the Spanish Colonial Period (Graham 1987:91-95; Pendergast 1991:348). This continuity in ceramic vessel form and technology parallels that seen in the lithic assemblage from Late Postclassic and Spanish Colonial times, making temporal separation of the two periods difficult in the absence of Spanish or other European artifact types (Simmons 2002:66). The presence of European objects in post abandonment accumulation and midden elsewhere in this area of the site is indicative of Spanish Colonial Period occupation of nearby Str. N11-18 (Simmons and Howard 2003). But no European material was recovered in PAA or other deposits during the 2004 field season at Str. N11-27.

Obviously, the absence of objects of European manufacture does not preclude the possibility of post-contact occupation of Str. N11-27. The decidedly non-Christian position of the human interment at Str. N11-27, as mentioned above, does argue against occupation of the structure during at least the Spanish Contact Period. Yet, again, without objects of European manufacture in either associated midden deposits (which we have not yet identified) and/or floor ballast we cannot be certain that Str. N11-27 was occupied during Spanish Colonial times. It is hoped that charcoal samples obtained from floor ballast deposits during the 2004 field season might provide some temporal clarity regarding this important question.

Certain architectural characteristics of Str. N11-27 may yield clues regarding its periods of occupation, particularly in light of what is seen at this and other Belizean sites having very late occupation components. No lines of vertically set stones were present at Str. N11-27. As mentioned above, this 'line of stone construction' (Masson 2000:77) appears commonly at Belizean sites occupied during Terminal Postclassic-Spanish



Figure 22

Image of Base of Lot LA 2931, located in a 1 x 1 m test pit situated between Strs. N11-18 and N11-27. PAA deposits were removed, along with some probable floor ballast soil, to expose this dense concentration of floor ballast stones. This architectural feature may be a part of another, as yet undocumented, structure in the immediate area of Strs. N11-18 and N11-27.

Colonial times, and may, in fact, be a temporally diagnostic architectural feature of this period. Again, the absence of these particular architectural features does not preclude the possibility that Str. N11-27 was occupied during the 16<sup>th</sup> and 17<sup>th</sup> centuries; it most certainly may have been.

At present we are uncertain of when Str. N11-27 was constructed and used, although preliminary analyses of sherds recovered from floor ballast deposits indicate that this structure was occupied during at least Terminal Postclassic times, and possibly later. Ceramic analyses are planned for sometime in 2006. Obviously the absence of European objects does not necessarily mean that building construction and/or use must pre-date Spanish contact. But given certain stratigraphic information as well as architectural affinities with other contact era structures in the Church Zone it appears that Str. N11-27 may have been constructed and in-use by sometime in the sixteenth century .

### Stabilization of the Architectural Remains of Str. N11-27

Following the completion of archaeological investigations in 2004 the low, mostly shallow architectural features encountered were covered in plastic tarps and heavy plastic sheeting and partially backfilled. The platform facing stones encountered at Str. N11-27 (Lines A-E) were covered and screened soil was banked against each face of these stones atop the tarps. In fact, where *any* architectural remains were encountered in Op 04-02 plastic tarps or heavy grade plastic sheeting were used to cover those remains and screened soil was placed atop the tarps or sheeting.

This method was used as a short-term solution for protecting the architectural remains; it is not intended as a permanent method of architectural stabilization and preservation. It is, however, both effective and useful considering that the documentation of this area is not yet complete. It is very likely that additional architectural remains, including other architectural elements of Str. N11-27 will be encountered in this area. In order to understand the spatial and (hopefully) functional relationships between new architectural features and those that were documented in 2004 it is important to be able to re-expose, if need be, previously identified architectural features. In this way it is possible to document the full spatial relationships between all these features, which will greatly facilitate their interpretation.

Lightly backfilled with screened soil and covered with heavy, industrial grade protective tarps and plastic, the architectural remains recorded in 2002 were found to be in very good condition when we returned in 2004. The methods of stabilization used in 2002 have proved to be very effective in preventing any kind of collapse of architectural features, and in fact worked well to prohibit damage from plant roots as well. At present no portion of Str. N11-27 excavated during the 2004 field season is unstable or threatened by adverse deterioration caused by archaeological investigations.

Once the investigation of this area has been completed we will consult with individuals at the Institute of Archaeology, NICH, to develop a long-term stabilization and preservation plan for Strs. N11-18 and N11-27. This may include backfilling the shallow deposits with screened soil, which would, it has been shown, protect the vertically set stones by keeping them in place. It might also be possible to include this important structure in tourism development plans for the site. In that case some reconstruction work might be contemplated so that visitors to the site can understand the architectural components and features of the building more fully.

### Copper Production at Str. N11-27: The Evidence from 2004

To our knowledge, more copper and alloyed copper artifacts have been recovered in controlled archaeological excavations from Lamanai than from any other Maya site (Simmons, Pendergast and Graham n.d.). To date, a total of 180 copper artifacts have been recovered at Lamanai (Table 6). Most of these (64%) have been recovered at or in the immediate vicinity of Strs. N11-18 and N11-27. Most of the remaining copper artifacts were recovered in association with burials in Strs N10-2 and N10-4 (discussed above).

