Household Craft Specialization and Shell Ornament Manufacture in Ejutla, Mexico

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INTRODUCTION

It has been more than 60 years since Alfonso Caso (1932) discovered the spectacular Tomb 7 at the hilltop center of Monte Albán in the Valley of Oaxaca (Fig. 2). The excavators of this Postclassic-period tomb (see Table 1) were especially impressed by the quantity of gold and jade objects that accompanied the burials. Far less interest was shown in the shell objects. Yet, included with the more than 300 exotic ornaments in the tomb were necklaces made of hundreds of shell beads, especially red ones crafted from the spiny oyster (Spondylus). Other necklaces made of small whole shells were used to ornament breastplates of jaguar skin.

There were ornamental shell armrings, earpierces, plaques (little pieces of cut shell; Pinctada margaritifera was the primary species) that were used in mosaics, and perforated shells that served as eyes in mosaics of turquoise. Placed on top of the tomb was an offering of jade ornaments, shell fragments, and a couch-shell trumpet (Marcus 1983a:281).

Earlier, during the Classic period, a dedication of the great South Platform on Monte Albán’s Main Plaza, stone boxes with nearly identical offerings were placed beneath at least three of the corners (Acosta 1958b:96-7; Marcus 1983a:175-79). While each box contained a necklace of jade beads, the principal contents were shells—5 large and 5 small spiny oyster shells and 10 tent shell valves (Oliva).

The Tomb 7 and South Platform finds attest to the high value that the prehispanic inhabitants of highland Oaxaca, and Mesoamerica more generally, placed on shell: Certain kinds of shell, particularly the red spiny oyster, were especially esteemed. Marine shell ornaments were traded widely, had great symbolic importance, and often were deposited in high-status contexts. Yet, because marine shell has generally been recovered as whole pieces or finished ornaments from dedicatory offerings and funerary contexts, there has been little discussion of the production of shell ornaments until recently. Relatively little is known about the technologies utilized (see Suárez 1981 for a notable exception), the range of goods produced, the species used to make specific ornaments, or the scale and context of the production activities—who the artisans were, where they worked, and what they did with their products. Recent evidence from an area of prehispanic shell working at the edge of the modern town of Ejutla de Crespo in Oaxaca is helping to change this picture.

SHELL PRODUCTION IN OAXACA

In the land-locked Valley of Oaxaca, marine shell from both the Pacific and Atlantic coasts was imported as early as the Early Formative period. In the 1970s Kent V. Flannery and Joyce Marcus documented shell working at the Formative period village site of San José Mogote, north of Monte Albán. Several extensively excavated houses at San José Mogote contained areas of 1-2 square meters littered with flint chips, chert knives and drills, fragments of cut shell, and shell ornament fragments that were broken in the process of manufacture (Flannery and Winter 1976a:9; see also Parry 1987).

San José Mogote represents an early site for shell ornament production. Most of the shell was from the Pacific Coast, but a significant minority was imported from the Atlantic. Pearl oyster (Pinctada margaritifera) and spiny oyster (Spondylus) were the most frequently worked species. The most common ornaments were shell pendants, both perforated whole shells and thin pieces carved in a variety of forms, and flat disk beads. The Formative-period shell assemblage at San José Mogote differs somewhat from the shell recovered from later Classic and Postclassic contexts at Monte Albán. Although Pinctada and Spondylus were important species used for ornamentation at both San José Mogote...
and Monte Albán, Atlantic shell species are rare at Monte Albán. In addition, the shell-ornament assemblages vary between the two sites, with Monte Albán having a greater relative abundance of various bead forms and multiple-piece mosaic types. These differences raised questions concerning the nature of shell exchange and ornament manufacture in the Valley of Oaxaca during the later prehispanic periods. Given the lack of known shell-ornament production sites in Oaxaca for the Classic and Postclassic periods, we also wondered how shell working in these later periods may have differed from shell working in the earlier period represented by San José Mogote.

