THE CARVED METATES OF GREATER NICOYA

PETER RAYMOND RYDER

A THESIS

in

Anthropology

Presented to the faculties of the University of Pennsylvania in Partial Fulfillment of the Requirements for the Degree of

MASTER OF ARTS

1983

Supervisor's Name

Graduate Group Chairperson

TABLE OF CONTENTS

CHAPTER

CHAPTER 1

INTRODUCTION

In their food, the Nicaraguans are exceedingly simple. Tortillas and frijoles are the standard dishes. The first are composed of maize, and if well made are really palatable. Fresh and unblemished maize on the ear is always selected. It is shelled, soaked in alkali to remove the hull, and then carefully and repeatedly washed in cold water. It is afterwards placed on a metatl, or grinding stone, and reduced to the extremest fineness. . . . The tortilla is an aboriginal invention; and the foregoing engraving represents an ancient metatl or grinding stone which we dug up during my residence in Leon. The form is unchanged to this day, although few are as elaborately ornamented as that here introduced, which is a favorable specimen of aborginal carving.

E.G. Squier (1852:272-273), commenting on a carved Precolumbian metate looted from a grave in Pacific Nicaragua.

The extremely elaborate metates (stones upon which maize was ground) from southern Nicaragua and northern Costa Rica were carved out of solid blocks of lava with stone tools. The sculptures in relief on these slabs are by all odds the finest from the Isthmian area. Human beings, crocodiles, monkeys and birds are all used to decorate these carefully and laboriously made pieces whose use is entirely unknown.

H.J. Spinden (1957:343)

The lavish ornamentation of the Nicoya metates is remarkable. Even the underside of the plates of these artifacts has been embellished with elaborate designs. This has rarely been observed outside the area of this Central American culture.

Carl V. Hartman (1907:42)

The most elaborate type of metate, or grinding stone, in the Americas was developed by the inhabitants of the Peninsula of Nicoya, whence they are found in decreasing numbers as far as Salvador and Tenampua in Central Honduras.

Samuel K. Lothrop (1926:97)

Costa Rica is justifiably famous for its ancient traditions of sculptural carving in stone. A catalogue on the subject would illustrate examples of the standing human figures, the "flying-panel" metates, and the "jaguar-effigy" metates from the Central Highlands-Atlantic Watershed zone; the "trophy-head" metates and massive stone balls from the Diquís region; and the large masked anthropomorphic statues and intricately carved tripod metates from the Greater Nicoya area. The presence of these elaborately carved tripod metates in Precolumbian burials from the Greater Nicoya area (southwestern Nicaragua and northwestern Costa Rica) has long eluded definitive explanation and rarely--if ever--attracted comprehensive analysis, their finding remaining an enigma in the study of Lower Central American prehistory since E.G. Squier and other nineteenth-century antiquarians first reported their existence. As Spinden, Hartman, Lothrop, and latter day Precolumbian scholars make clear, these metates with their characteristic thin, longitudinally curved grinding plates resting on elongated cylindrical or triangular-slab supports, and most notably, their rich carved ornamentation, are like no other class of sculpted stone artifact produced in ancient America (fig. 1). Although they share certain basic morphological features exhibited by quotidian ancient and modern day metates found in many parts of Mexico and Central America, the decoratively carved metates of Pacific Nicaragua and northwestern Costa Rica are distinct in style, function, and meaning.

The term "metate" derives from the Nahuatl word metatl or metlatl, which Molina (1880) defines as "piedra donde muelen el mayz. Etc.". Sahagun (1969: lib. V, apendice XV: 33) defines it similarly as "la piedra en que muelen que se llama metatl." E.B. Tylor in his account of travels through central Mexico, refers to the implement: "The metate (Aztec metatl) is a sort of little table, hewn out of basalt, with four little feet, and its surface curved from the ends to the middle" (1861:88). In its most inclusive sense, the term has come to signify a grinding stone (piedra de moler) with a flat or concave slab surface, with or without supports, on which various vegetal substances--especially maize--are processed. It is normally used in concert with a mano, a hand-held stone muller. The Nahuatl word for mano is metlapilli, a "moledor con que nuelen mayz" (Molina 1880).

A perusal of archaeological site reports from the American Southwest, Mesoamerica, Lower Central America, as well as several other New World regions, indicates that metates have long been an important component of the technological systems of the inhabitants of these areas. A survey of the ethnographic literature covering the same regions demonstrates that metates are still employed in the traditional preparation of maize and other foodstuffs. Even in communities where the motorized mill has been introduced, most households still do at least some of the grinding of corn on their own metates. In the centuries before the arrival of

the first Europeans, the distribution of metates was widespread, encompassing parts of North America (including most of the Southwest), throughout Mesoamerica and Lower Central America, and in parts of South America (see Ford 1969: Chart 5).

Ground stone tools utilized in processing plant material for consumption first appear in the New World at the onset of the Archaic era (ca. 8000 B.C.), associated with the Desert Culture of the American Southwest and Great Basin (Jennings 1964). To the south in Mesoamerica, groundstone implements, including pestles, mortars, and "crude" metates, first occur in El Riego phase (7000-5000 B.C.) remains in the Tehuacan valley, Mexico (MacNeish, et al. 1967:10), and the first "true metates" appear in the subsequent Coxcatlan phase (4800-3500 B.C.) (ibid.:11). Grinding implements (metates?) are present in Panama no later than 3000 B.C. (McGimsey 1956, 1958), and by 2000 B.C. metates occur on the coast of Ecuador (Meggers, Evans, and Estrada 1965). By 500 B.C. they are found in parts of the Mississippi valley and southeastern North America (Ford 1969:57).

It is not clear what criteria MacNeish, et al. use to determine true "metate-ness." Ford (1969:54) distinguishes between "milling stones," which are "irregular shaped, flat slabs of rock on which a natural cobble handstone was used with a rotary motion," and "metates," which he defines minimally as "flat slabs of stone on which a mano was used with

a back and forth motion." A more regularly shaped slab, used in conjuction with a preshaped muller, and the kind of grinding motion are the determining factors by these definitions. The last criterion is a useful standard because grinding motion is readily detectable through wear pattern analysis, but there is no evidence that it or any other criteria has been consistently applied in the literature to distinguish metates from other grinding implements.

The subject of this paper is not, however, the types of utilitarian metates that MacNeish reports finding among the remains of his Archaic phases, nor the typical metate described in the context of present day methods of food preparation in Mesoamerican traditional communities. These were and are primarily quotidian domestic tools, whereas the decoratively carved metates of Greater Nicoya, although they were probably used on occasion as grinding implements in domestic and public ritual settings, served principally symbolic or emblematic functions. They were objects of social and ideological expression, and in a Western sense, works of art, as Kubler (1962:80) uses the term:

> A tool usually has but one single functional value. An object made for emotional experience--which is one way of defining a work of art--differs from a tool by this meaningful extension beyond use.

The carved tripod metate of Greater Nicoya was not a quotidian implement by any definition; yet, the essence of its ideological and symbolic value relates directly to its design in the form of a metate, a tool, which throughout

Mesoamerica is embedded at the center of what Julien Steward labeled the "cultural core," that "constellation of features which are most closely related to subsistence activities and economic arrangements" (Steward 1955:37). As will be made evident, the Greater Nicoya metates are often covered with carved visual imagery which, it is felt, possesses symbolic-ideational content. That the metates are designed to ultimately be interred with the dead is symbolically expressive as well. The study of these objects then offers an opportunity to combine evidence concerning the culture's techno-ecological adaptation to the ideational sphere, and perhaps to approach the seamless blending of the two spheres of life which so marks native American culture.

The problem of defining the socio-technological function of these "special purpose" metates (Graham 1981), i.e., decoratively carved metates and/or metates placed in burials, has received the attention of practically everyone who has written on Greater Nicoya prehistory. What were they used for and who used them? Were they produced solely for interment with the dead, or were they designed to serve in the world of the living before their inclusion in the graves of certain individuals? Closely tied to questions of function are questions of ideational meaning: what do the metates represent, or what are they emblematic of? What do their often complex carvings symbolize? And perhaps most importantly, what is the relationship of the motifs and figural representations depicted to the inherent symbolic meaning(s) of the

metate as a food-processing implement and its role as a key funerary good?

A number of archaeologists who have worked in Greater Nicoya have suggested that these so-called "metates" were principally--if not solely--used as ceremonial seats by individuals of high or chiefly status, an idea first proposed by Spinden (1925). Whereas Lothrop (1926:291) and Norweb (1961:28) propose that these objects may have served as both ritual food-processing implements and ceremonial seats, Lange rules out the former function and implicitly rejects the idea that these pieces even owe their form to the Mesoamerican metate. He claims that the term "metate" is a misnomer:

> Despite the thousands that have been recovered from mortuary contexts, very few have been found with manos, and other contextual and association data have led to the conclusion that rather than being utilitarian or even metates they are ceremonial stools, thrones, seats, or "seats of power." (Lange in press:11)

These investigators look to external cultural sources for an analogous form and tradition. Lothrop (1926:291, fig. 183) notes that the Greater Nicoya form is comparable with the "wooden stools of the West Indies, South America, and Yucatan," and he illustrates a four-legged wooden stool from the Cave of Cucinizna, Nicaragua. Oviedo remarked on the presence of a similar stool used by the cacique Agateyte in his residence at Tecoatega, Nicaragua:

> As a pillow he had a small four-legged bench, somewhat concave, which they call duho, and of a very handsome

> wood, skillfully carved at the head. (Oviedo 1851-1855: lib. XLII, cap. XIII; cited in Lothrop 1926:32)

Lange (1971:215-216) suggests the tradition may be derived from the Circum-Caribbean area, where stools are a central component of the ritual paraphernalia of the Arawak (Rouse 1948:525, Pls. 88, 89), the Caribbean lowland tribes as a whole (Kirchoff 1948a:224), and the Guayupe (Kirchoff 1948b: 387-388). Rouse (1948:525) states that the Taino had carved stools of wood and stone, which were "common among the higher class, being used principally during the religious ceremonies."

Snarskis (1981a and 1981b) posits that the carved metates of Greater Nicoya were modeled directly after the quotidian food-processing Mesoamerican metate. He argues that although individuals may have occasionally sat on these objects, their primary function was in the grinding of ceremonial foodstuffs. The evidence he cites to support this position is three-fold (Snarskis 1981a:26). First, the great majority of pieces inspected exhibit considerable wear from grinding. Second, the recent excavation of carved metates with associated manos; and third, his belief that a productive (maize?) agricultural system was at least partially responsible for the marked increase in population in northwestern Costa Rica during the period A.D. 300-500 (a period when the special purpose metate tradition was most evident--see below). Snarskis believes that the special purpose metate symbolized the fundamental importance of agricultural production to

Greater Nicoya society, and he states,

> It is not surprising to find among the paraphernalia of the ruling elite articles symbolic of food preparation and its ceremonial redistribution, major sources of political power in chiefdom societies. (Ibid:29)

Thus, Snarskis too proposes that these objects were emblematic of high (political) status, but contrary to Lange, he suggests that the power they embodied had as its primary source the culture's perception of their essence as metates and all this implement represents concerning the production, distribution, and consumption of vegetal foodstuffs.