The advent of this technology at Lamanai and in the Maya area as a whole is unknown at this point (see above discussion). But at present we have quite compelling evidence for copper production activities at Lamanai in the immediate vicinity of Strs. N11-18 & N11-27. This evidence consists of three copper ingots or pigs (LA 858/11, 881/1 and 908/1); several small pieces of scrap copper (LA 1241/1, LA 2909/7, LA 2924/12 & LA 2932/1); an apparently mis-cast needle (LA 1580/18), and several dozen mis-cast bells that represent production failures. Figure 23 shows one of the small pieces of scrap sheet metal; this object was recovered from floor ballast deposits during excavations at Str. N11-27 in 2004.

In addition, seven very small copper pellets (LA 2081/1, 2096/1, 2096/1, 2106/1, 2106/2, LA 2909/6 and LA 2937/7), almost certainly representing prills, were recovered in 2002 & 2004 at Str. N11-27. Although no production feature (or features) has been found as yet, these last artifacts, albeit quite small, add considerable weight to the hypothesis that copper production, specifically melting and casting activities, were taking place at or very near Str. N11-27.

As mentioned above, roughly two-thirds of all the copper artifacts recovered from the site thus far originate from this particular area. More than two-thirds of the copper objects that have been recovered at Str. N11-18 have been described by Hosler (1985, 1994, 1995) as status display objects, including a variety of types of bells, tweezers, and rings. Figure shows one of the small pieces of scrap sheet metal, apparently copper, that were recovered in Str. N11-27 floor ballast deposits in 2004.

In addition to the 5 copper objects recovered from Str. N11-27 in 2004, nine copper objects were recovered during testing in another part of the Church Zone by Ms. Darcy Wiewall, doctoral candidate at the University of California at Riverside. One object (LA 2373/1) is a copper needle, another is a very small bell (LA 2761/1), five are copper axe fragments (LA 2790), and the remaining two are copper pigs (LA 2790).

Table 6. Summary of Copper Artifact Types from Lamanai

Object Type	Number	Percentage of Assemblage
Bells (whole & mis-cast frags)	75	41.6
Bell clappers	1	0.5
Celt/chisel/axe	22	12.2
Ring	14	7.7
Ornament	12	6.6
Sheet fragments	8	4.4
Needles	10	5.5
Ingot/pig	8	4.4
Prill	7	3.8
Fish hook	5	2.7
Tweezers	4	2.2
Pins	4	2.2
Bell-head pin	2	1.1
Pin head	2	1.1
Tinkler	1	0.5
Pig or chisel/axe blank	1	0.5
Oblong strip	1	0.5
Unidentified	1	0.5
Chunk	2	1.1
<b>TOTAL</b>	<b>180</b>	<b>100</b>

\* totals up to end of 2004 field season

Additional evidence of on-site copper metallurgy at Lamanai comes from the lagoonside midden deposits Ms. Wiewall tested in 2004 in the form of two copper pigs (Figure 24) and five copper axe fragments. Three fragments fit together, forming one broken axe (Figure 25) while the remaining two of the five fragments also fit together, forming another copper axe (Figure 26). What is perhaps most interesting about these seven finds is their close spatial association. All five axe fragments and both pigs were found together, i.e., within 5 cms of one another. The close spatial proximity of the axe fragments and the copper pigs suggests rather strongly that axes were broken, either intentionally or unintentionally, and used as stock metal for recasting into other forms. This conforms nicely with the results of chemical compositional analyses conducted by Dr. Dorothy Hosler of MIT (Hosler 1994, 1996) and, more recently by Dr. Aaron Shugar of the Smithsonian Center for Materials Research and Education (Shugar nd).

This particular area of the site also has produced compelling evidence of Late Postclassic and Spanish Colonial Period elite occupation, both in the form of architectural



Figure 23

Small piece of scrap metal, LA 2924/12. This object was recovered during excavations of Str. N11-27 floor ballast, which consisted of fist-sized limestone pieces and earth that formed the platform of the structure.

remains and burials, a number of which have yielded copper status artifacts including bells, tweezers, buttons and rings. Pendergast (1991, 1993) believes that Str. N11-18 most likely functioned as the principal residence for Lamanai's native ruler or *cacique*. *Batab* was the title given to these individuals in pre-Contact times (Farris 1984; Restall 1998). Clendinnen (1987:208) defines the *cacique* as "an Indian chief; in colonial period the holder of a hereditary office; usually governor of the town." Spanish gift-giving to native groups, particularly the elite leaders of those groups, is fairly well documented in the Spanish colonies of the Americas (Thomas 1990).

If Str. N11-18 did function as the residence of Lamanai's *cacique* then we would expect to find the variety and quantities of European objects in and around the building that indeed have thus far been recovered. In terms of material possessions Farris (1984:178-179) relates that *batabs* (*caciques*) had much more in the way of material items than Maya commoners, had larger houses and house plots with more extensive





Figure 24

Copper pigs (LA 2790) recovered from lagoonside midden deposit. These were found in direct association with five copper axe fragments, three of which fit together and were from one axe (Figure 25) and the remaining two fit together and were from another axe (Figure 26).

kitchen gardens, orchards and smaller associated outbuildings, including possibly Str. N11-27. All of the evidence currently available for copper production activities comes from Strs. N11-18 and nearby Str. N11-27, where nearly all of the mis-cast pieces, production failures and pieces of scrap sheet copper, as well as three ingots, have been found.

