1990 Excavations at Paso de la Amada:
Early Formative Chiefdoms in Southeastern Mexico

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PREFACE

This report summarizes the results of the 1990 excavations at Paso de la Amada, Chiapas, Mexico. These excavations, supported by a S.S.H.R.C. grant to M. Blake, are part of the larger Mazatán Early Formative Project, co-directed with John E. Clark, and involving the study of several other sites in the Mazatán Region of Chiapas.

The objective of this project is to investigate the origins of chiefdom societies during the Early Formative period in the Soconusco Region of Chiapas, Mexico. We are interested in "how" and "why" egalitarian Archaic societies, with economies based on hunting, fishing and gathering, were transformed during the Early Formative Period into sedentary societies with mixed horticultural economies and rudimentary social ranking. According to the available data, this fundamental change began sometime between 2000 and 1700 B.C.

During our 1990 work in the Mazatán region, Blake was responsible for the excavations of Early Formative period house deposits at Paso de la Amada, while Clark was responsible for investigations at the Archaic, Early Formative and Middle Formative sites of Cerro de las Conchas, San Carlos, and El Silencio. All the excavations are fully described in our final report to the Instituto Nacional de Antropología e Historia (Clark et al. 1990). The present report is the English version of the portion of that report which concerns the excavations at Paso de la Amada. The following discussion is organized into two parts. The first part contains a description of the excavations at Paso de la Amada. The second part summarizes some of the Mazatán Early Formative Project's interpretations and conclusions based on work from the 1990 season and earlier.

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On the coast of Chiapas, we relied on the valuable help of the President of the Municipality of Mazatán, Lucas Villarreal Arroyo, and the Commissioner of the Ejido of Buenos
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PART I: EXCAVATIONS AT PASO DE LA AMADA

INTRODUCTION

The excavations at Paso de la Amada were carried out in order to examine the origins of social inequality in Early Formative period villages in Southeastern Mexico (Figure 1). Previous research at this site indicated that there had been a large residential occupation on mounds and elevated areas within the site. Some of the mounds were excavated previously, such as Mound 1 (Ceja T. 1985), and Mound 6, which was excavated by members of our project in 1985 (Clark et al. 1987; Blake 1991). These excavations showed evidence of house remains as well as domestic refuse that seemed to represent an elite social stratum. For example, Structure 2 in Mound 6 consisted of a Locona phase house floor, oval in form and measuring 19 m in length and 9 m in width, situated above an artificial platform 2.5 m in height. In addition, we knew from our 1985 surface collections and various test pits that the site had an extensive occupation on low mounds or non-mound areas during this same phase (Blake 1991). This led us to hypothesize that Mound 6 was the residential location of a non-elite stratum of the community inhabiting the slightly elevated areas that bordered the seasonally inundated chahuites or bajos.

Other evidence from excavations in nearby sites, such as San Carlos, Chilo, Vivero, and Aquiles Serdán, also suggests that Early Formative society was non-egalitarian and may have consisted of a network of interacting chiefdoms (Clark and Blake in press). The fieldwork in 1990 at Paso de la Amada was directed at examining more closely the archaeological evidence for the evolution of early chiefdoms at one of these points in the interaction network.

GOALS OF THE 1990 EXCAVATIONS

The 1990 excavations at Paso de la Amada had two principal goals: 1) to continue with the excavations in the superimposed structures in the elite Mound 6; and 2) to continue excavating a series of test pits in non-mound or low-lying areas in order to find non-elite residences contemporary with Mound 6 (Figure 2).

The excavations in Mound 6 attempted to find structures underlying -- and therefore earlier than -- Floor 3, which was excavated in 1985. According to the results from test pit H25, we knew that there were at least three earlier floors buried within the mound, but we did not know their size, their exact date, or the type of artifacts associated with them. The principal objective of the excavation in Mound 6 was to expose as many of these floors as possible and to compare them and their associated materials with the earlier floors in Mound 6 as well as with other structures at Paso de la Amada.

The test pits on small mounds and in non-mound areas at the site attempted to locate intact non-elite residences that could be studied in future excavations. We hoped to discover and completely expose one or more non-elite residences, but we were unable to achieve this goal. We excavated in four non-mound areas away from Mound 6 (Test Pits 27 to 30), as well as in four low mounds close to the north side of Mound 6 (Mounds 10 to 13) (Figure 2). In all of these test pits we found evidence of Early Formative occupation, which gives us a better idea of the
Figure 1. The Mazatan Region showing the locations of excavated Early Formative sites.
Figure 2. Map of Paso de la Amada showing locations of the mounds and excavations.
layout of the community as well as the occupation during and following the Barra phase (1550-1400 B.C.).

In addition to these excavations, we decided to excavate some test pits in Mound 7. This is a large mound, much larger than any other at the site, located some 220 m north of Mound 6. After our success with the discovery of Structure 4 in Mound 6 (see following description), we thought that it was possible that Mound 7 might contain a similar large structure. Consequently, we decided to test the mound to determine its stratigraphic history and to date its occupations, as well as to search for the remains of large buried structures. Three test pits were excavated in Mound 7, the results of which will be discussed below.

**PRINCIPAL DISCOVERIES**

In terms of the previously mentioned goals of the project, three important discoveries were made. First, we found a large, well-preserved Locona phase (1400 - 1250 B.C.) structure (Structure 4) below 1.6 m of construction fill in Mound 6 (Figure 3). The structure is notable for its size, construction, and state of preservation. It consists of an oval-shaped building 22 m long and 10 m wide and rests upon a 1 m high, elevated earthen platform covering at least two earlier buildings that we were unable to excavate in 1990. A large step limits each side of the platform (Figure 4). On its surface is a well-made floor containing a large number of post holes, patches of burned clay, and several hearths. The building is delineated by free-standing clay walls 50 cm thick and 50 cm high (see below for a more complete description). Furthermore, the structure may have had cane or pole walls, but these seem to have been smaller, placed above the large clay wall. This part of the walls or wall "foundations" may also have been used as benches. The size of the structure (approximately 238 m² of roofed area), and its elaborate construction on a platform with clay walls, indicates a high level of social differentiation. If this was a chief's house, it indicates the presence of social ranking, possibility even stratification, early in the Locona phase (1400-1250 B.C.) (Blake et al. [n.d.] provide a more complete discussion of the interpretations of Structure 4).

The second discovery consists of indications of non-elite residences in low mounds and in non-elevated areas around Mound 6. These areas show that during the initial occupation of the site, the houses were constructed over areas of sandy dunes on the banks of *chahuitez* or streams. These houses seem to have been more ephemeral than those of Mound 6, since they do not have well-constructed floors or well preserved posthole patterns. Nevertheless, we found remains of Barra (1550-1400 B.C.), Locona (1400-1250 B.C.), and Ocós phase (1250-1100 B.C.) ceramics in the deepest levels of the majority of the test pits, clearly indicating a dispersed Early Formative occupation located away from the large mounds. We hope that, with future excavations, we will be able to extend some of these excavations and totally expose some of the non-elite Early Formative residences.

The third important discovery stems from the three test pits in Mound 7, which provided us with a new view of the earliest occupation of the site: the Barra phase. Previous excavations carried out by Ceja T. (1985) and by us (Clark et al. 1987), as well as surface collections, have recovered many Barra phase ceramic deposits in the Mazatán region, but these are often mixed.
with later Locona phase materials. We were hoping to find an unmixed Barra deposit, and were finally successful at Mound 7. Mound 7 is a natural sand feature, elevated 2 m above the surrounding *chahuities*. People of the Barra phase occupied the highest part of this elevation and left behind a scattering of ceramics and stone tools, including a metate fragment. We also found a Barra phase house floor with post holes and with some artifacts lying in horizontal position. The occupation was covered with 75 cm of sand before the mound was re-occupied in later phases of the Early Formative, most notably the Jocotal phase (900-850 B.C.). Mound 7 was apparently not occupied during the Locona phase, and we are therefore able to say that Mound 6 was the only large house during the Locona phase, and possibly in the Ocós phase as well. By the Cherla phase (1100-1000 B.C.), Mound 6 was abandoned and Mound 1 became the site of the largest house.