Graham's (1979, 1981) ideas on the topic occupy the middle ground between these two positions. Like both Lange and Snarskis, he feels that the metates were "generalized symbols of authority, symbols which were at that time separated from any domestic function, and restricted to the upper ranks of society" (1979:13). He proposes that the objects had "instrumental prototypes" (1981:118), that they were modeled after, in a purely morphological sense, tripod metates like those found in mortuary contexts in Late Formative west-central Mexico and Classic period Highland Guatemala (see below), where they were symbols of "the economic base of the elite authority" (1979:15). Graham argues that the metate was adopted as a symbol of economic and political power in Greater Nicoya, despite the fact that agricultural production, in his opinion, was a relatively insignificant source of food for the inhabitants of the area. In effect, he believes that the form itself was accepted but given new

meaning, a meaning separated from the specific context (maize agricultural subsistence) in which the form originally functioned:

> Although the real economic base of these emergent chiefdoms was marine exploitation and local trade, the ideological expression of this wealth has turned out to be predominantly agricultural. . . . These emergent chiefdoms borrowed a marginal but concrete symbol of economic power from a more complex Mesoamerican culture, and then began to transform its function and meaning into terms of their making. For over a thousand years the ceremonial metate was the key symbol of authority. While at times they may actually have been used for their original function, their meaning seems to have expanded into a literal and symbolic seat of power. A tool whose original function was to transform agricultural produce into food became the ideological expression of the transformation of raw materials into consumable wealth and power. (Graham 1979:15-16)

The range of responses indicates that the interrelated questions posed earlier have not yet been answered to anyone's complete satisfaction. The major impediments to as thorough a resolution as archaeological explanation permits are two. First, although the metates are widely represented in museum and private collections, few of them have been recovered from controlled scientific excavation, and thus the great majority have no solid provenience or contextual data more specific than a general geographic locality and mortuary placement. Fortunately, enough pieces have by now been excavated by archaeologists that spatial, temporal, and contextual patterns are discernible; still, the paucity of controlled finds and precise documentation hinders efforts at full explication. Second, although like Spiken most investigators have made note of specific figural representations

carved on the metates, there has been no attempt until recently to subject the visual imagery to an in-depth iconographic analysis. Only Graham (1981) has begun the necessary attempt at interpretation of the various motifs and figural representations, and his published work to date, while insightful, lacks detail.

It is felt that this kind of analysis in combination with a thorough review of what contextual data is available will contribute to a better understanding of the function and meaning of Greater Nicoya special purpose metates and the local ancient behavioral and ideological complexes of which they offer evidence. Until recently the mortuary contexts in which they have been discovered and the artifactual associations (both archaeologically verified and vaguely reported) has provided the major--in most cases sole--source of data marshaled to address these problems. Surprisingly little attention has been paid to the visual imagery on the metates themselves. In contrast to the paucity of archaeologically recovered information, the motifs and figural representations portrayed provide a rich pool of potential iconographic data, which, it is felt, furnishes further insight into the questions of function and meaning.

The general organization of this paper will be as follows. First, the background necessary for the discussion of the archaeological context, socio-ritual-technological function, and ideational meaning of the metates will be

sketched. This will include a brief summary of the outstanding biogeographical characteristics of the region, an overview of the theoretical concepts which have generated archaeological research in the area, and an outline of Greater Nicoya culture history. The next chapter will describe a carved metate typology based on morphological and decorative attributes, and then set this typology within the region's established chronological framework. The available archaeological contextual data will be detailed as the necessary foundation for the typological and temporal analysis. Using this contextual information, some questions concerning function will be addressed at this point.

With this background in place, several examples from both principal classes of metates will be described in full. These complete accounts of the visual imagery on selected metates will be interspersed with references to like motifs and figural representations depicted on a wider sample of pieces. The presentation of this body of data will be followed by an interpretation of the predominant iconographic themes portrayed. Archaeological, epigraphic, ethnohistoric, and ethnographic sources from Mesoamerica, Lower Central America, and northern South America will be employed to aid in this analysis. At this point, conclusions will be offered concerning function and meaning by combining the archaeological data pertaining to the Greater Nicoya carved metates with the evident iconographic themes.

Next, as an addendum, the spatial and temporal distribution of special purpose metates (i.e., decoratively carved metates and/or metates known from mortuary or other ceremonial contexts) throughout Nuclear America will be traced, as a survey of site reports and areal syntheses reveals that the phenomenon is not limited to the Greater Nicoya-Costa Rica area. Inference will be drawn on the origin of the phenomenon and the timing and direction of its diffusion.

The final chapter will summarize the findings of this research effort, delineate several issues related to the study of Greater Nicoya special purpose metates as yet not touched upon, and make suggestions for future research.

CHAPTER 2

ARCHAEOLOGICAL RESEARCH IN GREATER NICOYA

2.1 Biogeography of the Greater Nicoya Area

Ever since Carl V. Hartman detected significant differences in the artifactual assemblages from the diverse regions of Costa Rica in which he worked at the turn of the century (Hartman 1901, 1907), Costa Rica has been partitioned into several distinct archaeological zones. In his monumental survey of Pacific Nicaragua and Costa Rican ceramics, Lothrop (1926: fig. 1) divided the area of his study into three zones: the "Pacific Region," encompassing southwestern Nicaragua and the northwestern corner of Costa Rica; the "Highland Region," comprising the Central Highlands and the Atlantic Watershed from about Puerto Limon to the Nicaraguan border; and a southern zone, which covers the bottom third of Costa Rica and spills over the border in close cultural affiliation with parts of western Panama. Today the tripartite mode of division is still retained, although the boundaries have been shifted somewhat and their designations changed.

Lothrop's Pacific Region coincides fairly concisely with the region that this study focuses on, what has come to be known as the "Greater Nicoya Archaeological subarea," after Norweb (1964:561), who defined it as "most of Pacific Nicaragua and regions in northwestern Costa Rica adjacent to

the Gulf of Nicoya" (fig. 2). Norweb placed no definite northern boundary on the area, and none has been defined to this day, reflecting the paucity of archaeological research undertaken in northwestern Nicaragua. As intimated earlier, this zone will be referred to as Greater Nicoya throughout the paper, and it will be defined geographically as comprising the Departments of Granada and Rivas in Nicaragua and the Guanacaste Province-Nicoya Peninsula area of northwestern Costa Rica.

Greater Nicoya is bounded to the west by a coastline which is characterized by rocky headlands, interspaced by several small embayments and crescentic stretches of sand beaches (West 1964:80-81). Only two bays--Santa Elena and Culebra--are large and deep enough to accommodate and shelter ocean-going vessels from the gale-like winds of papagayo (see Stone 1977:11). To the south, the island dotted Gulf of Nicoya offers the largest protected body of water along the Pacific coast of the Isthmus from the Bay of Fonseca to the Gulf of Montijo, Panama. It may well have served as an important harbor for any ancient Isthmian coastal trading route. The two bays and the Gulf as well as the smaller embayments are noted for their marine-estuary systems, which provide fertile feeding grounds for the tremendous abundance and variety of fresh and salt water marine life, especially mollusca, many of which were exploited during the prehispanic era.

The Rivas-Grenada region runs between Lake Managua and Lake Nicaragua and the Pacific coast. It consists of rolling hills and flatlands of agriculturally productive soils rich in volcanic ash (Healy 1980:10). Lake Nicaragua is the largest freshwater body in Central America, measuring 165 km. long, 76 km. across, and up to 125 meters in depth. Several small islands populate the lake, among them Isla de Ometepe, which comprises two volcanoes connected by a narrow spit of land, and Zapatera Island. Both are rich in archaeological remains.

The Guanacaste-Nicoya region meets the Isthmus of Rivas just south of Lake Nicaragua. Its rich-soiled plains stretch from just inland to the foothills of the Guanacaste cordillera, a section of the still active Central American volcanic axis, which runs northeast-southwest through Costa Rica and western Nicaragua. There are only two major river drainages in Greater Nicoya. In the north, the Estero Real drains western Nicaragua into the Bay of Fonseca; in the south, the long and partially navigatable Tempisque River drains the Guanacaste plains into the Gulf of Nicoya.

The climate of Greater Nicoya is tropical wet and dry with high average temperatures, low yearly rainfall, and long dry season (Scott 1966:2). Generally, the rainy season runs from April-May to November-December, but even though this period often witnesses torrential downpours and fairly constant precipitation in September and October, on an average

only 500-1000 mm. of rain fall each year in Guanacaste-Nicoya; the Granada-Rivas region receives considerably more, ranging between 1500-2000 mm. per annum. During the dry season, many of the regions quebradas dry up, trees lose their leaves, and the grasslands brown and wilt. What was once an area covered in tropical dry forest has suffered by the hand of man and has been transformed in most parts to pasture; thus, the effects of seasonal desiccation are presumably more pronounced today than in the past.

What remains of the forest of Greater Nicoya is inhabited by white-face and howler monkeys, red squirrels, pisotes, anteaters, armadillos, tapirs, deer, jaguars, pumas, and coyotes. Winged creatures include parakeets, macaws, parrots, wild turkey, quail, dove, hummingbirds, and the omnipresent turkey buzzard. The estuaries and mangrove swamps host wild fowl, flamingos, herons, egrets, kingfishers; sand crabs, turtles, iguanas and crocodiles (Crocodylus actus). Crocodiles as well as a fresh water shark are found in Lake Nicaragua along with additional aquatic species. Greater Nicoya has its share of poisonous snakes, including the Fer-de-lance, rattle snake, and corral snake (Stone 1977:14; Healy 1980:15-16).

2.2 Theoretical Concepts and Archaeological Research

Dating back to the earliest reports on the native cultures of Nicaragua, Costa Rica, and Panama by the Spanish

chroniclers, primary among them, Gonzalo Fernandez de Oviedo, who visited Nicaragua and the Nicoya peninsula in 1528, antiquarians, and later, archaeologists have perceived the Lower Central American isthmian region as substantially different from the lands further to the north and south--Mesoamerica and the central Andes. This distinction was--and still is--conceived primarily in terms of the area's historical development and the degree of socio-political complexity achieved in relation to its more advanced neighbors. The region was pictured by many as culturally stagnant, a land and its people somehow by-passed by the currents of progressive change and the steep trajectory of increasing socio-political complexity--and the assumed concomitant intensification of cultural elaboration--along which the mainstream societies of Mesoamerica and Peru developed. Numerous writers noted that the Isthmus lacked monumental architecture, indications of population nucleation above the level of a large village, evidence of writing, mathematical, and calendrical systems, and other readily detectable material traits displayed by either or both of the centers of High culture to the north and south. In the words of one archaeologist, it all added up to "the failure of the Indians of [this] area to develop civilization" (Rouse 1962:56).

The concept of the isthmian area--Costa Rica and Nicaragua in particular--as a cultural backwater was as much a product of the blinding attraction that the High cultures of

Nuclear America held for most Americanists, as it was the result of any firsthand knowledge of the archaeology of the area. It would not be an exaggeration to conclude that until the 1960s, most knowledge of Costa Rican and Nicaraguan prehistory resided in the aesthetic appreciation of European, North American, and Central American antiquity collectors. The two lands had long ago gained renown for the aesthetic qualities of their Precolumbian ceramics, jades, stone sculpture, and goldwork. Any account of the history of the archaeology of Costa Rica must emphasize the impact that local huaqueros (grave looters) have had, both in terms of the destruction of countless archaeological sites and the unprovenienced status of most artifacts currently housed in museum collections. When the tradition of Costa Rican (and Pacific Nicaraguan) huaquerismo began is unknown, but if it was not in fact given birth to by the 19th century antiquarians and museum collectors, they certainly stimulated its development. Modern day art collectors and their local agents have subsequently provided the economic incentive to guarantee its survival.

