



Figure 8.8. Ornament failures include broken beads (top) and unfinished shell placas (bottom).

patterns in the marine shell we analyzed at Monte Albán, where ornaments comprise at least 40% of all analyzed shell in most contexts. However, in one context (discussed in section 8.6) the patterns are more similar to Ejutla in that only 11% of the shell are finished or unfinished ornaments and 45% are worked debris/discarded fragments. At El Palmillo, Lambityeco, and the Mitla Fortress in Tlacolula, ornaments account for 60–80%. Other analyzed contexts in highland Mesoamerica include the Xalla complex at Teotihuacan (Velázquez Castro et al. 2019), where finished and unfinished ornaments are 30% of the shell assemblage.

8.2. Shell Species at Ejutla

Shell varieties recovered in the Ejutla investigations are almost entirely native to the Pacific Coast (Keen 1971; Morris 1966; Olsson 1961), 100 km away across high mountains. The few Atlantic species (Morris 1973) that were identified in the Ejutla assemblage (*Cypraea cinerea* and *Marginella apicina*) are represented by only a few specimens (<0.03%). In all, we identified more than 90 different taxa from 25 bivalve and 37 gastropod genera (Table 8.2); however, only 7 genera account for more than 98% of the identifiable shell (Table 8.3). Four



Figure 8.9. Shell ornament blanks for beads and pendants.

Table 8.2. Shell species at Ejutla.

Bivalves		
Genus	Species	Common name
<i>Anadara</i>	<i>cepoides</i>	ark shell
<i>Anadara</i>	<i>esmeralda</i>	ark shell
<i>Anadara</i>	<i>formosa</i>	ark shell
<i>Anadara</i>	<i>grandis</i> ?	ark shell
<i>Anadara</i>	<i>multicostata</i>	ark shell
<i>Anomia</i>	<i>adamus</i> (?)	jingle shell
<i>Arca</i>	<i>pacifica</i>	ark shell
<i>Barbatia</i>	<i>alternata</i>	ark shell
<i>Chama</i>	<i>buddiana</i>	jewel box
<i>Chama</i>	<i>echinata</i> (<i>C. coralloides</i>)	jewel box
<i>Chama</i>	<i>frondosa</i> (?)	jewel box
<i>Chione</i>	sp.	Venus clam
<i>Codakia</i>	sp.	lucine
<i>Donax</i>	sp.	bean clam
<i>Glycymeris</i>	<i>bicolor</i> (?)	bitterweet shell
<i>Glycymeris</i>	<i>gigantea</i>	bitterweet shell
<i>Glycymeris</i>	<i>maculata</i> (?)	bitterweet shell
<i>Glycymeris</i>	<i>multicostata</i> (?)	bitterweet shell
<i>Heterodonax</i>	<i>bimaculata</i> (?)	false donax
<i>Lucina</i>	<i>approximata</i>	lucine
<i>Lucina</i>	<i>mazatlanica</i>	lucine

Bivalves		
Genus	Species	Common name
<i>Ostrea</i>	<i>angelica</i>	oyster
<i>Ostrea</i>	<i>corteziensis</i>	oyster
<i>Ostrea</i>	<i>fisheri</i>	fisher's oyster
<i>Ostrea</i>	<i>iridescens</i>	oyster
<i>Pecten</i>	<i>vogdesi</i> (?)	scallop
<i>Periglypta</i>	<i>multicostata</i>	Venus clam
<i>Pinctada</i>	<i>mazatlanica</i>	pearly oyster
<i>Pitar</i>	sp.	Venus clam
<i>Protothaca</i>	sp.	Venus clam
<i>Pteria</i>	<i>sterna</i> (?)	winged oyster
<i>Semele</i>	sp.	semele
<i>Solamen</i> (<i>Megacrenella</i>)	<i>columbianum</i> (?)	mussel
<i>Spondylus</i>	<i>calcifer</i> (<i>S. limbatus</i>)	spiny oyster
<i>Spondylus</i>	<i>princeps</i> (<i>S. crassisquama</i>)	spiny oyster
<i>Tellina</i>	<i>virgo</i> (?)	tellin
<i>Tivela</i>	<i>planulata</i>	Venus clam
<i>Trachycardium</i>	<i>consors</i>	cockle shell
<i>Trachycardium</i>	<i>pristipleura</i>	cockle shell
<i>Trachycardium</i>	<i>senticosum</i>	cockle shell

