

THE OLMEC AND THE VALLEY OF OAXACA:
A MODEL FOR INTER-REGIONAL INTERACTION
IN FORMATIVE TIMES

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INTRODUCTION

In recent years it has become increasingly apparent that the zenith of Olmec art and mound-building took place earlier in the Formative period than anyone had previously suspected, and that the advanced and sophisticated Olmec had an unmistakable impact on their less advanced and less sophisticated highland neighbors. Michael Coe (1963: 33) has suggested that "it would be as meaningless to ignore this as it would be to attempt an understanding of the European Neolithic without taking into account the coeval civilizations of Bronze Age Mesopotamia." With the new rush of attention to the Olmec area, however, there is a real danger that the pendulum may swing too far the other way: that anything and everything elaborate in the Formative will be called "Olmecoid," and that all or much of the progress of the highland Formative will be hurriedly attributed to "Olmec influence." In this paper I will attempt to define what "Olmec influence" means in the case of the Valley of Oaxaca. I suspect that if I had more data at my disposal, I would find that the same definition would apply to the Río Balsas headwaters, the Valleys of Morelos and Izúcar de Matamoros, and several other highland areas where "Olmec influence" has been detected.

In an age in which we are accustomed to read of Formative voyages across the whole of the Pacific from Japan to Ecuador, and of migration or "diffusion" from Ecuador to the Caribbean coast, from there to Mesoamerica, and then up the Gulf to Florida and the eastern woodlands, my paper will perhaps come as a disappointment: I cannot even propose a migration from the Olmec area to the Valley of Oaxaca, a distance of only a hundred miles or so. Nor will I be able to offer (as a consolation) even so much as a small invasion, or a proselytizing expedition by Olmec "missionaries." Having examined Formative

sites now for two seasons in only one small part of the Valley of Oaxaca, I have gradually come to the conclusion that an Olmec raiding party, armed with "knuckle dusters" (see for example, Coe 1965b: 764), would probably have encountered quite a sizable resistance force in that area. It also occurs to me, looking around at the size of the Valleys of Mexico, Puebla, Toluca, Morelos, and the upper Balsas, that there probably were not quite enough Olmec to colonize the whole of the Mesoamerican highlands. I will therefore be forced to propose a model for inter-regional interaction which does not necessitate invasions, missionaries, or colonization by an "Olmec elite."

"Olmec influence" in the Valley of Oaxaca has been a topic of discussion for about thirty years. In the past, such discussion centered mainly on the Monte Albán I period, which has produced incense burners with clear representations of the "were-jaguar," a deity with a human face and a feline mouth (Paddock 1966: Fig. 3), and a number of reputedly "Olmecoid" carved stones, the *danzantes* of Monte Albán. Basic to these discussions was the assumption that Monte Albán I was contemporary with La Venta.

Today, the tendency to see direct Olmec characteristics in the *danzantes* has dwindled; as Ignacio Bernal expressed it in a recent publication, "though the *Danzantes* and the Olmec sites of the coast of Veracruz and Tabasco have some fundamental similarities, it is just as evident that they have fundamental differences" (1967: 3). And, perhaps most importantly, recent stratigraphic work and new radiocarbon dates from the Olmec area (Coe, Diehl, and Stüiver 1967) have indicated that San Lorenzo Tenochtitlán and Complex A La Venta are not contemporary with Monte Albán I, but earlier—overlapping in time only slightly, if at all, with the latter phase. This throws the relationship of the Gulf Coast and the Valley of Oaxaca still further open to question.

The task of this paper will be to cover three related aspects of the problem.¹ First, I will briefly describe two recently-discovered Formative phases in the Valley of Oaxaca, which preceded Monte Albán I and which were certainly contemporary with San Lorenzo and La Venta. Second, I will assess the similarities and differences between the Formative of the Valley of Oaxaca

¹ In the course of preparing this paper I have profited from discussions with Jane C. Wheeler, Susan H. Lees, and Richard I. Ford, all of the University of Michigan. Miss Wheeler's study of the magnetite sources of the Valley of Oaxaca will provide a far more detailed picture of this aspect of the Formative than can be given here. Miss Lees' studies of ritual exchange in the New Guinea highlands, summarized in a paper given at the Michigan Academy of Sciences in 1967, contributed useful data on the extent to which pre-industrial peoples may convert their surplus into exotic raw materials rather than storing it. Ford's work among the Tewa pueblos has yielded important data, still largely unpublished, on the movement of raw materials and the ways in which they may be taken out of circulation. Obviously, however, none of the aforementioned should be blamed for any of my errors of interpretation, nor will they necessarily agree with my conclusions.

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and the Gulf Coast. Finally, I will present a model, based on ethnographic data, which I feel constitutes at least one reasonable explanation for the interaction between the two regions.

THE EARLY AND MIDDLE FORMATIVE OF THE VALLEY OF OAXACA

The sub-area of the Valley of Oaxaca which we have so far been able to survey and test most extensively for Formative sites is the region drained by the uppermost twenty miles of the Atoyac River, northwest of Oaxaca City. This sub-area, known as the Valley of Etla, has three main physiographic provinces: a zone of steep mountains, a region of gentle piedmont slopes, and a flat, narrow alluvial plain left by the Atoyac and its tributaries. Our attention was first directed to the Etla region by the dense pattern of Monte Albán I sites discovered there by Bernal.

Two principal types of situations seem to have attracted Formative farmers in the Etla Valley. The first is a strip of land to either side of the Atoyac where water is always available at a depth of no more than 3 meters below the surface of the alluvium. Two crops a year can be obtained in this zone either by irrigating from shallow wells, or by diverting water from the river itself, which flows almost at the surface of the plain. The second situation is in the upper piedmont, at the point where permanent (or nearly permanent) tributary streams emerge from the mountains. Two crops a year can be obtained in this zone by diverting stream water and bringing it to the fields by gravity flow in small canals. Early Formative sites so far located occur exclusively in the high-water-table zone along the main Atoyac River. Middle Formative sites occur either in that same zone, or in the upper piedmont on reasonably permanent streams. Late Formative sites occur primarily in these same situations, but a few occur elsewhere.

The Valley of Etla is temperate; frosts occasionally occur, and may inhibit a crop planted too early or harvested too late. Farther down the Atoyac, south of Oaxaca City, lie areas which are virtually frost-free, where today sugar cane can be grown. We have not yet surveyed these areas extensively enough to be sure of the settlement pattern, but it appears that there—as in the Valley of Etla—Formative sites are located principally with regard to surface and subsurface water resources, rather than soil type or precipitation gradient. This suggests that irrigation played an important role in Formative agriculture in the Valley of Oaxaca, a suggestion which is strengthened by the fact that we have already located at least one Middle Formative well and several fossil Late Formative irrigation canals (Flannery, A. Kirkby, M. Kirkby, and Williams 1967).

We have investigated three Formative periods which are relevant to the Olmec problem. The first of these is the San José Phase, which falls near the end of the Early Formative; the second is the Guadalupe Phase, which

marks the beginning of the Middle Formative; the third is sub-Phase A of Monte Albán I, which brings the Middle Formative to a close.

THE SAN JOSÉ PHASE

The San José Phase dates, on the basis of ceramic cross-ties, to between 1200 and 900 B.C. Two samples of radiocarbon from the terminal part of the phase have so far been analyzed, yielding dates of 930 and 975 B.C.

Pottery of the San José Phase shows strong resemblances to material from the looted cemetery at Las Bocas (Coe 1965c), near Izúcar de Matamoros in the Balsas headwater region of southern Puebla. Ties are also strong with the Grijalva Depression (Chiapa I Phase), Guatemalan coast (Cuadros Phase), southern Veracruz (San Lorenzo Phase), and Tlatilco. What the San José Phase shares with Early Formative cultures of the highlands is a high proportion of bowls and necked jars, with *tecomates* or "neckless jars" (Fig. 1) less abundant than at contemporary sites in the lowlands. The difference is simply one of proportion, and probably has something to do with differences of food preparation, serving, and meal scheduling between the highlands and the coast.