In sum, the evidence for on-site copper metallurgy at Lamanai is growing. The recovery of all of the production failures, scrap pieces, and raw materials related to copper production in the Church Zone, with most coming from the immediate vicinity of Strs. N11-18 and N11-27, suggests that a copper production feature, such as a smelting/casting area, may be in the vicinity of where we have been working recently. Once such a feature is identified and studied it will be possible to begin to understand and discuss the technological nature of Maya metallurgy for the first time. Beyond this, we will be in a



Figure 25

Three Copper axe fragments (LA 2790). These were recovered from a logonside midden test in direct association with two copper pigs (LA 2790) seen in Figure 24 and two other axe fragments which fit together (Figure 26).

better position to address the principal goals of the Maya Archaeometallurgy Project, including assessing possible control of copper production and distribution by the *cacique* at Str. N11-18, as well as the role copper metallurgy played in maintaining the level of socioeconomic complexity we see at Lamanai at the time of Spanish contact (see above discussion).



Figure 26

Two copper axe fragments (LA 2790) that fit together to form a single axe. These two fragments were found in direct association with two copper pigs (LA 2790) seen in Figure 24 and three other axe fragments which fit together (Figure 25).

### Summary & Conclusions

The first three field seasons of the Maya Archaeometallurgy Project at Lamanai have been successful in terms of both teaching and research. During the 2001 and 2002 field seasons a total of thirty-eight students, including three Belizeans, were trained in archaeological field and laboratory methods at Lamanai. In 2004 a total of 14 students from a variety of US universities, completed the field school in archaeology at Lamanai. After successfully completing the field school nearly all of these students, with the exception of those that chose not to do so, received academic credits for the field school in archaeology from their home universities.

Dr. Simmons has initiated a collaborative teaching relationship with the University of Belize to further encourage the participation of Belizean students in the archaeology field school at Lamanai. We are currently working with Mr. Ewart Robateau and Dr. Ed Boles of the University of Belize to arrange the enrollment of UB students in the archaeology field school at Lamanai for academic credit. Both the University of Belize and the Lamanai Archaeological Project would like very much to have Belizean students attend the Lamanai archaeology field school. Those involved in the Lamanai Archaeological Project, particularly the author of this report, firmly believe that it is important for Belizeans to be trained in proper archaeological field and laboratory methods so that they can take a more active role in the recovery, interpretation and preservation of their country's rich cultural heritage. We look forward to working with the University of Belize for years to come.

In terms of the research conducted during 2004 there were several noteworthy achievements. First, we were able to more fully define the horizontal extent of one of Str. N11-27, possibly an outbuilding of the kind Farris (1984:178-179) mentions as typically associated with the residences of Maya *caciques*. With few exceptions, these buildings, and indeed those of Maya Contact Period *caciques*, have not been studied extensively in the Lowland Maya area. Further delineation of this structure will provide information on the architectural and functional nature of these buildings. In addition, given the presence of copper production debris in and immediately around the building it is possible that further exploration of the structure will yield important information on Maya copper production, particularly the organizational structure of this specialized craft activity. We may also gain much needed information on the timing of the advent of Maya experimentation with copper production in the Lowland Area. Since this is still an unresolved question, any information that might be available on dating the beginnings of this new technology would be quite valuable, indeed.

For the purposes of our research on the nature of Maya copper metallurgy at Lamanai several important steps were taken during 2004. First, the recovery of two more copper prills and three sheet copper fragments provides additional evidence of on-site Maya metallurgy. The recovery of these small artifacts adds to the corpus of copper objects that can be chemically analysed for manufacturing characteristics. Presently Dr. Aaron Shugar is completing an analysis of copper objects recovered from the north Side midden of Str. N11-18, and his report on the results of these analyses is forthcoming. Using analytical techniques such as laser ablation inductively coupled plasma mass

spectrometry (LA-ICP), light optical microscopy (LOM), and scanning electron microscopy (SEM), Dr. Shugar's findings add further weight to the idea that the Maya at Lamanai were actively engaged in copper production activities during Spanish colonial times, and probably earlier.

The continued absence of copper artifacts of European design, form and chemical composition adds strength to the idea that the Maya of Lamanai developed the technology of copper metallurgy prior to the arrival of the Spanish in Yucatan (Simmons 2001; Simmons, Pendergast and Graham n.d.). The recovery of the seven copper prills in contexts that likely pre-date Spanish contact can be taken as tentative evidence to support this idea as well. Undoubtedly much more work must be done in order for us to be confident in identifying copper metallurgy as an indigenous Maya technological innovation, and not one that was introduced by the Spanish after contact.