E. G. Squier (1852, 1853) was perhaps the first North American to report on the antiquities of Greater Nicoya, publishing a series of drawings of the large stone statues found in the region of Lake Nicaragua. Some thirty years later, J. F. Bransford, working under the auspices of the Smithsonian Institution, carried out a limited survey within the

Department of Rivas, including Ometepe and Zapatera Islands. His 1881 report, Archaeological Research in Nicaragua, contains the first published excavation notes from the area. The next year Bransford visited Costa Rica and conducted a rapid archaeological reconnaisance of coastal Guanacaste (Bransford 1882), joined for part of the time by Earl Flint, who produced a series of notes and maps for the Peabody Museum, Harvard University. Closely behind these two men came Carl Bovallius (1886), who compiled a number of illustrations of Nicaraguan stone sculpture.

The first scientific excavations in Costa Rica-Nicaragua were undertaken by Carl V. Hartman (1901, 1907). In 1896 and 1897 he worked at sites on the Atlantic Watershed and in the Central Highlands of Costa Rica, including Las Mercedes and Chircot near Mt. Irazu. Toward the end of 1896, he briefly visited the Nicoya peninsula, and then in 1903 returned to excavate at Las Guacas and other sites in the vicinity of the town of Nicoya (see below). Hartman's notes and excavation plans are remarkable for their time in their accuracy and detail; they allow an assessment of contextual associations, and they set the standard for all future work in the area (Rowe 1959).

Following Hartman's work, a half century passed in which the archaeology of Greater Nicoya and the rest of Costa Rica drew almost no attention outside of the international antiquities market. Only a few limited surveys and

excavations were attempted (Skinner 1926; Lines 1936; Stone 1943). The most significant contribution during this period was the publication of Samuel K. Lothrop's Pottery of Costa Rica and Nicaragua (1926), the result of an intensive effort which involved the examination of over 35,000 vessels in collections the world-wide. Aside from the richly detailed ceramic descriptions and illustrations, Lothrop provided a synthesis of the extant ethnohistorical materials.

Notwithstanding these endeavors, throughout the first half of this century what attraction the Costa Rican-Nicaraguan region held for Americanists was limited to its possible role as a conduit in facilitating contact between Mesoamerica and the central Andes. As far back as 1917, Spinden had proposed the diffusionary interaction among the Formative cultures of Mesoamerica and Peru, pointing out the potentially significant part the isthmian area and northwestern South America may have played. In sum, he argued that maize agriculture, first developed in the Mexican Highlands, and the complex he labeled "Archaic" culture, which included knowledge of ceramic production, spread southward to the Amazon and central Andes (Spinden 1917, 1928). This hypothesis, while it focused some attention on the intervening region, initially served more to stimulate further speculation on the impact of diffusion in the creation of a common Formative base from which the High cultures evolved.

By mid-century, however, enough interest existed in the area's potential to yield information on the Formative substratum that it received an areal designation and became the focus of several interrelated archaeological projects. The term "Intermediate Area" was first proposed by Haberland (1957) in reference to the region's geographic position between the two centers of New World civilization. As defined by Willey (1959:184), the Intermediate Area encompasses "the lands between western Honduras and northern Peru, in effect lower Central America and the North Andes." Although the concept of the Intermediate Area was intended to impute some degree of cultural and socio-political homogeneity among the various groups occupying the area, its meaning and application have been primarily geographical.

Modern archaeological research in Greater Nicoya began in the late 1950s and early 1960s with the work of Gordon Willey and Albert Norweb in Rivas (Norweb 1964), Wolfgang Haberland on Ometepe Island (Haberland 1961, 1963, 1966), and Claude Baudez and Michael Coe in Guanacaste (Baudez 1959, 1967; Coe and Baudez 1961; Baudez and Coe 1962; Coe 1962a, 1962b). The principal theoretical impetus behind the work of Coe, Baudez, and Willey and Norweb, derived from Spinden's hypothesis, updated in a session at the 34th International Congress of Americanists in 1960, entitled "The Interrelationships of New World Cultures: A Coordinated Research Program of the Institute of Andean Research." Summing up the participants' thoughts, Gordon Ekholm wrote,

> We are interested primarily in following out the very significant leads to an important aspect of Nuclear America culture history that are presented by the similarities that have been noted in the materials of the Formative Period in the Mesoamerican and Andean areas. The Central American and northern South American regions that lie between these two centers are in some ways very poorly known. There have been few excavations of kinds that would reveal the sequence of cultures that exist there, and we have wanted to see what could be done to fill the gap.
>
> Throughout Central America, and in approaching both Mesoamerica and the Andean area, the Pacific coast littoral seemed to us the most likely setting for the finding of stratified deposits that might provide a sequence through all the periods back into the Formative. We have felt that by spotting a series of controlled excavations along the coast, we would be most likely to approach an understanding of the processes of diffusion that were operative here in Pre-Columbian time. (Ekholm and Evans 1962:255)

In particular, Coe embraced this latter day reformulation of the Formative hypothesis, and he sought to find evidence that the Lower Central American isthmus was the viaduct through which the diffusionary processes occurred. He excavated stratified deposits at several coastal sites in Guanacaste, but failed to recover material dating any earlier than the late Formative, nor any direct evidence confirming the isthmian role as a cultural bridge. Coe concluded that, although the earliest cultural remains of Greater Nicoya were "extensions of a generalized Mesoamerican Late Formative," contact between the two continents must have taken place by sea, as "the difficult overland route of Costa Rica was not a channel for the great Formative diffusion" (Coe 1962a:176). However, through the work of Baudez, Coe, and

Norweb, an initial outline of a regional chronology was established, and the further, more detailed analysis of their data has documented the existence of local cultural variation (Baudez 1967; Sweeney 1975; Healy 1980).

Since 1966, Frederick W. Lange has directed a number of projects in Guanacaste, focused primarily on coastal areas. His work along the Rio Sapoa was the first in the area to adopt an explicitly ecological approach and endeavor to reconstruct prehistoric subsistence systems (Lange 1971). Subsequent work by Lange and his associates under the auspices of the National Museum of Costa Rica has centered on the Bay of Culebra region with extensive excavation undertaken at the Vidor site. Oriented within a regional framework, this research has produced studies on subsistence (Moreau, 1975, 1977; Bernstein 1980; Kerbis 1980; Vazquez and Weaver 1980), ceramic technology (Accola 1977; Abel 1978), settlement patterns (Lange 1978; Lange, Accola, and Ryder 1980), as well as the spatial and temporal refinement of the local ceramic sequence (Accola 1978a, 1978b; Lange 1980a). During the 1980 and 1981 field seasons the Museo Nacional continued its program of survey and excavation in the Bay of Culebra region in conjunction with a team from UCLA (Cook 1983).

Despite the renewed interest in Guanacaste-Nicoya archaeology and the relative plethora of research activity in the last two decades, virtually no field work has been carried out in Pacific Nicaragua since the work of Willey

and Norweb, and Haberland's excavations on Ometepe Island. At the time of this writing, Lange (personal communication) was laying the groundwork for a project in Rivas.

Greater Nicoya has long been recognized as a cultural frontier between the Mesoamerican and South American spheres of influence (Spinden 1925; Lothrop 1926; Lange 1976). It has been perceived as both the southern terminous of Mesoamerica (Willey 1966:88), and as the northernmost part of the Intermediate Area (Rouse 1962:34). In fact, Willey (1971: 342-344) concludes that Greater Nicoya "can be considered either as part of Mesoamerica, or as a subarea of the Intermediate Area." Not surprisingly, the oscillating conception of the region's frontier status has generated the major overarching--if at times unstated--research problem of to what degree the region was an extension of the northern or southern cultural sphere.

Lothrop (1926) was the first to address this problem with a substantial body of data at hand. He assigned membership to the north:

> The area under discussion furnishes the meeting ground for two . . . culture complexes, which may be designated the Middle American and the Northwestern South American civilizations. The former embraces the region from central Mexico to western Nicaragua and the Nicoya peninsula; the latter extends from Costa Rica through Panama and Columbia to Ecuador. (Lothrop 1926:392)

And he adds,

> From the numerous instances adduced it has been shown that the aboriginal ceramic art of Costa Rica and Nicaragua was derived in part from the more civilized

> nations of Mexico and northern Central America; we have also demonstrated features which clearly pertain to the culture of South America. Examination of the pottery of Chiriqui indicates that it belongs in toto to South America; study of the Pacific area of Costa Rica and Nicaragua reveals very few South American features. The real meeting-ground between the two continents falls in the Highland area in Costa Rica. (Ibid.:411)

Archaeologists building on Lothrop's work have generally agreed with his summation. Baudez (1967:xii) concluded similarly; as did Michael Coe, who wrote,

> There is no question that . . . Greater Nicoya was as clearly a part of the Mesoamerican co-tradition as were, let us say, the Guerrero or Huasteca regions of Mexico. It was one of the many fringe areas of Mesoamerica which failed to share in the more spectacular developments such as cities, large scale ceremonial centers, or dated stone monuments. Greater Nicoya has been for many centuries too closely bound up with Mesoamerican culture to be anything but part of it. (Coe 1962a:176)

Baudez, Coe, Ferrero, Lothrop, Stone, and others have traditionally relied on ethnohistorical accounts of Lower Central America as much as archaeological material in inferring a Mesoamerican classification for Greater Nicoya (see Lothrop 1926, Stone 1966, and Ferrero 1977 for a general synthesis of the ethnohistory of the region). At the time of the Conquest, Greater Nicoya was inhabited by peoples speaking languages of Mesoamerican derivation. In Pacific Nicaragua and the bordering area of Guanacaste province, the language spoken was Nicaro of the Uto-Aztecan family (to which Nahuatl belongs). The remainder of Greater Nicoya was occupied by speakers of Chorotega-Ortina and Orosi, Otomanguen languages of Mexican origin, except for a small enclave

in the vicinity of modern day Bagaces, apparently inhabited by Nicarao speakers. The presence of these peoples with northern linguistic affiliations was the result of their migration southward in the aftermath of the fall of Tula (ca. A.D. 1000-1100), according to the legends of the Nahua-speaking Nicaro (Torquemada 1943:I, 331-332; Motolina 1970).

While the ethnohistoric accounts undoubtedly provide insight into the linguistic and cultural affiliations of the groups inhabiting Greater Nicoya at the time of the Conquest and perhaps a century or two prior, caution must be taken in transposing this situation fifteen hundred or a thousand or even several hundred years earlier. In this vein, Abel (1978:6) notes,

> By tradition derived from 16th century chronicler's accounts, Guanacaste province has been long included in the Mesoamerican sphere. While it is amply clear that tribes speaking languages of Mesoamerican linguistic families did occupy the Nicoya Peninsula and the Isthmus of Rivas at the time of the Contact with the Spaniards, it is by no means clear that this situation had great time depth.

Furthermore, artifactual and subsistence data suggest that the peoples of Pacific Nicaragua and northwestern Costa Rica participated in a South American oriented sphere to a greater degree throughout the prehistory of the area than most investigators have conceded. Based on his dissertation research in the Rio Sapoa drainage, Lange (1971:268) concluded that "the impact of Mesoamerican influence has been overrated, while that of South America has been underplayed or unacknowledged." Paulsen (1977) and Fonseca and Richardson (1978)

offer ceramic data supportive of this conclusion. Moreover, an ever growing body of data intimates a substantial amount of interaction between at least the southern portion of Greater Nicoya and the Central Highlands of Costa Rica (Snarskis and Blanco 1978; Lange 1980b; Ryder in press); a region which at the time of Contact was inhabited by groups speaking languages of the Chibchan family, reflecting a clear southern cultural orientation.

