Preliminary Report of the 2001-2002 Field Seasons at Lamanai, Belize: The Maya Archaeometallurgy Project and Lamanai Archaeological Project Field School

by
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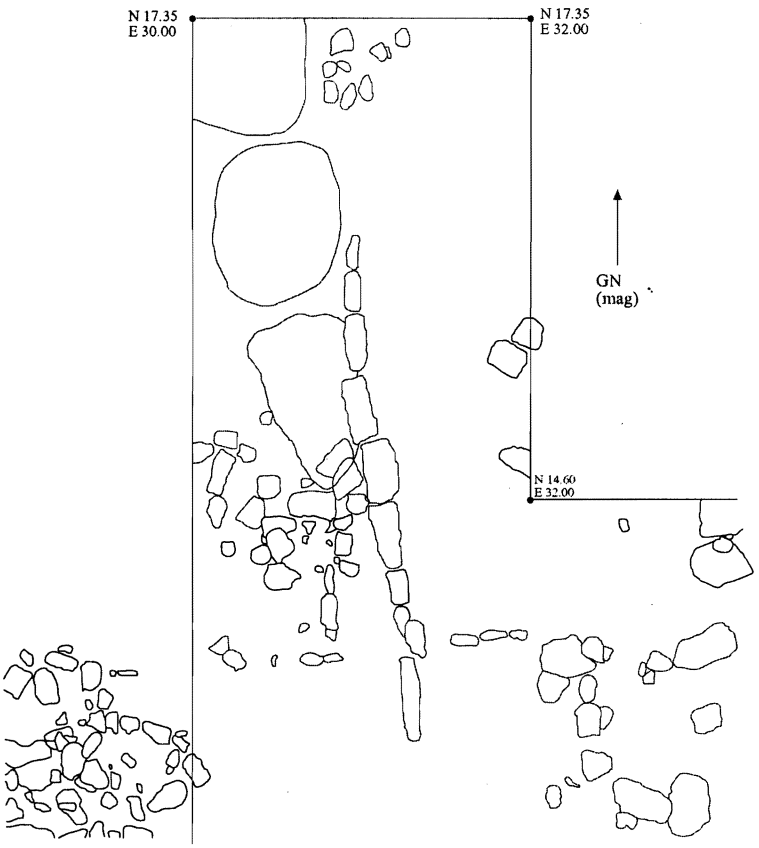

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Abstract

The following is a preliminary report of the 2001-2002 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 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.

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Acknowledgements

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Introduction

This report presents the results of archaeological research in 2001 and 2002 at the Maya site of Lamanai, located in the Orange Walk District of Belize (Figure 1). These two field seasons comprise the second and third seasons of the Maya Archaeometallurgy Project (MAP), a research program initiated in 1999.

Both field seasons were sponsored by the Lamanai Field Research Centre and operated under permits issued by the Belize Department of Archaeology to Dr. Elizabeth Graham. The 2001 archaeology program lasted a total of eight weeks. During this time two archaeological field school sessions were held. The first of these, a four-week field school, was held between May 27 and June 24, 2001. A total of nine students, including two Belizeans, were enrolled in this first session. The second, a three-week session, was held between July 16 and August 6, 2001, and fourteen students were enrolled in this second field school session. In 2002, the field school in archaeology was co-sponsored by the Lamanai Field Research Centre and the University of North Carolina at Wilmington, and was held between June 4 and July 2, 2002. A total of fifteen students, including one Belizean from Indian Church Village, were enrolled in the 2002 field school in archaeology at Lamanai. The field schools during 2001 and 2002 were comprised of undergraduate and graduate students from the United States, Canada, Great Britain, and Belize. Dr. Scott E. Simmons and Ms. Laura Howard are Co-Directors of the field schools in archaeology at Lamanai.

The Maya Archaeometallurgy Project at Lamanai, Belize 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). 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 discussed herein 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" indicate 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

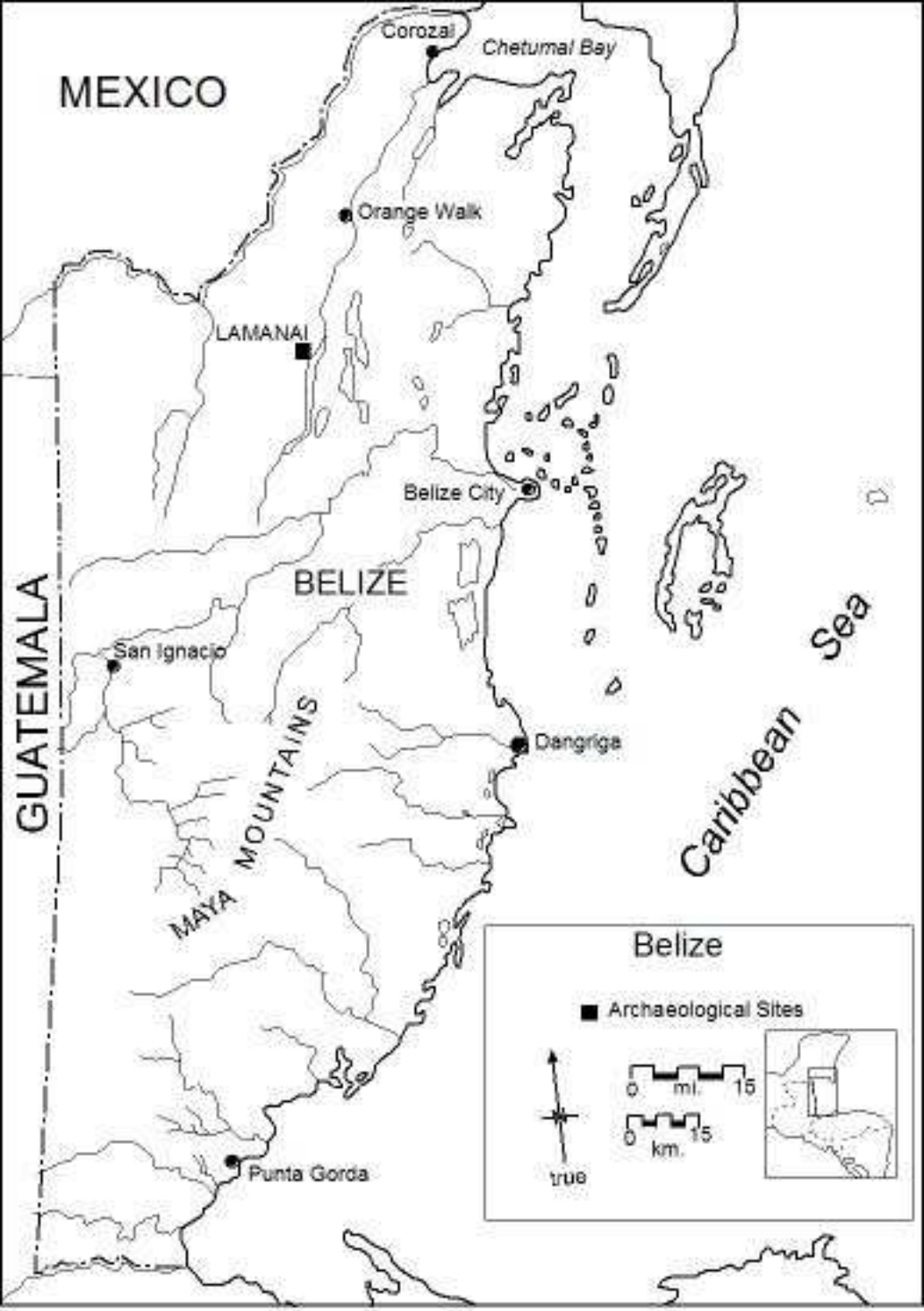


Figure 1
Belize and the location of Lamanai

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). More recent research conducted at Lamanai, directed since 1997 by Dr. Elizabeth Graham, has focused on investigations in both Classic Period and Late Postclassic Period areas of the site.

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 and Pendergast 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 and Pendergast n.d.).

The research conducted during the field schools in archaeology at Lamanai during 2001 and 2002 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.

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 2001), 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 dieties (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 or were attached to local elites
- Understand the specific nature of productive activities, such as the creation of molds, smelting, casting, and annealing techniques, and recycling behaviour
- Examine current models that focus on the relationships between craft production, political economies and socioeconomic complexity

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 2001; 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.

<u>Maya Metallurgy – Summary Overview of the Current State of Knowledge</u>

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 13th 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 four copper ingots 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

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 and Pendergast 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). Here we present 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 19th 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 endeavour, 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

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

Research Goals and Methods for the 2001-2002 Field Seasons

The research goals for the 2001 and 2002 field seasons were to 1) begin the process of completing the architectural documentation of Str. N11-18, 2) explore extramural areas of Strs. N11-18 and N11-3 for evidence of metalworking activities, specifically the production of copper and bronze objects, and 3) document the spatial and functional relationships between these structures and copper production activities.

Since an important goal of the work was to identify possible copper production areas at the site, horizontal or block excavations, rather than trenching, was carried out over the areas investigated in 2001 and 2002. Most excavation blocks measured $2m^2$, although lesser numbers of $1m^2$ areas were excavated as well.

The area investigated during 2001 and 2002 in the immediate vicinity of Str. N11-3 was referred to as 'Uptown,' whereas the area investigated in the immediate vicinity of Str. N11-18 was designated 'Downtown' (Figure 2). 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. During 2001 the MAP investigations were designated Op 01-05; during 2002 our investigations were designated Op 02-06 (see Table 2).

In general, the field and lab methods used to conduct the 2001 and 2002 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

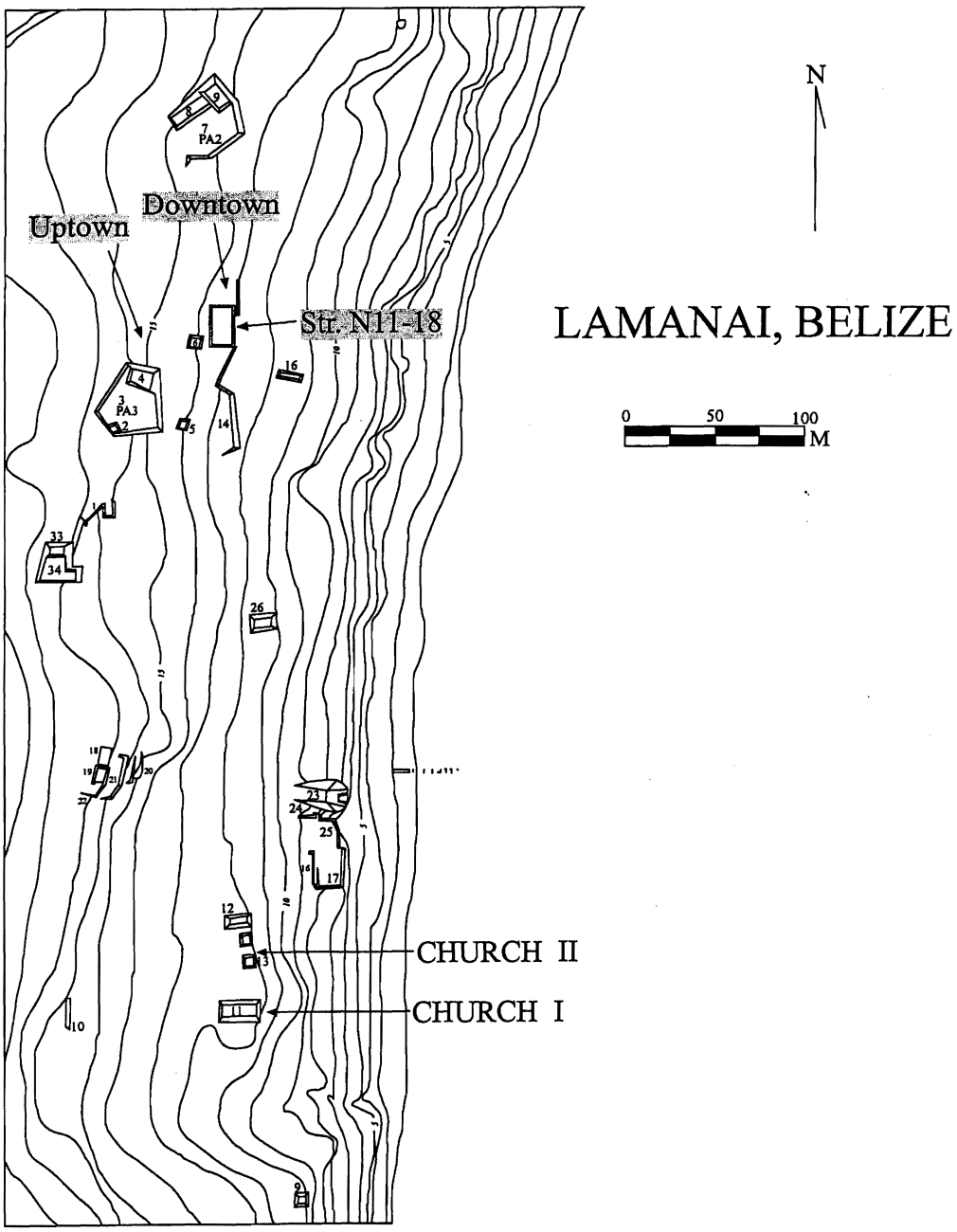


Figure 2
Site Plan
Lamanai, Belize

Table 2. Description of Field and Laboratory Recording Procedures*

LAP System	2001 & 2002 Field Season designations used	Description
OPERATIONS	**2001**: OP 01-5 **2002**: OP 02-6	OP indicates an operation, the 01 and 02 indicate 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 2002 the field school excavation was the 6th 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.
LOTS	**2001**: LA 1560-1567, LA 1575-1600, LA 1701-1713 **2002**: LA 2035-2044, LA 2056-2108	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.
SMALL FINDS		Culturally and/or temporally significant artifacts, termed small finds, are pulled from their lot and given a distinct catalog number. For example, a copper bell was recovered which has a catalog number of LA 2044/4, it was the fourth significant find in lot LA 2044. 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 a secure place.
BURIALS		Burial control numbers have typically been assigned according to the structure number, Burial N11-18/1 is the first burial recovered from Structure N11-18. 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.

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.

Field Methods

During the 2001 and 2002 field school seasons at total of 30 (16 in 2001; 14 in 2002) units were systematically excavated. Unit dimensions vary but the majority measured either $1m^2$ or $2m^2$ 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 west of this point were assigned a N/W coordinate whereas all excavation units located north and east of the northeast corner of Str. N11-3 were given a N/E coordinate. No excavations were conducted south of Strs. N11-3 or 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 located at the northeast corner of Str. N11-3, and it served as the vertical datum for excavations in the 'Uptown' portion of the site; its elevation above the mean level of the New River Lagoon is 16.75m. The other permanent concrete elevation marker is situated near the northeast corner of Str. N11-18, serving as the vertical datum for excavations in the 'Downtown' area of the site; its elevation above mean lagoon level is 14.50m. The vertical elevations are referenced as 'amll' 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 2001 and 2002 field seasons 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 both in 2001 and 2002. 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 at the Lamanai Field Research Centre. 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 in each year. 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 both 2001 and in 2002 were concentrated in two general areas in the vicinities of Structures N11-3 and N11-18 (see Figure 2). As discussed below, excavations were conducted in these areas to explore both 'off-platform' areas, specifically those situated immediately north and northeast of Str. N11-3, and those areas that Pendergast was unable to investigate at Str. N11-18 in 1984 (Figure 3). A total of 30 separate lots were excavated in and around Str. N11-18 during the 2001 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 pulled from their lot and designated using a specific catalog number. A corresponding analysis form is filled out for each Small Find recovered at Lamanai (see Appendix 1).

Other cultural material 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 1). 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*.

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 Lamanai Field Research Centre.

Research Results, 2001 & 2002 MAP Field Seasons

Excavations North of Str. N11-3, the 'Uptown' Area

The area situated immediately north of Str. N11-3 was chosen as an area of research interest for two main reasons. First, areas such as this one, which are sometimes informally referred to as 'off-platform' areas, had not been investigated at Lamanai for the most part during the ROM project, as mentioned above. Instead, Pendergast and his associates concentrated their excavations on structures themselves during the course of the twelve-year project.

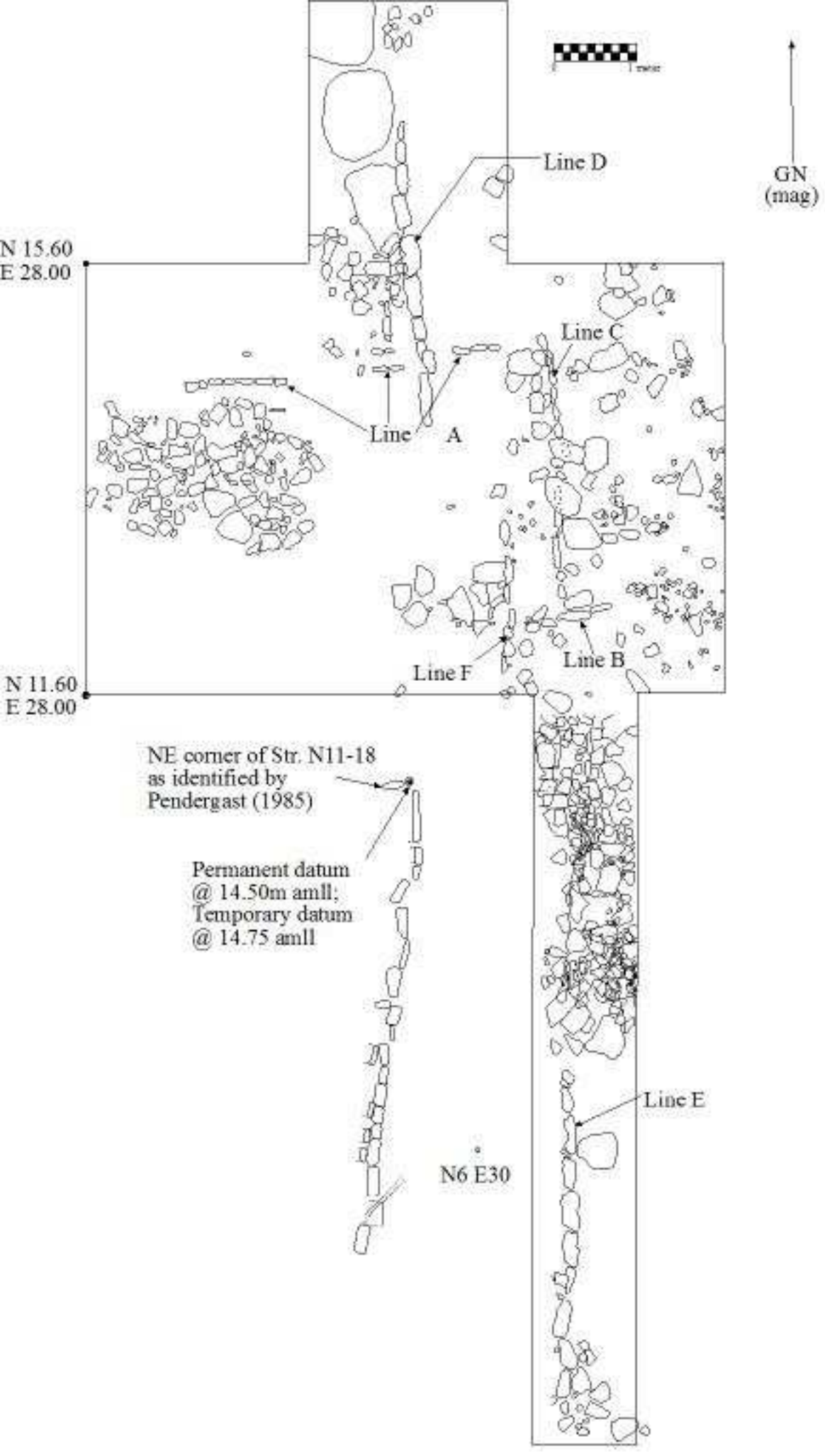


Figure 3
Excavated areas in 'Downtown'
associated with Str. N11-18

Ethnographic research conducted in modern Maya communities indicates that numerous domestic activities normally take place in extramural areas, i.e., those areas immediately adjacent to the structures and platforms upon which Maya structures are often constructed (Wilk 1997; Nash 1970; Wisdom 1940). Investigations in extramural areas of structures may reveal the nature of some of the domestic activities that took place in these kinds of areas, and this kind of information on household extramural activities is lacking at Lamanai.

Second, this area of Lamanai yielded three of the four copper ingots or pigs that were recovered during the course of the ROM project. Further investigations in this area therefore seemed reasonable if we were to recover additional information on Maya copper production. Specifically, we were searching for a copper production area, such as a workshop or smelting feature, that would enable us to begin addressing one of the main research goals of the MAP – understanding the organization of this relatively late but evidently important new technology. Because answering the fundamental question of how copper objects were crafted at Lamanai is one of the primary research goals of the MAP, this area was thought to be potentially productive and therefore worth investigating even though no structural remains were evident on the ground surface.

In 2001 and 2002 11 excavation units were opened in the 'Uptown' area. The 2001 excavation units include: N12/W14, N18/W14, N20/W14, N20/W12, and N19/W10. The 6 units excavated in 2002 include N16/W7, N10/E5, N10/E7, N20/E5, N24/E5, N28/E5. A summary description of the lots associated with these excavation units follows below.

