

DOMESTIC PRACTICE IN POSTCLASSIC SANTA ISABEL, NICARAGUA

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Four seasons of excavation at the Santa Isabel site on the shore of Lake Nicaragua have recovered an extensive assemblage of material remains relating to Early Postclassic period (A.D. 800–1250) domestic practice. This paper reports initial project results, specifically relating to themes of architecture, foodways, specialized production, and belief systems. Exceptional preservation of organic materials such as faunal and botanical remains, as well as bone tools, permits an expansive description of the material culture relating to household level consumption. Through the intensive coverage of 5 ha of the site center, including 10 house mounds, we see that intra-site variation also reflects community organization. Finally, Santa Isabel presents potential for inferring cultural relationships between central Mexico (based on ethnohistorical accounts) and Greater Nicoya.

Cuatro temporadas de excavación en el sitio de Santa Isabel, sobre la costa del lago Nicaragua, han permitido recuperar una extensiva colección de restos materiales relacionados con sus prácticas domésticas, correspondientes al Postclásico Temprano (800–1250 d.C.). Se presentan los resultados preliminares del proyecto, específicamente los de los restos arquitectónicos encontrados, las prácticas alimenticias detectadas (técnicas y prácticas de consumo), la producción especializada de artefactos, y las prácticas relativas a las creencias ideológicas. La excepcional preservación de materiales orgánicos, como restos faunísticos y botánicos, así como artefactos en hueso, contribuyen a la descripción extensiva de la cultura material relacionada con el consumo cotidiano. Con base en la investigación intensiva de cinco hectáreas del centro del sitio, incluyendo diez montículos residenciales, las variaciones internas detectadas permiten interpretar la organización de la comunidad. Finalmente, se presenta la información que potencialmente ayudará a inferir las relaciones culturales entre el Altiplano de México (basados en la investigación de las fuentes etnohistóricas) y la Gran Nicoya.

Recent investigations at an Early Postclassic site in Pacific Nicaragua have recovered abundant material remains useful for interpreting domestic practice. Santa Isabel is located on the shore of Lake Nicaragua, in the Greater Nicoya culture area (Figure 1). Greater Nicoya consists of Pacific Nicaragua and northwest Costa Rica, and is famous for being the southernmost frontier of 'Mesoamerica' during the Postclassic period (A.D. 900–1521; Carmack and Salgado 2006; Salgado and Vázquez 2006; Smith and Berdan 2003), when it was allegedly (based on various ethnohistorical accounts) occupied by Nahuatl- and Oto-Manguean-speakers with origins in the Mexican highlands (Abel-Vidor 1981; Chapman 1960; Fowler 1989; Healy 1988; Lange 1992–93; León-Portilla 1972). The Santa Isabel Archaeological Project was designed to explore this Mesoamerican connection through the excavation of a range

of domestic contexts in order to recover materials suitable for comparison with known central Mexican patterns and ethnohistorically-derived behavioral models.

Household archaeology has a distinguished history in Mesoamerica (Ashmore and Wilk 1988; Hendon 1996; Robin 2003; Santley and Hirth 1993), where it has been used to infer socio-cultural behaviors such as residence patterns, domestic production, and ritual. As the principal locus of production and social reproduction, residential contexts hold potential for the interpretation of cultural identities including ethnicity, gender, and status. Household-level analysis is particularly suited for analogies with ethnographic case studies, resulting in richly contextualized and anthropologically relevant interpretations (Blanton 1994; Douglass 2002; Wilk and Netting 1984; Wilk and Rathje 1982). A recent amplification of this is the archae-

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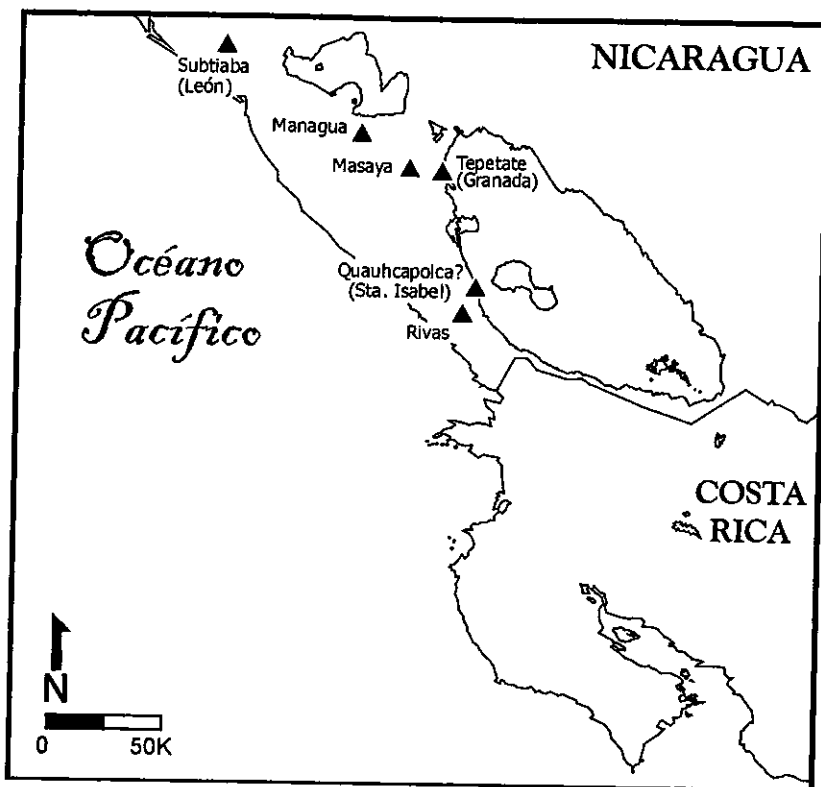


Figure 1. Map of Greater Nicoya, showing Santa Isabel.

ology of communities (Canuto and Yaeger 2000; Urban and Schortman 2004), where discerning intercommunity variability is the goal.

On the other hand, household and community archaeologies have not been well-developed in Nicaragua, and the Santa Isabel project represents the most extensive application of these research objectives yet applied to the Greater Nicoya region. Previous research in the region has focused on settlement pattern survey (Niemel 2003; Salgado González 1996), small-scale excavation (Espinoza et al. 1999; Healy 1980; Lange 1996), and the development of a local ceramic sequence (Abel-Vidor et al. 1987; Bonilla et al. 1990; Healy 1980; Niemel et al. 1997).

Due to the minimal archaeological research in Nicaragua, most cultural reconstructions rely heavily on sixteenth- and seventeenth-century ethno-historical accounts that describe Mesoamerican colonists in the region, including the Nahuat-speaking Nicarao and the Oto-Manguéan Chorotega (Abel-Vidor 1981; Chapman 1960; Fowler 1989; León-Portilla 1972). Following these "mythstories," migrants from the Mexican highlands arrived in

Greater Nicoya, perhaps in several successive waves beginning about A.D. 800. Spanish chroniclers such as Oviedo (1976[c. 1540]), Motolinía (1951[1540]), and Torquemada (1975–83[1615]) describe the cultural practices of these groups, including their calendrical system, language, religion, and political structure. Based on strongly Mesoamerican characteristics, the accepted interpretation has been that these were Mesoamerican peoples, with the Chorotega as the likely occupants of the Rivas isthmus during the Early Postclassic Sapoá period (A.D. 900–1350) and the Nahuat Nicarao controlling the region in the Late Postclassic Ometepe period (A.D. 1350–1522).

Santa Isabel was first recognized as an important Postclassic site by Gordon Willey and Albert Norweb in the late 1950s (Healy 1980; Norweb 1964), with approximately 40 low mounds. A regional survey by Karen Niemel (2003) identified it as the largest coastal site in the Rivas region for the Sapoá and Ometepe periods, covering 271 ha, and it was therefore a likely candidate for the ancient Nicarao capital of Quauhcapolca. The Santa Isabel Archaeological Project was initiated in 2000

Table 1. Radiocarbon dates from Santa Isabel (RI-44), 2000-2005 field seasons.