It is very clear, however, that archaeological investigations conducted during 2004 provided further compelling evidence that Str. N11-18 and its immediate environs were likely a locus for copper production, the technology for which was very new to the Maya. The productive nature of this technology has not yet been documented in the Maya area, and although to date no production features have been identified, the recovery of mis-cast copper objects and production debris, specifically the prills and scrap sheet pieces recovered in 2004, strongly suggests that we are closer than ever to identifying the locus or loci of copper production at the site.

In addition, the strength of the association between the contact period occupants of Strs. N11-18 and N11-27 and copper metallurgy seems to be growing based on information derived during MAP excavations in 2001, 2002 and 2004. Excavations during the first two seasons were focused on the north end of Str. N11-18, and roughly half (8 of 15) of the copper artifacts we recovered there were either production failures or production debris. Thus far all five of the copper artifacts recovered from excavations at nearby Str. N11-27 are production debris. The combined copper artifact total from the three field seasons is a small sample, admittedly, but as our investigations in this area continue in future years we will be in a better position to more fully assess the nature of this apparent association. The area to the east of our 2004 horizontal exposure may represent a part of Str. N11-27, or another, very closely situated building. This is an area we hope to investigate in coming field seasons.

We hope to continue our archaeological research at Str. N11-18 and its environs in 2005 and following seasons, if need be. Again, the long-term goal of archaeological research in this particular area of the site is to document and understand the relationships between copper production as a specialized craft activity and the maintenance of socioeconomic complexity at Lamanai. The relationships that appear to exist between the proximity of considerable number of copper objects, as well as nearly all of the evidence of copper production, to the probable residence of Lamanai's most important political and social figure, the *cacique*, is intriguing, and one that we look forward to exploring further in the coming years.

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## Appendix 1

Field and Laboratory forms used by the MAP and LAP at Lamanai

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<b>SITE:</b>		<b>YEAR EXCAVATED:</b>				
<b>Operation:</b>		<b>Assessment:</b>				
<b>Structure:</b>						
<b>Lot(s) Above:</b>		<b>Associated Lot:</b>				
<b>Lot(s) Below:</b>		<b>Equivalent Lot(s):</b>				
<b>Thickness of Deposit:</b>	<b>Area:</b>	<b>Volume:</b>				
<b>Grid Reference:</b>						
<b>Date of Deposit?</b>						
<b>Screened?</b> <input type="checkbox"/> <b>Quantity:</b> <b>Screen Size?:</b>						
<b>Float?</b> <input type="checkbox"/> <b>Quantity:</b>						
<b>Photos:</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td></tr> </table>					
<b>Datum Point(s):</b>	<b>Relationship to Datum and/or Surface (Vertical):</b>					
	<b>Relationship to Datum (Horizontal):</b>					
<b>Location of Drawings &amp; Field Notes:</b>						
<b>Soil Description (Munsell):</b>						
<b>Evidence of Disturbance?:</b>						
<b>Other Observations/Artifacts/Notes etc.:</b>						

**Entered by & Date:** \_\_\_\_\_

**Lamanai Archaeological Project  
SMALL FINDS RECORD**

LOT/CATALOGUE NUMBER:

<b>SITE:</b>		<b>YEAR EXCAVATED:</b>	
<b>PROVENIENCE:</b>			
Structure:		Burial No:	
Cache No:		Other (specify):	
Grid Reference:			
<b>CHARACTERISTICS:</b>			
Material:		Category (e.g., use/function):	
Description (1st level):		Type (specialization):	
Description continued:			
2nd level:	3rd level:	4th level:	
REMARKS:			
<b>DIMENSIONS:</b>			
Length:		Thickness:	
Width:		Diameter:	
Other Dimensions? (SPECIFY):			
REMARKS:			
Illustrate? <input type="checkbox"/>	Photo? <input type="checkbox"/>	Float? <input type="checkbox"/>	Screen? <input type="checkbox"/>
<b>ILLUSTRATION:</b>			

Entered by: \_\_\_\_\_





DATE \_\_\_\_\_

## LAP ARTIFACT COUNT SHEET

LOT# \_\_\_\_\_

<b>Sherds:</b>	<b>Chert:</b>	<b>Bone:</b>
<b>Notched Sherds:</b>	<b>Obsidian:</b>	<b>Shell:</b>
<b>Perforated Sherds:</b>	<b>Ground Stone:</b>	<b>Teeth:</b>
<b>Other Worked Sherds:</b>	<b>Granite:</b>	<b>Charcoal:</b>
<b>Spindle Whorls:</b>	<b>Slate:</b>	<b>Limestone (artifact):</b>
<b>Date Seed Sinkers:</b>	<b>Basalt:</b>	<b>Daub:</b>
<b>Metal:</b>	<b>Pyrite:</b>	<b>Stucco:</b>
<b>Silver:</b>	<b>Hematite:</b>	<b>Mudstone:</b>
<b>Copper:</b>	<b>Quartzite:</b>	<b>Jade:</b>
<b>Bronze:</b>	<b>Rock Crystal:</b>	<b>Pearls:</b>
<b>Iron:</b>	<b>Sandstone:</b>	<b>Turquoise:</b>
<b>Brass:</b>	<b>Metamorphic:</b>	<b>Coral:</b>
<b>Gold:</b>	<b>Plastic:</b>	<b>Foreign Stone:</b>
	<b>Glass:</b>	