N12/W14
LA1600 – very dark gray (10YR3/1) midden probably disturbed due to modern settlement with some modern debris mixed with very late precolumbian and Spanish Colonial Period material; 2x2x.20m excavated area
LA1704 – brown silty clay, possible old ground surface, lighter brown clay directly above bedrock, a mix of dark brown silty clay and a lighter brown soil; 2x2x. m excavated area

N18/W14
LA1575 – very dark gray (10YR 3/1) midden, probably disturbed due to modern settlement with some modern debris mixed with very late precolumbian and Spanish Colonial Period material; 2x2x.20m excavated area
LA1587 – level completes the very dark brown silty loam
LA1589 – brown silty clay, thick, dense, very sticky with some possible floor plaster present ? associated with limestone below the surface of the brown sticky soil, large ceramic sherds appearing lying flat on surface of deposit, some "Buk", one chalice base
LA1592 – burial fill, soil inside the cut in the weathered limestone bedrock within it a human burial
LA1594 – dog burial fill

N20/W14
LA1593 – dark midden deposit over burial area, upper soil equivalent to LA1575 and LA1587, immediately north of and adjacent to lot LA1575, overlies the lighter brown soil that lies above bedrock, Yglesias and earlier sherds
LA1596 – brown sticky soil directly over bedrock
LA1597 – burial fill, soil inside the cut in weathered limestone bedrock within it a human burial

N20/W12
LA1565 – midden, 10YR3/1, very dark gray soil with some fist size limestone cobbles, in a rough east/west line
LA1703 – possible backfill/fill from burial, fist size cobbles of limestone
LA1707 – sticky brown clay below LA1565

N19/W10

LA1599 – a light brown silty clay soil
LA1564 – brown sticky clay
LA1705 – 2-3 cms of brown sticky clay directly above bedrock
LA1710 – wall scrapings from profile drawing

N16/W7

LA2039 – dark upper humic level
LA2061 – dark gray upper soil deposit grades into 10YR4/2 brown sticky clay, some small pebble intrusions Yglesias shallow bowl rim sherd
LA2065 – darker colored soil, 7.5YR3/1, unclear what represents
LA2071 – inner feature, uptown, part of or in LA 2065, somewhat circular feature that appears to contain both light brown and upper dark soil
LA2073 – east area of unit, brown sticky soil immediately adjacent to marl/limestone

N28/W5

LA2043 – dark upper humic level
LA2058 – midden, lower density of artifacts from this level/unit, dark
LA2062 – midden ? lighter brown soil, sticky clay, 10YR4/2, with small limestone fragments, Yglesias neck and rim fragments and sag-bottom bowl flange that is ridged with shallow notches
LA2074
LA2078 – SE area of unit concentration of Pomecia shells, lot closed due to appearance of marl/bedrock at base

LA24/W5

LA2042 – dark upper humic level, intact turtle shell and bone with sherds
LA2057 – midden with large amount of intact turtle shell and bone with some sherds
LA2069 - midden
LA2077 - midden
LA2079 – midden, bedrock begins to appear in SE side of unit, fair amount of sherds continue to appear

N20/W5

LA2041 – dark upper humic level
LA2056 – midden material appearing
LA2063 – midden material that appears to be Classic period in date
LA2064 – midden
LA2067 – midden, NW corner marl/bedrock at a higher level then SE area, small concentration of apple snails in SE corner
LA2068 – midden, high concentration of apple snails, artifacts still present, lot closed due to appearance of marl/bedrock

N10/E5

LA2066 – dark upper humic level, softball-sized stones appearing with dark brown soil in between, continuation of stones initially recovered in LA 2040 and LA 2059
LA2072 – possible midden with some type of architectural feature present, ballast?, platform?, Nueva Cadiz glass bead 10 cm below ground surface

N10/E7

LA2040 – upper humic removal
LA2059 – NW corner of quadrant there is a concentration of softball-sized stones with dark brown soil in between
LA2093 – soil between stones in LA 2059
LA2094 – lot below LA 2093, last level in this unit

Four of the five units opened up in 2001, N12/W14, N18/W14, N20/W14 and N20/W12, have assessments that include midden. The midden we encountered in this area is almost certainly the same extensive midden deposit that Pendergast reported was deposited against the north side of Structure N11-3. This midden deposit produced two of the four copper pigs or ingots recovered thus far at Lamanai.

It appears, based on our excavations in 2002, that this midden extends north and somewhat northeast from the north face of Str. N11-3, at least as much as 13 meters. Midden material in this area appears in the upper levels and is comprised of very dark gray (10YR3/1) soil; the thickness of the deposit roughly measures 20 to 25 cm.

This large midden deposit included numerous sherds, bone, shell, and lithic debitage. Difficulty in dating the deposit arises with the fact that modern settlement of the area, discussed above, led to intrusive late deposits. Generally speaking, it appears the Maya deposit of the midden is generally late in date and ranges from Middle Postclassic or 'Buk' to Terminal Postclassic-Early Historic Period or 'Yglesias' (Graham 1987). Preliminary analysis of the ceramic material from N12/W14 and N18/W14 indicates a presence of both Lamanai 'Buk' and 'Yglesias' ceramics. This includes one chalice base and a small concentration of pottery, including a fairly large base to rim fragment that appears to be a small 'Ygelsias' flat rim bowl, as seen in Figures 4 and 5 from LA 1600 and LA 1704.

Figure 4
Yglesias Rim Sherds, LA 1600

Figure 5
Ygelsias Rim Sherds from LA 1600 and LA 1704.

The midden deposit generally overlies a lighter to dark brown sticky clay that in turn is laid directly upon the marl or limestone bedrock encountered at the base of all our lots in this area (see full description below). Based on the eroded, weathered condition of the ceramic sherds in these middle levels, as well as the patinated surfaces on some of the chert artifacts recovered, it's possible that the brown, clayey soil represents and earlier ground surface that was exposed for some length of time prior to the deposition of the overlying dark-gray black midden soil. Limestone bedrock has been encountered at the base of the majority of units in the 'Uptown' area. The upper deposit of the bedrock is a friable layer similar to marl. The surface of the bedrock is relatively smooth but does undulate in areas.

Two interments were encountered in the upper levels of the limestone bedrock in the 2001 season. One of these was identified as human while the other appears to be dog, recovered from excavation units N20/W14 and N28/W14, respectively (Figures 6 and 7). Stratigraphic evidence indicates that the human was interred by first excavating the black midden soil. Next the underlying brown sticky clay with limestone inclusions was dug out, and finally a shallow cavity was excavated in the limestone bedrock. The evidence for this consists of black upper midden deposits that extend considerably well below the

upper surface of the underlying brown soil and into the shallow cavity the Maya excavated in the limestone bedrock (Figure 8). Evidently the Maya backfilled the grave with both the black soil and the lighter brown clayey soil; both were found mixed together thoroughly as burial fill (Figures 9 & 10).

Figure 6
Overhead perspective of human and dog burials encountered in the Uptown Area, 2001. The dog burial, indicated by the dark burial fill (LA 1594) in the upper left corner of this image, was situated approximately 60 cms southwest of the human burial, the fill of which (LA 1592) is shown sectioned with the partially exposed burial to the left and unexcavated burial fill to the right. Another possible burial (unexcavated) is shown as a dark colored area in the lower right corner of this image. The edges of this possible burial fill contrast rather sharply in some areas with the surrounding limestone bedrock.

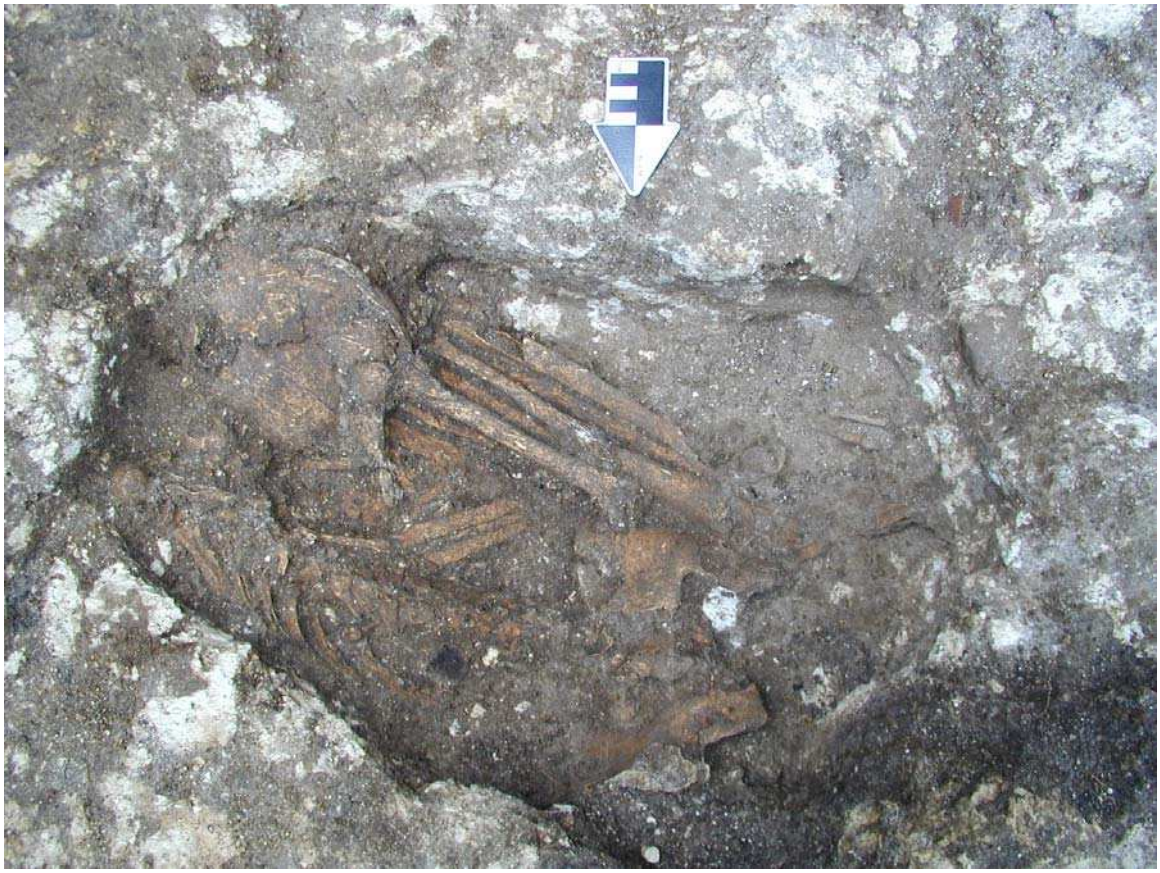
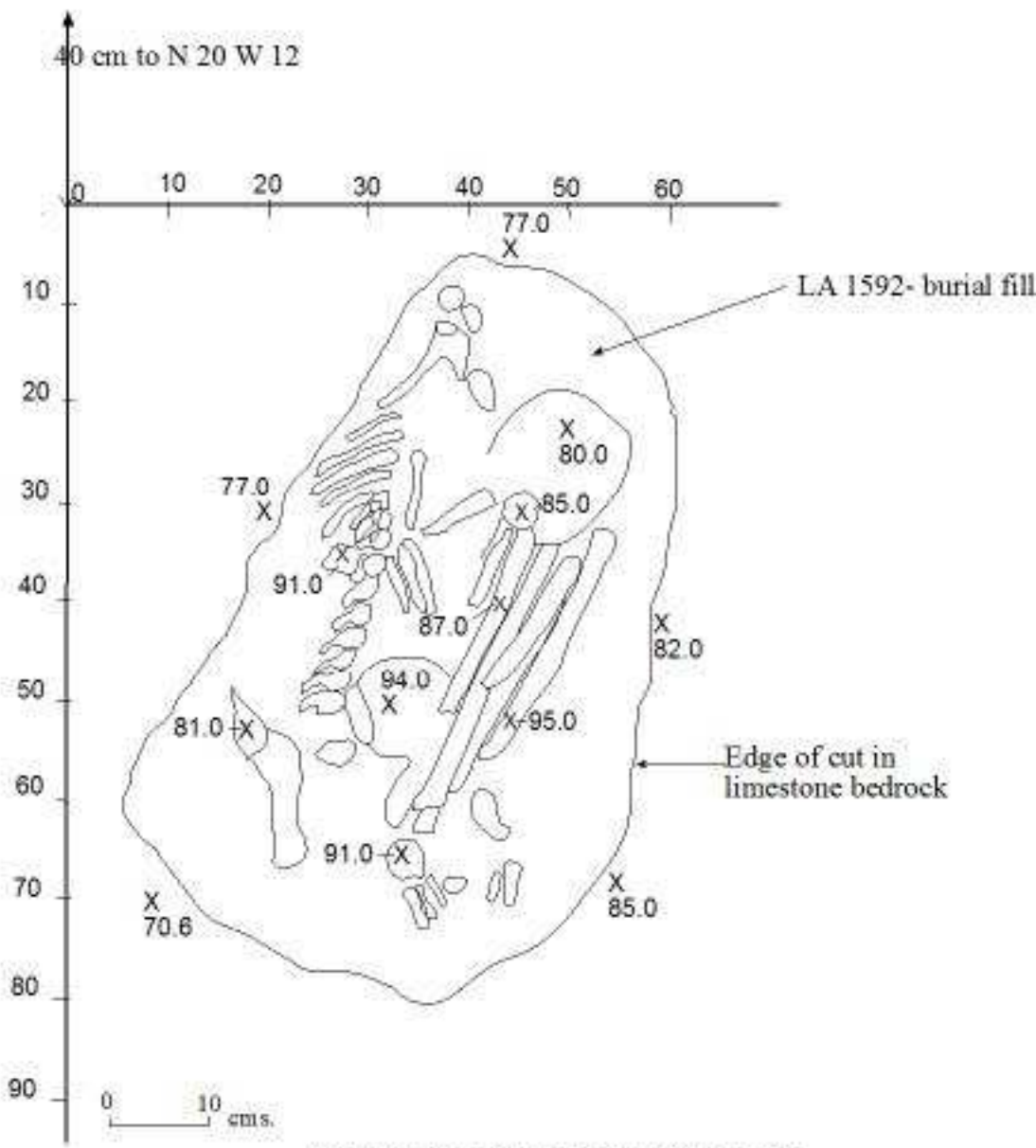


Figure 7
Human burial encountered near surface of marl bedrock, LA 1592. Individual was probably interred in a flexed position. Head to the upper left.

Human Burial Op 01-05/1



All elevations taken below 17.30 m amll

Figure 8
Plan of human burial and associated cut in limestone bedrock identified in June 2001, 'Uptown', Lamanai

Figure 9
Human burial and burial fill (LA 1592) in section view. Note the depth of the upper stratum, the black midden deposit found throughout the "Uptown" area.

The 'cut' into the limestone bedrock for this burial was not very large, measuring only roughly 75-80 cms along its long axis and approximately 55-60 cms in width (Figure 8). No accompanying artifacts that were clearly 'grave goods' were identified, although several small sherds were recovered in the burial fill in Lot LA 1597.

The individual was interred in either a flexed or possibly a seated position, although the former scenario seems most likely (Figures 7 & 8). The individual appears to have been placed on their left side, with their legs drawn up close to the chin. The head was to the east. The skull was crushed, although the parietal, occipital and the frontal bones all appeared to be present. The sex of the individual could not be determined with any real degree of certainty, although a large portion of the left innominate was present (see Figure 7). The jaw and teeth of the individual were not exposed. In fact, the burial was not excavated; it was only exposed for recording purposes since we were not prepared to process and analyse human skeletal material as part of the field school in archaeology. The burial was simply covered with very thick plastic sheeting and then screened soil was backfilled atop the burial.

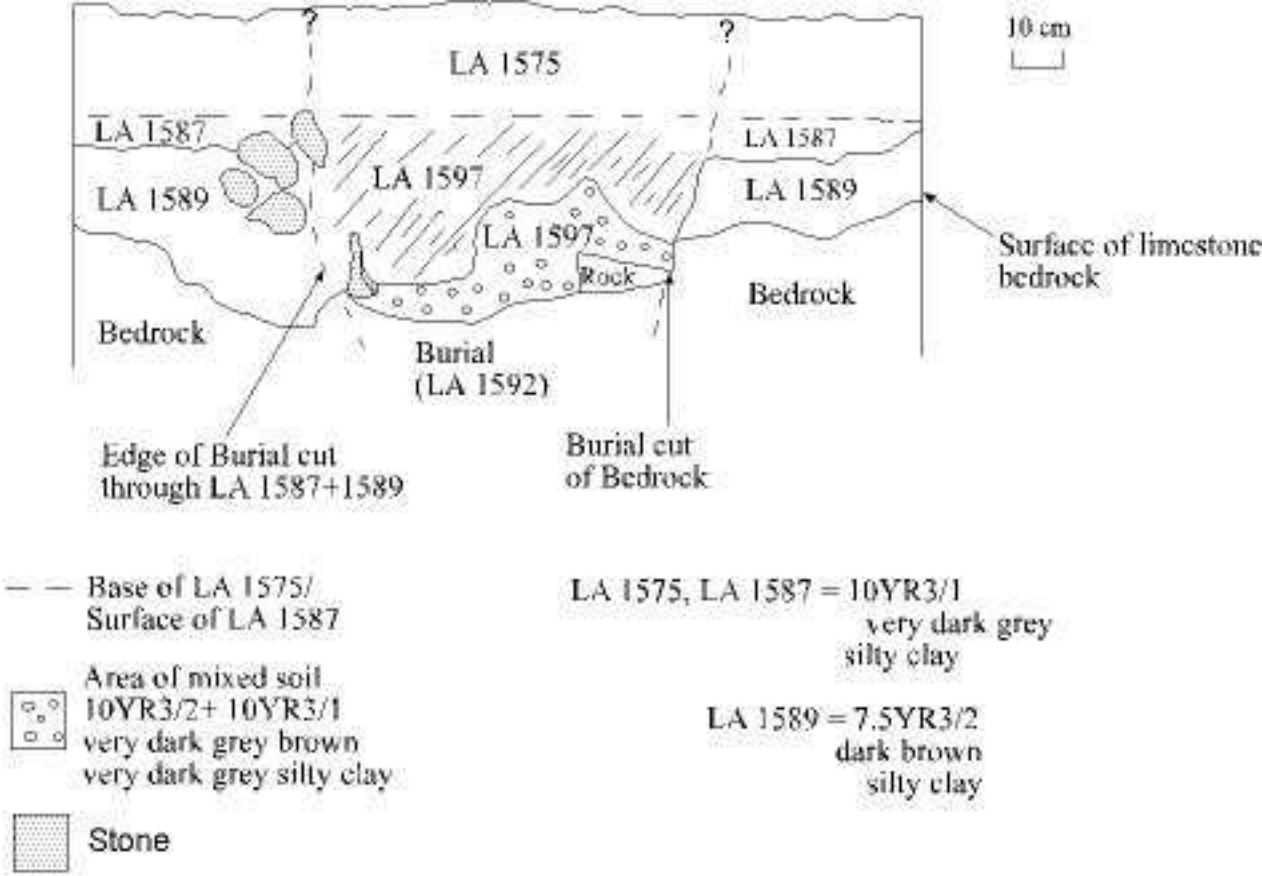


Figure 10
Profile of stratigraphy associated withhuman burial encountered June 2001, 'Uptown', Lamanai

Most likely associated with this interment was a dog burial located approximately 60 cms to the southwest (Figure 6). Excavation of this deposit revealed the same mixture of soils and bedrock, indicating that the Maya excavated the upper level of the bedrock to inter the dog, as was done with the nearby human. The condition of the bones was extremely poor and due to fragmentation Mr. Norbert Stanchly conducted preliminary *in situ* identification and analysis.

Identified approximately 40 cms to the northeast of the human burial was what may be another burial in unit N20/W12, LA 1703. Fist-sized cobbles in a fairly linear grouping extend in a NW-SE direction across a one-meter wide area of the 1 x 2 meter unit (Figure 11). Some small pieces of charcoal were found in this area and the soil is a very dark gray black. Upon initial identification of this feature it was believed to be the burial backfill, but it is unclear at this point what this may be. The possibility exits that we uncovered evidence for a second burial and that the level zone north of N11-3 may have functioned as a burial ground for the Maya. The burials would be late, most likely no earlier than Middle Postclassic times, and would most likely correspond with the Late Postclassic occupation of the surrounding area.

Figure 11
Excavation of LA 1703 in progress. Note dark soil discoloration in foreground where an apparent cut in the limestone bedrock may contain another burial. The human burial positively identified (LA 1592) is situated approximately 40 cms southwest of this feature.

As mentioned above, very little off-platform testing has been carried out at Lamanai. One of the few exceptions is an archaeological survey conducted in 2002 on a level area southeast of Structure N10-9, approximately 450 meters north of Structure N11-3. The level area just southeast of Structure N10-9 produced nine Late to Terminal Postclassic/Early Historic human burials. It is believed that due to its fairly level topography this area was conducive for a non-elite burial area. In both instances it is difficult to discern patterning of the interments but of the nine encountered, four of the individuals were face down with legs bent inward in pit burial form (Howard 2002). Further investigation of off-platform areas might allow us to discern patterning for Late Postclassic human burials at Lamanai.

It is noteworthy that several slight to moderate depressions were found on the surface of the limestone bedrock in the same units as the human and dog interments (N18/W14 and N20/W14). These depressions may represent natural undulations of the limestone bedrock. But the possibility exists that they may have been postholes from a perishable structure.