FIG. 3 EXCAVATIONS AT EJUTLA, 1991.
The exposed lines of stones are part of the foundation of the residential structure. The small stone rectangle at right defines the domestic tomb.
Photograph by Linda Nicholas

FIG. 4 THE EJUTLA SITE. The mound complex, which includes several 10-meter-high structures, is located at the center of the modern town. The area with surface shell, where the excavations were carried out, is located at the eastern edge of both the modern town and the ancient site. The excavations revealed a dense midden of shell-working debris, several ceramic firing areas, and the stone foundation of a prehispanic residential structure.

FIG. 2 SOUTHERN MEXICO.
Shows are the Oaxaca and Ejutla valleys and sites mentioned in the text.

EJUTLA RESEARCH
The Ejutla Valley research program was designed to examine the long-term relationship between the Valley of Oaxaca and this smaller, adjacent region to the south. The first step was a regional settlement pattern survey implemented in 1984 and 1985. Prior to this research, little was known about the Ejutla Valley in prehispanic times. A cruciform tomb had been excavated in the district head town, Ejutla de Crespo (Fig. 1), at the turn of the last century (Diguet 1905), and several sites in the region were recorded decades ago during an extensive reconnaissance of the central valleys of Oaxaca (Bernal 1965). The hundreds of archaeological sites located and mapped during this recent Ejutla Valley survey (Feinman and Nicholas 1990) have added greatly to our knowledge of the region. One of the largest and most impressive sites is the prehispanic settlement situated beneath the modern town of Ejutla de Crespo, where Diguet had noted the tombs. Although the site has been disturbed by modern occupation, several 10-meter-high...
prehispanic mounds are still visible in the center of town (Fig. 4). The site was occupied from the Late Formative through the Postclassic; however, the major phase of occupation was the Classic period.

During the survey we discovered a dense concentration of shell debris in several plowed fields at the northeastern corner of Ejutla. Such finds are rare in land-locked highland areas. Artifact collections from this several-hectare area included shell fragments with obvious signs of work (such as cut marks and perforations), several broken and unfinished shell ornaments, and an unusual abundance of heavily worn stone tools, including obsidian blades. The most well-represented shell taxa on the surface were varieties that generally were used for ornamentation rather than food in prehispanic Mesoamerica.

In 1990, we initiated the first of four seasons of intensive field study at Ejutla. We focused our attention on the area where dense surface concentrations of shell had been encountered previously and on the shell itself, hoping to find answers to a number of questions. What range of items were made and what species of shell were used? What was the nature of the technology? At what scale and in what social context was the craft carried out? Were the items made for local use or were they traded to the neighboring Valley of Oaxaca?

In 1990 and 1991 we concentrated primarily on the excavation of midden deposits composed largely of shell debris, broken pottery, and obsidian and chert tools, and on the exposure and definition of a nearby prehispanic structure (Fig. 3), which included a small sub-floor tomb where four individuals and a dog were interred. During the course of the investigation, at least four ceramic firing areas (pit kilns) were also excavated. In total, a significant proportion of a prehispanic household unit has been excavated, which includes residential and work areas, the pit kilns, and associated midden areas.

Based on surface observations, it is not surprising that we found remains of shell ornament manufacture. However, archaeological indicators for several other craft activities, including ceramic vessel and figurine manufacture, lapidary arts, and possibly spinning, also were recovered (Feinman et al. 1993). Even though we do not detail these other craft activities here, they help place shell-working at the site in a broader context.

SHELL WORKING AT EJUTLA

In total, more than 24,000 pieces of marine shell have been collected at the Ejutla site. Roughly 5 percent are finished or partially finished ornaments (Fig. 5) or small unmodified whole shells that could have been perforated to be strung as ornaments. An additional 35 percent show very clear indications of modification, such as drilling, string-cut surfaces and edges, and abraded surfaces (Fig. 6). The rest of the shell material consists of broken pieces of varying sizes and minute pieces of chipping debris. No complete shells from large marine species were recovered. Yet the wide range of shell parts repre-