Unslipped pottery in the San José Phase most commonly is brownish or brick red, and occurs frequently in the form of necked jars (*ollas*) for cooking or storage. Slipped pottery may be monochrome white, bichrome red-on-white, polished black, white-rim black, polished cloudy gray, or polished specular hematite red. Flat-based bowls with out-slanted sides, and flat-based cylinders are common shapes. Some bowls have super-thick rims, as in Chiapa I (Dixon 1959: Fig. 3); others, with simple direct rims, may be slipped white with a red band at the rim, as in the Cuadros Phase (Coe and Flannery 1967: Pl. 13). Bowl interiors or cylinder exteriors in white, black, or gray may be decorated with excised (*raspada*) designs, which are often filled with red pigment. Some of the designs cut into these vessels are the St. Andrew's cross, the U-motif, and the "paw-wing" motif, all of which Coe (1965b) has described as common "Olmec" themes (Figs. 2 and 3).

Tecomates often are rocker-stamped, usually in zones. One type of *tecomate* is white with a red band at the rim, and with further red bands separating the body of the vessel into large triangular or diamond-shaped zones; these zones will have horizontal, vertical, or diagonal strings of plain rocker stamping. Interesting local variations include a kind of "interrupted" rocker stamping (which looks as if the rocker instrument had a purposeful notch cut out of it).

Figurines are abundant in the San José Phase (Fig. 4), and include both the small solid kind and the large hollow type found by Richard MacNeish (1964) at Ajálpan in the Tehuacán Valley. The small solid figurines typically have eyes made by two plowing strokes, with no pupil indicated. Some show similarity to Types C and D from the Valley of Mexico, especially those from Tlatilco;

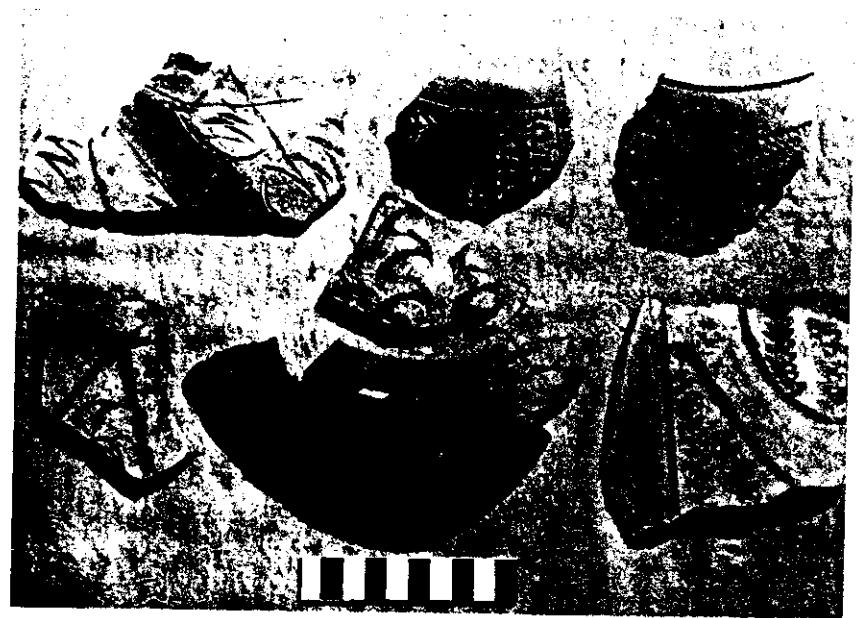


Fig. 1 Examples of zoned rocker-stamped *tecomate* sherds from San José Mogote (San José Phase). Scale in cm.

Fig. 2 Bowl, carbon-smudged white ware, from San José Mogote (San José Phase), showing excised designs including the St. Andrew's cross.





Fig. 3 Bowl, streaky gray ware, from San José Mogote (San José Phase), showing "Olmecoid" excised design.

Fig. 4 White-slipped, solid figurine heads from San José Mogote (San José Phase). Scale in cm.



others are vaguely "Olmecoid," with helmets or with mouths that turn down at both corners.

Type locality for the San José Phase is the site of San José Mogote, which covers the tip of a piedmont spur that projects out, like a low peninsula, into the high-water-table zone of the Atoyac in the central Valley of Etla. Like Chiapa de Corzo, San José Mogote is a very large site (covering more than 100 hectares) with a long sequence spanning the period from Early Formative to Late Classic. The alluvium which flanks it on three sides is today irrigated by means of canals, pumps, and shallow wells.

Materials of the San José Phase can be picked up over an area roughly 450 meters on a side, giving us a village of an estimated 20 hectares (45 acres) in extent. Within this area, surface materials reflect at least three different kinds of residential patterns: (1) an area of wattle-and-daub houses with relatively fancy pottery and a low percentage of chipping debris and utilitarian ground stone; (2) an area of wattle-and-daub houses with less fancy pottery and higher frequencies of chipping debris and utilitarian ground stone; and (3) an area of some 5 acres or more, near the eastern limits of the Early Formative settlement, with abundant fancy pottery and a disproportionately high surface yield of worked and unworked magnetite, ilmenite, hematite, white and black mica, green quartz of various qualities, Gulf Coast mussel shell, and fragments of marine mollusk shells including *Spondylus*, pearl oyster, marsh snails (*Cerithidium*), and *Anomalocardia subrugosa*. On one corn field in this area, which we surface-collected still more intensively once we had realized the pattern, more than five hundred fragments of magnetite and related iron ores were present. At the present writing, this is the only area of San José Mogote which we have been able to test-excavate adequately.

Stratigraphic tests in this part of the site in 1966 revealed a whole series of wattle-and-daub houses which had evidently been occupied by artisans. Posthole patterns (and occasional burned house corners) indicate that these structures were rectangular, with square rather than rounded corners; because of the limited area excavated, no complete house plans were recovered, but floor areas were larger than 3 by 5 meters. Walls were of finger-sized poles, plastered with mud, then whitewashed with the same kind of white-to-buff clay used on the pottery of that period. On the floors there were no projectile points and almost nothing in the way of *metates* and *manos*; the most common stone tool recovered was a small type of chert drill used for drilling shell. Other common tools were burins for cutting shell, polishers of quartz and iron ore for working magnetite, and so on. Accompanying these tools were abundant fragments of unworked and partially worked magnetite; cut fragments of mica; discarded parts of marine shell; unused, unmodified shells; fragments of shell ornaments which had broken in the process of manufacture; and small, flat mirrors of magnetite and ilmenite, about the size of a thumb-nail. Finished products were rare; what we found mainly appeared to be workshop debris from the manufacture of ornaments.

In 1967 we opened up a much larger area in this part of the site, hoping to get an idea of whole house plans and the placement of houses relative to one another. Immediately to the south of the area we had tested in 1966, we came across the buried foundations of a rectangular, stepped platform faced with stone (Figs. 5 and 6). The platform, which rose in two stages to a height of about 2 meters, was contoured to the slope of the piedmont spur, but oriented roughly north-south like the structures at Complex A La Venta. The construction technique, however, was quite different from the La Venta mounds and platforms: the natural piedmont slope was terraced with a facing of volcanic tuff and *tepetate*, arranged in alternating stages of cobbles and flat slabs. This facing was not vertical, but lay at an inclined angle like a *talud*, and it in turn had been set in (and covered with) a layer of hard, puddled adobe clay. Associated pottery dated this platform to the late San José Phase; and among the associated figurines were fragments of several large, hollow, white-slipped "dolls" of the Gualupita-Las Bocas type, and two small, solid, white-slipped figurine heads representing the "were-jaguar." On at least two sides, the platform supported the plastered and white-washed houses of craft specialists, and surface indications are that such houses, in fact, surrounded it.



Fig. 5 Platform 1 at San José Mogote (San José Phase), seen from the southeast.



Fig. 6 Workmen at San José Mogote expose east face of Platform 2, attached to Platform 1 (San José Phase). Note stone stairway at right.

Sixteen kilometers upstream, in the village of San Pablo Huitzo, we investigated another, smaller site of the San José Phase. The prehistoric deposits underlie the modern Barrio del Rosario, from which the site derives its name; early settlement seems to have taken place at the point of transition from the piedmont to the valley floor, and the western portion of the site is partially covered by recent alluvium. Because modern houses cover much of the deposit it was not possible to determine the extent of the village in San José times, but it evidently covered several hectares.