To quantify in either an absolute or relative sense the degree to which the peoples of Greater Nicoya participated in one external cultural sphere or the other is impossible. Such a conceptual approach ignores the overwhelming evidence for a strong local cultural tradition sharing in the ideological, technological, and symbol systems of both.

2.3 Greater Nicoya Culture History and Chronology

The pursuant summary of Greater Nicoya culture history follows after that outlined by Lange (in press), Snarskis (1981a), and Healy (1980), unless otherwise noted. Where appropriate, these sources will be specifically cited. The chronology is based on C-14 dates from a number of sites and a variety of contexts, and the correlation of modal similarities between local ceramics and those from securely dated external sequences (fig. 3).

Zoned Bichrome Period (800 B.C. to A.D. 500)

Evidence of a preceramic or Archaic horizon in Greater Nicoya is meager, limited to a single vaguely provenienced fluted point obtained by Hartman in the 1890s and later identified by Swauger and Mayer-Oaks (1952), and several undated sites near the Bay of Salinas in Guanacaste with exclusively lithic assemblages (Lange 1971). Nonetheless, it is widely believed that there was a long preceramic occupation in the area, which for lack of thorough areal coverage and the impact of natural events (e.g. volcanism in the highlands) has remained undetected.

Present knowledge of the ceramic sequence places its beginning between 1000 and 500 B.C., although here again there probably existed an earlier ceramic stage. Based primarily on data from coastal Guanacaste, Lange (1980a) has divided the Zoned Bichrome period into three phases, 800-300 B.C., 300 B.C. to A.D. 300, and A.D. 300-500, the latter two corresponding to the previously established sequence (Baudez 1967; Sweeney 1975). Sedentary settlements are indicated for the onset of the period by the remains of domestic waddle-and-daub structures and an associated circular oven, which yielded a C-14 data ca. 800 B.C. (Abel 1978; Abel-Vidor 1980a). Ceramics characteristic of this phase are of the Palmar Ware group, including Bocana Incised Bichrome and Toya Zoned Incised, which exhibit broad incising and alternatively painted zones. This pottery, like that throughout

most of the Zoned Bichrome in Greater Nicoya, shows many modal similarities with Formative period ceramics in Mesoamerica and northwestern South America, as well as the Central Highlands-Atlantic Watershed zone of Costa Rica.

By the middle phase (300 B.C. to A.D. 300) a trend toward larger sites (and increased socio-political complexity?) and cultural elaboration is evident. Internal settlement organization and subsistence patterns are as yet not clearly defined, however, as most of what is known of this period has been derived from cemeteries. Large cemeteries exist, lending support to what settlement data there are suggestive of an expanding population concentrated inland. Subsistence data are scant, but it appears likely that hunting, gathering, and agriculture were practiced. Snarskis (1981a:26) argues that the increases in population were "almost certainly linked with more productive agricultural techniques," and Healy (1980:331) sees evidence of maize agriculture in the Rivas region at this time. Interestingly, the inhabitants of the known coastal sites did not exploit marine resources to near the degree of later periods.

Rosales Zoned Engraved is the outstanding ceramic type of this phase. Vessels are found in elaborate burials along with decoratively carved metates, mace heads, and jade or jade-like pendants often carved in the shape of celts or axes. This mortuary complex continues to appear in the archaeological record into the Early Polychrome period

(A.D. 500-800). That some burials lack such embellishment is an indication of status differentiation in Greater Nicoya society by this phase.

Ceramic types of the subsequent phase (A.D. 300-500) include Tola Trichrome, Charco Black-on-Red, Guinea Incised, and perhaps toward the end of the phase, Chavez White-on-Red and Carrillo Polychrome. Subsistence and intra-site data still lack the necessary depth for clear definition of either socio-economic aspect. Delineation of these crucial features of Greater Nicoya life throughout the sequence has suffered because most research has been oriented toward the establishment of local chronological sequences, and has been governed by the necessity of salvage operations. A great deal of information on mortuary behavior has been collected, whereas the actual form and dimensions of a typical Zoned Bichrome house remain unknown.

Healy (1980:333) believes that there was a growing reliance on maize agriculture in Rivas from A.D. 300 on, "a pattern which seems to have been subarea wide." Coe and Baudez (1962:368) proposed an increase in maize cultivation during the same time. They cite the presence of metate and mano fragments--though admittedly in small numbers--in refuse deposits as a good indication of an agriculturally-based subsistence economy. Lange (in press:19), on the contrary, contends that the artifactual evidence is lacking (at least for Guanacaste), arguing that neither whole metates nor manos

have been recovered from domestic contexts in northwestern Costa Rica prior to ca. A.D. 1200. He writes,

> The role of agriculture in the area is enigmatic. Many coastal areas are not suited for either intensive or extensive cultivation because of generally poor soil conditions. Even in the more fertile Nosara and Tempisque valleys we have neither strong artifactual nor any botanical evidence for agricultural activity. Agriculture was certainly practiced, but it is difficult to assess its importance in the area. (Lange 1978:113)

Lange does, however, seem to accept Healy's conclusion concerning Rivas, noting that the soils there are more fertile.

Until systematic botanical studies are carried out and a significantly expanded sample of living surfaces are uncovered (the number to date can be counted on one hand with fingers left over), the problem of whether or not, and to what degree, pre-A.D. 1200 Greater Nicoya society was dependent on agriculture, will remain debatable. In arguing the presence or absence and the importance or insignificance of maize agriculture, it should be noted that in the Central Highlands-Atlantic Watershed of Costa Rica, El Bosque phase (0-A.D. 500) subsistence centered around maize agriculture (Snarskis in press), and to the south in Chirqui province, Panama, maize agriculture was a significant component of the subsistence economy at the time of Christ (Linares et al. 1975).

In the past, investigators postulated an Olmec "presence" in Greater Nicoya, based on the finding of a number of Olmecoid jades in Guanacaste. It was thought that

the Olmec may have established an outpost in Guanacaste in order to exploit purported jade sources. However, there is no firm archaeological evidence of an actual physical presence, and there apparently are no sources of jade in Guanacaste (Lange et al. 1981). But the possibility of some kind of contact, possibly indirect trade, can be seen in the clear stylistic similarities in the jade carvings of both traditions. Sharer (in press a) as proposed the existence of a Pacific coastal trade route between Greater Nicoya and southern Mexico from late Olmec times (800-400 B.C.) on.

Early Polychrome Period (A.D. 500-800)

The onset of this period witnesses a trend toward coastal villages and greater marine resource exploitation, visibly marked by the numerous shell middens which dot the coastline. Galo Polychrome, in appearance closely related to the Ulua polychromes found in western Honduras and El Salvador, first occurs along with Carrillo Polychrome, Chavez White-on-Red, and Potosi Applique (Lothrop's Modeled Alligator Ware). Besides the Galo resemblance, evidence of participation in a northern exchange network includes two stuccoed polychrome vessels, one a cylindrical, slab-footed vessel with Tlaloc motifs, and Ulua-style modeled alabaster vessels, all attributed to the Bay of Culebra region. Numerous Mayoid jades and slate-backed pyrite mirrors are known from Guanacaste and Central Highland localities as well. The modal affinities between the ceramic traditions

of Greater Nicoya and the Central Highlands-Atlantic Watershed so apparent during the Zoned Bichrome era, show a dramatic decrease during this period, a break which grows more pronounced in the next period.

Middle Polychrome Period (A.D. 800-1350?)

The trend toward coastal settlement intensifies ca. A.D. 800, as sites increase in size and number. Dependence on marine resources expands appreciably, but Snarskis (1981a:33) feels that agricultural production remains important. During this period, the manufacture of polychromes diversifies in terms of the number of types and the apparent emergence of local centers of production for each type (Accola 1977). Characteristic types include the Mora-Birmania-Chircot group, which exhibits striking similarities with coterminous southern lowland Maya ceramics (in particular Copador Ware and Tepeu 3 pottery), and Papagayo Polychrome and Pataky Polychrome, white-slipped types with orange-red and black designs, reminiscent of other Central American and Mexican white-slipped pottery. The Mora-Birmania-Chircot group occurs with much greater frequency in the southern half of Greater Nicoya, whereas Papagayo and Pataky predominate in the north. This may indicate that the cultural schism noted by Spanish chroniclers at the time of Contact, had occurred or was in the process of, as far back as A.D. 1000 or even slightly earlier.

Evidence bearing on intra-site patterning and house forms remains limited. Excavation at La Guinea in the Tempisque valley revealed a 30-50 square meter structure, originally constructed of wooden poles and fired adobe bricks (Hoopes 1979). Special status burials from this period are embellished with polychrome vessels, and in one, a copper bell of presumed Mesoamerican origin was found on the wrist of the principal individual (Wallace and Accola 1980). However, there is no trace of the mortuary complex centered around carved metates; it vanishes abruptly at the end of the Early Polychrome period.

Late Polychrome Period (A.D. 1350?-Contact)

Late Polychrome sites are generally found along the coast in northern Guanacaste and by the lake shore in southwestern Nicaragua. Basin-shaped metates from several sites and ethnohistorical accounts provide firm evidence for the widespread practice of maize agriculture, while marine resource exploitation in northern Guanacaste continues unabated. Ceramics from this period include Vallejo Polychrome, Mombacho Polychrome, and Pataky Polychrome, variants of the Mesoamerican white-slipped tradition; Murrillo Applique, which Lange (1971) attributes to an undefined South American source; and Luna Polychrome, another white-slipped type. The latter is distinct from the Mesoamerican-style, and Snarskis (1981a:38) suggests it may be of Circum-Caribbean origin.

Greater Nicoya has produced little archaeological metalwork; however, recently a cast gold frog pendant and a fragment of a lost-wax mold were found in the Bay of Culebra region in Late Polychrome contexts (Lange and Accola 1979). Given the strong tradition of goldwork in northern South America, Panama, and southern Costa Rica, it seems likely that the artifacts and possibly the technology were introduced from the south. On the other hand, the above mentioned copper bell is thought to have been a product of the northern trade network. Thus, what scarce metallurgical evidence exists, further suggests Greater Nicoya's participation in both spheres as a zone where the products and ideas of both were exchanged and adapted to the existing cultural tradition.

As noted previously, at the time of the Conquest, Greater Nicoya was occupied by Nicarao speakers in the north and Chorotega speakers in the south. Ethnohistoric sources describe large nucleated villages in the Rivas region, which exhibited the material and ideational trappings of Mesoamerican orientation. Gunacaste, to the contrary, was apparently not nearly as well-populated, with what small settlements there were, clustered on the northern Guanacaste coast. A notable exception was the large settlement in the south at the present day site of the town of Nicoya, a choice of locality surely influenced by its proximity to the Gulf of Nicoya, harbor to any isthmian coastal trading route.

CHAPTER 3

ARCHAEOLOGICAL CONTEXT, TYPOLOGY AND CHRONOLOGY OF GREATER NICOYA CARVED METATES

3.1 The Archaeological Context of Greater Nicoya Carved Metates

Hundreds if not thousands of carved metates have been observed in museum and private collections, the houses of modern inhabitants of Greater Nicoya (where they are used for grinding foodstuffs), and, probably in their greatest number, in and around huaquero pits, where they lie in fragments, victims of hasty picks. Heath (1973a, 1973b) and almost every archaeologist who has published on work in Greater Nicoya, have noted the area's long tradition of huaquerismo and the havoc it continues to wreak on research strategies. Decorative metates today are rarely sought after by looters: they will tell you that they are in quest of huacas filled with jades, gold, and lavishly painted ceramics. Metates are cumbersome and frequently lie between the huaquero and his "treasure"; thus, they are smashed, their context and associations lost in afterthought, if conscious at that. Even those few that survive the looter's efforts and wind up intact in museum and private collections are damaged goods as far as the archaeologist is concerned. This lack of solid contextual data for the great, great majority of decorative metates has severely hindered previous attempts at interpretation.

