



## WEST MEXICO, THE CARIBBEAN AND NORTHERN SOUTH AMERICA:

### Some Problems in New World Inter-Relationships

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The Los Angeles County Museum was fortunate recently to obtain, as a private gift, the contents of a well-furnished shaft-and-chamber tomb discovered accidentally on cultivated farmland near the town of Etzatlán, Jalisco, in Western Mexico. Although excavated without benefit of scientific control, the site and circumstances of the discovery were shortly thereafter investigated by a competent field archaeologist familiar with the area and the architecture of such tombs (\*). His observations and *post facto* interviews with local informants, as well as an extensive collection of skeletal and artifactual material salvaged by him from the tomb, leave little doubt as to the validity of the provenance and association claimed for the figurines and other material presented to the Museum (\*\*).

The importance of this discovery and its subsequent presentation to a scientific institution cannot be overemphasized. First of all, it has remained, at least substantially, intact — in contrast to other burials whose contents are usually broken up and scattered to the four winds through individual sales. Secondly, it represents the first large scale collection of tomb furniture, ranging from pottery figurines to artifacts of shell, stone and obsidian, from western Mexico for which both the precise locale and direct association are known. Thirdly, and perhaps most significantly, it has yielded the first series of radiocarbon dates ( $2230 \pm 100$ ,  $2090 \pm 100$ , and  $1710 \pm 80$  years B.P.) for any phase or style of the important, but as yet little-studied, shaft-and-chamber tomb complex of western Mexico (Furst, 1965: 612-13). In Mesoamerica this type of tomb architecture is restricted to portions

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(\*\*) The generosity of Dr. and Mrs. Milton, D. Heifetz of Los Angeles as donors of the contents of the tomb is gratefully acknowledged, as are the efforts of Dr. George C. Kennedy toward keeping this valuable collection intact for study and exhibition.

of the present states of Jalisco, Nayarit and Colima only, with its closest parallels to be found far to the South, in parts of Central America and the Andean region.

The study of the tomb and its dating raises a series of culture historical problems, among them once again the question of relationships between Mesoamerica and the Andes at a Formative, or at least early Classic, time level, as well as that of long-range trade or culture contacts between the Caribbean and the Mesoamerican west coast at this relatively early stage in the development of native civilization. The present paper is intended to sketch out some of these problems in broad outlines, in the hope that it may stimulate further and more exhaustive studies in the future.

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The lack of reliable dates or even relative chronologies for the multi-chambered or single-chambered shaft tombs of west Mexico, and the hollow ceramic figurines associated with them, has long presented a major problem for Mesoamerican archaeologists and culture historians. There is hardly a private or public collection of pre-Columbian art anywhere in the world which does not include at least some examples of these figurines, of which literally thousands, ranging in size from a few centimeters to a meter and a half, have been excavated illegally by private individuals over the past several decades. Indeed, so popular are these figurines that hundreds of spurious pieces, manufactured by expert craftsmen well versed both in the correct style and in the highly refined art of faking, have been flooding the world market in recent years. Some are so well made that they are difficult to detect without recourse to a painstaking examination.

Archaeologists and private collectors have known for a long time that the great majority of the genuine pieces came from tombs consisting of one or more vaulted chambers reached by rectangular, vertical shafts of varying depths, some of them measuring up to 16 and 18 meters. All of these tombs are apparently located within a relatively restricted area in western Mexico. Nothing resembling them in architecture has ever been found anywhere else in Mesoamerica, but Bennett (1949:47-48) has noted their occurrence well to the south, in Central America and the northern and Central Andes, as well as in parts of northern Chile, Northwest Argentina and at Counany in the Guianas. Of these, certain north coastal Peruvian shaft-and-chamber tombs appear to present the most striking architectural parallels to some of the west Mexican tombs, a problem to be discussed more fully below.

One of the best known of the west Mexican shaft-and-chamber tombs is the rich three-chamber burial discovered on the hill of *El Arenal*, near Etzatlán, Jalisco, which Corona Núñez (1955) investigated and mapped, unfortunately only after it had been thoroughly looted of its contents in burial furniture. The vertical entrance shaft of this tomb, measuring 1.50 x 1.50 m. was 16 m. deep and led to three vaulted rooms, of which one measured 3.50 x 3.40 m. with a height of 2.89 m., the second 4.24 x 3.90 m. with a height of 4.42 meters, and the third 2.97 x 2.60 meters, with a height of 2.54 m. All three chambers were found at approximately the same level. The present writer spent some time at this site in 1961/62. The entire hill of *El Arenal* was found to have been a cemetery with

innumerable shafts leading to similar chambers which, without exception, had all been ransacked. Similar groupings of shaft-and-chamber tombs have been located within a few hours driving distance from the city of Guadalajara, in Nayarit, Jalisco and Colima. Rumors of a particularly lucrative "strike" by tomb robbers near Tequila, Jalisco, reached the writer during a field trip in the area in the summer of 1964, but the material reportedly excavated had disappeared into the antiquities market before any of it could be examined or photographed. It was noted, however, that many of the more elaborate burial sites, near Tequila as elsewhere, were located on the higher slopes or summits of hills and low mountains. The implications of such a consistent association of high places and status burials will be discussed below.

It is a regrettable fact that despite the abundance of these tombs and the free-hand modelled, polychrome figurines for which western Mexico has become famous, not a single such tomb has as yet been excavated from the beginning under controlled, scientific conditions. Indeed, because local excavators are (understandably) reluctant to reveal the location of the tombs, few of the figurines in private collections or museums are accompanied by more than the vaguest data. In consequence, broad designations such as "Nayarit", "Jalisco" or "Colima" are often the only data given on museum labels and even these are frequently questionable since local styles may blend into each other to such an extent that reliable differentiation becomes impossible. In any case, such geographic identifications represent merely the names of modern political states rather than pre-Hispanic cultures. Moreover, while a typological seriation on the basis of style, modelling technique, surface, pigmentation, and occasionally even posture might lead to the eventual establishment of at least limited, local chronologies, the western Mexican tomb figurine complex as a whole is sufficiently distinctive and individual to make it difficult to relate its local varieties satisfactorily to other, better-known and more securely dated traditions in Mesoamerica. In fact, the student cannot help but note, on occasion, a greater resemblance to certain Colombian ceramics than to other Mesoamerican cultures. As a result, attempts at dating west Mexican material have been little more than pure guesswork, with published estimates ranging anywhere along the continuum from the pre-Classic to the late post-Classic, indeed, even into the 13th Century A.D.! In the absence of controlled excavations or radiocarbon dates, few scholars have been willing to commit themselves to a fixed point in time on purely stylistic grounds, and one recent serious work on pre-Columbian art contents itself with a span of "300-1250 A.D." — or nearly 1000 years — for the Jalisco-Nayarit style of shaft-tomb figurines. Covarrubias (1957) writes that at one time he was inclined to place the west Mexican tomb figurines at the same time level as the pre-Classic Zacatenco-Ticomán horizon in the Valley of Mexico, but that, more recently, he had come to accept Kelly's suggestion of an early Classic date, perhaps corresponding to Teotihuacan II (Kelly, 1948). Coe (1962) also suggests an early Classic or Classic date, but points out correctly that "we really are almost entirely ignorant of the archaeology of this region. It is said that most of the thousands of pieces in collections were recovered by local treasure-seekers in deep, multichambered tombs reached by shafts."

The Etzatlán tomb in the Los Angeles County Museum has changed this dismal situation somewhat. In general it conforms to the few descriptions we have in the literature for such tombs, although its shaft is less deep and the number

of burial chambers is limited to a single one, measuring approximately 3.5 x 3.5 m. square, with rounded corners (Stanley Long, 1964, personal communication). The chamber, high enough to allow a man to stand upright, contained the remains of 12 individuals, nine of them articulated skeletons laid out on the floor and the others represented by small quantities of unarticulated bones without skulls. The chamber was reached by a vertical, rectangular shaft 4.6 m. in depth, with a short horizontal tunnel leading from the bottom of the shaft to an entrance closed off by a large flat rock. The human remains were surrounded by 17 hollow polychrome ceramic figurines, both male and female, with the latter predominating, ranging in height from 27.5 cm. to 51.5 cm., as well as 40 polychrome dishes and bowls, many of them of extraordinarily fine quality, several rectangular ceramic boxes with lids, assorted large and small shell and obsidian ornaments, including two "mirrors," several conch shell trumpets, shell necklaces and other artifacts.

The  $C^{14}$  dates for this collection were obtained by the Radiocarbon Dating Laboratory, Institute of Geophysics, University of California at Los Angeles, from marine shell artifacts, two of them conch shell trumpets (Berger, Fergusson & Libby, 1965). To obtain such dates from shell material, the mineral is removed by mild acid treatment and the residual carbon is dated in the usual manner (Berger, Horney & Libby 1964:999-1001). The two conch shell trumpets and a third sample, from a shell amulet or fragmented bracelet probably manufactured from a conch shell, yielded the dates given above, equivalent to 266 B.C ( $\pm 100$  years) 126 B.C. ( $\pm 100$  years) and A.D. 254 ( $\pm 80$  years).

Thus we are faced with the problem of marine shell artifacts found in direct association with each other in the same tomb but yielding dates which are several centuries apart. Such an extreme variation might seem, at first glance, surprising enough to throw doubt on the dates themselves. A brief consideration of the circumstances and materials involved will, I hope, help to clarify the problem somewhat. The two older of the three samples (UCLA-593A and UCLA-593B) were the first to be processed, with the result that the tomb was tentatively dated between the 3rd and 2nd Centuries B.C. Shortly thereafter, the present writer obtained a conch shell trumpet from Jalisco which was subsequently identified as a *Strombus gigas* Linné, or Queen conch, whose native habitat is not the Pacific Coast but the Caribbean, with a range including Southeast Florida, the West Indies and parts of northeastern South America (\*). Not only did this indicate long-range trade in such objects between western Mesoamerica and the Caribbean at a relatively early date, but it also led to a closer look at the surviving of the two specimens from the Etzatlán tomb which had been subjected to the  $C^{14}$  analysis (the smaller ornament had been destroyed in the dating process). As it happened, this also turned out to be a *Strombus gigas* from the Caribbean, rather than a shell native to western America. The question of the length of time which might have elapsed between the death of the mollusk on some Caribbean beach and the eventual burial of its shell in a west Mexican shaft tomb immediately suggested itself. Did the shell travel straight across the continent with

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(\*) The generous cooperation of James McLean, Curator of Invertebrate Zoology, Los Angeles County Museum, in the identification of this and several other marine shells discussed in the present paper is gratefully acknowledged.