Sample #	Unit	Level	Conventional Radiocarbon age	Calibrated Intercept Date(s) ^a	1-Sigma Range	2-Sigma Range
LOCUS 1						
Beta-196654	N20E30	9	920±50 BP	A.D. 1060 A.D. 1080 A.D. 1150	A.D. 1030-1180	A.D. 1010-1230
Beta-196655	N21E8	3	870±60 BP	A.D. 1180	A.D. 1050-1100 A.D. 1140-1240	A.D. 1020-1270
Beta-196656	N30E10	10	980±50 BP	A.D. 1030	A.D. 1010-1050 A.D. 1100-1140	A.D. 980-1180
Beta-217127	N21E13	F20 (202-208cm)	1010±40 BP	A.D. 1020	A.D. 1000-1030	A.D. 980-1050 A.D. 1100-1140
Beta 217128	N21E13	12 (208-216cm)	1090±60 BP	A.D. 980	A.D. 890-1010	A.D. 790-1030
Beta 217129	N21E13	7 (122-142cm)	860±70 BP	A.D. 1190	A.D. 1050-1100 A.D. 1140-1260	A.D. 1020-1280
Beta 217130	N21E16	F18 (175-200cm)	1180±70 BP	A.D. 880	A.D. 770-960	A.D. 680-1000
LOCUS 2						
Beta-196657	S10E50	4	900±60 BP	A.D. 1160	A.D. 1030-1210	A.D. 1010-1260
Beta-196658	S60E41	4	820±50 BP	A.D. 1230	A.D. 1180-1270	A.D. 1060-1080 A.D. 1150-1280
Beta-196659	S63E51.5	7	970±60 BP	A.D. 1030	A.D. 1010-1160	A.D. 980-1200
Beta-196660	S62E52	F43	1010±70 BP	A.D. 1020	A.D. 980-1040	A.D. 890-1180
Beta-196661	S70E65	9	930±60 BP	A.D. 1050 A.D. 1100 A.D. 1140	A.D. 1020-1180	A.D. 1000-1240
Beta-196662	S72E60	4	940±80 BP	A.D. 1040	A.D. 1010-1190	A.D. 970-1260
Beta-196663	S73E61	6	990±60 BP	A.D. 1020	A.D. 1000-1050 A.D. 1100-1140	A.D. 960-1180
Beta-196664	S73E68	7	860±60 BP	A.D. 1190	A.D. 1060-1080 A.D. 1150-1250	A.D. 1030-1280
LOCUS 4						
Beta-196665	S82W121	F3 (80-90 cm)	1020±70 BP	A.D. 1010	A.D. 980-1040	A.D. 890-1180
LOCUS 7						
Beta 217131	N142W123	F2	910±50 BP	A.D. 1160	A.D. 1030-1190	A.D. 1020-1240

^aStuever et al. 1998

as a means of recovering material culture from Postclassic domestic contexts that could be compared with Central Mexican materials to evaluate ethnic change and continuity. Santa Isabel was selected because of the high incidence of diagnostic ceramics believed (at the time) to indicate Ometepe period occupation. These types included Madeira and Vallejo polychromes and Castillo Engraved (Abel-Vidor et al. 1987; Bonilla et al. 1990), in addition to Papagayo polychromes characteristic of the preceding Sapoa period.

Radiocarbon dating of materials from the domestic contexts now demonstrates that the site was occupied between A.D. 800–1250, challenging the previously accepted chronology for the

Sapoa period and pre-dating the supposed Nahua migration (McCafferty and Steinbrenner 2005a). A suite of 17 samples spanned cal. A.D. 770–1270 (1 sigma; Table 1). At least three sequential variations in ceramic frequencies can be discerned in stratified columns, suggesting that further refinement to the ceramic chronology will be possible. The lowest levels featured exclusively Papagayo polychromes, while the uppermost levels included Papagayo as well as Vallejo and Madeira polychromes, and Castillo Engraved. Transitional levels dating to ca. A.D. 1000 featured Granada polychrome. Consequently, the more generic "Early Postclassic" is used to characterize the occupation to minimize future contradictions until the

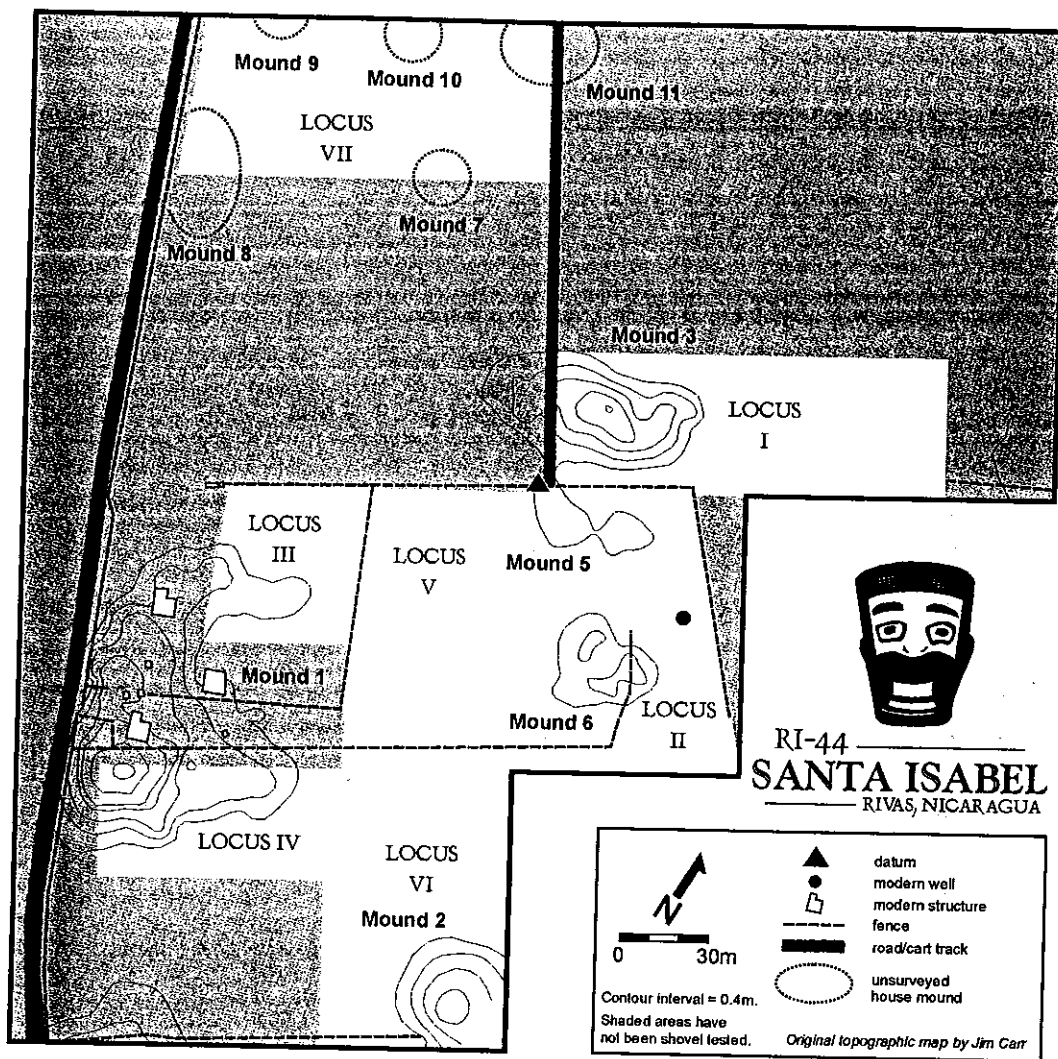


Figure 2. Site map showing area of shovel testing, mounds, and excavation loci.

ceramic analysis has been completed and a revised chronology can be proposed. It is worth noting, however, that the Santa Isabel occupation corresponds very closely to the "Middle Polychrome period" proposed by Healy (1980:302-308), as defined on the basis of absolute dates from the Greater Nicoya region. However, the prominence of diagnostic ceramics (e.g. Madeira, Vallejo, and Castillo Engraved) in the upper levels of Santa Isabel predate their supposed appearance in Healy's "Las Lajas" phase of the "Late Polychrome Period." Until well-dated "Late Postclassic" remains have been analyzed we feel that it is premature to propose a revised chronology for the region, but cau-

tion that such a revision will probably be necessary based on discrepancies present in the Santa Isabel ceramic sequence.