**MOUND 6 EXCAVATIONS**

We began excavations in Mound 6 (Figures 3 to 5) on January 15, 1990, with the aim of exposing the limits of the 1985 excavations and continuing with the excavation of the earlier house floors. In 1985, we excavated Floors 1, 2, and 3, as well as approximately 50 cm of construction fill below Level 5 over a total area of 164 m². We also excavated a 2 m by 2 m test pit (H25) in the centre of Floor 3. This pit extended to sterile sand, approximately 2 m below the base of Level 5. Before continuing with the Mound 6 excavations, we removed the backfill from Pit H25 in order to view the exposed stratigraphy and to locate the thick burned floor.
(Floor 4) that was visible in the test pit profiles.

The first excavated level of the 1990 season was Level 6. We excavated this level 30 cm, hoping to find some indication of a floor or other feature. When no such features were found, we continued excavating Level 7 another 40 cm, and Level 8 to 5 cm above Floor 4. Levels 6, 7, and 8 consisted of a continuous layer of fill that was used to construct the mound and form a platform over which Floor 3 was constructed. We screened a sample of 1.5 m$^3$ of these levels, using a screen mesh of 5 mm. The rest of the fill was removed without screening. All the ceramics, obsidian and other artifacts observed during the excavation were, however, saved for analysis.

The layer of construction fill was relatively soft and appears to have been dumped over Floor 4 in large basket-loads, as can be seen in Figure 6. This fill includes a wide variety of domestic refuse and appears to originate from surrounding refuse deposits. The major volume of construction fill consists of large lumps of hard clay or clay/sand that vary in colour from dark
grey to brown to yellow. In the excavation profile, these lumps are distributed throughout the deposits at random and in dense proportions, demonstrating the lack of any internal stratigraphy within the layer of construction fill.

While we were excavating Level 8, we found remains of a clay wall in one of the excavation units. This wall was composed of hard, mottled, compact clay that was very similar to the overlying fill material. Nevertheless, the clay was much harder and showed a definite lineal orientation similar to the orientation of the floors and postholes found in Structures 2 and 3 during the 1985 excavations. We exposed the clay wall in all of the adjacent units and found that it formed a continuous and well-defined wall approximately 50 cm thick and 50 cm high.

Figure 5. Plan and profile view of Structure 4, Mound 6, Paso de la Amada.
Structure 4

The clay wall is one of the most interesting and unexpected discoveries of the project, since it delineates a complete and well-preserved structure that may have been even larger and more complex than the structures that followed it (Figures 3 to 5). It is clearly an uncommon form, but in many respects it resembles the oblong form of the subsequent Structures 1-3. Each end of Structure 4 is a semi-circle with a radius of 4.3 m to the interior of the wall. These two semi-circles were separated by a rectilinear central section that measures 14 m long by 4.3 m wide. Its width measures the same as the radius of the end sections. The interior length is 20.4 m, which, with the semi-circular end sections, gives a total area of 188 m$^2$ of floor space. The structure also appears to have had roofed corridors on both sides, which would give a total of 238 m$^2$ of roofed floor space.

There are some indications of the construction techniques of this building. It appears that the clay wall actually provided the base or foundation upon which a wall of cane or similar material was constructed. We recovered large pieces of clay with cane impressions and covered with thin layers of white material. The wall was not burned, which leads us to believe that the structure itself did not burn, even though the floor was heavily burned over much of its surface.

The floor, designated as Level 9, was completely exposed. The excavation included the floor area between the clay walls, as well as the corridor and step areas on both sides of the structure. Our fundamental concern was to carefully expose and map the location of all features and artifacts associated with the floor.

The structure seems to have been constructed during the Locona phase (1400-1250 B.C.), according to the ceramics recovered from the construction fill between Floors 3 and 4. These ceramics were almost completely restricted to the Locona phase, with a few Barra phase sherds mixed in. No Ocós phase ceramics were recovered.

Floor 4

The floor was excavated in a series of horizontal lots that comprised Level 9. These lots were excavated by trowel so that we could find and plot all the possible locations of the artifacts found on the floor surface. All the matrix of Level 9, a layer of 5 to 10 cm above the floor, was screened, and a sample of artifacts associated with this level was saved.

The floor was composed of the same type of hard, compact clay and sand that was used to construct the structure walls. The floor material is variable along its surface, indicating that it was constructed in separate sections, some of which correspond with sections of the walls made of the same material. Some sections are a mottled grey-yellow material, while others are a darker yellow-brown. The floor had a thin layer of fine clayey sand covering the major part of its surface.

There are many indications that the structure was used as a domestic residence, and the floor characteristics reflect such a use. A great number of artifacts were associated with the floor, and these were recovered from a horizontal position on the floor's surface. The quantity of artifacts
was low compared with the refuse deposits that we excavated in 1985, which suggests that they were associated with the structure itself and were not placed there after abandonment of the house. We have recovered a wide variety of objects from the floor: small potsherds, obsidiandebitage and tools, small mammal and fish bones, carbonized plant remains, clam shells, a shell bead, fire-cracked rock, hematite fragments, and figurine fragments. We found few large or complete objects; instead, almost everything was small and broken, suggesting that these fragments were accidentally lost or scattered over the floor. Less material was found over the floor of the corridor areas than over the interior floor.

Hearth

There were various burned areas and hearths over the floor of the structure (Figure 4). At the extreme northwest of the floor, we found a large hearth, more than 1 m long, which contained a thick layer of white ash. The floor below the hearth was burned and orange in colour, and had a concave form as if the hearth had been periodically emptied and cleaned out, with part of the burned floor being removed along with the hearth contents. A similar, but smaller, hearth was found in the extreme opposite side of the structure, indicating the possibility that various hearths were being used at the same time. We collected several samples of soil and ash from the hearths and submitted them to flotation and fine screening in order to recover carbonized plant remains. Small wood charcoal fragments have been recovered, as well as unidentified seeds. Many other parts of the floor are burned (light orange in colour) but did not contain ashes. We collected 23 samples of the burned floor areas, and we will request permission to send them for palaeomagnetic analysis.

Posts and roof

Figure 4 shows the pattern of the post holes associated with Floor 4. Along the structure, two principal lines of 7 post holes occur slightly within the long walls. Some of these are 30 cm in diameter and 70 cm deep, and may have functioned as the principal roof supports. Two smaller lines of 4 to 5 post holes run parallel to these, slightly outside the edge of the corridors. These are as large as the central post holes and occur on the step that extends downward from the corridor toward the surface of the terrain surrounding the house. On the floor, also within the house, there are several smaller post-holes. These may have functioned as smaller structural supports within the house. Some may have been used for storage, tables, and so on.

