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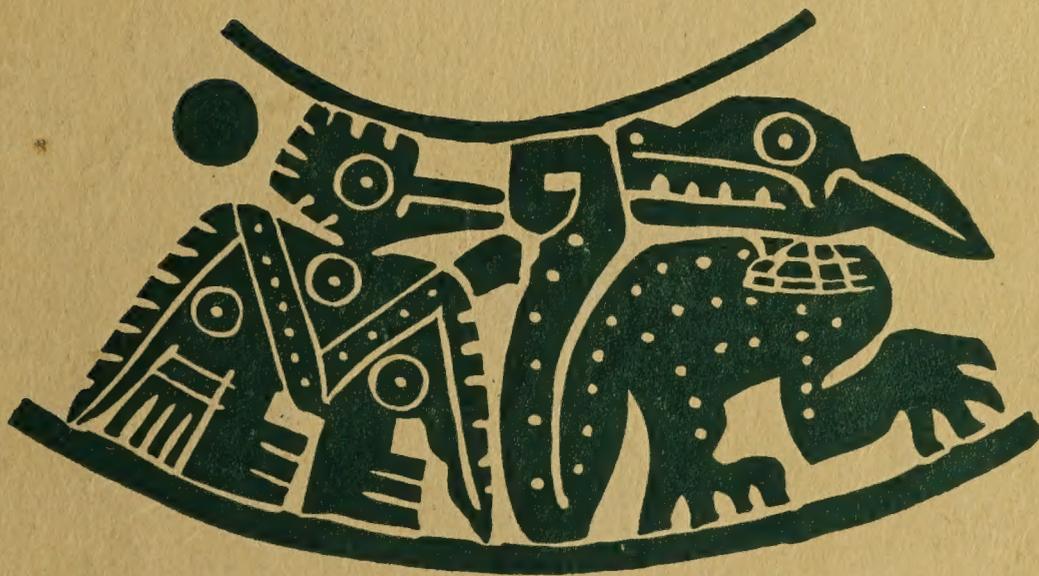
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THE THREAD OF LIFE

SYMBOLISM OF MINIATURE ART FROM ECUADOR

JOHANNES WILBERT



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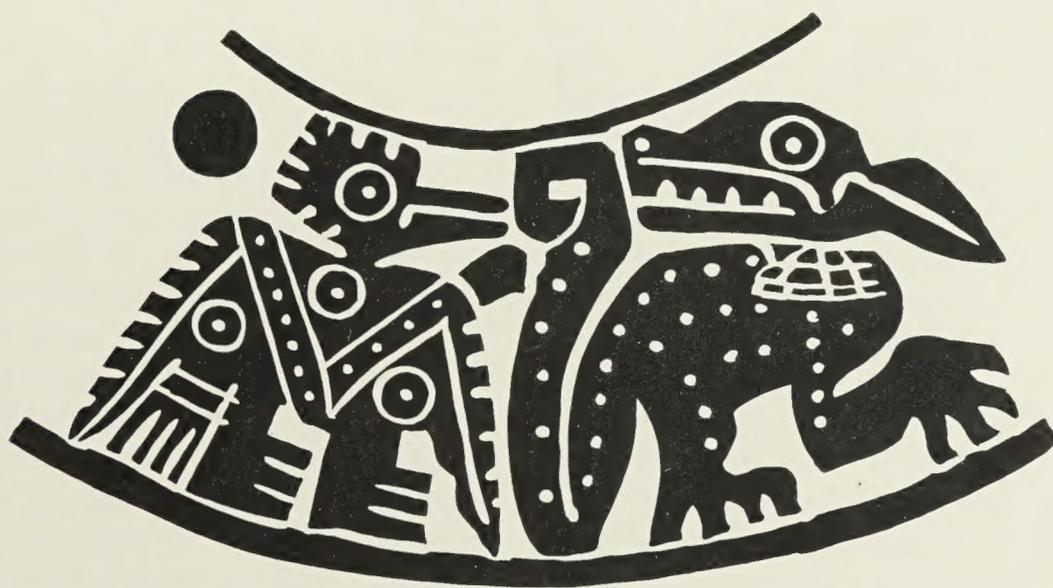
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STUDIES IN PRE-COLUMBIAN ART AND ARCHAEOLOGY NUMBER TWELVE

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SYMBOLISM OF MINIATURE ART FROM ECUADOR



JOHANNES WILBERT

Dumbarton Oaks Trustees for Harvard University Washington, D.C. 1974

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Acknowledgments

I HAVE EXAMINED for the present study an estimated eight thousand spindle whorls from Ecuador. This examination was made possible through the cooperation of the Museum of Cultural History at U.C.L.A., the Los Angeles County Museum of Natural History, the National Museum at Bogotá, Colombia, the Ethnographical Museum of Göteborg, Sweden, the private collections of Becky Holmes and Franklin D. Murphy, and the holdings of several art dealers in the Los Angeles area and in Quito. I cannot overemphasize my appreciation for all the help I have received from these individuals and institutions.

In addition to the pieces that were actually at my disposal, I examined the illustrations of some five hundred Ecuadorian spindle whorls depicted in two previous publications. I am referring to the well-documented publications by James Warren Felter (1967) and María Antonieta Funes Sánchez (1970).

Special mention must be made of the great benefits I derived from the work of the late Víctor Emilio Estrada. Together with his colleagues from the United States, Clifford Evans and Betty J. Meggers, Estrada has laid the groundwork for modern archaeology in Ecuador. The present study takes its leitmotiv from Estrada's elaboration of the prehistoric Ecuadorian "cult of fertility."

The spindle whorls were drawn by the artist Helga Adibi. No words can adequately express my admiration for her work. Ms. Adibi spent countless hours studying the whorls before she absorbed their subtle nuances thoroughly enough to reproduce them in freehand drawings. Her artistic feeling and astute perception coupled with her boundless patience produced the illustrations of this book which, because of their fidelity, do honor and justice to the artists of about two thousand years ago.

The maps and illustrations other than spindle whorls were done by Trish Caldwell. Becky Holmes, William B. Lee, and Hans-Werner Wilbert helped me with the photographic work. Diego Delgado's suggestions concerning the identification of whorl designs were much appreciated.

I could not have wished for a better editor of my book. Dr. Peter T. Furst refined the style of the original manuscript, improved the rendering, and suggested the inclusion here and there of additional comparative information. Throughout the years of research, I have had countless conversations with him and his wife, Dee, about the spindle-whorl art and I acknowledge gratefully their substantial contribution to this study. I also wish to thank my colleagues, Dr. Christopher B. Donnan and Dr. José Ricasens, for their many suggestions.

Karin Simoneau assisted me with the rather extensive library research and helped me place the spindle whorls in their ethnographic context. Never have I enjoyed more competent research assistance. Audry Zielonka had the patience and the competence to type the various drafts and the final version of this book.

Of the many friends and colleagues who responded to my multiple requests for help and material, I am especially thankful to Drs. Olaf Holm from Ecuador and Henry Wassén from Sweden.

To all the persons mentioned and to all the authors cited in the bibliography I extend my heartfelt feelings of gratitude and appreciation.

JOHANNES WILBERT

University of California
Los Angeles, California
September, 1972

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To Franklin D. Murphy



If we are to see things in their right perspective, we need to understand the past of man as well as his present. That is why an understanding of myths and symbols is of essential importance.

C. G. Jung





Fig. 1 Spindle whorl. Black, conical. Max. height: 13.9 mm. Max. width: 14.1 mm. Diameter of holes: 3.6 and 3.8 mm.

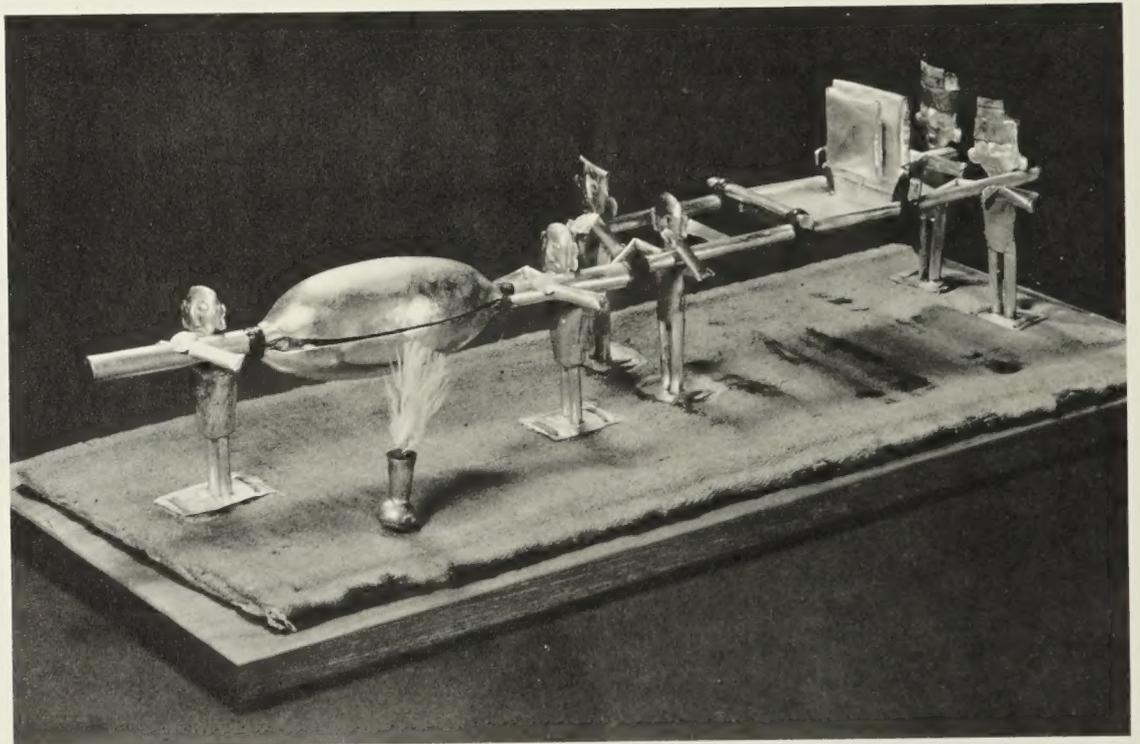


Fig. 2 A procession of small figures in silver found in a grave of the Inca period in the Chicama Valley, Peru. It is believed to represent a funeral procession; the container preceding the litter (which probably carried the body) would have held material belongings which were also interred. (Osborne 1968: 136. Photo courtesy American Museum of Natural History.)

Introduction

IN ONE of his important papers on coastal Ecuador, the late Emilio Estrada (1957a: 46) suggested the existence of a so-called "cult of fertility" among the peoples that inhabited the coast of prehistoric Ecuador. Evidence for such a cult throughout much of the area, he said, includes ceremonial pottery, spindle whorls, stamps, dishes, figurines, and copper axes decorated with the same or related designs, which emphasized, among other things, human couples and such animals as monkeys, jaguars, anteaters, birds, fishes, and certain reptiles. Frequently a death's head was also depicted. All of these animal symbols may be observed on the spindle whorls. In the accompanying text I shall endeavor to call attention to and, where possible, interpret one or another aspect of these representations and their relationship to the problem of "fertility," or, to put it another way, the symbolic cycle of life and death—survival itself—of man and all life on earth.

At the outset I wish to emphasize that the body of spindle-whorl art in this book was not selected with life-and-death symbolism—or, indeed, symbolism of any kind—in mind. The author was originally attracted exclusively by the Ecuadorian spindle whorls as a remarkable example of ancient American miniature art, and especially by their strong aesthetic appeal and delicate quality of workmanship in a particularly difficult medium. As so often happens in the analysis of ancient art, it was only in the course of looking at several thousand examples in detail that I gradually came to realize that, contrary to first impression, the selection of subject matter for the designs was not haphazard. Rather, the ancient artists seemed to have selected only certain subjects from their natural environment for depiction. Instead of a representative cross section of the local fauna, certain animals appeared over and over in spindle-

whorl art, to the apparent exclusion of many others that one would have thought were important either in the economy or the symbolic universe of coastal Ecuador. I say "apparent" because there was the possibility that the mass of spindle whorls available to me—several thousand in the collections of the University of California at Los Angeles alone—was not in fact completely representative of the totality of Ecuadorian spindle-whorl iconography. Accordingly, I began to look at new collections of spindle whorls for the purpose of finding additional subject matter, rather than, as earlier, only for several good examples of each kind of design for comparative purposes. In this way I hoped to establish a reasonably accurate cross section of most, if not all, of the iconography of spindle-whorl art.

In the course of this search I came across the remarkable whorl (Fig. 1) depicting what appeared to be birdmen, possibly representing owls, carrying a person on a litter. This started me on a wholly new train of thought. Litters, which in other parts of the world are used to transport living persons, especially nobles and dignitaries, occur in the New World only sporadically. From descriptions of Ecuadorian, Inca (Fig. 2), and Maya burials, however, we know that deceased chiefs were often borne to the grave on litters, and that grave-goods which accompanied them included, among other things, spindles and spindle whorls (Thompson 1966: 221). Together with other evidence discussed in these pages, these descriptions suggest rather forcefully that the person being carried by the birdmen attendants on the Ecuadorian spindle whorl was dead rather than alive. In other words, it seemed to me that we were dealing here, not with the pomp and circumstance of aristocratic life in prehistoric Ecuador, but with the subtleties pertaining to death.

Why was the symbolism of birds used in relation to death? Here, and, for that matter, for much of the symbolic interpretation in these pages, we can only turn to other cultures—especially those of Mexico, Central America, and South America—for relevant comparative data, for, unfortunately, there are no written records or other direct evidence to document the religious life, mythologies, and other sacred oral literatures of the coastal populations of pre-Conquest Ecuador. Birds as alter egos or spirit helpers of shamans or as messengers to the Otherworld are a widespread phenomenon in aboriginal belief and ritual. Also, there is a differentiation between those birds that soar into the sky and customarily fly high and those that dive, especially into the sea or other bodies of water, the latter species being frequently related to the concept of descent into the Underworld. Owls, too, as denizens of the night, are often associated with the Underworld and death. Accordingly, we might speculate that the birdmen-attendants depicted on the spindle whorl represent spirit companions facilitating the journey of the deceased to the land of the dead—wherever that might have been located in the particular cosmology of the prehistoric coastal Ecuadorians. There are additional dimensions to this particular scene, to which we shall return presently.

It need hardly be emphasized that the comparative

method of analysis and interpretation of possible meanings of Ecuadorian spindle-whorl art, to which we are forced to resort for lack of direct historical evidence, has its limitations. As a general principle, it may be said that however close the thematic or formal analogies from other cultures may be, at best they can only be a crutch to assist in elucidating hidden meanings. In the case of Ecuador, fortunately, the validity of interpretation by analogy with other New World cultures finds support in an increasing body of evidence for pre-Hispanic contact and even a common archaic substratum between the Andes and Mesoamerica. Thus, quite apart from the possibility that the human psyche is itself responsible for producing basically similar symbols independently in different parts of the world, the diffusion of specific iconographic symbols related to spindle-whorl art is a distinct probability.

Of course, for the ethnologist or student of comparative religion seeking to understand symbolic systems by which men achieved balance between themselves and the visible and invisible universe, even a tentative reconstruction, however fragmentary and speculative, is better than none at all. The careful use of analogous data, therefore, can add a sense of discovery to sheer aesthetic appreciation, whatever one's initial purpose in collecting or analyzing this particular form of pre-Columbian miniature art.



Fig. 3 Ecuador on the west coast of South America.



Part I



Prehistoric Coastal Ecuador

LITTLE IS KNOWN of the first people who settled the Ecuadorian coast prior to 3000 B.C., beyond the fact that they lived in small bands and made their living as hunters, gatherers, and fishermen along this westernmost shoreline of South America (Fig. 3). Following this initial pre-ceramic period, the archaeological record for the Ecuadorian coast becomes considerably richer, so much so that the region can be con-

veniently divided into three major periods or stages (Fig. 4).

The first period, the *Formative*, opens with the introduction of pottery-making, ca. 3000 B.C., and lasts until ca. 500 B.C. It, in turn, has been subdivided into two major stages, Valdivia and Chorrera. The people of the Valdivia Culture were strictly coastal, semi-sedentary, and pre-agricultural. During the Chorrera Phase which succeeded it, people began expanding inland. There are strong indications that they also practiced an incipient form of agriculture.

The second major period of coastal development, lasting from ca. 500 B.C. to ca. A.D. 500, has been appropriately named *Regional Development*. It is characterized by a series of distinct local coastal cultures, among them, from north to south, Tolita, Tiaone, Jama-Coaque, Bahía, Guangala, Daule, Tejar, and Jambelí.

The third period, that of *Integration*, saw the blending of the above regional complexes into two distinct coastal cultures, the Atacames and the Manteño, and a highland culture, the Milagro, whose southernmost part covered the El Oro coast just north of Peru. They lasted until the coming of the Spaniards and were—especially the Manteño and Milagro Cultures—characterized by an advanced socio-political organization, large urban centers, and a high level of artistic achievement as evidenced by stone carving and metallurgy (Meggers 1966).

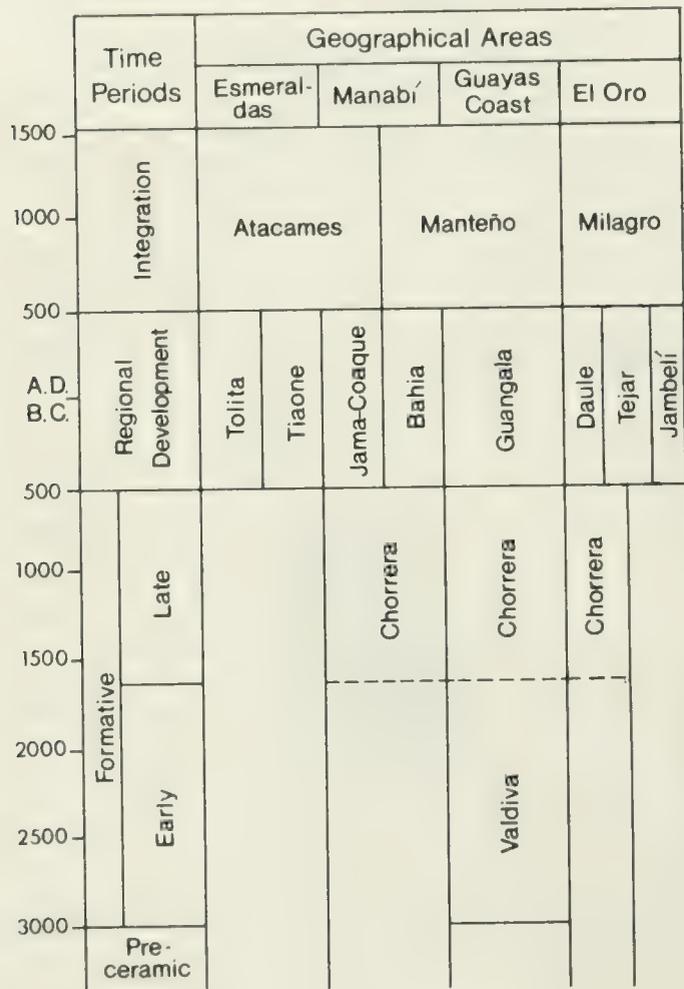


Fig. 4 Culture history of coastal Ecuador. After Meggers 1966: 25.