Founded almost on virgin soil at Barrio del Rosario was a structure 2 meters high and more than 15 meters wide, built of earth and faced with stone much in the same manner as the platform at San José Mogote. The structure at Huitzo also rose in tiers, with a sloping outer wall, and was oriented 8° west of true north. Although the outside presents a boulder or cobble facing set in hard clay, the interior is of earthen fill containing San José Phase sherds. Retaining the earthen fill are walls made of plano-convex or "bun-shaped" adobes, about 25-30 centimeters in diameter, with some walls rising to a height of 2 meters. Included in the structure were

two carbonized posts 30 centimeters in diameter, which evidently supported a substantial building. Judging by the burned remains we found, the building was of wattle-and-daub, with a very thick coating of clay but no slip or whitewash. The entire construction was designated Platform 4, and it appears to have been built at the end of the San José Phase and enlarged early in the subsequent Guadalupe Phase. Unfortunately, because it underlay modern houses, Platform 4 could not be fully investigated, and we do not know its precise shape or dimensions.

Not a single fragment of magnetite was found at Barrio del Rosario; shell

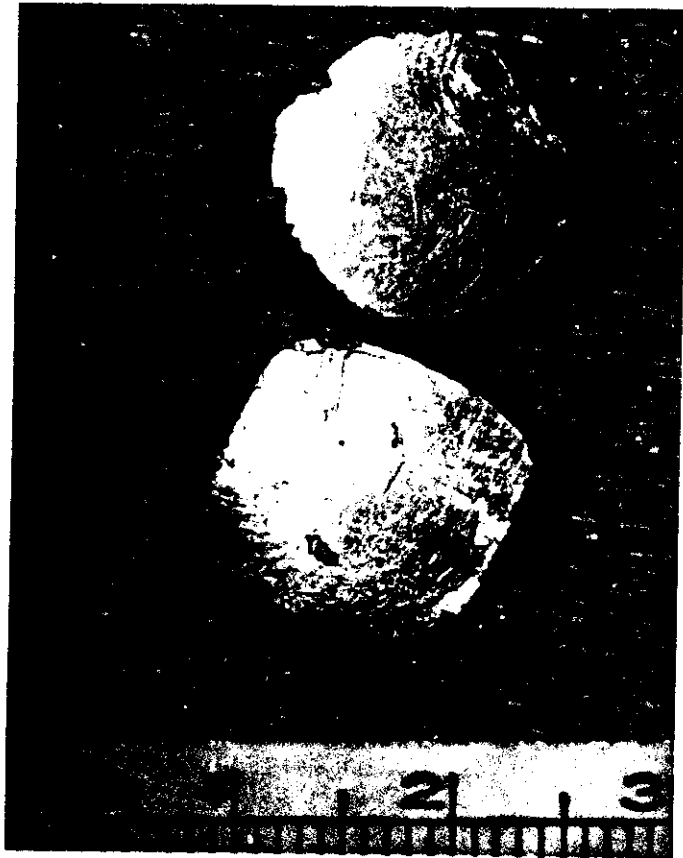


Fig. 7 Small mirrors of polished magnetite from San José Mogote, Oaxaca. Scale in cm.

and mica were much rarer than at San José Mogote. Availability is not the question here, for Jane Wheeler of the Oaxaca project, who is surveying the valley for mineral resources, reports magnetite sources even closer to Huitzo (personal communication); in fact, there are numerous sources within ten miles of both sites. The implication is that access to magnetite was not universal; ninety per cent of the fragments we found occurred in one small area of households in one very large village. Almost the same was true of *Spondylus* and pearl oyster. Clearly, social rather than geographic factors determined who got magnetite and how much.

There is one other interesting consideration: magnetite mirrors identical to those being turned out by the artisans at San José Mogote (Fig. 7) occur in contemporary deposits at San Lorenzo Tenochtitlán, more than one hundred kilometers from the nearest possible source (Coe, personal communication; Curtis 1959: Fig. 80). Garniss Curtis (1959: 287) in his identification of the magnetite from La Venta, places its probable point of origin in "the metamorphic and granitic province to the south"; his map indicates that the Oaxaca highlands and Pacific coast are the heartland of that province. Although there are scattered finds of small magnetite mirrors throughout Formative Mesoamerica, I know of no site outside the Valley of Oaxaca that has shown evidence of the extensive magnetite accumulation and working that is seen at San José Mogote. Oaxaca must therefore be considered a tentative source for the Olmec magnetite, pending technical analyses. It is this possibility that will be explored further in this paper.

THE GUADALUPE PHASE

So far we have identified three villages of the San José Phase (one of which is very large) from the Etla arm of the valley alone, and more are beginning to show up as our survey moves downstream. By the succeeding Guadalupe Phase there were five or six villages in the Etla Valley (or one about every three miles along the river), ranging in size from 5 to 90 acres. Middens of the Guadalupe Phase, whose carbonized plant remains and animal bones are just now undergoing study, have given us a good look at subsistence along the Atoyac at this time period. Domesticates included corn, beans, squash, avocados, chile peppers, and dogs, and wild foods utilized included deer, cottontails, prickly pear fruits, pitahayas, and other local plants. The site of Mitla was first founded during this phase, and it was in the Guadalupe deposits at Mitla in 1966 that we recovered a 4-meter deep well (Flannery, A. Kirkby, M. Kirkby, and Williams 1967).

We have no radiocarbon dates yet for the Guadalupe Phase, but on the basis of ceramic cross-ties it must date between 900 and 600 B.C. Its relationships are with Chiapa de Corzo II, Conchas I on the Guatemalan coast, Complex A at La Venta, and the Early Santa María Phase in the Tehuacán Valley. The early Guadalupe Phase is easy to define; the late Guadalupe Phase



Fig. 8 Sherds typical of the Guadalupe Phase, mostly from Barrio del Rosario Huitzo. Left and top center, white-to-buff bowls with incised rims. Center, tecomate with red band at rim and herringbone incision on body. Bottom center, jar with coarse red wash and zoned punctation on body. Right, gray ware which is apparently ancestral to that of Monte Albán I.

gradually turns into the sub-phase which Bernal has called "Monte Albán I-A," and the boundary between the two is still very hard to draw.

Most typical of the Guadalupe Phase is a yellowish, or white-to-buff slipped pottery, in which the dominant vessel is a flat-based bowl with outslanting sides (Fig. 8). The rims of these bowls are often decorated with parallel incised lines, with one line turning up at intervals to meet the other—the so-called "double-line-break" motif. This type of pottery is the Oaxaca homologue of Cánoas White in the Tehuacán Valley, Conchas White-to-buff on the Guatemala coast, La Venta Coarse Paste Buff Ware, Burrero Cream in the Grijalva Depression, and some of the incised white wares of El Trapiche and early Zacatenco.

Another common pottery type of the Guadalupe Phase is a sandy brown or brick-red ware with a coarse red wash, which appears in the form of *tecomates* and necked jars (Fig. 8). This is the Oaxaca Valley equivalent of Tehuacán's Rio Salado Coarse and the Guatemalan coast's Conchas Red Unburnished. One characteristic which seems to be peculiar to Oaxaca, however, is decoration by means of zoned areas of punctation or herringbone-spaced slashes or stepped jabs, separated by bands of red wash; this is most typical on early Guadalupe Phase necked jars.

Coarse pot stands, some of them impressed with a *petate* or woven mat while still wet, are also typical of the Guadalupe Phase, and carry through into Monte Albán I. None appear to be *incensarios*; and I would like to add that, unless the Guadalupe Phase villagers were shaped quite differently from



Fig. 9 Head fragments from large, hollow, white-slipped "dolls" of Gualupita-Las Bocas type (Guadalupe Phase). Scale in cm.



Fig. 10 Reconstructed north face of Platform 3, Barrio del Rosario Huitzo, showing stairway. Guadalupe Phase.