Roofs generally leave little archaeological evidence; however, in this case, we believe that we have recovered remains of the decayed palm roof. In Lots 8 and 9, slightly above the floor and outside of the house, we observed large sheets of thin, ashy-like, whitish-green material. This material was very soft, but in some places we were able to clean it with a brush and we found on it a pattern of wavy lines. The waves did not consist of thick impressions such as are left by cane, nor were they very well defined. Some sheets had leaf impressions and a light green tint. Dr. Gareth Lowe visited the site at the end of February and commented that the material reminded him of similar -- although thicker -- white, ashy-like deposits found at Chiapa de Corzo and which were identified as palm leaves. We recovered samples of this material and will attempt to determine if it is derived from plants, and, if so, to determine the species.
Platform

The structure was built upon at least two earlier buildings. In test pit H25, excavated in 1985, we noted a floor on the original ground surface. We still do not know the extent of this floor, since it is completely buried below the platform of Structure 4. We also noticed a layer of construction fill above this first floor, with a burned floor resting above it. This burned floor is about 30 to 40 cm below Floor 4 and about 50 cm above the original ground surface, and probably corresponds with an earlier structure, completely buried by the platform of Structure 4. When Structure 4 was constructed, it completely covered these earlier remains and used them as part of the platform fill that forms the structure. We plan to excavate these earlier floors as part of the 1993 excavations at Paso de la Amada.

The platform must have been very impressive from a distance, since the clay walls would have made it seem even higher than it really is. Although Floor 4 is only 1 m above the surface of the surrounding terrain, the clay walls are 50 cm high and the platform would have appeared to be 1.5 m high to someone walking at a distance of 10 meters or more from the structure (Figure 5). These walls, together with the presence of two wide steps, 30 cm high and 1 m deep on both sides of the structure, would have given the structure a monumental appearance.

According to the evidence available at present, we think that Structure 4 was rapidly abandoned. It was found in relatively good condition, and the clay wall foundations had not been exposed for much time before being covered completely by a homogeneous layer of construction fill (Figure 6). The ceramics in the construction fill were mainly from the Locona phase, but there appears to be a greater frequency of early Locona phase sherds near Floor 4. It is possible that this building represents one of the first large constructions on the site during the Locona phase, and that some of the earlier structures correspond to the Barra phase.

Trench 1

The objectives in the excavation of Trench 1 were: 1) to determine the nature of the mound fill and the events that may have been related to the construction of this fill; and 2) to locate areas of refuse deposits associated with Structure 4, a Locona phase house. We did not find a Locona deposit, but the excavation of Trench 1 has contributed to our understanding of the successive periods of occupation and the construction of Mound 6. Trench 1 extends southwest from the southern limit of the excavation of Mound 6, perpendicular to the long axis of Structure 4 and almost aligned with the short central axis (Figure 3). It measures 4 m in length, 2 m in width, and 2.1 m in depth. This trench was excavated stratigraphically (Figure 7).

The surface layer (Stratum I, 0-20 cm) was excavated without screening. Strata II and III consisted of material deposited over the fill used to construct the mound, and this material was screened. Strata IV and V consisted of mound fill, or material used to elevate the mound above Structure 4. This was not screened, since it contained a mixture of material from several phases. One interesting feature of this excavation was discovered in Stratum IV, and consisted of a 3 to 15 cm thick layer composed of a series of very thin, laminated sand layers, in alternating shades of dark and light. These thin layers are very regular and probably represent deposition of water.
and sand from a higher surface of the mound. Approximately 150 cm below datum, at the beginning of Stratum V, we exposed a hard, burned floor (Floor 1) which seems to be the surface of a lower and earlier layer of thin sand layers. We left most of this floor intact, but we excavated a narrow trench in order to determine the nature and extent of the underlying deposits.

Another floor (Floor 2) was found below a layer of 20 cm of thin laminated sand layers, approximately 175 cm below datum. This consists of a fairly hard-surfaced layer of mottled yellow-brown compact clay. A post-hole, 20 cm in diameter and 38 cm deep, was found. This floor was also left intact for future investigations. The mound fill that extended above this floor was excavated in order to trace the yellow-brown sand that was found at the base of the mound fill throughout Mound 6.

Two soil samples, collected from just below the laminated sand layer in Stratum IV, were saved for flotation and recovery of carbonized plant remains. We also recovered samples of bone and teeth, presumably human, and hope to use these for carbon isotope analysis. Four
samples of burned floor in Stratum V were collected for palaeomagnetic analysis.

In this excavation, several cultural events appear to be represented. The mound fill that was originally deposited over Structure 4 seems to have been cut into (or possibly eroded), given the abrupt manner in which it terminates (Figure 7). Several additional layers of fill material represented by Strata I, II, and III were subsequently deposited, completely filling the area at the base of the old mound fill and covering the fill as well. These strata contain a large quantity of Ocós phase ceramics, including various broken fragments of Ocós vessels and figurines. This material probably represents an Ocós refuse deposit associated with the uppermost floors excavated in 1985. It was rather difficult to follow the natural stratigraphy in these strata because of the nature of the mound construction events, and therefore it was impossible to prevent some mixing of earlier and later cultural materials from the mound fill.

**MOUND 7**

Mound 7 is a large mound located immediately to the north of Mound 6. It is 80 m long, 35 m wide, and its top is approximately 2.5 m above the surrounding terrain. Its size indicates a
certain similarity with Mound 6, although the ceramics collected from the surface are from the Jocotal phase (900-850 B.C.). The three test pits that we excavated in Mound 7 indicate occupation in the Barra, Locona and possibly Cuadros and Jocotal phases (Figure 8).

**Test Pit 1**

The objective of this excavation was to compare Mound 7 with Mound 6, in terms of their archaeological features and the periods in which they were occupied. The test pit is located at the top and centre of the mound, aligned with the northwest-southeast axis of the mound. It measures 2m by 2m and was excavated to a depth of 3.3 m, at which point a small section (80 cm by 80 cm) was excavated to 4.5 m deep (Figure 9). The pit was excavated in arbitrary levels of 20 cm, and all excavated materials were screened through 5 mm mesh.

The mound consists of culturally sterile deposits of sand and clay that served to elevate the surrounding area and formed a surface for the Barra phase occupation floors (Floors 8 and 9). These floors are defined on the basis of horizontally positioned Barra sherds in association with post-holes. The ceramic assemblages are not mixed with materials from other phases, which makes this one of the few pure Barra deposits found so far. Floor 8 was found below a 75 cm layer of fine, laminated layers deposited by fluvial processes.

The elevation of this floor (at the top of the contemporary mound) indicates water deposition at a level above the surrounding terrain. The laminated layers occur below a series of floors (Floors 1 through 7) that were occupied in the Locona, Cuadros, and possibly Jocotal phases. Post-holes were clearly visible in Floors 6 and 7. Floors 1 through 5 were recognized only through subtle colour changes in the profiles of the test pit. Sherd density was greatest in the first levels (Locona-Cuadros).
Figure 9. Test Pit 1, east profile, Mound 7, Paso de la Amada.
Test Pit 2

This pit was excavated for the same reasons as Test Pit 1. Located 8 m to the east of this test pit, it measures 2 m by 2 m, and was excavated to a depth of 1.6 m, following 20 cm arbitrary levels and screening all excavated material through 5 mm mesh.

Barra phase sherds were recovered from Level 1. They were not mixed with ceramics from other phases. A number of these Barra sherds were found in a horizontal position on a surface identical to that below Floor 9 in Test Pit 1, but no associated floors or post-holes were found. It is possible that this pit is located in a Barra refuse area associated with Floors 8 and 9 of Test Pit 1.

The laminated layers of Test Pit 1 do not continue into Test Pit 2. Instead, the corresponding profiles in the walls of this pit show patches of a material generally associated with fill operations (Figure 10). This suggests that the laminated layers in Test Pit 1 may be associated with cultural activities.

Figure 10. South profile, Test Pit 2, Mound 7, Paso de la Amada.
Test Pit 3

Test Pit 3 is located 6 m to the west of Test Pit 2. It is 2 m long and 1 m wide, and was excavated in arbitrary 20 cm levels to a depth of 1 m. All materials were screened through 5 mm mesh.