Bivalves		
Genus	Species	Common name
<i>Acmaea</i>	<i>discors</i>	small limpet
<i>Acmaea</i>	<i>fascicularis</i>	small limpet
<i>Acmaea</i>	<i>limatula</i>	small limpet
<i>Acmaea</i>	<i>mitella</i> (?)	small limpet
<i>Acmaea</i>	<i>pediculus</i>	small limpet
<i>Acmaea</i>	<i>pelta</i>	small limpet
<i>Agaronia</i>	<i>testacea</i>	olive shell
<i>Astraea</i>	<i>olivacea</i>	olive turban
<i>Astraea</i>	<i>unguis</i>	turban
<i>Calliostoma</i>	<i>leanum</i> (?)	pearly top shell
<i>Cancellaria</i>	<i>urceolata</i>	nutmeg
<i>Cassis</i>	<i>centiquadrata</i>	helmet
<i>Cerithidea</i>	<i>albonodosa</i>	horn shell
<i>Cerithidea</i>	<i>mazatlanica</i>	horn shell
<i>Cerithidea</i>	<i>valida</i> (?)	horn shell
<i>Cerithium</i>	sp.	horn shell
<i>Conus</i>	sp.	cone shell
<i>Cypraea</i>	<i>arabacula</i>	cowrie
<i>Cypraea</i>	<i>cinerea</i>	cowrie
<i>Ficus</i>	<i>ventricosa</i>	fig shell
<i>Fissurella</i>	<i>gemmata</i>	keyhole limpet
<i>Fissurella</i>	<i>rubropicta</i>	keyhole limpet
<i>Fissurella</i>	<i>volcano</i> (?)	keyhole limpet
<i>Haliotis</i>	<i>fulgens</i>	green abalone
<i>Haliotis</i>	<i>rufrescens</i>	red abalone
<i>Janthina</i>	<i>globosa</i>	violet snail
<i>Jenneria</i>	<i>pustulata</i>	sea button
<i>Lamellaria</i>	<i>inflata</i>	wide-mouth snail
<i>Littorina</i>	<i>conspersa</i>	periwinkle
<i>Malea</i>	<i>ringens</i>	cask shell
<i>Marginella</i>	<i>apicina</i> (?)	marginella
<i>Mitra</i> (?)	sp.	miter
<i>Mitrella</i>	<i>lalage</i> (?)	dove shell
<i>Morum</i>	<i>tuberculosum</i>	helmet
<i>Nassarius</i>	<i>bailyi</i>	dog whelk
<i>Natica</i>	<i>elenae</i>	moon shell
<i>Oliva</i>	<i>porphyria</i>	olive shell
<i>Olivella</i>	<i>alba</i> (?)	olive shell
<i>Olivella</i>	<i>semistriata</i> (?)	olive shell
<i>Olivella</i>	<i>tergina</i>	olive shell
<i>Patella</i>	<i>mexicana</i> (<i>Ancistromesius mexicanus</i>)	giant limpet
<i>Persicula</i>	<i>frumentum</i>	marginella
<i>Petalococonchus</i> (?)	sp.	worm shell
<i>Polinices</i>	sp.	moon shell
<i>Purpura</i>	<i>columellaris</i> (?)	dye shell
<i>Pyrene</i>	<i>major</i>	dove shell

Bivalves		
Genus	Species	Common name
<i>Strombus</i>	<i>galeatus</i>	conch shell
<i>Strombus</i>	<i>gracilior</i>	conch shell
<i>Strombus</i>	<i>peruvianus</i>	conch shell
<i>Tegula</i>	<i>mariana</i> (?)	pearly top shell
<i>Thais</i>	<i>speciosa</i>	dogwinkle
<i>Thais</i>	<i>triangularis</i>	dogwinkle
<i>Trivia</i>	<i>sanguinea</i>	sea button
<i>Turritella</i>	<i>leucostoma</i>	turret

Table 8.3. Quantity of each shell genus identified at Ejutla.