Although there were no surface or other obvious indications of the presence of a structure in this area, the burials encountered suggest the possibility of perishable structures, at least domestic buildings such as domiciles, in this off-platform area situated north of Str. N11-3. Further investigations in the area may yield more evidence of human (and other – pet?) burials and postholes that would strengthen the idea of Terminal Postclassic/Early Historic perishable domestic structures without stone and earth platforms.

Excavation units opened in 2002, situated due east of the 2001 units, include N16/W7, N10/W5, N10/W7, N20/W5, N24/W5, and N28/W5. The stratigraphic profiles of these units were very similar to those excavated slightly to the west in 2001. However, in unit N16/W7 we encountered a feature (LA 2071, Figure 12) that is difficult to interpret in terms of its function. The upper humic level of this unit was removed (LA 2039) and the same dark gray-brown upper soil deposit (LA 2061) was found here and it grades into the 7.5YR4/3 brown sticky clay that have some stone inclusions.

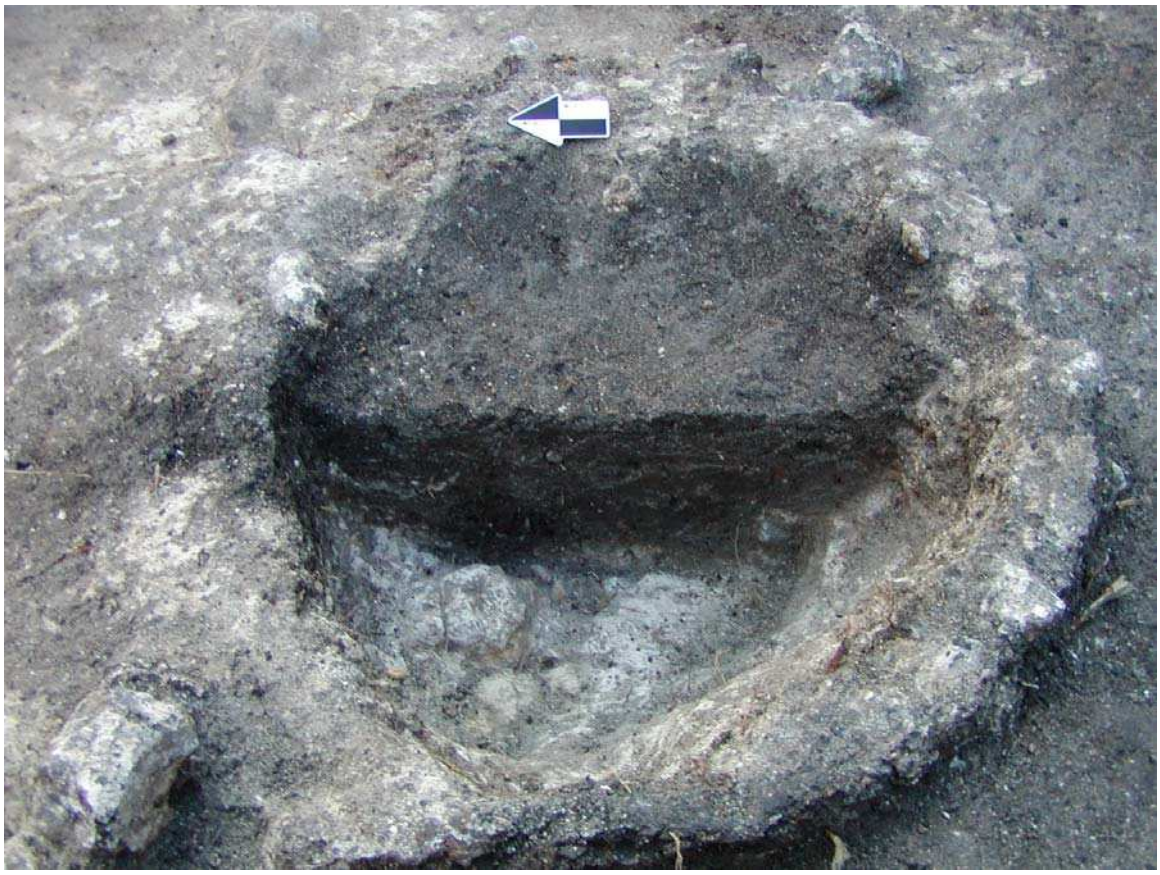


Figure 12
Basin-like feature in limestone bedrock, LA 2071 Uptown, Lamanai 2002.

The lot just above the Feature LA 2071, LA 2065, produced an anomaly of darker colored soil (7.5YR3/1) with several small pieces of light gray-brown unfired clay that could possibly be daub. Once the level was removed the upper level of limestone bedrock was visible and a somewhat circular pattern emerged. Within the circular pattern we encountered a very dark brown, somewhat loose accumulation of soil that appears to be more or less a mixture of the dark-gray upper soil (10YR3/1) and the lower deposit in this area, a sticky brown silty clay (7.5YR3/2). The feature was cross-sectioned (Figure 13) to allow more control and aid in interpretation. It is still unclear whether this feature is a natural occurrence, such as a tree or large root of some sort, or was in some way anthropogenic in nature.

Figure 13
Section of LA 2071

Two excavation units, N10/W5 and N10/W7, each measuring $2m^2$, were opened in order to explore the area that lies between 'Uptown' and 'Downtown,' or more precisely the space between Structures N11-3 and N11-18. The area produced interesting midden debris that included fairly intact, predominately Yglesias pottery and a perforated shell bead. Material recovered from Lot LA 2040 included three small side-notched projectile points, one large biface fragment, two utilized flakes, a mid-section of a utilized chert blade, and an obsidian blade fragment. In Lot LA 2072 a Nueva Cadiz glass bead (LA 2072/1) was recovered. These beads are a common variety from early Spanish Colonial times (Deagan 1987).

Excavation unit N10/W7 produced medium sized somewhat organized rocks (Figure 14) in the northeast corner that may represent ballast for a floor. These stones also were found in unit N10/W5. This is a concentration of softball-sized stones with dark brown soil in between. This area of concentration may represent core but it is difficult to discern any type of boundary and there is considerable root damage, especially in the N10/W5 unit.

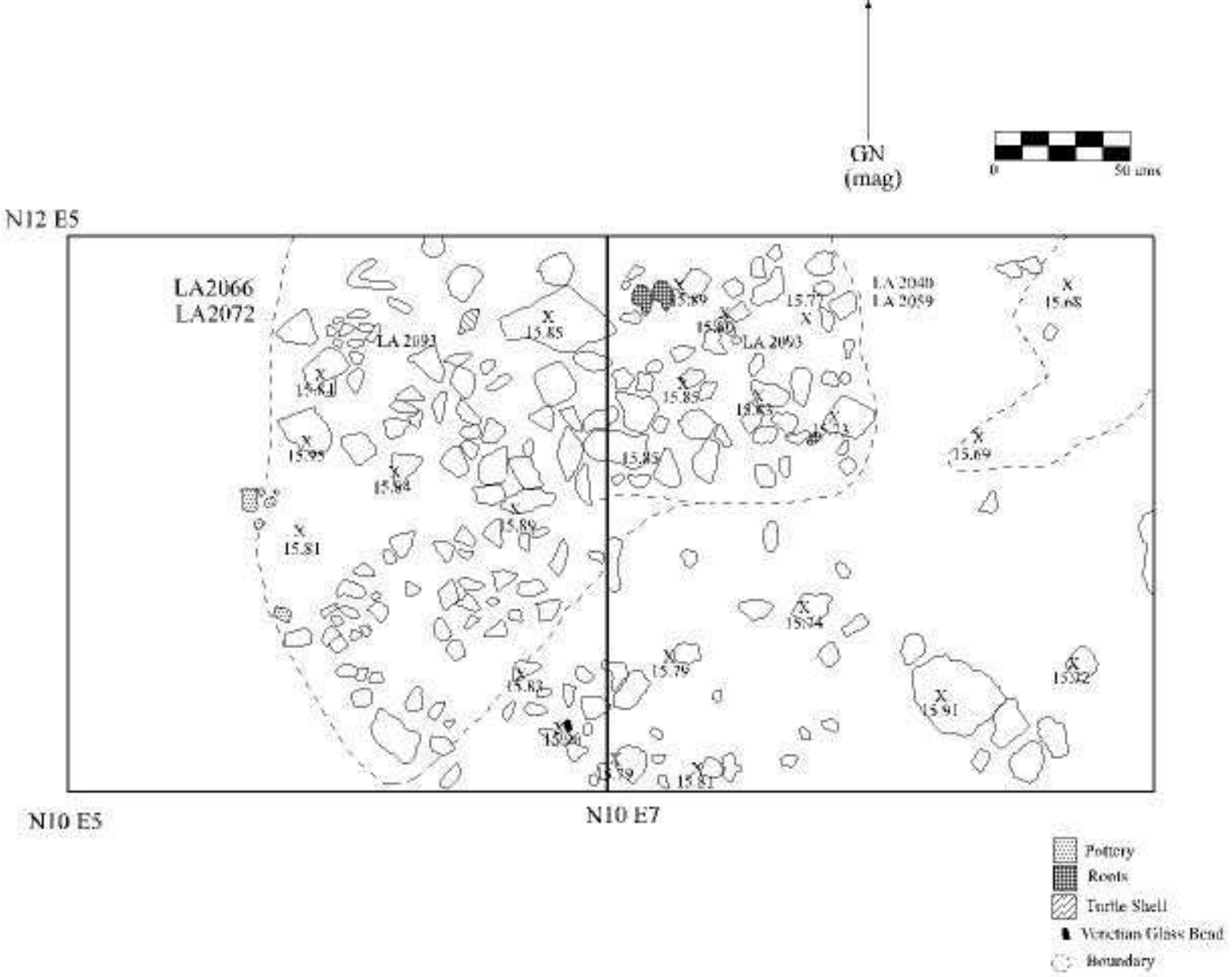


Figure 14
Lamanai Plan 02-02

Plan of Excavation Unit N10 W7 Lots LA 2040, 2059, 2066 and 2072. Also, Lot 2093 is shown;it is a concentration of unmodified limestone rocks that may represent a low, elevated platform. Based on the presence of nearby domestic midden materials, this may be associated with an as yet unidentified residential structure.

The last three units excavated in this 'Uptown' area are N20/W5, N24/W5, and N28/W5. All three of these units measure 1m^2 and are situated north of the previously described units. This area is significant because it is located on the northern portion of the slope that descends in elevation from the 'Uptown' level zone. In order to test the slope to determine if it may represent a platform or some other architectural or man-made feature one unit was placed in the upper area, one in the middle, and one at the base of the slope.

Our initial findings indicate that part of the reason for this raised area is due to the presence of an intact, fairly undisturbed midden. The upper lots of N20/W5 and N24/W5 contain a high concentration of artifacts in an organically rich, very dark gray brown (10YR3/1) midden deposit. The more northern unit, N28/W5 has substantially less material (in Lots LA2043, 2058, 2082, 2074 & 2078; see Appendix 3). The date of this midden is tentatively dated to the Terminal Classic (at the very earliest) and includes Late Postclassic Yglesias phase material.

Excavations at Str. N11-18 and its Environs

Excavations at Str. N11-18 began at the previously identified northern extent of the structure in June 2001. Due to the presence of a 'squatter' house in 1984, Pendergast and his associates could not complete excavations in this portion of the contact period Maya building (Pendergast 1984). We were able to identify the remains of this house based on the presence of scattered wooden wall sections, a substantial vertical wooden post still apparently *in situ*, and substantial amounts of all manner of modern refuse.

The area was cleared of low brush and secondary growth, including small trees not more than approximately 4 cms in diamteter. Specifically, the northern third of Str. N11-18 was cleared of low brush, leaves, and modern debris in order to expose the ground surface and the previously excavated architectural remains. Pendergast (1984) had reported that Str. N11-18 measured roughly 22 m in length and 10 m in width, with the long axis of the building oriented roughly N-S. As mentioned above, excavations in 1984 were not completed at Str. N11-18 due to the presence of a modern house erected atop the northeastern corner of the building by Guatemalan refugees who had illegally settled at Lamanai.

Because of its prominent architectural remains, as well as its central location in the area to be investigated, Str. N11-3, specifically its northeast corner, was used as a primary site datum (see Figure 3 and above discussion). A wooden stake was used to fix both the horizontal grid as well as the elevation above the mean annual water level of the New River Lagoon. A concrete site datum with an elevation of 16.75 amll (above mean lagoon level) now exists at the northeast corner of Str. N11-3, located approximately 30 m southwest of Str. N11-18. Another concrete datum, set next to the previously defined northeast corner of the building, serves as the primary site datum from which all vertical elevations are taken at Str. N11-18. The height of this datum is 14.75 m amll.

All plan view drawings made during the 2001 and 2002 field seasons were given their own numeric designations. Those drafted during 2001 have a prefix of '01' followed by a number that refers to the sequence in which they were drafted. So, "01-04" is the fourth architectural drawing completed in 2001. This same system holds for the architectural plans drafted during the 2002 field season.

Dating

Currently analyses of the ceramic artifacts recovered during 2001 and 2002 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. N11-18 investigated in 2001 and 2002. 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 (Graham 1987:91-95) 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. 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).

At present it is clear that the areas investigated during these two field seasons likely date to at least three separate periods, the earliest of which is probably Late Classic, prior to the construction of Str. N11-18. Excavations below Str. N11-18 and roughly 2 m east of the previously identified NE corner of the building (see Figure 3) revealed a very dark brown-black Late Classic Period midden.

Well preserved faunal material, including a large portion of a deer mandible, polychrome ceramic sherds, a chert biface fragment, and an incised, hollow bone, were recovered (Figure 15). The incised bone tube, possibly a fan handle, appears to include a profile image of a person with an elaborate headdress (Figure 16).

Very little of the midden was excavated; it was only probed for dating purposes as it was clear on stratigraphic grounds that it pre-dated the construction of Str. N11-18 and the inception of copper metallurgy at Lamanai. But its presence indicates that this particular area of the site was used as a residential area at least five centuries before Str. N11-18 was constructed, and given the outstanding preservation of faunal and possibly other organic materials, this area may be worthy of further investigations into the nature of Classic Period domestic life at Lamanai.

Figure 15
Late Classic Period midden materials excavated below Str. N11-18, July 2001.
Lot LA 1713

Figure 16
Incised bone tube, Lot LA 1713.

One of the most important lines of evidence we have for dating the construction of those parts of Str. N11-18 excavated during 2001 and 2002 is the *absence* of certain artifact types, specifically Spanish materials, in the construction fill of the building. The overlying very dark gray brown (10YR3/1) soil that is found on the north and east sides of the building contains small numbers of Spanish Colonial Period artifacts, including turquoise and white Nueva Cadiz twisted glass beads as well as small pieces of Columbia Plain majolica (see below discussion). This midden stratum can be seen in Figure 17; it was excavated as Lots LA 1578 and 1591 in this particular 2x2 m area.

But no objects of European manufacture have been found in soils underlying the very dark gray black (10YR 3/1) midden and post-abandonment accumulation (PAA) soils, suggesting that the area of the building excavated during 2001 and 2002 was probably constructed sometime prior to the middle of the sixteenth century. It is very likely then that the architectural components of Str. N11-18 excavated in 2001 and 2002 (the 'Downtown' area), probably were not constructed as an addition to the building after Spanish contact, which took place sometime after 1544 (Pendergast 1991).

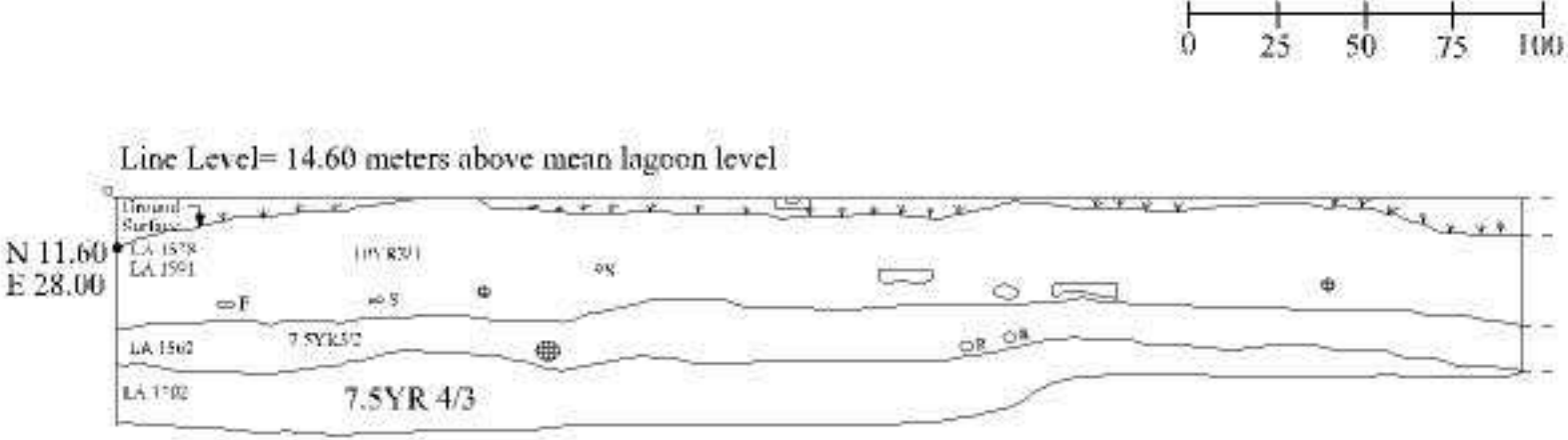


Figure 17

West Wall Profile in "Downtown." The Spanish Colonial Period midden and Post Abandonment Accumulation (PAA) soil (10YR3/1) was excavated here as Lots LA 1578 and LA 1591

Architectural elements of Str. N11-18 Investigated in 2001 & 2002

Archaeological investigations conducted in 2001 and 2002 at Str. N11-18 revealed two main types of architectural elements: 1) lines of vertically-set, modified limestone blocks that were generally either roughly square or rectangular in shape and 2) concentrations of unmodified pieces of limestone, typically mixed with soil and cultural material, found abutting and in some cases overlying those lines of vertically set limestone blocks. The basic characteristics of both of these kinds of architectural elements are virtually identical to those identified by Pendergast (1984) during his investigation of Str. N11-18. Therefore, because of the strong similarities in architectural components, as well as the very close spatial proximity of the architectural remains, it is more than likely that Str. N11-18 extends farther north and east of the area investigated by Pendergast in 1984, meaning the building is somewhat larger than the 22 x 10m Pendergast reported that year (Pendergast 1984).

Excavations immediately east of the easternmost line of vertically set stones identified by Pendergast in 1984 revealed several other, parallel lines of vertically set, cut limestone blocks. These lines of stones were designated Lines A-F (Figure 3). None of the stones were removed during either the 2001 or 2002 field seasons, although they were exposed for recording purposes. All of these construction stones were either roughly square or rectangular in shape, and all had been modified. Each of the lines was one course deep, i.e., not having other courses below. This is in keeping with Pendergast's findings from earlier excavations.

Several of these lines of stones, the probable functions of which are discussed below, consist of shaped limestone blocks that are almost identical in form and size to those identified by Pendergast throughout this structure. Specifically, Lines D and E (Figures 3, 18 & 19) appear almost identical with regard to the sizes and shapes of the construction stones to those excavated by Pendergast (1984) along the east wall of the building (Figure 3). Most of these stones range from approximately 20-40 cms in length, 10-15 cms in width and 30-40 cms in height.

Line E is aligned parallel to the formerly identified east platform face of the building, and may represent a later addition of some kind, possibly another, more eastern, platform face. Immediately north of Line E, and slightly higher in elevation, were numerous small to medium-sized pieces of limestone mixed with fairly compacted soil (Figure 18). These stones were not well organized, and may represent floor or platform ballast stones that were part of a floor or elevated platform immediately north of Line E.