The Ethnographic Setting

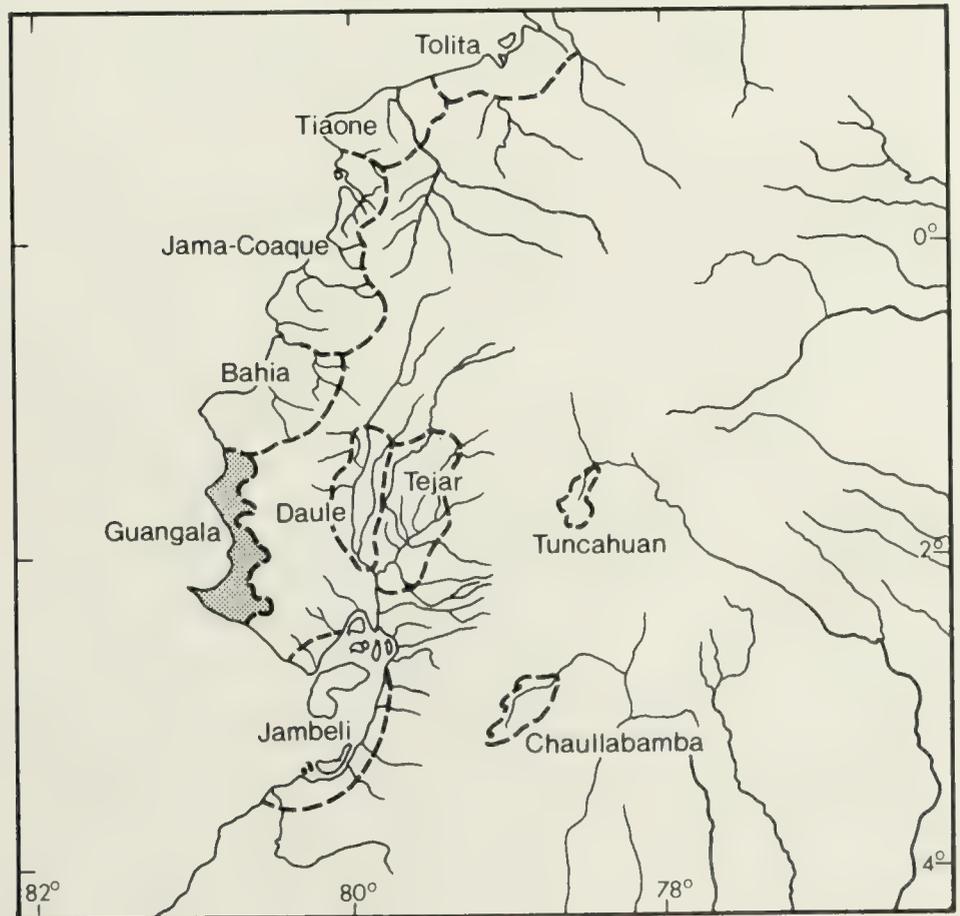
CHRONOLOGICALLY, the spindle whorls with zoomorphic and anthropomorphic designs (as opposed to the more general type with geometric motifs) are limited to the Guangala Culture of the Regional Development Period and to the Manteño Culture of the period of Integration. Geographically, they occur mainly in Manabí, on Puná Island, and on the Guayas coast. Instances of single, isolated finds elsewhere in all probability prove only the existence of trade connections. It seems that a number of whorls with zoomorphic designs found in the Guayaquil area in association with archaeologically recent cultures can be attributed to a late influx of coastal influence, immediately before the Conquest (Estrada 1957a: 40, 44). (See shaded areas on Figs. 5 and 6.)

THE GUANGALA CULTURE

THE GUANGALA CULTURE occupied the southern Manabí coast and a portion of the Guayas coast, the Santa Elena peninsula (Fig. 5). With the exception of the Cordillera de Colonche, this area is low-lying, with a fairly constant temperature throughout the year. Although there is a wet season and a dry season, the amount of annual rainfall is variable, so much so that in some years the Santa Elena peninsula receives no rain at all.

Guangala settlements are small and typically quite scattered. They are confined to the immediate coastal areas and along the major rivers. Of the house structures there are no remaining traces, although "clay

Fig. 5 Geographical distribution of the various archaeological phases of the Regional Development Period. After Meggers 1966: 71.



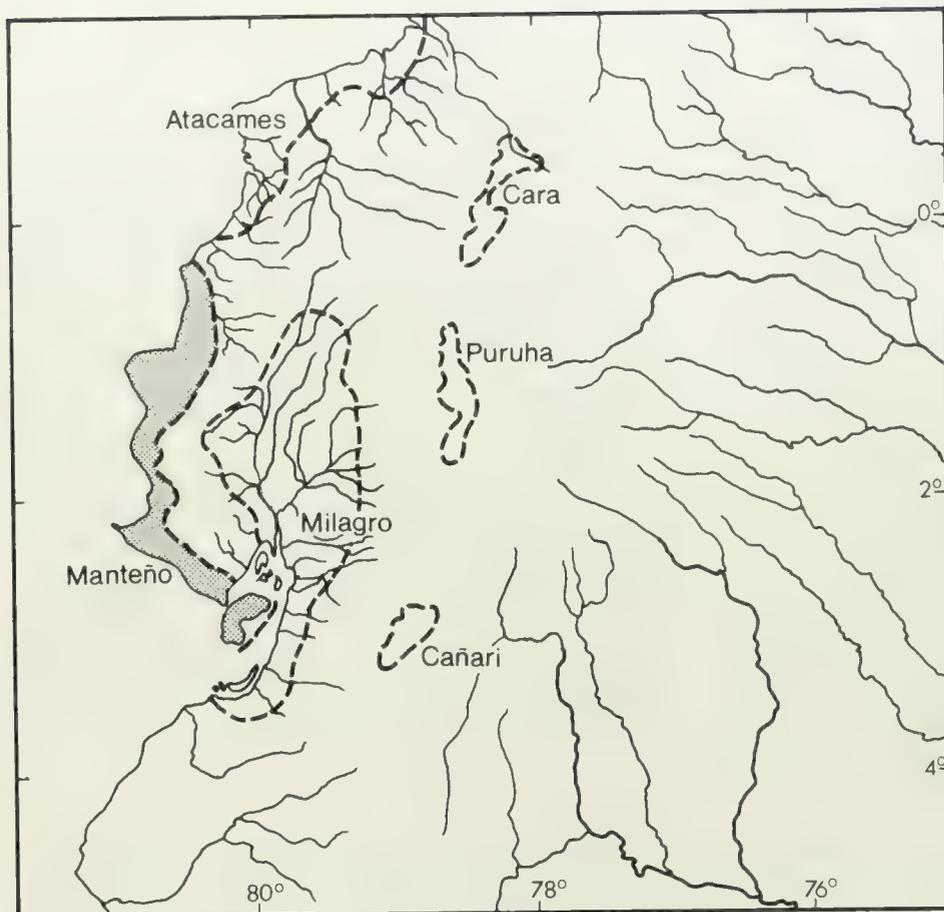


Fig. 6 Geographical distribution of the archaeological phases of the Integration Period. After Meggers 1966: 123.

with twig impressions indicates that houses were of wattle-and-daub construction, probably with thatched roofs” (Meggers 1966: 70). Information available about the Guangala Culture comes almost exclusively from excavated mounds, which are supposed to have been house sites.

Estrada (1958: 15–16) takes the dispersion of these mounds to indicate a semi-agrarian economy, although it seems that the drought during the season when the crops most need rain, and the frequent scarcity of rain during the wet season, would preclude a principally agricultural subsistence system. Bushnell (1951: 1, 3) notes: “The sources of water supply at the present time are shallow pits, dug in the alluvium in the dry river beds . . . and these are supplemented by water caught during the rainy season in ponds formed by damming certain lines of drainage. Few of these ponds retain any water from one rainy season to the next. . . .” Since the local rivers shrink

almost to the point of disappearing during the dry season, and no man-made wells have been found, one must conclude that the water supply of the Guangala Phase people was rather precarious.

The economy was probably based on fishing and shellfish gathering, supplemented by maize agriculture, as evidenced by a large number of *mano* and *metate* fragments. Possibly sweet manioc was used as well. Objects made from deer bones show that deer were also hunted.

The most characteristic features of Guangala pottery are a distinctive decorative technique of brilliant polychrome painting, and a type of five- or six-footed vessel decorated with a human face. There is an obvious distinction between utility jars, which tend to be large and relatively thick-walled, and small jars and vessels, which may have been mainly ceremonial, with thin walls and beautifully decorated and polished surfaces. The following kinds of pottery

have been found in association with burials: open bowls, everted-lip bowls, vases, plates with annular feet, polypods, cooking pots, and jars. Also found, though thus far not in association with burials, are duck-shaped vessels, graters, and bottles (Bushnell 1951: 36–52). Other ceramic objects include: flutes with one end molded into a bird, fish, or human head; whistles in the form of birds or felines; and hollow anthropomorphic figurines, many of which are whistles. Some figurines represent a standing man, nude and carrying a child; others are in the form of a woman, kneeling with hands on thighs. There is also a type of highly simplified human figurine consisting of nothing more than a rectangular clay bar, with head and legs barely indicated. Ceramic animals, perforated for suspension, with three knoblike legs and decoration of dots and incised lines, may possibly represent stylized lizards, snails, or turtles (Bushnell 1951: 56). Also occurring among ceramic objects are earplugs, spoons, net weights, cylindrical or flat stamps (believed to have been used to decorate the body), textiles, and bead-shaped spindle whorls of hard red or brown ware, plain or with incised decoration. A spindle whorl of shell has also been found. Only two kinds of zoomorphic designs are specifically mentioned for Guangala spindle whorls: pelicans (Estrada 1957a: 45, fn.) and snakes (Bushnell 1951: 59).

Implements of stone and shell include celts (frequently used as wedges), chisels, drills, fishhooks and spear-thrower hooks, spoons, as well as a large number of very crude implements that may have been used as scrapers, gravers, etc. (Bushnell 1951: 66). According to Meggers (1966: 72) “. . . celts and chisels . . . attest to the working of wood, although no examples of the products survive.” In addition to spindle whorls, bone awls and copper needles also prove the presence of spinning and weaving, as do impressions of woven materials found on the inside of pottery figurines. Unfortunately, the climate of coastal Ecuador, unlike that of certain very dry regions of coastal Peru, is not conducive to the preser-

vation of such perishable remains as textiles or basketry.

It was during the Regional Development Phase that metallurgy was first introduced, and apart from copper needles a good many Guangala copper objects have been found, most of them of rather simple workmanship. These include fishhooks, tweezers, pins for fastening shawls, and nose rings. The latter were also made of shell. Beads and pendants of shell and stone, pierced for suspension, and mother-of-pearl ornaments, resembling those sewn to woven garments found in Peru, complete the surviving jewelry box of the Guangala people. Needless to say, if recent tropical forest Indians in Ecuador or the Amazon are any indication, there probably were many more kinds of personal adornments fashioned of bright-colored feathers, iridescent beetle wings, vegetable fibers, or flowers. Judging from the ceramic figurines, clothing was probably of minimal importance. One type, possibly female, is shown wearing a short, tight-fitting skirt. Another type, male, wears only a broad collar; another is also nude except for a tall cap. Many figurines have a kind of bulbous headdress, which, however, may be only an exaggerated representation of the common practice of head deformation. The figurines also wear ear ornaments apparently consisting of pellets, two for each lobe, one above the other.

As for burials, Bushnell found two kinds: primary burials where the skeleton is complete and extended, and secondary burials, frequently incomplete, where the bones are placed together in a disordered heap. These burials have been found in association, with the secondary ones for the most part stratigraphically deeper than the primary ones. They occur under mounds of refuse which, as suggested earlier, may have been house sites. Some are accompanied by grave-goods. Meggers (1966: 73) sees no conclusive evidence as to differential treatment based on status or rank, but she suspects some correlation with the sex of the deceased.

THE MANTEÑO CULTURE

THE TERRITORY of the Manteño in aboriginal times extended along the Ecuadorian coast from the Bahía de Caráquez in central Manabí down to and including the coastal parts of Guayas and Puná Island (Fig. 6). Because of the destructive climate and the ravages of the early Spaniards, very little remains to show that the Manteño had actually reached a relatively high level of urban civilization and cultural complexity. However, based on the archaeological record and on contemporary Spanish eyewitness accounts, some kind of picture can be pieced together.

Estrada (1962: 79) distinguishes three cultural-geographic subdivisions: Manteños of the North, Manteños of the South (los Huancavilcas), and the Punáes. The Manteño Culture was the last indigenous culture of pre-Conquest coastal Ecuador, terminating with the Spanish Conquest. Its origins are obscure. Bushnell (1952: 58), for one, believes it to have been intrusive: "The remains, especially pottery, and the distribution of the Manteño culture are so different from those of its predecessors in that area as to make it certain that it was introduced by an immigrant people." What is certain is that the Manteños do not owe their cultural achievements to the Inca, who made several attempts to conquer coastal Ecuador but were eventually forced to withdraw in the face of stiff resistance. In consequence, little or no Inca influence is found on the coast.

The Manteños were agricultural, but fishing and especially long-distance trade were of prime importance, so much so that Jijón y Caamaño (1945) calls them "la Confederación de los Mercadores." The art of navigation was highly developed. Manteño vessels were large rafts, so solid and well constructed that they were not restricted to coastal waters but ventured into open ocean as well. In an account written before 1528, Bartolomé Ruiz describes one Ecuadorian raft as being constructed of thick balsa logs, with masts of very fine wood and cotton sails, and having a capacity of about thirty tons (Estrada 1962: 108-09). This particular raft was carrying

twenty men. Numerous artifacts of materials not naturally available in the Manteño region (jade, copper, etc.) attest to their trading activities. Crops included maize, beans, potatoes, and sweet manioc. The problem of water supply, which in some areas was precarious, was overcome by the Manteños with the construction of wells, some of considerable depth, with walls lined with stone. In some cases reservoirs were built.

With the economy capable of sustaining an increasingly larger sedentary population, several urban centers developed. Estrada (1962: 81-3) estimates, for A.D. 1500, a population of twenty thousand each for Manta, Charapotó, and Rocafuerte, and thirty thousand for Picoazá (Cerro de Hojas). Of Manteño administration and social stratification, Meggers (1966: 130-1) writes:

Differences in status and rank were manifested in differences in the size of houses and in the amount and kind of personal ornament. Puná was administered by seven secondary chiefs under a supreme chief, who was greatly feared and much respected by his subjects, and a parallel situation probably existed on the central Manabí coast with the capital at Manta. The great chief of Puná was surrounded by pomp and escorted by trumpeters and drummers whenever he left his residence. His wives were guarded by eunuchs. . . . Religion was formalized and public temples were tended by priests. Occupational specialization must have existed in arts and crafts also. Order and justice prevailed, according to the Spaniards, and towns were well laid out and maintained.

The Manteño was the only Ecuadorian culture to make extensive use of stone, both for utilitarian and artistic purposes. Of the first category there still remain stone-faced platform mounds, enclosures, and clusters of walled houses of which only the foundation outline is left. These stone foundations are called *corrales*. Saville (1907), who visited these ruins in 1906, before their complete destruction, describes some houses measuring one hundred ninety feet long and thirty-nine feet wide, with walls up to four and a half feet thick. Houses had from one to seven rooms. At Manta alone, he estimated hundreds of then-surviving house foundations, as well as an untold

number already razed to the ground and built over with modern construction. Apparently not all houses were of stone, for Cieza describes some as being of wood, with thatched roofs (*in* Estrada 1962: 106). Shortly after the Conquest the population of Manta swelled briefly when the Spaniards forced the inhabitants of three nearby towns to abandon their homes and move to Manta, but rapidly decreased again due to the cruelties inflicted by the Conquistadores, who went to any length to extract gold and emeralds from the natives (Saville, *in* Estrada 1962: 102).

Manteño lithic art is especially famous for the U-shaped stone "seats" resting on crouching animals or human figures; there are also human statues, often stylized to the point of resembling columns, stone stelae with human figures carved in bas-relief and enclosed within panels of geometric design, animal effigies, and *incensarios*. These objects were confined to what probably were ceremonial centers, at Jaboncillo and Cerro de Hojas, away from populated areas, so that they escaped the eye of the early chroniclers.

There have been various attempts to explain the function of the stone carvings—especially the U-shaped "thrones"—in the aboriginal culture. Attributing the "functional" explanation to European bias, Feriz (1958) flatly rejects their interpretation as seats. Instead, he and Jijón y Caamaño (1945: 257) link them in some kind of ceremonial association to the rectangular slabs or stelae commonly found near them in the *corrales*. Feriz (1958: 396) suggests a comparison with southeast Asia, where similar constructions were used to attract the spirits of the dead and give them a place among the living. In support he cites skeletal finds within the *corrales*, and mentions that a small anthropomorphic effigy was found in one of the "thrones." He also proposes another possible interpretation, in which the "thrones" with their U-shaped form represent female sex symbols and the associated stone slabs phallic symbols. Jijón y Caamaño (1945: 269) was the first to suggest this explanation, which is to some degree supported by the frequent depictions on the slabs of nude females in

what appears to be a position of sexual intercourse. Also, there are cases of artifacts resembling the U-shaped "thrones" found buried in the ground with phallic monoliths placed vertically above them (Feriz 1958: 398). Estrada (1957a: 46–78) agrees with Jijón y Caamaño's interpretation and relates the stone seats and stelae to a whole complex of fertility rites, closely associated with life-and-death symbolism expressed in the carved figures on these stone objects as well as on other artifacts (notably spindle whorls).

Metallurgical skills were highly developed among the Manteño. Although few metal objects have been recovered the early Spaniards attest to their existence. Zárate (*in* Estrada 1962: 108) describes Manteño weapons: "Tiraderas, hondas, porras de plata y cobre, lanzas con el hierro de oro de baja ley." He also speaks of an island sanctuary where there existed "el retrato de una huerta con los arbolillos y plantas de oro" (*ibid.*). "Y allí (Coaque) tomaron quince mil pesos de oro y mil quinientos marcos de plata. . . ." (Zarate, *in* Estrada 1957b: 12). Copper beads have been recovered in Manteño sites, though in such small quantities that Holm (1963: 143), for one, sees this as an indication of the scarcity or high value of copper during this period. Minute pieces of gold have been found, some smaller than the head of a pin, which, when examined under a magnifying glass, turn out to have delicate, elaborate engraved designs that could only have been made with the help of some sort of lens (Verrill 1953: 147–8). Though beaten metal predominates, Manteño metal workers were clearly familiar with the art of casting. Copper implements include mold-made axes with stems, tanged knives and celts, digging-stick points, and a kind of spatula. Among gold and silver artifacts are armlets and leg-bands, belts, "crowns," diadems, tweezers, cups, leggings, pectorals, bells, and belts (Meggers 1966: 128–9). Gold was weighed with a steelyard. Based on contemporary accounts by the chronicler Cieza de León and other observers of Indian culture at the time of the Conquest, Holm (1963: 144–6) suggests that beads of jade and pink shell found among the Huancavilcas, or southern

translators

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Manteño, may have been used as a kind of primitive currency.

Compared with the earlier period of Regional Development, pottery-making underwent a qualitative and aesthetic decline in Manteño times, becoming more and more standardized as a result of large-scale production. Decoration is by burnishing, or often by stamping or punctating. Zoomorphic designs in the form of birds, felines, or other animals are common. Anthropomorphic vessels occur in various forms, as do pedestal-based jars (Meggers 1966: 129-30). Pottery whistles and figurines are also common. The latter, especially the so-called "Manteño solid" type, are quite stereotyped. Spindle whorls are found in great numbers, with excised geometric, anthropomorphic, and, above all, zoomorphic designs.

Cranial deformation was practiced as in the Guangala Phase, and the septum was perforated for dangling nose ornaments. Figurines wear a headdress consisting of a kind of tight-fitting cap, short in the back and long at the sides, similar to the cap worn by some Bolivian and Peruvian Indians today. The solid female figurines show in most instances a kind of necklace, most certainly of *chaquiras*, which hangs down to below the stomach. The necklace was fastened at the neck with a lock of shell. The necklaces of the male figurines hang only around the neck (Estrada 1962: 84). Contemporary Spanish accounts describe short, sleeveless shirts reaching to the navel, with the genital area covered by a loincloth which almost reached the ground (Estrada 1962: 106).