Class	Genus	Quantity
Bivalve	<i>Anadara</i>	89
Bivalve	<i>Anomia</i>	1
Bivalve	<i>Arca</i>	3
Bivalve	<i>Barbatia</i>	1
Bivalve	<i>Chama</i>	394
Bivalve	<i>Chione</i>	2
Bivalve	<i>Codakia</i>	1
Bivalve	<i>Donax</i>	1
Bivalve	<i>Dosinia</i>	1
Bivalve	<i>Glycymeris</i>	9
Bivalve	<i>Heterodonax</i>	1
Bivalve	<i>Lucina</i>	3
Bivalve	<i>Ostrea</i>	14
Bivalve	<i>Pecten</i>	3
Bivalve	<i>Periglypta</i>	2
Bivalve	<i>Pinctada/nacreous</i>	13638
Bivalve	<i>Pitar</i>	4
Bivalve	<i>Protothaca</i>	1
Bivalve	<i>Pteria</i>	1
Bivalve	<i>Semele</i>	1
Bivalve	<i>Solamen (Megacrenella)</i>	1
Bivalve	<i>Spondylus</i>	182
Bivalve	<i>Tellina</i>	2
Bivalve	<i>Tivela</i>	1
Bivalve	<i>Trachycardium</i>	8
Gastropod	<i>Acmaea</i>	45
Gastropod	<i>Agaronia</i>	4
Gastropod	<i>Astraea</i>	8
Gastropod	<i>Callistoma</i>	1
Gastropod	<i>Cancellaria</i>	2
Gastropod	<i>Cassis</i>	11
Gastropod	<i>Cerithidea</i>	11
Gastropod	<i>Cerithium</i>	1
Gastropod	<i>Conus</i>	2

(Continued)

Class	Genus	Quantity
Gastropod	<i>Cypraea</i>	5
Gastropod	<i>Ficus</i>	33
Gastropod	<i>Fissurella</i>	5
Gastropod	<i>Haliotis</i>	15
Gastropod	<i>Janthina</i>	1
Gastropod	<i>Jenneria</i>	4
Gastropod	<i>Lamellaria</i>	1
Gastropod	<i>Littorina</i>	2
Gastropod	<i>Malea</i>	6
Gastropod	<i>Marginella</i>	5
Gastropod	<i>Mitra</i> (?)	1
Gastropod	<i>Mitrella</i>	1
Gastropod	<i>Morum</i>	1
Gastropod	<i>Nassarius</i>	1
Gastropod	<i>Natica</i>	2
Gastropod	<i>Oliva</i>	36
Gastropod	<i>Olivella</i>	7
Gastropod	<i>Patella</i>	443
Gastropod	<i>Persicula</i>	1
Gastropod	<i>Petalococonchus</i> (?)	7
Gastropod	<i>Polinices</i>	1
Gastropod	<i>Purpura</i>	1
Gastropod	<i>Pyrene</i>	1
Gastropod	<i>Strombus</i>	207
Gastropod	<i>Tegula</i>	1
Gastropod	<i>Thais</i>	13
Gastropod	<i>Trivia</i>	3
Gastropod	<i>Turritella</i>	2