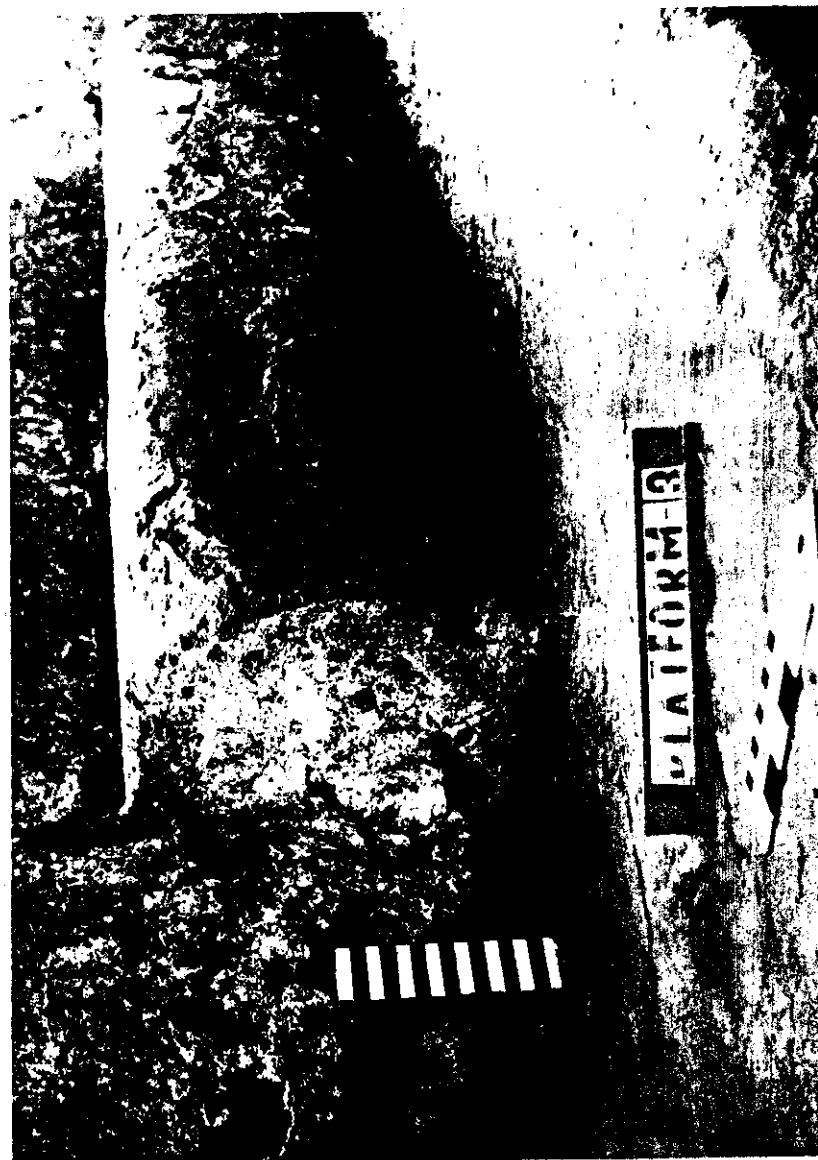


Fig. 11 Detail of stairway on north face of Platform 3, Barrio del Rosario Huitzo, showing white plaster. Guadalupe Phase.

most human beings, these objects were true pot rests and not pottery stools, as has sometimes been suggested in the literature (cf. Coe 1965a: 690).

Late in the Guadalupe Phase appear bowls with composite silhouettes, mostly in gray monochrome ware (Fig. 8) which clearly foreshadows later Monte Albán I pottery. The trend during the phase is for bowl walls to change from outslanted to outcurved, and for rims to become increasingly flaring, eventually truly everted. Polished, waxy gray monochrome gradually replaces white-to-buff pottery, and "double-line-breaks" give way to wavy lines, sine curves, and cross-hatching in panels or in triangular areas on the rim. Scalloped rims or rims with eccentric tabs or nodes appear during the late Guadalupe Phase, and apparently are ancestral to the "fish plates" and scalloped rim vessels of Monte Albán I. Still rare or absent in the Guadalupe Phase are vessel supports, lugs, or handles of any kind.

Small solid figurines in the Guadalupe Phase (Fig. 9) are mainly of the type called "A" in the Valley of Mexico, "realistic projecting eyeball" by MacNeish (1954), and "double-triangle-and-punch eye" by Coe (1961). Eyes have a clearly-defined pupil which is perforated as in Mamom, Conchas I, and the Santa María Phase. Turbans are particularly large and ornate on Guadalupe Phase females, who also wear ear spools, necklaces, pectorals, and sandals, and have red pigment in their navels. Males are often as bald as Yul Brynner and sit cross-legged, like paunchy executives pondering some crucial decision. We also found fragments of a few large, hollow, cream or white-slipped "dolls" of the Gualupita-Las Bocas type.

During the Guadalupe Phase, San José Mogote grew to cover more than 40 hectares (90 acres), but we have not yet been able to determine the extent of monumental construction from that phase. The platform previously mentioned was covered over and surrounded by literally tons of rubble and black clay during early Guadalupe times, either to enlarge it or to level the area for future constructions.

At Barrio del Rosario Huitzo, a number of structures were built stratigraphically above Platform 4. One of these, called Platform 3 (Figs. 10-13), dated to the Guadalupe Phase. This was a platform nearly 1.5 meters high and roughly 12 meters wide, which faced onto a patio of equal width. Traces of other structures nearby suggested to us that possibly we were dealing with a rectangular patio oriented 8° west of true north, with four large house platforms arranged around it, but we were only able to expose the corners of what we believe to have been two other platforms. Platform 3, which would have been on the south side of the patio if our suppositions are correct, had a stairway 8 meters wide which led down to patio level, and where its upper surface was preserved we found a line of postholes from the house it had supported.

Not only was this platform oriented like the platforms at La Venta Complex A; its construction technique was also suggestive of the latter site, and its associated pottery reasonably similar. There were, however, some regional differences. Like La Venta, the platform had adobe retaining walls, but they

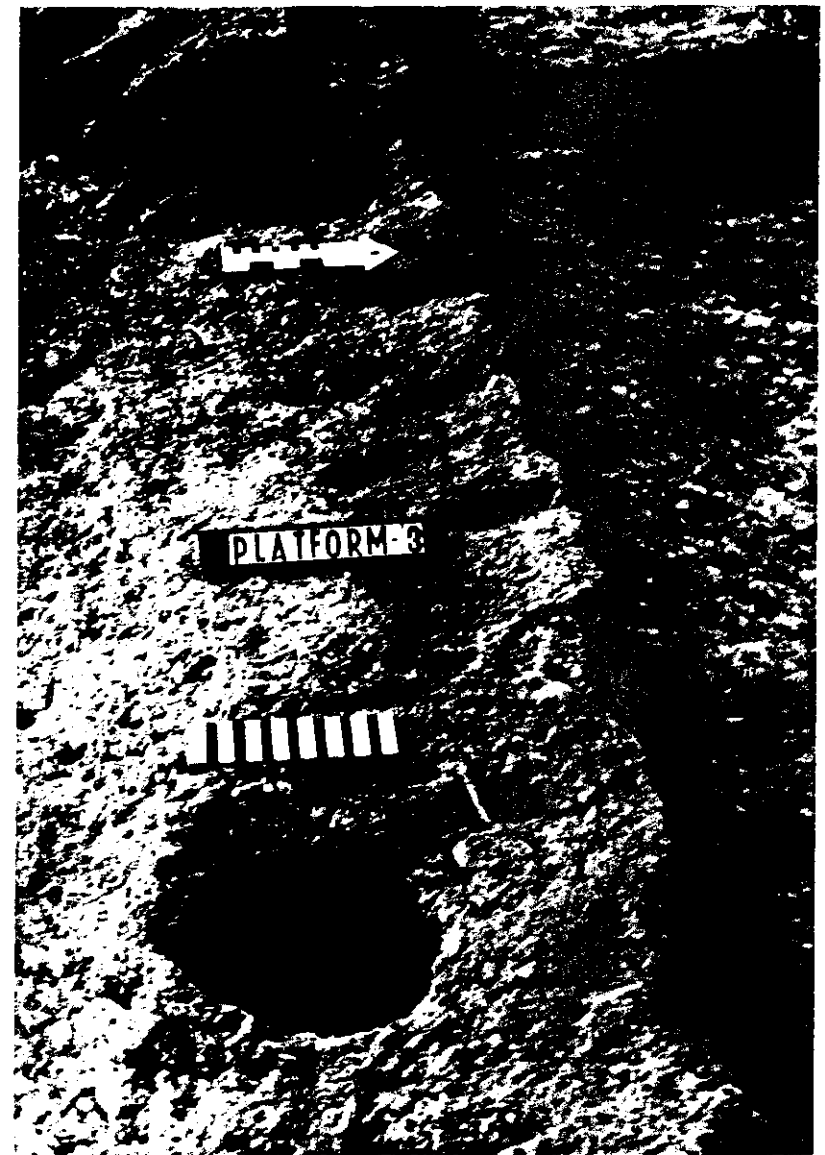


Fig. 12 Upper surface of Platform 3, Barrio del Rosario Huitzo, showing two postholes. Guadalupe Phase.