Burials were both primary and secondary. Two of the mounds excavated by Saville (1907) at Cerro Jaboncillo contained a number of burials of children and adults, both singly and in groups. This may possibly illustrate the custom of sacrificing women, children, and prisoners of war which prevailed in some parts of Manabí and on Puná Island. Sometimes burial was primary, below ground instead of in a mound, or secondary, in an urn or double urns (Estrada 1958: 16). Chiefs were buried in very deep shaft graves and sometimes embalmed with a kind

of resin. They were interred with great ceremony, along with personal ornaments, arms, *chicha*, and sometimes with one of their wives (Thompson 1936: 110-11).

The burial practices of the coastal peoples clearly show that they believed in an existence after death, but apart from this very little is known about their religious beliefs. The most important temple was situated in Manta, about in the center of the Manabí coast. We are told that the doorway faced east and was covered with a cotton curtain. Inside were two images like black goats. There were also figures of serpents and large fish, the latter pertaining to the special cult of the fishermen. The Indians of Manta worshipped a great emerald, which was known as *Umina*. Hither came Indians from all parts to make offerings, particularly of small emeralds, to the great emerald. It was believed that the great emerald had powers of healing. . . . One early writer speaks of small shrunken heads in the temples. . . . (Thompson 1936: 111)

"In certain parts of Ecuador the deceased, accompanied by his widow and relatives, was carried to his final resting place in a litter. The procession advanced slowly, the mourners chanting lamentations and keeping time with a peculiar dance, in which a few paces were taken in a forward direction and then some backwards" (Thompson 1936: 101).

It is in the period of Integration, between A.D. 500 and 1000, that we get the first direct evidence of fabric production in Ecuador, although, as already noted, textiles are known to have existed in earlier cultures as well.

Biese (1960: 35) suggests that "the weaving of cloth . . . in most sedentary cultures seems to have developed shortly after the advent of pottery techniques." But in the case of Peru, where the oldest surviving textiles date back about 4,500 years, the art of textile making actually seems to predate the introduction of pottery by at least a millennium. As to the importance of weaving in early Peru, Bird (1968: 9) writes:

It is difficult for most of us today to visualize the role textiles have played in this region. For a thousand years prior to the appearance of pottery in the last half of the second millennium B.C., textiles seem to have been the major art medium. Even after other media were employed, textiles

were important. In time, as more techniques were utilized, as the production of wool and cotton increased, and the dyeing process was perfected, many of the textiles were truly remarkable, both artistically and technically. Before the time of the Spanish conquest, textiles had become a measure of national wealth; they were collected as taxes, as contributions and gifts, were used in ceremonial sacrifices, and distributed as clothing for officials and for the armies.

The earliest surviving textile fragments from coastal Ecuador are six in number, all made of cotton. Some of these were found in graves (Estrada 1957a: 79–85). Cotton was apparently the most commonly worn material, although llama wool, imported from the highlands, was also used (Thompson 1936: 109).

“Textiles were produced in abundance and exported. . . . Flat and cylindrical pottery stamps with geometric patterns . . . may have been used for decoration of textiles. No traces survive of blankets, shawls, shirts, and other garments with bird, animal, fish and tree designs in brilliant . . . colours, described by the Spanish explorers” (Meggers 1966: 128).

In conclusion, it should be noted that all the surviving fragments of Manteño textiles have this in common: they are made of threads spun to the left (S-twist), a characteristic which may possibly have ritual significance.

Ecuador and Beyond

THE COAST OF ECUADOR, especially Manabí and Guayas, has a long and possibly unique position as a region of contact. Meggers (1966: 23–4) writes: “Geographically, Ecuador thus occupies a focal point. Drifting craft from south or north might be cast upon its shore by ocean currents. The intermontane corridors of Columbia form a ramp to its highland valleys, which are in turn accessible via easy passes to the Peruvian highlands or coast. This Andean route was the one most travelled during the colonial period and corresponds to the course of the Pan American Highway today.” The same author also points out that climatically this area was easier for chance arrivals to adapt to than the Peruvian coastal deserts to the south or the Colombian rain forests to the north.

The earliest possible contact postulated so far may have occurred during the Machalilla Phase on the southern Manabí coast. This phase began about 2000 B.C. The Machalilla complex appears on the coast full-blown, with possible tropical forest origins but no local indications of its antecedents. Several of its pottery shapes and decorations appear to be closely related to Mesoamerican ceramics. The latter are of considerably later date, however (500–200 B.C.), so

that contact merely remains a possibility (Meggers 1966: 50–1).

Michael D. Coe (1960: 363–93) finds evidence overwhelmingly indicating connections between the region of La Victoria on the Guatemalan west coast and the Guayas basin, particularly during the Chorrea and Tejar Phases, the latter being a phase of Regional Development in this area. Coe bases his conclusions on ceramic evidence: technology, such as certain kinds of levelled rims, with decorations of iridescent paint, and form, such as whistling jars with bridge handle and single spout. In his opinion the direction of diffusion was in the main from north to south.

During the Regional Development Period there is strong evidence of Mesoamerican contact on the coast of Manabí and Esmeraldas, especially in the Tolita Phase in Esmeraldas. Borhegyi (1959) has prepared a list of sixty-four traits unique to Mesoamerica and Ecuador, most of which are found in the Tolita Phase. Some such traits are given by Meggers (1966: 116) as pottery masks, cylindrical and flat stamps, animal headdresses with gaping mouth, mold-made figurines with feather costumes, plaques depicting couples, family groups, or bound figures, demons and semi-anthropomorphic creatures, post-

fired painting in green, black, white, yellow, etc. The above traits can be traced directly to Oaxaca and the Valley of Mexico.¹

In the social and religious realm [of the Manteño period] . . . early Spanish explorers describe a number of Mesoamerican practices, especially in the Manteño region. Among these are burning of incense in temples, human sacrifice with the cutting out of the victim's heart, flaying of the body, shrinking of heads, and naming of children after the day of their birth. Some of these practices are also reported in the north highlands. In all probability, many are survivals of introductions made during the Regional Development Period. One new element of Mesoamerican origin, however, can be assigned to the Integration Period: ornamental gold inlay on the front of the upper incisor teeth. (Meggers 1966: 158)

Larrea (1958) suggests that the southern Manteño (who made the famous stone carvings) came to Esmeralda in migrations from Mesoamerica, beginning in the tenth century A.D. That the stone monuments date from approximately this time is confirmed by a radiocarbon date from the University of Michigan. Whether or not one wants to go so far as to accept mass immigration from the north, it is obvious from the highly developed watercraft and navigation techniques of the Manteño that migration was at least possible.

While we are discussing these prehistoric contacts between Ecuador and other parts of the New World, we might also briefly consider the relationships that may have existed between ancient Ecuador and Asia and that may account for several specific traits in Ecuadorian spindle-whorl art.

Estrada, Meggers, and Evans (1962) have postulated trans-Pacific contacts taking place in at least two cultural phases on the Ecuadorian coast: Valdivia and Bahía. The first is supposed to have occurred around 3200 B.C., resulting in the introduction of the con-

¹ Krickeberg (1928: 381) observed close parallels between the pottery of highland Ecuador and figurines from Esmeraldas with similar ware from Mexico and the Maya region. He postulated an important gateway on the Ecuadorian coast through which Mesoamerican culture traits diffused into Ecuador and the highlands.

cept of pottery into Ecuador. They base their conclusions on similarities they perceive in vessel forms and decoration between Valdivia pottery and Jomon ware, produced by a contemporaneous culture of Japan, and on the fact that Valdivia pottery seems to have appeared on the Ecuadorian coast suddenly, fully developed, with no local traceable origin.

Estrada and Meggers (1961) propose an Asiatic origin for certain traits in the early Bahía Culture, starting around the first and second centuries B.C. These supposedly Asiatic traits generally persisted through the Bahía Phase and can occasionally be found in neighboring contemporary cultures, presumably spread by diffusion. By the beginning of the Manteño Phase these traits had largely disappeared. The presumed trans-Pacific traits are, briefly: pottery house models with raised gables, neck rests, raft navigation by sails and centerboards, panpipes graduated toward the center, rectangular pottery net weights, "golf tee" earplugs, seated figurines with double beards and necklaces with tusklike pendants, and figurines of warriors with oriental eyes.

In the context of the present study, it is especially intriguing that two spindle whorls from Manabí should add to the apparent evidence for trans-Pacific diffusion. One of these (Fig. 7) depicts a characteristically Asian method of burden carrying, the so-called "coolie yoke"; the other (Fig. 1) shows the aforementioned funerary procession. The artist responsible for the former was obviously acquainted with the fact that there existed two different ways of shouldering heavy loads. There are two panels on the whorl. The first depicts a bird-headed or masked woman wearing a skirt and carrying a large water jar by means of a band across the chest, a variation of the characteristic American Indian tumpline. This method of transporting jugs and other loads with a line across the chest or forehead may still be observed in Mesoamerica and the Andes. On the second panel there appears an anthropomorphic figure, possibly also female, carrying two loads balanced against one another at either end of what can only be described as a typically Asian coolie yoke, a method of carrying

argue

entirely foreign to New World tradition. (It might be noted parenthetically that despite the example set by countless Asian immigrants since the Conquest, American Indians as a whole have never forsaken the traditional tumpline in favor of the coolie yoke.) Whatever the significance of this curious scene, the ancient artist's deliberate juxtaposition of two decidedly different carrying techniques pertaining to opposite sides of the Pacific is certainly striking.

As for the second whorl (Fig. 1), the evidence is less convincing and is mentioned here only in passing. It consists of the fact that the birdman motif on this and similar Manabí spindle whorls has its almost identical counterpart on numerous rock carvings on Easter Island (Northern 1968: 14-20). In view of the

widespread occurrence of bird symbolism and man-bird transformation, not only in the Americas but in many other parts of the world, including Polynesia, this may be only coincidence, explainable on the basis of common beliefs rather than direct contacts. That such trans-Pacific contacts might have taken place, nevertheless—or were at least physically possible—has been convincingly argued by several authors, among them Heyerdahl (1964) and, more recently, Jett (1971). Also, of course, there have been a number of successful accidental and deliberate trans-Pacific voyages in primitive watercraft, including balsa rafts similar to those in use off the Ecuadorian coast at the time of the Conquest. These are too well known to require discussion here.

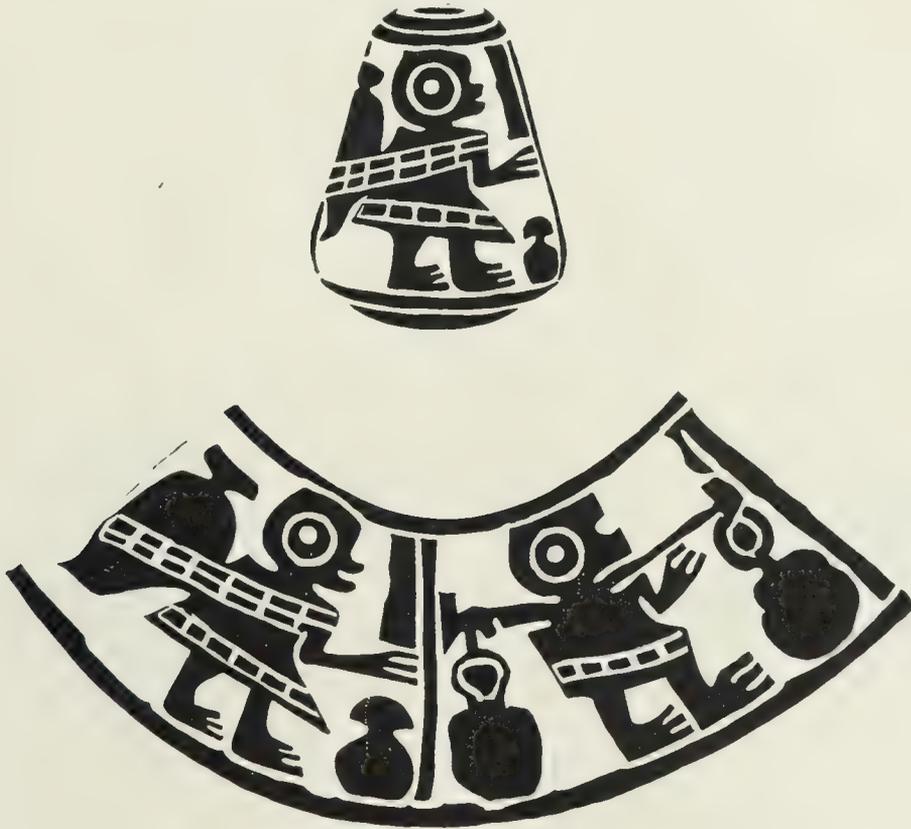
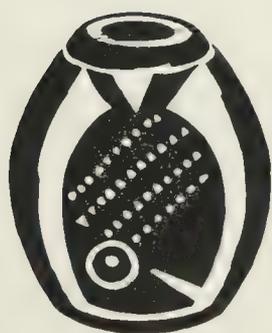


Fig. 7 Spindle whorl. Black, conical. Max. height: 14.4 mm. Max. width: 11.6 mm. Diameter of holes: 2.9 and 3.2 mm.



Part II



Spindle Whorls and Techniques of Spinning

IT IS OBVIOUS by now that pre-Columbian spindle whorls in general, and those from the coast of Ecuador in particular, present far more complex problems for the culture historian than is suggested by their usual classification as economic artifacts or objects of material culture and primitive technology. Rather, they appear to have been intimately connected with concepts of life and death, not merely through the symbolic designs placed on them but through their primary role in the complicated and symbol-laden processes of weaving. To comprehend this more fully it is necessary first of all to discuss the function of spindle whorls and techniques of spinning.

Spindle whorls when found in archaeological contexts are usually taken as indicators of the presence of weaving in a particular culture. There are exceptions to this rule, as in the case of the Yanomama (Yanomamö) of Venezuela and Brazil, who have learned how to spin cotton but use the thread exclusively as body ornaments or for intertribal trading. Generally speaking, however, spinning is a preparation for weaving, the spindle serving as the tool to twist together and draw out massed short fibers, such as cotton or wool, into continuous thread (Emery 1966: 9).

The techniques of spinning and weaving are known to many South American Indians, although they are usually practiced only by agricultural Indians rather than by fishermen or hunters and food gatherers. The most basic material commonly used is cotton. Cultivated cotton (*Gossypium barbadense*) has been found in pre-ceramic shell midden deposits of coastal Peru dating to 3000 B.C. Threads and fabrics of cotton or bast fibers have been recovered by archaeologists from the remains of early cultures along the Pacific coast. In later times wool joined cotton as a basic textile material, with bast fibers and

hair being employed for special purposes. The llama, with its relatives, long a principal producer of wool in the pre-Columbian Andes, seems to have been introduced into Ecuador by the Inca, i.e., in late pre-Conquest times. After the Conquest the Indians adopted the goat and sheep as well, and the wool of these domesticated animals became the basic material used in weaving (Buitrón 1956: 287).

In South America

all spindles have whorls acting as balance wheels to steady the whirling motion. Materials and shapes vary; diameters are from 1 and 1½ to 2 inches. Most whorls are disks or discoidal forms; a few are rectangular. . . . More common materials . . . are wood, drilled pottery sherds, tortoise shell, raw or sun-dried clay forms, bone, stone, and rock. . . . Decorated whorls are not common. Some wooden whorls are carved or incised . . .; pottery is painted. Archaeological specimens from Peruvian sites are usually patterned with small geometric designs. (O'Neale 1949: 98-100)

There are two spinning techniques in South America.

(1) *The Bororo technique* (Fig. 8)

This is the older method, used by the ancient Peruvians and still in use among various tropical forest tribes. The spinner sits on the ground holding the spindle horizontally, with its upper end resting on a forked stick or between her toes, the lower end resting on her thigh or on a wooden block. With her right palm she rotates the lower end so that the motion gives a twist to the fibers which are attached below the whorl. With the left hand she draws out the fiber to elongate it. When it has sufficient twist it is wound on the upper part of the spindle.

(2) *The Bacairi technique* (Fig. 9)

This technique is used by the Quechua and Aymará (the so-called Andean drop spindle). It is still wide-



Fig. 8 Panare woman spinning cotton; Bororo technique. (Photo L. T. Laffer.)



Fig. 9 Woman of the Peruvian highlands using a drop spindle; Bacairi technique. (Photo de Rosner Productions.)



Fig. 10 Spindles from Peru showing the spindle whorls in place. (Photo P. T. Furst.)

spread in South America. The fiber is attached to the upper end of the spindle, which is held vertically. The spindle is given a rotating motion with the right-hand fingers or both palms, almost as in fire making. After being given a final vigorous twist it is allowed to fall, the whorl giving sufficient momentum to draw out and twist the fiber, which subsequently is wound around the spindle. When sitting down, Aymará women would twirl the stick in a small bowl, but the drop spindle was generally used by highland spinners while walking.

Funes Sánchez (1970: 158) has observed both techniques of spinning as being employed by Indians of the Ecuadorian highlands: the Bororo technique when the woman is walking, the Bacãiri technique when she is seated.

The Ecuadorian spindle whorls with which we are here concerned were used on slender eight- to twelve-

inch-long shafts with ends tapering to a fine point (Fig. 10). Whorls with representational anthropomorphic and zoomorphic decorations appear in the Regional Development Period and continue into the period of Integration, when they become very numerous in the archaeological record. Geometric designs seem to be rather less frequent during both these phases and, in any event, may not have appeared as abstract to the participants in the ancient cultures as they do to us.

The whorls are beadlike ceramic artifacts, occasionally flat but usually spheroid, semi-spheroid, barrel-shaped, oblong, or conical (Fig. 11). Funes Sánchez (1970: 158) found the forms and decorations of the whorls varying according to local culture and period. Thus, barrel-shaped whorls are most common on Puná Island, conical ones frequently come from Atacames in the province of Esmeraldas. Mini-

ature sculptures in the shape of vases, pitchers, and pots are known from La Esperanza, near Machala. Zoomorphic, anthropomorphic, and cephaloform miniature sculptures occur as spindle whorls in various Manabí sites. From Esmeraldas come mushroom-shaped whorls, and from Portoviejo, Manabí, what Funes Sánchez (1970) calls "double- and triple-bodies." These whorls were fired in a reducing atmosphere which was not fully controlled, so that although intended colors might have been black and gray, occasionally whorls came out brown and orange. Spindles which have been recovered intact, i.e., with shaft, whorl, and yarn, show that the whorl was slipped over the shaft until it came to rest on the thicker lower third of the stick. The upper hole of the whorl is usually narrower than the lower and it is likely that the wet clay bead was decorated while being held on a stick or spindle shaft. The thread was wound around and over the whorl so that the designs remained hidden under the accumulating yarn. The oval-shaped ball of yarn was passed on the shaft through the weft and thus became a warper (Fig. 12).

Decoration was accomplished mainly by excision and incision. The excavated parts were filled with white lime and possibly other colors. Most frequently represented are such animals as the owl, pachota,

pelican, bat, jaguar, monkey, opossum, fish, snake, iguana (crocodile), frog, slug, and anthropomorphic and zoomorphic representations of what appears to be a "Mother Goddess" figure, depicted in the well-known "hocker," or birthing position which may also stand for coitus. Admittedly, it is often difficult to identify the animals depicted beyond any doubt. Also, certain creatures may possess the attributes of two or more species (i.e., bat-jaguar) which may have been related conceptually in the classification system of the particular time and place, even if they appear genetically unrelated to us. Sculptured three-dimensional whorls have also been recovered but these have not been included in the present selection, except for one example depicting a lizard man. As noted by Sneath (1930: 83), there exists a certain relationship between the decorations on Ecuadorian spindle whorls and those from Peru. Nevertheless, the style of these two Andean regions is distinctive and can easily be differentiated.