a trading party? Did it pass from hand to hand, or tribe to tribe? Was it kept here and there for a generation or even longer before being passed on? Such considerations gain in significance when one recalls that a radiocarbon date does not reveal the date when an organism (or, as in this case, its relatively indestructible part) was buried, but rather the moment of its death, when it ceased to ingest radioactive carbon-14. In other words, the dates obtained were by no means those of this burial itself, but rather those of the deaths of the two mollusks in the Caribbean. This simple truth seems to be occasionally overlooked. The writer recalls a brief flurry of excitement among some archaeologists recently because a new series of radiocarbon dates from the great ceremonial center of Teotihuacan in the Valley of Mexico seemed to indicate a far earlier destruction of this city than previously assumed. The dates had been obtained from a number of charred wooden beams collected in various parts of the site and they tended to cluster around A.D. 250 to 300. So early a general destruction of Classic Teotihuacan, however, was contrary to everything specialists assume about Mesoamerican cultural development and the general decline and end of the Classic period in this area. The discrepancy arose, of course, from the fact that the radiocarbon dates did not reveal anything at all about the moment of destruction; rather, they recorded the time elapsed since the beams were first cut from living trees. A simple re-use of old beams over several construction periods before the city was finally attacked and destroyed could well explain the discrepancy (Gordon Ekholm, 1964, personal communication). Considering the hardness of the wood used, and the difficulties of obtaining large and heavy beams from considerable distances without wheeled transport or beasts of burden, such a repeated re-use is not only possible but most likely. It is obvious that no matter how well proved and accurate the present methods of testing marine shells or any other material for radiocarbon content may be, the investigator must exercise the greatest care in the interpretation of such dates, and especially so where they appear to contradict all previous data and experience. In the case presently under discussion, a valuable object such as a conch shell trumpet—and particularly one which travelled over such great distances—might well have remained in the possession of a family or community for a considerable time before being made a burial offering, even if a minimum of time passed between its collection in the Caribbean and its arrival in west Mexico. That conch shell trumpets are surrounded with a sacred aura and treated as valued heirlooms was graphically demonstrated to the writer during a recent field trip to the Warao in the Orinoco Delta of Venezuela. A large shell trumpet (*Strombus gigas* Linné), with the kind of mellow patina and smoothness which could only have resulted from long use and much handling, was found to be among the most precious possessions of a young man in the village of the Winikina, a subgroup of the Warao (Fig. 1, a & b). No amount of persuasion, nor offers of money or any other thing of value would persuade him to part with it. It had been passed on to him by his father, he said, and so far as could be determined, his father had in turn received it from his forebears. That this was indeed the case was confirmed by Johannes Wilbert (1965, personal communication), who reports that he had unsuccessfully attempted to collect the very same shell trumpet from the father some 11 years ago, and this despite the fact that such shells can be obtained by the Indians with relative ease, since they live but a few hours by canoe from the open sea. Smaller Caribbean sea shells are worn as amulets by many of the Warao women throughout the Delta, but the Winikina trumpet was the only such object observed in any of the Warao *rancherías* visited by the



Fig. 1a

Warao Indian from Caño Winikina, Orinoco Delta, Venezuela, blowing conch shell of species *Strombus gigas* Linné.

writer over a period of several weeks. The significance of marine shell trumpets among the Warao and other tribes will be discussed later in this paper.

The Caribbean origin of the shell trumpet from which the earlier of the two Etzatlán radiocarbon dates had come threw serious doubt on the validity of the dates assumed up to that point for the burial itself. It was therefore decided that an announcement of the date (266 B.C.  $\pm$  100 years) should be held up pending the selection and dating of another sample from the tomb lot which might more nearly reflect the approximate time of the burial itself. Such a shell had to be of relatively small size and undistinguished aspect (a value judgment which might or might not correspond to the emotions of its pre-Colombian owner) in order to reduce, if not eliminate, the possibility that it might have represented a much-valued heirloom over several generations. Moreover, it would have to be a West Coast shell, and preferably a common one, easily obtained. The specimen selected from the collection of shell artifacts and unworked shells found in the tomb was a small *Murex nigritus* Philippi, which is found frequently on the beaches and in the shell middens of western Mexico and whose range extends from the Gulf of California to northern

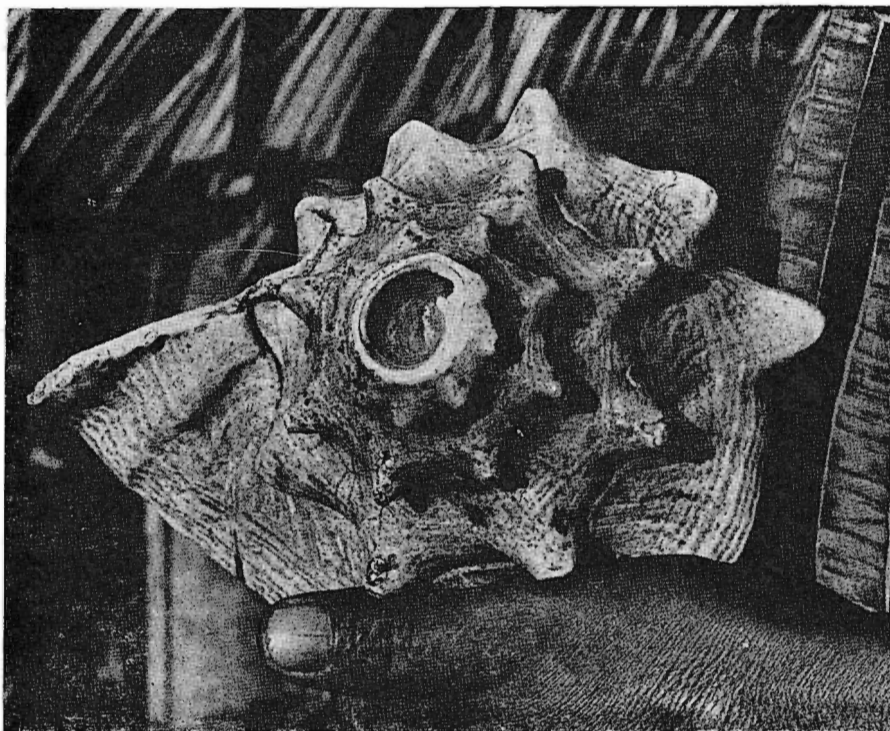


Fig. 1b

Conch shells of New World origin are end-blown, as shown Warao specimen above. Apex of shell is removed and edges of cut polished to produce opening for blowing. Special mouthpieces fitted to opening are known from some cultures in both North and South America.

Peru. This sample, known as UCLA-593C, yielded the third date of the series, equivalent to A.D.  $254 \pm 80$ , roughly five centuries later than the earliest of the three specimens. The lesson herein is self-evident.

There is, of course, one other way of accounting for at least some, if not all, of the discrepancy between the three radiocarbon dates, and that is the possibility that the Etzatlán tomb might have been re-used twice or even more often over several generations and even centuries. In that case, the older date might reflect the approximate time of the first burial, and the latest the last and final opening of the tomb. Such re-use, even by two entirely disparate cultural groups, is a well-known phenomenon, illustrated perhaps most dramatically by the case of the famous Tomb 7 at Monte Albán, Oaxaca, where a late culture, the post-Classic Mixtecs, apparently displaced the earlier Zapotec occupants of the tomb chamber to make room for their own exalted dead and the rich offerings in gold, silver, crystal, jade and other precious and semi-precious materials interred with them—the richest single archaeological treasure ever uncovered in Mesoamerica. Such a re-use



of the Etzatlán shaft tomb might be indicated by a number of unarticulated human bones, including those of infants, found on the chamber floor, in addition to the articulated skeletons. The latter were arranged in a pattern suggestive of the burial of an important personage accompanied by retainers or wives, whereas the unarticulated bones were reportedly haphazardly piled together and, as stated before, with the skulls missing. The hypothesis of re-use might be thought to find additional support in the distinct differentiation of the burial figurines into at least two typological series, as well as several sub-types or sub-styles, reflecting perhaps local variants of the overall figurine style common this region of western Mexico. Two of these figurines from the tomb are illustrated in Fig. 2. These belong to the well known Etzatlán-Magdalena style of Jalisco. Found in the same tomb, however, was a second group of figurines, decidedly different in concept, with heavy, almost elephantine legs and other physical distortions, most with some negative body paint. Several of this group, typical of the style commonly attributed to the region of Ixtlán del Río, Nayarit, to the north of Etzatlán, were so similar as to suggest manufacture by the same potter. At least they seem to have originated in the same tradition.



Fig. 2

Polychrome tomb figurines found in shaft-and-chamber tomb near Etzatlán, Jalisco (West Mexico), dated ca. 250 A.D. Left, 38.5 cm. high; right, 46 cm. high.



Thus, a hypothesis of re-use of this tomb would appear to be supported by three points of evidence: (1) disparate radiocarbon dates for shell artifacts found in the same tomb; (2) unarticulated piles of human bones in addition to articulated skeletons in extended positions, and (3) at least two distinct series of tomb figurines.

Of these three points, the first has already been explained, at least in part. Even if the distance from the Caribbean to western Mexico, and the difficulties of communication on foot, along with the distinct possibility of very slow transmission of the *Strombus* trumpet from tribe to tribe, could not be held to account for the entire discrepancy of nearly five centuries between the oldest and the latest date, it is obvious that a date of 266 B.C. ( $\pm 100$ ), representing the death of the mollusk in the Caribbean, cannot be valid for the burial in Jalisco. Thus the span between the two extreme dates must be substantially reduced. This by itself, however, still does not eliminate the possibility of re-use.

So far as Point 2 is concerned, it is true that the unarticulated piles *could* represent an older burial, as has been suggested by several archaeologists who have examined the burial. An alternate explanation, and one favored by the writer, is that these unarticulated bones represent earlier burials of previously deceased family members whose bones were, perhaps, kept for a time within the family dwelling, until they were finally interred with the family or lineage head. The retention of the bones of the deceased, wrapped in specially woven burial cloths or held in baskets, within the house, at least for a time, is a not uncommon practice. The Yupa of Colombia, for example, dispose of their dead in this manner, eventually interring the bone bundles in special burial caves (Wilbert, 1965, personal communication). The missing skulls in the piles of bones found in the Etzatlán tomb may well be a clue here: is it not far more likely that the skulls were kept separate from the rest of the remains by the family of the deceased at the time of the final laying to rest than that the skulls were removed from old skeletons found in the tomb by later users?

What about the fact of stylistic disparity between two or more series of tomb figurines? It would seem logical, at first glance, that if the tomb had been used only one time, and only by a single family or lineage, the tomb offerings should belong to the same style. This is, indeed, the case in many other burials, but there are enough exceptions to negate the argument. The writer has seen, and photographed, several groups of burial furniture offered for sale by local diggers in western Mexico which included at least two different styles, usually "Nayarit" and "Jalisco", and yet were claimed to be from the same grave. As pointed out earlier, these styles often blend into one another, and are, in any case, often defined in the literature by characteristics arbitrarily assigned to specific geographical areas on the basis of origins claimed for them by local dealers or diggers, rather than confirmed by scientifically controlled excavation or personal observation by trained archaeologists or culture historians.