were constructed of plano-convex, "bun-shaped" adobes rather than rectangular ones. Between these retaining walls were layers of black clay and gritty yellow loam. The steps of the stairway were built of rows of adobes, capped with hard clay. However, over the whole front face of the platform and stairway was a layer of white plaster, a trait common in Valley of Oaxaca sites but not at La Venta. The patio also appears to have had a layer of white plaster, but it is much more poorly preserved. The collapsed remains of the house above the platform indicate that it was a very large structure of wattle-and-daub, rectangular, with a thick coating of adobe clay, and that it had also been surfaced with white plaster. The midden layers in the patio and around the edges of the platform contained only household debris, ash, carbonized seeds, and animal bones, suggesting that Platform 3 had supported an

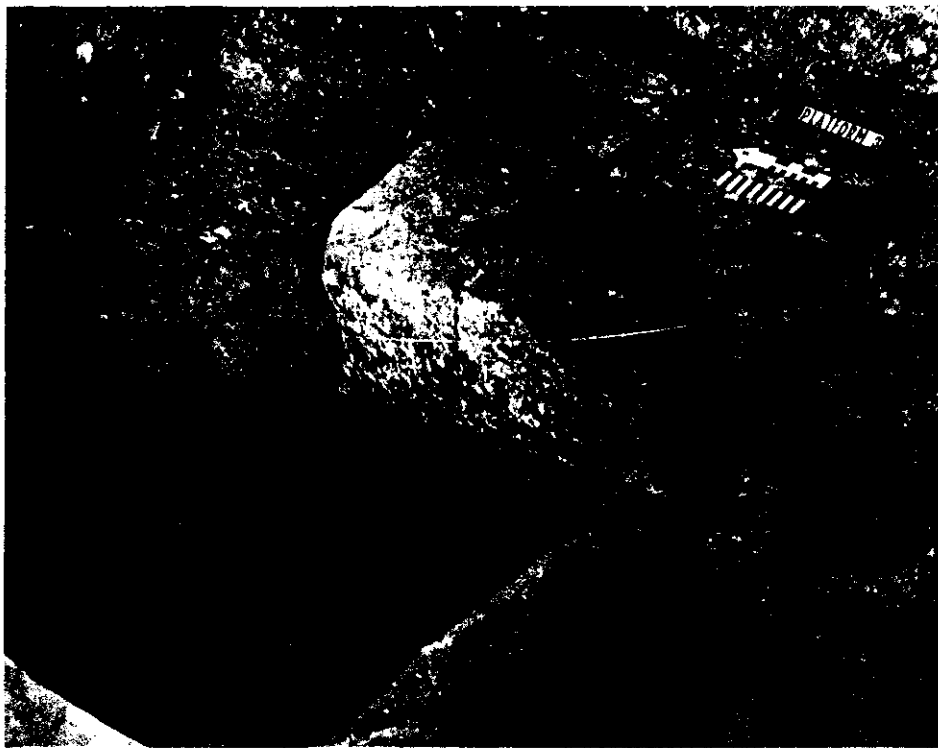


Fig. 13 East corner of Platform 3, Barrio del Rosario Huitzo, showing white-plastered "bench" making a right angle with the platform and running north, possibly toward another platform on the same patio. Guadalupe Phase.

elite residence rather than a "ceremonial" structure. In fact, no objects of "ceremonial" nature were found anywhere in the area.

This same stratigraphic zone yielded remnants of six or eight wattle-and-daub houses of a much humbler type. None had platforms, plaster, or even whitewash. All were roughly 4 by 6 meters in size and rectangular, with walls of finger-sized poles packed with mud. Floors had a coating of fine sand over them, usually ashy, and postholes were only about 7 centimeters in diameter. These houses were not located away from the patio, with its much larger and fancier house platforms, but lay immediately adjacent to it. Between them were small midden areas with what appeared to be household trash, little different from that found around the large platforms. I conclude that either (1) elite residences were not spatially separated from those of the common farmers at Huitzo, or else (2) elite residences were accompanied by the houses of retainers, servants, extra wives, poor relations, or the like.

THE MONTE ALBÁN I-A SUB-PHASE

It is clear from our excavations at Huitzo, as well as from previous work by Bernal, that Monte Albán I is a long period which it may someday be possible to subdivide. Its initial stage still belongs, I feel, to the Middle Formative period, although it admittedly falls near the end of that period. Ceramic cross-ties are with the Conchas II sub-Phase on the Guatemalan coast, Chiapa de Corzo III and IV, post-Complex A La Venta, early Tres Zapotes, and the middle part of the Santa Maria Phase in the Tehuacán Valley. Pending the analysis of our radiocarbon samples, my guess is that Monte Albán I-A must fall somewhere in the neighborhood of 500 B.C.

Monte Albán I-A is characterized by gray ware which has a polished, waxy slip. Common shapes are flat-based bowls with flaring walls which may be incised on the interior of the rim. "Double-line breaks" still occur among these designs, but are less frequent than panels of hatching, sinuous lines like clouds or waves, and strings of short diagonal strokes. Composite silhouettes become increasingly frequent; there is an obvious trend toward experimentation with wide "rim tabs" and wide-everted rims which are incised on top. However, this sub-Phase A of Monte Albán I still lacks a number of characteristics of the Late Formative. Rim flanges, basal flanges, swollen mammi-form supports, bridge spouts, and wide-everted grooved rims are rare or absent. On the other hand, small solid feet and low annular bases begin in period I-A.

Two platforms of this sub-phase were found at Huitzo, stratigraphically above Platform 3. Platform 2 was of earth, with rough stone and adobe retaining walls, oriented 8° west of north; under one retaining wall was an extended burial which seemed to have been included in the construction either as a dedication or a sacrifice. Platform 1 was a structure in true Monte Albán style, of roughly-cut stones set in adobe mortar, complete with stone-

lined drain and associated plaster floors. Like some of the earlier structures at Barrio del Rosario, it appears to have been residential in nature. By this period, rectangular adobes had joined the earlier "bun-shaped" type, and seem to have been used in wall foundations. Houses of adobe and wattle-and-daub occur also in Monte Albán I-A levels at San José Mogote, where they lie stratigraphically above the rubble covering the pyramid we investigated.

Even when Monte Albán I was the oldest Formative culture known in the Valley of Oaxaca, it was, as pointed out repeatedly by Bernal, a culture already advanced, already far from primitive. The period features calendrics, hieroglyphic writing, a distinct regional art style involving both bas-relief stone carving and pottery sculpture, massive stone masonry architecture, and the concept of the rectangular patio with four buildings around it, oriented to the cardinal points by presumably astronomical means. Monte Albán itself was founded during sub-Phase I-A, but it is not yet known how many of the characteristics mentioned above were present at the very start of the phase. Nor is it yet known how many of the other Monte Albán I mound groups date to sub-Phase I-A; by the end of Monte Albán I, there were at least fifteen in the Etla region and forty in the Valley of Oaxaca as a whole. Not a few of these exceed 100 acres; some reach 200 acres, and include some of the most immense Middle and Late Formative sites the writer has ever seen. The settlement pattern includes hilltop elite centers, densely occupied valley floor sites which could almost be classified as "semiurban," and piedmont villages and towns on key tributary streams. At one site in the mountains, called Hierva el Agua, James Neely of the Oaxaca Project investigated a number of agricultural terraces with irrigation canals fossilized in travertine, which date back to Monte Albán I times (Neely 1967; Flannery, A. Kirkby, M. Kirkby, and Williams 1967).