Line D, the other comparable linear limestone block feature, is situated north of the formerly defined northeast corner of Str. N11-18 but is in line with the east wall of the building (Figures 3 and 20). Line D extends approximately 4.5m in length, and it appears likely that this line of stone may represent a northern continuation of the east platform face of the building (see Figure 3). A number of the stones are now missing, however, the alignment or azimuth of the line is roughly similar, and the sizes and forms of the vertically-set stones are very comparable. To the north of this line was a concentration of unmodified pieces of limestone, and it does not appear that the

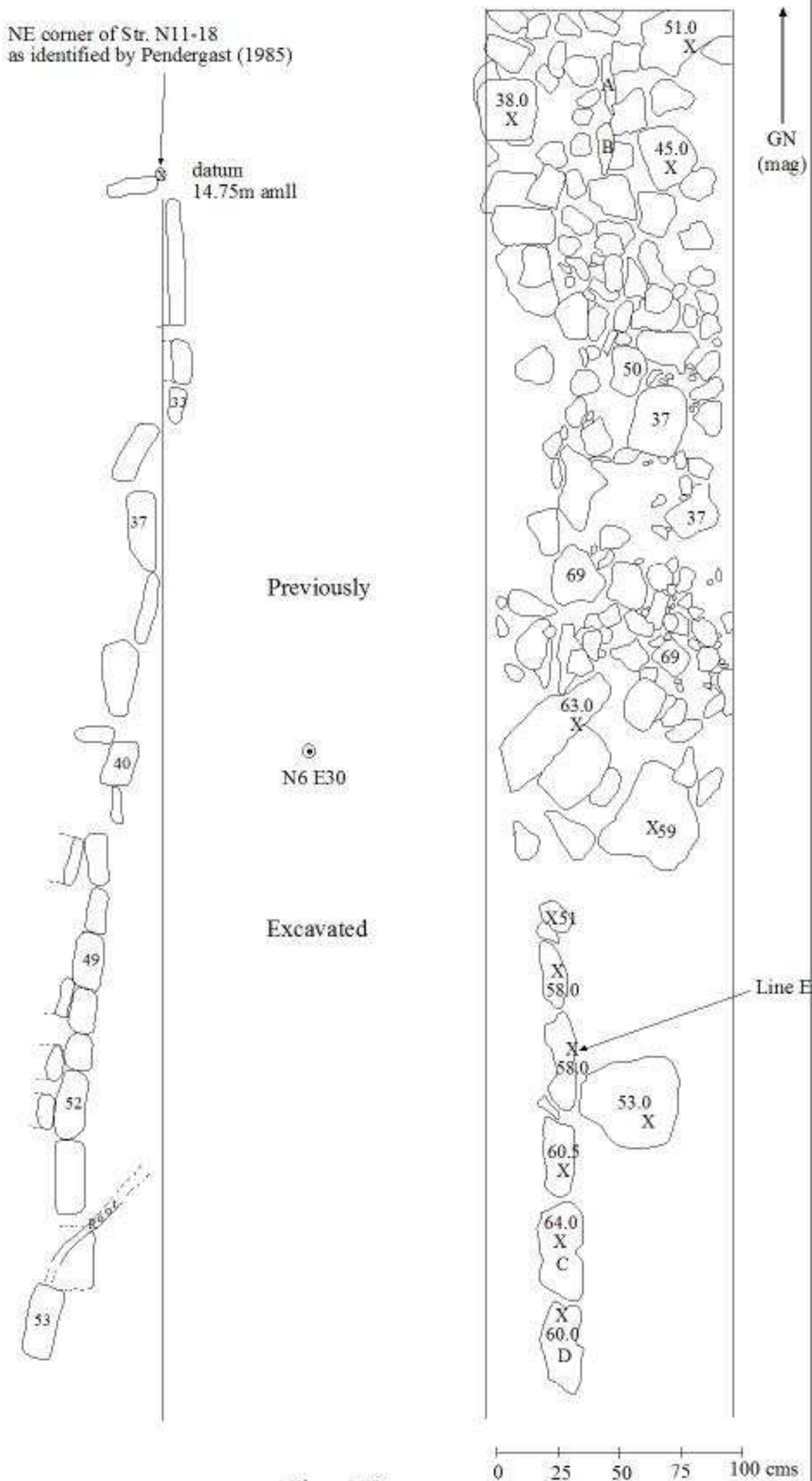


Figure 18

Lamanai Plan 01-04

Northern extent of Line E, vertically set facing stones on the east side of Str. N11-18. Immediately north of and slightly more elevated than Line E are probable floor ballast stones.

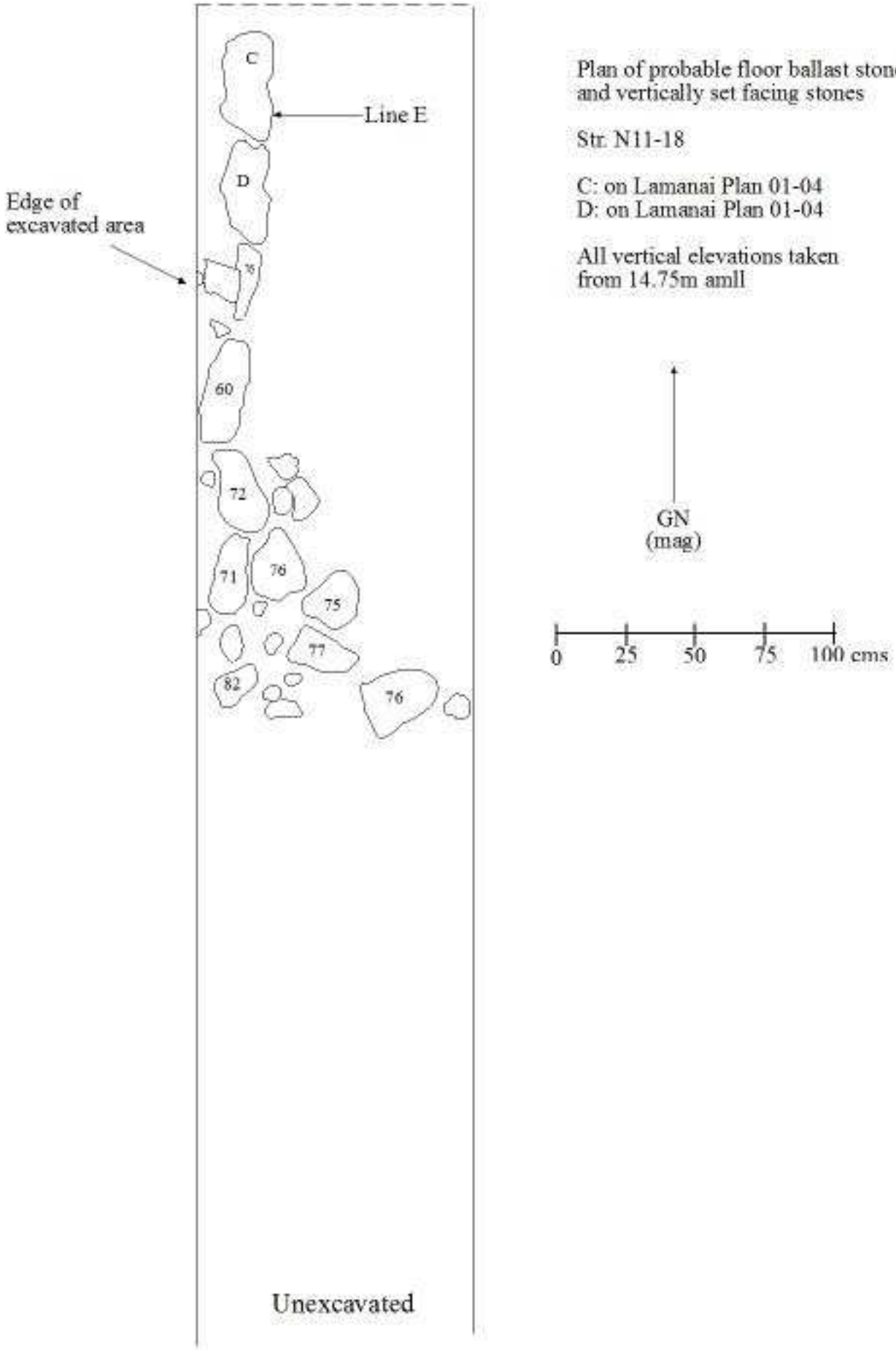


Figure 19
Lamanai Plan 01-06
Southern extent of Line E, vertically set facing
stones on the east side of Str. N11-18

All elevations taken are below 14.75m amll

0 25 50 75 100 cms

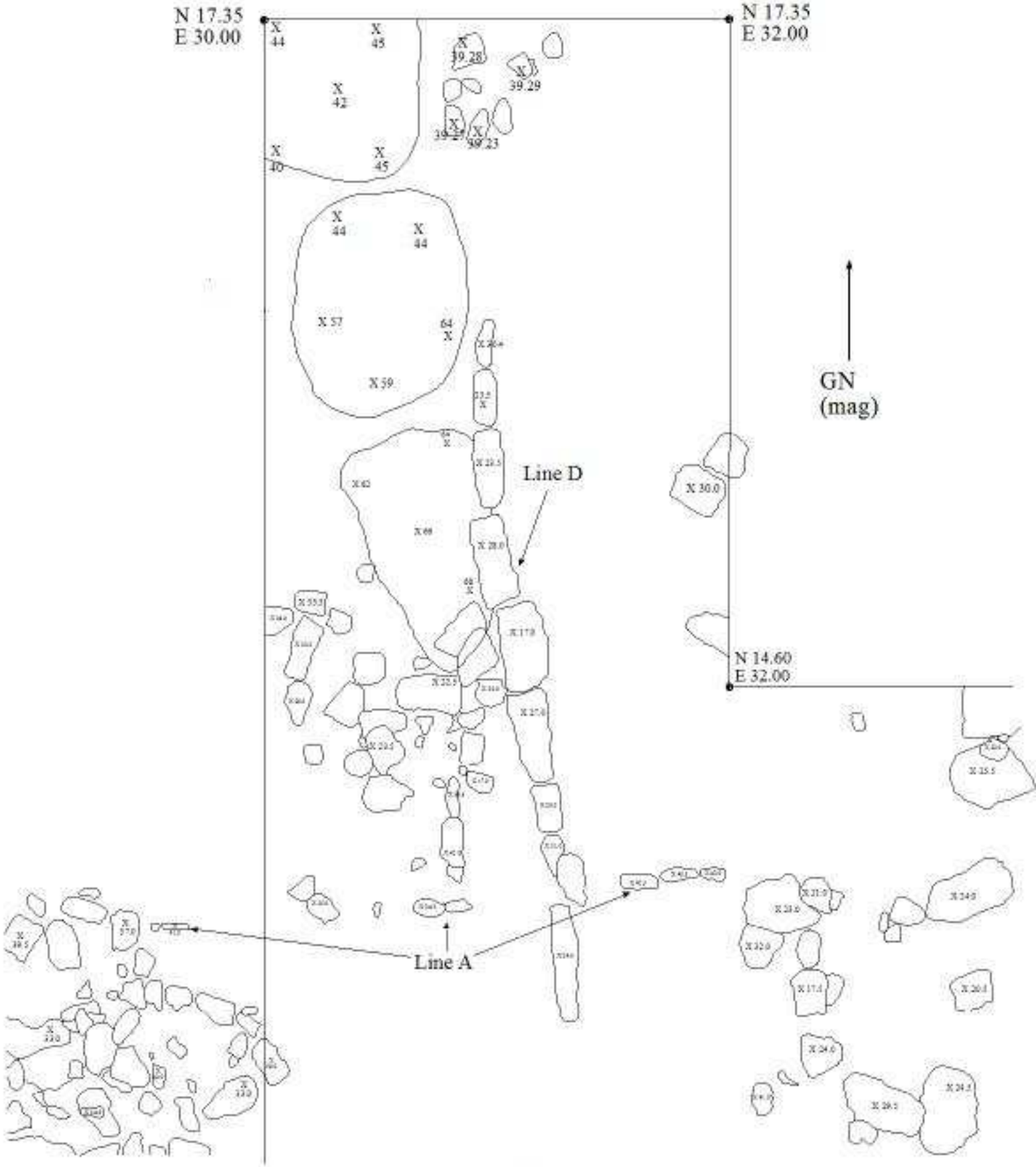


Figure 20

Lamanai Plan 01-02

Line D and associated large limestone slabs

probable platform facing stones of Line D continue to the north.

The large, vertically set stones of Line D are associated with four rather substantial limestone slabs underlying it (Figures 21, 22 & 23). Three additional large limestone slabs were found to the south of the group of four, separated by a distance of just over 2m. The edges of several of these stones appear to have been modified, probably by hard percussion, but other edges appear rounded and possibly water-worn.

None of the vertically set stones of Line D rest directly atop any of the four large stone slabs (Figures 21 & 23). But in some cases there is little separation between the bases of the vertically set stones of Line D and the surfaces of the large stone slabs. The soil that does lie between these as well as between each of the stones of Line D is a brown (7.5YR 3/2) silty loam, which is the soil underlying the very dark (10YR 3/1) midden and PAA soil found throughout this northern portion of Str. N11-18.

The functional and temporal associations that exist between Line D and these large limestone slabs are unclear at this point. It appears that the alignments of these two stone features are roughly similar, but compass bearings taken on each reveal that they in fact do not share the same alignment. This suggests that both in functional and temporal terms the two might not be associated. It is clear that only a portion of the large stone slab alignment has been excavated, as portions of several more of these stones are visible on the ground surface to the north of the area that's been excavated at Str. N11-18. However, no other vertically set stones that might be a northern continuation of Line D appear in this same area (Figure 22).

At the close of the 2002 field season no excavations had taken place below the uppermost portion of these large limestone slabs, so their vertical extent is not known at this point. Cultural material was recovered in the deepest lots that were excavated above these stones, and it is anticipated that further excavations will reveal additional information on the nature of this interesting stone feature.

There are several other alignments of vertically set limestone blocks that were identified during the 2001 and 2002 field seasons that have not yet been discussed. These were Lines A, B, C and F (Figures 3 and 24). All of these stone alignments are found north of the formerly identified northeast corner of Str. N11-18 (Figure 3) and appear to represent an earlier structure or portion of a structure that pre-dates the construction of Str. N11-18. Forming roughly a square, the open part of which is facing west, Lines A, B, C and F were covered by earth that probably represents PAA (Post Abandonment Accumulation). Each of these lines of stones was covered by small amounts of small to medium-sized pieces of limestone that were encountered just beneath the existing ground surface.

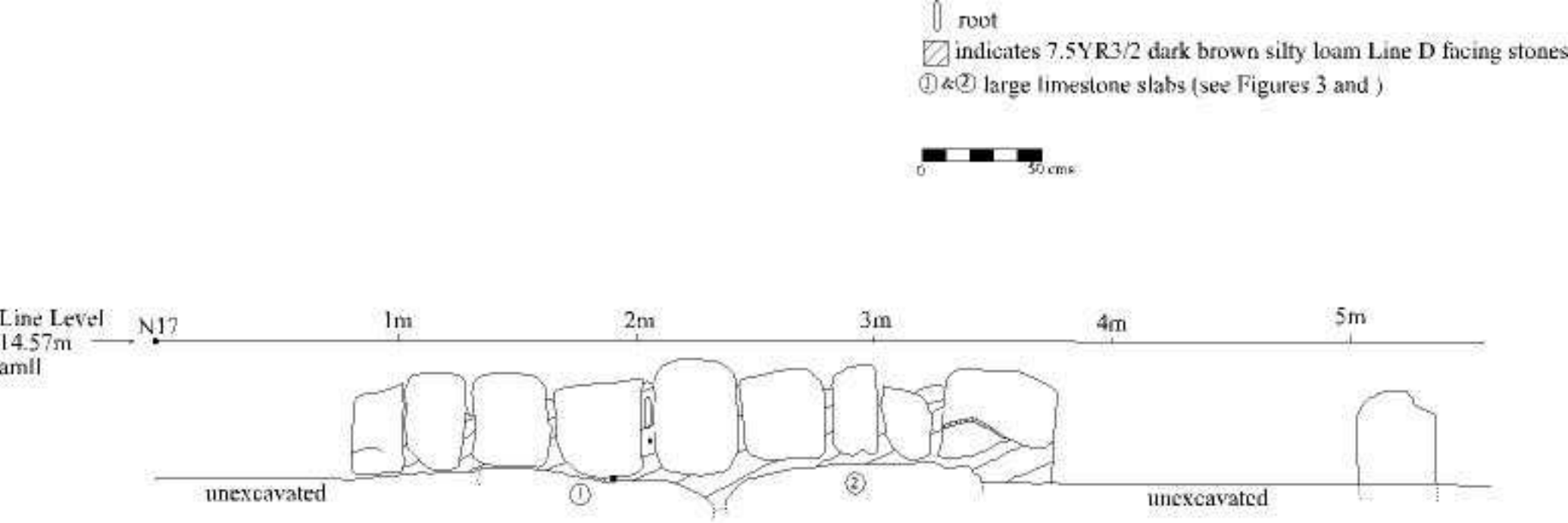


Figure
West face of Line D,
Str. N11-18

Figure 22
Line D and associated large limestone slabs. View North.

Figure 23
North-central portion of Line D with associated large limestone slabs and their horizontal associations. Note fairly tight spacing of Line D stones, as well as their close horizontal association with large limestone slabs. Very dark brown (10YR 3/1) soil was found overlying the stones of Line D, but the lighter brown (7.5YR 3/2) soil was found atop the large limestone slabs. View East.

Figure 24
Floor ballast, Lots LA 1709 (upper left) and 1711 (lower left) immediately east (left) of and associated with Line C, in center of image. Line A is abutting east face of Line D in lower right of image. Line B is the short linear stone feature abutting the south end of Line C. Line F is another short run of vertically set stones parallel to the southern end of Line C. Note irregularly-sized, unmodified limestone pieces and larger blocks that comprise probable floor ballast located east of (left in this image) Line C. Also note north arrow on right side of image, close to east face of southern portion of Line D.

Figure 25 shows the unorganized mass of stones east of Line C in plan. This particular area of 'Downtown,' specifically immediately east of Line C, appears to have been located directly under the 'squatter' house that was present in 1984 when Pendergast conducted his excavations at Str. N11-18 that year. Evidence of this house consisted of one vertical wooden post with modern wire nails, sections of wooden walls, and voluminous amounts of modern refuse (discussed previously in this report). Only a small portion of this area was tested in 2001, with the majority of work conducted in 2002. Excavations conducted in the first 10 cms. of this area east of Line C, which included Lots LA 1709, 1711, 2035, 2036, 2075 and 2076, encountered pieces of plastic, cloth, linoleum flooring tiles and other modern debris up to approximately 10-15 cms below the existing ground surface. The presence of this material was noted, but none of it was retained.

Immediately beneath this modern material, in the second 10 cm level of the floor ballast excavated (Lots LA 2095, 2098, 2099, 2085, and 2086), were several concentrations of limestone plaster, some of the pieces of which were painted a rust red color. None of the individual pieces measured more than 5-8 cms in diameter, and most were considerably smaller than that. Also, this material was not at all evenly distributed through the excavated material that most likely represents floor ballast. These pockets of plaster were accompanied by numerous small-medium sized, unorganized pieces of limestone. Based on Pendergast's findings from previous seasons at Lamanai, and in particular his 1984 work at Str. N11-18, this material very likely represents floor ballast of the type that seems to be rather typical of Terminal Postclassic and Spanish Colonial Period construction.

Lines A, B, C and F were completely cleared but none of the stones of any of these linear limestone features was removed (Figure 26). Once the stones of these lines were completely exposed it became readily apparent that together they formed a roughly square construction feature, although much of the western portion of Line B was not found, and the manner in which Line F functioned as a part of this larger feature is not clear. It is likely, however, that these lines of vertically set stones found during the 2001 and 2002 field seasons likely represent the facing stones of earthen or earth-rock platforms that were part a structure. At present, its not certain if these facing stones represent the edges of earthen platforms that were added to Str. N11-18, suggesting expansion of the building to the northeast, or if the architectural elements shown in Figure 3 are coeval with the larger structure of which these smaller architectural elements are a part.

There are several clues, however, that at least a portion of the area investigated during 2001 and 2002 represents an earlier structure, or at least part of an earlier construction feature, that probably was buried under a layer of unconsolidated earth and limestone rocks. The stratigraphic position and relative elevation of the stones that comprise Lines A, B, C & F below this layer of earth and rock fill indicates their earlier

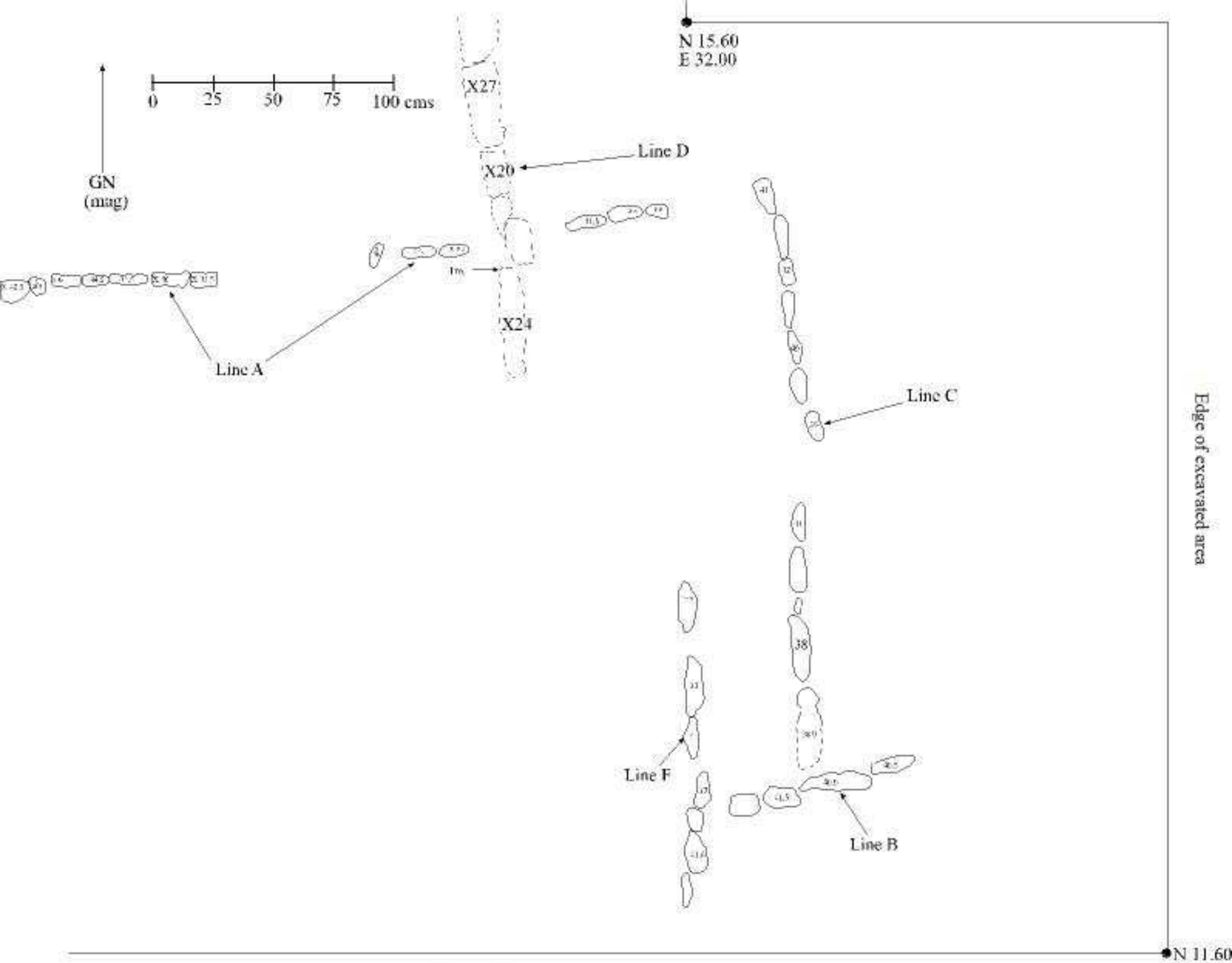


Figure 26

Lamanai Plan 01-07

Linear alignments of small vertically-set limestone blocks- Lines A, B, C and F. Overlying floor ballast, shown in Figure 25, excavated revealing northern extent of Line C.