It might be useful here to examine some other occurrences of disparate styles of pottery in the same grave. An interesting case in point is that of Ubbelohde Doering's excavations at Pacatnamú, in the Pacasmayo Valley of northern coastal Peru (Ubbelohde Doering, 1959:1-32), not only because the differences in ceramic styles found among the mortuary offerings in the local tombs are far more startling

than those at Etzatlán, but also because the Pacatnamú tombs themselves bear a remarkable architectural resemblance to those of western Mexico. In addition, the Pacatnamú site is distinguished by several other features with close parallels in Mexico.

The Pacatnamú burials were found east of the ramp leading up a large terraced pyramid known as Huaca 31. Two preliminary tests by Disselhoff resulted in the discovery at a depth of 2 m. of two undisturbed graves in a badly looted cemetery area, with extended burials and grave furniture consisting of typical Mochica ware. Subsequent concentrated excavation revealed an extensive burial ground which was entirely covered by vaulted clay caps (*capas*). These clearly shut off the realm of the dead from the world of the living above. The burial horizons were found at different levels, some at 1.5 m., others at 2 m., and still others at 4 m. shallowest graves contained single extended burials wrapped in cloth, whereas those at the greatest depths were, as a rule, multiple interments in cane coffins. The lower graves were also far richer in mortuary offerings. At a depth of 4 m., three burial chambers were discovered, consisting of horizontal galleries extending from the bottom of vertical shafts. All were closed off by a wall constructed of unfired clay bricks. Tomb E I contained nine coffins of cane, surrounded by numerous ceramic offerings, gourd dishes with the remains of food, and the bones of sacrificed llamas. Altogether, E I had 53 ceramic vessels. Of these, nine were in the Mochica style, 13 Gallinazo, 12 White on Red, ten black stirrup vessels, one Coastal Chavín and seven others in an unclassified style. One blackish-grey stirrup-spouted vessel was decorated with a relief of a deity surrounded by serpents in a typical Chavinoid style; almost identical reliefs were found in a sufficiently large number of other graves to suggest contemporaneity of at least some of the burials in this section of the cemetery. In another 4 m. grave, M XI, the Gallinazo style predominated to an even greater extent, the majority of the offerings consisting of large, somewhat crude, barely decorated Gallinazo vessels alongside a few Mochica stirrup pots painted reddish brown on cream with finely executed mythological scenes. The third grave of the 4 m. horizon, M XII, again contained a large number of Mochica vessels, as well as a grey, unpainted stirrup pot of unmistakable Cupisnique (Chavín) affinity. This grave was also decorated with a typical Chavinoid serpent deity relief.

"It is clearly evident from the burial ceramics," writes Ubbelohde Doering (*ibid.*, pp. 14-15), "that here in the same burial chamber a developed —not an early— Mochica style, a Gallinazo style and a Cupisnique (Chavín) style occur side by side, i. e., that *here* all three are coeval. . . This occurrence side by side in one grave of completely heterogeneous ceramics which in other areas appear chronologically one after the other is quite remarkable and presents difficult problems."

How is one to interpret this situation? Ubbelohde Doering suggests that the differences among the ceramics found in the burials could be explained by the character of Pacatnamú as a sacred city, a place of pilgrimage. Perhaps, he says, pilgrims from the surrounding lands brought their dead, as well as their own locally made cult objects and ceramics of local styles, to be interred in the holy city. But, he concedes, such an explanation is insufficient to account for the different styles found in a single grave such as E I. Here we might assume that representatives of different peoples with different art styles participated in a single mor-

tuary rite; perhaps, he suggests, the dead in E I, M XI and M XII—all in the 4 m. horizon—were members of a ruling house whose hegemony extended over several coastal lands with different artistic expressions.

But an additional problem remains—that of styles commonly believed to belong to different periods, ranging over several centuries, coinciding in a single grave. Since Tello's time, Chavín is considered as the basic, or "mother," style of Peru, just as Olmec is in Mesoamerica. The contemporaneous occurrence of Chavín, Gallinazo and classic Mochica in the burial chambers below Huaca 31 might, of course, be explained by a kind of local persistence of Chavín, or Chavinoid, as well as Gallinazo styles into Mochica, but the author does not think this a valid interpretation. Rather, he suggests (*ibid.*, p. 18), the Mochica style is earlier in this area than previously assumed, making it contemporaneous with Gallinazo and even certain phases of coastal Chavín or Cupisnique. In recent years it has become increasingly clear that such local art styles as Recuay, Salinar, Gallinazo, Early Mochica, Cupisnique and Chavín are all coeval or overlap, at least in some of their phases, seemingly clustering in the centuries immediately after 500 B.C. (Kubler, 1962:248-251). Thus, early Mochica does not follow on Gallinazo, as suggested in much of the older literature, but overlaps with Gallinazo, with its beginnings roughly fixed around 500 B.C. or even somewhat earlier. So far as Cupisnique is concerned, only Larco Hoyle's Cupisnique A, or coastal Chavín (Larco Hoyle, 1938, 1941, 1946, 1948) can be considered to be pre-Mochica, while Cupisnique B is coeval with Mochica I, typified by globular, unpedestalled stirrup vessels with short spouts and rimmed mouths. The last word in the seriation or dating of Mochica styles has not been said, however; for example, how is one to account for the presence of painted stirrup vessels of supposedly Mochica II or even III styles in some of the Pacatnamú graves, alongside typically Gallinazo vessels? These, of course, are problems which concern primarily the specialist in Peruvian archaeology. They are cited in this instance primarily to illustrate the danger of drawing erroneous conclusions from the presence of two, or even more, different styles in one and the same burial, especially when so little is known about either style and its development, as is the case with most of the West Mexican material. It would be a different matter if objects discovered within a single tomb could be assigned unequivocally to two widely separated culture periods. At El Chanal, Colima, a very extensive pre-Hispanic site which is almost completely unknown archaeologically, the writer was recently shown ceramic "lots" taken from looted burials which included two such different styles, one of them the characteristic post-Classic polychromes of Mixteca-Puebla affinity, similar to the pottery excavated at Amapa, Nayarit (Bell, 1960), and the other typical Colima redware, including dogs, vessels in the shape of gourds and fruit, "warriors" with clubs or slings and graceful pots shaped somewhat like water lilies with tripod supports in the form of parrots standing on their tails. Close questioning of the grave diggers revealed that the two styles of ceramics were, in fact, never found intermingled; rather, as a rule, the typical Colima redware is found in one type of burial, and the Post Classic type of pottery in other burials. Where both *are* found in a single burial chamber, the Colima redware is usually located in the back, broken and shoved against the rear wall together with broken-up skeletal remains, whereas the painted ware is found in front, with articulated skeletons. In other words, we have here a clear case of re-use in which a post-Classic culture, related

levels of the sacred mountains, together with their companion animals, and they continue to be propitiated with various traditional sacrifices, of which only human sacrifice has been abandoned. It has also been found that contemporary Maya groups conceive of the path up the mountain (equivalent to the typically steep stairway of the archaeological pyramids) as symbolic of the sacred world tree, whose top branches are located in the heavens, where the high gods reside. This identification of the world tree with the ladder to heaven which the Maya priest climbs just as the Cuna shaman symbolically ascends the sacred tree to reach the upperworld, could perhaps explain the extraordinarily steep angle of the archaeological stairways to the temples atop the Maya pyramids. This association is, of course, most evident at Palenque, Chiapas. Holland suggests that the present-day natural "sacred mountains" used by the Tzotzil are the functional counterparts of the archaeological pyramids of the past, such as those at Palenque. It could also be argued that the artificial pyramid may itself have arisen from a much earlier mountain cult whose roots go back many millenia and which not only belongs to a common cultural level in Meso- and South America but which can also be found in other parts of the world. A consideration of the sacred mountain and world tree problem would lead us too far afield at this point. What should be noted is that the Pacatnamú case may, in fact, have a striking counterpart above all in western Mexico. Here the writer has noted so consistent an apparent association between high places or mountains, on the one hand, and the alleged or confirmed location of the deepest and richest shaft-and-chamber tombs, on the other, as to suggest at least something akin to a sacred mountain concept also in this area. Repeatedly, in several reconnaissance trips along back roads south of Highway 15 and west of the city of Guadalajara, informants have pointed to the tops of certain hills and mountains as the location of cemeteries with deep shaft tombs. One such apparently looted cemetery atop a steep mountain known locally as *Cerro de las Vibulas*, or Hill of the Serpents, could be clearly seen with field glasses. On several occasions, also, mountains of startlingly symmetrical shape, with what appeared to be signs of artificial modification of the natural contours, were found to be of special significance to the local population; in several such cases the names of the hills were one thing on the map, but quite another in the local idiom: one, for example, was known as *El Viejito*, translatable as "the ancient one," while another was simply called "Grandfather." *El Viejito* was found to be full of deep pits on all sides, from the lower slopes to the summit. Each of these reportedly had contained a burial ransacked by local farmers for saleable antiquities, and here again the deepest and richest tombs were said to have been found at the summit. Prof. Stanley Robe of the University of California at Los Angeles, who knows the Jalisco area well, also reports seeing a hill of such remarkably regular features that he felt certain it had been modified by human agency; this mountain was known locally as *El Colli* which his informants said meant "Grandfather."

More directly reminiscent of the stone-faced sacred mountains at Pacatnamú, however, is the occurrence of large numbers of roughly shaped stone slabs of more or less uniform thickness in the yards of many peasant homes north of Lake Chapala in Jalisco, as well as along the slopes of many nearby hills. When questioned about the origin of these slabs, the owner invariably pointed to the hills. Such slabs do not occur naturally in the area and thus must have been cut in rock quarries.

Longtime residents of the Lake Chapala area with some scientific background, such as Mr. Howard Smith, president of the *Sociedad de Ciencias Naturales del Lago de Chapala*, a generally careful observer, also report seeing such stone slabs in sufficient numbers to suggest architectural remains. Their most likely purpose, judging from their location and placement on the slopes of, or below, various hills, would seem to have been as the stone facing of mountain-pyramids of the type found at Pacatnamú.

Ubbelohde Doering's report of potsherd-covered terraces at Pacatnamú also brings to mind some of the unexcavated mounds along the shores of Lake Sayula in Jalisco. One of these sites, generally known as Sayula, consists of a long string of low mounds situated on the western side of the now nearly dry lake. The entire site, mound after mound, to a length of approximately one and a half kilometers, is covered with potsherds 25 to 40 cm. deep. So thick is the pottery that the mounds at first glance give the impression of an enormous dumping ground where thousands of people discarded their pottery over many generations. For several years the site has served to provide road builders with fill, and a road several kilometers in length across the dry lake bed is, in fact, built on a base thick with Sayula sherds. Amateur diggers, operating on the long-tested principle that the highest points are likely to contain burials, have uncovered numerous graves at the summit of the mounds, beneath thick layers of broken pottery. Kelly (1948:63) has distinguished several phases at Sayula on the basis of surface collections; the present writer has also found figurine fragments of distinctly Formative or pre-Classic style among the later pottery material, which consists, in the main, of undecorated storage or water jars and cooking vessels. The immense quantity of the sherds covering the mounds and the surrounding area seems hardly explainable in terms of ordinary wear and tear, even if the population had been a fairly large one. Could the mounds at Sayula have served some such sacrificial purpose as that hypothesized by Ubbelohde Doering for the sherd-covered mountain-pyramid near Pacatnamú?