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**Table 2**

Principal ornaments crafted from prevalent shell taxa at the Ejutla site

<table>
<thead>
<tr>
<th>Shell Taxa</th>
<th>Common Name</th>
<th>Ornaments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinna scutulata</td>
<td>Pearl oyster</td>
<td>Mussel pendants, discs, bracelets</td>
</tr>
<tr>
<td>Spondylus sp.</td>
<td>Spiny oyster</td>
<td>Formed pendants and beads</td>
</tr>
<tr>
<td>Chama sp.</td>
<td>Jewel box</td>
<td>Formed beads</td>
</tr>
<tr>
<td>Patella mexicana</td>
<td>Giant limpet</td>
<td>Bracelets</td>
</tr>
<tr>
<td>Strombus sp.</td>
<td>Conch</td>
<td>Formed beads, blanks</td>
</tr>
<tr>
<td>Olivella sp.</td>
<td>Olive</td>
<td>Natural pendants</td>
</tr>
<tr>
<td>Various small gastropods</td>
<td></td>
<td>Natural pendants and beads</td>
</tr>
</tbody>
</table>
Most of the Ejítulo marine material is from larger species (Strombus, Pinctada, Patella, Spisula), the shells of which were cut and shaped to various ornaments. Many of the taxa present in low quantities were small gastropods, including olive shells (Agarista, Oliva, and Olivella), narmogs (Canarium), horn shells (Cerithidea), cowries (Cypraea), keyhole limpets (Fissurella), sea buttons (Fissurella), periwinkles (Littorina), marginals (Margaritifer), nerites (Nerita), dye shells (Diatom), and turkey shells (Turritella). These shells were generally perforated or strung whole. Almost the entire corpus of Ejítulo shell represents Pacific varieties. Only two Atlantic species were present, including one Cyprina cinera and several Margarita opercula.

Shell Ornaments

The prehispanic artisans of Ejítulo crafted a range of ornaments from the Pacific Coast shell (Fig. 7). These forms included small plaques that were used in mosaic inlays, disks, beads, pendants, bracelets, and some miscellaneous forms of unknown use. In many cases, certain ornaments were made from only one or a few kinds of shell. Nacreous pearl oyster (Pinctada margaritifera), the most abundant shell species at the Ejítulo site, was used to make the most commonly encountered ornaments, small plaques for mosaics (Table 2, Fig. 8). Many shell disks were cut from Pinctada, but depending on the technique used (see below), they were also made from conch and other non-nacreous shells. While bracelets usually were cut from giant limpets (Patula mexicana), a small percentage were crafted from Pinctada. Bead-shaped pendants were made from a variety of shell species, but rarely from Pinctada.

Pearl oyster plaques were cut into a variety of shapes and sizes. Rectangular, trapezoidal, and triangular shapes were especially common. The more finished of these pieces had very straight, smooth cut edges (Fig. 9). These pieces could have been used for mosaic inlays, such as those recovered from Tomb 7 at Monte Albán, or sewn onto cloth. Some cut nacreous shell may have been used as inclusions to decorate the teeth of ceramic figurines and arms.

A much less common type of plaque was cut from the outer wall of certain large gastropods. These non-nacreous pieces were always in the form of small triangles (Fig. 10), and may also have been intended for mosaic inlay.

After small plaques, the second most common ornaments were shell disks (Fig. 11). Few entirely finished disks were found. Some circular disks were perforated, evidently to be used as beads, but most were not. Disks may also have been employed in the construction of elaborate mosaics, such as those of shell and turquoise found in Tomb 7.

Beads, both finished and unfinished, were the third most frequently recovered ornaments. In the shell from Takal, a distinction has been drawn between "natural" and "-formed" beads (Molohoy-Nagy 1989:141). If the shape of the original shell is still identifiable, then the bead is considered natural. In contrast, if the shape of the stone has been obliterated in the shell-working process, then the bead is considered formed. The Ejítulo beads generally fit Molohoy-Nagy's second category, with types including tiny spherical beads, larger cylindrical ones, and tubular beads (Fig. 12) (see Molohoy-Nagy 1989 for similar types). At Ejítulo, the majority of small beads were made from Spisula or Chama, while large beads were crafted from Strombus and other large gastropods.

Pendants, bracelet fragments, and blanks were found with less frequency in the Ejítulo collections. The
most of the pendants were formed by cutting small tabular pieces (Fig. 11) from the walls of large shells (Spindylus shells were the most frequently identifiable taxa, see Molloy-Nagy 1989:141). Other pendants were made by perforating whole gastropod shells (especially Oliva; see Fig. 14). While many bracelet fragments (Fig. 15) and debris from bracelet manufacture were recovered, no complete bracelets were found during the excavations.