The earliest reference to the special purpose tripod metates of Greater Nicoya is found in Squier's account of his travels in Nicaragua (1852:273), the relevant passage of which is quoted at the head of this paper. According to Squier, the metate he illustrates came from a Precolumbian grave in the town of Leon, presently located west of Lake Managua. Somewhat later, at La Libertad, a settlement on the east side of Lake Nicaragua, Thomas Belt (1888:154) observed "many old Indian graves, covered with mounds of earth and stones" in which were found pottery, metates, and celts. Frederick Boyle (1868, I:197-212; quoted in Lothrop 1926:427) details the excavation of two mounds at La Libertad:

> The larger was 58 yards long and 40 yards wide, and in it were discovered a marble vessel, carved metates, and fragments of coarse pottery. The other cairn, much smaller, yielded an elaborately carved marble vase, metates, broken pottery, and five urns in an east-west line, which contained black earth, but no bones.

Visiting Guanacste in 1877, Bransford (1881:74) noted the presence of carved metates at Boquerones, a site near the town of Bocana in the Tempisque valley, stating that "scattered around some mounds which had been opened were fragments of very elaborate metates, painted pottery, and burial urns." A few years later, he surveyed portions of the Guanacste coast, detecting decorative metates at Hacienda Rafael, where "there were lying around celts, fragments of unpainted ware and of finely worked metates. . . . graves were indicated by large stones" (Bransford 1882:824); at Cabo Velas, where

"broken grinders" were seen around the perimeters of looter's pits (ibid.:822); and at Panamá on the Bay of Culebra, where on a hilltop, he discovered

> the finest huaca yet seen. The graves had on them stones in pieces about a foot in diameter. Many of these had been opened, and a great many objects were reported to have been obtained. The burials were shallow, the excavation being only about 3 feet in depth. Scattered about were bones, fragments of handsome metates, and numberless shards of painted ware, celts, etc. (Ibid.:823-824)

Notice that even in Bransford's time, huaquero activity took its toll on the region's Precolumbian resources, and in those days, metates were particularly valuable:

> Throughout this country the metates are dug up for sale. They are considered more valuable than those now made, and bring from six to eight dollars. (Bransford 1881:75)

A shame he neglects to inform us whether the ancient metates were esteemed for their value as food processing implements or for their connection to the past.

Fortunately, Bransford did more than just record the surface debitage of the efforts of grave robbers, and in fact, he was the first investigator to recover a special purpose metate from undisturbed mortuary context. In Rivas at Hacienda Palmar on the Lake Nicaragua shore, Bransford excavated a portion of a cemetery in which he found

> several human skeletons. . . . one with head resting on a good metate, No. 32,762, and roller. Over the skull was a bowl inverted, and by the sides were other specimens, all of a novel variety of pottery. The vessels, bowls, and vases were formed with great regularity and grace. The ornamental lines were engraven, and the spaces intervening were painted in red. (Ibid.:69)

Unfortunately, Bransford does not state whether the metate was decoratively carved, nor does he provide an illustration. Nonetheless, his discovery has significance for the chronological sequence of special purpose metates to be discussed further on in this chapter.

Without a doubt, the most abundant archaeological data on special purpose metates from a single site, come from Hartman's excavation at Las Guacas (also spelled "Huacas") on the Nicoya peninsula, located "about four leagues southeast of the pueblo of Nicoya . . . [near a] . . . mountain pass named La Quebrada de Las Guacas" (Hartman 1907:12). In the fall of 1903, excavating a small, apparently undisturbed, portion of a large cemetery, Hartman uncovered sixteen metates from what he concluded represented sixteen discrete burials. He observed that the cemetery covered several acres and was "described as varying much in depth, containing, especially in the central part, several burials one above the other" (ibid.:14); however, the exact size of the burial grounds will never be known.

According to Hartman, the cemetery was first detected by the owner of the land it occupied, a Sr. Antonio Carillo, while he was clearing the land for cultivation (ca. 1880). For the next several years the burials were for the most part ignored, and "only occasionally when a metate was needed for some house, digging was resorted to in order to obtain one of the ancient stones" (ibid.:13). During this time, Bransford

traveled through the Nicoya area, and not far from Las Guacas, "on the road to Matina," he discovered a looted cemetery, where scattered about the surface were "many fragments of metates of great variety and rollers. At this point hundreds of metates appeared to have been broken" (Bransford 1882:814). But the Las Guacas cemetery did not arouse much interest until the 1890s, when a local priest, Padre José Maria Velasco, found a gold artifact in one of the burials. Velasco and Carillo then began to dig in earnest, ripping up a section of the burial grounds large enough to yield a collection of about 2600 artifacts, dominated numerically by small carvings in greenstone (notably "axe-god" pendants), which was ultimately purchased by the Carnegie Museum of Pittsburgh, its first of several major acquisitions from the site.

Hartman visited Las Guacas in 1896 and "found several large heaps of broken metates scattered around that part of the burial-ground which had been excavated, and made rubbings on heavy Japanese paper and sketches of a number of the sculptural ornaments which covered these fragments" (Hartman 1907:38). (Unfortunately, these drawings have never been published, nor are they subsequently mentioned in Hartman's writings. They may very well be hidden away in the archives of the Royal Ethnographic Museum in Stockholm.) Hartman was not able to secure permission to excavate at Las Guacas and instead turned his attention to several other sites in the surrounding area, including Las Casitas, where he dug graves

which contained metates with associated cylindrical "rubbing stones" (manos), several of which, he writes, were flattened on one or both sides as a result of their use in grinding.

Hartman returned to Las Guacas in 1903 to find that most of the cemetary had been destroyed in the interval. His account of what became of the metates taken from the graves is worth quoting in full:

> A considerable [number of them] had been used in constructing the walls of a large oven for sugar-manufacturing and the remaining pieces had been buried again during further excavations. On my first visit to the home of Padre Velasco in Santa Cruz he showed me in a large room more than three hundred metates from Las Guacas placed upon one another in rows and covering the wall up to the ceiling. On my second visit this collection was considerably reduced. Padre Velasco was constantly supplying the inhabitants of Santa Cruz, Nicoya, and the surrounding country with ancient metates from Las Guacas for household use. They were sold by him for eight to fourteen pesos apiece, and he had been able for a long time to satisfy the demand of the whole district. Only in a very few houses did I find modern metates from Puntarenas, which town imports the stone from Nicaragua. Occasionally a few are procured from the highlands, where they are manufactured at Cartago. According to the information and calculation of Padre Velasco, Antonio Carillo, and men employed on the excavations, there must at a low estimate have been found altogether two thousand metates in this burial-ground, though a very large portion of them were broken. In no other locality in the whole of Central America, as far as my knowledge goes, has any similar extraordinary number of these implements been located in a single burial-ground. (Ibid.:39; emphasis mine)

Hartman was granted permission to dig in what remained of the cemetery, but at this point his account becomes somewhat confusing, as he presents what seem to be conflicting reports on the results. Earlier in his account, he describes in detail the provenience and attributes of the artifacts

recovered in excavation of a "corner" of the cemetery "which had never before been touched" (ibid.:14). There, over a period of four weeks with the aid of twelve workers, he found the sixteen burials and metates mentioned above and marked on his well-known excavation map (fig. 4). It is this excavation which everyone from Lothrop (1926) on has cited in reference to Hartman's work at Las Guacas. However, further on in his 1907 report, Hartman refers to another (?) 1903 excavation at Las Guacas in which "about fifty complete metates were exhumed" (ibid.:39). And several lines later, he informs the reader that his excavation at the site produced a total of 52 metates. Whereas Hartman provides a detailed account of the artifacts recovered from the earlier mentioned excavation, he makes only the most cursory remarks about the fifty metates found in the other (?) excavation. It is not clear if his sum total of 52 includes the sixteen metates which appear on the map, and if so what happened to the rest. Plainly, the accounts do not add up, and we are left with somewhat of a mystery.

Although Hartman uncovered sixteen metates and the same number of discrete burial units, the matching total is coincidental: not every burial contained a metate, two contained more than one, and three metates were found among a cache of artifacts separate from the graves. Table 1 lists the metates and associated artifacts from each burial. Of the sixteen metates, all are tripods, of which eleven are

plain and five are decoratively carved (a ratio which roughly corresponds with Hartman's comment that most of the 52 metates he excavated were undecorated). Four of the carved metates have cylindrical supports and one has triangular-slab supports. The supports on the plain metates range from conical to knob-like and vary greatly in length. Detailed descriptions of the formal attributes of the metates will be presented in the following section on typology. The decorative motifs and figural representations exhibited on certain of the metates will be described in the next chapter.

The significance of Hartman's excavation at Las Guacas is underlined by the fact that so few metates have been found through controlled excavation since his time, a period during which uncounted numbers have been ripped out of the ground by looters. Baudez (1967:40, 181) can be credited with the first post-Hartman archaeologically verified recovery of a metate in Greater Nicoya. At Bolson in the Tempisque valley, he excavated a grave with a plain metate and associated mano. The accompanying ceramics date the burial to the last phase of the Zoned Bichrome period (A.D. 300-500). During the 1960s and 1970s archaeological work picked up in the area, particularly Guanacaste, but few undisturbed mortuary sites were detected. Both Lange and Scheidenhelm (1972) and Stone (1977: 32-34) report finding metates in and around <u>huaquero</u> pits at cemeteries in Guanacaste, Lange at Las Pilas near the modern day town of La Cruz, and Stone at El Hacha, also near La Cruz.

Both sites are Zoned Bichrome in date. Fortunately, within the last five years, excavations carried out by the National Museum of Costa Rica in several parts of Guanacaste have uncovered plain and decoratively carved special purpose metates from undisturbed mortuary context.

At Hacienda Mojica on the Guanacaste plains not far from modern Bagaces, the excavation of a section of a Zoned Bichrome-Early Polychrome cemetery turned up several metates (Ryder 1980, in press). Three plain metates were found in one burial which yielded a C-14 date of ca. 150 B.C. Two of these were found face down stacked one on top of the other beneath a Las Palmas Red-on-Buff vessel (Baudez 1967:88). The uppermost of the two has short stub or knob supports, a roughly ovoid grinding plate, and measures 26 cm by 36 cm. The one beneath it is a crude legless ovoid slab metate. Both evidence considerable wear on their grinding surfaces. At the eastern end of the burial, a heavy tripod metate on rounded knob supports had been set on its side, a cylindrical mano propped adjacent to it.

A large tripod metate (50 cm in length, 33 cm in width, and 16 cm in height) with solid triangular-slab legs was found in another burial, which dated by ceramic associations to either the terminal Zoned Bichrome phase or the very onset of the Early Polychrome period. It had been originally placed upturned over a string of pottery vessels. Two small rectangular protrusions extend off the front end

of the grinding plate, the carving similar but not nearly as elaborate as that exhibited on other triangular-slab metates, where the carved protrusions clearly represent avian or feline figures. The metate was not carved decoratively on either the grinding surface or the underside, and the latter shows a moderate amount of wear.