In view of the fact that spindle whorls have been found in such abundance in burials and in what appear to be ceremonial sites on the island of Puná and along the coast, there has been a good deal of speculation as to their actual function especially since, as is the case with many Peruvian spindle whorls, those

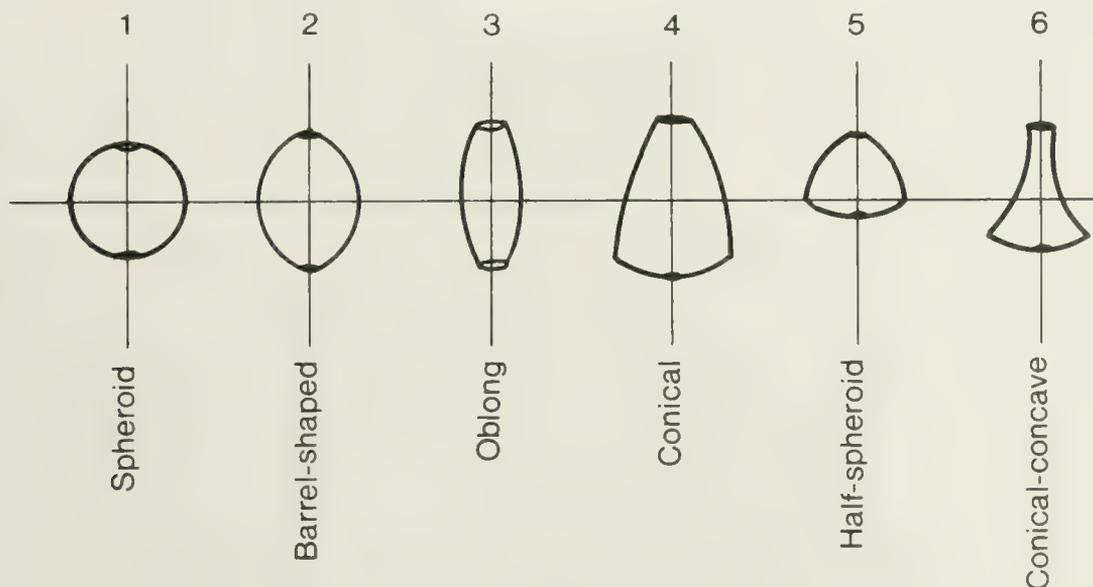


Fig. 11 Typology of whorls according to shape.

from Manabí tend to be extremely small, with such fine perforations that their utility for spinning has been placed in doubt. It has been suggested, for example, that the whorls were really employed as money, or as mnemonic devices similar to the Inca quipus. Another theory has it that the whorls were really beads for beaded skirts or necklaces; strings of them are regularly sold to tourists as "ancient necklaces." It may well be that the whorls were in fact strung together to be interred with the dead and that they did serve certain esoteric functions beyond their original meaning as spindle whorls. Also, it might be noted that many of the whorls show no or little evidence of use, suggesting that large numbers of

them were specifically made as grave offerings. However, whatever their additional meanings, their identification as spindle whorls is certain; too many complete spindles and even excellently preserved baskets filled with spindles, woven thread, and other spinning paraphernalia have been found in archaeological sites in Peru to leave any doubt. Like those from Manabí, many Peruvian spindle whorls are also very small, with fine perforations. As Mason (1961: 244-5) suggested, it may simply be that the lightest whorls were employed to spin the finest threads and yarns, these in turn being used for the weaving of ritual and ceremonial fabrics.

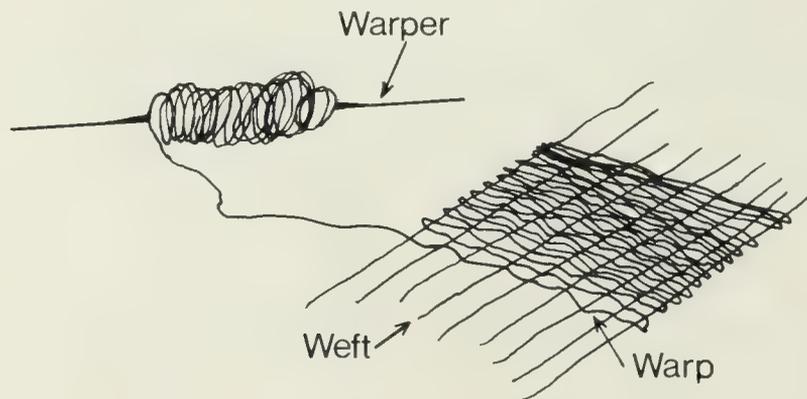


Fig. 12 The spindle used as a warper.

The Thread of Life

SO MUCH, then, for the technological side of the question. We turn now to the ideological. As mentioned earlier, all six surviving Manteño textile fragments were woven of threads spun to the left, a fact which, as noted, may be of ritual significance. Yarns may be spun in two directions, the spiral formed by twisting upward to the left being called the S-twist and that to the right the Z-twist by contemporary weavers. Now, according to Frödin and Nordenskiöld (1918: 49–62), the majority of all contemporary tribes for whom information was available employed the S-twist, i.e., spun to the left, a statement whose accuracy has since been questioned. As for ancient spinning, Bird (1954) has stated that, with a few exceptions in early times, the S-twist predominated on the Peruvian north coast and the Z-twist on the south coast, an apparent regional difference for which there is no explanation.² Interestingly, Frödin and Nordenskiöld speculated as to the possible connection of the spinning direction with “superstitious” beliefs. If a particular tribe was found to produce consistently thread spun to the right, they suggested, this might be due to some cultural dictum rather than a matter of conventional preference: perhaps the people associated misfortune with left-spun materials. This hypothesis finds support in the great body of folk beliefs and practices regarding left and right from all over the world, including North and South America. Frödin and Nordenskiöld conceded that they made only an unconfirmed guess, but some significant ethnographic evidence regarding the meaning of left and right in Andean spinning and weaving has recently come to light, augmenting that already available from early historical sources.

² Unless, of course, it is simply a matter of sampling. After all, what percentage of ancient textiles has survived, and of these, how many have been scientifically excavated and studied?

As is known, pre-Conquest Peruvians used beautifully shaped spindles of wood or bramble measuring from eight to sixteen inches in length. The whorls of pottery, stone, wood, or even metal were placed on the lower part of the shaft, and, although generally speaking contemporary whorls lack decoration, most archaeological specimens from Peru have at least geometric designs.³ The Peruvian Indians used these spindles to produce right-spun thread “except in manufacturing articles to be used in sorcery” (Rowe 1946: 241). An Inca sorcerer who wanted to visit harm, sickness, and death on an enemy would “spin a thread of black and white wool, twisting it to the left (the reverse of the customary direction), and then place a noose of it on a path where the enemy might pass so that it would catch his foot” (Rowe 1946: 314).

That the magical significance of the left-spun thread has survived through time is shown in a recent study of spinning techniques in the region of Cuzco, Peru, where Goodell (1968: 7) found the right-hand or Z-twist to be the normal procedure, while the leftward, or S-twist, was reserved for magical purposes. After studying between forty and fifty rural communities, Goodell concluded that the use of the S-twist (the so-called *lloq’*e**, from the Quechua word meaning “left” or “something different”) is restricted to exceptional circumstances due to its supposedly supernatural properties. In some areas only the medicine man may spin *lloq’*e**, but in most places anyone may use the S-twist when he needs *lloq’*e** for medicinal or ritual-magical purposes. *Lloq’*e** is be-

³ The same reservation regarding the meaning of “representational” vs. “abstract” or “geometric” designs applies here as in the case of the Manabí whorls. Iconographic and symbolic studies of contemporary Indians and other non-Western art show that designs which to us look abstract or geometric may be no less “representational” to the native observer than those we would call “realistic.”

lieved to be effective against various sicknesses, e.g., rheumatism; it makes for easier pregnancies; it protects against hexes and against accidents or bad influences in general. It is always included in the offerings to the earth deity in the annual harvest ceremonies. *Lloq'ë* is also used for success in romances.

Similar practices are reported by Buechler and Buechler (1971: 101-02) from the Aymará community of Compi, situated on the shores of Lake Titicaca on the Bolivian high plateau. Not only is yarn that is "spun the wrong way" used in prophylactic rituals accompanying the birth of twins, but it plays an important role in curing ceremonies, especially for persons suffering from *susto*, or fright sickness, whose soul is thought to have become lost. According to the authors, "During the process of calling the soul, wool spun in reverse is also used. One tears small pieces and throws them to the wind, calling the soul as one throws. The next day this wool is burned and the patient must drink the ashes mixed with water. Yarn spun in reverse is also placed in the patient's hands and on the ground around him so that the soul may not escape" (Buechler and Buechler 1971: 102).

The left-spun or S-twist was also employed ritually in pre-Columbian Mexico, as is evident from the studies of Weitlaner Johnson (1966-67: 179-90), who analyzed miniature garments recovered from caves in the Mixteca Alta. She writes that miniature objects are typically associated with "birth and death ceremonies, curing or witchcraft practices, votive offerings or teaching devices." As for the direction of spinning, she writes, although "one could generalize and state that the Z-twist was *the* motor habit among spinners of cotton in Mesoamerica," the fact is that left-spun yarn was used for miniature garments from three different Mixteca caves and that S-twisted and Z-twisted yarn even occurred side by side in the same weaving.

Apart from the surviving fragments of Manteño textiles with their S-twisted fibers we have no direct evidence for the predominant direction in which the Manabí spindle whorls might have been used. How-

ever, it is likely that the orientation of spindle-whorl symbols is not arbitrary, and so might provide clues as to the direction of spinning.

Some brief concluding remarks are in order about the philosophical relationship between spinning and weaving on the one hand and life and death on the other. That such a symbolic relationship should have been recognized by the ancient Andeans is not surprising—it is nearly universal. Like any process, spinning and weaving have a beginning and an end. But not in all processes are beginning and end as plainly visible as here. When the Ecuadorian woman began to fill a fresh spindle, she fastened the beginning of the thread under the whorl. The accumulating yarn engulfed the whorl, and its symbolic meaning impregnated the spindle. When full, the spindle resembled a mandorla, the symbol of dualism and inversion. And, indeed, the spindle and the satisfaction of the spinner who finally held the full spindle in her hands were only transient. The law of *enantiodromia*, so well interpreted in Chinese mysticism, according to which *yang* at its optimum point converts into *yin*, its negative opposite, would soon also claim the fruit of her work. Her spindle which she patiently watched grow through the slow stages of waxing increment would soon wane and diminish again in the actual weaving, in the process of which the beginning of the thread would be converted into its own end.

But this sacrifice was made for a good cause: a piece of fabric was produced. Through the union of two basic elements (the warp and the woof) the "web of life" was created even as the spindle diminished and disappeared.⁴ In the weaver's hands, passing along the horizontal axis of the loom and through the various (vertical) stages of its existence, the spindle spends itself developing the new form of life to its resplendent fullest.

⁴ The Araucanians believe that the soul of a woman on her way to the Otherworld has to pass a test which consists of weaving a cloth which shows her life (Casamiquela 1964: 224).

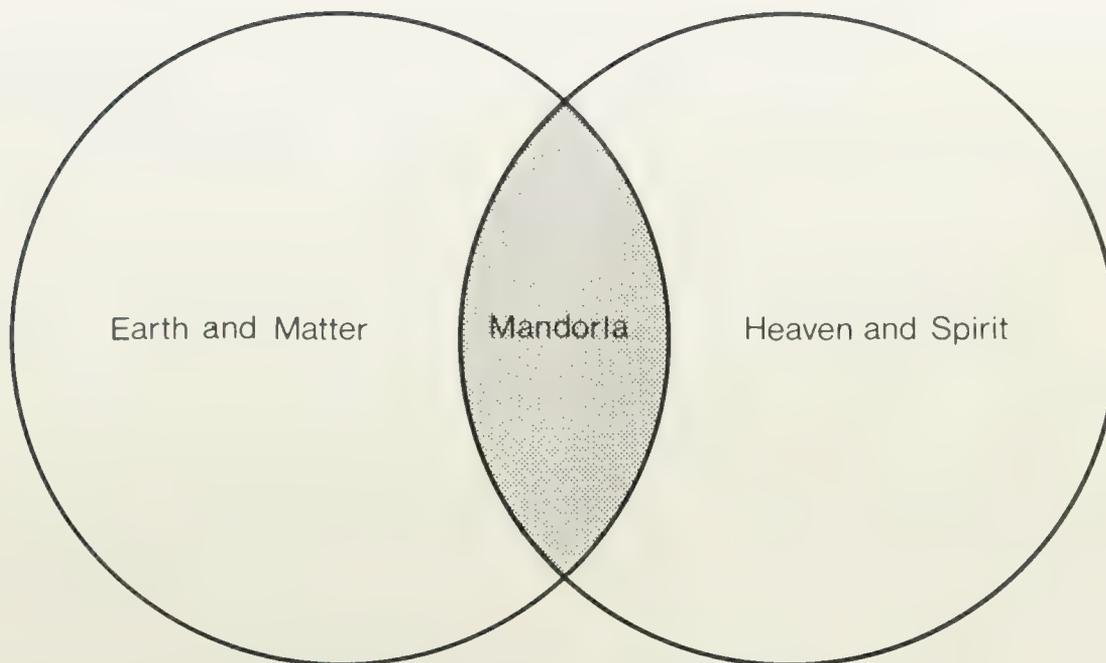


Fig. 13 The mandorla spindle of the Magna Mater.

The representations on Ecuadorian spindle whorls, as well as the insight of Estrada and others that spindle whorls belong to a prehistoric “cult of fertility” in Ecuador, leave no doubt that the ancient artist who created the designs and the woman who used them shared with many peoples, past and present, the symbolic meaning of the Magical Spinners, the Parcae, the Whirred Sisters, the Norms, and others. The dynamics of the ever-busy spindle and its dualistic nature were no secret to them. Almost universally the spindle-shaped mandorla (Fig. 13) is perceived as the product of the conjunction of the sphere of matter (left) and the sphere of spirit (right). Being a product of both, the mandorla section incorporates the essence of opposition and symbolizes all dualism—life and death, waxing and waning, appearance and disappearance, etc.⁵ The two spheres are also understood as symbols of earth and heaven,

the mandorla being the result of their union and symbol of the creative power and the generative, mutual, and perpetual sacrifice of the parent spheres. The Magna Mater uses the mandorla as her spindle with which she spins the thread of life (Cirlot 1962: 194; Schneider 1946: 287).⁶ Because of this intrinsic meaning of dualism and inversion of the spindle, it is to be expected that at least several of the zoomorphic and anthropomorphic creatures depicted over and over on the Manabí whorls should carry the message of life and death. I submit that they do this, either by themselves, stressing life or death, or else in combination, like two sides of the same coin.

The symbolic role of the spindle and other paraphernalia of weaving in Mesoamerican ritual makes this very clear. The Mother Goddess in her numerous manifestations was the spinner and weaver par excellence. Hence her sacrificial impersonators wore full

⁵ The religious systems of ancient America were permeated with this same concept of dualism—the union of seemingly opposite attributes which assured renewal and survival. Dualism is especially apparent in Mesoamerican ritual art and mythology.

⁶ Men among the Kogi Indians of Colombia sit in the sanctuary (the uterus of the Universal Mother) and spin thread which symbolizes the umbilicus by means of which they are attached to the Magna Mater (Reichel-Dolmatoff 1951: 2, 153).

spindles on the head as the identifying characteristics of the Magna Mater. At the Festival of Sweeping, called Ochpaniztli, in honor of Toci, Grandmother, the old Mother of the Gods and of the Earth, her impersonator was given bundles of maguey fibers which she spun into thread and wove into garments, because, Durán (1971: 233) tells us, that is how Toci supported herself and her children. In the codices, too, the various earth and fertility goddesses—essentially aspects of one another and of the Creator-Mother Goddess—are depicted with spindles and bunches of cotton. Likewise the Maya goddess Ixchel was patroness of spinning and weaving.

Many of the animals depicted on the Manabí spindle whorls are typically those which inhabit two or more planes of life: air, water, earth. For instance, the dualism of life and death was easily attached to the bat, so frequently depicted in pre-Columbian art. We know that this “animal of the twilight” symbolized birth and fertility in Zapotec art, and death and the Underworld in Maya. In Ecuadorian spindle-whorl art the bat is often combined as a symbol of darkness with the jaguar, predominantly the symbol of light and the Sun. Then there are such ambiguous birds as the pelican, which in diving moves from one plane to another, and the owl, the bird of the night. Among mammals there is the opossum which feigns death and which for the Ecuadorian Indians carried the message of the “Thread of Life.”⁷ It is this ambiguity that may, in part at least, explain why these animals above all should have been selected for depiction on the spindle whorls and other ceremonial art believed to have been related to a “fertility cult.”

Yet another thought concerning the symbolic meanings of the spindle arises from the image of the accumulating thread coiling itself like a snake around the shaft. This symbol has been understood as one

⁷ Similarly for the Huichol Indians of Mexico, the opossum is both a guardian of the Underworld, symbolic of death, and, as Bringer of Fire, the guarantor of life (Furst 1967: 70-1).

of mediation between earth and heaven. Hermes, the psychopomp of Greek mythology, carried it, as did the Roman messenger-god Mercury. Even today the staff with its coiling snake—the caduceus—symbolizes the medical profession and the doctor’s role of intermediary in life-crisis situations. Besides these more hidden meanings of dualism and intermediacy, the spindle and its parts demonstrate in a more direct way the subtle conditions of fertility, in that the spindle shaft can be seen as a phallus penetrating the female whorl. From this union comes the thread, the warp and the woof of the Web of Life.

A good example of this symbolic context was recorded by Reichel-Dolmatoff (1951: 218-19) from the Kogi Indians of Colombia where “the man [who deflowers the girl], the *máma* [shaman], sets up a small hut (called *nyúji hubé* or ‘bat house’), wherein the first coitus is to occur. A day prior to this event, the *máma* hands the girl a spindle whorl and a spindle shaft made of deer bone (sometimes made of antler), explaining that these two objects represent the male and the female organs of reproduction. Both objects are deposited in the hut and, subsequent to the coitus, picked up and guarded carefully by the girl as her . . . marriage license.”

Finally, we cannot overlook the fact that a full spindle appears not only in the shape of a mandorla but also in that of a vagina. With it the Magna Mater creates new life from the female body. This symbolic relationship between spindle and vagina, and loom and woman’s body, respectively, finds clear expression in a myth from Middle India where a supernatural being instructs a man to spin cotton thread for the first time. Obeying the command the man then “made his wife lie down and tied a stick across her breasts. From this he stretched his yarn. He took out her vagina and used it as a shuttle. The cloth he made was long and narrow, narrow as the distance between a woman’s breasts” (Verrier 1949: 473). The many fish representations on Ecuadorian spindle whorls may be related to such symbolism.

Spindle Whorls and Their Decoration

BIRDS AND BIRD SYMBOLS

IF OUR INTERPRETATION of the symbolic meaning of spindle-whorl art is correct and it does indeed relate to the life-and-death cycle, then it is not surprising to find certain birds prominent among the themes depicted on the whorls. Owls and pelicans are especially frequent, suggesting that their symbolic function was of considerable importance to the ancient Ecuadorians.

The bird has been a symbol of spiritual transcendence from time immemorial. Cave paintings dating to the Upper Paleolithic show shamans wearing bird masks, and, like their antecedents of thirty thousand years ago, the shamans of the Siberian tribes, the *taltos* of the Hungarians, and medicine men in many parts of the world emphasize bird symbolism in relation to the passage from this to the Otherworld. The Egyptian god Toth had the head of an ibis and was the judge of the birdlike souls in the Underworld. The souls in the Babylonian Hades wore headdresses of bird feathers and, according to Homer, the souls of the dead chirp like birds. Mercurius, the divine patron of Roman merchants and travelers, was winged. Bird spirits and the Thunder Bird permeate North American Indian religion, just as the transcendental role of the great King Vulture in the ancient religions of Panama and Costa Rica found expression in countless castings of precious gold. The souls of Aztec warriors were transformed into hummingbirds. Christians symbolize the Holy Spirit, the font of all spiritual life and renaissance, in the form of a dove, as do the Huichol their divine Mother of Maize. The list could be extended almost indefinitely.