DATE \_\_\_\_\_

## LAP ARTIFACT WEIGHT SHEET

LOT# \_\_\_\_\_

<b>Sherds:</b>	<b>Chert:</b>	<b>Bone:</b>
<b>Notched Sherds:</b>	<b>Obsidian:</b>	<b>Shell:</b>
<b>Perforated Sherds:</b>	<b>Ground Stone:</b>	<b>Teeth:</b>
<b>Other Worked Sherds:</b>	<b>Granite:</b>	<b>Charcoal:</b>
<b>Spindle Whorls:</b>	<b>Slate:</b>	<b>Limestone (artifact):</b>
<b>Date Seed Sinkers:</b>	<b>Basalt:</b>	<b>Daub:</b>
<b>Metal:</b>	<b>Pyrite:</b>	<b>Stucco:</b>
<b>Silver:</b>	<b>Hematite:</b>	<b>Mudstone:</b>
<b>Copper:</b>	<b>Quartzite:</b>	<b>Jade:</b>
<b>Bronze:</b>	<b>Rock Crystal:</b>	<b>Pearls:</b>
<b>Iron:</b>	<b>Sandstone:</b>	<b>Turquoise:</b>
<b>Brass:</b>	<b>Metamorphic:</b>	<b>Coral:</b>
<b>Gold:</b>	<b>Plastic:</b>	<b>Foreign Stone:</b>
	<b>Glass:</b>	



## Appendix 2

Summary of Lots Excavated, Operation 04-02, 2004 MAP Field Season

Appendix 2. Summary of Lots Excavated for Op 04-02, Lamanai, Belize 2004

Number	Area	Lot Description
LA 2900	N11-27	Very dark gray (10YR3/1) soil; 2x2m unit. First 10cm level; PAA. Lot immediately above LA 2909 @ N29 E35.5
LA 2901	N11-27	Very dark gray (10YR3/1) soil; 2x2m unit. 10m excavated area; PAA. Lot immediately above LA 2911 @ N31 E33.5
LA 2902	N11-27	Very dark gray (10YR3/1) soil; 2x2m unit. 10m excavated area; PAA. Lot immediately above LA 2912 @ N31 E35.5
LA 2903	N11-27	Very dark. gray (10YR3/1) soil; 2x2m unit. 10m excavated area; PAA. Lot immediately above LA 2913 @ N27 E 35.5
LA 2904	N11-27	Very dark. gray (10YR3/1) soil; .50x6m excavated area; PAA. Lot immediately above LA 2907 @ N33 E35.5
LA 2905	N11-27	Very dark. gray (10YR3/1) soil; .50x4.5m trench; PAA. Lot immediately above LA 2910 @ N28.5 E 29.0
LA 2906	N11-27	Very dark. gray (10YR3/1) soil; .50x2.5m trench; PAA. Lot immediately above LA 2913 @ N32 E37.5
LA 2907	N11-27	Very dark. gray (10YR3/1) soil; .50x6m; PAA. Lot immediately below LA 2904 @ N33 E 35.5
LA 2908	N11-27	Very dark. gray (10YR3/1) soil; .50x2.5m; PAA. Lot immediately above LA 2916 @ N32.5 E37.5
LA 2909	N11-27	Very dark. gray (10YR3/1) soil; 2x2x.10m; PAA. Lot located immediately below LA 2900 @ N29 E33.5
LA 2910	N11-27	Very dark. gray (10YR3/1) soil; .50x4.5m trench; PAA. Lot located immediately below LA 2905 @ N28.5 E29.0
LA 2911	N11-27	Very dark. gray (10YR3/1) soil; .50x6m trench; PAA. Lot immediately below LA 2901 @ N31.0 E33.5
LA 2912	N11-27	Very dark. gray (10YR3/1) soil; 2x2x.10m excavated area; PAA. Lot immediately below LA 2902 @ N33.0 E35.5
LA 2913	N11-27	Very dark. gray (10YR3/1) soil; .50x2.5x.10m trench; PAA. Lot located immediately below LA 2906 @ N32 E37.5
LA 2914	N11-27	Very dark. gray (10YR3/1) soil; 2x2x.10m area; PAA. Lot immediately below LA 2903 @ N27 E35.5
LA 2915	N11-27	.5x6m N-S oriented trench. Lot immediately below LA 2907
LA 2916	N11-27	Very dark. gray (10YR3/1) soil; .50x2.5m; PAA. Lot located immediately below LA 2908 @ N32.5 E37.5
LA 2917	N11-27	Very dark. gray (10YR3/1) soil; .50x4.5m trench; occupation surface? Lot located immediately below LA 2910 @ N28.5 E29.0
LA 2918	N11-27	.5x6m N-S oriented trench. Lighter gray-brown soil. Lot immediately below LA 2915
LA 2919	N11-27	2x2x.10m area. Lot immediately below LA 2912 @ N31 E 35.5
LA 2920	N11-27	1x2.5x.10m area. Lot immediately below lots LA 2913 and 2916 @ N32 E37.5
LA 2921	N11-27	Very dark. gray (10YR3/1) soil. First 10cm lot @ N29 E32.5
LA 2922	N11-27	Very dark. gray (10YR3/1) soil except in NW corner, where lighter clay is appearing; 2x2x.10m area. Lot immediately below LA 2911 @ N31.0 E33.5
LA 2923	N11-27	Lighter gray-brown soil; .5x6m N-S oriented trench. Lot immediately below LA 2918 @ N33 E35.5
LA 2924	N11-27	2x2x.10m level. Lot immediately below LA 2909 LA 2909 @ N29 E35.5. In cobble floor ballast
LA 2925	N11-27	Very dark gray (10YR3/1) soil; 1x2x.10m area; PAA. Lot below LA 2921 @ N29 E32.5
LA 2926		Very dark gray (10YR3/1) soil; 1x1x.10m; PAA. First lot in 1m <sup>2</sup> excavation unit located @ N25 E30.5
LA 2927		Very dark gray (10YR3/1) soil; 1x1x.10m; PAA. Second 10cm lot in 1m <sup>2</sup> excavation unit located @ N25 E30.5
LA 2928	N11-27	Lighter brown soil, clayey & 'gummy'; In southern ½ of 1x2.5m N11-27excavation area, on S. side of stone alignment @ 280° on p. 6 of Stacie Mallas' Chartwell