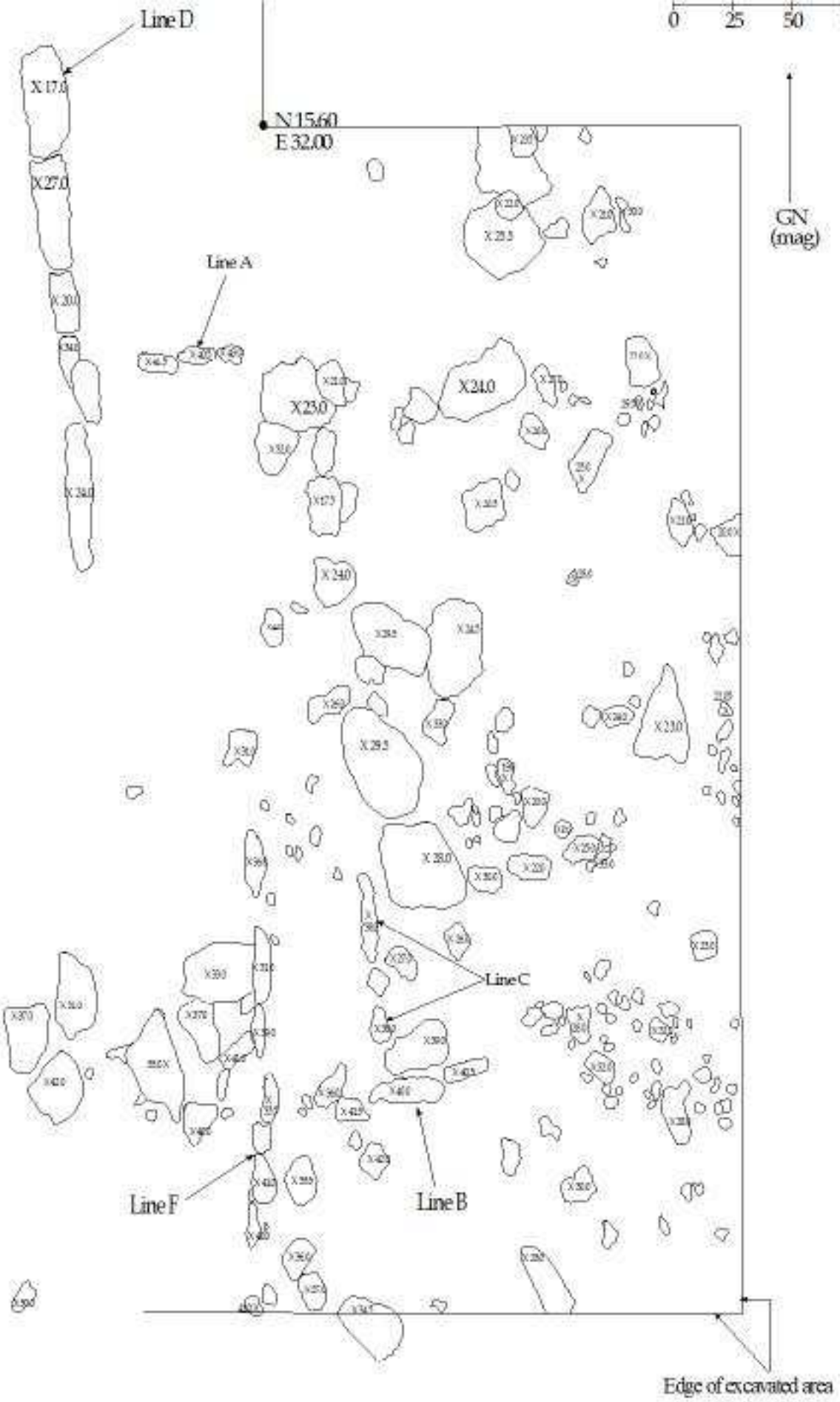


Figure 25
Lamanai Plan 01-01
Floor ballast and associated alignments of vertically-set limestone blocks. Note that the northern extent of Line C is covered by the probable floor ballast stones and earth.

construction date. Also, the comparable sizes of the vertically oriented stones used in their construction, as well as their similar elevations, suggests that Lines A, B, C and F were constructed at roughly the same time and therefore functioned together as a discrete architectural unit.

It is possible that this group of linear stone features functioned as platform faces for an earthen and stone platform that pre-dates the expansion of Str. N11-18 to the northeast. This expansion entailed covering the low platform facing stones of Lines A, B, C and F with up to approximately 15-20 cms of earth and unmodified limestone pieces. Figure 27 shows some of this earth and stone platform east of Line C. In addition, the comparatively much more substantial stones of Line D were placed through Line A (see Figures 20 and 26) as part of the expansion of Str. N11-18 to the north.

Figure 27
Mass of unorganized, unmodified stones east of Line C (shown as longest alignment of stones to right in image near North arrow). Approximately 2x4m area of this mass of stones and earth has already been excavated in the centre of this image, immediately east (left of) Line C. Base of LA 2085 at left top and LA 2086 at left bottom of image. Note discrete concentrations of white plaster among floor ballast stones in upper left. Also note southern continuation of large, horizontally set limestone slabs in upper right.

Immediately to the west of Line C is a rather discrete concentration of unmodified limestone rocks and very dark brown (10YR 3/1) soil (Figure 28) that was identified during the 2001 field season. Based on their elevations and stratigraphic position it appears that this stone feature may be associated with the use of Str. N11-18. In other words, it is likely not associated with the use of the architectural feature delineated by Lines A, B, C and F, discussed above. Following the exposure of the stones that comprise this feature, the soil found between these stones was excavated as one lot (LA 1584), although no temporally diagnostic features were recovered in this lot. While both the horizontal and vertical placement of the feature suggests its association with Str. N11-18, its temporal and functional associations are still not entirely clear.

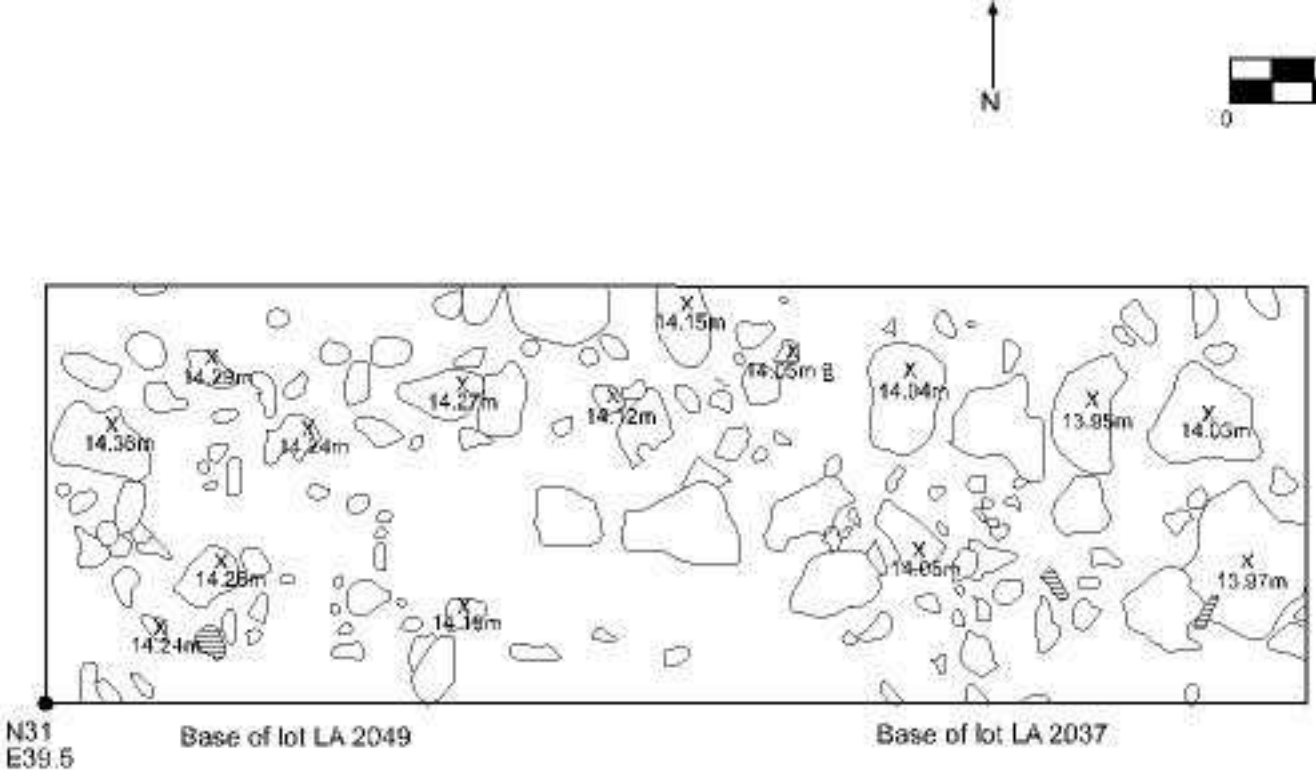
Excavations North of Str. N11-18

During the clearing of low, secondary brush and vegetation roughly 10 m north of Str. N11-18 we encountered a low topographic rise that appeared to possibly represent another structure. No structures had previously been identified in this area during the ROM mapping programme (see Figure 2), however our clearing suggested that it might be useful to test this area because its proximity to Str. N11-18 suggested the possibility of its contemporaneity.

Subsurface testing took place during 2002 in two areas of this low rise. At N 31.0 E 39.5 a 1x3 m area was excavated on the east side of this low rise. What appeared to be core, comprised of fairly densely packed medium to large-sized limestone rocks, was encountered less than 10 cms below the existing ground surface in Lots LA 2037 and LA 2060. Figure 29 shows these stones at the base of Lots LA 2037 and LA 2060. Occasional ceramic sherds, as well as lesser numbers of lithic artifacts (mostly flakes) were recovered in the upper 20 cms of these lots (Appendix 6). Excavations did not continue below roughly 30 cms below ground surface in this 1x3 m area, but another part of this structure was tested during the 2002 MAP field season.

An excavation unit measuring 2x2 m in size was placed on the flat, fairly level part of the low rise north of Str. N11-18 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 2x2 m unit, LA 2080 consisted mainly of the kinds of smaller, unmodified pieces of limestone we had encountered in the upper lots of the previously discussed 1x3 m unit situated immediately to the east. Unlike in many of the other areas in 'Downtown' we did not encounter evidence of disturbance in the upper 10-15 cms in this area. In fact, both articulated mammal phalanges of an as-yet unidentified species were found in this lot, as well as a discrete cluster of ceramic sherds from the same vessel. But at the base of this lot, approximately 10 cms below the existing ground surface, greater numbers of core-like stones were found.

As excavations continued in the second 10 cm lot, LA 2081, we began to encounter larger, more core-like stones as well as heavier concentrations of small to medium-sized stones. At the base of the third 10 cm lot in this unit, LA 2104, discrete



Key

Roots

Limestone

Plan 02-03

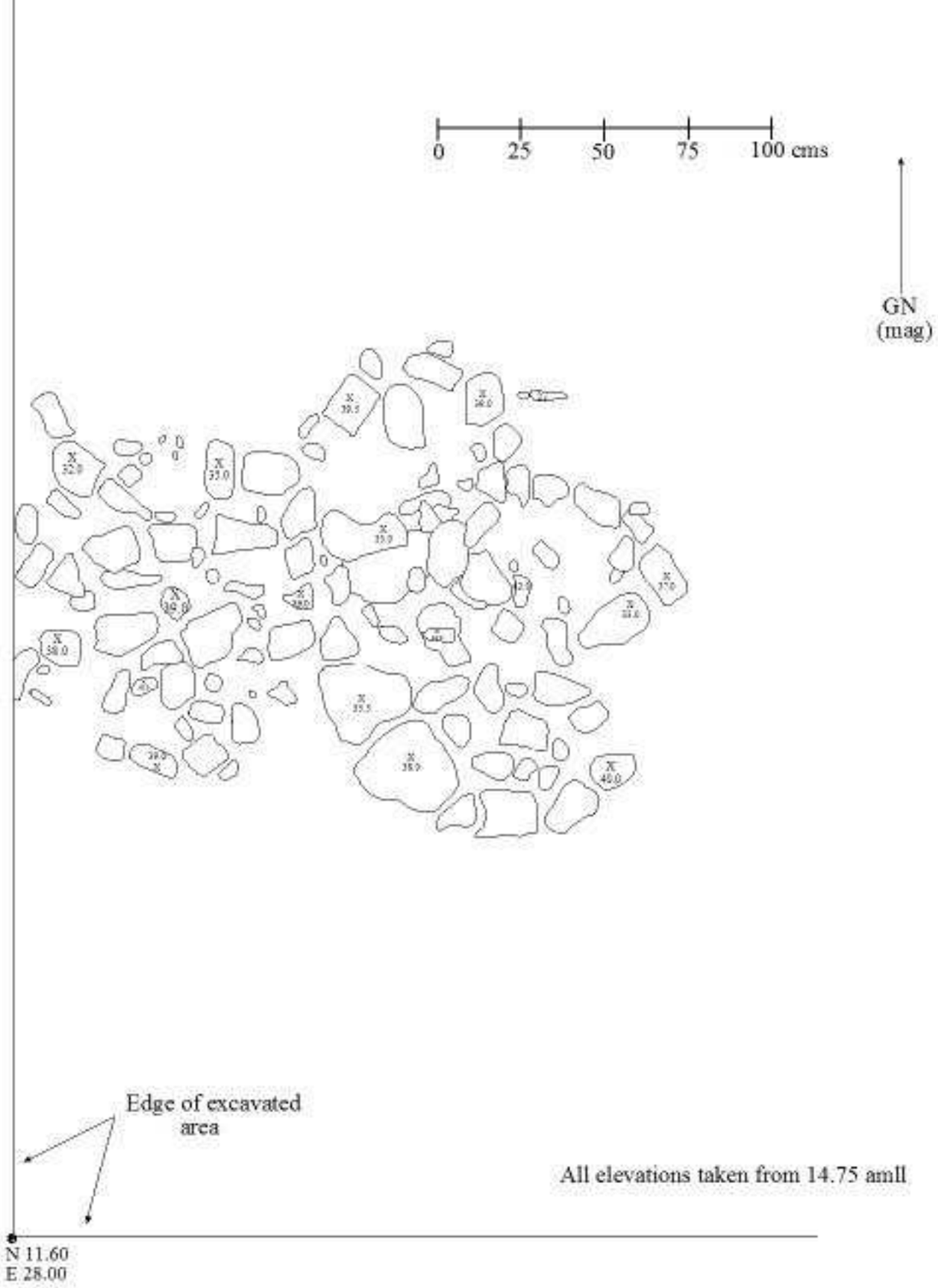


Figure 28

Lamanai Plan 01-03
Possible stone and earth platform located
west of Line C, 'Downtown,' Lamanai

concentrations of floor plaster appeared in the northwest and southeast corners of the excavation unit (Figure 30).

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 (Figure 31). 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. The burial was not excavated and excavations did not continue below the level of soil and plaster flooring shown in Figure 30.

Figure 30
Base of Lot LA 2106. Heavy core material was removed from this lot immediately above the level of the remnants of intact plaster, which probably represents flooring, in both the northwest and southeast corners of this 2x2 m excavation unit. The top of the human cranium is seen immediately to the right of the plaster feature, which is located in the upper left of this image, straight above and in line with the north arrow.

Figure 31
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.

As mentioned above, 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*. 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 32. The first copper prill was recovered from Lot LA 2081, the second 10 cm level excavated in this unit in a deposit that lies above the core material for this structure. Two of the four remaining prills were found in Lot LA 2106, the soil deposit directly overlying the plaster flooring in the northwest quadrant of the excavation unit. The last two copper prills were found as soil was cleared around the top of the human cranium. As mentioned previously, the identification of the cranium as human

Figure 32
Probable copper prill (LA 2096/2) recovered in human burial fill in 2x2 m excavation unit located north of Str. N11-18. Prills are formed when molten metal drops solidify into small pellets. Together with the pigs (ingots), the flat, scrap pieces of copper and mis-cast bells these prills provide rather compelling evidence for on-site Maya metal production, an activity that has not been documented before in the Maya area.

rests on its shape and size as well as the presence of three teeth, including two incisors. 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.

The recovery of these artifacts in what appear to be relatively undisturbed contexts is exciting because it suggests that we may be close to the discovery of a copper production feature or features. Since no such features have ever been documented in the Maya area, and a relatively small number have been recorded in Mesoamerica as a whole, the presence of these prills gives us hope that we might recover additional evidence of on-site Maya metallurgy that will provide us with insights into this as a specialized craft activity. The sum of evidence for copper metallurgy at Lamanai presently at hand will be presented below, as will our directions for future research in the area of Str. N11-18.

Figure 33
Copper bell clapper or possible large copper prill (LA 2081/2) recovered above level of human burial fill in 2x2 m excavation unit located north of Str. N11-18

Another possible copper prill was recovered (Figure 33), but it is equally likely given its size that LA 2081/2 represents a copper bell clapper. No bell was found in association with this object or elsewhere in this lot. These bell clappers were often made of copper, or occasionally small stones were used as well (Simmons and Pendergast n.d.).

Stratigraphy and Artifacts from the 2001 and 2002 MAP Field Seasons

Similar stratigraphy was noted in both the Uptown and Downtown areas north of Strs. N11-3 and N11-18, respectively. In the areas immediately north of both Strs. N11-3 and N11-18 a relatively thick midden deposit, as well as 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. The presence of European objects, including a turquoise over white Nueva Cadiz twisted glass bead (Figure 34), as well as several possible pieces of Spanish majolica, indicates that at least part of this midden was deposited in early Spanish colonial times.

Figure 34
Nueva Cadiz twisted turquoise over white glass bead (LA 2072/1) recovered from upper soil deposit in Uptown. These beads are found at sites with early (pre-1550) Spanish Colonial Period components (Deagan 1987:163)

The very dark gray-brown midden deposit (Figure 35) was documented immediately north of both Strs. N11-3 and N11-18 by Pendergast (1984). We still do not know the full horizontal extent of the midden north of Str. N11-18. It appears, however, that somewhere in the roughly 12 m area that lies between N 18.85, the northern-most extent of our excavations associated with Str. N11-18 (see Figure 3), and N 31.0, the northern extent of our excavations in the Downtown area, the midden stretching north from the northern portion of Str. N11-18 ends. In fact, the depth of the midden deposit associated with Str. N11-18 decreases in the area of the northern extent of our excavations at Str. N11-18 (at roughly N 18.85) to the point where it may in fact be only Post Abandonment Accumulation (PAA). In the area closest to the structural remains of N11-18 the midden and associated PAA deposit extends up to roughly 25 cms below ground surface (Figure 35).