Besides the general meaning of transition from

matter to spirit through death or metamorphosis, birds have been identified also as phallic symbols. The pachota bird, depicted on so many Ecuadorian spindle whorls, is said to be the bird that deflowered the primordial woman. Folk tales of many other Indian groups tell of birds fulfilling a similar function.

On the spindle whorls, diving birds—especially the pelican—seem to symbolize mainly fertility and transition of life between different planes. The owl most probably stands for darkness and the end of terrestrial life. It is interesting also that the head of the owl is frequently depicted alone, very likely as a symbol of death. Here again duality is evident, for the Indians—ancient and contemporary—conceptualized the head as the seat of life and the soul. Of mantic significance are flocks of birds which sometimes crowd a spindle whorl. On a very beautiful example, a flock of birds, perhaps symbolizing darkness and the Underworld, is chased by a jaguar, who here might be interpreted as a being of the Sun and light. Another magnificent piece depicts an anthropomorphic pachota bird adorned with a biblike poncho, in juxtaposition with a jaguar wearing a collar, as though the symbols of death and fertility were facing each other in dynamic awareness. A disk next to the head of the bird may represent the Sun.

An interesting parallel in Ecuadorian spindle-whorl art to the art of the Olmec in Mesoamerica is the abstraction of the bird to its barest essential—the wing. Many spindles are decorated with wing designs, sometimes naturalistic, sometimes almost geometric, which, like the complete bird, probably symbolize spirituality, enlightenment, and sublimation.

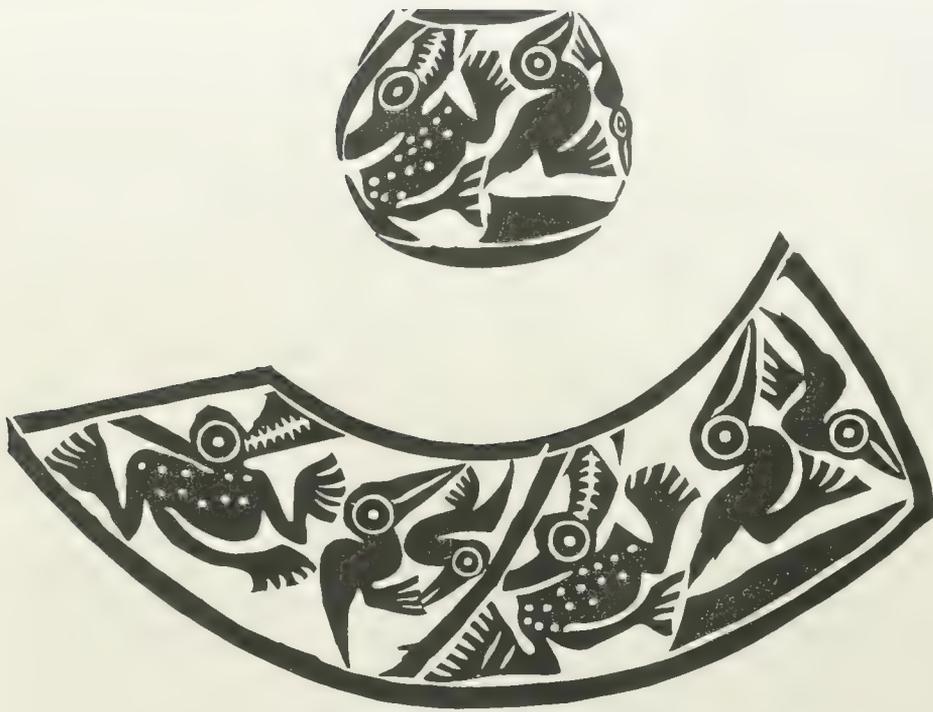


Fig. 14 Spindle whorl. Black, conical. Max. height: 13.7 mm. Max. width: 12.9 mm. Diameter of holes: 3.2 and 3.5 mm.



Fig. 15 Black, conical (concave). Max. height: 13.5 mm. Max. width: 18.6 mm. Diameter of holes: 3.3 and 4.5 mm.





Fig. 17 Brown, conical. Max. height: 15 mm. Max. width: 15.9 mm. Diameter of holes: 3.1 and 3.2 mm.



Fig. 16 Black, barrel-shaped. Max. height: 14.5 mm. Max. width: 9.8 mm. Diameter of holes: 2.3 and 2.5 mm.



Fig. 18 Gray, conical. Max. height: 13.7 mm. Max. width: 14.4 mm. Diameter of holes: 3 and 3.1 mm.



Fig. 19 Gray, conical. Max height: 14.7 mm. Max. width: 14.8 mm. Diameter of holes: 3.9 and 4.2 mm.



Fig. 20 Black, conical. Max. height: 12.5 mm. Max. width: 15 mm. Diameter of holes: 4 and 4.3 mm.



Fig. 21 Gray, spheroid. Max. height: 12.8 mm. Max. width: 14.5 mm. Diameter of holes: 3.5 and 3.7 mm.

HEAD PORTRAIT OF DEATH—THE OWL

JUST AS “trophy heads” of slain enemies or the preserved heads of deceased ancestors are believed to assure fertility,⁸ so the many representations of disembodied heads on Ecuadorian spindle whorls may be related to the symbolic system Estrada called “fertility cult.” In many cases these heads are unquestionably owls, in others they resemble human skulls. Head portraits of this kind are found not only on spindle whorls but also on other ceramic artifacts, such as vessels and pottery stamps, as well as on ceremonial copper axes. An interesting feature that the Ecuadorian heads share with Olmec representations of the were-jaguar is a V-shaped cleft at the crown; sometimes the center cleft is flanked by additional clefts, but these may also represent feathers. In any event, there is archaeological evidence that such heads and *tzanzas* as symbols of death prevailed for centuries over a wide area of Ecuador (Estrada 1957a: 52; 1957b: 12; 1957c: 11).

The heart-shaped form of these “head portraits of death” is reminiscent of the face of the barn owl, *Tyto alba*, and it may well be that this owl served as prototype for the head design on the whorls. There is also another native Ecuadorian bird, the valdivia, which is diurnal rather than nocturnal but which otherwise closely resembles ordinary owls. Both the owl and the valdivia are popularly associated with death, their calls being considered as omens of impending evil and doom. So persistent are these ancient associations that even today, when an Ecuadorian mother hears the call of these birds close to her house she will hide her unbaptized child to prevent it from being taken away (Estrada 1957a: 61).

This association of owl with doom and death,

⁸ For example, the well-known shrunken heads or *tzanzas* of the Jivaro Indians of Ecuador.

though not precisely universal (e.g., the owl as emblem of ancient Athens) is certainly widespread throughout the world. In the Americas, among the Aztecs, for example, the *tecolotl* was an omen of death, as was the Maya *cui*, the owl messenger and companion of death. In contemporary Latin America the owl is frequently identified with witches and malevolent sorcerers. In Manabí art, representations of the owl occur in association with cult objects that seem to pertain to shamanism. In short, there is little question that the prehistoric Ecuadorians shared the owl with other peoples as symbol and harbinger of death—death not as oblivion but as the complementary opposite of life.

What is remarkable in spindle-whorl representations of owls is that despite their minute size and frequent conventionalization, young birds can actually be differentiated from mature ones. Nestlings are recognized by their white down feathers, adults by stripes and circles. Most characteristic of Manabí owls is the large head with the above-mentioned V-shaped cleft or a depression with soft contours at the top of the head. The characteristic frontal eyes of the bird are also emphasized. Rather infrequently chicks are conventionalized, with outspread wings and only one eye, as if to suggest the initial blindness of newborn birds. Disembodied owl heads are sometimes surrounded by what seems at first glance to be a kind of headdress but what may also be either a conventionalized representation of wing and tail plumage, raised and puffed up in characteristic threat posture, or else might be rays, intended to emphasize the transcendental nature of the head symbol. With the possible exception of the birdmen on the funerary whorl (Fig. 1), I have not come across any anthropomorphized owls on spindle whorls, although the owls depicted in flight with their legs shown prominently give a somewhat anthropomorphic impression.

Owls have
beaks not teeth

Fig 22



Fig. 22 Black, conical. Max. height: 13.2 mm. Max width: 16.1 mm. Diameter of holes: 3.7 and 4.4 mm.



Fig. 23 Black, barrel-shaped. Max. height: 15.1 mm. Max. width: 10.7 mm. Diameter of holes: 3.8 and 4 mm.



Fig. 24 Gray, conical. Max. height: 11 mm. Max. width: 14.1 mm. Diameter of holes: 3.6 and 4 mm.



Fig. 25 Black, conical. Max. height: 16 mm. Max width: 16.9 mm. Diameter of holes: 3.5 and 3.9 mm.



Fig. 26 Black, grooved. Max. height: 17.2 mm. Max. width: 13 mm. Diameter of holes: 3.1 and 3.3 mm.



Fig. 27 Black, conical. Max. height: 13.5 mm. Max. width: 13.8 mm. Diameter of holes: 3.3 and 3.6 mm.



Fig. 28 Gray, conical. Max. height: 12.1 mm. Max. width: 13.4 mm. Diameter of holes: 3.5 and 3.6 mm.



Fig. 29 Gray, conical. Max. height: 14.1 mm. Max. width: 14.4 mm. Diameter of holes: 3.5 and 3.8 mm.



Fig. 30 Black, conical. Max. height: 14.4 mm. Max. width: 15.3 mm. Diameter of holes: 3.5 and 3.9 mm.



Fig. 31 Black, conical. Max. height: 16.6 mm. Max. width: 14.3 mm. Diameter of holes: 4.3 and 4.5 mm.



Fig. 32 Black, conical. Max. height: 13 mm. Max. width: 13.7 mm. Diameter of holes: 3.3 and 4 mm.



Fig. 33 Brown, barrel-shaped. Max. height: 13.8 mm.
Max. width: 11 mm. Diameter of holes: 4 and 4 mm.



Fig. 34 Gray, conical. Max. height: 18.1 mm. Max. width:
18.7 mm. Diameter of holes: 3.6 and 3.8 mm.

THE PACHOTA

THE SO-CALLED PACHOTA is a heronlike bird with a long, narrow, and powerful beak. It occurs not only on Manabí spindle whorls but also on ceremonial objects that Estrada (1957a: 61-2) relates to the prehistoric cult of fertility. If, as he suggests, the pachota is indeed the Ecuadorian version of the widespread South American motif of the bird that de-

flowered the primordial woman, its symbolic association with the concept of fertility would, of course, be most appropriate.

Unlike certain other animals, on the spindle whorls the legendary pachota is never shown with human attributes but always appears as pure bird, either as a young chick or as a mature specimen. Occasionally two birds facing each other are joined, sharing, as it were, the same beak.



Fig. 35 Black, barrel-shaped. Max. height: 15.9 mm. Max. width: 11.2 mm. Diameter of holes: 2.9 and 3 mm.



Fig. 36 Black, barrel-shaped. Max. height: 16.2 mm. Max. width: 12.6 mm. Diameter of holes: 3.4 and 3.8 mm.



Fig. 37 Brown, conical. Max. height: 13.2 mm. Max. width: 12.5 mm. Diameter of holes: 3.2 and 3.4 mm.



Fig. 38 Brown, conical. Max. height: 15.2 mm. Max. width: 13.5 mm. Diameter of holes: 3.2 and 4 mm.



Fig. 39 Black, conical. Max. height: 16.1 mm. Max. width: 11.3 mm. Diameter of holes: 2.7 and 3.2 mm.



Fig. 40 Gray, conical. Max. height: 13.4 mm. Max. width: 13 mm. Diameter of holes: 3.5 and 4 mm.



Fig. 41 Gray, spheroid. Max. height: 10.9 mm. Max. width: 13.6 mm. Diameter of holes: 3.8 and 4.3 mm.



Fig. 42 Black, barrel-shaped. Max. height: 14.5 mm. Max. width: 10.5 mm. Diameter of holes: 2.8 and 3.2 mm

THE PELICAN

JUDGING FROM the frequency with which it was depicted in spindle-whorl art alone, the pelican had a peculiar fascination for the ancient inhabitants of the Ecuadorian coast. Not only is it depicted more often than almost any other subject, it also appears in a greater variety of designs. It is pictured on other ceramics, as well as in stone. In fact, pelican representations are so abundant in the Manteño culture of the Santa Elena peninsula that Bushnell (1951: 136) considers this bird almost emblematic for this culture. According to Estrada (1957b: 43), the pelican also represents one of the basic religious concepts of the Huancavilca-Manteño.

It may be of course that the frequency with which the pelican (*Pelicanus occidentalis*) appears in Manabí iconography reflects primarily the fact that this bird is the predominant creature of the Ecuadorian littoral, as Jijón and Bushnell point out. I would suggest, however, that the explanation is more complex, and that the relatively large number of pelican images on the spindle whorls as well as in other art is somehow related to the pelican's symbolic attributes as a creature that once of the heavens, the earth, and the mysterious realm of watery darkness. Like waterfowl in general, it is an intermediate creature: comfortable on land, it is both a superb flyer and an excellent swimmer. Completely released it soars seemingly without effort above earth and sea, and to feed itself dives like a dart from the sky into the water.

The great variety of pelican representations—on the ground, on the water, under water, in flight with open wings—suggests that the Manabí artist was conscious of this “grand design of transcendence.” There are depictions of adult birds and chicks, naturalistic as well as conventionalized to the point of abstraction. Although some of the apparently abstract and geometric designs in Manabí art may well symbolize pelicans, on all the whorls we have examined, the designs clearly recognizable as pelicans are exclusively zoomorphic, without either human characteristics or attributes associated with other

animals, and often include considerable realistic detail.

The representations of adult pelicans looking backward, as if arranging or preening themselves, are exceptionally graceful. These are commonly carved on oblong or barrel-shaped whorls, a form which forces the somewhat plump bird into a rather graceful stance that makes it appear superficially less like a pelican and more like some other waterfowl. The spearlike beak is usually well represented and on some whorls one can even see the enormous throat pouch. Also visible are the characteristic feather markings of young animals and adult specimens. In fact, chicks are mainly recognizable as such by white notches representing tufts of immaculately white down that in nature grows all over the black skin of the young bird. Representations of adult birds sometimes also show, in addition to body feathers, the typical long plumes that project from the rear of the pelican's head and neck. Also quite characteristic of pelican representations are short legs and a stubby, wide, and rounded tail. When depicted on land, the bird's totipalmate feet are usually emphasized by the artist to counterbalance tail, wings, and beak.

In nature the pelican chick is a rather grotesque, ungainly creature. Its club-shaped head, weighed down by the immense beak, appears too heavy for the weak neck. So long is the beak in proportion to the rest of the body that in some cases the artist, unable to contain it down to the hooked tip within his design, had to shorten it a bit. Despite this divergence from the natural model, other characteristics leave no doubt of its identity. Swimming pelicans are usually depicted with great simplicity, both in form and style. Especially remarkable are those whorls on which several birds are shown swimming in closed single-line formation. On several pieces the pelicans are interconnected, tail to beak, making for a peculiarly dynamic picture of birds floating effortlessly on the waves. Diving pelicans, their bodies streamlined and stylized to the point that they resemble fish more than birds, are nevertheless recognizable by their heads and characteristic beaks.

Based on these and other artistic representations

and the archaeological contexts in which they are found, Estrada (1957b: 43) speaks of the "adoration of the pelican" in Huancavilca-Manteño culture. Unfortunately, the evidence does not permit us to say more than that the pelican occupied an important symbolic position in belief and ritual, the precise nature of which, in the absence of historical traditions, eludes us.

We are more fortunate concerning ancient Mexico, where the great chronicler Sahagún (1963: 29-30) set down some of the beliefs of the sixteenth-century Aztecs about the pelican. To the Aztecs the pelican was "the heart of the lake," leader and master of all waterfowl. Like Ecuadorian Indians the Aztecs did not normally eat this bird. Only on ceremonial occasions did they make an exception to this rule, and then the pelican was eaten only ritually, not as food. Fishermen would pursue the pelican on the lake in order to obtain a precious green stone or feather from its

gizzard. The stone or feather was a charm that guaranteed its owner continued luck in fowling and fishing. After the hunt the fishermen assembled for a ritual meal in which each ate a small piece of the slain bird. Pelicans commanded the storm which they would summon to drown any fisherman who for four days had unsuccessfully tried to stalk them. A successful hunter who caught the bird within the specified time but who, instead of the green stone or feather, found a piece of charcoal, would interpret this as an omen of impending death. Thus, according to Sahagún, the fishermen "consider it [the pelican] as the mirror. For there they see what each is to merit in their profession as water folk."

These Aztec beliefs and rituals relating the pelican to life and death appear to fit rather well into the symbolic and ritual complex at Manabí; no claim is made, of course, that they corresponded in detail.



Fig. 43 Orange, oblong. Max. height: 14.5 mm. Max. width: 8.5 mm. Diameter of holes: 2.9 and 3.7 mm.



Fig. 44 Black, conical. Max. height: 19.9 mm. Max. width: 15.1 mm. Diameter of holes: 4 and 4.4 mm.



Fig. 45 Gray, conical. Max. height: 15.2 mm. Max. width: 15.3 mm. Diameter of holes: 3.2 and 3.8 mm.



Fig. 46 Black, conical. Max. height: 13.7 mm. Max. width: 13.6 mm. Diameter of holes: 3 and 3.2 mm.



Fig. 47 Gray, conical. Max. height: 16.7 mm. Max. width: 16.5 mm. Diameter of holes: 2.9 and 3.4 mm.

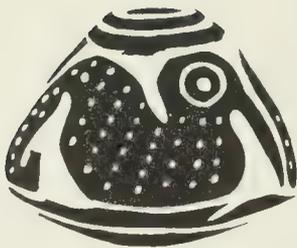


Fig. 48 Gray, conical. Max. height: 14.1 mm. Max. width: 16 mm. Diameter of holes: 3.2 and 3.4 mm.



Fig. 49 Black, conical. Max. height: 13.9 mm. Max. width: 14.3 mm. Diameter of holes: 2.9 and 3.1 mm.

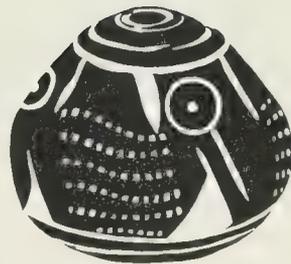


Fig. 50 Brown, spheroid. Max. height: 13.1 mm. Max. width: 13.5 mm. Diameter of holes: 3.9 and 3.9 mm.



Fig. 51 Black, conical. Max. height: 16.3 mm. Max. width: 15.1 mm. Diameter of holes: 3 and 3.8 mm.



Fig. 52 Black, barrel-shaped. Max. height: 13.5 mm. Max. width: 12.6 mm. Diameter of holes: 3.9 and 4 mm.



Fig. 53 Brown, conical. Max. height: 14.5 mm. Max. width: 13.5 mm. Diameter of holes: 3 and 3.5 mm.



Fig. 54 Orange, conical. Max. height: 15.4 mm. Max. width: 16.5 mm. Diameter of holes: 3.3 and 3.9 mm.



Fig. 55 Black, half spheroid. Max. height: 8.8 mm. Max. width: 11.7 mm. Diameter of holes: 2.8 and 3 mm.