In 1980 and 1981 a joint National Museum-UCLA field project at Nacascola, Bay of Culebra excavated a series of Zoned Bichrome and Early Polychrome burials, some of which contained special purpose metates. On the lower slope of the Nacascola valley, an elaborately carved triangular-slab metate and mano were uncovered in an Early Polychrome grave (Lawrence and Hardy in press). The carved decoration is described as consisting of "pendant bird effigies in raised relief on each corner of its lower surface, and elaborate geometric designs in an interlock pattern on both the grinding surface and on the lower surface and legs." Substantial wear is noted, most clearly demonstrated by the partial obliteration of the decorative carving at each end of the grinding surface, a phenomenon exhibited by several other pieces examined in the course of this study. The mano is of the overhang type and fits the grinding plate exactly. It too evidences considerable wear.

Three metates and manos were uncovered in a partially excavated Zoned Bichrome-Early Polychrome cemetery on the beach fronting the Nacascola valley. Two metates were found

in one burial and one in another. All apparently showed wear (Vázquez in press). No further details are presently available.

During 1981, the Nosara valley on the Nicoya peninsula, long renowned for its rich jade-laden huacas in local hauquero circles, was the site of a small survey and test excavation program conducted by the National Museum. An undisturbed section of a burial ground yielded burials containing both plain and carved tripod metates (Guerro M. in press). In one burial, a decorative metate was found with Rosales Zoned Engraved vessels, dating it firmly to the middle Zoned Bichrome phase. Presently no further information has been released concerning the formal and decorative attributes of the metates recovered. Guerro M. remarks on the presence of numerous carved metate fragments and some small pieces of worked greenstone in and around the more than 1,500 hauquero pits which dot the valley.

Finally, it should be noted that while no whole carved metates have been recovered outside of mortuary contexts, fragments are found with some regularity in midden deposits (Baudez 1967:182; Sweeney 1975; Accola and Ryder 1980; Healy 1980:276; Brodnicki N.D.; Ryder N.D.).

3.2 Contextual Data: A Summation

A careful reading of the early accounts of special purpose metate finds and the recently recovered archaeological data allow for a preliminary evaluation of the debate over

whether the objects under study were primarily designed and used as ritual food processing platforms or as stools to be sat upon (in ritual situations). The absence of manos in association with the metates excavated by Hartman at Las Guacas is perhaps the principal piece of evidence cited in arguing that the special purpose metates are not metates at all but stools or benches (Lange 1971; Graham 1979). If the Las Guacas results were all the data available, it might be plausible to contend that the objects were not used as grinding stones. However, in light of Bransford's excavation at Hacienda Palmar which produced a mano in association with the single metate recovered, his account of "rollers" found with metates at a site near Las Guacas, Hartman's mention of graves at Las Casitas which contained cylindrical "rubbing stones," the mano at Bolson, at Hacienda Mojica, and those at Macascola, the Las Guacas case appears to be the exception, not the rule.

Granted it is a notable exception given the number of metates (16) unearthed, and granted, not every metate subsequently recovered in controlled excavation at other sites has been accompanied by a mano. Nonetheless, the contention that a burial good that morphologically resembles a metate (regardless of how ornate it might be) is a metate only if found with a mano is uncertain in what it takes for granted. It is clearly predicated on the assumption that any implement (or article of clothing or jewelry) discovered in a grave was placed there because the deceased would need it or was going

to use it in the afterlife (e.g. Graham 1981:115). Therefore, a mano-less metate could not possibly be a metate, for without a muller a metate is useless as a food processing tool. This line of reasoning is plausible, but its veracity can be disputed. Might it not be that native Americans buried the dead with their belongings and emblems because these objects somehow symbolized or were imbued with the individual's essence or soul, and therefore, as extensions of that person had to be interred as well? If the individual happened to be a particularly powerful person, a shaman for example, is it not conceivable that society felt it necessary to bury the paraphernalia of his trade for fear that harm might come to anyone of the living who came in contact with it? Regardless of which of these interpretations of the surely complex mortuary behavior of Amerindians is more accurate, the presence of manos in many of the burials containing special purpose metates is indisputable.

The lack of wear on the grinding surfaces of special purpose metates has been cited as further evidence that they were not used for grinding, yet the great majority of pieces examined in the field and in museum collections exhibit often extensive wear. Lange (1971:214-215) has asserted that what wear is evident may be the result of the smoothing of the rough basalt plate surface to facilitate its use as a seat, and not the result of grinding action. He also argues that the thin plates would not hold up to extensive milling. One

look at a sample of the carved metates confirms the latter contention: the plates are indeed delicately thin (see below), and daily utilization would soon erode the surface. Plainly, these pieces were not employed for quotidian tasks; still the marked wear that many show--on some to the point that decorative engravings at the very ends of the grinding surface have been worn away, indicates they were ground upon, if only on an infrequent basis. It has been suggested that the extensive wear many special purpose metates show is the result of their use in the kitchens of modern day inhabitants of Greater Nicoya, before they were sold to museums or collectors and inspected by archaeologists. While this may be the case in some instances, archaeologically found metates demonstrate that wear is a by-product of Precolumbian use as well.

The presence of ceramic figurines seated on low-slung benches is also cited as evidence that the carved metates were employed primarily as platforms to be sat on. The ceramic seats of Greater Nicoyan origin, however, are always four-legged (Snarskis 1981b:191), whereas Greater Nicoya metates are tripodal with only one or two known exceptions (see below). Figurines seated on benches are found throughout Costa Rica and the Intermediate Area, and the seats are tetrapod in every instance (e.g. Hartman 1907: fig. 13; Lothrop 1926: fig. 155; Lehmann 1963: fig. 100; Rouse and Cruxent 1963: Pls. 25, 26; Reichel-Dolmatoff 1965: Pl. 41; Between Continents/Between Seas: Precolumbia Art of Costa Rica 1981:

Pl. 16). The benches on which the figurines sit may very well have been wooden in real life, like the piece Lothrop (1926: fig. 183) illustrates from Nicaragua, as are the stools known from ethnographic context in northwestern South America. Being wooden, their chances of survival in the archaeological record of Greater Nicoya would be next to non-existant.

This study has not found conclusive evidence that the carved metates were never utilized as seats, but it appears certain that they were designed as metates and used in the processing of edible vegetal substances. An additional bit of evidence to support this contention is found in an illustration from the Greater Nicoyan Contact period account of Girolamo de Benzoni (1889). The drawing shows a tripod metate being used to grind maize for the preparation of tortillas. The metate appears to be engraved on its sides and has a decorative addendum projecting off the front end of the plate. Their even minimal use as metates, of course, raises the question of whether it would have been culturally permissible to sit on a surface used for processing ritual foodstuffs--or everyday, domestic, for that matter.

In concluding the discussion of archaeological context and artifactual associations, mention should be made of the often described Zoned Bichrome mortuary "complex" or "cult" of which special purpose metates are seen as a central element (Lange 1979, in press; Graham 1979, 1981). Evidence of

the funerary association of metates, carved greenstone amulets (often the so-called "axe-god" pendants), and stone mace heads, was first detected by Hartman at Las Guacas, although only in the cache peripheral to the burials are all three components in clear association. Burials VIII, IX, and XVI contain metates and greenstone amulets, but no mace heads (Table 1, fig. 4). Stone (1977:33) notes the presence of the complex at the El Hacha cemetary, and it has been reported by looters in many parts of Guanacaste. It is known as well in the Central Highlands at Tibas (Snarskis 1979) and Greciá. In light of its archaeologically verified occurrences and the thousands of metates, amulets, and mace heads in museum and private collections, the at least occasional mortuary association of all three of these artifacts is beyond doubt; however, archaeological findings demonstrate that more often than not only one or two of the elements is present in a given burial.

Finally, it must be noted that archaeological knowledge of mortuary metates suffers from two significant lacunae. First, no information is available on the frequency of the presence of metates in burials beyond that they appear in many but not all Zoned Bichrome and Early Polychrome graves (see below for further information on chronology), and that some burials contain carved metates, others plain metates, and still others both. Second, the sex and age of individuals interred with metates is unknown. Data bearing on these

issues would certainly aid in further refining ideas on the function and meaning of Greater Nicoya special purpose metates.

3.3. A Typology of Greater Nicoya Carved Metates

> All of the metates at Las Guacas, as far as I have been able to ascertain, are provided with three legs. There are two distinct types, distinguished by the shape of the legs, viz.: those with cylindrical, or in some cases conical legs, and those with flat, nearly triangular legs. In both groups the plate is evenly and gently curved upward before and behind. (Hartman 1907:39)

> The Nicoya metate is primarily distinguished from the Guetar and Chiriqui forms by the fact that it has but three legs, while the latter have four. Hartman (1907) divides the Nicoyan type into two classes, one marked by circular legs and the other by elaborately carved triangular legs. The latter usually have a projecting animal head at one end, while the first kind is usually of greater size. Both classes are decorated with elaborate carvings on the bottom and ends of the grinding plate. The class with circular legs is often adorned with animal figures, and the triangular-leg type with geometric patterns. (Lothrop 1926:97-98)

As these quotes testify, it has long been recognized that the special purpose metates of Greater Nicoya can be separated into two broad classes or types (the two words will be used interchangeably throughout the following discussion), based primarily on the morphology of their tripod supports. Because this typological breakdown only involves the establishment of two principal classes which subsequently yield but one or two potential sub-classes, and the distinctions between the classes are so clear-cut, it is felt not necessary to borrow either the methodology or terminology employed, for example, in the classification of a large and heterogeneous collection of ceramics.

Throughout the rest of this chapter and the next one, certain conventions are followed in the description of the metates. Grinding plate is used to describe the curved slab which rests on the tripod supports, and grinding surface refers to the upper face of the grinding plate. The front end of the metate or grinding plate is the end where the single support attaches, whereas the paired supports attach at the back end. When describing the supports, the upper portion refers to the section closest to the grinding plate, and the lower or bottom portion that section nearest the support's extremity or the ground when the metate is resting on its supports. This final notice may seem obvious or redundant, but because many of the ensuing illustrations show the metate with its grinding surface to the ground and its legs pointed upward, what is up and what is down can be a source of confusion. Interestingly, many of the carved metates were originally placed in burials in this position.

The first principal class of carved metates is defined by slightly tapering cylindrical supports with flattened bottoms, which occasionally widen at the very end (fig. 1a). These vary in proportional length and diameter, ranging from those which are delicately long and slender (Hartman 1907: Pl. IV; Pl. X,1), to shorter, stockier versions (ibid.: Pl. VIII,1; Pl. XIV,1). The grinding plates are appreciably curved from front to back and perfectly flat across their width. The plates are rectangular in shape and most have

precisely squared corners, although some tend to flair out toward the ends. By any standards the plate itself is very thin, with none measuring more than 5 cm and most considerably less than that. The front support is attached along the longitudinal axis of the plate about one-third of the way in from the front end, while the back supports are placed just in from the sides of the plate somewhat nearer the back end than the single support is to the front end. On the whole, this class of decorated metates is considerably larger than the next. Table 2 lists the measurements of all the carved metates Hartman illustrates from Las Guacas.

There are two variant types within this class of carved metate. The first features long thin supports, which, although they are similar in their slender tapered form, are squared or four-sided with barely perceptible edges (Between Continents/Between Seas: Precolumbia Art of Costa Rica--herein referred to as BCBS--No. 18). The second type is defined by short conical legs (Hartman 1907: Pl. XIV,3). On one example of the latter type, the back supports are sculpted in the form of humanoid heads (BCBS: Pl. 48).