In four field seasons roughly 5 ha in the site center have been surveyed using shovel tests to sample subsurface artifact densities, and 10 low mounds have been tested (Figure 2). Shovel testing on a 10 m grid provided a quick and efficient means for identifying artifact distributions, especially in areas of poor surface visibility, and they indicated likely areas for more extensive excavation. A shovel test was typically 40 cm in diameter, and usually reached about 1 m deep in fine sandy soil with minimal noncultural inclusions and neutral acidity. All

soils were screened through 5 mm wire mesh to facilitate the recovery of small remains, and soil samples were floated and then sifted through fine mesh to search for small bones, seeds, and beads. Notably, clear discrepancies exist between mound areas where artifact quantities in the shovel tests regularly reached above 200 artifacts per shovel test, and off-mound areas where counts were usually less than 25 artifacts per shovel test. This indicates a strong tendency to localize trash disposal around the living area with minimal sheet midden accumulation between mounds. Furthermore, because there is little evidence for intentional mound construction, artifacts found on the mounds generally relate to primary or secondary deposition by the mound occupants.

Mounds 1, 3, 5, 6, and 8 were sampled with more extensive excavations to expose living surfaces; a total of 110 m² have been excavated, usually to the first floor surface (40–60 cm below surface), or to sterile soil (2–3 m). Mound 1 (Loci 3 and 4) is the largest of the mounds tested, both in height and area. It was sampled previously by Norweb (1964; Healy 1980), and also by Niemel (2003). An additional 24 m² have been excavated by the Proyecto Santa Isabel, including a 10 m² area that exposed a large section of a walking surface bounded by a wall. Mound 3 (Locus 1) measured about 3 m high, and has been sampled with 24 m² of excavation units, some extending down to sterile soil 2.80 cm below the surface. Mound 5 (Locus 5) was only tested with four 1-x-1 m units, one of which was expanded to expose two burials, and two were placed over urn burials exposed when a farmer planted a banana tree. Mound 6 (Locus 2) was a low mound (2 m), and the site of the most extensive excavation with 54 m² of excavated area, including a large block of 24 m² excavated to expose a series of floors and walls. In 2005, brief investigations took place at Mound 8 (Locus 7), a very low mound (1 m), where three 1-x-1-m units were excavated.

Extensive material culture, including exceptional preservation of organic materials (bone, seeds and carbonized wood), provides an ample data base for interpreting domestic practice at Santa Isabel. About 400,000 artifacts have been classified, over half of which are faunal remains. The following discussion describes evidence for architecture, foodways, specialized production, and

belief systems. Other analyses are ongoing, especially of the ceramics and figurines.

Architecture

The Santa Isabel house mounds measure between 1 and 3 m in height, and are distributed across the level plain approximately 500 m from the lake shore. Additional mounds are closer to the shore, including Mound 4 that is both taller and steeper than the other mounds, and may be ceremonial in nature due to its distinctive form. A test pit into Mound 4 by Norweb is reported as including stratified remains from several time periods and a possible floor (Healy 1980:56). Stratigraphic testing into Mounds 3, 6, and 8 reached sterile soil at about the same level as the surrounding plain, indicating that the mounds are artificial. Successive floor levels suggest that they are the result of sequential occupation layers all relating to the Early Post-classic period.

Floors were often of packed earth, but some had grayish inclusions of compact sand. One such floor surface from Mound 6 was found at the same level in two operations separated by 10 m, suggesting that it may have been part of a longhouse structure. Another floor had sherds embedded in the surface, perhaps as intentional paving. The most elaborate floors were found at Mound 3, where a grayish conglomerate had a cement-like consistency. X-ray diffraction of the grayish material revealed a high incidence of phosphates, likely from an animal by-product added as a bonding agent. Deep stratigraphic pits in Mound 3 indicated a sequence of floors with similar consistency. Because this is the only mound where this cement-like material has been found, it may indicate a status distinction with greater investment in construction.

No building stones or adobe bricks have been found. Walls seem to have been made of wattle and daub (*bajareque*), and amorphous lumps of adobe "melt" are common. Some pieces of cane-impressed daub have been found, suggesting at least some angled corners. A typical sequence is a layer of adobe melt covering a floor surface, with floor contact materials sealed between. A relatively intact collapsed wall was found at Mound 6. No foundations have been identified, though possible post-molds do occur. These were isolated, however, and no pattern could be discerned.

Table 2. Faunal Remains (identifiable bones)

	Rep/Amph #/NISP	Molluscs #/NISP	Fish #/NISP	Birds #/NISP	Mammals #/NISP	Arthropods #/NISP	Total #/NISP
Locus 1	2300/176	460/205	3832/69	398/21	642/16	14/14	7646/501
Locus 2	1934/147	433/115	2424/43	516/27	1231/30	2/2	6540/364
Locus 3	170/12	45/0.5	254/5	32/2	26/0.8	0/0	527/20.3
Locus 4	1181/89	255/53	2974/50	206/11	519/12	8/8	5143/223
Locus 5	253/19	20/2	352/7	29/2	138/3	5/5	797/38
Locus 7	772/57	33/12	666/15	61/3	133/3	4/4	1669/94
Site Total	6626/500	1246/387	10,502/188	1243/65	2689/65	33/33	22,339/1238

Other architectural features include hearths and in-floor pots. A hearth found at Mound 8 featured fire-hardened adobe and fire-cracked rock, and contained carbonized *jocote* seeds. A large piece of carbonized wood from the feature was dated 910 ± 50 B.P. (A.D. 1030–1190, 1 sigma; Beta 217131; Sturiver et al. 1998). A hearth found in a deep level of Mound 6 was dug into a packed walking surface that featured flecks of white ash and charcoal around the hole. A possible storage pit near the hearth contained numerous deer bones. Large fragments of an *olla* were found in a hole dug into the surface of the cement-like floor in Mound 3.

While the mounds indicate that they were built up gradually through successive occupation levels, some evidence exists for more deliberate mound construction. At Mound 1, for example, a packed earth floor was covered with a 10–30 cm thick layer of sterile sand and then a 10–20 cm thick layer of large ceramic fragments, suggesting intentional fill to raise the mound height. Evidence of intentional mound construction was also found at Mound 6, where a thick sherd layer covered the sherd-embedded floor. Despite these two examples of intentional deposition, the ubiquitous domestic debris indicates that these mounds were primarily residential in nature and probably not the result of large scale architectural investment.

Although effort was made for broad horizontal exposures of architectural plans, no complete structures were defined. The preliminary conclusions are that the people of Santa Isabel lived in structures made of perishable materials that required periodic renewal. Mound 3 featured the most intact sequence, where eight floors were found spanning about 450 years, suggesting that the renewal may have occurred several times per century. The possible longhouse at Mound 6 may correspond with multi-family or extended family residences. A residential plan from Contact-period Teacoatega shows

longhouses of post and beam construction with thatch roofs, designed for the *cacique* and his wives (Oviedo, in Healy 1980:27).

Foodways

The concentrated evidence of food residues and artifacts for food preparation are diagnostic traits of domestic space. The mounds at Santa Isabel feature a very high incidence of faunal remains, as well as carbonized seeds and artifacts associated with food preparation such as grater blades (*raspaditas*), *manos*, *metates*, and cooking vessels. This assemblage relates collectively to the foodways practiced at the site, and represents a sensitive means of inferring group identity. For example, different ethnic groups often have food preferences, in kind or in preparation. Status differences may be exhibited in differential access to foods, perhaps with more meat available to higher status individuals. Cross-culturally, women are often associated with food preparation, so areas within a site with a high incidence of cooking tools may be identifiable as female space. Based on these lines of evidence, a focus on domestic contexts was integral to the research goals of the Santa Isabel project.