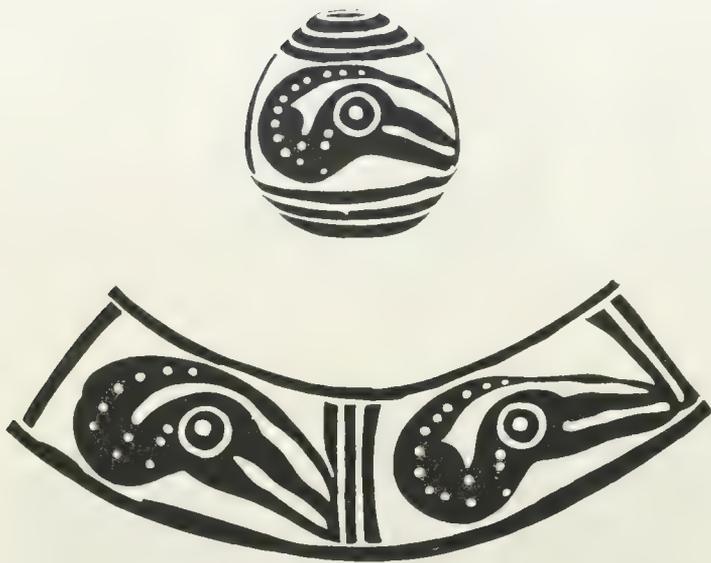


Fig. 56 Black, conical. Max. height: 13.7 mm. Max. width: 13.1 mm. Diameter of holes: 3.5 and 3.8 mm.



Fig. 57 Black, conical. Max. height: 13 mm. Max. width: 12.6 mm. Diameter of holes: 2.8 and 3.2 mm.

THE BAT

FEW CREATURES in the animal kingdom have been so shrouded in magic, mystery, and folk belief as the bat. Four-thousand-year-old Egyptian tomb paintings dating to the Twelfth Dynasty, the “bat gods” of the ancient Maya, Count Dracula, and Batman all attest in their way to the fact that since time immemorial the “Winged Hunter of Darkness” has tracked man’s soul through the obscure corners of his unconscious. In the European tradition, especially, the bat has been imbued with all sorts of negative attributes—death, witchcraft, dark forebodings, gloom. Many non-Western peoples also identify the bat with death, the souls of the deceased, and the Underworld, as might be expected of a creature that lives in caves and other dark places and comes to life only at dusk. Significantly, it is in Asia, notably China and Japan, that we find the bat viewed most positively, as symbol not of death and gloom but of prosperity (Lessing 1934–35: 22). In Japan, *komori*, the bat, stands for happiness and plenty, a concept that reached Japan from China, where this belief seems to be very ancient. However, the identification of the bat with good fortune may only be due to a phonetic coincidence, for both in Japanese and Chinese the characters for “good luck” and for “bat” are pronounced alike, *fu* and *fuku*, respectively (Volker 1950: 18). A bat alone or holding a coin or snail shell is a popular subject of the Japanese miniature carvings in wood and ivory known as *netsuke*.

Like medieval European alchemists, who associated the meaning for bat with those of dragon and hermaphrodite, primitive naturalists have been greatly impressed by the bat’s ambiguous nature. Here is a mammalian species that flies like a bird but has teeth and parturates like a mammal. However, unlike other mammals it does not have several pairs of active nipples but, humanlike, suckles its young with but a single pair. At sunrise it retires to sleep—upside down—and at sunset it emerges to pursue its quest for food. During cold parts of the year it hibernates. While most bats live on insects, many are fruit-

eaters. Some are carnivorous and a few species even imbibe the blood of animals and humans, a habit that inspired the Dracula legend of Transylvania. More than any other creature that flies, and certainly any beast of the forest, the bat would seem to be a misfit par excellence. As ancient Latin lore recalls, “when the birds in council passed an edict to exile a certain one, the bat said he was a mouse; again, when another law was proclaimed against mice, he declared that he was a bird” (Gesner 1555, in Allen 1967: 4). But where some peoples might have been made uneasy and fearful of the bat because it defied classification, for others—notably the ancient peoples of Mesoamerica and South America—it was probably its very ambivalence, its apparent embodiment of the qualities of several diverse species, that gave it exalted status as living proof of the validity of dualism and transformation.

Throughout the fifty million years of their history, bats have made good use of their wings and successfully invaded the tropical and subtropical belt of the entire globe. Of the six New World families of bats, two in particular have attracted the Indians’ imagination, the vampires (*Desmodontidae*) and the leaf-nosed bats (*Phyllostomidae*). It was especially the prominent teeth of the vampire and, of course, the bloody feeding habits that fascinated man. Leaf-nosed bats grow an erect and fleshy “leaf” from the tip of their nose, a membrane which has been linked to spearheads, swords, and, in the case of Mexican picture writing, to flint knives. This leaf, together with the alert eyes and big upright ears, give leaf-nosed bats a certain fierce en garde appearance. By combining the vampire’s blood-seeking teeth and the leaf-nosed bat’s aggressive air with a human body, the Indian artist succeeded in creating a powerful symbol of numinous qualities. Whether written as a hieroglyph, painted on pottery, modeled in clay and stucco, carved in stone, or depicted in oral literatures, the symbol of the bat played an important religious and social role from Mexico to Peru and from the Circum-Caribbean area to the tropical forest of South America. In the former area the bat was even elevated to the high-

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est possible level and ranked among the supernatural demigods and deities. Along the north coast of South America, in the Venezuelan Andes and on several Caribbean islands, bat ornaments are found in association with death ritual (Wagner 1971: 23-5). The Ur-Bat of tropical forest Indians in the Mato Grosso will eventually devour the Sun (Nimuendajú 1914: 318).

In the Nahuatl language the bat was referred to as *Zinacan*, the Zapotec called it *Piquite ziña*, and the Maya, *Zotz*. Apparently whole tribes counted themselves among the bat deity's followers. There were the Zotzil (Tzotzil), for instance, a Cakchiquel subgroup of highland Guatemala, whose generic name meant "belonging to the bat." The Tzotzil Maya of Chiapas used to call themselves *Zotzil uinic*, "bat men," and supposedly had a stone bat as their patron deity. Aztec merchants referred to the chief town of these batmen as *Zinacantlan*, "the place of the bats"; it is still known as Zinacantan, Mexico. Yet another Zinacantlan is situated in the deep southeast of Guatemala, and bats figure prominently as temple decorations and on sculpture at Copán, in Honduras.

The Zapotec of Oaxaca also seem to have had a bat deity. In fact, judging from the frequency with which the bat is depicted in their art at Monte Albán, it is more than likely that this animal symbolized one of the most important deities of the Zapotec pantheon.

The bat-nahual of this god appears often in association with the jaguar but also with the God of Maize. The latter relationship is of particular significance for the overall life-and-death symbolism of our spindle-whorl art, because it links the bat with birth, fertility, and prosperity (reminiscent of its meaning in China and Japan). Beyond this, however, its association with maize (life) among the ancient Zapotec-speakers seems to conflict with its obvious association with death and the Underworld in the ritual art of the Maya. This opposition may, of course, be more apparent than real, i.e., we may be looking at only one side of the coin. For example, bat symbolism is very prominent in association with the Sun God of the Night on the well-known cylindrical *incensarios* from Palenque and other lowland Maya sites. Here the

Underworld association is unmistakable. But of course the Night Sun is merely the other side—the alter ego—of the Day Sun, guarantor of life and prosperity, giving the bat an added dimension as well.

Why the fourth *uinal* (twenty-day month) of the Maya calendar should have been represented by the bat glyph is not known. But in keeping with the bat's symbolic meaning, the Maya could not have made a more fortunate choice than the inverted head portrait of the animal at rest to suggest finiteness and the end of a time period's burdensome journey (Berlin 1964). It may be that the Ecuadorian artist meant to express the same symbolic meaning on those spindle whorls on which the bat appears in an alternating pattern of inversion (viz., Funes Sánchez 1970: Pl. 15, Fig. 68).

The most diagnostic physical features that help identify the bat on the whorls are the wings and the nasal membrane of the leaf-nosed bats. As to species, both vampire and the leaf-nosed bat seem to be depicted in the present collection. The wing markings of some of the vampire bats also suggest the tropical species *Diaemus youngi* (Fig. 58). Beyond that, it should be noted that the Ecuadorian artist depicted bats not only as ordinary animals but also as non-ordinary, or chimeral, beings that combine typical bat characteristics with those of man as well as other animals, notably the jaguar (e.g., Fig. 69; cf. Estrada 1957b: 53, Pl. 118). Some of the anthropomorphic bats are also distinguished by an erect phallus, thereby not only identifying the sex of the bat demon but also relating it unequivocally to fertility (e.g., Figs. 70, 71). One is also reminded of the phallic symbolism at Uxmal, Yucatan, and of certain Mesoamerican Maya texts that deal with the birth of the bat (Barthel 1966: 106-07). According to one Mexican tradition, recorded in the Codex Magliabecchiano (f. 61r; cf. Franco 1954: 112), the bat was born out of the semen ejaculated on a stone by the masturbating Quetzalcoatl. The bat became the messenger of the gods and master of the Underworld. This same tradition has it that the bat was sent to remove from the goddess Xochiquetzal "that what she had in her vagina." If

Barthel (1966: 107) is correct in his interpretation of this passage that this refers to the *vagina dentata*, the bat's relationship to fertility becomes all the more explicit, for it was through the removal of the vaginal teeth in the primordial women that intercourse, hence fertility, became possible.

As to bat-jaguar association in spindle-whorl art, in one instance the phallus of a bat man appears threatened by a jaguar or puma lying on its back (Fig. 72). On the same whorl there also appears a perching pelican. A very similar composition on a pottery stamp from Ecuador was published by Parducci (1970), except that in that instance bat man, jaguar, and pelican are joined by an opossum (Fig. 77). The jaguar has an upturned batlike nose, as does the opossum, whose phallus is also visible.

On some whorls in our collection, the jaguar is shown side by side with the head of a leaf-nosed bat. On another example a mythological animal combines the head and wings of a bat with the body and front legs of a jaguar. Sometimes the feline features predominate over those of the bat, the latter being indicated only by a typical nose-leaf and an amor- phously added wing symbol.

Considering the jaguar's symbolic relationship to the Sun and the cycle of day and night, both in South America and Mesoamerica, its iconographic linkage with the bat is not altogether surprising. One is also reminded of the association of jaguar and bat in shamanism among certain hunting and gathering societies in South America. Among the Yanoama of Venezuela the shaman known as *hewiawan* is initiated by a supernatural jaguar who strips him of his human flesh and re-covers his skeleton with the flesh of a supernatural bat—hence his name, which literally means “bat man” (Wilbert 1963: 222). In any event, whatever the reason, bat and jaguar are as closely associated in Ecuadorian spindle-whorl art as they are in the ritual art of Mesoamerica.

A most peculiar-looking anthropomorphic creature one comes across repeatedly is a leaf-nosed bat with long head appendages in the back which resemble elephant ears (Fig. 75). On one whorl this creature

appears with what I believe to be an upside-down vampire (Fig. 75). A similar personage can also be seen on a pottery seal or stamp from Manabí (Edwards 1970: 7). Here he is seated as a high-ranking personage or culture hero on a throne or dais in the aft section of a watercraft, holding a fish or a fishlike paddle, centerboard, or club (Fig. 76). He is confronted by a standing personage holding a paddle. This person's head, as well as the entire second half of the watercraft, has been lost. Only a fish or a fishlike paddle, centerboard, or club in a third (lost) person's hand remains, as does the phallus.

Several of the bats presented in this section hold staffs or objects in their hands which might also represent paddles or centerboards, and one highly stylized anthropomorphic bat even holds a fish or a fishlike paddle similar to the one in the hand of the dignitary of the craft (e.g., Fig. 78). The head of the stylized bat also appears as a boat decoration on the gunwales of a second boat which comes also from a Manabí pottery stamp (Edwards 1970: 6).

Some of the anthropomorphic-zoomorphic representations of the bat on the spindle whorls are reminiscent of certain Mesoamerican and Andean masks on which the upper lip appears rolled backward. I have interpreted this striking feature uniformly as representing the nose leaf of a bat.

Finally it should be noted that whereas there is little doubt as to the identification of the more “realistic” bats on the whorls, the identification of the anthropo-zoomorphic representations is much more difficult. A few of the anthropomorphic creatures I have included under the heading “bats” bear a certain resemblance to the so-called “lizard demons” or “fox demons” of Moche art and students of Andean iconography may prefer to see them as such, rather than as bats. I have no quarrel with such interpretations. Because of the high degree of conventionalization in some of the designs, unequivocal zoological classification is not possible and must remain a matter of personal choice and probability rather than of proof. The same stricture applies, of course, to some other classifications in these pages.

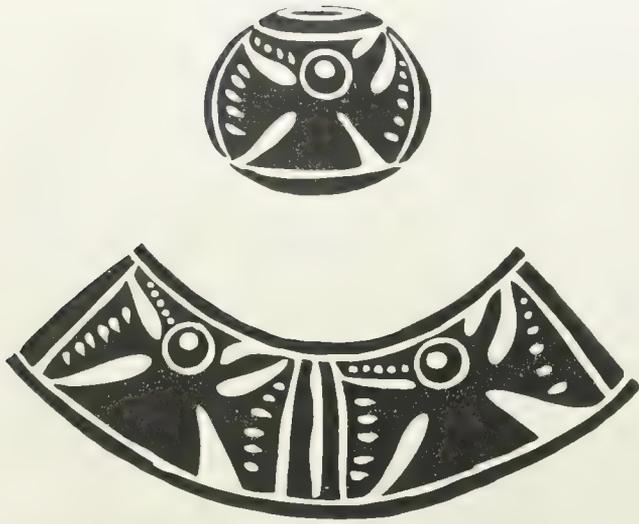


Fig. 58 Black, spheroid. Max. height: 10.5 mm. Max. width: 11.8 mm. Diameter of holes: 3.8 and 4.4 mm.



Fig. 59 Brown, conical. Max. height: 11.3 mm. Max. width: 11 mm. Diameter of holes: 3 and 3.2 mm.



Fig. 60 Black, conical. Max. height: 13 mm. Max. width: 13.5 mm. Diameter of holes: 4.1 and 4.4 mm.



Fig. 61 Gray, conical. Max. height: 12.9 mm. Max. width: 14.1 mm. Diameter of holes: 3.8 and 4 mm.



Fig. 62 Gray, conical. Max. height: 13.7 mm. Max. width: 12 mm. Diameter of holes: 3.3 and 3.9 mm.



Fig. 63 Gray, conical. Max. height: 13.8 mm. Max. width: 13.2 mm. Diameter of holes: 3.2 and 3.4 mm.



Fig. 64 Black, conical. Max. height: 14.4 mm. Max. width: 15.3 mm. Diameter of holes: 2.9 and 3.4 mm.



Fig. 65 Black, conical. Max. height: 14 mm. Max. width: 12.5 mm. Diameter of holes: 3 and 3.1 mm.



Fig. 66 Brown, conical. Max. height: 14.9 mm. Max. width: 13.2 mm. Diameter of holes: 2.9 and 3.5 mm.



Fig. 67 Black, barrel-shaped. Max. height: 14.3 mm. Max. width: 12.1 mm. Diameter of holes: 4 and 4.4 mm.



Fig. 68 Black, barrel-shaped. Max. height: 14 mm. Max. width: 9.1 mm. Diameter of holes: 2.8 and 2.9 mm.



Fig. 69 Black, conical. Max. height: 14.4 mm. Max. width: 12.8 mm. Diameter of holes: 2.8 and 2.9 mm.



Fig. 70 Brown, barrel-shaped. Max. height: 14.9 mm. Max. width: 10.7 mm. Diameter of holes: 3.2 and 3.3 mm.



Fig. 71 Orange, oblong. Max. height: 15.9 mm. Max. width: 8.9 mm. Diameter of holes: 2.2 and 2.8 mm.



Fig. 72 Black, conical. Max. height: 13.5 mm. Max. width: 12.7 mm. Diameter of holes: 3.2 and 3.4 mm.





Fig. 73 Black, spheroid. Max. height: 11.3 mm. Max. width: 13.1 mm. Diameter of holes: 3.8 and 4.2 mm.



Fig. 74 Brown, spheroid. Max. height: 11.4 mm. Max. width: 11.5 mm. Diameter of holes: 3.4 and 3.7 mm.



Fig. 75 Brown, conical. Max. height: 13.1 mm. Max. width: 11.1 mm. Diameter of holes: 3.5 and 3.8 mm.



Fig. 76 Pottery seal or stamp, Manabí Province. (Photo courtesy H. Wagner and Olaf Holm.)



Fig. 77 Pottery stamp from Manabí. (Parducci 1970.)



Fig. 78 Spindle whorl. Black, conical. Max. height: 16 mm. Max. width: 13.5 mm. Diameter of holes: 2.2 and 2.4 mm.



Fig. 79 Pottery seal or stamp, Manabí Province. (Photo courtesy Olaf Holm.)



Fig. 80 Spindle whorl. Gray, spheroid. Max. height: 13.2 mm. Max. width: 13.1 mm. Diameter of holes: 3.6 and 4 mm.

THE JAGUAR

AS MIGHT BE EXPECTED from its pervasive role in South American shamanism and its prominence in the art of the high cultures of the Andes, the jaguar is one of the animals most frequently depicted on the spindle whorls of the Ecuadorian coast. We do not know the precise nature of the jaguar's position in the mental universe of the ancient Ecuadorians. But if, in addition to sheer quantity, the care lavished on these minute jaguar representations offers any clue, the great spotted feline of tropical America must have been of major ideological importance. That the jaguar motif occurs in connection with other symbols related to the so-called "fertility cult" complex suggests that as in Mexico, Central America, and the Andes the Ecuadorian jaguar was symbolically linked with earth, fertility, night and moon, the Otherworld, and more indirectly with the Sun. The jaguar's relationship with the fertility cult becomes apparent also in northern Manabí and in Esmeraldas, where the god Cocijo is represented not only with feline characteristics but with the bifurcated tongue of the snake (Parducci 1966: 125). According to Estrada (1957b: 150-1, Figs. 113, 115) this represents a merging of feline and serpentine characteristics akin to that of the Mexican deity Quetzalcoatl. Also indicative in this connection is the practice of the Huancavilcas who, when preparing their fields, or when their chiefs fell ill, propitiated their jaguar god with human hearts (Cieza de León, *in* Estrada 1957c: 13).

Deification—or, more correctly, the identification or merging of the jaguar with one or another deity—appears to have been restricted mainly to the high civilizations and those societies with temple cults. But the identification of the jaguar with the shaman is an almost universal theme in South America. The

shaman is the jaguar, and vice versa, and consequently an actualizing principle between the supernatural and mankind. "The supernatural jaguar," writes Furst (1968: 145), "may be master of the air, of his own species, of all animals and all good plants; he may be bringer of rain, devourer of the planets, foster parent and antagonist of the mythical twins, guardian of sacred places and of gods, and (almost universally) avatar of living and deceased shamans. But he is rarely elevated to the status of 'deity' in the true sense of the term, much less the principal deity, even in cultures where we can speak of a pervasive 'jaguar cult.'" Directly or indirectly almost all these characteristics are reducible to such major features as we have mentioned: earth, fertility, night, the planets, and otherworld. In at least one case, i.e., among the Kayapo (Brazil), the jaguar taught the Indians how to spin (Lukesch 1968: 131). Considering the wide distribution in Central and South America of this dominant theme, it would be surprising if the Manabí jaguar would not fit into a similar symbolic syntax.

The jaguar representations on the whorls are aesthetically some of the finest in the collection. Most are zoomorphic, but on some examples the feline is seen standing manlike on his hind legs or seated like a person, reminiscent of anthropomorphic felines or "were-jaguars" in the art of the Andes or Mesoamerica (Figs. 89, 98, 99). Occasionally the animal is depicted on its back (Fig. 94). Head and teeth are generally accented, and the tip of the nose often bent upward like the membrane of the leaf-nosed bat. The massive elongated body suggests great strength and the powerful paws are given great prominence. The tail is characteristically rolled in at the tip and the fur shows simple spots or more elaborate rosettes with central spots as markings.