The first 80 cm of excavated deposits were similar to those of Pits 1 and 2 (humus and grey sand/clay) and contained ceramic sherds from the Barra phase (Figure 11). Sterile soil was found between 1 m and 1.2 m. The densest concentrations of cultural material were found between 40 and 60 cm, and corresponded with Floors 8 and 9 of Test Pit 1. As in the other two test pits, the Barra sherds were not mixed with sherds from other phases. This test pit seems to be located at the extreme edge of a refuse deposit.

Mound 7 Summary

In summary, the test pits of Mound 7 have produced Barra floors and associated refuse, which demonstrate an initial and extensive Barra phase occupation. They also show that the layers of natural stratigraphy, which helped in the building up of the mound, were deposited
prior to human occupation (Figure 8). The presence, near the top of the mound, of water-deposited laminated layers which are associated with fill operations (Test Pit 2), indicates that these were formed as a consequence of cultural activity.

Finally, the test pits demonstrate that a large structure or elite residence, similar to that in Mound 6, was probably not present in Mound 7. The size of the mound indicates formation through both natural and cultural deposition processes.

TEST PITS IN NON-MOUND AREAS

During the last two weeks of excavations at Paso de la Amada, a series of test pits was excavated in areas surrounding Mound 6 (Figure 2). The objective of these excavations was to locate and date potential areas of non-elite occupation for more extensive future excavations. The excavations provided important data about the geological and topographical complexity of the site.

Non-elite residences were sought in two distinct types of topographic situations: small mounds (Mounds 10, 11, 12, and 13) and low natural elevations (Test Pits 27, 28, 29, and 30). These excavations are described below.

Mound 10

In an attempt to locate a non-elite occupation of the site which was contemporary with the possibly elite occupation of Mound 6, a test pit was excavated in the centre of Mound 10, a slightly elevated area to the northeast of Mound 6. Mound 10 stands out because the yellow-brown colour of the soil, exposed by agricultural activity which has leveled the original mound, is much lighter than the surrounding soil. A similar phenomenon is observed in Mounds 1, 6, 7, 12, and 13.

A test pit measuring 2 m by 1 m was excavated to a depth of 1.8 m, following arbitrary 20 cm levels and screening all materials through 5 mm mesh. Soil samples were collected from Strata 2 through 5 (Figure 12).

The first 20 cm of deposits contained mixed material from the Cherla, Ocós, and Locona phases. The following level had mixed Locona and Barra materials, leading us to suspect that these ceramics correspond to an early part of the Locona phase. Below 80 cm, Barra sherds were recovered, although these were few in number.

No floors or construction fill were noted during excavation or in the profiles (Figure 12). Relatively sterile sand was found at 90 cm below surface. Above this rested a 20 cm thick layer of yellow-grey clay/sand with mineral inclusions. This deposit, observed in all of the small mound test pits, appears to be the result of slow accumulation rather than intentional construction.

Mound 10, then, appears to be the result of repeated occupations of a natural elevation.
Even the upper 20 cm layer of yellow-brown sandy clay, apparently of artificial origin, may be the result of a gradual accumulation of domestic refuse. The lack of fill material suggests a much simpler method of construction than that of Mound 6. It appears that the refuse from the occupation of Mound 10 derives from an ephemeral structure constructed on a previously existing natural elevation. The clear contrast with the intentional construction of Mound 6 suggests that Mound 10 is a promising location for future investigation of non-elite structures. It should be noted, however, that the features and forms of houses may be very difficult to identify in these small mounds.

**Mound 11**

Mound 11 is located approximately 40 m northeast of Mound 10. It has been extensively
modified by agricultural activity, and is now only a slight elevation on the edge of the small rise on which Mound 6 is located.

The test pit, measuring 2 m by 1 m, was excavated in the centre of the mound to a depth of 2 m. Excavation proceeded by arbitrary 20 cm levels, and all materials were screened through 5 mm mesh. Soil samples were collected from Strata 1 through 6.

From the surface to a depth of 60 cm, Cherla and Ocós phase ceramics were recovered. Ocós ceramics were recovered from 60 to 120 cm, and Locona ceramics from below this level. An Ocós or Locona phase pit (Feature 1) was observed to have been excavated into sterile sand at the bottom of Level 7 in the northwest corner of the unit (see Figure 13). Only a small corner of this pit appears in the excavation unit.

Mound 11 may be a large refuse deposit rather than a series of superimposed residential structures. Or, the test pit may have been located in an area where residential deposits did not exist. Two important stratigraphic observations support these possibilities. In the first place, Mound 11 does not appear to be a "decapitated" mound. In contrast to Mounds 1, 6, 7, 10, 12, and 13, there is no colour change between the mound and the surrounding soil. Instead, the first two strata form a 30 to 60 cm thick zone of grey to grey-brown sandy clay that is similar to the stratigraphy of Test Pits 29 and 30, in non-mound areas. Secondly, below Stratum 1 the stratigraphy shows a marked north-south slope that would not have been suitable for living surfaces. The abundance of ceramic sherds in the first seven levels indicates a series of refuse deposits. There appears to be good preservation of bone recovered from this area.

Mound 12

Mound 12 is a low mound on the northern edge of the field in which Mound 6 is located, and to the east of Mound 7. A 2 m by 1 m test pit was excavated in the centre of the mound to a depth of 2.6 m, following 20 cm arbitrary levels and screening all materials through 5 mm mesh. Soil samples were collected from Strata 2, 4, 5 and 8 (Figure 14).

Between 0 and 140 cm, Ocós phase ceramics were recovered. Occasional Cherla and Locona sherds were also observed. Locona sherds were recovered from 140 and 180 cm, as well as a few from the Ocós phase. In the last two ceramic levels, there was a mixture of Locona and Barra sherds.

Mound 12 appears promising for future investigations into non-elite residential occupation during the Locona and Ocós phases, for four reasons. First, it is one of the few places where Ocós deposits clearly overlay Locona deposits. Second, the deposits are fairly deep -- extending 80 cm to sterile sand -- and rich in artifacts. Third, as mentioned previously for Mound 10, the non-elite structures appear to be on accumulations of refuse over natural elevations rather than forming a series of defined floors separated with layers of fill. Finally, Mound 12 exhibits some interesting stratigraphic characteristics that were not observed in the other test pits. Whereas all the other pits (with the possible exception of Mound 13) display a basic stratigraphic sequence of three zones of fine yellow-brown clayey sand over a layer of sandy clay with small mineral
Figure 13. West profile, test pit, Mound 11, Paso de la Amada.
Figure 14. West profile, test pit, Mound 12, Paso de la Amada.
inclusions that overlies sterile sand, only in Mound 12 do we observe significant stratigraphic distinctions within the middle zone of sandy clay. Stratum 4 is a grey layer within this zone that appears to have a high organic content with good bone preservation. This could be an Ocós refuse deposit. Below this, Locona deposits extend deep with the coarse grey sand, a characteristic unobserved in other test pits. The two thin, compact lenses within this zone (Strata 6 and 7A) may have been floors or living surfaces. These lenses were also identified in the profile of the test pit.

**Mound 13**

Mound 13 is a low mound to the southeast of, and immediately adjacent to, Mound 12. The 2 m by 1 m test pit was excavated to a depth of 1.8 m, following arbitrary 20 cm levels, except for Levels 6, 7A and 7B, which followed the natural soil colours (Figure 15). All materials were screened through 5 mm mesh. Soil samples were collected from Strata 1 through 4. A small quantity of charcoal was recovered from Level 7A. In Level 7A (discussed below), there is some evidence of an intrusive pit within the sterile sand of Level 7B.

![Figure 15. East profile, test pit, Mound 13, Paso de la Amada.](image)
In the first four levels, to a depth of 80 cm, the ceramics correspond predominantly to the Cherla phase, although some Ocós sherds were also observed. Between 80 and 100 cm, the ceramics are mixed. Locona and Barra ceramics appear below 1 m.