The excellent soil conditions at the site greatly facilitated preservation of organic remains, especially animal bone and carbonized wood and seeds. Animal bone accounted for well over half of all artifacts collected, and fish bones made up the majority of the identified faunal remains (Table 2). The fish were all from the nearby lake, with species of the genus *Cichlasoma* as the major types consumed (Hoar 2006). Boney scales of gar (*Lepisosteus sp.*) were also found in abundance, though bones of this species were not identified. The predominance of fish remains contradicts the findings of Pohl and Healy (1980) who, based on the initial work at the site by Willey and Norweb, were forced to conclude

that fish was not a significant part of the diet (they did, however, comment on the abundance of net sinkers as evidence that fishing was likely practiced). The discrepancy is likely the result of the more intensive collection strategy employed in contrast to the methods of the late 1950s. Ceramic net weights indicate that net fishing was likely a prominent method for catching fish (Figure 3a), as is presently practiced by local fishermen. Small bone fish hooks suggest that bait fishing was also practiced (Figure 3b).

Fresh water clams and apple snails were also consumed, particularly at Mound 3. Local informants report that snails are collected from streams flowing into the lake at the end of the rainy season. Ocean shell was also found at the site, but evidence of cut marks on the shell indicates that they may have been used more for jewelry production than food, as discussed below.

Deer was the most important mammal consumed; other important mammals included rabbit, peccary, and armadillo (López-Forment Villa 2007). Notably there were almost no dog remains found, in contrast to expectations based on ethno-historical sources. Reptiles were also common in the diet, especially iguana, snake, and turtle (Hoar 2006). The preliminary analysis showed bird bones as prominent, possibly including some turkey. Consumption of these classes of animals is comparable to results previously reported from the Rivas area by Pohl and Healy (1980), and from the San Cristobal site on the shore of Lake Managua (Rawniak and Healy 2006).

Besides the artifacts associated with fishing, other objects provide insight into food procurement and preparation. Bifacially flaked projectile points may have been used on spears to hunt deer and peccary (Figure 3c). Small ceramic pellets were probably used as blow-gun projectiles to hunt birds and lizards. Blow-gun pellets can be distinguished from rattle-balls out of hollow supports because they are relatively larger (about 1 cm in diameter as opposed to about .5 cm), and are smoothed and symmetrical (due to rolling during manufacture) as opposed to irregular (McCafferty 1992; Ventura 2003). Knapped and polished andesite tools may have been used as choppers for clearing trees, or as hoes to cultivate root crops.

Evidence for food preparation is found in an abundant assemblage (n=3611) of small chert

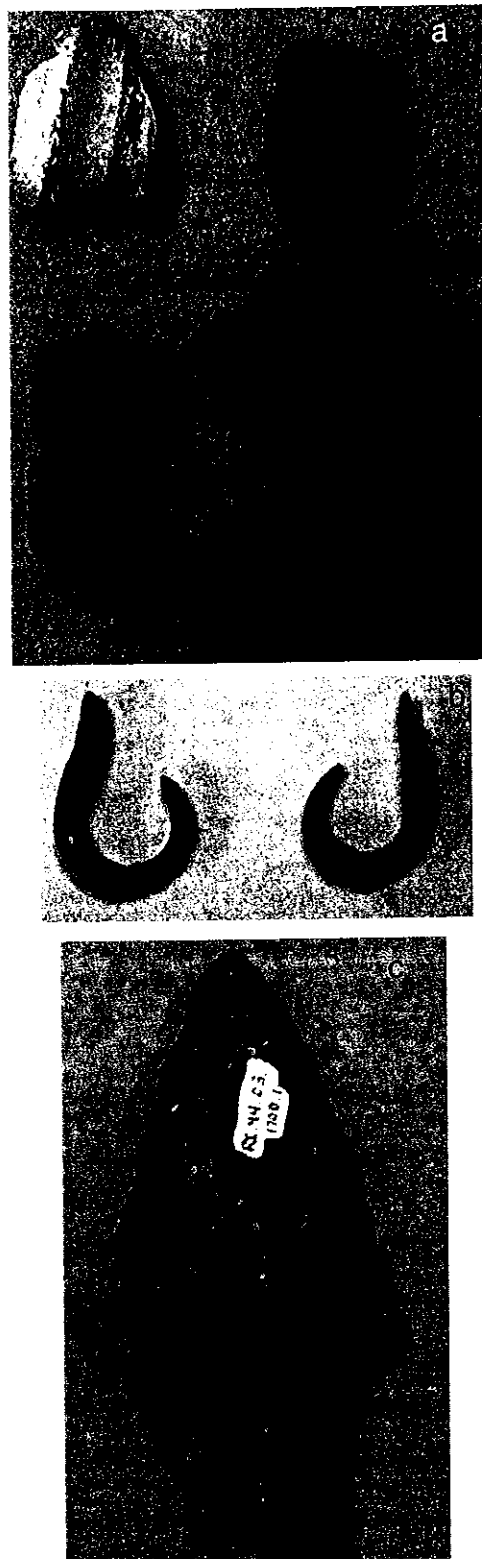


Figure 3a. Ceramic net weights; b. bone fish hooks; c. red chert projectile point.



Figure 4. Chert blades possibly used to grate manioc.

blades (Figure 4). Jolene Debert (2005; Debert and Sheriff 2007) has demonstrated that these show evidence of use polish on the wider end and hafting scars on the narrow tip, similar to the pattern found on grater blades for manioc and other tubers from Lower Central America and South America (Perry 2005). Groundstone tools of basalt resemble the *manos* and *metates* of Mesoamerica, where they were used for grinding maize. While this is a likely function it should be noted that no maize has been found among the macrobotanical remains, in contrast to other paleobotanical collections from Managua (Dickau 1999). The predominant seed recovered was *jocote* (*Spondias purpurea*), a small fruit that is currently consumed raw, cooked as a soup, or fermented into a tart wine. Other seeds included beans, cacao, and *paraiso* (possibly China berry, *Melia azedarach L.*).

Utilitarian ceramics are consistently necked jars (*ollas*) or open pots (*cazuelas*), suggesting that liquid foods dominated (Steinbrenner 2002). Notably absent in the assemblage are *comales*, large griddles associated with the heating of *tortillas* in central Mexican contexts. Serving vessels also indicate that liquid foods were consumed, as virtually all are of high walled bowls or bottles. A large proportion of serving wares are decorated in a variety of polychrome types and varieties, suggesting that meals may have been important social events for the communication of symbolic information.

Specialized Production

In addition to subsistence related artifacts, Santa Isabel produced many objects related to specialized production. These data provide insight into the value system of the community as well as regional

interaction. The discrete distributions of related artifacts indicate specialization between the different households.

Lithic debris was found at all site loci, suggesting that tool manufacture or modification was widely practiced. Thousands of small chert flakes were recovered, in contrast to the relatively few finished lithic tools (Table 3). Hammer stones and deer antlers with evidence of knapping were also found. The chert grater blades discussed above were likely made from flakes. The predominant lithic material is a whitish color with inclusions that is described variously as chert or chalcedony (Debert 2005). A second material, accounting for about 3 percent of the total lithic assemblage, is a dark red chert with white inclusions. There was a preference for the reddish chert in large tools, such as projectile points, while the grater blades are exclusively of the whitish material. Prismatic blades of transparent gray obsidian were also present, but obsidian represents less than .4 percent of the lithic assemblage. Healy et al. (1996) report that obsidian from the Rivas area, including the Santa Isabel site, came from the Ixtepeque source in Guatemala.

Another prominent class of specialized artifacts related to textile production. Ceramic spindle whorls and bone weaving tools were found in all contexts, but with concentrations at Mounds 3 and 6. Spindle whorls came in several forms and sizes, suggesting that multiple fiber types were in use for a variety of thread qualities (McCafferty and McCafferty 2000, 2008a; Figure 5a). A wide range of bone tool types was found, including needles, awls, picks, and battens (Figure 5b). Ceramic figurines indicate that textiles were probably worn as skirts and shawls on women, and as capes on men. Another major use for thread would have been for fishing nets and hammocks. While thread production was likely done by all households, specialized textile production was probably localized at Mound 6 as 68 percent of the bone tools were found there.

There is also evidence for local production of the spinning and weaving tools themselves. Re-utilized sherd disks were found with evidence of drilling and unfinished edges, as indication of the production of sherd spindle whorls. Cut marks on bones indicate the production process for weaving tools.

Local production of other classes of bone objects was also found. Saw-cut deer bones are similar in

Table 3. Lithic Artifacts by Material.