Related to this class of metate in form are a group of plain special purpose metates with cylindrical, conical, and knob supports (Hartman 1907: Pl. III). In general, they are much heavier in appearance than the carved pieces.

The second principal class of carved metates has flattened slab-like supports, which are rectangular in cross-section and triangular in shape when viewed from the side

(fig. 1b). As such they are referred to as triangular-slab supports. Actually their lateral form is not perfectly triangular, because instead of coming to a single point, the bottom is either flattened (Hartman 1907: Pl. IX,1; Pl. XVII, 1) or notched (ibid.: Pl. XVIII,1; Pl. XIX,1). The supports are often carved with openwork decoration in combination with low relief engraving.

The grinding plates are similar to those in the first class in that they are longitudinally curved and are rectangular in shape with a tendency to flair out at the ends. Where the plates of the two classes differ in form is in thickness. While still exaggeratedly thin when measured against the typical quotidian metate of Mesoamerica, the grinding plate of the triangular-slab metate is considerably thicker than that of the previous class. The supports, however, are aligned in a similar fashion, the only noticeable difference being that the back supports are normally placed right at the edge of the sides of the plate. In general, the metates of this class are smaller than those of the former (see Table 2).

The triangular-slab metates divide into three subclasses on the basis of morphological and decorative attributres (the latter are referred to here only insofar as they have typological significance; they will be discussed in detail in the following chapter). The first sub-class is comprised of pieces with four instead of the usual three legs.

The front and back supports are placed an equal distance in from each end--the back pair positioned exactly where they are on the predominant tripod variety--attached right at the grinding plate edge. They are joined laterally in a web of openwork carving. Only two examples of this sub-class have been found, one attributed to Ometepe Island in Lake Nicaragua (fig. 5), the other found outside of Greater Nicoya at the site of Tenampua, Honduras (Popenoe 1936: fig. 4).

Almost every triangular-slab metate is adorned with an appendage which projects off the front end of the grinding plate. The second and third sub-classes are distinguished by the kind of protruding sculptural form they exhibit. Small zoomorphic pendants are attached to the grinding plate of the former. These usually number two and are attached near the corners of the plate. Looked at from above, they project off the plate only about a few centimeters, but they extend along the plate underside, in many cases as far back as the front leg (Hartman 1907: Pl. XV,1,2,3,4). Often these pendants are sculpted in the form of stylized bird heads, their elongated beaks running along beneath the plate. Some of them are carved in the shape of tiny feline heads (BCBS: Pl. 50). Hartman (1907: Pl. XIX,3,4) illustrates one piece with a single avian pendant.

The third sub-class constitutes the type perhaps best known of all the Greater Nicoya carved metates. These triangular-slab pieces are sculpted with disproportionately large

animal heads which project off the front end of the grinding plate (ibid.: Pl. XVII,3,4; Pl. XVIII,1,2,3,4). The heads usually represent felines, canines, or avians. They are often attached to the plate by a rectangular block which forms the animal's neck and extends beneath the grinding plate as a structural brace.

Differences in carved motifs and figural representations correspond to the division of the metates into two classes based on form. Again, these will only be touched on here, as they are the subject of the next chapter. The cylindrical support class normally exhibits single bands of a guilloche design at each end of the grinding surface. The underside is often enframed in the same pattern, leaving a central field which is either filled with a zoomorphic figural design or left blank. Crocodilians and avians are the forms most represented; monkeys and anthropomorphic figures are also portrayed in lesser numbers, but as Hartman (1907: 41) noted, "the jaguar is conspicuously absent."

That the jaguar is not depicted is so noticeable because of the ubiquity of feline (jaguar) figures on the triangular-slab metates. Birds and coyotes are the other animal figures represented with some frequency on this class of metate. Crocodilians are nearly as conspicuous in their absence on this type as the jaguar on the former: this study has found only two pieces which feature the saurian figure. Plaited mat or geometric interlock designs are often carved

on the front and occasionally the back ends of the grinding surface, and in many cases on the plate underside. The slab legs usually exhibit oblong or circular openwork decoration.

3.4 A Chronological Framework for Greater Nicoya Carved Metates

Special purpose metates have often been referred to as key artifacts of ancient Greater Nicoya without regard to their time specific occurrence, as if they were present throughout the known chronological sequence. Of course, this can in part be explained by the absence until the 1960s of an accepted temporal framework tied to C-14 dates. In more recent writings, investigators have paid more attention to the dating of special purpose metates (Ferrero 1977; Stone 1977; Graham 1981; Snarskis 1981a and 1981b); to their work the current study is appended.

The earliest date for the development of the Greater Nicoya behavioral complex involving special purpose metates has yet to be firmly established. What little solid archaeological data exist suggest that the complex was firmly in place by Late Formative times (ca. 300 B.C.), and the data leave open the possibility that special purpose metates were employed as early as 800 B.C. The best source of evidence for the earlier date is Bransford's Hacienda Palmar excavation, which yielded a mortuary metate in association with ceramic vessels which can be identified through Bransford's description and illustrations (1881:69, fig. 134) as Bocana

Incised Bichrome. As already mentioned, Lange (1980a) dates Bocana Incised Bichrome to the early Zoned Bichrome phase (800-300 B.C.), noting however that it may also be present in the succeeding phase (300 B.C. to A.D. 300). The possibility then exists that the practice of interring metates in burials starts as far back as 800 B.C.

Possible supporting evidence for this early date comes from two sources, the El Hacha and Las Pilas cemetaries. Excavations at El Hacha uncovered plain tripod metates in apparent association with Palmar Ware pottery (Stone--1977:33--dates the burial ground to the middle Zoned Bichrome phase; however, it must be pointed out that her analysis was done previous to Lange proposing that Palmar Ware ceramics date as early as 800 B.C.). At the nearby Las Pilas cemetary, both Bocana and Toya Zoned Incised Bichrome shards were found with metate fragments, but--it must be emphasized--in disturbed context.

Whether the existence of special purpose metates in Greater Nicoya can be pushed back beyond 300 B.C., and how far, remains debatable, but their appearance by or shortly after that date now seems a fair certainty. The finding of three plain tripod metates in a burial at Hacienda Mojica dated to ca. 150 B.C. buttresses this contention.

That mortuary metates are present in Greater Nicoya during the period 300 B.C. to A.D. 300 is further verified by recent work in the Nosara valley, where a metate was found

in controlled excavation in association with a Rosales Zoned Engraved vessel. This discovery is particularly significant because the metate found was decoratively carved. El Hacha and Mojica indicate that plain special purpose metates were present in Greater Nicoya by at least Late Formative times. Data from Las Pilas and Hacienda Palmar is void of any information on whether the metates detected were carved: all we have is Bransford's (1881:69) characterization of his find as "a good metate" (and as luck would have it, the piece is not illustrated). The Nosara valley discovery indicates the presence of carved metates during the period 300 B.C. to A.D. 300. Unfortunately, neither the formal nor decorative attributes of the Nosara valley metate have been published, thus data linking the two classes of carved metates to the Greater Nicoya chronological sequence must be sought elsewhere.

At Las Guacas, plain tripod, carved cylindrical, and triangular-slab metates were found in a series of burials. Pottery recovered from the burials indicates that they date to the middle and late Zoned Bichrome phases, and there is the slightest trace of an Early Polychrome (A.D. 500-800) presence. Based on a statistical analysis of the ceramics, Fonseca and Scaglion (1978: fig. 2) estimate that the section of the burial ground excavated and mapped by Hartman was used from A.D. 180-525. Unfortunately, given the poverty of specific ceramic associations provided by Hartman (and in the Fonseca and Scaglion article), only three of the Las Guacas

burials can be dated with any certainty: Burial I, which contains two plain metates and a carved cylindrical support metate, dates to the late Zoned Bichrome on the basis of the black-on-red painted ceramic figurine found in association (black-on-red is a decorative mode typical of this time span); Burial VIII, which contains two carved cylindrical support metates and a single plain metate, can also be dated to this period (Fonseca and Scaglion 1978:297); and Burial IX, with one plain metate, is attributed to the middle Zoned Bichrome phase (ibid.:297). Sadly, Burial VI, which has the single carved triangular-slab metate recovered by Hartman, contained no ceramic vessels, and thus cannot be assigned to a particular period.

Fortunately, triangular-slab metates have been found in well-dated burials at Hacienda Mojica and Nacascola. The Mojica metate belongs to the small projecting pendant subclass, exhibiting two crudely executed avian pendants at its front end. The supports lack any openwork carving. The burial in which it was found dates to either the very end of the late Zoned Bichrome or the beginning of the Early Polychrome period, as evidenced by its association with both Guinea Incised and Carrillo Polychrome vessels, the former a late Zoned Bichrome type, the latter a late Zoned Bichrome-Early Polychrome transitional ceramic. At Nacascola, a triangular-slab metate with bird-head pendants and openwork carving was found in an Early Polychrome grave on the lower

slope of the valley wall. The Galo Polychrome pot found in the burial provides a secure A.D. 500-800 date. Triangular-slab metates were discovered in the Zoned Bichrome-Early Polychrome cemetery on the beach at Nacascola, but the dating of the specific graves they were found in has not yet been published.

Rounding out this all too short but complete list of dated special purpose metates are Baudez's report of a plain tripod metate in a late Zoned Bichrome burial at Bolson, and the finding of plain tripod metates in Early Polychrome burials at Nacascola. The data suggest the following tentative, overlapping sequence of metate classes:

800-300 B.C. (early Zoned Bichrome)	: plain tripod metates
300 B.C. to A.D. 300 (middle Zoned Bichrome)	: plain tripod metates : carved metates (cylindrical support?)
A.D. 300-500 (late Zoned Bichrome)	: plain tripod metates : carved cylindrical support metates : carved triangular-slab metates (?) (w/out openwork carving?)
A.D. 500-800 (Early Polychrome)	: carved triangular-slab metates (w/ animal-head pendants) : carved triangular-slab metates (w/ animal-head effigies?)
A.D. 800-1350 (Middle Polychrome)	: no special purpose metates reported
A.D. 1350-Contact (Late Polychrome)	: no special purpose metates reported

It appears then the sequence begins with plain tripod metates which may occur in the archaeological record as far back as 800 B.C. Plain tripod metates continue throughout the entire special purpose metate sequence or until ca. A.D. 800. The carved metate tradition arises at some time during the middle Zoned Bichrome period. From the data available, it is not clear which of the two classes of carved metates is represented at this early time; however, based on the findings at Las Guacas and negative evidence from Hacienda Mojica and Nacascola, it is felt that the cylindrical support metate is the first type to be produced. At Las Guacas burials with this type of metate date to the period A.D. 300-500. No cylindrical support metates are known from later contexts.

Triangular-slab metates appear in the Early Polychrome period and perhaps the very end of the late Zoned Bichrome. The data hint--but ever so slightly--that the first triangular-slab metates were executed without openwork carving. No triangular-slab metates with large animal effigy heads have been recovered in controlled excavation, but considering that no special purpose metates are known from Middle or Late Polychrome contexts, it seems likely that this sub-class, given its shared morphology with other triangular-slab metates, dates to the Early Polychrome period as well.

This sequence fits well with the dates Snarskis (1981b) and Graham (1981) assign the two classes of carved metates.

Both agree that the cylindrical support pieces occur earlier regardless of the absolute dates attached to the stylistic developmental scheme. Snarskis assigns an A.D. 1-500 date to the earlier class and an A.D. 300-700 date to triangular-slab metates, and Graham proposes that carved metates first appear A.D. 300-500 and that triangular-slab metates develop out of this tradition toward the end of the period. The assignment of absolute dates to the metate classes is not very meaningful at this stage, however, in light of the few securely dated pieces and the need for a further refinement of the radiocarbon-ceramic sequence. Nonetheless, a rough temporal scheme is perceived, and the developmental relation of the two classes has been established.