Shell-Working Techniques

Obsidian and other chipped stone tools were found in close subsurface association with the shell debris, particularly in midden deposits. These tools most likely were used to craft shell ornaments. Thousands of tiny stone flakes, which appear to have been produced during use and retouching of the tools, were recovered from excavated midden strata where we found the densest shell debris. The obsidian at the site included many heavily worn blades. These spent blades would have been effectively dulled by repeatedly cutting and working the hard, abrasive shell. Chert artifacts were also abundant, commonly in the form of small, solid micro-drills that have been linked to the perforation of beads and pendants elsewhere in Onacca (Perry 1987) and in other parts of the Western Hemisphere (e.g., Mester 1985:107; Terkes 1989:115). Careful analysis of the shell fragments and debris indicates that perishable materials—string and, probably, cane—were also used to modify shell in spite of its hardness. Many of the small plaques and disks were made using these materials. The small tabular shapes frequently were cut from the walls of large nacreous shells using string in conjunction with water and an abrasive such as sand. This method often leaves a small lip on the bottom surface where the shell snaps before being cut completely through. This lip was smoothed away on more finished plaques, but remained in evidence on less finished examples. Many pieces of shell debris at Ejíjulá also had very smooth string-cut edges or incomplete string cuts across one or more surfaces. In some instances, the nature of these cuts allows us to determine the sequence or steps of manufacture.

CONCLUDING THOUGHTS

The shell workers at Ejíjulá used a variety of techniques to make a diverse range of ornaments, including small plaques, disks, beads, pendants, and bracelets. The majority of shell ornaments recovered were either unfinished or broken, as one might expect in a production context. Likewise, most of the other shell recovered was chipping debris and discarded pieces, the by-products of the manufacturing process. The Ejíjulá artisans were involved in a range of craft activities. In some cases similar techniques appear to have been used on different classes of materials. For example, in the midden adjacent to the structure we found onyx drill plugs that would have been the by-products of using a hollow tubular drill to perforate...
stone. The diameter of most of the plugs was comparable to that of the majority of shell disks that were cut with a tubular drill. Although no finished complete stone ornaments were recovered in the Ejutla excavations, the same hollow-drill technique that was used to fashion the shell disks could have been employed to produce lapidary craft items, possibly small bowls (see Dibble 1963:101-2) or carvings. Involvement in multiple crafts may have enabled this household of Ejutla artisans to concentrate more heavily on non-agricultural production than would have been possible if they focused exclusively on shell or any other single craft.

The excavated structure may not have been the only one involved in multiple craft activities. The intensive study of the Ejutla site located a 5-hectare area with surface shell of which only a small portion was excavated. Included in this larger area was at least one dense concentration of shell artifacts, onyx drill plugs, and building stone that appears to be the location of a second residential structure devoted to a range of craft activities.

Shell ornament manufacture in Classic-period Ejutla was practiced in a household context, as it was in San José Mogote during the Formative period. Yet in contrast to San José Mogote, shell working in Ejutla appears to have been practiced at a higher intensity and in conjunction with a range of other crafts, and seems to have focused almost exclusively on Pacific marine species.

The volume of shell debris at Ejutla eclipses that found at other known sites in highland Oaxaca. Yet the low volume of finished shell artifacts at the site in general, and particularly on the house floor and in the tomb (where only a single shell bead was recovered), indicates that the majority of the finished ornaments were not consumed by their producers. Given the general rarity of evidence for shell working elsewhere in the valleys of Ejutla and Oaxaca (the sole exceptions are San José Mogote [Flannery and Winter 1976; Marcus 1989] and Monte Albán [Blanton 1978]), it seems likely that shell ornaments crafted in Ejutla were transported to other surrounding highland settlements.

Many of the ornament forms and shell species found in Ejutla are strikingly similar to those found at Monte Albán. Although we cannot definitely demonstrate that specific shell artifacts recovered at Monte Albán were made in Ejutla, these artifactual similarities and the rarity of other known shell production sites in the vicinity makes this hypothesis tenable. Further assessment, however, awaits a fuller inventory and analytical study of the Monte Albán shell assemblage.

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