LA 2929	N11-27	In northern ½ of unit, north of stone alignment @ 280° on p. 6 of Stacie Mallas' Chartwell
LA 2930	N11-27	Third 10cm lot in 2x2x.10, excavation area @ N27 E 35.5; area of dense fist & smaller-sized stones (fill in between those stones)
LA 2931		Third 10cm lot in 1x1x.10m excavation unit @ N25 E30.5; secondary midden?
LA 2932	N11-27	Burial fill in S. ¼ of 2x2m excavation unit @ N31 E35.5. Area located south of arc of stones that might represent a burial crypt. Area measures +/- 70cm (N-S) x 1.3m (E-W)
LA 2933	N11-27	Area north of burial crypt between 'arc' of stones and E-W line of stones that roughly bisects 2x2m excavation unit @ N31 E35.5. Area measures +/- 70cm (N-S) x 2.0m (E-W)
LA 2934	N11-27	Area north of E-W oriented line of stones bisecting (roughly) the excavation unit @ N31 E35.5; roughly 1x2m area
LA 2935	N11-27	Floor ballast in excavation unit @ N29 E35.5 in S. ½ of 2m <sup>2</sup> unit. Area measures roughly 92cms (N-S) x 2m (E-W)
LA 2936	N11-27	Area north of large stones that roughly bisect the excavation unit @ N29 E35. Area measures roughly 80cms (N-S) x 2m (E-W)
LA 2937	N11-27	Very dark gray soil; 1x2x.10cm area. Lot immediately below lot LA 2925 @ N29 E32.5
LA 2938	N11-27	Burial (skeletal material; N11-27) – N31 E35.5 & N29 E35.5; burial fill is LA 2932

## Appendix 3

Small Finds Recovered from Op 04-02, 2004 MAP Field Season



## LAMANAI ARCHAEOLOGICAL PROJECT

Small Finds Record  
OP 04-02, Lamanai, Belize

### **Lot LA 2105** (continued from 2002 field season)

#### **Lot/Small Find #      Description**

- |             |               |
|-------------|---------------|
| 1. LA2105/1 | Used in 2002  |
| 2. LA2105/2 | Shell Bead    |
| 3. LA2105/3 | Figurine Hand |

### **Lot LA 2900**

#### **Lot/Small Find #      Description**

- |               |       |
|---------------|-------|
| 1. LA2900 / 1 | Slag? |
|---------------|-------|

### **Lot LA 2901**

#### **Lot/Small Find #      Description**

- |             |                    |
|-------------|--------------------|
| 1. LA2901/1 | Obsidian SNP       |
| 2. LA2901/2 | Net Sinker         |
| 3. LA2901/3 | Chert Drill        |
| 4. LA2901/4 | Chert Flake Tool   |
| 5. LA2901/5 | Chert Flake Tool   |
| 6. LA2901/6 | Ceramic Pipe       |
| 7. LA2901/7 | Stemed Chert Blade |

### **Lot LA 2902**

#### **Lot/Small Find #      Description**

- |             |                      |
|-------------|----------------------|
| 1. LA2902/1 | Ceramic Net Sinker   |
| 2. LA2902/2 | Chert Core           |
| 3. LA2902/3 | Worked Sherd         |
| 4. LA2902/4 | Net Sinker           |
| 5. LA2902/5 | Unknown (Fish Shape) |
| 6. LA2902/6 | Chert Biface         |

### **Lot LA 2903**

#### **Lot/Small Find #      Description**

NO SMALL FINDS

**Lot LA 2904**

**Lot/Small Find #      Description**

- 1. LA2904/1              Bifacial Chert Point
- 2. LA2904/2              Chert Biface
- 3. LA2904/3              Chert Point