We may now proceed to draw the following parallels between Pacatnamú and specific elements relating to the West Mexican shaft tomb cultures:

1. Shaft-and-chamber tombs, with vertical shafts leading to horizontal burial chambers closed off by walls from the entrance shafts. In West Mexico, so far as is known, these walls or doors consist of large stone slabs. Those at Pacatnamú were built of unfired clay (adobe) bricks. In both areas the shape of the tomb with its shaft resembles that of a high boot.
2. Multiple burials with richer mortuary offerings at lower levels; single burials near the surface with simpler and poorer burial furniture. At Pacatnamú the burials in the 2 m. horizon were single interments, wrapped in cloths, in shallow trough-like graves cut into the surface of the hard conglomerate rock. Graves in the 4 m. horizon, in contrast, consisted of vertical shafts leading to chambers containing multiple burials accompanied by numerous offerings. A similar pattern is evident in Jalisco. Deep shaft tombs are reserved for status burials, usually located in high places overlooking the surrounding country.

3. Head deformation. This custom was evident in all levels at Pacatnamú, as in the Etzatlán, Jalisco, tomb.
4. Orientation of the dead toward north. This was general in all of the burials at Pacatnamú. According to descriptions given by informants to Long (personal communication), the skeletons in the Etzatlán tomb were arranged radially, but with several individuals lying parallel to each other in a roughly south to north orientation (head facing north). A single skeleton lying to one side, presumed to be that of an older male, also was oriented toward north. It may well be that this older male was the principal occupant of the tomb, the other skeletons representing retainers or wives interred with him. Of five skeletons for which Long was able to determine sex with some certainty, four were female, the fifth the old male. Ubbelohde Doering also found evidence that some of the individuals in the deeper, or 4 m., level had been sacrificed.
5. Cult places in the form of sacred mountains faced with stone and divided into levels. This is proven for Pacatnamú; the evidence for Jalisco is less unequivocal but a similar complex may be strongly inferred.

The drawing of parallels should, however, not be carried too far. No significance can be attached, for example, to the coincidence of the four-meter depth at both Pacatnamú and Etzatlán. Four meters is not a standard measurement in the latter region where, as already stated, such shaft-and-chamber tombs may reach a depth of 16 to 18 m. It must also be noted that there is little or no similarity in the major burial offerings in the Etzatlán tomb or other west Mexican shaft tomb burials and those found in Peru. Some correspondence does, however, exist in one form of burial offering in both areas, that of discs encrusted with pyrite fragments and so called "mirrors" in general. Several such ceramic discs with pyrite incrustations were found by Ubbelohde Doering near looted tombs; similar discs, of slate or fired clay, are quite common in Jalisco and other parts of western Mexico. Both evidently had some ritual significance since they can hardly have served as mirrors in the conventional sense. The same holds true for the black obsidian discs which are usually referred to as "mirrors" in the literature.

In general, the major offerings in west Mexico consist of large and small hollow ceramic figurines, both male and female, often depicted in everyday or ceremonial activities such as drinking, ball playing, holding sling shots or playing musical instruments, including conch shell trumpets, along with other pottery objects, jewelry and ritual objects of unknown use. The Peruvian tombs, on the other hand, contain various types of ceramic vessels, many of them of the stirrup spouted variety. The difference here would seem to be a fundamental one since even where Andean pottery is anthropomorphic, the basic form of the ceramic container largely determines the anatomical form. Complete, free-standing figurines in natural poses and proportions, so common in Mesoamerica, are rare in Andean ceramic art. On the other hand, the refined and often highly realistic "portrait pots" of Mochica have their counterparts in Colima, although the latter are comparatively rare and never as faithful to the human form. Whereas the Mochica portrait pots are true repre-

sentations of important personages, the Colima portraits are more stylized and impressionistic and frequently appear to be symbolizing death. Textiles might provide some interesting material for comparison; unfortunately, conditions of burial in western Mexico are such as to rule out preservation of delicate and perishable materials. That western Mexico possessed a highly developed textile art at approximately the same time as Peru can be inferred from the clothing, including shirts, skirts, breechcloths, mantles and other garments represented sculpturally and in painted decoration on the many tomb figurines from this area. In general, one might say that the closest correspondences in ceramic burial offerings are between the polished redware of Colima and Mochica, but there are also some generic similarities between Nayarit and Mochica, particularly in ceramic house models and other realistic village scenes in fired clay. As Kubler (1962:256) points out, the generic resemblance between Mochica and western Mexican pottery "is striking in the portraits and scenes of daily life modelled in pottery made for graves." On another page (*ibid.*, p. 262), he writes, "Mochica art differs radically from the rest of American Indian art, save for the parallels to West Mexican pottery styles." Obviously we need comparative studies to determine the extent of these similarities and their possible significance.

No radiocarbon dates are available for the characteristic Colima redware, but on stylistic grounds the present writer is inclined to regard them as earlier than is generally assumed in the literature. Many of the stylistic features which characterize the small solid figurines for which Colima is famous are repeated in the larger, hollow redware figures, including hair styles, body armor, weapons and modelling techniques such as the typical "coffee bean" eye, generally regarded as a *leitfossil* of the Formative or pre-Classic, at least in the Valley of Mexico. This strongly suggests that the so called "archaic" miniature figurines of Colima are contemporaneous with the larger hollow redware, a hypothesis also supported by persistent claims by tomb robbers that the redware vessels often contain large numbers of the small unpainted "archaic" figurines. The same custom has also been reported from Chupícuaro, Guanajuato, although the Colima figurines are clearly differentiated from other Mesoamerican types by their realism and the great variety of daily occupations and activities they illustrate. They are, in fact, excellent raw material for the culture historian in attempting to reconstruct the daily life of the early Colimans, as are also the ceramic village and house groups found in the tombs at Ixtlán del Río, Nayarit. Although it was fashionable at one time to attribute the "archaic" features of the solid figurines from Colima to cultural tardiance or the persistence of pre-Classic traits in so called marginal areas, it is becoming more and more evident that these figurines, as well as the larger polished redware, do, in fact, belong to an early horizon, though probably not quite so early as their counterparts in the Valley of Mexico. A range of 300 B.C. to 100 A.D. might not be too far wrong. Indeed, one coastal Colima excavation by the University of California, Los Angeles—the so called Morett site—has already yielded a series of radiocarbon dates indicating an occupation span of some nine centuries, beginning approximately 200 B.C. and ending about A.D. 700, a range which may well be extended in either direction when more dates become available (Clement W. Meighan, 1965, personal communication). Meighan, who is presently



engaged in a detailed analysis of the figurines and other ceramic material from the Morett site, also reports a series of minor, but nevertheless significant parallels in the details of some of the Morett figurines and those of the Eatzatlán shaft-and-chamber tomb. Moreover, Morett and two other nearby coastal sites excavated by UCLA, one at Barra de Navidad, Jalisco, and the other at Playa del Tesoro, Colima, include in their early levels a whole range of ceramic types which closely resemble and, indeed, are sometimes indistinguishable from, ceramic material found along the entire west coast of Nuclear America, from Mexico through Guatemala to northern Peru. When the present analysis of this coastal material from Mexico has been completed it may well be that we can distinguish an early common cultural level all along the Pacific Coast, from Mexico to Peru.

In this connection, the writer would like to draw attention to the startling similarity between two small ornaments of beaten sheet gold found in western Mexico (Fig. 3) and a well known pectoral of paper-thin sheet gold in the Nazca

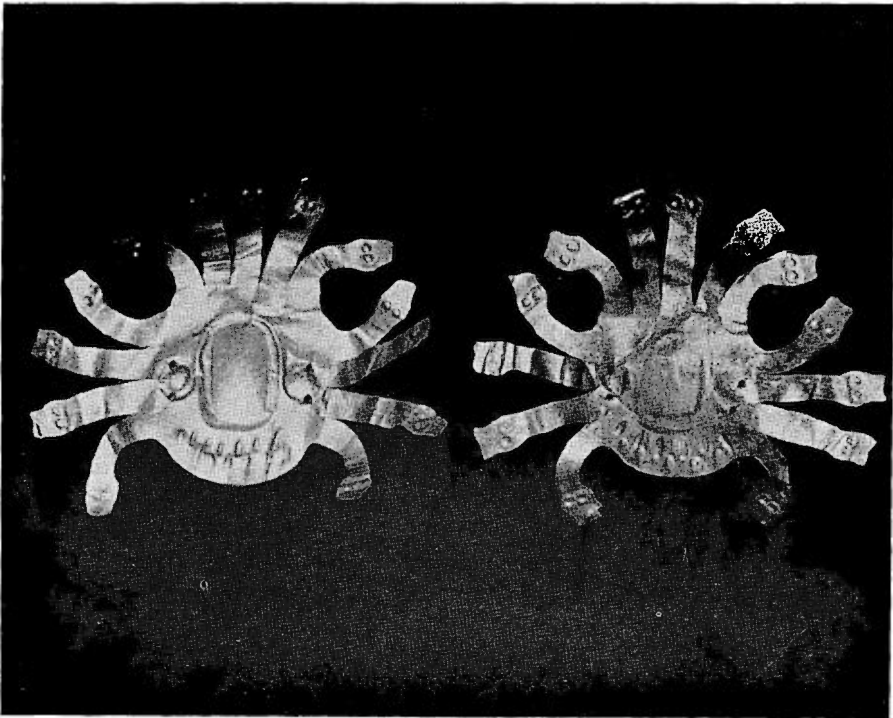


Fig. 3

Two gold ornaments with radiating serpents, possibly representing solar or lunar deity, found in West Mexico. Left: 3.2 cm. wide, 6.2 cm. high; right, 7.9 cm. wide, 6.0 cm. high. Coll. Federico A. Solorzano, Guadalajara, Jal., Mexico.

style from the south coast of Peru (Fig. 4). The former have been for some years in the collection of Sr. Federico A. Solórzano of Guadalajara, Jalisco, who kindly permitted the writer to examine and photograph them, while the latter, from the Nazca culture of Peru, is in the collections of the Museum of the American Indian in New York (Furst, 1964a:75). Another very similar Nazca ornament is illustrated by d'Harcourt (1950:145). Despite some minor differences in the treatment of the face and the smaller number of serpents radiating from the Mexican examples, both clearly represent the same Medusa-like serpent-headed deity (sun or moon?). Although the Nazca piece is considerably larger, the double perforations on the sides of all three objects indicate that they were meant to be attached, most likely to a ceremonial garment or perhaps a burial wrapping. Particularly striking is the identical U-shaped treatment of two of the serpents emerging from either side of the heads in all three pieces. The same U-shaped elements are also present in the ornament illustrated by d'Harcourt, which differs from those in Figs. 3 and 4 only in the fact that the two serpents in the center are elongated and surmounted by a pair of birds.