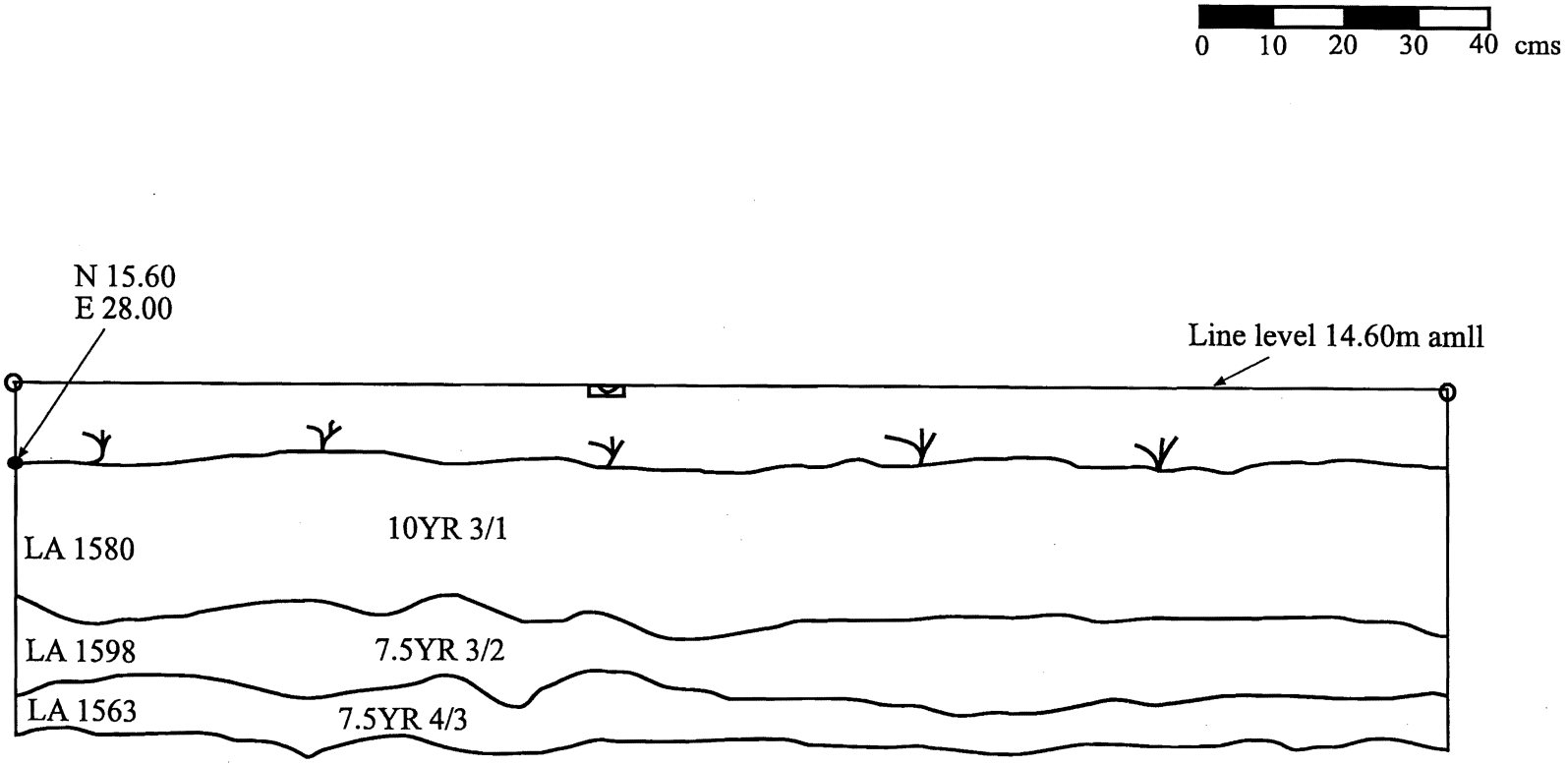


Figure 35
North Wall Profile in Downtown
Excavated area north of Line A

A variety of artifacts were recovered from this extensive midden, including a number of Small Finds (see Appendix 4). Very late ceramic forms, including Yglesias, were found in this midden (Figure 36). A number of other Small Finds, including small side-notched projectile points (abbreviated as SSNP in Appendix 4), ceramic and bone spindle whorls, mano and metate fragments, and other utilitarian objects related to fishing in the New River Lagoon (Figures 37 and 38) were found during excavations in 2001 and 2002. In addition, fairly well preserved faunal material, including numerous bones from both freshwater and marine turtle species, are present in this midden (Simmons 1999).

Figure 36
Yglesias bowl fragment with diagnostic slit-foot base, recovered in Uptown area from midden deposit north of Str. N11-3, LA 1593

Figure 37
Date seed net sinker (LA 2038/3) recovered in midden/PAA deposit, Str. N11-18

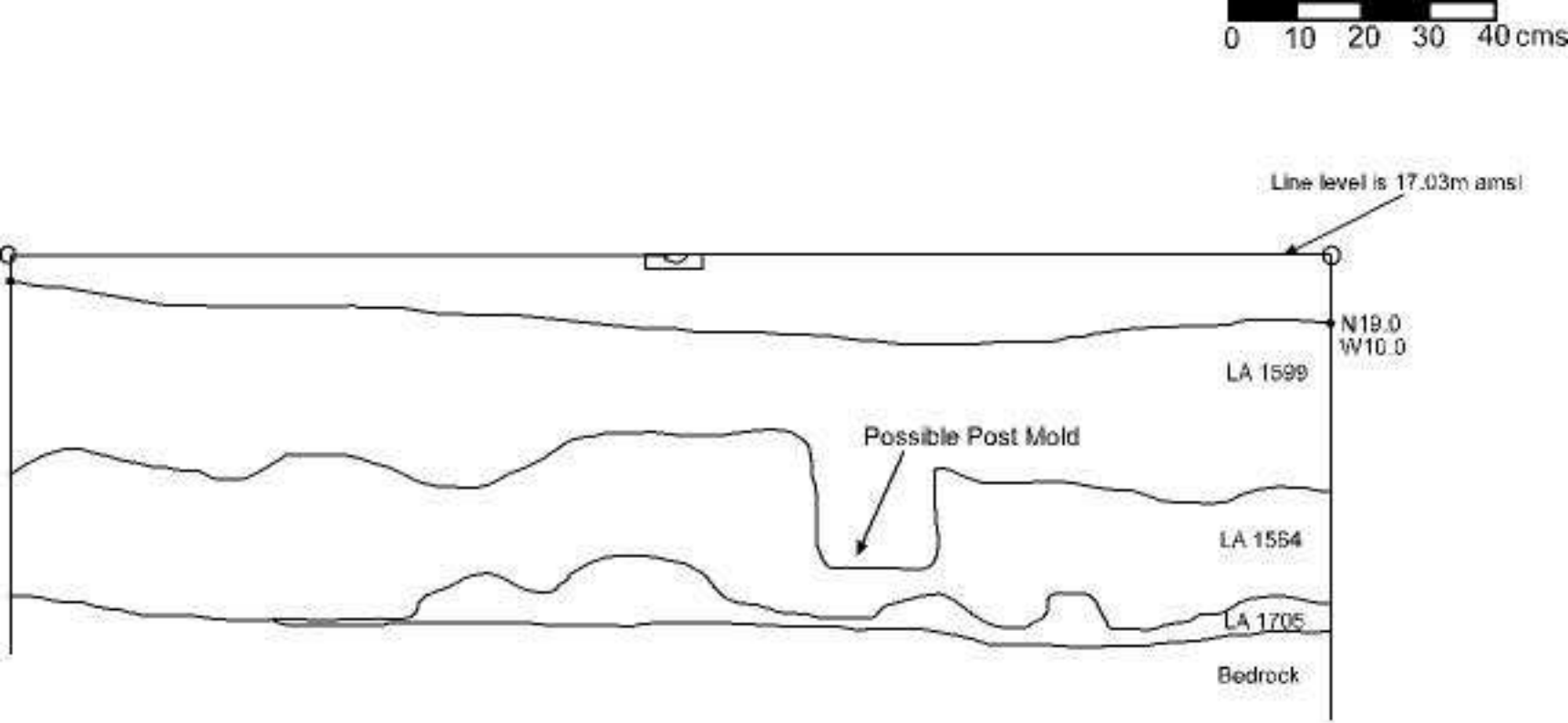
Figure 38
Copper fish hook (LA 1575/2) recovered in midden/PAA deposit north of Str. N11-3

The extensive midden that lies north and northwest of Str. N11-18 appears to continue to the west to a point where it is virtually indistinguishable from the extensive midden that lies north of Str. N11-3. In fact, this upper stratum is likely a continuous deposit of Terminal Postclassic and early Spanish Colonial Period refuse that represents domestic material deposited during the occupation of these structures at the time of Spanish contact. In the Uptown area, north of Str. N11-3 (see Figure 2), the very dark gray-brown midden extends up to approximately 30 cms below ground surface. A series of three $1m^2$ units were excavated along the E 5 grid line spaced 3 m apart in this area in the hope of identifying the approximate horizontal extent of this midden north of Str. N11-3 see above discussion). The results of this testing indicate that in terms of its horizontal extent to the north of Str. N11-3 the midden deposit extends to approximately between 25-28 m north of the north face of that structure.

The soil deposit identified below the midden in both the Uptown and Downtown areas is a dark brown (7.5YR 3/2) sticky silt with some clay that measures between roughly 10-20 cms in thickness (Figures 39 & 40). This deposit may well represent an occupation surface of sorts, but this is not entirely clear at this point. It is well-compacted across both areas investigated in 2001 and 2002, and artifact densities in the lots of this stratum are considerably lower than those of the upper midden/PAA stratum.

Generally speaking, the artifacts encountered in this stratum appear to be more poorly preserved than those found in the upper stratum, the midden deposit. Ceramic artifacts, such as those shown in Figure 41, were generally weathered and eroded in appearance, with only vestiges of slip adhering to their surfaces. In addition, most sherds were fairly small in size, measuring only a few centimeters across at most. Also, faunal preservation is not nearly as good, with many fewer bones and much smaller fragments of bones present than in the midden stratum. 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.

In addition to the burials encountered (discussed above) there is, however, additional evidence that the Maya used ‘off-platform’ areas at Lamanai, specifically the area north of Str. N11-3, as residential zones. Figures 39 and 40 show what may be post hole features extending into this brown, more compacted soil deposit. It is possible that the dark soil stains seen in this soil represent the remains of vertical wooden posts, but until more and/or patterning of these soil stains are identified it will not be certain if these stains indeed represent structure posts.



South Wall Profile

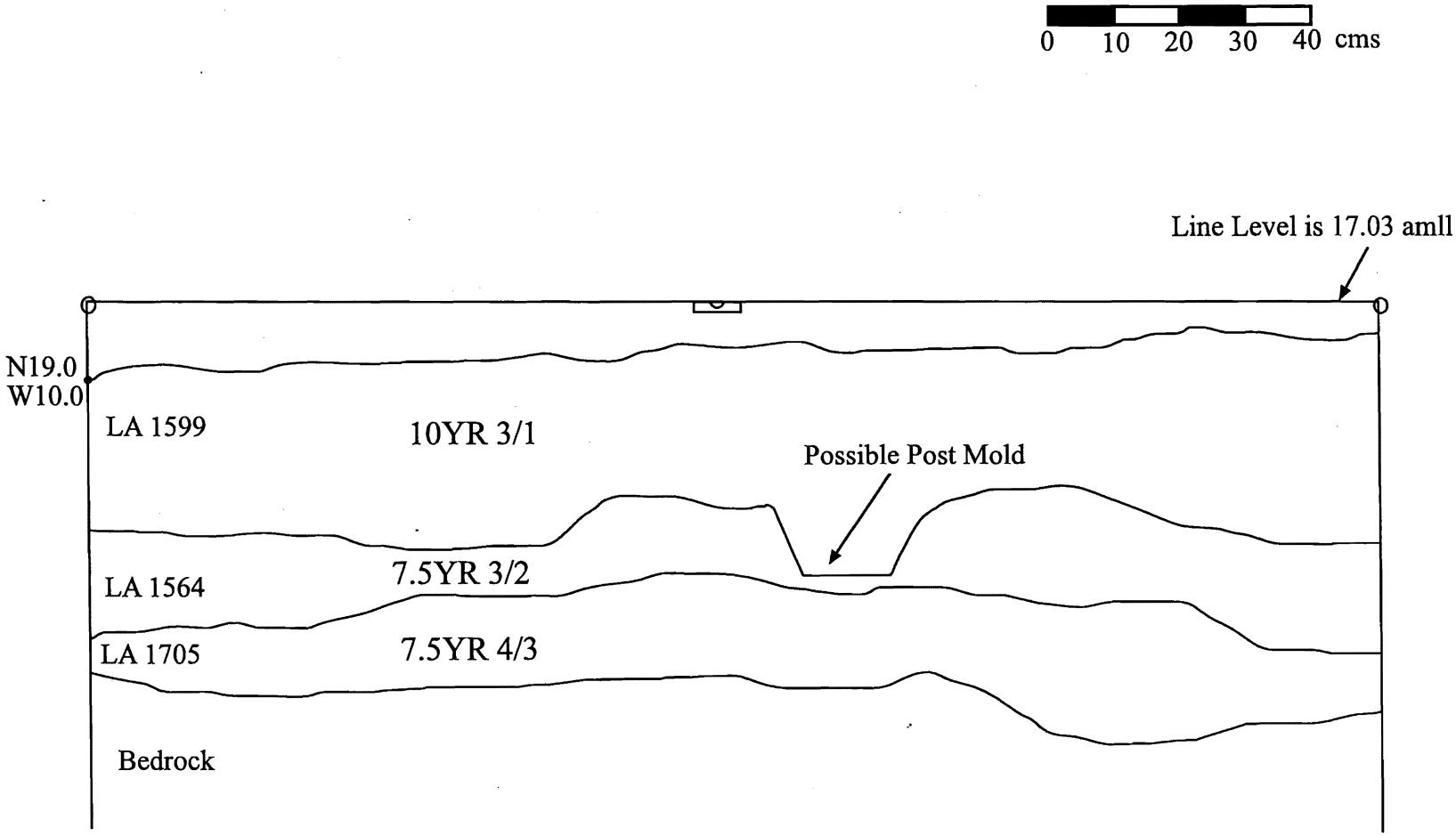


Figure 40
West Wall Profile, N19 W10, Uptown
Note possible post hole in upper stratum

Figure 41
Weathered, eroded ceramic rim sherd recovered from Lot LA 1704, 'Uptown'

The deepest soil stratum encountered in both the Uptown and Downtown areas was a brown (7.5YR 3/4) silty clay that was sticky, very compacted and at times difficult to excavate. This deposit was found directly atop the marl and limestone bedrock in the Uptown area (see Figures 39 & 40). Very few artifacts were recovered from this deepest soil deposit encountered in 2001 and 2002, and nearly all of the artifacts were very small in size and badly weathered. Chert flakes were very small and were often patinated while the surfaces of ceramic sherds were fairly eroded. In the Uptown area this soil deposit was found mixed with marl, and pockets of the soil were also found extending into depressions in the limestone bedrock. This bedrock was found between roughly 40 and 50 cms below the existing ground surface in Uptown. Excavations have not been sufficiently deep to encounter bedrock in the Downtown area.

Stabilization of the Architectural Remains of Str. N11-18

Following the completion of archaeological investigations in both 2001 and 2002 the low, mostly shallow architectural features encountered were covered in plastic tarps and heavy plastic sheeting and partially backfilled. The vertically set stones encountered at Str. N11-18 (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 the Downtown area 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 lines of vertically set stones, large, horizontal limestone slabs, and unorganized masses of unmodified limestone rocks will be encountered in this area. In order to understand the spatial and (hopefully) functional relationships between new architectural features and those that have been documented it is important to be able to re-expose previously identified architectural features, such as those encountered in 2001 and 2002. 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 2001 were found to be in very good condition when we returned the following year. The methods of stabilization used in both 2001 and 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. N11-18 excavated during the 2001 and 2002 field seasons 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 Department of Archaeology, Belize Ministry of Tourism, to develop a long-term stabilization and preservation plan for Str. N11-18. 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. N11-18: The Evidence from 2001-2002

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 and Pendergast n.d.). To date, a total of 168 copper artifacts have been recovered at Lamanai (Table 3). Most of these (64%) have been recovered at or in the immediate vicinity of Str. N11-18. 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 Str.

N11-18. This evidence consists of three copper ingots or pigs (LA 858/11, 881/1 and 908/1); a small piece of scrap copper (LA 1241/1); an apparently mis-cast needle (LA 1580/18), and several dozen mis-cast bells that represent production failures. In addition, five very small copper pellets (LA 2081/1, 2096/1, 2096/1, 2106/1 and 2106/2), almost certainly representing prills, were recovered in 2002 roughly 15 m north of Str. N11-18 (see Figure 32). 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. N11-18.

Table 3. Copper Artifact Types Recovered at Lamanai*

Object Type	Number	Percentage of Assemblage
Bells & Bell fragments	73	44
Bell clapper	1	1
Celt/Chisel/Axe	17	10
Ring	14	8
Ornament	13	8
Needle	9	5
Pin	4	2
Tweezer	4	2
Cast sheet	2	1
Fish hook	5	3
Bell-head Pin	2	2
Pin Head	2	2
Tinkler	1	1
Unidentified	1	1
Pig or axe/chisel blank	1	1
Sheet fragments	8	5
Ingot/Pig	4	2
Prills	5	3
Nail	2	1
TOTAL	**168**	100

* totals up to end of 2002 field season

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 42 shows one of the smallest bells recovered thus far at Lamanai. But a number of utilitarian copper objects have also been recovered from Str. N11-18 and its immediate environs, including fish hooks, needles, axes, and wood working tools such as chisels (Figure 43 and Table 3).

Figure 42
One of the smallest bells yet recovered at Lamanai, LA 2070/5. This bell was recovered just above the northern-most large, flat limestone slab immediately north of the northern end of Line D (Figures 3 and 20) in a deposit that may represent Post Abandonment Accumulation (PAA). The area where bell was found appears to be part of Str. N11-18

Figure 43
Needle fragment (LA 1580/18) recovered from midden/PAA immediately north of Line A, Str. N11-18. The tip (right) and thread loop (left) appear to have been mis-cast.

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 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 were 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 kitchen gardens, orchards and smaller associated outbuildings. All of the evidence currently available for

copper production activities comes from Str. N11-18 and its immediate environs, where all of the mis-cast pieces, production failures and pieces of scrap sheet copper, as well as three ingots, have been found. Two of the production failures, mist-cast bells, are shown above in Figures 44 and 45.

Figure 44
LA 1580/20, a mis-cast copper bell fragment recovered from north side midden/PAA deposit, Str. N11-18

Figure 45
LA 1580/19, a piece of scrap copper or a mis-cast copper bell fragment recovered from north side midden/PAA deposit, Str. N11-18

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 immediate vicinity of Str. N11-18 suggests that a copper production feature, such as a smelting/casting area, is nearby. 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 better position to address the principal goals of the Maya Archaeometallurgy Project, including the 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).

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. 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 authors 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.

Public outreach and education is also a part of the Lamanai Archaeological Project's field school in archaeology. In 2001 archaeology field school students participated in "Science Days" at the Lamanai Field Research Centre. Belizean students from a wide variety of schools in Orange Walk, as well as outside the district, attended these science workshops, learning about the natural and cultural history of the Lamanai area. Archaeology field school students worked with these Belizean school children at various 'stations' focusing on learning about the native flora, fauna and the ancient Maya. In addition, student research presentations were open to and attended by guests at Lamanai Outpost Lodge as well as Belizeans from Indian Church Village. In this way the archaeology field school students were able to share the results of their research on topics of Maya archaeology and anthropology to the general public, and these research presentations were usually very well received.

In terms of the research conducted during 2001 and 2002 there were several noteworthy achievements. First, we were able to more fully define the horizontal extent of one of Lamanai's most important Terminal Postclassic-Spanish Colonial Period buildings, Structure N11-18. It is now clear that the building is at least 6 meters larger (N-S) than originally thought. The building also extends to the east several meters beyond where Pendergast was able to investigate in 1984. This suggests that additional investigation of the structure will likely yield further information on its use(s) during this critical time in Lamanai's contact period history. It is anticipated that further research at Str. N11-18 will provide additional insights into the nature of specific kinds of domestic and other activities at this important structure. For instance, a total of nine small side-notched and un-notched projectile points were recovered in a discrete cluster in Lot LA

1586, located immediately northeast of the juncture of Lines A & C (see Figure 3 & 26). This may have been a storage area for bows and arrows, which were tools quite commonly used by the Southern Lowland Maya for both hunting and warfare during this period (Gibson 1986; Simmons 2002).

For the purposes of our research on the nature of Maya copper metallurgy at Lamanai several important steps were taken during 2001 and 2002. First, the recovery of five or possibly six copper prills provides additional evidence of on-site Maya metallurgy. The recovery of seven more bells, two needles and a fish hook adds to the corpus of copper objects that can be chemically analysed for manufacturing characteristics. But more importantly, the continued absence of copper artifacts of European design or form 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 and Pendergast n.d.). The recovery of the five 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 2001 and 2002 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 recovered in 2002, 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 Str. N11-18 and copper metallurgy seems to be growing based on information derived during MAP excavations in 2001 and 2001. Excavations during these two seasons were focused on the north end of the building, and roughly half (8 of 15) of the copper artifacts we recovered there during those two field seasons were either production failures or production debris. This 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 formerly occupied by the ‘squatter house’ is available for additional testing, and it is here that we found what appears to be either an extension of Str. N11-18 to the northeast or another, as yet undocumented, structure that is very closely associated with Str. N11-18.

Along with more fully defining the horizontal extent of Str. N11-18, excavations in 2001 and 2002 resulted in the identification of at least two earlier episodes of occupation in the area where this important building is situated. The earliest of these was seen in the form of an apparently undisturbed Late Classic Period midden deposit lying below the east side of Str. N11-18. The midden not only appears to be intact but contains very well preserved faunal material, along with ceramic and lithic artifacts that could

provide further information on Late Classic period occupation in the southern portion of the site. In addition to the Classic Period midden, excavations in 2001 and 2002 revealed several lines of fairly small vertically set stones in a roughly square form, in the northeastern portion of Str. N11-18. It is not clear if these stone features were part of a low structure platform that existed prior to the construction of Str. N11-8, or if these lines of stones represent and early component of this building that was covered by later, larger construction efforts involving masses of earth and unmodified limestone pieces, as well as much larger vertically set stones. Further investigations in the area formerly occupied by the 'squatter house' will likely clarify the relationships between these architectural elements.