OAXACA AND THE OLMEC

What, then, are some of the similarities and differences between the Valley of Oaxaca Formative cultures and those of the Olmec?

First of all, both areas seem to have been very successful agriculturally at an early time period; yet their agricultural technologies were probably very different. Our excavations in 1966 in caves in the Valley of Oaxaca produced dried remains of beans and squash (Flannery, A. Kirkby, M. Kirkby, and Williams 1967) and pollen grains of maize and *Tripsacum* (James Schoenwetter, personal communication) which suggested local use of those plants already between 7000 and 6000 B.C. By 900 B.C., the Valley of Oaxaca contained some of the largest Early Formative sites known in the highlands. Settlement patterns, fossil canals, and a well from later stages of the Formative indicate that this development was based on water-control systems which were worked out as an adaptation to local conditions. Such systems are not yet known from the Olmec area, where the higher annual precipitation makes

dry-farming more reliable than in the Valley of Oaxaca. The continual population explosion, massive construction, and technology of the Valley of Oaxaca Formative cannot be explained as the result of "influence" from the Gulf Coast; they are understandable only as the products of successful irrigation systems specifically designed to exploit the peculiar natural resources of the Valley of Oaxaca.

Secondly, both the Formative Valley of Oaxaca and the Olmec area show a pattern of large, nucleated villages (or towns) rather than scattered small hamlets. Ronald Spores (1965) and Oscar Schmieder (1930) point out that this was still true of the Valley Zapotec at the time of the Conquest, and that it set them apart from their neighbors in the Mixe sierra. While the Mixe occupied small scattered farmsteads near their fields, the Zapotec lived in nucleated communities even if they owned land in several different zones, such as the alluvium, piedmont, and mountains. According to Schmieder, this was because the Zapotec cooperated in clearing large tracts of land, then divided it between the participants. This resulted in dispersal of a family's land holdings over a wide area, which made it no advantage to live on any one parcel. I suggest that, in fact, this system may have been a good adaptation, since it spread land-holdings over several environmental zones; in the Valley of Oaxaca, this is good insurance against the erratic yearly rainfall, which may be unpredictably weaker than average in one zone or another in any given year. Whatever the case, as Schmieder argues (1930: 77), "field dispersion resulted in the growth of larger, more compact settlements, in which a differentiation of activities became possible. Crafts, art, and science developed and were maintained by the mass of the population which nevertheless remained agricultural." Much the same contrast may be seen between the Formative peoples of the Guatemalan coastal estuary system, who lived in numerous but small villages, evidently near their fields (Coe and Flannery 1967), and the Olmec of the San Lorenzo Tenochtitlán area, who left behind fewer sites, but much larger and more nucleated ones (Coe, personal communication). I think Schmieder's observation applies to both the Valley of Oaxaca and the Olmec: large, nucleated settlements, for whatever reason they may arise, provide a better matrix for the development of science and craft specialization among primitive agriculturalists than do small scattered hamlets. It is probably for this reason, rather than because of "Olmec influence," that communities such as San José Mogote, Tlatilco, and Las Bocas achieved higher standards of craftsmanship than many of their neighbors.

A third similarity between Oaxaca and the Olmec area is that both regions, quite early in their development, already give evidence of considerable disparities in wealth and status between communities and between members of the same community. Some people lived in small, rude, wattle-and-daub houses; others lived in large, plastered houses on platforms with stairways and patios. Some people had considerable access to luxury items like pearl oyster, jade, and magnetite; other people did not. Some communities had only

products that could have come from within a radius of twenty kilometers; other communities had products that had to have been imported over two hundred kilometers. I suggest that this movement of exotic raw materials was functionally related to the developing social stratification of the southern Mesoamerican Formative, and that ornaments and implements of these exotic materials functioned as the insignia of status.

The kind of status to which I am referring is not the kind that can be acquired by an individual during the course of his lifetime, through his own accomplishment—the difference, let us say, between a good farmer and a bad one, between a good artisan and a bad one, or between the head of a Pueblo community and the other members of the community, who are his equals at birth. I am referring to a kind of status that is ascribed at birth, such as characterized the chiefs of the Natchez, or the Indians of the Pacific Northwest Coast. Among the Mixtec and Zapotec at the time of Conquest, for example, a man was born a *cacique*, a *principal* or noble, a *macehual* or commoner, or a slave; men came into the world already unequal, with a rank determined by their genealogies (Spores 1965: 969). Only the hereditary Zapotec nobility could wear decorated cotton mantles, lip-plugs, earrings, gold and stone beads, and so on. That is what is meant by “insignia of status.”

Such status distinctions begin to appear in Mesoamerica toward the end of the Early Formative. At Zacatenco, for example, most adult burials had no offerings or ornaments at all, while at nearby El Arbolillo there were infants buried in slab-lined graves, or with jade carspools (Vaillant 1930, 1935). At La Venta, one basalt column tomb in Mound A-2 contained two juvenile burials accompanied by “figurines, beads, a pendant in the form of a clam shell, and a sting-ray spine, all of jade” (Coe 1965a: 690). It is doubtful that these infants and juveniles could have *acquired* sufficient status (through accomplishment during their lifetimes) to warrant such elaborate burials, at a time when most contemporary adults were simply wrapped in a *petate* and thrown in a hole; a more likely explanation is that their status was inherited. It also seems likely that such status was often expressed, as among many ethnographically-documented pre-industrial societies, by restricting access to certain luxury materials to the elite. This is fortunate for the archaeologist, since many of these luxury materials are nearly indestructible and can be traced to definite source areas.

To return to the comparison between the two cultures, a fourth point is that the elite and “ceremonial” architecture of the Formative Valley of Oaxaca shows some similarity of tradition with the Gulf Coast. The use of adobe walls and colored clay in the construction of platforms, and the orienting of those platforms 8° west of north, are all shared characteristics. Yet even our earliest structures from the Valley of Oaxaca have architectural features, such as the use of white plaster and building stone, which set them apart from the Olmec and suggest that they are not just highland imitations of the San Lorenzo or La Venta platforms. They are, as Bernal put it, fundamentally

related, but already fundamentally different; and the aspects in which they differ are aspects shared by later structures in the Valley of Oaxaca.

Finally, it is in symbolism and iconography that Oaxaca seems most closely related to the Gulf Coast, and the relationship appears stronger the farther back one goes in time. The representation of the “were-jaguar,” the use of the St. Andrew’s cross, U-motif, “paw-wing” design, and the other symbols of the “Olmec art style” as defined by Coe (1965b) are clearest in the San José Phase. At that point, as Coe indicates, they are already so stereotyped as to suggest that they may be actual glyphs, although their meaning is not yet clear. Such symbolism is already beginning to fade in the Guadalupe Phase, and by Monte Albán I it is virtually gone; it has been replaced by a different system, one which is distinctly Oaxacan, and which characterizes not only the Valley of Oaxaca but also an area in excess of 25,000 square kilometers, from the Tehuacán Valley in the north to the Pacific Coast of Oaxaca (Flannery, A. Kirkby, M. Kirkby, and Williams 1967). By that time, La Venta had ceased to be important as a nucleus of political power, and Monte Albán was on its way to becoming the major nuclear center of the southern highlands.

Let us sum up the similarities and differences in this way. Both Oaxaca and the Gulf Coast had, by Early Formative times, achieved a measure of agricultural success which supported large nucleated communities with a hereditary elite and craft specialization. There is reason to believe that the two areas achieved this success through independently-derived agricultural technologies. It is the Gulf Coast, however, which had the largest communities and the most sophisticated level of art and craftsmanship, judged by our standards. Also, if degree of status may be fairly measured by quantity and quality of mortuary offerings, the Olmec had achieved a level of social stratification barely approached by the highlands.

The Olmec and the Valley of Oaxaca interacted most strongly on a level of shared concepts about religion, symbolism, and status paraphernalia. Olmec motifs are commonly and skillfully executed in Oaxacan ceramics, and the principal Olmec deity is represented by Oaxacan figurines and sculptured pottery. Important Oaxacan buildings are oriented in the same way as the structures at Complex A La Venta. The Olmec imported foreign magnetite and ilmenite, which appear at San Lorenzo Tenochtitlán in the form of beads and small flat mirrors; the Oaxacan craftsmen accumulated local magnetite and ilmenite, which they also worked into small flat mirrors, many of which were probably exported. One might tentatively suggest, therefore, that one of the main mechanisms of communication between the two regions was through the exchange of exotic raw materials. I find this interesting, in view of the fact that Coe (1965c) has already pointed out that the upper Balsas River region, where so many so-called “highland Olmec” objects have been found, is also a possible source for some of the Olmec serpentine and jadeite.