Artifact type	White chert	Red Chert	Obsidian	Andesite	Total
Nucleus	948	25	0	2	975
Block	1018	26	1	1	1046
Flake	28,485	899	40	95	29,519
Utilized flake	782	56	4	1	843
Raspadita	3611	0	0	0	3611
Perforator	74	3	0	0	77
Biface	10	1	0	11	22
Burin	5	1	0	0	6
Scraper	22	0	0	0	22
Prismatic blade	16	1	99	0	116
Projectile point	82	56	0	0	138
Chopper/ho	0	0	0	6	6
Total	35,053	1068	144	116	36,381

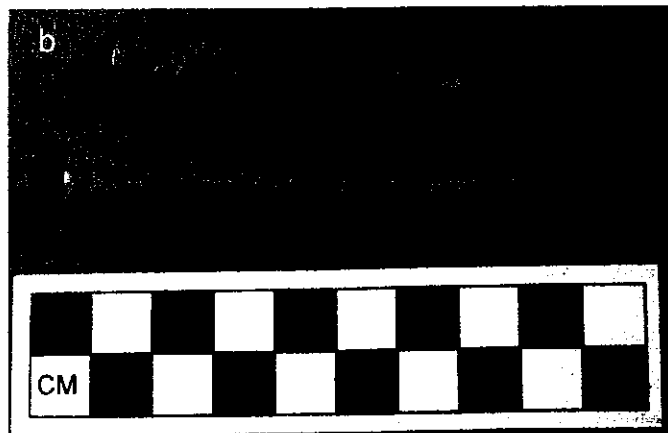
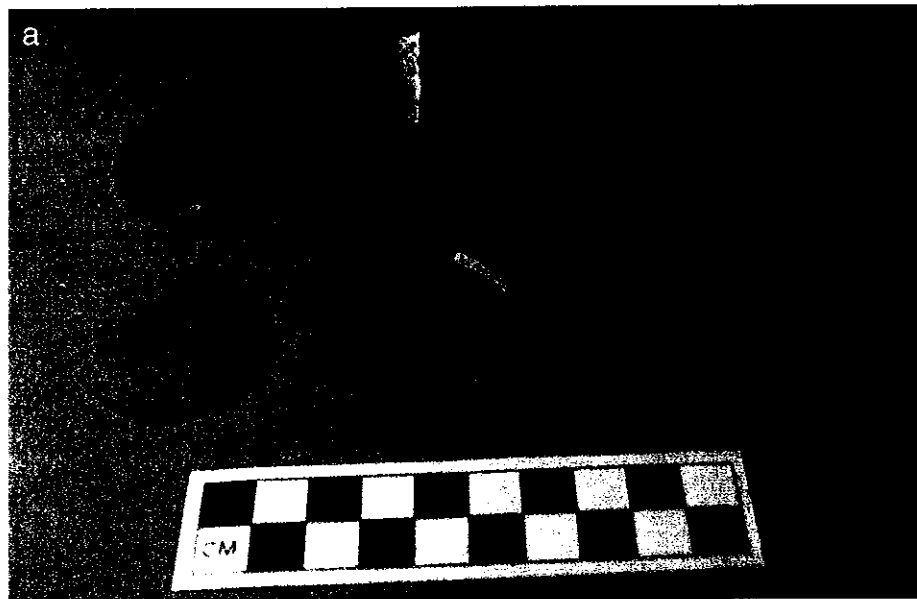


Figure 5. Textile production tools; a. spindle whorls; b. bone picks.

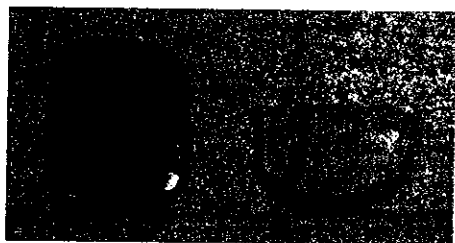
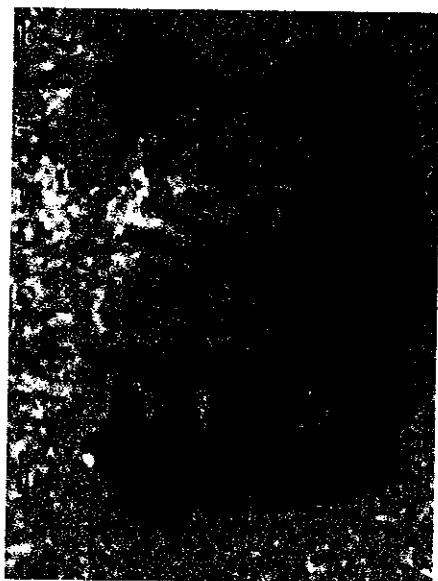
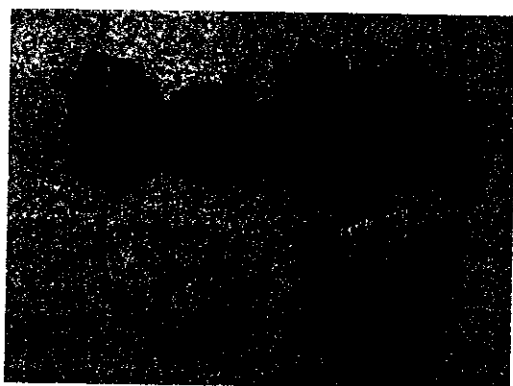


Figure 6. Evidence of greenstone production; a. raw material and preliminary saw cut marks; b. decorated celt; c. rectangular pendant.

cross-section to the form of the bone fish hooks. Hollow bird bones were cut and shaped into pendants.

As discussed above, marine shell was also worked, probably to produce jewelry. All marine shell recovered at the site shows evidence of cut marks, with some examples of conch shells reduced down to the central core before being discarded. The relatively small amount of shell jewelry found

at Santa Isabel indicates that at least some of the production was probably for exchange (see also Healy 1980: 285).

Another luxury item that was produced at Santa Isabel was greenstone jewelry. The material used is a fine particle "mud stone" that, when polished, takes on a high luster. Since true jade is not found in the Americas, this material is known as "social jade" among Central American archaeologists (Lange 1993). Nodules of this material are found on the beaches of the Pacific coastline north of San Juan del Sur. At Santa Isabel, numerous pieces were found ranging from large chunks with evidence of saw cut marks, to small pre-form pieces of a size suggestive of beads, and to semi-finished pieces with some evidence of polish (Figure 6a). Finished pieces of jewelry included beads, celts, and pendants (Figures 6b and 6c). Polished greenstone was also found in forms typical of textile production tools, including two spindle whorls and several fragments of weaving battens.

No conclusive evidence of ceramic production was recovered, though several figurine molds indicate that some clay was worked. There were numerous examples of worked sherds, often rounded in form and with abraded edges; these are often interpreted as pottery making tools. An investigation of clay composition using x-ray diffraction and petrography is being used to help identify local vs. imported ceramics (McCafferty et al. 2007).

Belief Systems

An important aspect of domestic practice is the reproduction of cultural identities. These may include religious beliefs, but also concepts including gender, ethnicity, and social status. Mesoamerican scholars have begun to take an interest in domestic ritual as a source of contrast with more public religious expressions (Brumfiel 1996; Lohse 2007; McCafferty 2007; Plunket 2002; Smith 2002). At Santa Isabel, inferences on domestic ideologies can be made from the mortuary evidence, decorated figurines, vessel supports and other imagery, and from the ornamentation.