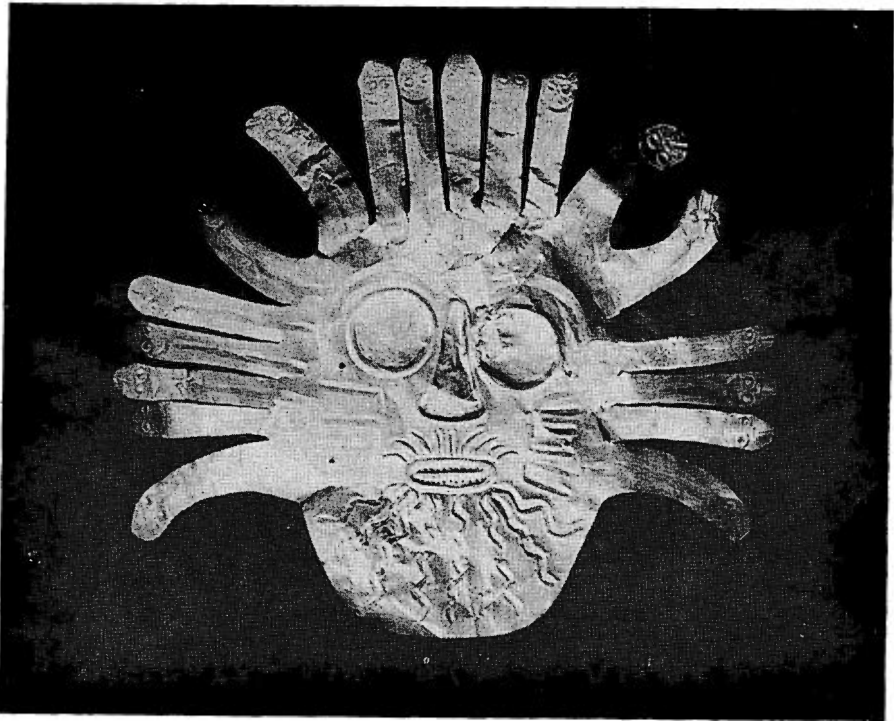


Fig. 4

Gold pectoral from the Nazca region, south coast of Peru. Height: 19 cm., width: 21.6 cm.  
Coll. Museum of the American Indian, Heye Foundation, New York. Cat. N° 17/8849.

It is possible that the two serpents forming the U-shaped element do not, in fact, represent two animals at all, but only one — a double-headed serpent, with a head at either end. This symbol is frequently found in both Peru and Mexico. U-shaped double-headed serpents forming a kind of gateway through which a human figure passes are present on numerous cylindrical vessels from El Chanal, Colima. The same symbolism of the double-headed serpent or sky dragon surmounting a cult scene is found on some of the painted Mochica ware (Larco Hoyle, 1938:I:69, Pl. 29; Kutscher, 1949:24-25). The double-headed serpent was, in fact, an important supernatural and cosmological symbol throughout the Americas, and particularly along the Pacific coast, from the Northwest Coast to southern Peru and Chile. It still plays an important role in Huichol mythology (Lumholtz, 1904) and it is a common symbol in classic Maya cultist art. If not direct diffusion, then at least a common cultural substratum, with common cosmological concepts, may well account for the often startling correspondences in these representations.

So far as the serpent-headed ornaments from Nazca Peru and western Mexico are concerned, it is certainly hard to believe that there is no genetic relationship between them. Unfortunately, it is difficult to assign a date to either of these intriguing objects. Stylistically, the Nazca piece could well be early, either Nazca A, which has been dated at A.D. 300 ± 250 (Kubler, 1962:284), or perhaps even late Paracas or proto-Nazca. Even if it were late Nazca it would date well before the earliest appearance of metal working in Mesoamerica, which is generally believed to be no earlier than A.D. 900. For the Mexican pieces, not even exact provenance is known, although their origin reportedly was a burial in coastal Jalisco or Colima. The ornaments give so similar an impression to Peruvian iconography and techniques that one cannot help but speculate that they are, in fact, of Peruvian manufacture and found their way to western Mexico by trade long before the beginnings of native Mexican metallurgy.

Of some possible significance for the problem of Peruvian-Mexican contacts along the west coast is also the appearance in Colima burials of a type of stirrup vessel which, again on stylistic grounds and technique, seems to be relatively early. One such stirrup spouted vessel of striking appearance is in a private collection recently examined by the author in Guadalajara, Jalisco. The lines of this anthropomorphic vessel are particularly powerful. Its body has a squashed spherical shape reminiscent of Cupisnique, with heavy, sausage-shaped stirrups straddling the container and representing the arms of a female figure. The short spout at the top bears a human face with bulging, coffee-bean eyes, surmounted by a circular headdress of three bands below the lip of the spout. A well defined necklace with pendant is modelled below the face. Beneath the necklace two small breasts protrude just above the inner curvature of the stirrup. The shoulders of the human effigy are decorated with a series of small knoblike lumps which may represent scarifications. Such arrangements of lumps are quite common in tomb figurines from Jalisco and Nayarit, as well as in Colima redware. They are also present on the later figurines found at Chupicuaro (Porter, 1956), as well as on some of the figurines in the Etzatlán tomb. The general silhouette of the Colima stirrup-spouted vessel is decidedly Cupisnique-like; what differentiates it is the polished red color and the incorporation of a human effigy in the vessel, with the head serving as spout. In this respect the piece resembles some stirrup vessels from Colombia more than it does those from Peru. A second such stirrup-spouted human effigy vessel

from Colima was found by the writer in another private collection. It differs from the Guadalajara specimen in some respects: the body of the vessel is more globular, the arms of the stirrup are less clearly defined as representing human arms, but the spout is again formed by a human head with coffee-bean eyes. A necklace in raised relief, clearly representing tubular stone beads, surrounds the neck, but no sex is indicated. Again, the vessel strikingly resembles certain, apparently early, Colombian forms examined by this writer in the *Museo Nacional* in Bogota, Colombia. Especially in view of the relative continuity of the distribution of stirrup-spouted vessels from Mexico down the coast via Colombia to Peru—a distribution which, incidentally, is paralleled by the so called “whistling pots” (Furst, 1964b:10-13)—can one really insist on clinging to “independent invention” of such complex forms, as some writers continue to do? Coe (1963:101-104) has argued convincingly in favor of diffusion between Mexico and Peru, especially at the general time level of Olmec and Chavín, and at one point (*ibid.*, p. 103) specifically discusses the occurrence of stirrup-spouted jars in the pre-Classic in the Valley of Mexico and their close resemblance to the Cupisnique bottles of Peru (as did Porter, 1953). To Coe’s Tlatilco-Cupisnique parallel we can add that between Colima and Colombia. Coe points out that if such complex forms as the stirrup-spout bottle were really a “perfectly natural ceramic form” which could be easily invented more than once, one should expect to find it also in the Old World; evidently, however, this form was unknown in the Eastern Hemisphere, “suggesting diffusion from a single point of origin as the most reasonable hypothesis to account for its distribution in the Western Hemisphere.” One could, of course, add yet another possibility to Coe’s suggestion of direct contact between Peru and Mexico—that of similar stimuli reaching both areas from yet a third source, but this does not basically alter his hypothesis of a genetic connection between Peruvian and Mexican stirrups and other equally complex forms.

Coe’s claim of the uniqueness of stirrup-spouted vessels in the New World was countered recently by Rowe (1965:474-76) with a description of two startlingly Cupisnique-like pots from Africa, one of them collected for the Brooklyn Museum of Art among the Mangbetu in the northern Congo by Mrs. Delia Akeley in 1930, the other in the Lowie Museum in Berkeley. The latter lacks any kind of documentation but appears to be also Mangbetu. The illustrations provided by Rowe certainly support his contention that “both vessels share enough features with early Cupisnique style stirrup-bottles from the north coast of Peru so that they are easily mistaken for South American specimens”. Indeed, he writes, the resemblance is so close that both Larco Hoyle and he at first assumed the Brooklyn Museum specimen to be incorrectly labelled. Rowe suggests that on the basis of his data the following is clear:

“First, the Mangbetu of the northern Congo were evidently making stirrup-spouted bottles about 1930. The existence of two similar specimens indicates that the stirrup-spout bottle was not a unique sport but a recognized category of shape. Second, the closest similarities of the Mangbetu stirrup-spout bottles outside of Africa are to a variety of the Cupisnique style of the north coast of Peru which flourished in the first half of the first millennium B.C. . . . Third, the craft context of the two varieties of stirrup-spout bottles is similar, and the appearance of this

distinctive shape is no more remarkable in the Congo than it is in Peru. I am tempted to add that doctrinaire diffusionism is bankrupt, but that, perhaps, is an inference which is better left to the reader".

One cannot help but be indebted to Rowe for drawing attention to the ethnographic specimens from Africa in the Brooklyn and Lowie Museums, as well as their remarkable resemblance to Cupisnique bottles. But it must be noted that a parallel between an ethnographic specimen from a colonial territory in Africa, dating from 1930, and the much-published and illustrated American stirrup-spout vessels dating from the first millenium B.C. hardly negates Coe's suggestion of diffusion between Mexico and Peru in Olmec-Chavín times, nor that of some genetic relationship between Mexican stirrup bottles of the Tlatilco (or Colima) variety and those of the Cultist period in the northern Andes. Rowe does not mention the distinct possibility that the Mangbetu potter responsible for the Congolese stirrups (he writes that the two bottles in Brooklyn and Berkeley are sufficiently similar to suggest manufacture by the same potter) might have seen illustrations of Peruvian archaeological specimens which inspired him to experiment with new shapes. Even the possibility that one or another colonial official or missionary with prior service or interests in South America might have brought some archaeological specimens from Peru to Africa cannot be ruled out altogether. Many religious orders are equally concerned with Africa and South America. The Dominican Fathers, for example, have long been active in the Congo, including the Mangbetu region. The same order maintains no fewer than 18 missions in Peru, many of them dating back to the colonial period (Cascon Perez, 1964). It is true that the Congo missions belong to the Belgian Province of the Dominican Fathers and the Peruvian to the Spanish, but one can hardly assume that there was no contact between them. Nor are Dominicans disinterested in archaeology. In fact, a Dominican archaeologist and art historian, Father Anthony Gervase Matthew, O.P., of Oxford University, whose field of specialization is African archaeology and Oriental Art and who has done field work in Africa, Arabia and Malaysia, served as visiting professor in the Department of History at the University of California at Los Angeles in 1964. However remote the possibility of such external influences on a Mangbetu potter may appear, methodologically it must be taken into account. That such influences or even pressures from missionaries or colonial officials are fully capable of introducing new cultural traditions is a well-known fact. The use of adobe bricks closely resembling those of Mexico and Peru in some Congolese villages, for example, is due to pressure exerted by a Belgian colonial official and not to parallel invention: the original building technique was wattle and daub. (\*) Moreover, there is a not inconsiderable body of literature on the Mangbetu from which it appears that the potters of this tribe in general did not fire their pottery but merely dried it in the sun. Rowe, however, makes it clear that his Mangbetu stirrup-spout bottles were fired, thus removing them to some extent from the general context of Mangbetu pottery technology, a circumstance which contradicts his statement that "the craft context of the two varieties of stirrup-spout bottles is similar." Cupisnique bottles were always fired, Mangbetu pots are generally sun-dried. Finally, there appears to be something of a conflict between the author's statement that the Brooklyn

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(\*) The helpful comments on Mangbetu ethnology by Dr. Daniel Biebuyck, Professor of Anthropology and Curator of African Ethnology, University of California at Los Angeles, are gratefully acknowledged.