There exist, in the ethnographic literature, many examples of developing

societies which used imported and exotic raw materials to reinforce their status systems. I will draw on two examples in this paper, on the basis of which I feel one might present a hypothesis about the relation between the Olmec and the Valley of Oaxaca—or, for that matter, the Río Balsas area, Las Bocas, the Valley of Morelos, and so on. This hypothesis requires only two propositions: first, that it was important for the Olmec status system (and the reinforcement of certain of their religious commitments) to establish and maintain a flow of jade, magnetite, ilmenite, and other luxury goods into their nuclear centers; second, that the highland peoples who supplied the Olmec with these luxury goods were as interested as the Olmec in maintaining the exchange network.

THE TLINGIT AND THE FUR TRADE

The first example I would like to cite is drawn from Catherine McClellan's work (1953) on the Indians of the Pacific Northwest, with special reference to the Tlingit-speakers of the southeastern Alaskan coast. The Tlingit, as every student of ethnography knows, had a stratified society with nobility, commoners, and slaves; their economy, keyed to the salmon runs and the pursuit of other marine and terrestrial game, operated at a surplus, much of which went into reinforcing status. Their nobility consumed, gave away, and destroyed wooden canoes, slaves, copper, furs, blankets, and hundreds of other objects in the process of demonstrating its wealth and prestige.

Inland from the Tlingit lived the Athabascan-speaking groups of interior British Columbia and the southern Yukon. The Athabascan groups lived a somewhat humbler and more nomadic existence, based on the hunting of caribou, moose, small game, and fresh-water fish. Their territory centered around a series of small lakes in the dry plateau area fifty to one hundred miles from the Pacific Coast. The principal exportable resource of this area, at least so far as the Tlingit were concerned, was fur.

Furs were important in the prestige systems of the coastal Tlingit, and with the beginning of trade with the white man they took on even greater value. Consequently the Tlingit blockaded the interior, allowing no inland natives to come to the coast, and effectively monopolizing fur trade with the whites. Destruction of sea otter populations late in the eighteenth century removed one great fur source and increased the demand for land-animal furs of the kind the inland Athabascans could supply (McClellan 1953: 49).

McClellan describes the way in which Tlingit-speaking groups like the Chilkat formed fur-procurement alliances with inland groups like the Tagish and Teslin. Chilkat "trade partners" came into the territory of the Tagish, some taking wives from the interior group, others sending their daughters to marry Tagish men. She says:

Actual social alliance had a distinct commercial advantage for the coastal Tlingit. It was no trick for them to manipulate Tlingit recipro-

cal kin obligations and trading partner patterns to their advantage. Even daughters might well be married to the interior. The furs which a good son-in-law gave to his wife's family had a value that only the strategically located Chilkat could fully exploit. (49)

Everyone profited from the arrangement. White traders got the furs they wanted; the Tlingit nobility, who were already rich and prestigious, got richer and more prestigious, gave bigger potlatches, burned more canoes, and sacrificed more slaves than before. What happened to the Tagish and their Athabascan neighbors?

McClellan suggests that they were gradually "Tlingitized." During the course of the nineteenth century, while some retained their Athabascan dialect, most Tagish and Teslin began to speak a kind of "inland Tlingit." Having married into Tlingit families, the Teslin began to speak of themselves in Tlingit kin terms. All Teslin came to belong either to a Wolf or Crow moiety, which were "matrilineal exogamous divisions which correspond to the Wolf and Raven moieties of the Alaskan Tlingit and are called by the identical names. Everybody belongs also to a matrilineal clan of which other segments are localized on the coast" (47). The Tlingitized Athabascans became more conscious of social rank; the concept of nobility was well-ingrained, and slaves were kept. They practiced funeral potlatching, and adopted many songs and myths which featured coastal animals never even glimpsed by the Tagish or Teslin. In spite of this, patterns of subsistence and everyday material culture remained "overwhelmingly more typical of . . . northern Athabascan groups . . ." (48). The inland Athabascans took seriously their marriage ties to Tlingit clans, emulated the esoteric and prestigious aspects of Tlingit culture to the best of their ability, but continued to earn a living in the manner of Athabascans. And the Tlingit, for their part, continued to regard the inlanders simply as "foreigners" from whom they obtained furs.

HIGHLAND BURMA AND THE JADE TRADE

The second example comes from farther afield. It is abstracted from Edmund R. Leach's (1954) classic description of highland Burma, with special reference to the valley-dwelling Shan and the Kachin hill tribes who supply them with jade.

The Shan are sedentary wet-rice cultivators with a stratified society consisting of nobility, farmers, and lower-class persons or slaves. Buddhism is their official religion, and (with a few exceptions) they speak mainly Tai. Their culture resembles that of the Burmese.

The Kachins are slash-and-burn cultivators who occupy the hill lands above the Shan. They speak a variety of dialects, some of which are mutually unintelligible. Their sociopolitical organization ranges from an egalitarian system called *gumlao*, in which all lineages are considered of equal rank, to a system called *gumsa*, in which lineages are ranked: there is a chiefly lineage,

several lineages of aristocrats, and other lineages of commoners, or of slaves.

The history of the area, as reconstructed by Leach, has involved constant sparring and competition between Kachin groups, and between Kachin and Shan. During the course of the centuries, while the organization of the sophisticated feudal states of the Shan has remained relatively stable, Kachin tribes have oscillated from egalitarian to stratified, and back again. This oscillation is understandable only in the light of the relationship between the hill peoples and the Shan states.

While Shan states are reasonably self-sufficient, Kachin villages may not be—they may, in fact, be dependent on the Shan for much of their rice (Leach 235). On the other hand, the Kachin mountaineers have access to, and control of, a number of sources of exotic raw materials which the Shan desire and can make better use of: among these are jade, amber, tortoise shell, gold, and silver (Leach 238). The value of these commodities fluctuates through time, and is directly determined by the economic and political environment (Leach 25). The Kachin need food; the Shan need exotica so that they can either use them in their own prestige systems or trade them on to the Chinese.

The way in which the Shan and Kachin form alliances is not unlike that of the Tlingit and the Athabascans: they intermarry at the upper echelon. Most commonly, a Shan prince will send a daughter to marry a Kachin chief—perhaps including a dowry of rice land—and gain access to some desired mountain resources. For example:

The Kansi chiefs who are Kachin overlords of the jade-producing area west of Kamaing have for several generations married Shan as well as Kachin wives. The Shan women are members of the family of the former *saohpa* [prince] of Möng Hkawm. . . . (220)

What is the effect of alliances between the Shan and their less sophisticated mountain neighbors? The effect is that, when Kachin communities are in the process of going from egalitarian (*gumlao*) to stratified (*gumsa*) society, the form taken by the stratification is an imitation of Shan stratification. "Kachin chiefs, when they have the opportunity, model their behaviour on that of Shan princes" (Leach 213); thereby "their chiefly status as Kachins is enhanced" (222). The Kachin chief may learn to speak Tai, he may adopt the Buddhist religion, he may dress like a Shan, and use Shan ritual and symbolism to support his position. Leach gives examples of whole Kachin communities whose aristocracies have become "Hill Shan"—he suggests, in fact, that all Kachin villages were once egalitarian, and that the stratified version is an unstable and artificial emulation of the Shan way of life. It is part of a process in which ". . . individuals faced with a choice of action will commonly use such choice as to gain power . . . or, to use a different language, they will seek to gain access to office or the esteem of their fellows which may lead them to office" (10).

Kachins and Shans are mutually contemptuous of each other. They compete for food and resources in a rugged and ecologically-varied region. In

spite of their mutual contempt, the Shan and Kachin establish exchange relations through intermarriage, with the Kachins receiving subsistence products and the Shan exotic raw materials. Let me emphasize that this exchange, or "trade" if you will, does not cause the Kachin to become stratified, nor does it maintain stratification when the unstable *gumsa* begins to break down and revert to egalitarian organization. The point is this: when the Kachin do achieve stratification, the form it takes is an imitation of the language, religion, behavior, and symbolism of the more sophisticated Shan who consume their jade and amber. In much the same way, the Tagish who become stratified adopt the language, behavior, and symbolism of the Tlingit who consume their furs.