Two distinct mortuary practices have been identified at the site (Chilcote and McCafferty 2005), and these can be contrasted with other burial patterns reported within the region (Haberland 1992). The majority of the burials have been found in

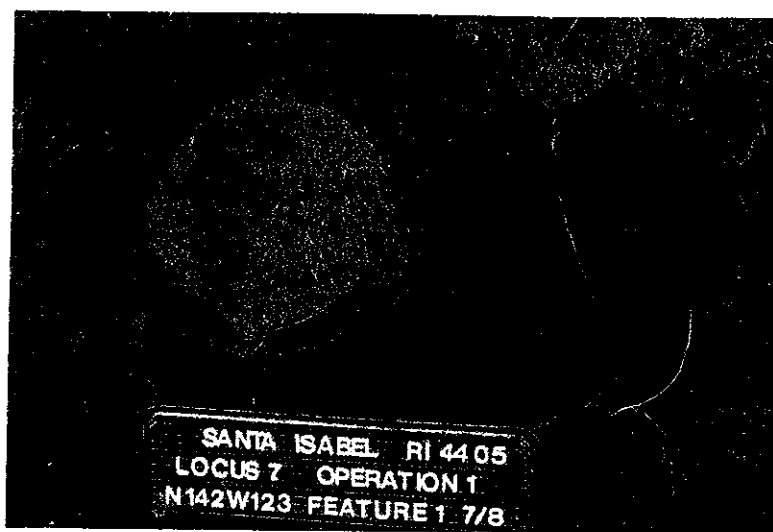


Figure 7. 'Shoe-pot' burial urn.

ceramic vessels known alternatively as 'shoe-pots' because of their elongated shape with the orifice located to one side, or as "womb-urns" because of a suggestive association with pregnancy (Brannen 2006; Figure 7). These are often made of the Sacasa Striated type, easily identified by the brushed finish on the upper vessel surface. They are occasionally adorned with appliqué faces or animals on the "toe" of the "shoe," or with a flattened handle on the "heel." The orifices of the large urns are generally covered with a second vessel, usually a polychrome serving bowl. Similar urns have been found throughout Pacific Nicaragua, and Laura Brannen (2006) suggests that the form may imitate a female uterus, while the exterior decoration may relate to the belly of a pregnant woman. The Santa Isabel data would support this interpretation, since the urns consistently contained the remains of unborn or new-born infants. Some, however, also include the teeth of more mature individuals, suggesting a possible grieving behavior (see Cannon 2002). Grave offerings were rare in the urns, but one infant burial included a stingray spine. Shoe-shaped urns reported from other sites do contain older individuals and offerings (Espinoza et al. 1999).

Burial urns are found in open spaces between residential mounds, or as intrusive features in abandoned mounds. Two were found, one over the other, in a low-lying area between Mounds 3, 5, and 6. A cluster of five urns was found in an area where shovel tests had indicated a relative lack of artifacts

between Mounds 1 and 5, but a farmer encountered a covering bowl while planting a banana sprout. Local residents report finding similar burial urns throughout the site, and claim that urns tend to contain carbonized maize kernels—as noted above no maize has been recovered in the Santa Isabel excavations.

Primary direct burials are the second mortuary pattern found. An adult and two children have been found in this pattern. The adult, a male of 40–60 years, was buried on his left side, and a child (6–8 years) was buried on its right side facing the adult. A crushed urn with remains of an infant was found nearby, and may be part of the same burial group. The adult was buried with several small chunks of partially worked greenstone, including one in his mouth. A chert drill may indicate that he was a lapidary producer, while two bone weaving tools also indicate craft specialization. Near the adult's hip was an unusual miniature urn decorated with modeled faces, perhaps of birds (Figure 8). The child was buried with its head resting on a turtle shell.

These primary burials occur within residential mounds, though their relationship to architectural features could not be established. The low frequency of adults in contrast to children and especially infants may correspond to another implied burial practice, with formal cemeteries such as those reported with elaborate polychrome pottery and carved groundstone "metates" (Day 1994; Haberland 1992; Lange 1992:124). Although these



Figure 8. Miniature urn found with adult burial.

cemeteries were not always excavated scientifically, it is likely that the burials were of adults based on the valuable grave goods. This, in turn, may relate to distinct mortuary ideologies between public interment as opposed to more “private” domestic practice. The distinction between infants and older individuals may correspond to the Postclassic belief that unweaned children went to a different afterlife, in which their souls were reincarnated (León-Portilla 1972: 47).

Postclassic Greater Nicoya is notable for the presence of beautifully painted polychrome pottery that has often been related to the pan-Mesoamerican Mixteca-Puebla stylistic tradition (Day 1994; Lothrop 1926; McCafferty and Steinbrenner 2005b). The Mixteca-Puebla tradition is identified by its ideologically charged images, often associated with the central Mexican religious pantheon (Nicholson 1982). The decorated pottery of Santa Isabel supports this association with the presence of “feathered serpent” images (Figure 9a). Vessel supports on Papagayo Cervantes bowls often feature an anthropomorphic head with an elongated mouth painted red, similar to the buccal mask typical of the central Mexican wind god Ehecatl who was closely associated with the “feathered serpent” god Quetzalcoatl (Figure 9b). A figurine head also represents Ehecatl, including his typical conical hat and cheeks puffed out as if blowing. Oviedo’s (1976[c. 1540]) ethnohistorical account of the Late Postclassic Nicarao indicates that “Hecat” was one of the primary deities (León-Portilla 1972: 71), and these early images suggest a long-term importance of the deity in the region.

A prominent group of ceramic figurines represents females, often pregnant (Figure 10a-b). These

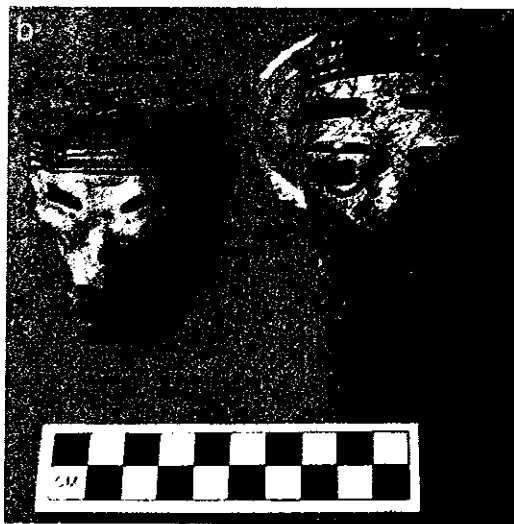
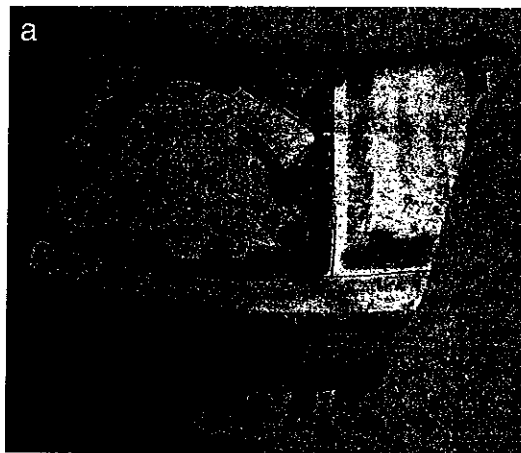


Figure 9a. Feathered serpent image on Mombacho Polychrome Incised variety; b. Ehecatl vessel supports from Papagayo Polychrome Cervantes variety.

are often hollow, and richly painted to reveal characteristics of costume, body decoration, and hair-style (McCafferty and McCafferty 2008b). These female figurines may indicate a religious importance of a goddess cult (Brannen 2008); they may also correlate to ethnohistorical accounts of the importance of female rulers among the Chorotega (Werner 2000). A prominent design element on the figurines, both in the headdress and as a costume element, is a cross-hatched pattern that is identifiable as a woven motif (Figure 10b; McCafferty and McCafferty 2006). The same design element appears on carved metate/thrones, on an incised spindle whorl from Santa Isabel, and commonly on pottery, including Castillo Engraved. While spin-