Museum bottle and that in Berkeley are so similar that they could well be the work of the same potter and his later reference to the existence of two such similar specimens as proof that stirrup-spout bottles among the Mangbetu were "not a unique sport but a recognized category of shape." Two bottles, especially from the same hand, do not make a tradition. It would be useful to determine if any other Mangbetu stirrups can be found in those museums which own substantial collections of Mangbetu pottery. If so, and if they predate any possible diffusion of American shapes (whether by illustration or personal observation), Rowe's case would be greatly strengthened. It would, of course, still not negate the possibility of diffusion between Mexico and Peru, or genetic relationship between the stirrups of these two areas of Nuclear America. As Lathrap (1965:789) pointed out recently, "the appearance of strong Mesoamerican influences in northern and central Peru between 1200 and 1000 B.C. is hard to deny," even though these particular influences are apparently too late to account for some of the impressive religious structures and sizable sedentary communities uncovered at Kotosh, Central Andes, by the University of Tokyo Scientific Expedition of 1960.

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Let us turn now to some of the problems raised by the appearance of Caribbean sea shells in West Mexican archaeological sites. As stated earlier, the radiocarbon dates for the Etzatlán, Jalisco, tomb came from shell artifacts, two of them conch shell trumpets—one from the Caribbean and the other from the West Coast. Provided that no major error is involved, we are at present justified in assuming that the tomb was used sometime after A.D.  $254 \pm 80$ . How much time may have elapsed between the death of this West Coast mollusk and the burial of its shell is impossible to determine. However, given the plus or minus factor of 80 years, the date of A.D. 250 suggested for the tomb contents is probably not far wrong. We thus have a difference of five centuries between the older and the more recent specimens, the cultural implications of which have already been discussed in some detail. How much of the discrepancy can be accounted for by causes unconnected with the West Mexican cultural problem, such as, for example, a possible error in the correction factor used in computing the age of the shell, cannot be gauged at this time. Differences in the Caribbean and Pacific Coast environments might be substantial enough to necessitate modifications in the correction factors applied to mollusks from these two areas. An answer to this and other questions must await results from further tests with marine mollusks from various ocean environments, including the Caribbean.

The question of the reliability of shell dates has been raised by several students, including Keith & Anderson (1963:634-637), Rubin & Taylor (1963:637) and Broecker (1964:596-597), but their reports concerned primarily freshwater and land mollusks and the relationship between the level of measurable  $C^{14}$  in their shells and the particular environment in which they grew. One of the valid objections against radiocarbon dates obtained from river or land mollusks is the distinct possibility that such organisms may have ingested older, or dead, carbonate from limestone in their environment. This, of course, could result in excessively early radiocarbon dates because it would measure a combination of the carbonate manufactured by the mollusk and the dead carbonate ingested by it. As Berger, Horney and Libby (1964:1001) have pointed out, however, this is not a problem encountered with marine shells. Nevertheless, once they are buried, marine shells may, like bones, be subjected to various

groundwater environments. Investigators usually deal with this problem by removing the outer layers of shell with hydrochloric acid and utilizing the central portion only for dating. Where relatively large quantities of shell are available (kilogram amounts), yet another method for dating is available, involving conchiolin, an organic protein constituent present in modern shells in small amounts. Thus, it is possible to obtain radiocarbon dates from marine mollusks either by dating the inorganic outer and inner carbonate layers, or the organic portion of the shell — the latter, however, necessitating kilogram quantities of raw material of shells. Such large amounts are rarely available in inland sites, where shell material consists mainly of artifacts such as ornaments or occasional trumpets, in contrast to sites occupied by shore dwellers whose diet included large amounts of shell fish. Where only small samples are available, the dating of carbonate layers is, at present, the only feasible method. On the other hand, judging from the figures cited by Berger, Horney and Libby (*ibid.*, p. 1001), the differences in the dates obtained by the two methods are not startlingly great. For example, one set of *Haliotis* shells from Santa Rosa Island, off the coast of California, gave a date of  $7120 \pm 120$  years for the outer carbonate layers and  $7230 \pm$  for the inner layers. The organic portion (conchiolin) yielded a corrected date of  $7210 \pm 400$  years. Similar results were obtained from a sample about 1000 years younger. The authors state that the correction used takes into account the threshold which atmospheric carbon dioxide experiences before it enters the ocean, and the upwelling characteristics of the ocean currents on the Southern California coasts. From these figures it is evident that the organic material in the shell yields approximately the same radiocarbon date as the inner carbonate layers; on the other hand, the plus or minus factor is, in this case, considerably larger for organic material than for carbonate. This factor decreases proportionately as the specimens become younger; in the most recent of the Etzatlán samples, it may be recalled, it was only 80 years. As a general rule, organic materials such as charcoal are preferred for dating but it should be noted that in at least one case where both charcoal and marine shells were available for testing, at Valdivia in Ecuador, all of the dates, charcoal and shell, proved to be quite consistent with each other (Betty J. Meggers & Clifford Evans, 1963, personal communication).

It is of course difficult to estimate the frequency of Caribbean marine shells in western Mesoamerica (\*). That they are not uncommon may be seen from the fact that of nine archaeological conch shells—all trumpets—from Jalisco and Colima examined by the writer, four were identified definitely as Caribbean in origin and one as a doubtful case, due to considerable modification of the specimen by human agency. Two of the Caribbean shells were of the genus *Strombus gigas* Linné, also known as the Queen conch, the other two *Xancus angulatus* Solander, or West Indian chank. Numerous pottery models of conch shell trumpets, some of them Pacific coast varieties such as the *Murex* shells but others representing the Caribbean *Strombus gigas*, have also been found in western Mexico. Frequently male tomb figurines, especially the redware figures from Colima, are shown holding or blowing conch shell trumpets (Fig. 5) and some of these are clearly of the Caribbean variety. It is not unlikely that the *Strombus gigas*, which is both larger and heavier than the larger shells available on the Pacific coast, as well as giving a more dramatic appearance, may have held

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(\*) Since this paper was submitted for publication, the writer has found archaeological evidence suggesting that Caribbean conch shell trumpets predominate in the shaft tomb cultures of western Mexico. A publication dealing with this problem will appear later this year.





Fig. 5

Superb example of polished redware tomb figurine from Colima, West Mexico. Conch shell trumpet in right hand, modelled in clay, may represent Caribbean *Strombus gigas* Linné.  
Height: 46 cm. Coll. Dr. George C. Kennedy, Los Angeles.

special ritual significance. In any case, it must have been relatively costly to obtain when compared to Pacific Coast specimens which could simply be picked up on the nearby beaches. Unfortunately no data are available in any detail to determine whether Caribbean conch shells also appear in archaeological sites to the south, as far as Peru. A *Strombus* shell trumpet incised with Chavinoid designs illustrated by Larco Hoyle (1941:110) is probably a *galeatus*, native to the Pacific coast. That the *Strombus* shell trumpet was important in Cupisnique-Chavin times has been pointed out by Tello (1937). What is urgently needed is a systematic, specimen-by-specimen study of shell trumpets in public and private collections. It would also have great potential culture historical significance for the tracing of cultural connections, since parallel invention is hardly a plausible explanation when biological species restricted to one geographical area make their appearance in the cultural remains of another, especially when these are separated by an enormous natural barrier.

The use of large marine snail trumpets in religious ceremonies, for war and for signalling, as well as their discovery in archaeological sites, has been recorded by numerous authors in the four centuries since the Conquest of the New World. Izikowitz (1935) lists 46 culture areas, tribes or linguistic groups—from the North American Southeast and Southwest to Chile—for which shell trumpets have been reported. This list includes both living (or colonial-period) peoples and archaeological cultures. Shell trumpets have been found in Hopewellian mounds in the Southeastern United States, as well as in the Northeast, some of them Gulf of Mexico species (\*). They have also been found as far north as Canada; trumpets of the species *Busycon perversum*, from the Gulf of Mexico, were discovered in mounds in Neuter Cemetery, Humberston, Ontario (Boekelman, 1937:295-296). Most interesting, in view of the Caribbean shells in Western Mexico, is a *Strombus gigas* Linné shell trumpet in the Toronto Museum. This Caribbean shell was collected on the Grand River Reserve, Tuscarora township, Ontario (Boekelman, 1936:27-31). The same author cites a reference, dated 1877, to the discovery, in a mound near Alton, Illinois, of a number of

"Sea shells of the species *Busycon perversum*, which must have been brought from the Gulf of Mexico, concerning which it is worthy of note that the crowns or tops of the shells are missing, having apparently been cut off in each instance at about the same angle."

Such treatment indicates their use as trumpets, a fact which was then not yet recognized. It is entirely possible that some, if not all, of the supposedly "unworked conch shells" listed in early site reports in the Southeast, Middle West and even Canada were, in fact, trumpets. A restudy of this material seems indicated.

Boekelman also cites some discoveries of conch shell trumpets in the Southwest: a West Coast conch of the species *Strombus galeatus* Wood, found by Emil W. Haury at Snaketown, Gila River, Arizona; a similar specimen reported by J. W. Fewkes in 1896 from Cheylon, Tusayan Pueblo, Arizona; 12 specimens of the same species and two of *Murex*, discovered by G. H. Pepper in 1909 at Pueblo

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(\*) The examples cited here are intended only to illustrate the wide distribution of, and long-range trade in, conch shell trumpets, and do not pretend to represent an exhaustive list.

Bonito (several of them with mouthpieces inlaid with turquoise); a *Murex nigritus* Philippi from Wupatki, northern Arizona; two *Strombus* trumpets from Gila Pueblo, found by Haury, and several trumpets of *Strombus galeatus* and one of *Melongenaputula* which Haury identified among Classic Hohokam material found at Los Muertos, near Tempe, Arizona, in the 1880s.