I suggest that such exchange systems are not without adaptive value. In ecological terms, they make possible the more nearly total exploitation of a very diversified environment, many of whose sub-areas could not otherwise sustain a self-sufficient population. In isolation, the Shan would survive with a surplus, but many areas of the Kachin hills would not be suitable for permanent communities. Intermarriage and the jade trade, bringing the Shan rice surplus up into the hill country, leads to one big economic system rather than several small ones, and makes more "niches" potentially usable. And the *gumsa* system, with all its strutting provincial imitation of Shan society, would probably be of great value in reinforcing the symbiotic network if only it could be stabilized.

A MODEL FOR OAXACA AND THE OLMEC

I am confident that many more examples of this kind could be found in the ethnographic literature. To sum up: data from several parts of the world suggest that a special relationship exists between consumers of exotic raw materials and their suppliers, especially when the suppliers belong to a society which is only slightly less stratified than that of the consumers. First, it seems that the upper echelon of each society often provides the entrepreneurs who facilitate the exchange. Second, the exchange is not "trade" in the sense that we use the term, but rather is set up through mechanisms of ritual visits, exchange of wives, "adoption" of members of one group by the other, and so on. Third, there may be an attempt on the part of the elite of the less sophisticated society to adopt the behavior, status trappings, religion, symbolism, or even language of the more sophisticated group—in short, to absorb some of their charisma. Fourth, although the exchange system does not alter the basic subsistence pattern of either group, it may not be totally unrelated to subsistence. It may, for example, be a way of establishing reciprocal obligations between a group with an insecure food supply and one with a perennial surplus.

Here, then, is one possible model for what happened in our case.

By the start of the first millennium B.C., the Valley of Oaxaca had reached

the point where an emerging Formative elite sought to express its differential status through ornaments of magnetite, pearl oyster, and mica. Marine shells were imported from the Pacific Coast, and local sources of iron and mica had been found and were being exploited. At least one barrio of the largest-known San José Phase site in the Etla valley was occupied by craftsmen who accumulated and worked the above-mentioned materials.

The Oaxaca peoples were aware of, and in contact with, a more sophisticated and more highly stratified group of people occupying the southern Gulf Coast, from whom they obtained pearly fresh-water mussel shell. Judging by Curtis' mineralogical map, the Olmec probably first became aware of the possibilities of polishing iron ores when they came in contact with highland Oaxacan peoples who had access to the sources. The flow of magnetite and ilmenite may have begun on a small scale, involving tiny flat mirrors of the type seen at San Lorenzo Tenochtitlán, and expanded later to include nodules large enough for the parabolic mirrors recovered at La Venta. If our ethnographic data is in any way analogous, the mechanism which facilitated this inter-regional flow of goods should have been one which linked the highest-ranking lineages of the Oaxaca peoples to one or more of the higher-ranking Olmec lineages. One would also predict that the highland Oaxaca elite would begin to emulate the religion, symbolism, dress, and behavior of the Olmec elite, insofar as it would enhance their own status among their own people. We might predict, for example, that while their patterns of settlement and subsistence remained unchanged, they might adopt the St. Andrew's cross, the U-motif, the "paw-wing" motif, and the deity who was part man and part jaguar. Certainly there is some evidence in the ceramics of the San José Phase that the latter steps were taken in the Valley of Oaxaca.

Our model suggests one further point: the areas most likely to form exchange systems with, and truly emulate the behavior and symbolism of, the Olmec were not the least developed regions of the highlands, but the most developed—areas of high agricultural and demographic potential like the Valleys of Oaxaca, Mexico, Morelos, and Puebla, for example. Many of these regions already are known to have large nucleated communities in the Early Formative, and some already had patterns of monumental architecture which were too regionally distinct to be considered Olmec-derived. On the basis of the ethnographic data presented above, I suggest that it was precisely because these areas were on the verge of stratified society themselves that they were so fascinated by the Olmec and so predisposed to adopt their status paraphernalia. All the valleys of highland Mexico contain some exotic raw material which could be used for the manufacture of status items, but many such materials were rarely or never used in the Early Formative: native copper, amethyst, plate chalcedony, and galena are only a few of the overlooked possibilities. I suspect that, for the most part, the materials used were those occurring in areas where relatively large, stratified highland communities were already present. I make this point because I feel that, as more and

more "Olmec-influenced" communities are discovered in the *tierra templada*, it may become tempting to view the highlands of Mesoamerica as a vast underdeveloped backwater into which Olmec messiahs spread. I would argue the reverse: Olmec influence will appear most strong in those areas which were already most developed and already had status systems into which Olmec concepts could be most profitably fitted.

In other words, I suspect that the peoples who have been called "Highland Olmec" were not really Olmec, any more than the "Inland Tlingit" were really Tlingit or the "Hill Shan" were really Shan. They were indigenous mountain peoples, successfully pursuing multi-crop agriculture, competing for good land and water, and using their surplus to support a hierarchy, craft specialists, and community-sponsored construction projects. Had they not been, they would probably not have gained as much from contact with the Olmec as they did.

SOME SPECULATIONS ON FUNCTION

Finally, we come to the last question: why did it happen at all? Here the available archaeological data are so inadequate that they make a conclusive answer impossible; I can only offer suggestions for future research.

Let us assume, for the moment, that the systems of inter-regional interaction did not spring up by accident during the Formative: there was a reason for them. Let us assume that systems of exchange profited both the Olmec and the peoples of the highlands, and that that is why the exchange was so striking and extensive. As in the case of any system, the behavior of the participants should (perhaps in some nearly-concealed way) have served to maintain the exchange pattern. In studying such a system, therefore, we must be careful to distinguish between the *purpose* of the participants' behavior, which may be quite easy to figure out, and the *function* of that behavior in an adaptive sense, about which we can only hypothesize.

For example, we have suggested that the *purpose* of the accumulation of magnetite or jade by highland peoples, its working by craft specialists, and its export to the Olmec, was to enhance and reinforce previously-existing systems of status, in which access to certain exotic raw materials was restricted to an elite. Its *function*, however, may have been to convert some of their agricultural surplus into a kind of imperishable "wealth" which could be used to set up reciprocal obligations with neighboring people whose food supply was even more secure. (This seems, for example, to have been the case among the Kachin tribesmen who depend on the Shan for part of their rice.)

Similarly, as Drucker, Heizer, and Squier (1959: Footnote 33) have already suggested, the *purpose* of the massive offerings of serpentine, jade, and magnetite made at La Venta may have been to restate and reinforce commitment to the Olmec social and religious systems. The buried pavements, they point out, were not made to be admired; the act of creating and burying such

offerings, made valuable by the difficulty of their acquisition, was the important point. But the underlying function of burying such offerings may have been to take the materials themselves out of circulation. It was a way of consuming, or destroying in a sense, a whole series of otherwise imperishable materials, thereby necessitating the acquisition of more of the same. As Leach points out, the value of jade depends directly on the current economic situation; had such exotic materials continued to pile up at La Venta they would soon have lost whatever value derived from their rarity and foreignness, and the flow would have slowed down.

Two aspects of the system, therefore, may have been this: the highland people converting their occasional surplus into exotic items for export to the Olmec; the Olmec maintaining the flow by taking it out of circulation as soon as it arrived. And the overall function of the whole system may have been to create one big economic sphere where previously many small ones had existed—to set the stage, in a way, for the great inter-regional symbiotic networks which Sanders (1956) describes for later periods of Mesoamerican prehistory. In the process, the elite of a number of key highland regions came to emulate the behavior of the Olmec elite, to borrow their symbolism, and adopt those aspects of Olmec religion which lent further prestige to their own position. Perhaps one superficial effect of this process was the spread of the Olmec art style throughout the highlands. I say "superficial" because I am confident that the spread of that style was not a primary cause of Formative Mesoamerica's unity, but one reflection of the fact that it was already united, in an economic sense.

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