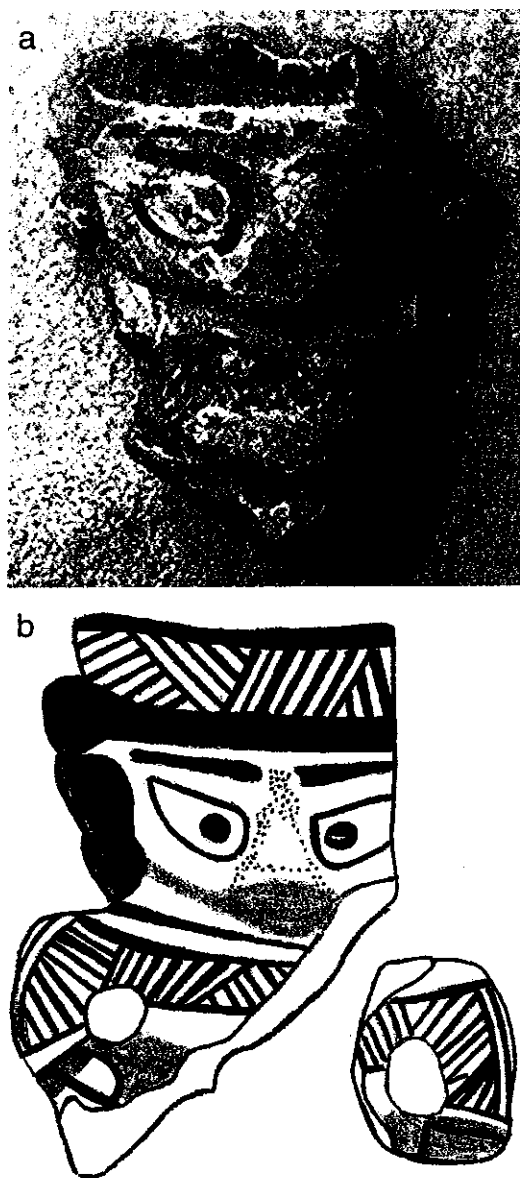


Figure 10a-b. Female figurines of Papagayo Polychrome.

ning and weaving cannot be empirically demonstrated as women's work in Greater Nicoya, it is stereotypically linked with female production and ideology in Postclassic Mesoamerica (Hendon 1997; McCafferty and McCafferty 1991).

Another prominent group of figurines represented animals, and animal heads were also common as vessel supports. Eagles, serpents, and jaguars were most abundant, but other animals may be identified as opossums, monkeys, and parrots.

Many examples of polychrome pottery feature a creature often identified as a jaguar, but the upturned snout on some suggests that they may also represent the peccary or other animals. While all these animals correlate with species present in the faunal assemblage, it is also likely that they relate to supernatural entities in an animistic pantheon (Franco 2002).

Other artifact classes relate to body adornment, and may refer to group identities (McCafferty and McCafferty 2008). The most common of these were reworked sherd disks, perforated at the top for suspension (Figure 11a). These were either plain or polychrome, and were ground smooth on the edges. Another pendant was decorated to resemble a cacao pod (Figure 11b); an identical object is illustrated from Ometepe Island (Bovallius 1886). Thin ceramic tubes served as ear spools, and were found in various sizes suggesting possible age grades (Figure 11c). Several longer tubes may represent a different status, or perhaps another function. Clay beads were found in several forms, including segmented and zoomorphic, but the majority were simple ovals. One larger clay bead featured the image of Tlaloc (Figure 11d), the central Mexican god of storms, recognized by large "goggle" eyes and fangs.

Bone jewelry included tubular bird bones perforated as pendants; one example was carved with Mixteca-Puebla style bird/serpents on either end (Figure 12a). Another carved bone probably represents the mandible of a crocodile, a powerful shamanic attribute among Chibchan groups of lower Central America (Figure 12b; Hoopes 2005). A turtle carapace was perforated as a possible pectoral, or perhaps part of a headdress (Figure 12c). Perforated shell included tinklers and a triangular piece (Figure 12d). Perforated teeth were found, including shark (Figure 12e), peccary, and several human incisors. A few pieces of finished "jade" were found, though it is unclear if these were used by the occupants or broken in the final phase of production. An anthropomorphic figurine, probably of native copper, was found at Mound 3 (Figure 12f).

Spatial analysis of the exotic materials indicates a concentration of the most "valuable" goods at Mound 3, including the metal figure, the most complete jade pendant, worked shell, and carved bone ornaments. In contrast, the worked sherd pendants and ear spools are ubiquitous across the site. Small

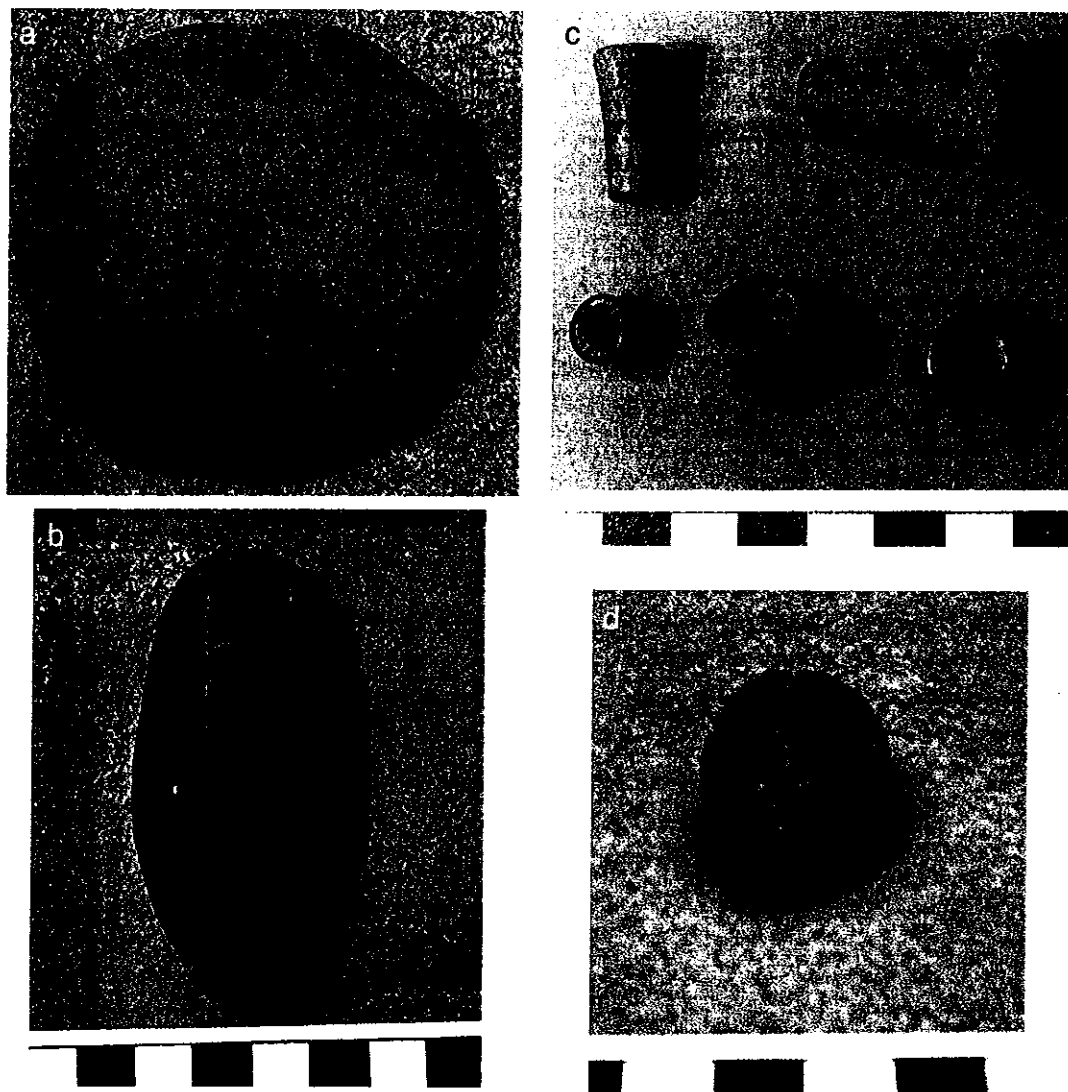


Figure 11. Ceramic ornaments; a-b. pendants; c. ear spoons; d. Tlaloc bead.

beads were most common at Mound 6, though this may be the result of differential recovery.

Domestic Practice at Santa Isabel

The Santa Isabel project sampled residential mounds and inter-mound areas at the site center of an Early Postclassic community from the upper end of the local settlement hierarchy. Historical reconstructions of this time period have suggested a "Mesoamerican" cultural composition, specifically of the Oto-Manguean-speaking Chorotega

for the Early Postclassic and the Nahua Nicarao for the subsequent Late Postclassic periods. Evaluating these claims of ethnic affinity is one of the overarching goals of the project, and awaits more detailed analysis of the material culture, particularly the ceramics, before more specific interpretations can be made. Based on current understanding of the ethnohistoric sources and the site chronology, the residents of Santa Isabel probably pre-date the arrival of the Nicarao and had some affiliation with the Chorotega, but also probably with the preceding Chibcha group.