Wijn in ietation?



Fig. 81 Gray, conical. Max. height: 14 mm. Max. width: 13.5 mm. Diameter of holes: 2.5 and 2.9 mm.



Fig. 82 Black, spherical. Max. height: 11.2 mm. Max. width: 13.2 mm. Diameter of holes: 3 and 3.2 mm.



Fig. 83 Gray, conical. Max. height: 10.2 mm. Max. width: 11.2 mm. Diameter of holes: 3.1 and 3.2 mm.



Fig. 84 Black, barrel-shaped. Max. height: 14.2 mm. Max. width: 10.6 mm. Diameter of holes: 3.2 and 3.7 mm.



Fig. 85 Gray, conical. Max. height: 12.3 mm. Max. width: 14 mm. Diameter of holes: 3.2 and 3.6 mm.



Fig. 86 Brown, conical. Max. height: 13.2 mm. Max. width: 14.3 mm. Diameter of holes: 3.3 and 3.7 mm.



Fig. 87 Brown, spheroid. Max. height: 17.3 mm. Max. width: 17.6 mm. Diameter of holes: 3.3 and 3.4 mm.



Fig. 88 Black, conical. Max. height: 15 mm. Max. width: 15 mm. Diameter of holes: 2.5 and 3.5 mm.



Fig. 89 Gray, barrel-shaped. Max. height: 14 mm. Max. width: 12.3 mm. Diameter of holes: 3.4 and 3.6 mm.



Fig. 90 Black, conical. Max. height: 16.4 mm. Max. width: 13.6 mm. Diameter of holes: 3.2 and 3.6 mm.



Fig. 91 Gray, conical. Max. height: 13 mm. Max. width: 11 mm. Diameter of holes: 3.4 and 3.7 mm.



Fig. 92 Brown, conical. Max. height: 10.6 mm. Max. width: 10.2 mm. Diameter of holes: 2.9 and 3.5 mm.



Fig. 93 Gray, barrel-shaped. Max. height: 14.6 mm. Max. width: 9 mm. Diameter of holes: 2.7 and 2.9 mm.



Fig. 94 Black, spheroid. Max. height: 12.2 mm. Max. width: 13.4 mm. Diameter of holes: 4.3 and 4.5 mm.



Fig. 95 Brown, spheroid. Max. height: 11.1 mm. Max. width: 12.9 mm. Diameter of holes: 3.5 and 3.6 mm.



Fig. 96 Black, barrel-shaped. Max. height: 11.5 mm. Max. width: 10.2 mm. Diameter of holes: 3 and 3.1 mm.



Fig. 97 Brown, conical. Max. height: 15 mm. Max. width: 15.2 mm. Diameter of holes: 3.1 and 3.5 mm.



Fig. 98 Black, barrel-shaped. Max. height: 16.1 mm. Max. width: 10 mm. Diameter of holes: 2.9 and 3.1 mm.



Fig. 99 Black, barrel-shaped. Max. height: 13.5 mm. Max. width: 12.5 mm. Diameter of holes: 2.7 and 3.1 mm.

THE MONKEY

ALTHOUGH MONKEYS are plentiful in tropical America, represent an important part of the native diet, and are the subject of many folk tales and religious beliefs wherever they occur in nature, they form a clearly secondary motif, though an important one, in Ecuadorian spindle-whorl art, especially that of the Manteño culture. Most often the animal is shown in climbing position. Great care is usually given by the artist to achieve a balanced spatial distribution. Although at first glance the animal might also be interpreted as a cat, the shape of the head, with its leveled-off top and ears too close to the skull to be visible, clearly identifies it as simian. The tail too is more typically simian than feline, with the artist stressing its prehensile nature by accentuating the digitlike tip. In some instances there is even a handlike appendix. The spindle-whorl monkeys are usually pictured from the side, with the head turned to stare directly at the viewer. The eyes are usually indicated by the common circle and dot, but in one case the pupils are almond-shaped horizontal excisions (Fig. 103).

In the absence of information on the monkey's role in the life-and-death symbol complex of the Ecuadorian coast, the following data from Mesoamerica is of interest for comparative purposes. As in most other Middle American calendars, the eleventh day of the calendar of Yucatan was named

after the monkey, here called *chuen*. The name is also related to the word for Spider Monkey, who was considered the brother of Howler Monkey. Both monkeys were believed to be especially skilled in arts and crafts, and the God of Art and Craft may be represented in monkey form. As such he corresponds to one of the chief deities of the Manche Chol, described by las Casas (1909: ch. 235) as the creator of heaven and earth and of fire and water. Together with his brother he created man. The importance of the monkey-faced god of the Maya can thus scarcely be overstated (Thompson 1970: 322).

Also among the Maya the monkey appears frequently in association with the Moon Goddess. Like the Moon, the monkey is liberal in matters of sex. The Moon Goddess and her lover, the Sun, had the first sexual intercourse, an event which lies at the core of life-death symbolism in Maya ideology, a subject too complex to discuss adequately in these pages. Suffice it to add that the Moon, symbol of sexual intercourse and birth, is also the patroness of spinning and weaving, and is sometimes depicted as a weaving woman in Maya art.

In Costa Rica and Nicaragua the monkey has been recognized by Lothrop (1926: 163) as one of the important motifs occurring in the ceramic art of the Pacific region. It is of course also prominent in the art of ancient Mexico and northern Peru.



Fig. 100 Brown, barrel-shaped. Max. height: 14.1 mm.
Max. width: 9.2 mm. Diameter of holes: 2.8 and 3.2 mm.



Fig. 101 Black, barrel-shaped. Max. height: 12 mm. Max. width: 9 mm. Diameter of holes: 3.1 and 3.3 mm.



Fig. 102 Brown, barrel-shaped. Max. height: 12.8 mm. Max. width: 11.5 mm. Diameter of holes: 3.6 and 3.6 mm.



Fig. 103 Black, conical. Max. height: 13.2 mm. Max. width: 13.2 mm. Diameter of holes: 3.2 and 3.9 mm.



Fig. 104 Black, conical. Max. height: 10.5 mm. Max. width: 12.6 mm. Diameter of holes: 4 and 4.2 mm.

THE OPOSSUM

IN AMERICAN INDIAN folklore the opossum occupies an ambiguous position which relates it at once to birth and to death. Although we know that supernatural attributes ascribed to many animals are frequently entirely unrelated to physical facts, in the case of the opossum it may well have been the peculiar characteristics and habits of this unique New World marsupial that gave rise to such dualistic identification.

The female opossum gives birth to two litters a year, each with eighteen to twenty-five young. These are considerably less developed at birth than the young of most mammals; in fact, they are normally only about half-an-inch long and weigh less than 1/2800 of a pound. Gestation lasts only thirteen days and birth of the entire litter takes place in five minutes. Once born the young crawl into the maternal pouch where they remain for sixty to sixty-five days, firmly attached to one of the mother's thirteen nipples. Those undeveloped fetuses unable to reach a nipple do not survive. As the scientific term for opossum, *Didelphidae*, implies, the female has a paired uterus. The male has a forked penis, "hence the belief, attested throughout the whole of North America, that the animal copulates through the nostrils, and that the female sneezes its young into its marsupial pouch" (Hartman 1921: 321-3; Lévi-Strauss 1969: 171). Apart from the belief in superabundance of ejaculated sperm or fetuses by the male there are other recorded Indian traditions according to which the female opossum is capable of conceiving its young without the intervention of the male.

With its rapid gestation and large families the opossum would seem to be a rather obvious symbol of life and fecundity. Also, it resembles man in two important respects—its hind legs are shaped very much like the human hand, and it is omnivorous.

The semantic meaning of the opossum as it relates to death may be partly due to the fact that it is nocturnal, hiding by day in caves or holes in the

earth or in trees, and, above all, that it is in the habit of "playing possum." This apparent ability to feign death at will is said to be due to paralysis of the breathing center in the brain when the animal is confronted with danger. Once the danger is removed the opossum quickly recovers consciousness, thereby giving the appearance of having died and come to life again. Perhaps more important than any of these characteristics is the fact that the opossum emits a highly disagreeable, putrid odor. This smell, which is offensive to most other animals and therefore serves as a kind of defense, may be the principal reason why the opossum has been causally linked in Indian folklore with man's loss of immortality, i.e., death. Lévi-Strauss (1969: 249-50; cf. 164-95) writes, "The opossum is characterized by ambiguity: as a nursing mother, it serves life; as a foul-smelling or rotten beast, it anticipates death." It might be noted in this connection that most predators shun the flesh of the opossum, whereas the opossum, in turn, will eat any carrion. The peculiar odor of opossum meat is also a factor in the opossum's role as a guardian of the Underworld in the funerary mythology of the Huichol Indians of Mexico (Furst 1967: 70-1). As the mythological bringer of fire (i.e., life as human beings) to the first (animal) people to inhabit the world, the opossum is sacred to the Huichol and its flesh is taboo. To enforce this prohibition, Opossum stands guard in the Underworld, operating a stone trap in which to crush any soul whose owner violated the taboo in life. Opossum discovers this "sin" by examining the inside of the dead person's mouth with his keen sense of smell. The ambiguity of the opossum's symbolic meaning to the Indians is also apparent in the figure of the Quiché-Maya creator deity and mythological hero Hunahpu. He was considered to be male and female at the same time, the male part, *hunahpu vuch*, corresponding to the opossum.

To deduce the symbolic meaning of the opossum in ancient Ecuador either from its mythological role in Mesoamerica or from its biological characteristics is, of course, conjectural at best. Unfortunately,

though Estrada (1957b: 155) believed the opossum representations of Esmeraldas and Manabí to be comparable to Tlacuache, a “god of fecundity” of Oaxaca, on the basis of his own field work in coastal Ecuador, there is little other evidence from Ecuadorian sources on which to base an interpretation.

On the spindle whorls the opossum is usually depicted with a large, almost doglike head, exaggerated long pointed ears, prominent eyes, and a ferocious-looking set of teeth (the opossum in fact has fifty teeth—more than any other mammal). The long tail projects from a rather elongated body, and as though to emphasize its prehensibility the tail is either strongly curved or depicted holding a baby opossum (Fig. 108). “Playing possum” may be indicated by depicting the animal in a dorsal position (Figs. 110, 111). It may be that different species of opossum are

represented and that, in addition to the common American species, *Didelphis marsupialis*, there are representations also of the semi-aquatic “water opossum,” or yapok (*Chironectes minimus*), which is distinguished by white stripes along the flanks and which has webbed feet in place of the three prominent independent middle claws of its terrestrial and arboreal cousins (Figs. 109, 111). The aquatic opossum also lives on land but dives into streams and ponds in search of fish and shellfish. The symbolic association of diving into the waters with the journey to the Underworld has already been mentioned elsewhere. Water opossums also give off an even viler odor than their cousins, a characteristic that would seem to strengthen further the identification of this animal with death and the Underworld.

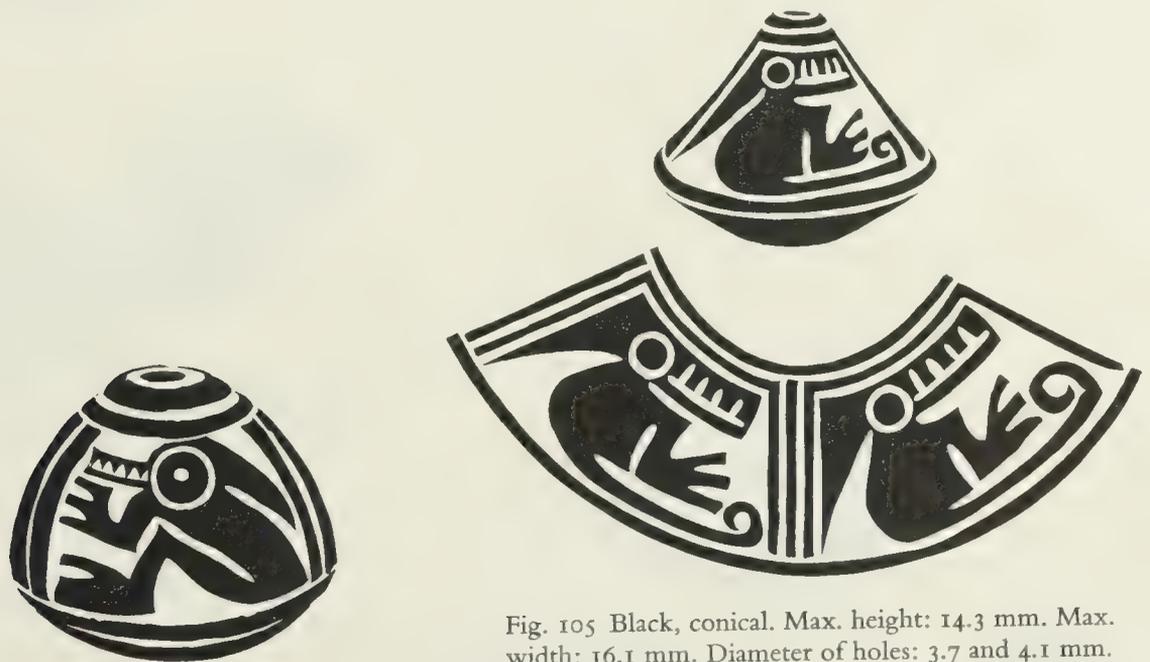


Fig. 105 Black, conical. Max. height: 14.3 mm. Max. width: 16.1 mm. Diameter of holes: 3.7 and 4.1 mm.



Fig. 106 Brown, conical. Max. height: 13.9 mm. Max. width: 14.2 mm. Diameter of holes: 3.2 and 3.8 mm.



Fig. 107 Brown, spheroid. Max. height: 10.2 mm. Max. width: 14.2 mm. Diameter of holes: 3.5 and 3.6 mm.



Fig. 108 Black, conical. Max. height: 11.9 mm. Max. width: 13.6 mm. Diameter of holes: 3.4 and 3.5 mm.



Fig. 109 Brown, barrel-shaped. Max. height: 14.5 mm. Max. width: 10.9 mm. Diameter of holes: 3.2 and 3.7 mm.



Fig. 110 Gray, conical. Max. height: 12.2 mm. Max. width: 14 mm. Diameter of holes: 4.1 and 4.3 mm.



Fig. 111 Black, conical. Max. height: 12.7 mm. Max. width: 14.7 mm. Diameter of holes: 4 and 4.3 mm.

FISHES

CONSIDERING the strong maritime orientation of the peoples of the Ecuadorian littoral, it is not surprising to find fishes among the prominent motifs of spindle-whorl art. Nevertheless, we should not assume that fish were depicted solely because of their economic importance; as elsewhere in the world, the fish probably had symbolic significance far beyond its culinary value.

As a fertility symbol the fish is widely distributed throughout the tropical forest area of South America. It occurs in ritual song, in narratives, as masks, costumes, body paint, and amulets. It decorates baskets, boats, and paraphernalia. Wooden bull-roarers are made in the shape of fish and so are ceremonial clubs, etc. However, no matter how varied the shapes and forms in which the fish symbol occurs, it carries one basic message—that of fertility (Kunike 1912). Accordingly, fish are believed by many Indians to be able to impregnate and to deliver the women, and, on the Xingú, women fashion their bast pubic covers to represent the *meréschu*-fish (Schmidt 1905: 395). Also for indigenous Mexico, Seler (1904: 275) refers to the fish as the animal of fertility. In Ecuador, large effigies of fish were kept in such a prominent place as the temple at Manta, a fact which Thompson (1936: III) relates to the presence of a special religion or cult of fishermen.

It is of course natural that people who spent much of their life on the water and depended heavily on the products of the ocean for survival should have come to worship the sea and to have chosen fish as a symbol to represent it in their ceremonial art and ritual. Worship of the sea and of fish is well known, for example, from neighboring Peru, to the south. According to Garcilaso de la Vega, the Inca “. . . of the coast made the sea their god, which in their language they call Mamachoca [sic], and is as much as to say the mother-sea; the whale for its prodigious bigness was in no less veneration than the rest, and

every sort of fish which abounded amongst them was deified, because they believed that the first fish in the world above them always takes care to provide them with a number of the like sort or species sufficient to maintain and nourish them” (Mead 1909: 127).

The symbolic identification between the sea and the Magna Mater is by no means peculiar to Peruvian coastal Indians. Even agricultural peoples living some distance from the sea and lacking a maritime tradition are known to worship the ocean as a mother goddess; to cite one example from Mesoamerica, the Indians of the Sierra Madre Occidental in Western Mexico worship the Pacific Ocean as “Our Mother Haramára” and make pilgrimages to the coast to ask for fecundity and rain in shoreline ceremonies. Fish and fish blood are also prominent among the offerings made to the various supernaturals that govern fertility. Fish worship is also known from Asian, Oceanic, Near Eastern, European, and other peoples. Schneider (1946: 289) refers to the fish as the Mystic Ship of Life, which may change here and there in specific form “but at all times it is the *spindle spinning out the cycle of life* after the pattern of the lunar zodiac” (italics added).

Because of their spindle-shaped form and its consequent association with mandorla symbolism, fish have a dualistic meaning: they are phallic as well as purely spiritual and uterine. But in either case they symbolize fecundity at its fullest—one need only think of the enormous numbers of eggs they deposit. Inhabiting and arising from the unfathomable depths of the Mother Sea, fish become the bearers of numinous, chthonic messages of transcendental meaning.

On the spindle whorls, fish are depicted in a naturalistic side view, showing scales, fins, gills, and other detail. Fish are seen swimming to the right and to the left, and upward as well as downward. Some of the fish representations are done in the so-called X-ray style, showing the outer form as well as the spinal column. Certain designs also appear to depict dead and decaying fish.

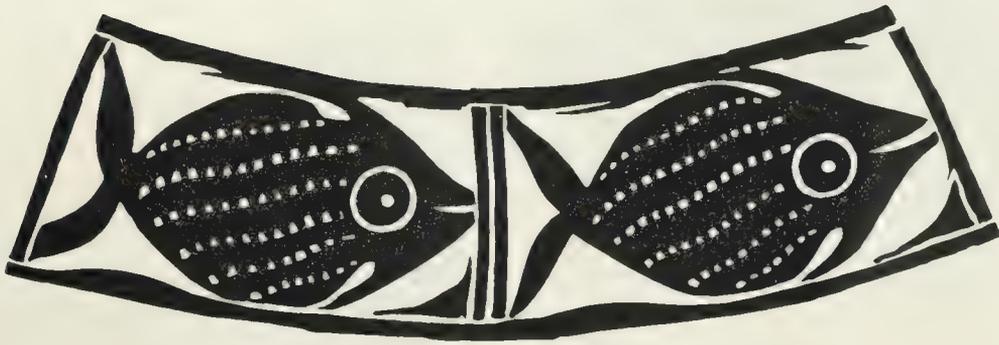
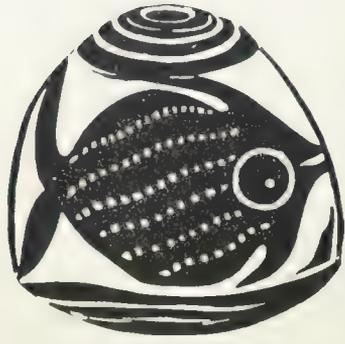


Fig. 112 Black, conical. Max. height: 14.3 mm. Max. width: 14 mm. Diameter of holes: 3.4 and 3.6 mm.



Fig. 113 Black, conical. Max. height: 14.1 mm. Max. width: 15 mm. Diameter of holes: 4 and 4.1 mm.