**Lot LA 2905**

**Lot/Small Find #      Description**

- 1. LA2905/1              Zoomorphic Ceramic

**Lot LA 2906**

**Lot/Small Find #      Description**

- 1. LA2906/1              Chert SSNP

**Lot LA 2907**

**Lot/Small Find #      Description**

- 1. LA2907/1              Chert Biface
- 2. LA2907/2              SSNP
- 3. LA2907/3              Ceramic Sinker
- 4. LA2907/4              Metal Square Nail
- 5. LA2907/5              Date Seed Net Sinker
- 6. LA2907/6              Adornment Shell
- 7. LA2907/7              Medial Biface (chert) Section

**Lot LA 2908**

**Lot/Small Find #      Description**

NO SMALL FINDS

**Lot LA 2909**

**Lot/Small Find #      Description**

- 1. LA2909/1              Date Seed Net Sinker
- 2. LA2909/2              Chert Biface
- 3. LA2909/3              SSNP
- 4. LA2909/4              SSNP
- 5. LA2909/5              SSNP
- 6. LA2909/6              Copper prill
- 7. LA2909/7              Scrap Sheet Copper
- 8. LA2909/8              Chert Biface

**Lot LA 2910**

**Lot/Small Find #      Description**

- 1. LA2910/1      Chert Blade
- 2. LA2910/2      Obsidian Point
- 3. LA2910/3      Broken Chert Biface

**Lot LA 2911**

**Lot/Small Find #      Description**

- 1. LA2911/1      Date Seed Net Sinkers
- 2. LA2911/2      Date Seed Net Sinkers
- 3. LA2911/3      Date Seed Net Sinkers
- 4. LA2911/4      Notched Sherd
- 5. LA2911/5      Chert Biface Blade
- 6. LA2911/6      Chert Flake Tool
- 7. LA2911/7      Adornment Shell

**Lot LA 2912**

**Lot/Small Find #      Description**

- 1. LA2912/1      Chert Core
- 2. LA2912/2      Shell Adornment
- 3. LA2912/3      Chert Core

**Lot LA 2913**

**Lot/Small Find #      Description**

NO SMALL FINDS

**Lot LA 2914**

**Lot/Small Find #      Description**

- 1. LA2914/1      Ceramic Eye
- 2. LA2914/2      Ceramic Bead
- 3. LA2914/3      Button
- 4. LA2914/4      SSNP
- 5. LA2914/5      Chert Point

**Lot LA 2915**

**Lot/Small Find #      Description**

- 1. LA2915/1      Net Sinkers
- 2. LA2915/2      Chert Blade
- 3. LA2915/3      Net Sinkers
- 4. LA2915/4      Net Sinkers
- 5. LA2915/5      Chert Unifaces

**Lot LA 2916**

**Lot/Small Find #    Description**

NO SMALL FINDS

**Lot LA 2917**

**Lot/Small Find #    Description**

NO SMALL FINDS

**Lot LA 2918**

**Lot/Small Find #    Description**

1. LA2918/1                      Shell Adornment

**Lot LA 2919**

**Lot/Small Find #    Description**

1. LA2919/1                      Preforated Ceramic  
2. LA2919/2                      Small Flint  
3. LA2919/3                      Stone Mano  
4. LA2919/4                      Chert Biface  
5. LA2919/5                      Chert Biface  
6. LA2919/6                      Chert Biface  
7. LA2919/7                      Chert Core  
8. LA2919/8                      Chert Biface Fragment  
9. LA2919/9                      Chert Core  
10.LA2919/10                      Chipped Chert Flake  
11.LA2919/11                      Chert Scraper

**Lot LA 2920**

**Lot/Small Find #    Description**

1. LA2920/1                      Copper prill  
2. LA2920/2                      Biface Point  
3. LA2920/3                      Core  
4. LA2920/4                      Biface/Chipped Point  
5. LA2920/5                      Stemmed Microblade

**Lot LA 2921**

**Lot/Small Find #    Description**

1. LA2921/1                      Chert Biface  
2. LA2921/2                      Chert Biface

### **Lot :A 2922**

#### **Lot/Small Find #      Description**

- |             |              |
|-------------|--------------|
| 1. LA2922/1 | Unassigned   |
| 2. LA2922/2 | Biface Point |
| 3. LA2922/3 | Net Sinker   |
| 4. LA2922/4 | Blade        |
| 5. LA2922/5 | Core         |

### **Lot LA 2923**

#### **Lot/Small Find #      Description**

- |             |                    |
|-------------|--------------------|
| 1. LA2923/1 | Decorated Bone     |
| 2. LA2923/2 | Chert Cutting Tool |
| 3. LA2923/3 | Biface Fragment    |

### **Lot LA 2924**

#### **Lot/Small Find #      Description**

- |              |                         |
|--------------|-------------------------|
| 1. LA2924/1  | possible slag           |
| 2. LA 2924/2 | possible slag           |
| 3. LA 2924/3 | possible slag           |
| 4. LA 2924/4 | possible slag           |
| 5. LA 2924/5 | possible slag           |
| 6. LA 2924/6 | possible slag           |
| 7. LA 2924/7 | Bipoint Biface          |
| 8. LA 2924/8 | Granite Metate Fragment |
| 9. LA 2924/9 | Hammer Stone            |
| 10.LA2924/10 | Point                   |
| 11.LA2924/11 | Chert Point             |
| 12.LA2924/12 | Copper Fragment         |