Izikowitz, in his review of the distribution of these artifacts, points out that they are concentrated particularly heavily in Meso- and Central America and along the Pacific Coast of South America, from where they seem to have spread inland by trade. They are found also in eastern South America, though more rarely, mainly in the Guianas and near the mouth of the Orinoco, as well as in the West Indies. They are lacking, however, in Amazonas, the Gran Chaco, Patagonia, the Tierra del Fuego and eastern Brazil. More recently, the shell trumpet was mentioned as a culture trait for a number of peoples by several of the contributors to the Handbook of South American Indians (1946-50). Bennett (1946:104) and Larco Hoyle (1946:169) report trumpets of both clay and shell for the Mochica, as did Izikowitz. Rowe (1946:276,290) names conch shell trumpets as an Inca culture trait at the time of the Conquest; the same instrument (*pototo*) is still used by the modern Quechua "as a ritual instrument blown at certain times in the Mass." The Araucanians call their shell trumpets *kulkul* (Cooper, 1946:738); among the Páez and Mogueux in the highlands of southern Colombia it is called *foruto* (Hernández de Alba, 1946:951). Such peoples of the Cordillera Oriental and the Venezuelan Andes as the Lache, Chitarera, Timote and Chinato used the shell trumpet, as did the Cariban tribes between the Orinoco and the north coast and the Arawak of the Greater Antilles (Steward, 1948:20,23,25). Shell trumpets were also common in coastal sites in Honduras (Strong, 1948:83) and in West Indian Arawak sites (Rouse, 1948:509). Hatt (1924:35) excavated a trumpet of the species *Strombus gigas* in a Taino site on St. Thomas, and the same author also reports that the people living on that island were still using such trumpets at the time of his visit. The use of shell trumpets by the Warao of the Orinoco Delta was touched upon on an earlier page; Wilbert (1956:5) reports that the Warao use it mainly for signalling but also for such ceremonial purposes as announcing the death of a member of the tribe. The present owner of the Warao shell trumpet illustrated in Fig. 1 told the writer that anyone in the village may blow it and that it is used for such purposes as giving directions to canoes lost at night in the intricate network of small and large *caños* in the Orinoco Delta, to notify neighboring villages of the right time to hunt crabs and to announce the completion and launching of an especially large dugout canoe. The latter use seems to be largely ritual. As Wilbert points out, the Warao are among the few tribes of eastern South America which use this instrument, and even among them it is very rare. It may be assumed that the Warao took it over from the Arawaks or Caribs, from whom they also adopted many other material culture objects and techniques.

I doubt whether Izikowitz (1935:242) is correct in assuming that the original function of the shell trumpet was that of a signal instrument, both in peace and in war. Rather, the available evidence points to its employment first in ritual and only later for more secular purposes. Even its use in war, both in Mesoamerica (Seler, 1904:II:613), Central America and South America, is certainly not unrelated to ritual and magic, in view of the ceremonial and ritual aspects of much of Indian warfare.

How old an instrument is the conch shell trumpet? Sachs and v. Hornbostel (1914) divided all musical instruments into four basic classes: (1) idiophones, (2) membranophones, (3) chordophones, and (4) aerophones. The first class, meaning instruments which produce a tone either by means of their stiffness or elasticity, but without the use of a stretched membrane or string, includes what Sachs suggests are the two earliest of all musical instruments, the clacking or percussion stick and the jingle rattle of hoofs, seeds or other natural materials. Sachs (1959:23-4) believes that these two rhythmic noise-producing instruments were joined, at some time in the Late or Upper Paleolithic, by a number of others, among them the bullroarer, rasp and gourd rattles (all idiophones), as well as the first true trumpets blown by lip vibration (possibly evolving out of the so-called "roarer" tube which is used only to amplify the human voice). Later came also the conch shell trumpet. Such instruments were employed primarily for supernatural, ritual purposes, from which women were frequently rigidly excluded. The enormous distribution of the conch shell supports Sachs' view that it is a very old instrument. It is known not only where large marine shells occur naturally but even far inland. In agricultural societies the conch shell is sometimes associated with life-giving rain and water; in India, for example, conch shells are blown by priests at sowing and harvesting time (Sachs, 1959:57). In Germany the conch is blown in an effort to banish thunderstorms which might threaten the harvest; Sachs (*ibid.*), reports this custom for the Kinzig Valley in Baden, as well as the Bohemian Forest. That the conch shell and its association with gods were of great ritual significance to the builders of Teotihuacan may be gauged by the frequency with which it appears in murals and raised reliefs, in this great ceremonial center in the Valley of Mexico, far inland from any source of such shells. One impressive mural, uncovered in the most recent excavations at Teotihuacan, depicts jaguars with plumed headdresses blowing decorated conch shells with rimmed, tubular mouthpieces (Bernal, 1963:36-37). Rain is shown falling in large drops from the shells. Moreover, the excavators discovered a temple with stone reliefs of four-foot-high conch shell trumpets with mouthpieces and feather decoration (the so called *Templo de los Caracoles Emplumados*). Conch shells are also associated with the Plumed Serpent in the well-preserved polychrome relief carvings on the facade of the Temple of Quetzalcoatl at Teotihuacan. The same symbolic association, incidentally, is reported from Zuñi Pueblo, in western New Mexico (Stevenson, 1901-02:94-95). Here, at the ceremony of the coming of *Ko'loowisi*, the Plumed Serpent, the priest constantly blows the Great Shell as the voice of the serpent.

The world-wide association of conch shells with water, perhaps since ancient times, is, of course, a perfectly natural one which could occur to anyone, anywhere — provided that the recipient of the shell is aware of its natural habitat. We cannot assume that *all* inland peoples possessed such knowledge. Would a Kalahari Bushman or an Australian aborigine in the central desert necessarily associate a triton horn with rain magic unless he were told that the shell came from the ocean or that others used it in magical ceremonies to produce rain? How many urban children today associate milk with cows, rather than with bottles, cartons or the milk man? It is likely that the original function of the conch shell was to produce an awe-inspiring sound somehow related to the spirit world, as are the bullroarers and didgeridoos of the Australians and that specific rain-making attributes came much later, perhaps during the Neolithic. This, of course, will always remain in the realm

of hypothesis. Nor can we tell whether the conch shell trumpet was "invented," in the sense that someone deliberately set about experimenting with a conch shell to determine if it might be made to serve as an instrument, or whether its use as a trumpet was discovered by accident. Conch shells become trumpets only when a blow hole is made in the shell. The apex is the hardest part and it is not likely to be knocked off accidentally without severe damage to the shell; rather, it is carefully cut and ground off in the manufacture of the instrument which may then be blown with or without a special mouthpiece inserted in the hole (\*). Deliberate experimentation, therefore, seems the more likely hypothesis.

Sachs (1959:25) suggests that instrumentation may have begun even on the early idiophonic and single-note aerophonic level by the linking of instruments of different sizes and tone levels into pairs. In Australia, for example, the large bullroarer may represent the male principle and the smaller the female. The combined sound of the two instruments confirms nature itself: the male has the deeper voice, the female the higher. Sachs sees this as a tonal expression of the magically creative principle embodied in the male-female opposition. In matrilineal cultures, such as those of West Africa, there may be a reversal of the "roles" of the instruments: the female drum is both larger and deeper-voiced than the male, because the higher tone is the more active and the lower more representative of the womb of woman and the earth itself. The same pattern occurs in Bali (Mantle Hood, 1965, personal communication). Although shell trumpets are, strictly speaking, always one-note instruments (\*\*), which, unlike drums, cannot be tuned, the linking of two shells, one with a higher and the other with a lower note, has been reported from South America. The Páez, a Chibchan group living in the Tierradentro of Colombia, had a sea shell trumpet dance (*baile de caracol*) in which two shells were played, one with a higher tone than the other (Izikowitz, 1935:229). Small conch shells or clay models of shells were also commonly used as whistles, flutes and ocarinas in western South America, as in Mexico, and some of these seem to have been designed to be played always in pairs. One such linked pair of conch shell whistles from the archaeological Chancay culture, tied together by a band of woven cotton, is illustrated by Izikowitz (*ibid.*, p. 287). The custom of playing pan pipes in linked pairs, and of double-serial and other types of pan pipes related to the same principle, is well documented for South America, both archaeologically and ethnographically. In living cultures these pan pipes are often referred to as male and female, or father and mother. One Mochica pottery vessel (Kutscher, 1950:31) depicts two players, themselves apparently spirits of the dead with fleshless skulls, playing pan pipes linked together with a cord, possibly designed to keep together as a pair those instruments which complement one another and whose pitch may not altogether agree with any other pair. Pan pipes tied together into pairs are still common among some South and Central American tribes, among them the Cuna and the Mutilones of Colombia, and the manner of antiphonal playing

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(\*) There is a second type of conch shell trumpet in which the blow hole is drilled beneath the point of the shell. This is the side-blown triton horn which co-exists in some regions of Oceania, but not in the New World, with end-blown shell trumpets. For further discussion, see below.

(\*\*) An exceptionally skilled player can, with some effort, produce two tones on some conch shell trumpets.

of pan pipes, in which every other note in the scale is found on one instrument and the remaining notes on the other, is known as far east as the Guianas (Iziko-witz, 1935:397). The same custom of paired instrument playing is also documented for Mesoamerica, especially for trumpets. Several illustrations of this ritual custom (which the Spaniards called *trompetas gemelas*) may be found in Sahagun (Anderson & Dibble, 1951:Pl.19,22). One of these shows two men blowing on two straight trumpets, the instruments crossing over each other; another depicts two players blowing conch shells while standing in a canoe. The ritual custom of playing trumpets in pairs is not limited to the Aztecs. A sacrificial scene on a mural dating to Toltec times, discovered in the Cañada del Diablo, near the Valle de Bravo in the State of Mexico, shows a pair of players blowing on straight trumpets and flanking a third with a conch shell trumpet (Marti, 1955:60). The famous murals at Bonampak indicate that the same custom prevailed among the classic lowland Maya.

While it is now clearly established that conch shell trumpets represented an important object of intra-American trade as early as the Formative period, the writer knows of only one pre-Hispanic shell trumpet which may well be of extra-American origin. This is a large triton shell horn illustrated by Hutchinson (1873: I:134-35), reportedly excavated in the Cañete Valley, some 50 miles north of Paracas, Peru, a region rich in archaeological sites and burial grounds (Fi. 6, a&b). Cañete was one of the principal culture centers in the region south of Pachacamac from the beginning of the so called Expansionist period (A.D. 900-1200) through Inca times (Bennett & Bird, 1960), although it was evidently also occupied far earlier. The looting of graves and *huacas* has been a major industry in this area for a very long time, commencing, most likely, not long after the Conquest, when the primary objective was gold to be melted into bullion rather than pottery and textiles for the antiquities market.