Research conducted in 2001 and 2002 by the MAP also demonstrated that the investigation of 'off-platform' areas at Lamanai, and indeed probably at other Lowland Maya sites, is a worthwhile endeavour in terms of the potential information it can provide on the nature of Maya domestic life at the time of Spanish contact. It now appears quite possible that perishable domestic residences were situated north of Str. N11-3, the large structure located just southwest of Str. N11-18 (see Figure 2). Along with fairly high densities of domestic refuse, several burials, as well as possible post hole features, were encountered in the broad, flat area immediately north of Str. N11-3. The results of our investigations in this particular area suggest that more attention should be paid to such 'off-platform' areas at Maya sites. Although there are often no architectural clues that the Maya used them, these areas may be significant sources of information on a variety of aspects of Maya life both before and after Spanish contact.

We hope to be issued a permit to continue our archaeological research at Str. N11-18 and its environs in 2004 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 proximity of the vast majority of copper objects, as well as 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

Lamanai Archaeological Project **LOT RECORD** **FOR LOT NUMBER:** [ ]

SITE:		**YEAR EXCAVATED:**
Operation:		**Assessment:**
Structure:		
Lot(s) Above: **Lot(s) Below:**		**Associated Lot:** **Equivalent Lot(s):**
Thickness of Deposit:	**Area:**	**Volume:**
Grid Reference:		
Date of Deposit?		
Screened? ☐ **Quantity:** **Screen Size?:**		
Float? ☐ **Quantity:**		
Photos:		
Datum Point(s):	**Relationship to Datum and/or Surface (Vertical):**	
	Relationship to Datum (Horizontal):	
Location of Drawings & Field Notes:		
Soil Description (Munsell):		
Evidence of Disturbance?:		
Other Observations/Artifacts/Notes etc.:		

Entered by:_____

Lamanai Archaeological Project

SMALL FINDS RECORD

LOT/CATALOGUE NUMBER:

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

Entered by:_____

PHOTOGRAPH RECORD

Lamanai Archaeological Project

SITE:			YEAR:
FILM:	ASA:	CAMERA:	ROLL #:

FRAME:	STR./OP.	SUBJECT :	LOT:	LOOKING:	DATE:

DATE_____ **LAP ARTIFACT COUNT SHEET** LOT#_____

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

Last Updated 25-Jul-2000

DATE_____ **LAP ARTIFACT WEIGHT SHEET** LOT#_____

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

Last Updated 25-Jul-2000

Master Counts & Weights Form, Lamanai Archaeological Project

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Appendix 2

Summary of Lots Excavated, Operation 01-05, 2001

Summary of Lots Excavated for Operation 01-05, Lamanai, Belize 2001

Lot Number	Structure/Area	Lot Description
LA1560	N11-18	very dark gray (10YR 3/1) soil; 2x2x.20m approx. excavated area; ballast; lot immediately below LA 1586, soil under stones depicted on Plan 01-01
LA1561	N11-18	very dark gray (10YR 3/1) soil; 2x2x.20m approx. excavated area; ballast; lot immediately below LA 1585, soil under stones depicted on Plan 01-01
LA1562	N11-18	dark brown (7.5YR 3/2) sticky brown clay, 2x2x.10m approx. excavated area; occupational debris; lot immediately beneath LA 1591, 'Downtown'
LA1563	N11-18	dark brown (7.5YR 3/2) sticky brown clay; 1x2x.10m approx. excavated area; occupational debris; lot immediately below LA 1598, 'Downtown'
LA1564	N. of Str. N11-3	dark brown (7.5YR 3/2) sticky brown clay, 2x2x.15m approx. excavated area; occupational debris; lot immediately beneath LA 1599, 'Uptown'
LA1565	N. of Str. N11-3	very dark gray (10YR 3/1) soil; 1x2x.15m approx. excavated area; Midden 2; lot directly above LA 1707 'Uptown'
LA1566	N11-18	dark brown (7.5YR 3/2) sticky clay; 2.5x.90x.10m approx. excavated area; Midden 2; lot immediately below LA 1581, west of Line D, 'Downtown'
LA1567	N11-18	dark brown (7.5YR 3/2) sticky clay; 2.5x1x.5m approx. excavated area; Midden 2; lot directly beneath LA 1582 and equivalent to LA 1566, east of Line D, 'Downtown'
LA1575	N. of Str. N11-3	very dark gray (10YR 3/1) soil, 2x2x.20m approx. excavated area; Midden 2; lot immediately above LA 1587, 'Uptown'
LA1576	N11-18	very dark gray (10YR3/1) soil; 1x3x.5 m approx excavated area; post abandonment accumulation; lot immediately above LA 1588, 'Downtown'
LA1577	N11-18	very dark gray (10YR3/1) soil; 1x3x.10m approx excavated area; core? collapse? and wall clearing of vertical stones
LA1578	N11-18	very dark gray (10YR3/1) soil; 2x2x.15m approx excavated area; Midden 2; lot immdiately above LA 1591; 'Downtown'
LA1579	N11-18	very dark gray (10YR3/1) soil; 1x1.8x.10m approx. excavated area; ballast?; lot immediately above LA 1590; 'Downtown'
LA1580	N11-18	very dark gray (10YR3/1) soil; 2x2x.20m approx. excavated area; Midden 2; lot immediately above LA 1598, 'Downtown'
LA1581	N11-18	very dark gray (10YR3/1) soil; 2.5x.90x.20m approx. excavated area; Midden 2; lot immediately above LA 1566 and west of Line D, 'Downtown'
LA1582	N11-18	very dark gray (10YR3/1) soil; 2.5x1x.15m approx. excavated area; Midden 2; lot immediately above LA 1567 and east of Line D, 'Downtown'
LA1583	N11-18	previously excavated/backfilled area, approx. 1x2x.20m excavated area immediately south of Line A
LA1584	N11-18	area immediately west of Line D, Downtown, equivalent to LA 1578 & LA1585
LA1585	N11-18	2x2x.20 m area located immediately east of LA 1584, 'Downtown'
LA1586	N11-18	2x2x.20 m area located immediately north of LA 1585, 'Downtown'
LA1587		second level of 2x2 m area @ N 18 W 14, 'Uptown'
LA1588	N11-18	second level of 1x3 m area @ N 4.4 E 30.7, 'Downtown
LA1589		brown soil below LA 1587, 2x2 m area @ N 18 W 14, 'Uptown'
LA1590	N11-18	lot below LA 1579, equivalent to LA 1588, 'Downtown'

LA1591	N11-18	lot below LA 1578, 2x2 m area @ N11.60 E 28.0
LA1592		Burial (human) fill, below LA 1589 @ N 18.0 W 14.0, 'Uptown'
LA1593		2x2x.20 m area located immediately north of and equivalent to LA 1575, 'Uptown'
LA1594		Burial (dog) fill in 2x2 m unit @ N18.0 W 14.0, 'Uptown'
LA1595	N11-18	soil (ballast?) excavated in between stones beneath LA 1578 & LA 1580, 'Downtown'
LA1596		soil deposit (sticky brown clay) immediately below LA 1593, 'Uptown'
LA1597		Burial (human) fill, directly above LA 1592
LA1598	N11-18	lot below LA 1580, dark brown soil, located north of Line A, 'Downtown'
LA1599		first 20 cm lot in 2x2 m area @ N 19.0 W 10.0, 'Uptown'
LA1600		first 20 cm lot in 2x2 m area @ N 12.0 W 14.0, 'Uptown'
LA1701	N11-18	Soil below planned rocks, below LA 1588, 'Downtown'
LA1702	N11-18	Soil below LA 1562, light brown silty clay, 'Downtown'
LA1703		Burial? Fill 'Uptown', below LA 1565
LA1704		soil below LA 1600, brown sticky clay 'Uptown,' possibly occupational debris
LA1705		soil below LA 1564, 2-3 cms of brown sticky clay 'Uptown' directly above bedrock
LA1706		Provenience Not Known artifacts from 'Downtown'
LA1707		soil below LA 1565, sticky brown clay 'Uptown'
LA1708	N11-18	soil below LA 1566, sticky brown clay 'Uptown'
LA1709	N11-18	lot within (east of) Lines B & C plus within N13.60 line and E 34.0
LA1710	N11-18	wall scrapings from profile drawing of 2x2 m excavation unit @ N19 W 10
LA1711	N11-18	lot on the east side of Line C, clearing out ballast? To core? 'Downtown'
LA1712	N11-18	lot defined directly south of Line B 'Downtown
LA1713	N11-18	Classic Period midden material in north accumulation of LA 1588 'Downtown'

Appendix 3

Summary of Lots excavated, Operation 02-06, 2002

Appendix 2. Summary of Lots Excavated for Operation 01-05, Lamanai, Belize 2001

Lot Number	Structure/Area	Lot Description
LA1560	N11-18	very dark gray (10YR 3/1) soil; 2x2x.20m approx. excavated area; ballast; lot immediately below LA 1586, soil under stones depicted on Plan 01-01
LA1561	N11-18	very dark gray (10YR 3/1) soil; 2x2x.20m approx. excavated area; ballast; lot immediately below LA 1585, soil under stones depicted on Plan 01-01
LA1562	N11-18	dark brown (7.5YR 3/2) sticky brown clay, 2x2x.10m approx. excavated area; occupational debris; lot immediately beneath LA 1591, 'Downtown'
LA1563	N11-18	dark brown (7.5YR 3/2) sticky brown clay; 1x2x.10m approx. excavated area; occupational debris; lot immediately below LA 1598, 'Downtown'
LA1564	N. of Str. N11-3	dark brown (7.5YR 3/2) sticky brown clay, 2x2x.15m approx. excavated area; occupational debris; lot immediately beneath LA 1599, 'Uptown'
LA1565	N. of Str. N11-3	very dark gray (10YR 3/1) soil; 1x2x.15m approx. excavated area; Midden 2; lot directly above LA 1707 'Uptown'
LA1566	N11-18	dark brown (7.5YR 3/2) sticky clay; 2.5x.90x.10m approx. excavated area; Midden 2; lot immediately below LA 1581, west of Line D, 'Downtown'
LA1567	N11-18	dark brown (7.5YR 3/2) sticky clay; 2.5x1x.5m approx. excavated area; Midden 2; lot directly beneath LA 1582 and equivalent to LA 1566, east of Line D, 'Downtown'
LA1575	N. of Str. N11-3	very dark gray (10YR 3/1) soil, 2x2x.20m approx. excavated area; Midden 2; lot immediately above LA 1587, 'Uptown'
LA1576	N11-18	very dark gray (10YR3/1) soil; 1x3x.5 m approx excavated area; post abandonment accumulation; lot immediately above LA 1588, 'Downtown'
LA1577	N11-18	very dark gray (10YR3/1) soil; 1x3x.10m approx excavated area; core? collapse? and wall clearing of vertical stones
LA1578	N11-18	very dark gray (10YR3/1) soil; 2x2x.15m approx excavated area; Midden 2; lot immdiately above LA 1591; 'Downtown'
LA1579	N11-18	very dark gray (10YR3/1) soil; 1x1.8x.10m approx. excavated area; ballast?; lot immediately above LA 1590; 'Downtown'
LA1580	N11-18	very dark gray (10YR3/1) soil; 2x2x.20m approx. excavated area; Midden 2; lot immediately above LA 1598, 'Downtown'
LA1581	N11-18	very dark gray (10YR3/1) soil; 2.5x.90x.20m approx. excavated area; Midden 2; lot immediately above LA 1566 and west of Line D, 'Downtown'
LA1582	N11-18	very dark gray (10YR3/1) soil; 2.5x1x.15m approx. excavated area; Midden 2; lot immediately above LA 1567 and east of Line D, 'Downtown'
LA1583	N11-18	previously excavated/backfilled area, approx. 1x2x.20m excavated area immediately south of Line A
LA1584	N11-18	very dark gray (10YR3/1) soil; 2x2x.15m approx excavated area; Midden 2; lot equivalent to LA 1578 & LA1585; area immediately west of Line D, Downtown,
LA1585	N11-18	2x2x.20 m area located immediately east of LA 1584, 'Downtown'
LA1586	N11-18	2x2x.20 m area located immediately north of LA 1585, 'Downtown'
LA1587		second level of 2x2 m area @ N 18 W 14, 'Uptown'
LA1588	N11-18	second level of 1x3 m area @ N 4.4 E 30.7, 'Downtown

LA1589		brown soil below LA 1587, 2x2 m area @ N 18 W 14, 'Uptown'
LA1590	N11-18	lot below LA 1579, equivalent to LA 1588, 'Downtown'
LA1591	N11-18	lot below LA 1578, 2x2 m area @ N11.60 E 28.0
LA1592		Burial (human) fill, below LA 1589 @ N 18.0 W 14.0, 'Uptown'
LA1593		2x2x.20 m area located immediately north of and equivalent to LA 1575, 'Uptown'
LA1594		Burial (dog) fill in 2x2 m unit @ N18.0 W 14.0, 'Uptown'
LA1595	N11-18	soil (ballast?) excavated in between stones beneath LA 1578 & LA 1580, 'Downtown'
LA1596		soil deposit (sticky brown clay) immediately below LA 1593, 'Uptown'
LA1597		Burial (human) fill, directly above LA 1592
LA1598	N11-18	lot below LA 1580, dark brown soil, located north of Line A, 'Downtown'
LA1599		first 20 cm lot in 2x2 m area @ N 19.0 W 10.0, 'Uptown'
LA1600		first 20 cm lot in 2x2 m area @ N 12.0 W 14.0, 'Uptown'
LA1701	N11-18	Soil below planned rocks, below LA 1588, 'Downtown'
LA1702	N11-18	Soil below LA 1562, light brown silty clay, 'Downtown'
LA1703		Burial? Fill 'Uptown', below LA 1565
LA1704		soil below LA 1600, brown sticky clay 'Uptown,' possibly occupational debris
LA1705		soil below LA 1564, 2-3 cms of brown sticky clay 'Uptown' directly above bedrock
LA1706		Provenience Not Known artifacts from 'Downtown'
LA1707		soil below LA 1565, sticky brown clay 'Uptown'
LA1708	N11-18	soil below LA 1566, sticky brown clay 'Uptown'
LA1709	N11-18	lot within (east of) Lines B & C plus within N13.60 line and E 34.0
LA1710	N11-18	wall scrapings from profile drawing of 2x2 m excavation unit @ N19 W 10
LA1711	N11-18	lot on the east side of Line C, clearing out ballast? To core? 'Downtown'
LA1712	N11-18	lot defined directly south of Line B 'Downtown
LA1713	N11-18	Classic Period midden material in north accumulation of LA 1588 'Downtown'

Appendix 4

Small Finds Recovered from Ops 01-05 & 02-06, 2001 & 2002 MAP Field Seasons

Appendix 4

Small Finds Recovered from Ops 01-05 & 02-06, 2001 & 2002 MAP Field Seasons

Lot/Cat #	Year	Material	Description
LA1560/1	2001	shell	worked shell; perforated; bead
LA1560/2	2001	ceramic	modelled clay; perforated; bead
LA1560/3	2001	chert	chipped stone; formal; biface; notched
LA1561/1	2001	chert	chipped stone; formal; biface; notched
LA1563/1	2001	ceramic	worked sherd; notched
LA1566/1	2001	copper	handmade metal; castmetal; bell
LA1566/2	2001	ceramic	modelled clay; notched
LA1566/3	2001	chert	chipped stone; informal; flake
LA1566/4	2001	chert	chipped stone; formal; biface; notched
LA1566/5	2001	chert	chipped stone; formal; biface
LA1566/6	2001	chert	chipped stone; formal; biface
LA1575/1	2001	chert	chipped stone; formal; biface
LA1575/2	2001	copper	handmade metal; cast metal
LA1576/1	2001	chert	chipped stone; informal; flake
LA1576/2	2001	ceramic	worked sherd; notched
LA1576/3	2001	ceramic	worked sherd; notched
LA1576/4	2001	ceramic	modelled clay; perforated; bead
LA1576/5	2001	ceramic	modelled clay; perforated; bead
LA1576/6	2001	ceramic	worked sherd; notched
LA1576/7	2001	chert	chipped stone; formal; biface
LA1576/8	2001	chert	chipped stone; formal; biface
LA1576/9	2001	chert	chipped stone; formal; biface
LA1576/10	2001	copper	hand made metal; cast metal; bell
LA1577/1	2001	glass	blown glass; perforated
LA1577/2	2001	ceramic	modelled clay; perforated; bead
LA15773	2001	chert	chipped stone; informal; flake
LA1577/4	2001	chert	chipped stone; formal; uniface
LA1577/5	2001	chert	chipped stone; formal; biface
LA1577/6	2001	chert	chipped stone; formal; biface; stemmed
LA1577/7	2001	shell	worked shell
LA1578/1	2001	chert	chipped stone; formal; biface
LA1578/2	2001	chert	chipped stone; formal; biface; notched
LA1578/3	2001	chert	chipped stone; formal; biface
LA1578/4	2001	chert	chipped stone; formal; biface
LA1578/5	2001	ceramic	modelled clay; grooved; bead
LA1578/6	2001	ceramic	modelled clay; perforated; bead
LA1578/7	2001	ceramic	modelled clay; perforated; bead
LA1578/8	2001	glass	blown glass; perforated; bead
LA1578/9	2001	chert	chipped stone; core
LA1578/10	2001	chert	chipped stone; core
LA1578/11	2001	ceramic	modelled clay; perforated; bead
LA1578/12	2001	ceramic	modelled clay; perforated; bead
LA1578/13	2001	chert	chipped stone; informal; flake
LA1578/14	2001	ceramic	modelled clay; notched
LA1578/15	2001	chert	chipped stone; formal; biface; notched
LA1578/16	2001	shell	worked shell; perforated; bead

LA1578/17	2001	chert	chipped stone; formal; biface; notched
LA1578/18	2001	chert	chipped stone; formal; biface; notched
LA1578/19	2001	chert	chipped stone; formal; biface
LA1578/20	2001	ceramic	modelled clay; perforated; bead
LA1578/21	2001	ceramic	modelled clay; perforated; bead
LA1578/22	2001	chert	chipped stone; formal; biface
LA1578/23	2001	chert	chipped stone; formal; biface
LA1578/24	2001	basalt	utilized stone
LA1578/25	2001	ceramic	modelled clay; perforated; bead
LA1578/26	2001	copper	handmade metal; castmetal; bell
LA1578/27	2001	ceramic	worked sherd; unslipped
LA1579/1	2001	chert	chipped stone; informal; flake
LA1579/2	2001	shell	worked shell; edge-smoothed
LA1579/3	2001	bone	worked bone; perforated; bead
LA1579/4	2001	bone	worked bone; perforated; bead
LA1580/1	2001	chert	chipped stone; formal; biface
LA1580/2	2001	chert	chipped stone; informal; flake
LA1580/3	2001	ceramic	modelled clay; perforated; bead
LA1580/4	2001	chert	chipped stone; informal; flake
LA1580/5	2001	obsidian	chipped stone; formal; uniface; notched
LA1580/6	2001	chert	chipped stone; formal; biface; notched
LA1580/7	2001	chert	chipped stone; formal; biface; notched
LA1580/8	2001	chert	chipped stone; formal; biface
LA1580/9	2001	chert	chipped stone; formal; biface; notched
LA1580/10	2001	ceramic	modelled clay; perforated; bead
LA1580/11	2001	ceramic	modelled clay; perforated; bead
LA1580/12	2001	ceramic	modelled clay; perforated; bead
LA1580/13	2001	ceramic	modelled clay; perforated; bead
LA1580/14	2001	ceramic	modelled clay; perforated
LA1580/15	2001	chert	chipped stone; informal; flake
LA1580/16	2001	chert	chipped stone; formal; biface
LA1580/17	2001	bone	worked bone; perforated; bead
LA1580/18	2001	chert	chipped stone; formal; biface
LA1580/19	2001	chert	chipped stone; informal; flake
LA1580/20	2001	chert	chipped stone; formal; biface; notched
LA1580/21	2001	ceramic	unknown
LA1580/22	2001	chert	chipped stone; informal; flake
LA1580/23	2001	chert	chipped stone; formal; biface; notched
LA1580/24	2001	chert	chipped stone; formal; biface
LA1581/1	2001	chert	chipped stone; formal; biface
LA1581/2	2001	chert	chipped stone; informal; flake
LA1581/3	2001	chert	chipped stone; informal; flake
LA1581/4	2001	ceramic	worked sherd; notched
LA1581/5	2001	chert	chipped stone; formal; biface
LA1581/6	2001	shell	worked shell; perforated; bead
LA1581/7	2001	ceramic	unknown
LA1581/8	2001	chert	chipped stone; formal; biface
LA1581/9	2001	obsidian	chipped stone; formal; biface
LA1581/10	2001	ceramic	modelled clay; perforated; bead
LA1581/11	2001	ceramic	modelled clay; perforated; bead
LA1581/12	2001	ceramic	modelled clay; grooved