of these genera are bivalves (pelecypods): nacreous pearl oysters (*Pinctada*), jewel boxes (*Chama*), spiny oysters (*Spondylus*), and ark shells (*Anadara*); three are snails (gastropods): giant limpets (*Patella*), conch shells (*Strombus*), and small limpets (*Acmaea*). All are marine bivalves and gastropods that were frequently cut and shaped to make ornaments in prehispanic highland Mesoamerica (and generally were not used for food) (e.g., Kolb 1987; Pires-Ferreira 1978; Starbuck 1975; Suárez 1981). Most of these species are relatively easy to procure along the Pacific Coast of Oaxaca; for example, *Strombus* and *Pinctada* are found in shallow water and the intertidal zone (Keen 1971), but *Spondylus* could be significantly more difficult to procure from depths up to 30 m (García-Domínguez et al. 2021, 17).

Pinctada mazatlanica (mother of pearl) is by far the most abundant species at Ejutla (Figure 8.10, see also Figure 8.5). Its large size and shiny nacreous interior made it a prized raw material for ornamentation. Although unmistakable features are removed from many fragments and the most finished nacreous ornaments, their assignment to *Pinctada*

is based on the thickness of the shell pieces and the almost complete absence of other nacreous shells identified to genus (15 fragments total of *Ostrea* sp. and *Pteria* sp. and none of the freshwater mussel, *Margaritifera* sp.). The breaking and working of the thousands of *Pinctada* shells we identified in the collections would have resulted in large quantities of mother of pearl ornaments and prodigious amounts of nacreous debris. In all, *Pinctada* comprises 61% of all shell at Ejutla by weight (~16.4 kg), and minute pieces of chipping debris (not included in shell totals) are 25% of that weight. More than half of the ornaments, especially small placas, disks (and disk beads), and bracelets, were made from *Pinctada*.

Chama and *Spondylus* were prized for their red and purple colorations. Though less abundant than *Pinctada*, *Chama* sp., especially *C. echinata* (spiny jewel box), and *Spondylus* sp. (spiny oyster), both *S. princeps* and *S. calcifer*, are common at Ejutla (Figure 8.11, Figure 8.12, see also ornament blanks in Figure 8.9). Dozens of ornaments were crafted from each genus, most often small beads and pendants. The nomenclature of these three species was revised in the late 2000s to *Spondylus crassisquama* (syn: *S. princeps*), *S. limbatus* (syn: *S. calcifer*), and *Chama coralloides* (syn: *C. echinata*) (García-Domínguez et al. 2021; Lodeiros et al. 2016). Keen (1971) was our principal source to speciate *Chama* and *Spondylus* shells during our analyses in the 1990s, and we retain those designations here. Although ark shells are among the more common genera (~90 or more specimens), we recovered only one unfinished whole shell ornament of *Anadara* sp. Other identified genera of bivalves are represented by 10 or fewer specimens each (Figure 8.13, see Table 8.3).

Of the 37 gastropod genera identified at Ejutla, only the two large ones mentioned above are represented in any substantial quantities. Most ornaments of *Patella mexicana* (giant limpet, syn: *Ancistromesus mexicanus*) are bracelet fragments (Figure 8.14). Although smaller matte white beads and blanks cannot be identified to species, many are from unidentified gastropods, including several large beads identified as likely *Strombus* sp., especially *S. galeatus* (conch shell) (see Figure 8.9 top left). Most of the other identified taxa are small gastropods that are present in low quantities, including olive shells (*Agaronia*, *Oliva*, *Olivella*), nutmegs (*Cancellaria*), horn shells (*Cerithidea*), cowries (*Cypraea*), small limpets (*Acmaea*), keyhole limpets (*Fissurella*), sea buttons (*Jenneria*), periwinkles (*Littorina*), marginellas (*Marginella*), nerites (*Nerita*), dye shells (*Thais*), and turret shells (*Turritella*) (Figure 8.15). These shells generally are whole (or almost whole), and many had been perforated for stringing.

8.3. Shell Ornaments

Based on the amount of production debris and the high proportion of unfinished ornaments in the shell assemblage, the Ejutla craftworkers made the full range of ornaments that we recovered on site, most frequently small