The Cañete trumpet is decorated with tassels of human hair and suspended from a woven strap which Hutchinson (ibid., p. 134) describes as "of exquisite workmanship". This kind of instrument, he writes, was called a *bosina* because its sound resembled the roar of a bull (*L. bos* = ox, cow). The term *bosina*, apparently related also to the Roman *buccina*, a military trumpet resembling the letter C, seems to be post-Conquest; the common Quechua term for the conch shell trumpet is *putatu* (Roberts, 1926:352) or *pototo* (Rowe, 1946:290). Hutchinson did not describe his *bosina* in greater detail but Nils Odhner of the *Riksmuseum* in Stockholm identified it for Izikowitz (1935:228) as a *Tritonium tritonis*, an Indo-Pacific species commonly utilized by the Polynesians and Melanesians for shell trumpets. It is not native to the coasts of either North or South America. A somewhat similar, though relatively rare, Triton shell, the *Charonia*, occurs in the Caribbean, but a point by point comparison of Hutchinson's illustrated specimen with both the Indo-Pacific and the Caribbean tritons clearly places it with the former. The location of the blow hole also identifies it as a probable Oceanic import. As stated earlier, indigenous New World shell trumpets are all end-blown. The only side-blown trumpet reported for America is one used by the modern acculturated Yecuana on the Orinoco (Koch-Gruenberg, 1916), but all authorities agree that the Yecuana adopted this instrument from African or European sources. The side-blown triton shell is, in fact, a typically Malayo-Polynesian or Austronesian culture trait. Its distribution in Polynesia is general, with the exception of Hawaii and New Zealand; in addition, it is found in Micronesia, Melanesia (including New

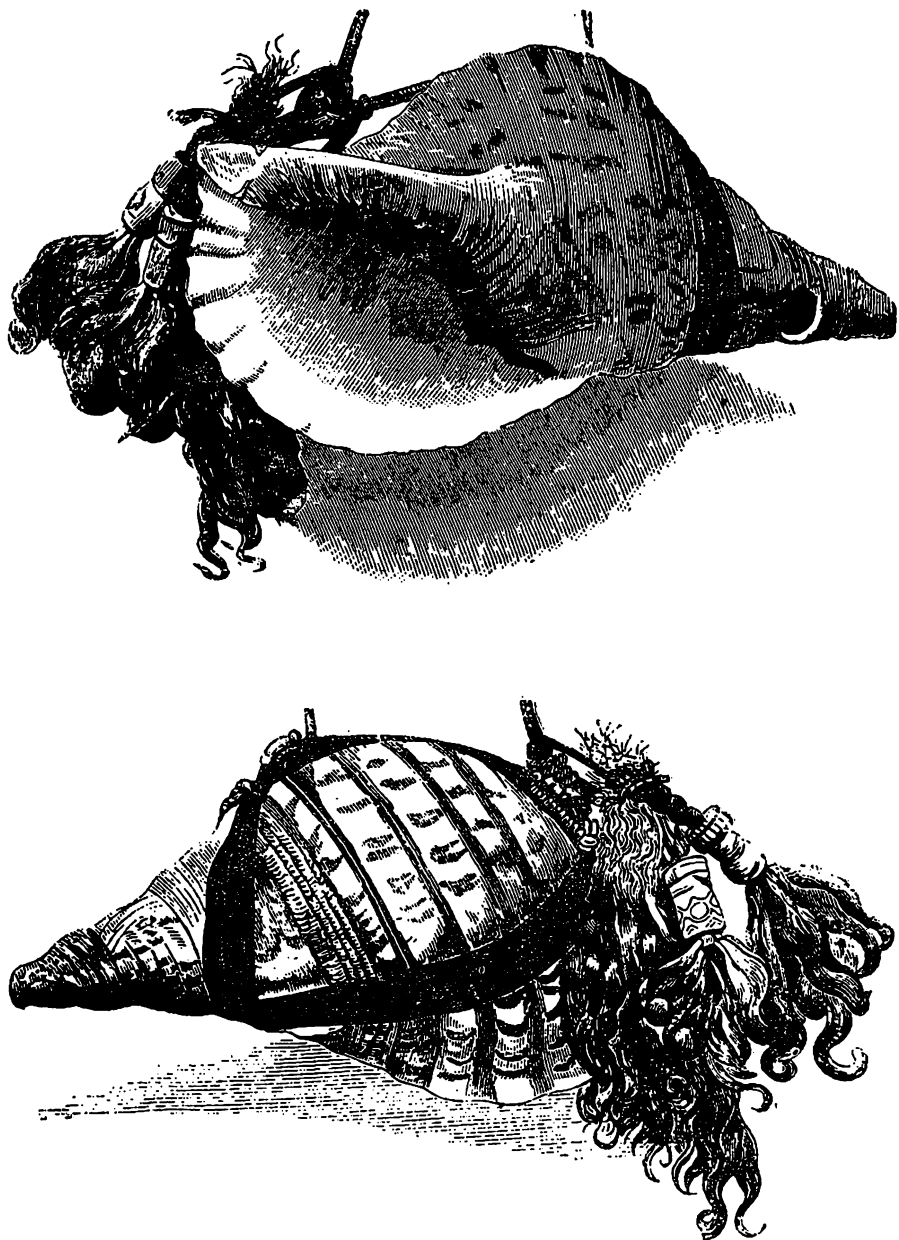


Fig. 6 (a & b)

Sideblown shell trumpet of the Indo-Pacific species *Triton tritonis*, reportedly excavated at Cañete, Peru, before 1873. After Hutchinson (1873:1:134-5).



Guinea), Indonesia and Madagascar (Fischer, 1961:297). The Cañete trumpet also agrees with Oceanic triton horns in the woven lashing and the use of tassels of human hair held by small carved cylindrical toggles. The use of such tassels for conch shells is common throughout Oceania. Heyerdahl (1952:675) mentions a conch shell so adorned which he collected in 1937 in the Marquesas and subsequently gave to the Brooklyn Museum of Art. Even more striking, however, is the resemblance between the Cañete trumpet and the Marquesan instrument illustrated in Fig. 7. The latter is taken from the catalogue of the famous Oldman Collection of Polynesian Artifacts (1953), where it is described as follows:

"War trumpet, large shell much worn with handling. Extremely finely plaited bindings and carrying loop, also an elaborately knotted ornament at end; a finely carved bone *teki* toggle and long tufts of hair attached to this. Length 13 ins. Marquesas. Note: the plaited sinnet bindings on the trumpet and drums are remarkably like the Hawaiian plait."

The Cañete trumpet does not appear to have so elaborately knotted an ornament at the end; on the other hand, so far as can be discerned from the engraved illustration (made from a photograph taken by Hutchinson), the plaiting technique

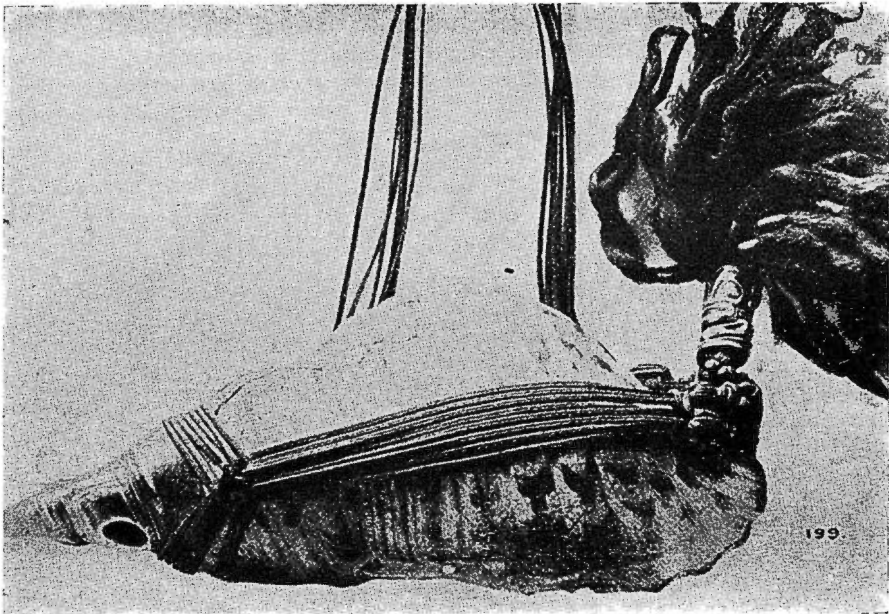


Fig. 7

Sideblown shell trumpet of the Indo-Pacific species *Triton tritonis*, from the Marquesas. Photo from catalogue of the Oldman Collection of Polynesian Artifacts, Wellington, N.Z. (1953:P1. 180).

appears identical, as is also the utilization of tufts of hair and the technique of fastening them to the shell by means of carved toggles. The whereabouts of the Cañete shell are unknown, making it impossible to examine the ornaments themselves. But even in the rather sketchy treatment in the engraved drawing one may see a close resemblance to the Marquesan carvings.

With respect to Heyerdahl's reference to the Cañete trumpet in his book, *American Indians in the Pacific* (1952), Fischer (1961:297) comments that this Polynesian trumpet in the New World hardly substantiates the theory of American origins for the Polynesians but that it is at least indicative of some contact between the two areas. Fischer, by the way, also mentions a number of other American-Polynesian parallels in musical instruments but suggests that these may be due more to common origins on the Asian mainland than to any direct contact between Polynesia and the New World, with the possible exception of some localized two-way borrowing.

One cannot, of course, altogether dismiss the possibility that the Cañete specimen was not really excavated in Peru but was brought there in post-contact times, perhaps as a souvenir by an early traveler. No matter how reliable he is as an observer, Hutchinson did not, after all, actually *see* the trumpet being excavated but had to accept the word of others that it was, indeed, an artifact excavated in a pre-Hispanic context. On the other hand, Hutchinson was never even aware that his *bosina* might be anything other than a true Peruvian artifact. He had seen shell trumpets before and knew they were not uncommon archaeologically. None of his informants claimed Polynesian origins for it and, in any case, his diary predates by many decades the great debate over trans-Pacific diffusion. Nevertheless, though it appears to be a true Polynesian import, the Cañete trumpet must remain little more than a historic curiosity which can gain weight only when added to other evidence of contacts. Even then, of course, American-Polynesian contacts can have no bearing either on the widespread distribution of shell trumpets in the New World, or on the larger problem of the development of Andean or Mesoamerican civilization, for the Polynesian settlement of the Pacific islands came far too late to have affected either (\*).

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While it is true that many of the problems sketched out above are primarily of an archaeological nature, they clearly transcend pure archaeology and they require urgent attention by Americanists with broad culture historical interests as well as a deep-going familiarity with more localized questions. One of the most frequent criticisms of diffusionist theorizing is that we need a far better understanding of sharply defined and definable local developments before we can turn to broader considerations of cultural connections. But this is an objection which goes back at least half a century, when it was used against Graebner and the early exponents of the *Kulturkreis* concept. One would hardly deny the validity of the criticism; the early culture historians were frequently guilty as charged, having

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(\*) Suggs (1960:112) reports the earliest radiocarbon date for a Marquesan site as 2080 ± 150 B.P. and more recently (1965:222) expressed the view that the date of the earliest settlement in the Marquesas does not fall much before 150 B.C.

based broad generalizations on incomplete data from the local areas they sought to tie together in a kind of cultural spiderweb. But not all their data were faulty, nor all their hypotheses entirely wrong. Moreover, the situation has greatly changed in the meantime. The volume of data, both descriptive and material, has grown to immense proportions, thanks to the development of new sophisticated techniques of collecting and evaluating, the growth of scientific archaeology, revolutionary improvements in communication and an increasing interest in and understanding of the arts and crafts of non-literate (or "primitive") peoples. It may well be that the files and collections of ethnologists, musicologists, museum curators and even private collectors contain the very materials which will facilitate up-to-date comparative study in many aspects of human culture. Both the tracing of cultural relationships and the comprehension of local processes bear validly and even vitally on our understanding of the development of the many cultures of the New World, and neither can have lasting value without the other. In this day and age of ever-greater specialization, is it too much to hope for the kind of interdisciplinary approach which alone can lead to fruitful results?

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