Compared to Mound 12, the occupation sequence in Mound 13 is not as deep and does not extend so far into the layer of yellow-brown sand of Stratum 3. The cultural material in this sand may have been deposited from above by way of rodent or tree-root disturbance, observed throughout the excavation. There are two possible cultural explanations for the distinction made in Levels 7A and 7B. First, Level 7A, composed of dark grey sandy clay with orange-coloured mineral inclusions, may be an intrusive pit in the sterile sand. The other possibility is that the surface of Level 7B was a small dune leveled by the prehistoric inhabitants to form a flat living surface. In support of this second possibility, it is observed that in every other test pit, a yellow-grey to grey clay with orange mineral inclusions, similar to the matrix of Level 7A, has been found overlying the sandy zone. Only in Mound 13, above Level 7B, is more grey clay observed. This may be because it was removed to level the surface of the slope of the dune or small hill. Almost 20 cm above the sand, a lens of dark brown clayey sand was found, which may mark another occupation surface. This was only observed in the profile and not during the excavation.

In summary, Mound 13 appears to have good potential for future documentation of non-elite occupation during the Cherla, Ocós, Locona and Barra phases.

Test Pit 27

This test pit, located 83 m east/southeast of the western boundary of the Mound 6 excavation, was excavated in an attempt to locate areas of non-elite occupation. It measured 1.5 m by 1 m, and was excavated to a depth of 2 m, following arbitrary 20 cm levels (Figure 16). The first six levels were screened through 5 mm mesh; material from the subsequent four levels was not screened.

The ceramics from the first three or four levels correspond to the Ocós phase, and indicate a residential area in this area.

Test Pit 28

Test Pit 28, located between Mounds 1 and 14, represented an attempt to locate non-elite residences in non-mound areas through a program of extensive, broad-scale excavation designed to discover shallowly-buried post hole patterns. This "test pit" measured 25 m by 12.5 m and was excavated to a depth of 35 cm, removing the loose soil within the plow zone (Figure 17). This material was not screened. Within this broad area, a smaller 4 m by 4 m section was further excavated, with a 2 m by 2 m subsection proceeding to a final depth of 55 cm (Figure 17). This material was screened in order to obtain a sample of ceramics, obsidian, and subsistence remains.

The soil in the plow zone (Level 1) is a light brown, fine sandy loam. At 35 cm below
surface, a large quantity of ceramics were recovered, dating from the Barra phase to the Protoclassic. These were all badly eroded from agricultural activity. Unfortunately, no traces of house floors were observed. Rodent activity caused a great deal of disturbance in this area, making the identification of such features difficult.

Below the plow zone, there is a layer of soft, yellow sandy-clay soil (Level 2), which was excavated to 55 cm below surface. As in Level 1, the deposits were mixed with ceramics from distinct phases. This mixing may be attributed to rodent activity, but it is more likely due to cultural events. The deposits are found on a slight slope, and this area may represent a refuse
area in the slope east of Mound 14. One post-hole was found in this layer, but rodent activity prevented the identification of others, and was a major factor in the decision to terminate this excavation.
Test Pit 29

Test Pit 29 is located on the elevation between Mounds 1 and 6. It was excavated in an attempt to locate Locona and Barra phase occupations in this area, and to locate potential non-elite residences. The test pit measured 2 m by 1 m, and was excavated by arbitrary 20

Figure 18. East profile, Test Pit 29, Paso de la Amada.
cm levels to a depth of 2.5 m. All deposits were screened through 5 mm mesh. Soil samples were collected from Strata 2 through 6. One feature was found (Feature 1), an intrusive pit within a layer of yellow-brown sand (Figure 18). This pit consisted of dark brown sand and a high density of potsherds, and was apparently a Cherla phase refuse pit.

Between the surface and 1.2 m (including Feature 1), a mixture of materials from the Cherla and Ocós phases was recovered. Some levels in the first 60 cm also yielded Jocotal and Cuadros sherds. At 1.4 m, Locona sherds were found, but these were mixed with Late Preclassic and Cuadros sherds, clearly indicating disturbance in the deepest levels.

In summary, none of the hoped-for occupations were found. Instead, dense Jocotal, Cuadros, Cherla, and Ocós occupations were present, including a Cherla and Ocós refuse pit.

**Test Pit 30**

This pit is located on the elevation between Mounds 1 and 6. It measures 2 m by 1 m, and was excavated by arbitrary 20 cm levels to a depth of 2.6 m, with all materials screened through 5 mm mesh (Figure 19). Soil samples were collected from Strata 2 through 5. In the first 20 cm,
material from the Locona through Jocotal phases was recovered. In the following 20 cm, a mixture of Cuadros and Ocós sherds were found. It was not until the level between 60 and 80 cm that an Ocós deposit with little mixing was found. Below this, a very small sample of Locona sherds was recovered. No evidence of early occupation was found. Although cultural material was abundant in the higher levels, no cultural features -- such as house floors, post-holes, refuse pits -- were found in association.

PART II: SUMMARY INTERPRETATIONS

By 1984, one year before we began our first season of investigations in the Mazatán region (Clark et al. 1987), previous research had shown that the Soconusco region had large numbers of both Late Archaic Chantuto phase sites (Lorenzo 1955; Voorhies 1976) and Early Formative Barra and Ocós phase sites (Coe 1961; Coe and Flannery 1967; Green and Lowe 1967; Lowe 1975; Ceja T. 1985). Consequently, the Soconusco seemed to us an appropriate place for documenting the transition from the Late Archaic to the Early Formative, or rather, from nomadic hunting-fishing-collecting societies to sedentary agricultural societies. It was with the objective of investigating this dramatic change in the mode of production, and its possible effects on the social and political organization, that we began our investigations in 1985 and continued them in 1990. Laboratory studies of the recovered materials are continuing to the present time.

As a result of these studies, we concluded that the transition from the Archaic to the Early Formative in the Mazatán zone caused or was accompanied by a fundamental social change, from egalitarian societies during the Archaic period to chiefdom societies in the Early Formative period (Clark and Blake 1989). We think that a transition to chiefdom societies occurred as an unanticipated consequence of political aspirants or bigmen competing for prestige in an egalitarian social setting (Clark and Blake, in press). This hypothesis carries many implications in terms of the chronology, environment, subsistence, demography, the origin of ceramics, and agriculture on the Chiapas coast. We will consider these topics in light of the 1990 fieldwork and analysis. Finally, we note some problems that remain unresolved.

CHRONOLOGY

The chronological sequence that we have constructed is based on radiocarbon dates from our 1985 project (Clark et al. 1987), as well as previously published dates from other sites and projects in the study area. We are also fortunate to include unpublished dates provided by Barbara Voorhies for Tlacuachero, Chiapas, Michael Love for La Blanca, Guatemala, Arthur Demarest and Mary Pye for El Mesak, Guatemala, Edwin Shook for La Blanca, Guatemala, and Barbara Arroyo for El Carmen, El Salvador. We include 71 radiocarbon dates (44 new and 27 previously published) from 20 archaeological sites.

Table 1 presents a list of all the dates. The chronology is described in more detail in Blake et al. (in press). The dates were assigned to phases based on artifact association. Phase boundaries were estimated by determining the largest number of dates that would fit, including a one sigma
range, into a given time span. Figure 20 shows that there is very little room to move once the phase sequence is laid out. By moving the phase boundaries in any direction, one begins to exclude dates from the adjacent phase. However, these phase boundaries should not be considered final and will probably be refined as analysis progresses.

Table 1. Radiocarbon dates for the Pacific Coast of Chiapas, Mexico, Guatemala, and El Salvador.