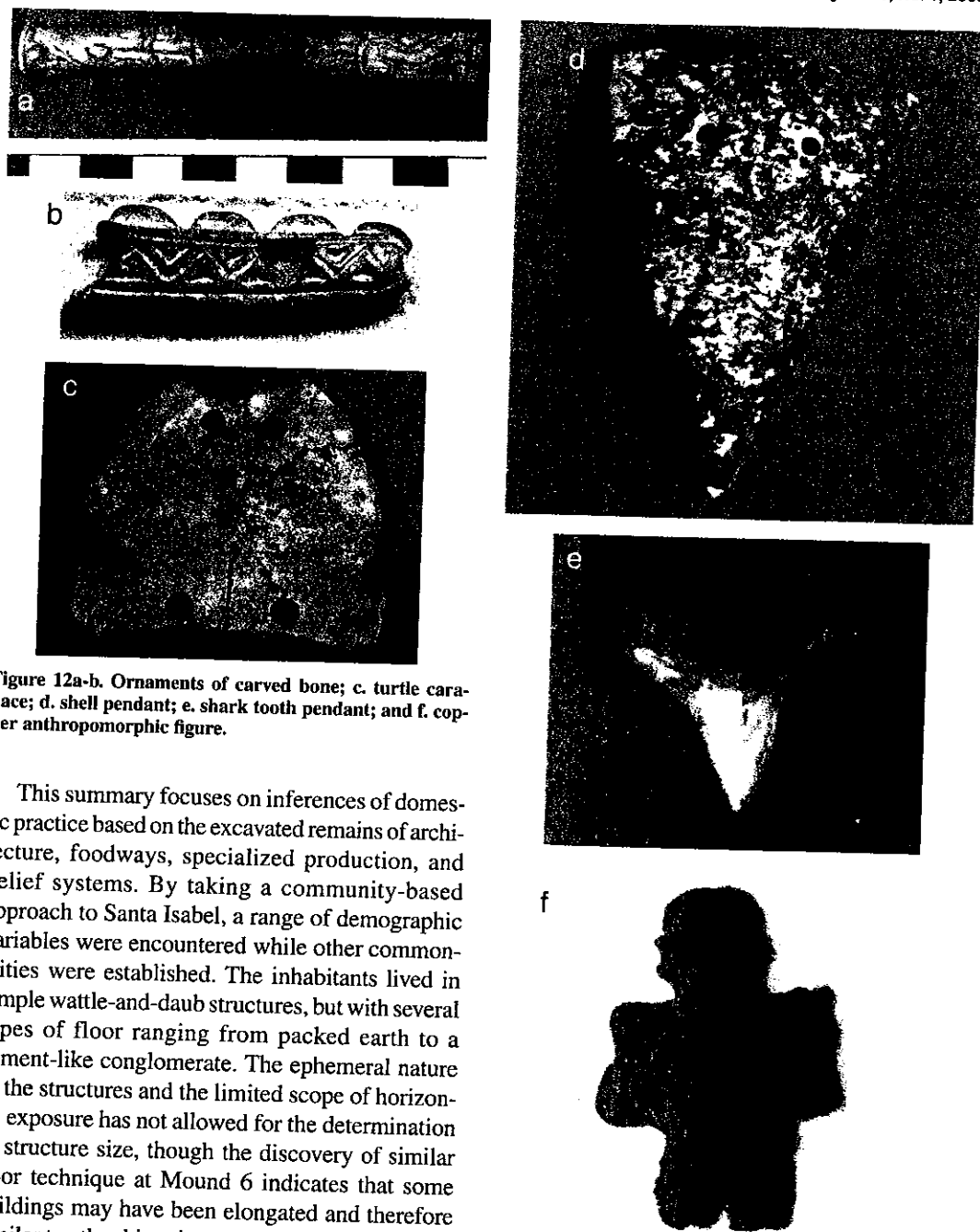


Figure 12a-b. Ornaments of carved bone; c. turtle carapace; d. shell pendant; e. shark tooth pendant; and f. copper anthropomorphic figure.

This summary focuses on inferences of domestic practice based on the excavated remains of architecture, foodways, specialized production, and belief systems. By taking a community-based approach to Santa Isabel, a range of demographic variables were encountered while other commonalities were established. The inhabitants lived in simple wattle-and-daub structures, but with several types of floor ranging from packed earth to a cement-like conglomerate. The ephemeral nature of the structures and the limited scope of horizontal exposure has not allowed for the determination of structure size, though the discovery of similar floor technique at Mound 6 indicates that some buildings may have been elongated and therefore similar to ethnohistoric accounts of extended family residences.

Fish from the nearby lake were a dietary staple, but a wide range of other wild species were also consumed. Macrobotanical remains indicate that wild plants were also consumed, especially *jocote*. Chert scraper blades may have been used to process a root such as manioc, and basalt grinding stones resemble the *manos* and *metates* used in

Mesoamerica to process maize. No direct evidence for either of these crops has been found, however. Additional analysis is ongoing, but the preliminary conclusion is that the inhabitants of Santa Isabel subsisted to a large extent by hunting and gathering from the rich local environment (López-Forment Villa 2007).

The greatest degree of community diversity is

seen in specialized production and access to luxury goods. For example, the occupants of Mound 3 seem to have enjoyed greater access to exotic materials and elaborate production. They also had the only cement-like floors in their structures and consumed a greater number of shellfish—all possible indications of higher status. Occupants of Mound 6 engaged in specialized activities such as lapidary and textile production. Little evidence of specialization was found at Mounds 1 or 8, though these were less extensively sampled.

The burial practice of interment in elongated, shoe-shaped urns is a characteristic of the Postclassic in the northern part of Greater Nicoya, and is also found in lower Central America and northern South America (Colombia). The suggestion that shoe-pots may be symbolic wombs would relate well to the presence of exclusively infants in these vessels at Santa Isabel, but is less consistent with reports from other sites where adults were buried in similar urns. Additional contexts, especially cemeteries, should be investigated to further develop a pattern for mortuary practice and a more diverse demographic sample including more adults.

The presence of central Mexican deities such as Ehecatl and Tlaloc relates well to the ethnohistorical accounts of Mesoamerican migration and/or colonization of Greater Nicoya in the Postclassic period (Carmack and Salgado 2006). Similarly, Mixteca-Puebla style designs support these associations (Day 1994; Lothrop 1926; McCafferty and Steinbrenner 2005b). Other iconographic patterns suggest that other influences were also present, and perhaps were even more significant. For example, the “jaguar” motif on several polychrome types is probably a local development, while the triangular-faced figure on Papagayo Casares may have lower Central American or South American affiliation. The Santa Isabel results present a caution against uncritical associations of cultural identity based on ethnohistorical sources (McCafferty and Steinbrenner 2005b), and this problem will be the focus of continued analysis.

Scientific archaeology is still a young discipline in Nicaragua, and the Santa Isabel project is one of the first large-scale research projects to focus on domestic practice. Analysis of various aspects of the data is ongoing. These preliminary results suggest that the exceptional preservation at the site and the extensive range of material culture will produce

an excellent window onto the daily life of this ancient population.

What can be inferred from the architecture, foodways, and belief systems presents a mixed message about the cultural affinity of the Santa Isabel population. While some iconographic and ideological evidence supports the “Mesoamerican” hypothesis, significant aspects of domestic practice contradict this, including the lack of Mesoamerican food staples (e.g., maize and dog), the probable use of the non-Mesoamerican manioc, and the lack of *comales*; missing architectural features (e.g., stone and adobe masonry); and the lack of incense burners for communicating with the supernatural. On the basis of these and other data, it is likely that Santa Isabel was occupied by a local group with only superficial “Mesoamerican” traits, perhaps representing their place on the periphery of the Mesoamerican world system (Carmack and Salgado 2006; Smith and Berdan 2003). Evidence of specialized production, including textiles and shell, bone, and greenstone jewelry, suggests participation in exchange networks that may have included Mesoamerican merchants, gradually drawing them into increased contact with the Nahua Nicarao in the Late Postclassic.

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