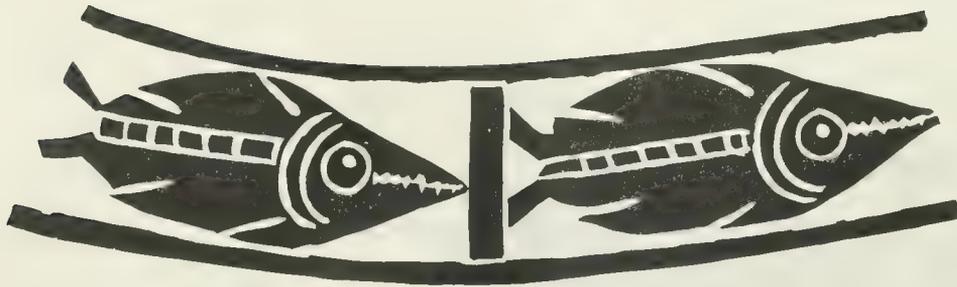


Fig. 114 Brown, spheroid. Max. height: 12.3 mm. Max. width: 12.3 mm. Diameter of holes: 3.4 and 3.4 mm.



Fig. 115 Gray, spheroid. Max. height: 10.6 mm. Max. width: 13.4 mm. Diameter of holes: 4 and 4 mm.



Fig. 116 Gray, spheroid. Max. height: 11.5 mm. Max. width: 14 mm. Diameter of holes: 4 and 4.3 mm.

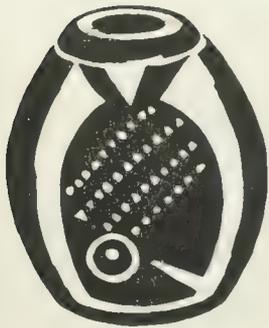


Fig. 117 Orange, barrel-shaped. Max. height: 12.6 mm. Max. width: 11.7 mm. Diameter of holes: 3.6 and 3.7 mm.



Fig. 118 Gray, conical. Max. height: 13.4 mm. Max. width: 12 mm. Diameter of holes: 3.7 and 4 mm.



Fig. 119 Gray, conical. Max. height: 13.2 mm. Max. width: 11.5 mm. Diameter of holes: 3.4 and 3.6 mm.



Fig. 120 Gray, conical. Max. height: 13.8 mm. Max. width: 13.9 mm. Diameter of holes: 4 and 4.1 mm.



Fig. 121 Black, conical. Max. height: 16.4 mm. Max. width: 17.4 mm. Diameter of holes: 3.9 and 4.6 mm.



REPTILES: SNAKE AND LIZARD

SERPENT SYMBOLISM in religious traditions and ritual art the world over attests to man's eternal fascination with the snake. The symbolic meaning of snakes varies from place to place, but, if one may generalize, on the whole it is ambiguous, symbolizing good and evil, life and death, etc. The snake's identification with fecundity and perennial life is generally assumed to be due to its striking habit of periodically shedding its skin, and with it—so it is widely believed—old age and death. Seemingly in possession of the secret of eternal life, the snake became the hoped-for companion of the shaman as he entered upon the cure of the patient—just as contemporary physicians are still identified by the ancient Greek emblem of the caduceus, with its serpent coiled around the staff. In the time of Moses the brazen serpent gave new life to those who lifted their eyes to it, and Moses' divining rod was transformed into a serpent to swallow the lesser snakes of the sorcerers of Pharaoh. As phallic symbol the snake became the embodiment of fertility and life and was worshipped as such from early dynastic Egypt through the Near East to India. To the Greeks and Romans it was a guardian spirit; the snake kept in the cage in Athena's temple in Athens was considered the guardian spirit of the temple. China and Japan are full of traditions that treat the snake as a phallic symbol and relate it to fertility: "In old Japan it was sometimes taken that the whole population of a certain village was descended from a snake that in human form had got a woman with child" (Volker 1950: 144). In Africa, too, "the most fundamental ideas of all kinds of African snake beliefs are those of resurrection and fecundity" (Hambly 1931).

Basically the same serpent symbolism prevails also throughout the New World. Many North American Indians attribute to snakes supernatural powers to influence rain, thunder, and lightning. To the Huichol, the Rain Mothers appear as serpents, as does the sea. Rainstorms are believed caused by a giant serpent lashing the world. In the pre-Columbi-

an art of Mexico and Central America the snake is omnipresent: "Nowhere else in the world are so many carvings of snakes to be found as on the temples and monuments of the Toltecs, Aztecs, and Mayans" (Morris and Morris 1965: 38). Here as elsewhere serpent symbolism revolves around the fundamental theme of life and death and rebirth, as exemplified by Coatlicue, She of the Serpent Skirts, Mother of the Gods, and divine patroness of the earth, life, and death; Tlaloc, God of Rain; and, of course, Quetzalcoatl, the Plumed Serpent, creator and master of life.

Moving south we find practically the same symbolism throughout indigenous South America. It is because of this universality of beliefs about the snake that we are safe in assuming that the prehistoric Ecuadorian Indians also recognized the snake as a powerful symbol of mankind, connected with fecundity, life, death, and rebirth. What Roth (1915: 369-70) says of snake symbolism among many northern South American tribes may well hold also for the Ecuadorian coast—e.g., the snake as progenitor of man, symbol of perennial life, rain, fertility, and also as potential lover of women. In fact, according to Funes Sánchez (1970: 163), there is some evidence that Ecuadorian Indians recognized "snakes as symbol of power, wisdom and fertility." Dignitaries and shamans from Manabí and Imbabura, therefore, used serpents as symbols of command, as crowns, and as scepters. An early Colonial account by Augustín de Zárate (n.d.: 518) also speaks of effigies "of large serpents which they worshipped" in the temples of the people of Manabí (Parducci 1966: 125; cf. Cieza de León 1862: 403, in Estrada 1957b: 13).

In spindle-whorl iconography, reptiles—especially snakes, iguanas, and crocodiles—are somewhat less common than birds and lizards, but they are nevertheless prominent motifs. As elsewhere, the symbolic meaning of reptilian creatures—iguanas, crocodiles, snakes, and "dragons"—tends to blend. In Ecuadorian pre-Columbian art, including that of the spindle whorls, these reptiles occur in close association, and

seem to fit well into the symbolic syntax of the "fertility cult" complex. The same applies to Mexican and Central American ideology and art.

Some snakes, of course, could also be interpreted as eels, and, likewise, some of the iguanas might be alligators or crocodiles. This applies especially to one of the naturalistic "iguanas" included here (Figs. 124, 126). Both creatures have a serrated back but vary considerably in the shape of the head, one being blunt like that of the iguana, the other more pointed,

like that of the crocodile. There is also one exquisite anthropomorphized standing crocodile adorned with a wide necklace (Fig. 125).⁹ The anthropomorphic spindle whorl depicting a chimeral creature with joined hands (Fig. 127) is reminiscent of lizard-man representations of the Milagro Phase.

⁹ This creature could also be interpreted as a fox, but the serrated back leads me to include it under the present heading.



Fig. 122 Orange, flattened spheroid. Max. height: 10 mm. Max. width: 10.4 mm. Diameter of holes: 3.2 and 3.5 mm.



Fig. 123 Black, conical. Max. height: 12.4 mm. Max. width: 10.9 mm. Diameter of holes: 3 and 3.3 mm.





Fig. 124 Brown, spheroid. Max. height: 10.8 mm. Max. width: 12.7 mm. Diameter of holes: 3.7 and 4.4 mm.



Fig. 125 Black, barrel-shaped. Max. height: 14.2 mm. Max. width: 11.5 mm. Diameter of holes: 2.8 and 3.2 mm.



Fig. 126 Gray, spheroid. Max. height: 11.7 mm. Max. width: 14.8 mm. Diameter of holes: 3.2 and 4 mm.



Fig. 127 Black, grooved. Max. height: 11.7 mm. Max. width: 9.4 mm. Diameter of holes: 3 and 3.3 mm.

FROGS, TOADS, AND SLUGS

APART FROM certain insects—which as a whole are absent from spindle-whorl iconography—few creatures embody the concept of metamorphosis and transition better than the frog. Extraordinarily fertile, born in water, it passes from egg to a wholly aquatic stage in which it resembles a fish before transforming itself into an air-breathing, four-legged amphibian as well adapted to water as it is to land. Little wonder that the frog has long been a symbol of transformation (in this connection one need only recall the many folktales of the frog and the prince). The world over, the frog is also closely associated with rain and the related symbolism of fecundity and the Moon. In Mexico frogs were the companions of the rain god Tlaloc, and the Chac ceremonies of the Maya likewise emphasized the association of the frog with rain and fertility. At the same time, we cannot overlook the fact that in Central and South America certain frogs, especially those belonging to the family *Dendrobatidae*, are highly poisonous—indeed, one has been found to secrete the most powerful natural poison known to man. Some Indians have long employed frog poison for their weapons, and hunters of more than one Amazonian tribe rub frog poison into self-inflicted wounds to induce a violent illness followed by trances in order to achieve supernatural power for the hunt (Daly and Myers 1967: 970–3; Carneiro 1970: 340).

Whether the amphibians depicted on the Ecuadorian spindle whorls (Figs. 128, 129) are meant to be frogs or toads is not certain. The rows of white dots might represent warts, in which case the creature would probably be a toad, or else they might depict the characteristic exudations of certain poisonous frogs that figure in hunting ritual and other magic. On the other hand, toads are also venomous, secreting poison from glands in the skin. In fact, the poison of one species, *Bufo marinus*, has been found to contain bufotenine, a hallucinogen also present in certain plants.

A differentiation between toads and frogs in

spindle-whorl art is not insignificant, in light of the important mythological and cosmological role of the toad in South America as well as Mesoamerica. In a recent paper on this problem, Furst (1972: 37–46) demonstrates a basic similarity between toad symbolism in Mexico and South America, where aboriginal inhabitants shared the concept of the toad as the monstrous, and indeed cannibalistic, animal manifestation of the Mother Goddess or Earth Mother. The Aztec earth monster Tlaltecuhli, with her jaguar claws and fangs, was shown to be essentially the same being as the toad-jaguar foster mother of the Hero Twins of South American tropical forest tradition, or the Earth Mother in her form as a large *Bufo* toad among the Tacana of Bolivia. Even the Aztec name, Tlaltecuhli, and the Tacana name for the Earth Mother as toad, Eava Quinahi, mean the same thing—Owner or Master of the Earth.

We cannot, therefore, assume that toad or frog symbolism in Central and South American art is always related only to fecundity or rain; the symbolism may vary according to its context, or it may be ambivalent.

The snails and slugs of Ecuadorian coastal iconography are assigned by Estrada (1957a: 40) to the symbol complex of the fertility cult; in fact, slugs are often identified in folk literature with the snake as symbols of fertility, the origin of life, and the male seed. The naturalistic examples in the present collection represent elongated and biconical forms of the shell-less slug; the biconical form, according to Estrada, is characteristic of the Manteño Culture. As for snails, it may be that the “geometric” spirals on certain non-representational spindle whorls are actually conventionalized snail shells as symbol of the origin of life and the circle of life and death.

Förstemann (1904: 427) connects the snail in Maya tradition with the winter solstice which occurs in the eighth month of the Maya year, the month of the death and rebirth of the Sun. In Aztec manuscripts the sea snail also maintains a close relationship with the gods of death. In connection with Förstemann's idea of a relationship between snail and winter solstice

in Maya tradition, it is interesting to note that according to Cirlot (1962: 285) the slug symbolizes "the silent tendency of darkness to move towards life," as is so well expressed in Egyptian mythology. In Maya ideology, the snail, as an animal related to the water and the subterranean region, appears as the symbol of the Great Mother, the Moon Goddess,

who is the goddess of earth and water. In Central Mexican cosmology the snail connects Quetzalcoatl with the surface of the earth. The snail was also related to Xolotl, who guided the Sun through the Underworld, and to Tepeyollotli, god of mountains and caverns.



Fig. 128 Black, conical. Max. height: 12.9 mm. Max. width: 10.7 mm. Diameter of holes: 3.5 and 4.2 mm.



Fig. 129 Black, conical. Max. height: 14.4 mm. Max. width: 14.2 mm. Diameter of holes: 3.2 and 3.5 mm.



Fig. 130 Black, conical. Max. height: 13.1 mm. Max. width: 14.5 mm. Diameter of holes: 3.5 and 3.8 mm.



Fig. 131 Black, conical. Max. height: 11.7 mm. Max. width: 13.7 mm. Diameter of holes: 3.8 and 4 mm.

THE HOCKER OR "SPLAYED CREATURE"

A FREQUENT REPRESENTATION in spindle-whorl iconography is a figure shown with knees apart of the type sometimes described as the "hocker" motif. Similar figures can be found in the Manteño Culture, carved in low relief and on stone slabs where "the upper end of one surface is dominated by a human or animal figure with the legs and arms bent to each side. The head often fits into a niche in an ornamental frieze with a repetitive geometric pattern. A pair of birds, disks, or monkeys often accompanies the principal figure" (Meggers 1966: 126).

The Ecuadorian motif bears a striking resemblance to what Fraser (1966), in an article seeking to trace the diffusion of an apparently complex pattern, calls the "heraldic woman," familiar in Oceanic art. Many theories have been advanced for the meaning of this figure: woman, monkey, iguana, frog, and even insect. The various designs may in fact represent different anthropomorphized animals as well as humans, but, as Muller (1971: 67) points out in a critique of Fraser's diffusion theory, the splayed, or bilaterally symmetrical, position is "one that occurs very widely in childbirth. Furthermore, in Oceania, where this design seems to have its most continuous distribution, very similar positions are among the most common for coitus" (Ford and Beach 1951: 24).

In Mexico, the Earth Mother as monstrous toad (Tlaltecuhli), is depicted in the same "hocker" position, emphasizing her creative, birth-giving function just as her claws and fangs symbolize the other side of her dualistic life-death nature. That the "hocker," or squatting position, is in fact symbolic of birth—i.e., creation—is overwhelmingly clear from the depiction of the goddess Tlazolteotl in the Codex Borbonicus, where she is shown in the act of giving birth to the young maize god Centéotl.

If this interpretation of the "hocker" or splayed figure as a female receptive to coitus or about to give birth is correct, then of course it does not matter whether the particular figures shown on the spindle whorls are human or animal (e.g., Tlazolteotl is represented in human form whereas Tlaltecuhli is a monstrous animal). What counts, in ancient Ecuador, as in Mexico, is fertility, of which the Magna Mater is the archetype.

Some of our spindle-whorl "hockers" are executed in the X-ray style, emphasizing the spinal column (Figs. 133–8) and even internal organs or a fetus within the body of the mother (Fig. 132). In several designs the artist, by indicating the external female genitalia between the legs either by a cleft (Fig. 133) or a circle (Fig. 137), leaves no doubt about the figure's sex.



Fig. 132 Black, oblong. Max. height: 13.8 mm. Max. width: 7.7 mm. Diameter of holes: 2.7 and 3.8 mm.



Fig. 133 Black, conical. Max. height: 15.3 mm. Max. width: 13 mm. Diameter of holes: 4 and 4.2 mm.



Fig. 134 Black, conical. Max. height: 12.3 mm. Max. width: 12.2 mm. Diameter of holes: 3.7 and 3.9 mm.



Fig. 135 Black, conical. Max. height: 11.6 mm. Max. width: 12.9 mm. Diameter of holes: 3.7 and 4 mm.



Fig. 136 Black, conical. Max. height: 11.9 mm. Max. width: 12.1 mm. Diameter of holes: 3.5 and 3.6 mm.



Fig. 137 Brown, conical. Max. height: 13 mm. Max. width: 11.3 mm. Diameter of holes: 2.6 and 2.7 mm.



Fig. 138 Gray, conical. Max. height: 13.2 mm. Max. width: 13.7 mm. Diameter of holes: 2.7 and 3.4 mm.



Fig. 139 Black, conical. Max. height: 12.5 mm. Max. width: 13.7 mm. Diameter of holes: 3.7 and 3.9 mm.

GEOMETRIC DESIGNS AND OTHERS

GEOMETRIC and abstract designs are very common in spindle-whorl art and, as has been stressed before, probably carried as intelligible a symbolic message for the native observer as any of the representational decorations. Unfortunately, we lack the necessary insights to unlock the meaning of the non-representational designs; all we can do from our cultural vantage point is to enjoy them aesthetically and attempt to interpret them according to their degree of resemblance to familiar objects. Thus, the com-

mon zigzag band with parallel lines may appear to us like a snake, or the diamond-shaped meander like the scales of reptiles. The oft-repeated spiral looks like a snail shell, but whether that is what the prehistoric artist meant to portray we will never know. In contemporary Mesoamerican Indian art spirals are often snakes used as water symbols, but they can also mean long ritual journeys with a return to the beginning. It is best, perhaps, to refrain from interpretation of these esoteric symbols, remembering only with Lumholtz (1903) that no primitive artist ever made a meaningless design.



Fig. 140 Black, conical. Max. height: 15.8 mm. Max. width: 14.9 mm. Diameter of holes: 2.6 and 3.3 mm.



Fig. 141 Gray, spheroid. Max. height: 16.1 mm. Max. width: 19.1 mm. Diameter of holes: 3.6 and 4.2 mm.



Fig. 142 Gray, biconical. Max. height: 17.1 mm. Max. width: 17.7 mm. Diameter of holes: 3.3 and 3.5 mm.

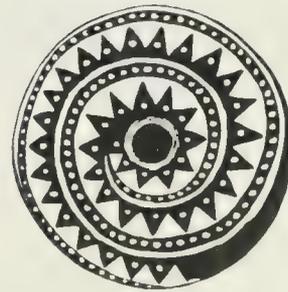


Fig. 143 Gray, biconical. Max. height: 16.7 mm. Max. width: 20.1 mm. Diameter of holes: 3.7 and 3.8 mm.



Fig. 144 Black, conical. Max. height: 16.9 mm. Max. width: 17.5 mm. Diameter of holes: 4 and 4.3 mm.



Fig. 145 Black, conical. Max. height: 9.5 mm. Max. width: 11.6 mm. Diameter of holes: 3.5 and 3.8 mm.

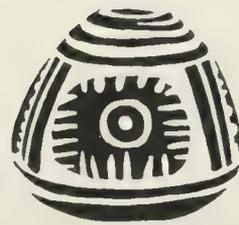


Fig. 146 Gray, conical. Max. height: 13.5 mm. Max. width: 13.8 mm. Diameter of holes: 3.5 and 4.1 mm.



Fig. 147 Gray, conical. Max. height: 16 mm. Max. width: 12.8 mm. Diameter of holes: 3.5 and 3.5 mm.



Fig. 148 Gray, conical. Max. height: 14.1 mm. Max. width: 14.9 mm. Diameter of holes: 3.8 and 3.9 mm.



Fig. 149 Black, conical. Max. height: 10.8 mm. Max. width: 13.8 mm. Diameter of holes: 3.9 and 3.9 mm.



Fig. 150 Black, spheroid. Max. height: 11.6 mm. Max. width: 13.2 mm. Diameter of holes: 3.9 and 3.9 mm.



Fig. 151 Gray, spheroid. Max. height: 12.6 mm. Max. width: 12.8 mm. Diameter of holes: 3.1 and 3.3 mm.



Fig. 152 Gray, conical. Max. height: 14.7 mm. Max. width: 16.1 mm. Diameter of holes: 3.6 and 4.1 mm.



Fig. 153 Brown, spheroid. Max. height: 13.3 mm. Max. width: 13.8 mm. Diameter of holes: 3.4 and 3.5 mm.



Fig. 154 Black, conical. Max. height: 15.9 mm. Max. width: 12.9 mm. Diameter of holes: 2.9 and 3.2 mm.



Fig. 155 Gray, conical. Max. height: 11.8 mm. Max. width: 12.8 mm. Diameter of holes: 3.1 and 3.2 mm.



Fig. 156 Gray, conical. Max. height: 14.7 mm. Max. width: 13.1 mm. Diameter of holes: 3.6 and 4.4 mm.

Fig. 157 Gray, conical. Max. height: 9.5 mm. Max. width: 15.5 mm. Diameter of holes: 2.9 and 3.1 mm.

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