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<th>Lab Numbers</th>
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<th>Sample Provenience</th>
<th>Age ± one σ (B.P.)</th>
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<td>River cut</td>
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<td>Coe and Flannery 1967:68</td>
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Jocotla Phase

| B-27089     | El Mesak           | Mound 2             | 2860 ± 70          | 910         | Pys and Demarest 1989:1:5|
| B-30298     | El Mesak           | Mound 2             | 2840 ± 60          | 890         | Pys and Demarest 1989:1:5|
| B-30703     | El Mesak           | Mound 2             | 2890 ± 65          | 940         | Pys and Demarest 1989:1:5|
| I-1832      | Pajon              | Tr A Pfr 5          | 2805 ± 280         | 855         | Pys and Demarest 1989:33|

Cuadros Phase

| Y-1159      | Salinas la Blanca  | Cut 2 L 15          | 2925 ± 105         | 978         | Coe and Flannery 1967:68|
| Y-1151      | Salinas la Blanca  | Cut 2 L 21          | 2715 ± 105         | 765         | Coe and Flannery 1967:68|
| Y-1154      | Salinas la Blanca  | Cut 1 L 28          | 2875 ± 105         | 928         | Coe and Flannery 1967:68|
| Y-1166      | Salinas la Blanca  | Cut 1 L 29          | 2764 ± 90          | 814         | Coe and Flannery 1967:68|
| B-21496     | Sandoval           | Pit 1 L 21          | 2850 ± 60          | 900         | N.W.A.F. 1987           |

Chirita Phase

| B-21492     | Aquiles Serdan    | Pit 1A L 12         | 2610 ± 120         | 660         | Clark et al. 1987       |
| B-13838     | Aquiles Serdan    | Pit 1C L 12         | 2950 ± 100         | 1000        | Clark et al. 1987       |
| B-21491     | Aquiles Serdan    | Tr 1G L 12          | 5050 ± 470         | 3100        | Clark et al. 1987       |
| B-27090     | El Mesak           | Mnd 3 basc          | 3040 ± 70          | 1090        | Pys and Demarest 1989:1:5|
| UM-101      | Salinas la Blanca  | Navarrijo            | 3135 ± 120         | 1185        | Shook and Hatch 1979:149|

Occos Phase

| B-16236     | Aquiles Serdan    | Pit 1B L 12         | 3300 ± 80          | 1350        | Clark et al. 1987       |
| B-21490     | Aquiles Serdan    | Tr 1E L 19          | 3340 ± 90          | 1390        | Clark et al. 1987       |
| B-13834     | Aquiles Serdan    | Tr 1A L 18          | 4160 ± 150         | 2210        | Clark et al. 1987       |
| B-13838     | Aquiles Serdan    | Pit 1 L 9           | 3280 ± 95          | 1330        | Clark et al. 1987       |
| B-27088     | El Mesak           | Mnd 1 upper         | 3140 ± 100         | 1190        | Pys and Demarest 1989:1:5|
| B-30925     | El Mesak           | Mnd 3 fill          | 3060 ± 80          | 1110        | Pys and Demarest 1989:1:5|
| B-14242     | Paso de la Amada   | Mnd 6 Flr 2         | 3090 ± 90          | 1140        | Clark et al. 1987       |
Table 1. Continued.

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<td>1060</td>
<td>Clark et al. 1990</td>
</tr>
<tr>
<td><strong>Chantuto Subphase B</strong></td>
<td></td>
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<tr>
<td>N-1599</td>
<td>Campon</td>
<td>N1E9</td>
<td>4050 ± 85</td>
<td>2100</td>
<td>Voorhies 1976:42</td>
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<tr>
<td>N-1600</td>
<td>Campon</td>
<td>N1E9</td>
<td>3980 ± 85</td>
<td>2000</td>
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<td>N-1601</td>
<td>Campon</td>
<td>N8W1</td>
<td>3890 ± 85</td>
<td>1940</td>
<td>Voorhies 1976:42</td>
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<tr>
<td>1666-D</td>
<td>Tlacuachero</td>
<td>NOE2</td>
<td>4200 ± 80</td>
<td>2250</td>
<td>Voorhies 1976:42</td>
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<td>N-1596</td>
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<td>2650</td>
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<tr>
<td>N-1597</td>
<td>Tlacuachero</td>
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<td>4020 ± 85</td>
<td>2070</td>
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</tr>
<tr>
<td>N-1598</td>
<td>Tlacuachero</td>
<td>NOE2</td>
<td>3930 ± 70</td>
<td>1980</td>
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<tr>
<td>N-1887</td>
<td>Tlacuachero</td>
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<td>4350 ± 90</td>
<td>2400</td>
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<td>N-1888</td>
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<td>4450 ± 90</td>
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<tr>
<td>N-1889</td>
<td>Tlacuachero</td>
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<td>4320 ± 90</td>
<td>2370</td>
<td>Voorhies 1976:42</td>
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<tr>
<td>B-25626</td>
<td>Tlacuachero</td>
<td>S1E1-Floor</td>
<td>3900 ± 70</td>
<td>1950</td>
<td>Voorhies and Michaels 1989:5</td>
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</table>
Table 1. Continued.

| B-25627 | Tlucuachero | S1E3-Floor | 4060 ± 70 | 2110 | Voorhies and Michaels 1989:5 |
| 1866-A  | Zapatillo   | N3E3       | 3900 ± 80 | 1950 | Voorhies 1976:42             |
| N-1594  | Zapatillo   | N3E3       | 3770 ± 85 | 1820 | Voorhies 1976:42             |
| N-1891-1| Zapatillo   | N3E3       | 3960 ± 90 | 2010 | Voorhies 1976:42             |
| N-1891-2| Zapatillo   | N3E3       | 3710 ± 90 | 1760 | Voorhies 1976:42             |

<table>
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</table>

* Lab number abbreviations are: B - Beta Analytic, Inc.; I - Teledyne Isotopes; UM - University of Miami; N - Institute of Physical and Chemical Research, Japan; Y - Yale University; 1866 - University of California, Los Angeles.

We also collected 47 palaeomagnetic samples from burned hearth areas, and these may eventually provide us with dates. The palaeomagnetic curve still has not been calculated for such early periods, and we will not be able to obtain dates until more work is done on Early Formative sites in this region.

Obsidian hydration is another dating option. We have already taken control samples of the earth's temperature at Mazatán, samples which may be used to establish a measure of obsidian hydration in the region. Now we need to solicit funds to measure obsidian hydration for a large number of samples from all of our excavated deposits.

Weak areas remain in our chronological sequence, particularly during the Cuadros and Jocotal phases. Generally, very little well-preserved carbon is found in these phases, principally because they are more recent and the carbon is not well preserved near the surface. In the future we need to search for better-preserved deposits from these phases in order to establish more secure dates.

ENVIRONMENT

In some of our previous studies we suggested that the natural environment during the Late Archaic and Early Formative periods was similar to that of the present, at least, prior to the obvious changes that have taken place during the last 20 years (Clark et al. 1987; Clark 1991). However, the difficulties in finding Late Archaic sites in the Mazatán region worries us in this
Figure 20. Radiocarbon chronology chart for the Soconusco Region.
regard. The littoral zone, in particular, may have changed significantly between the Late Archaic and the Early Formative. The fluvial pattern, at least, appears to have fluctuated greatly. Furthermore, we believe that a change in the sea level caused a period of rapid deposition on the banks of the coast and the rivers. At the site of San Carlos, 1.5 meters of sand separate the possible Archaic layers from those of the Barra phase. These layers are thick and there is no evidence of the fine, laminated layers typical of gradual deposition. It is also notable that in every excavation that we have carried out in Formative sites, the first occupation occurs on apparently sterile sand, which may be either fine or coarse. All this indicates a dynamic fluvial regime in the zone during the end of the Late Archaic. This impedes a systematic search for Chantuto phase sites, or the possibility of finding such sites below Early Formative sites. Nevertheless, the discovery of such deposits at the site of San Carlos (Clark et al. 1990) indicates an Archaic settlement on the banks of the Coatán River.