LA1581/13	2001	chert	chipped stone; formal; biface; notched
LA1581/14	2001	ceramic	modelled clay; perforated; bead
LA1581/15	2001	chert	chipped stone; formal; biface
LA1581/16	2001	shell	worked shell; perforated; bead
LA1581/17	2001	shell	worked shell; perforated; bead
LA1581/18	2001	chert	chipped stone; formal; biface
LA1581/19	2001	chert	chipped stone; formal; biface
LA1581/20	2001	chert	chipped stone; formal; biface
LA1581/21	2001	ceramic	modelled clay; perforated; bead
LA1581/22	2001	quartzite	unmodified stone
LA1581/23	2001	ceramic	modelled clay; perforated; bead
LA1581/24	2001	chert	chipped stone; informal; flake
LA1581/25	2001	copper	handmade metal; castmetal; bell
LA1581/26	2001	chert	chipped stone; formal; biface; notched
LA1581/27	2001	ceramic	modelled clay; perforated; bead
LA1581/28	2001	chert	chipped stone; formal; biface; notched
LA1581/29	2001	limestone	chipped stone; formal; biface
LA1581/30	2001	ceramic	modelled clay; carved or incised
LA1582/1	2001	ceramic, kaolin clay	modelled clay; perforated
LA1582/2	2001	chert	chipped stone; formal; biface; notched
LA1582/3	2001	ceramic	modelled clay; perforated; bead
LA1582/4	2001	chert	chipped stone; formal; biface; stemmed
LA1582/5	2001	chert	chipped stone; formal; biface
LA1582/6	2001	ceramic	worked sherd; notched
LA1582/7	2001	ceramic	modelled clay; perforated; bead
LA1582/8	2001	chert	chipped stone; formal; biface; notched
LA1582/9	2001	chert	chipped stone; formal; biface
LA1582/10	2001	chert	chipped stone; formal; biface
LA1582/11	2001	chert	chipped stone; formal; biface; notched
LA1582/12	2001	shell	worked shell; perforated; bead
LA1582/13	2001	chert	chipped stone; formal; biface
LA1582/14	2001	chert	chipped stone; formal; biface
LA1582/15	2001	shell	worked shell; perforated; bead
LA1582/16	2001	chert	chipped stone; formal; biface; notched
LA1582/17	2001	chert	chipped stone; formal; biface; notched
LA1582/18	2001	chert	chipped stone; formal; biface
LA1583/1	2001	chert	chipped stone; formal; biface
LA1583/2	2001	ceramic	modelled clay; perforated; bead
LA1583/3	2001	ceramic	modelled clay; perforated; bead
LA1584/1	2001	chert	chipped stone; formal; biface
LA1584/2	2001	ceramic	modelled clay; perforated; bead
LA1584/3	2001	ceramic	worked sherd; notched
LA1584/4	2001	ceramic	worked sherd; notched
LA1584/5	2001	chert	chipped stone; formal; biface; notched
LA1584/6	2001	ceramic	modelled clay; perforated; bead
LA1584/7	2001	ceramic	modelled clay; perforated; bead
LA1584/8	2001	micro granite	ground stone
LA1584/9	2001	ceramic	modelled clay; perforated; bead
LA1584/10	2001	chert	chipped stone; formal; biface
LA1584/11	2001	ceramic	modelled clay; perforated
LA1584/12	2001	ceramic	modelled clay; perforated; bead

LA1584/13	2001	chert	chipped stone; informal; flake
LA1584/14	2001	ceramic	modelled clay; perforated; bead
LA1584/15	2001	chert	chipped stone; formal; biface
LA158416	2001	chert	chipped stone; formal; biface
LA1584/17	2001	ceramic	modelled clay; perforated; bead
LA1584/18	2001	ceramic	modelled clay; perforated; bead
LA1584/19	2001	chert	formal; biface; notched
LA1584/20	2001	obsidian	chipped stone; formal; biface; notched
LA1584/21	2001	chert	chipped stone; formal; biface
LA1584/22	2001	chert	chipped stone; formal; biface; notched
LA1584/23	2001	ceramic	unknown
LA1585/1	2001	chert	chipped stone; formal; biface; notched
LA1585/2	2001	ceramic	worked sherd; notched
LA1585/3	2001	bone	worked bone; perforated; bead
LA1585/4	2001	chert	chipped stone; informal; flake
LA1585/5	2001	ceramic	worked sherd; perforated
LA1585/6	2001	chert	chipped stone; formal; biface; notched
LA1585/7	2001	chert	chipped stone; informal; flake
LA1586/1	2001	ceramic	modelled clay; perforated; bead
LA1586/2	2001	obsidian	chipped stone; formal; biface
LA1586/3	2001	granite	ground stone
LA1586/4	2001	chert	chipped stone; formal; biface
LA1586/5	2001	chert	chipped stone; formal; biface
LA1586/6	2001	chert	chipped stone; formal; biface
LA1586/7	2001	chert	chipped stone; formal; biface
LA1586/8	2001	chert	chipped stone; formal; biface; notched
LA1586/9	2001	chert	chipped stone; formal; biface; notched
LA1586/10	2001	chert	chipped stone; notched; biface
LA1586/11	2001	obsidian	chipped stone; notched; biface
LA1587/1	2001	basalt	ground stone
LA1587/2	2001	chert	chipped stone; informal; flake
LA1587/3	2001	chert	chipped stone; informal; flake;
LA1590/1	2001	glass	blown glass; perforated; bead;
LA1590/2	2001	tooth	worked bone; perforated
LA1591/1	2001	compound item	modelled clay; hammered metal; bead
LA1591/2	2001	chert	chipped stone; formal; biface
LA1591/3	2001	ceramic	modelled clay; perforated; bead
LA1591/4	2001	ceramic	modelled clay; perforated; bead
LA1591/5	2001	ceramic	unknown
LA1591/6	2001	chert	chipped stone; formal; biface
LA1591/7	2001	chert	chipped stone; formal biface
LA1591/8	2001	glass	blown glass; perforated; bead
LA1593/1	2001	chert	chipped stone; edge-smoothed; biface
LA1593/2	2001	chert	chipped stone; formal; uniface
LA1593/3	2001	shell	worked shell
LA1593/4	2001	ceramic	worked sherd; notched
LA1593/5	2001	chert	chipped stone; formal; biface
LA1593/6	2001	chert	chipped stone; formal; biface; notched
LA1593/7	2001	ceramic	modelled clay;
LA1593/8	2001	iron	hand made metal
LA1594/1	2001	shell	worked shell; perforated

LA1595/1	2001	ceramic	modelled clay; perforated; bead
LA1595/2	2001	chert	chipped stone; formal; biface
LA1595/3	2001	chert	chipped stone; informal; flake
LA1595/4	2001	chert	chipped stone; formal; biface; notched
LA1595/5	2001	granite	ground stone; edge smoothed
LA1595/6	2001	chert	chipped stone; formal; biface; notched
LA1596/1	2001	ceramic	unslipped
LA1598/1	2001	ceramic	modelled clay; perforated; bead;
LA1598/2	2001	granite	ground stone; edge smoothed
LA1598/3	2001	ceramic	modelled clay; perforated; bead;
LA1598/4	2001	chert	chipped stone; formal; biface
LA1598/5	2001	shell	worked shell; perforated
LA1598/6	2001	obsidian	chipped stone; formal; uniface
LA1600/1	2001	chert	chipped stone; formal; biface
LA1600/2	2001	chert	chipped stone; formal; biface; notched
LA1600/3	2001	chert	chipped stone; formal; biface
LA1600/4	2001	chert	chipped stone; formal; biface; notched
LA1600/5	2001	chert	chipped stone; formal; biface
LA1600/6	2001	obsidian	chipped stone; formal; biface; stemmed
LA1600/7	2001	chert	chipped stone; formal; uniface; notched
LA1600/8	2001	ceramic	worked sherds; notched
LA1600/9	2001	quartzite	ground stone; edge smoothed
LA1600/10	2001	chert	chipped stone; formal; biface
LA1600/11	2001	ceramic	modelled clay; notched
LA1600/12	2001	ceramic	worked sherd; notched
LA1600/13	2001	chert	chipped stone; informal; flake;
LA1701/1	2001	chert	chipped stone; formal; biface
LA1702/1	2001	green stone	ground stone; edge smoothed
LA1703/1	2001	chert	chipped stone; formal; biface; notched
LA1703/2	2001	shell	worked shell
LA1704/1	2001	ceramic	modelled clay; notched
LA1704/2	2001	chert	worked stone; formal
LA1704/3	2001	chert	chipped stone; formal; uniface
LA1704/4	2001	chert	chipped stone; formal; biface
LA1706/1	2001	ceramic	modelled clay; perforated; bead;
LA1706/2	2001	green stone	ground stone; edge smoothed
LA1708/1	2001	chert	chipped stone; formal; biface
LA1708/2	2001	chert	chipped stone; informal; uniface
LA1709/1	2001	chert	chipped stone; formal; biface
LA1711/1	2001	chert	chipped stone; formal; biface
LA1711/2	2001	micro granite/slate	ground stone;
LA1712/1	2001	obsidian	chipped stone; formal; uniface
LA1713/5	2001	chert	chipped stone; formal; biface
PNK /1	2001	obsidian	chipped stone; core
LA1711/1	2002	stone	chipped form
LA1711/2	2002	bone	insised grooved bone
LA1711/3	2002	ceramic	notched sherd
LA1711/4	2002	ceramic	incomplete perforated disk
LA1711/5	2002	obsidian	point
LA2035/1	2002	cermamic	perforated disk
LA2035/2	2002	stone	worked biface

LA2035/3	2002	chert	flake tool
LA2037/1	2002	stone	notched utilized stone
LA2037/2	2002	stone	worked blade
LA2038/1	2002	greenstone	ground greenstone flake
LA2038/2	2002	obsidian	point
LA2038/3	2002	ceramic	date net seed sinker
LA2038/4	2002	obsidian	flake (blade)
LA2040/1	2002	chert	worked flake
LA2040/2	2002	chert	uniface
LA2040/3	2002	chert	biface, stemmed point
LA2040/4	2002	chert	uniface, stemmed point
LA2040/5	2002	stone	perforated flat bead
LA2040/6	2002	chert	core
LA2040/7	2002	chert	flake tool
LA2040/8	2002	chert	flake tool
LA2040/9	2002	chert	uniface tool
LA2040/10	2002	chert	small stemmed point
LA2044/1	2002	jadite	groundstone
LA2044/2	2002	quartzite	groundstone
LA2044/3	2002	limestone	mano
LA2044/4	2002	copper	pyriform bell
LA2044/5	2002	chert	small stemmed point
LA2059/1	2002	ceramic	bead
LA2059/2	2002	chert	flake tool
LA2059/3	2002	chert	flake tool
LA2059/4	2002	stone	core
LA2060/1	2002	chert	biface
LA2061/1	2002	chert	flake tool
LA2063/1	2002	chert	medial uniface
LA2063/2	2002	chert	tool
LA2063/3	2002	chert	biface fragment
LA2066/1	2002	greenstone	groundstone greenstone flake
LA2065/1	2002	bone	carved bone spindle whorl (?)
LA2067/1	2002	chert	flake tool
LA2070/1	2002	ceramic	spindle whorl
LA2070/2	2002	chert	SSNP
LA2070/3	2002	chert	SSNP
LA2070/4	2002	ceramic	bead
LA2070/5	2002	copper	bell
LA2072/1	2002	glass	Venetian glass bead
LA2072/2	2002	chert	medial biface
LA2080/1	2002	microgranite	groundstone/matate?
LA2080/2	2002	granite	metate?
LA2080/3	2002	chert?	biface fragment
LA2080/4	2002	chert	point
LA2081/1	2002	copper	possible prill
LA2081/2	2002	copper	bell clapper
LA2081/3	2002	shell	ornament
LA2081/4	2002	chert	point
LA2081/5	2002	chert	flake
LA2081/6	2002	limestone	hammerstone?

LA2083/1	2002	chert	SSNP
LA2084/1	2002	chert	SSNP
LA2084/2	2002	metamorphic	foreign, groundstone
LA2084/3	2002	ceramic	bead
LA2085/1	2002	chert	SSNP
LA2085/2	2002	chert	biface fragment
LA2087/1	2002	limestone	mano
LA2087/2	2002	marine shell	adornment
LA2087/3	2002	metamorphic	stone with pigment?
LA2087/4	2002	quartz	rock crystal?
LA2088/1	2002	chert	biface
LA 2090/1	2002	jadeite	adornment?
LA2090/2	2002	chert	SSNP
LA2091/1	2002	chert	SSNP
LA2092/1	2002	chert	biface
LA2096/1	2002	chert	SSNP
LA2096/1	2002	copper	possible prill
LA2096/2	2002	copper	possible prill
LA2099/1	2002	obsidian	SSNP
LA2106/1	2002	copper	possible prill
LA2106/2	2002	copper	possible prill

Appendix 5

Summary of Counts of Artifacts by Type Recovered in 2001, Operation 01-05

Summary of Artifact Counts by Lot, 2001 Field Season, Lamanai, Belize

Op 01-05

Lot Number **Material Type**

	Ceramic sherds	Chert	Bone	Obsidian	Shell	Stucco/ Plaster	Glass	Sinkers	Worked sherds	Historic Ceramics	Special Ceramics	Small Finds	Other
LA 1560	83	30	9	1	5	10	0	0	0	0	2	1	0
LA 1561	46	7	2	1	0	22	0	0	0	0	1	1	0
LA 1562	654	79	10	4	36	0	0	0	0	0	12	0	0
LA 1563	421	33	13	3	10	0	0	1	0	0	16	0	0
LA 1564	686	28	4	9	1	0	0	0	0	0	10	0	0
LA 1565	266	19	37	2	1	0	0	0	0	0	10	0	15
LA 1566	234	63	124	3	1	1	0	1	0	0	2	5	0
LA 1567	67	16	14	1	3	0	0	0	0	0	1	0	0
LA 1575	436	47	72	7	5	0	0	0	0	1	0	1	0
LA 1576	436	120	47	13	4	0	0	0	3	2	1	6	3
LA 1577	307	44	45	2	2	0	1	0	0	3	2	8	2
LA 1578	1072	99	458	4	4	0	1	0	7	1	0	27	0
LA 1579	179	14	17	4	1	0	0	0	5	0	5	4	2
LA 1580	942	139	295	8	10	0	0	0	0	0	3	20	6
LA 1581	740	127	165	18	6	3	0	0	2	0	11	21	0
LA 1582	705	145	89	15	4	6	3	0	0	2	4	16	0
LA 1583	58	15	10	0	1	0	0	0	0	0	0	2	1
LA 1584	790	126	190	18	15	3	0	0	2	1	5	12	9
LA 1585	398	42	60	9	5	21	0	0	1	0	5	7	1
LA 1586	480	100	113	4	4	19	0	0	1	0	1	10	6
LA 1587	370	16	13	3	1	0	0	0	0	0	2	3	0
LA 1588	1112	120	33	6	35	6	0	0	8	0	10	0	0
LA 1589	451	25	9	3	1	0	0	0	0	0	4	0	0
LA 1590	188	35	26	1	3	1	0	0	0	0	4	1	0
LA 1591	929	107	155	7	21	1	0	0	0	1	13	6	1
LA 1592	43	3	27	0	0	0	0	0	0	0	0	0	0
LA 1593	342	44	23	9	6	0	0	0	1	0	9	4	5
LA 1594	54	0	196	0	0	0	0	0	0	0	0	1	0
LA 1595	288	59	174	0	1	0	0	0	0	0	4	1	2

LA 1596	509	32	7	3	0	0	0	0	0	0	2	1	0
LA 1597	51	0	1	0	0	0	0	0	0	0	0	0	0
LA 1598	663	82	338	8	16	0	0	0	0	0	2	5	4
LA 1599	627	101	56	5	0	0	0	0	0	0	4	0	0
LA 1600	1182	159	276	8	12	0	0	1	1	0	42	0	0
LA 1701	378	33	35	4	26	0	0	0	0	0	8	0	0
LA 1702	731	54	8	7	54	0	0	0	0	0	56	0	0
LA 1703	80	24	19	0	2	0	0	0	1	0	5	0	0
LA 1704	1074	44	8	1	1	0	0	1	0	0	46	0	0
LA 1705	58	0	0	0	0	0	0	0	0	0	3	0	0
LA 1706	497	26	6	2	4	0	0	0	0	0	0	0	4
LA 1707				Data unavailable at Present									
LA 1708	215	28	12	0	6	0	0	0	0	0	1	0	0
LA 1709				Data unavailable at Present									
LA 1710	5	0	0	1	0	0	0	0	0	0	0	0	0
LA 1712	36	2	0	2	0	6	0	0	0	0	3	0	0
LA 1713	141	7	25	0	63	0	0	0	1	0	29	3	0

Appendix 6

Summary of Counts of Artifacts by Type Recovered in 2002, Operation 02-06

Summary of Artifact Counts by Lot, 2002 Field Season, Lamanai, Belize

Op 02-06

Lot Number **Material Type**

	Ceramic sherds	Chert	Bone	Obsidian	Shell	Stucco/ Plaster	Glass	Sinkers	Worked sherds	Historic Ceramics	Special Ceramics	Small Finds	Other
LA 1709						Data unavailable at present							
LA 1711	199	18	20	6	1	64	0	0	0	0	0	0	0
LA 2035	148	30	11	1	1	9	1	0	0	0	0	2	1
LA 2036	76	4	5	0	0	8	0	0	0	0	0	0	0
LA 2037	176	19	0	4	3	5	0	0	0	2	0	6	3
LA 2038	220	10	41	7	2	0	1	1	0	0	3	0	1
LA 2039	128	41	43	1	1	0	0	0	0	0	0	0	0
LA 2040	295	24	80	0	0	0	0	0	0	1	1	10	1
LA 2041	28	3	30	0	0	0	0	0	0	0	0	0	0
LA 2042	37	0	61	0	0	0	0	0	0	0	0	0	0
LA 2043	46	0	15	0	1	0	0	0	0	0	1	0	0
LA 2044	0	1	0	0	0	0	1	0	0	0	0	3	0
LA 2056	109	2	107	0	0	0	0	0	0	1	2	0	0
LA 2057	53	5	189	0	0	0	0	0	0	0	2	0	0
LA 2058	41	0	18	0	1	0	0	0	0	0	1	0	0
LA 2059	100	2	17	1	0	0	0	0	0	0	4	8	1
LA 2060	59	15	24	0	0	0	0	0	0	0	0	2	0
LA 2061	252	12	115	1	0	0	0	0	0	0	0	1	0
LA 2062	131	7	28	0	0	0	0	0	0	0	1	0	0
LA 2063	342	12	41	1	0	1	0	0	0	0	0	1	0
LA 2064	89	9	5	0	2	0	0	0	0	0	0	0	0
LA 2065	445	17	50	0	2	0	0	0	0	0	0	0	1
LA 2066	137	9	30	1	0	0	0	0	0	0	0	1	1
LA 2067	60	8	0	1	0	0	0	0	0	0	0	1	0
LA 2068	19	0	0	0	19	0	0	0	0	0	0	0	0
LA 2069	126	2	8	0	0	0	0	0	0	0	1	0	0
LA 2070	265	40	46	1	0	0	5	0	0	0	0	5	1
LA 2071	78	16	32	0	1	0	0	0	0	0	1	0	0
LA 2072	131	15	21	1	0	0	0	0	0	0	0	1	1

LA 2073	165	32	7	1	2	0	1	0	0	0	0	0	0
LA 2074					Data unavailable at present								
LA 2077	132	1	1	0	0	0	0	0	0	0	0	0	0
LA 2079	35	2	0	1	0	0	0	0	0	0	0	0	0
LA 2080	222	9	18	1	0	0	0	0	0	0	2	2	2
LA 2081	286	10	48	3	0	0	0	0	0	0	3	4	0
LA 2082	81	6	3	1	0	0	0	0	0	0	0	2	0
LA 2083	176	11	3	1	0	0	1	0	0	0	0	1	0
LA 2084	93	6	8	2	1	1	0	0	0	0	0	3	0
LA 2085	76	8	4	0	3	6	0	0	0	0	0	3	0
LA 2086	82	1	18	1	0	0	0	0	0	0	0	0	1
LA 2087	133	7	22	0	2	0	0	0	0	0	0	4	1
LA 2088	39	6	3	0	0	2	0	0	0	0	0	1	0
LA 2089	39	9	3	2	0	0	0	0	0	0	0	0	0
LA 2090	103	4	2	1	1	0	0	0	0	0	0	2	0
LA 2091	114	3	1	0	0	0	0	0	0	0	0	2	0
LA 2092	140	23	56	2	2	0	0	0	0	0	0	2	0
LA 2093	58	0	1	0	4	0	0	0	0	0	0	0	0
LA 2094	73	9	2	15	0	0	0	0	0	0	0	0	0
LA 2095	62	0	0	0	2	2	0	0	0	0	0	0	0
LA 2098	85	7	4	0	0	0	0	0	0	0	0	1	0
LA 2099	75	18	1	0	0	1	0	0	0	0	0	1	0
LA 2101	157	0	6	1	0	0	0	0	0	0	0	0	0
LA 2102	31	5	0	0	0	0	0	0	0	0	0	0	1
LA 2103	56	1	6	0	0	0	0	0	0	0	0	0	6
LA 2104	149	0	11	4	1	0	0	0	0	0	1	0	0
LA 2105	160	15	0	2	1	0	1	0	0	0	0	0	0
LA 2107	56	3	12	0	0	0	0	0	0	0	0	1	0
LA 2108	44	14	0	0	0	0	0	0	0	0	0	0	0