### **Lot LA 2925**

#### **Lot/Small Find #      Description**

- |             |                  |
|-------------|------------------|
| 1. LA2925/1 | Unassigned       |
| 2. LA2925/2 | Perforated Sherd |
| 3. LA2925/3 | SSNP             |
| 4. LA2925/4 | Biface Fragment  |
| 5. LA2925/5 | Core             |

### **Lot LA 2926**

#### **Lot/Small Find #      Description**

- |             |            |
|-------------|------------|
| 1. LA2926/1 | Net Sinker |
|-------------|------------|

**Lot LA 2927**

**Lot/Small Find #      Description**

- 1. LA2927/1              Chert Biface Point
- 2. LA2927/2              Metal Nail
- 3. LA2927/3              Clay Bead

**Lot LA 2928**

**Lot/Small Find #      Description**

NO SMALL FINDS

**Lot LA 2929**

**Lot/Small Find #      Description**

- 1. LA2929/1              Partial Biface

**Lot LA 2930**

**Lot/Small Find #      Description**

- 1. LA2930/1              Metate
- 2. LA2930/2              Metamorphic Rock
- 3. LA2930/3              Ceramic Rattle Bead
- 4. LA2930/4              Chert Tool
- 5. LA2930/5              Uniface

**Lot LA 2931**

**Lot/Small Find #      Description**

- 1. LA2931/1              Date seed Net sinker

**Lot LA 2932**

**Lot/Small Find #      Description**

- 1. LA2932/1              Copper Fragment
- 2. LA2932/2              SSNP
- 3. LA2932/3              Shell Bead

**Lot LA 2933**

**Lot/Small Find #      Description**

NO SMALL FINDS

**Lot LA 2934**

**Lot/Small Find #    Description**

1. LA2934/1            Biface

**Lot LA 2935**

**Lot/Small Find #    Description**

NO SMALL FINDS

**Lot LA 2936**

**Lot/Small Find #    Description**

1. LA2936/1            Chert Tool  
2. LA2936/2            Broken Biface  
3. LA2936/3            Broken Biface  
4. LA2936/4            Perforated Sherd  
5. LA2936/5            Ceramic Net sinker  
6. LA2936/6            Obsidian Blade  
7. LA2936/7            Copper prill

**Lot LA 2937**

**Lot/Small Find #    Description**

1. LA2937/1            Core  
2. LA2937/2            Partial Biface  
3. LA2937/3            Partial Biface  
4. LA2937/4            prill  
5. LA2937/5            Core  
6. LA2937/6            Possible prill  
7. LA2937/7            Core

**Lot LA 2938**

**Lot/Small Find #    Description**

NO SMALL FINDS

**Lot LA 2939**

**Lot/Small Find #    Description**

1. LA2939/1            Core  
2. LA2939/2            Ceramic Bead  
3. LA2939/3            Ceramic Rattle  
4. LA2939/4            Rattle  
5. LA2939/5            Slag

Appendix 4

Summary of Counts of Artifacts by Type Recovered in 2004, Operation 04-02





## Summary of Artifact Counts by Lot, 2004 Field Season, Lamanai, Belize (cont'd)

	Ceramic sherds	Chert	Bone	Obsidian	Shell	Stucco/ Plaster	Glass	Historic Ceramics	Special Ceramics	Small Finds	Quartzite	Teeth	Metal	Slate	Metamorph ic	Hematite	Total Artifact Count
LA 2917	228	52	47	7	12	0	0	0	0	1	0	0	0	0	2	0	349
LA 2918	472	72	5	0	1	0	0	0	0	0	1	0	0	0	0	0	551
LA 2919	391	132	32	6	1	0	0	0	0	6	4	0	0	0	4	0	576
LA 2920	128	29	22	2	0	0	0	0	0	5	7	0	0	0	0	0	193
LA 2921	96	40	36	2	3	0	6	1	0	0	1	0	6	0	0	0	191
LA 2922	179	57	20	1	0	3	0	1	4	1	3	0	0	0	0	0	269
LA 2923	298	43	2	3	2	0	0	0	4	4	4	0	0	0	0	0	360
LA 2924	209	16	24	8	1	0	0	0	1	11	0	0	0	0	0	0	270
LA 2925	107	52	62	4	3	0	0	0	7	4	0	0	0	0	0	0	239
LA 2926	108	16	85	1	0	0	0	0	0	1	0	0	0	0	0	0	211
LA 2927	159	23	172	2	4	7	0	0	2	2	0	0	0	0	0	0	371
LA 2929	20	6	1	0	0	0	0	0	0	1	1	0	0	0	0	0	29
LA 2930	431	70	31	3	1	4	0	0	0	1	4	0	0	0	0	0	545
LA 2931	106	43	54	2	1	2	0	0	1	1	0	0	0	0	0	0	210
LA 2937	135	47	17	1	2	0	0	0	0	7	0	0	0	0	0	0	209