Our investigations at the site of Paso de la Amada confirm the dynamism of the fluvial deposits toward the end of the Late Archaic. It may be that the Mazatán zone was part of a river delta with an interlaced drainage pattern. All of these possibilities have implications for our hypothesis. It is clear that we need a detailed study of the recent geology of the zone. It is also necessary to reconstruct the paleo-ecology of the period. Pollen, apparently, does not conserve in the habitation sites. It is therefore necessary to obtain a stratigraphic column sample from the pampa zone in order to identify changes in the vegetation that should accompany the changes.
previously mentioned. In the future, we intend to involve geologists in the study of these changes and to include such a study as part of the project.

It is important to emphasize that the changes described above apply to specific areas. In general, the same ecological zones with their flora and fauna must have persisted. Nevertheless, these would have fluctuated according to changes in the drainage, course and deposition of the rivers. The excellent preservation of many Early Formative sites in itself indicates a continuity of the natural environment from Barra and Locona times to the present. An analysis of faunal remains has identified species that are still obtained in these areas today, all of which correspond to tropical forest or swamp biotic zones. It is difficult to determine the manner in which a dynamic fluvial regime would affect the potential for cultivation or agriculture.

**SUBSISTENCE**

Barra and Locona phase sites are situated in very fertile areas, on the banks of rivers or in *bajos* or *chahuites*, which may represent old river channels. The *chahuites* that pass by sites such as Paso de la Amada were drainage channels during the rainy season. They would have been favoured locations for planting at the end of the dry season because they would have retained more water. Supposedly, they would also have trapped the finest and most fertile fluvial sediments. Such an explanation presupposes the importance of cultigens during the first phases of the Early Formative. However, we have yet to determine the importance of agriculture in this period.

In 1984, the manioc hypothesis, proposed by Gareth W. Lowe (1975), dominated discussions of Early Formative agriculture in the Soconusco. Linguistic evidence (see Campbell and Kaufman 1976) suggests that roots and maize were very important in the coastal diet during the Early Formative. In 1985 we verified the use of maize and beans for the Locona and Ocós phases. We also recovered many fragments of grinding stones from these phases, an indirect indication of the use of maize. Consequently, one objective of this year's investigations was to recover a larger sample of domestic refuse from the Chantuto, Barra and Locona phases. We found Barra deposits at Paso de la Amada, and we collected flotation samples for recovery of seeds and small bones. Charred maize remains were found in Barra phase deposits at both Paso de la Amada and San Carlos. We also found some fragments of manos and metates in the Barra phase deposits. It is probable that maize and beans were being cultivated at the end of the Chanotino B sub-phase and during the Barra phase, but we are unable to determine their importance in the diet at that time. Stable carbon isotope analysis of human bones suggests that maize did not contribute a large part to the coastal diet during the Early Formative, and that it did not become important until the beginning of the Middle Formative (Blake et al. 1992). Other dietary remains indicate the continued importance of hunting and fishing during the Early Formative.

It is likely that the Early Formative inhabitants of the Mazatán coast took advantage of all available resources, including roots or tubers, fruits, and plants imported from the highlands such as maize and beans. The date of the importation of maize and beans has yet to be determined, and would require the recovery of many more domestic deposits from Barra and
Chantuto phases. We suspect that future investigations will reveal the presence of these highland cultigens in Chantuto phase deposits.

SEDENTISM

Sedentism is commonly seen to be accompanied by the adoption of agriculture because of an increase in carbohydrates and the security provided by cultigens. Given the problems in documenting the first use of cultigens or the adoption of highland cultigens, as mentioned in the previous section, we are still unable to link agriculture with sedentism in the Soconusco region. Nevertheless, it seems clear that the first permanent communities were established during the Barra phase, around 1500 B.C. During our investigations this year, the discovery of Barra-phase floors at Paso de la Amada support the interpretation of a sedentary occupation in communities that persisted through time and space. The subsequent architectural developments at this site attest to the permanence of these communities. It is interesting that the first ceramics appear during the Barra phase. Ceramics are generally considered to be a reliable marker of sedentism. Although data for the Late Archaic period are sparse, as mentioned above, we do have some data for the estuary zone. The Chantuto phase shell middens were occupied from at least 3000 B.C. until 2000 B.C., when they appear to have been abandoned. This abandonment signals a change in the settlement pattern and in the exploitation of the environment -- also, perhaps, in the mode of production.

The verification of the settlement patterns between the Chantuto and Barra phases requires more careful studies of communities and their neighbouring zones. Such surveys should include subsurface testing, given the depth of some deposits. Clark's recent excavations at the site of San Carlos demonstrate the necessity of excavating below the water table in order to search for pre-Barra phase occupations.

DEMOGRAPHY

Our reconstruction of the demography of the Mazatán region, based on recorded site sizes for each period, can be seen in Figure 21. Apparently, the most rapid growth in local populations followed the development of chiefdom societies during the Locona phase (ca. 1400 B.C.). Given the fact that many sites are deeply buried, the estimates of demographic development, displayed in Figure 21, are minimal.

In our hypothesis of socio-political evolution in the Mazatán zone, we suggest that the competition between bigmen occurred in order to gain more prestige, or in other words, to attract more followers and disciples (Clark and Blake in press). If this was the case, the most significant demographic increases in the zone should follow, not precede, the development of chiefdom societies. This idea contrasts with the thesis of demographic pressure as a universal cause of socio-political evolution. If we simplify these two ideas and compare our expectations with the data from the Mazatán zone, we see that it is more probable that the rapid population growth followed the establishment of chiefdom societies.

Various problems remain with this interpretation, in particular the lack of a systematic
survey, with subsurface testing, in simple chiefdoms of the Locona phase. However, Clark is completing an analysis of a recent (carried out in 1992) and more detailed settlement survey of the Mazatán region and these new estimates will considerably refine our knowledge of Formative period demographic changes. The population estimates depend also on a constant pattern of the central communities in each chiefdom. The investigations at Paso de la Amada this year seem to indicate a change from dispersed communities in the Barra and Locona phases to more congregated communities during the Ocós and Cherla phases. The test excavations carried out at San Carlos may be similarly interpreted. If this was the pattern, then the estimates of the earlier phases may be exaggerated, which means that the demographic growth after the Locona phase may be much more marked than indicated in Figure 21.

ARCHITECTURE

When we began the project in 1985, we had little expectation that we would recover significant architectural remains. We thought that structure floors would be preserved because we had seen the presence of layers that formed compact floors in stratigraphic profile drawings
from various Early Formative sites in both Guatemala and Mexico. Our excavations at Aquiles Serdán in 1985 exposed an extensive area of Ocós and Cherla floor deposits, but it was impossible to completely expose them because the landowner refused to grant permission for broad-scale excavation. Later that same year, our excavations on Mound 6 at Paso de la Amada revealed complete floors, well preserved and dating to the Locona phase (Blake 1991; Blake et al. n.d.). Several Locona floors were also found in excavations at San Carlos. Following this, Voorhies re-excavated at the Archaic site of Tlacuachero and completely exposed a Chantuto-phase floor. The Chantuto structure was outlined by an oval-shaped post-hole pattern in a clay floor, but there were very few artifacts and refuse deposits. This structure was possibly occupied on a seasonal basis, and only for a short period, while the Tlacuachero shell-midden was at its maximum period of activity (Voorhies, Michaels, and Riser 1991).

The subsequent Barra phase seems to be the first sedentary occupation in the region, and as such, there should be more substantial evidence of houses in this phase. Barra floors were exposed during excavations this year at Mound 7 at Paso de la Amada. Two superimposed floors were discovered 1.6 m below the surface, but because these were found in a 2 m by 2 m test pit, it is impossible to comment on their size. Nevertheless, one of the floors had potsherds and other artifacts resting in a horizontal position, as well as various small post-holes. At the site of San Carlos, Clark's excavations exposed several Barra floors, and although none of the test pits were large enough to expose the floors in their entirety, linear arrangements of post-holes were discovered. These had more-or-less the same orientation as the north-south axes of the subsequent Locona floors at this site.

It is premature to say much about the variation in Barra phase houses or about social differentiation based on domestic architecture, but the fact that Barra house remains are found in two different sites and that they have definite floors, post-hole patterns, hearths, and associated artifacts, indicates that future investigations with wider horizontal excavations will permit the recovery of complete house remains.

In the 1990 season, we acquired new information about residential Locona phase architecture. The excavations at both Paso de la Amada and San Carlos exposed large structures and sections of structures that seem to have been floors of elite houses. At Paso de la Amada, eight test pits were excavated in mounds and non-elevated areas in an attempt to discover non-elite residences. In four small mounds (10, 11, 12, and 13) (see Figure 2), Locona phase ceramics were recovered. None of these mounds had evidence of structures, such as floors or post-holes, but if these were smaller and more ephemeral structures than the elite houses excavated, wider horizontal excavations would be necessary to recover such features. Nevertheless, we have a sample of artifacts discarded by the people who lived in these small mounds and we can compare these with artifacts from the elite mounds.

The recently excavated Locona phase structure for which we have the most information is Structure 4 of Mound 6 at Paso de la Amada. This is described in more detail in the preceding section. Because of its size, we believe that it represents an elite residence. It has approximately 238 square meters of roofed floor space, and has elaborate clay walls and a platform which makes it appear even larger than it really is (Figure 4). Structure 4 was eventually abandoned
and covered with approximately 700 cubic meters of construction fill that formed the platform for the later Structure 3. Both Structure 3 and the subsequent Structure 2 have the same form and orientation as the earlier Structure 4. There seems to have been a long-term continuity of construction in the same place in which each building was a little larger than the earlier one. This suggests a continuity of occupation across generations, perhaps by the same families. The refuse and artifacts associated with the mound are similar to domestic deposits from non-elite occupations in other areas of the site. The nature of the refuse associated with Structure 4 also indicates that it was a residence and not an elaborate public or ceremonial structure. We can test this more formally in the future by carrying out larger excavations in non-elite residences and in residential features in small mounds situated away from Mound 6.

CERAMIC TECHNOLOGY

The origins of Barra ceramics may provide the key to the developments of the Early Formative. That is, they are implicated in all aspects of the question of local development versus colonization or diffusion from other places. Michael Coe (1960) and Gareth Lowe (1975) thought that the Ocós and Barra ceramic assemblages greatly resemble those of Central or South America. Such an origin would also indicate the import of another culture and lifestyle, possibly with another mode of production and sociopolitical system. We are of the opinion that the Barra phase was a local development and had nothing or little to do with events to the south.

The hypothesis of local evolution presents a rather complex paradox in terms of the ceramic technology. Barra ceramics may be among the earliest in Mesoamerica. At the same time, they are hard, thin, and elaborately decorated, much more so than early ceramics in highland regions.

![Figure 22. Percentage of tecomate sherds in total assemblage from selected sites in Mazatán Region. The Barra phase tecomate types all have elaborate surface decoration.](image)
of Mesoamerica. The absence of simpler, pre-Barra, ceramic technology in the Soconusco region has led some to suggest that the first ceramic-using people colonized the region. However, we conjecture that local peoples borrowed the idea of ceramic manufacturing from neighbours, perhaps to the south, who were already using ceramics. Early villagers in the Mazatán region may have begun to use ceramics as high status display goods, with local big-men or chiefs patronizing artisans who could produce special vessels for use in rituals and feasts (Clark and Blake 1989). The origins of Barra ceramics are likely based on political and social competition among aggrandizers, and not in technological requirements of food preparation. It is the high degree of decoration of Barra phase ceramic vessels that leads us to speculate that the functioned primarily in social and political rituals such as celebrations and special feasts. It is notable that 85% of Barra vessels are fine *tecomates* and only 15% are dishes. It appears that the most common use was related to the preparation and serving of special beverages, possibly as chocolate or alcohol. As Figure 22 demonstrates, an analysis of domestic refuse at the site of San Carlos confirms the importance of *tecomates* in the earliest phases and the subsequent evolution and addition of other vessel forms later on.

As noted in the section on the environment, some potsherds from possibly pre-Barra deposits were found during Clark's excavations at San Carlos. Eight sherds were recovered from levels below the water table in two test pits. With the exception of two rim sherds, all are small fragments that may be intrusive, possibly falling from higher levels of the walls of the excavation units. Other sherds, however, emerged from deep levels in other test pits.

We do not know if there is a natural explanation for the presence of these sherds in saturated levels. The rims resemble types not typical of the Locona phase. The form, paste and slip of these sherds remain to be analyzed in greater detail. Our hypothesis will not be greatly affected if there was a phase with the first ceramics. Unfortunately, because of the unfavourable conditions in the excavations at San Carlos, it was not possible to recover a wider sample from the deposits below the water table. Until we have more convincing data for confirming the existence of a pre-Barra ceramic-using phase, we will consider the artifacts from the saturated levels at San Carlos as belonging to the Chantuto phase, or the Late Archaic, and the potsherds as intrusive. In Pit 5 at San Carlos, where sherds in the excavation walls presented no problem, it is notable that several rocks and burned bones were recovered, but no sherds. It is clear that the possibility of a pre-Barra ceramic phase deserves more investigation.

**CHIEFDOMS**

The focus of the present project was the investigation of the development of chiefdom societies during the Locona phase by way of a comparative study of households. In 1990, as described in the section on architecture, we confirmed the existence of elite houses as well as ordinary houses. A detailed analysis of the artifacts recovered from these contexts will permit us to discover differences in the production and consumption of special objects. For the moment, the interpretation of chiefdom societies, at least based on Locona phase data from the 1990 excavations at Paso de la Amada, seems to be acceptable (Blake et al. n.d.).

We were hoping that our extensive investigations would reveal more Early Formative
burials, but none were recovered. In this period, apparently, the dead were not buried below the house floors, as was common practice in later periods. Furthermore, the scarcity of human bones in the extensive platform fill in the elite house at Paso de la Amada suggests that the dead were buried in known and protected places that were not used for construction fill. Until a good sample of burials from the Barra, Locona, and Ocós phases is recovered, we will be unable to use mortuary patterns to assist in the interpretation of complex societies.

PUBLIC AWARENESS OF PROJECT

Throughout the 1990 field season, we had the opportunity to present various lectures about our investigations to local institutions. We presented three lectures in secondary and preparatory schools in Mazatán, two in the Museo Regional de Tapachula, and one in the Casa de la Cultura in Huixtla.

We also received numerous organized visits from groups of scholars to observe the excavations at Paso de la Amada. Each week, one or two busloads of secondary, preparatory or university students from neighbouring towns and from Tapachula visited the site. We gave guided tours of the excavations to each group and explained the importance of our new discoveries.

Much of this interest was generated by local reports in newspapers such as El Orbe and Uno mas Dos in Tapachula. Some of the newspaper reports exaggerated the importance of the discoveries, incorrectly citing dates that reached the national and international news networks (NotiMex). However, the local reporters who originally worked on the story tried to correct their errors in subsequent articles.

In spite of these problems, the effect of the local news coverage of our investigations served to increase the knowledge of local archaeology and prehistory and to inform a number of young students about the rich prehistoric legacy of the region.

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