TABLE 1: LAS GUACAS BURIALS

Burial	Est. no. of individuals	Plain Metates	Carved w/ Cylnd. Legs	Carved w/ Triang. Legs	Other Artifacts	Remarks
I	5	2	1		Clay figurine painted red with black designs	Two metates were placed directly over skulls. The figurine was found lying on the grinding surface of one of the plain metates.
II	1	1			Several stone beads	
III	3					
IV	1		1			
V	2					
VI	2	1				
VII	1				1 cylindrical metate leg Fragments of a ceramic vessel	
VIII	3	1	2		2 axe-god pendants 1 ceramic figure seated on a bench A clay pestle	Two amulets found on the grinding surface of one of the cylindrical leg metates.
IX	1	1			Axe-god pendant Ocarina Polishing stone	
X	?					Skeletal remains consist of a half-meter thick of long bones and a few skulls.

TABLE 1: LAS GUACAS BURIALS (Continued)

Burial	Est. no. of individuals	Plain Metates	Carved w/ Cylnd. Legs	Carved w/ Triang. Legs	Other Artifacts	Remarks
XI	1			1	1 celt	
XII	1	1			1 polishing stone	
XIII	1				2 polishing stones Axe-god pendant 1 small globular pot	
XIV	1					
XV	4				5 stone beads 1 miniature pot with avian applique features	
XVI	1	1			2 stone beads 2 bird heads carved in green-stone 1 animal figure carved in green-stone	
Cache		3			11 axe-god pendants 3 stone beads 7 pots 2 ocarinas 2 mace-heads (carved) 1 animal amulet 3 polishing stones 4 celts 1 bark scraper	Pieces of a red mineral probably used for pigment were found above below the smallest metate. All three are diminutive. Hartman does not consider this group of artifacts to represent a burial(s) because it was not found within a well-defined pit.

TABLE 2: GREATER NICOYA CARVED METATE DIMENSIONS

A. Cylindrical Support Metates

Provenience	Collection--Catalogue no.	Length	Width	Height (in cm.)
1. Greater Nicoya	University Museum	43	27	14
2. Las Guacas: Burial 1	Carnegie Museum--2793/4	62	36	23
3. Las Guacas: Burial 4	Carnegie Museum--2793/10	54	32	9
4. Las Guacas: Burial 8	Carnegie Museum--2793/13	60	45	20
5. Las Guacas: Burial 8	Carnegie Museum--2793/16	55	37.5	14
6. Las Guacas	Carnegie Museum--2793/81	68	27	41
7. Las Guacas	Stockholm Museum	64.5	38.5	21
8. Las Guacas	Stockholm Museum	61	41	21.5
9. Las Guacas	Carnegie Museum--2939/3431	48.5	28	16
10. Las Guacas	Carnegie Museum--2438/1413	53	33.5	18
11. Las Guacas	Carnegie Museum--2438/1412	34	24	11.5
12. Las Guacas	Carnegie Museum--2438/1411	35	22.5	9.5
13. Las Guacas	Carnegie Museum--2929/3430	36	27.5	8.5
14. Las Guacas	Carnegie Museum--2929/3429	57	37	10.5
15. Santa Cruz, Guanacaste	Private Collection	44.5	27	16
16. Greater Nicoya	Instituto Nacional de Seguros--4136	70	42	34.5
17. Greater Nicoya	Instituto Nacional de Seguros--3493	52	33	26
18. Nosara, Nicoya	Private Collection	81.5	47	32
19. Greater Nicoya	National Museum of Costa Rica	98	55	47

TABLE 2: GREATER NICOYA CARVED METATE DIMENSIONS (Continued)

B. Triangular-slab Support Metates

Provenience	Collection--Catalogue no.	Length	Width	Height (in cm.)
1. Las Guacas: Burial 11	Carnegie Museum--2793/24	38	20	14
2. Las Guacas	Carnegie Museum--2438/1410	38	18	15
3. Las Guacas	Carnegie Museum--2929/3428	47	28.5	12.5
4. Las Guacas	Carnegie Museum--2438/1409	34	18	13.5
5. Las Guacas	Carnegie Museum--2929/3427	50	20.5	12.5
6. Las Guacas	National Museum of Costa Rica	69	28	22.5
7. Las Guacas	National Museum of Costa Rica	40	20	14.5
8. Las Guacas	National Museum of Costa Rica	45	20	15
9. Las Guacas	Carnegie Museum--2438/1408	48	24.5	13.5
10. Las Guacas	Carnegie Museum--2929/3426	53.5	24	17
11. Las Guacas	Carnegie Museum--2939/3425	55.5	22	
12. Greater Nicoya	National Museum of Costa--24182	40	22	23
13. Guanacaste	Private Collection	47	16.5	23
14. Greater Nicoya	Instituto Nacional de Seguros--6383	77	30	42
15. Greater Nicoya	Banco Nacional de Costa Rica--1661	76	31	34
16. Upala, Costa Rica	Banco Nacional de Costa Rica--1660	66	24.5	29
17. Greater Nicoya	Private Collection	89.5	34	42.5
18. Greater Nicoya	Museum of the American Indian--23/7245	43	20	12
19. Ometepe Island, Nicaragua	Museum of the American Indian--21/3798	46.5	25	20.5

CHAPTER 4

DESCRIPTION OF DECORATIVE AND MORPHOLOGICAL ATTRIBUTES ON SELECTED PIECES

This chapter will comprise the detailed description of several examples of carved metates from each of the principal decorative classes. Formal attributes (i.e. the size and shape of the grinding plate and supports) and decorative traits (i.e. design elements, motifs, and figural representations) will be noted and described. The complete description of the selected metates will be interspersed with refercence to--and in some cases illustrations of--like motifs and figural representations exhibited on other metates of the same class, which will not be described in full. Identification of certain recurring motifs as representing specific animal or mythological forms or symbols will be undertaken by comparison with like forms previously identified in studies of the visual imagery of ancient Mesoamerica and Lower Central America. At the conclusion of each section of this chapter, the predominant motifs and figural representations depicted on each class of carved metate will be summarized along with a brief account of less often seen decorative modes and portrayals. The metates selected for detailed treatment were chosen from those in the extensive collections of the University Museum of the University of Pennsylvania, the Carnegie Museum of Pittsburg, and the Museum of the

American Indian in New York, on the basis of complexity and clarity of design. Five metates from the cylindrical support class and five triangular-slab metates have been chosen; all but one (for which a complete photographic record is available) have been inspected at first hand.

4.1 Cylindrical Support Metates

1.) This cylindrical support metate is from the collection of the University Museum of the University of Pennsylvania (fig. 6), which, like so many of the Gerater Nicoya carved metates residing in museum and private collections, lacks specific provenience. In fact, this piece does not have a catalogue number, and thus is without even the rudimentary information concerning when, where, and by whom it was collected. Nonetheless, the carving it exhibits is so extraordinary that it warrants detailed appraisal.

For a metate of this class, it is on the small side, measuring 43 cm. in length, 27 cm. in width, and 14 cm. in height (see Table 2a), but decoratively it is one of the most complex pieces known. The grinding plate is characteristically thin, measuring 1 cm. thick, and exhibits the standard and graceful longitudinal curvature distinctive of Greater Nicoya metates. Typically, the front end rests slightly higher than the back end, reflecting the difference in length between the front support (15 cm. in length) and the back pair (12.5 cm. in length). The edge of the grinding

plate is grooved on all four sides, creating the impression--whether intended or not--that the grinding plate is even thinner and more delicate than is actually the case.

Like all metates of this class which are carved on the upper or grinding surface (and some are not), the decoration on the grinding surface of this piece is limited to identically sized and carved narrow bands at each end (fig. 6c). The bands are enframed by single thin raised lines, and are filled with a guilloche design (which may also be described as an undulating chain or curvilinear weave design) of three continuous strands which double back over themselves, and which culminate at both ends in profile zoomorphic heads. This guilloche motif (often with the opposing animal heads) is the basic design motif found on almost all decoratively carved cylindrical support metates. On this piece, and whenever it occurs, the design is carved entirely in low relief.

The animal heads are mirror images of each other. They face outwards toward the sides of the plate, and are characterized by enframed eyes located at the top of the head; open mouths and suspended, powerful lower jaws; long downward curved tongues; and upturned, tightly curled snouts. The creature represented by the curvilinear interweave, that on this piece, as well as on many other metates of this class, features opposing animal heads, is a zoomorphic composite, which, it is felt, exhibits predominately crocodilian attributes, as they have been identified in previous studies of

ancient Costa Rican and Panamanian visual imagery, and to a lesser extent serpent traits. This motif--with or without the heads--will be referred to as the "crocodilian earth creature" or "weave." Crocodiles and caimans occur in Mesoamerica and Lower Central America, specifically Crocodylus actus and Caiman crocodylus fuscus (Brazaitis 1973: figs. 10, 15), whereas alligators are not present. Because it is very difficult to distinguish between crocodiles and caimans in native American visual imagery, the term 'crocodilian' will be used to refer to all figures which might be either or (see Stocker et al. 1980:740-742).

Prior to the examination of the carving on the underside of the University Museum metate, a series of like crocodilian earth creature motifs will be illustrated to give the reader a feeling for its ubiquity and its variations on cylindrical support metates. Before proceeding, however, it will be helpful to refer to previous analyses of Lower Central American visual imagery in which crocodilian motifs and representations have been isolated.

The major source for the identification of crocodilian motifs on the carved metates has been the work of several investigators who have studied the visual imagery of ancient Panama. All of them have noted the abundance of crocodilian and crocodilian-like motifs and figures on prehispanic Panamanian goldwork and polychrome ceramics (Holmes 1888; MacCurdy 1911; Lothrop 1937-1942). W. H. Holmes was the

first to identify figures on a range of gold pendants and ceramic vessels from Chiriqui as crocodilian (actually labeling them "alligator"). He based his identification on these primary traits: "the sinuous body, the strong jaw, the upturned snout, the feet, and the scales" (Holmes 1888: 173-174. George C. MacCurdy accepted this interpretation and concluded that crocodilians were one of the most frequently depicted animal forms on Chiriquian antiquities (he also suggested that "alligator" was a misnomer, because the animal was not native to the region, whereas crocodiles and caimans were). He emphasized the attributes of the open mouth, with and without teeth; the pronounced jaw, the "prolonged and upturned snout"; and a series of spots or triangular elements arrayed along the top of the snout and head, and often the spine and tail of the creature as well (MacCurdy 1911:125-128) (fig. 7a,b). MacCurdy proposed the label "alligator god" for the upright anthromorphic figure--seen on gold pendants and disks--with what he identified as a crocodilian head, characterized by a large recurled snout, an open mouth, and a powerful lower jaw, often fitted with teeth (ibid.:159, 213, P. XLVIII, g).

Lothrop further refined and elaborated on the identification of crocodilian figures and motifs in ancient Panamanian visual imagery in his study of the goldwork and polychrome ceramics from Sitio Conte, Cocle, in which numerous depictions of crocodilian forms on gold disks, pendants,

and painted ceramics are illustrated (Lothrop 1937-1942). Figure 8 illustrates one such disk, which features opposing crocodilian representations, each marked by the conventionalized recurled snout, open mouth, long tongue hooked downward, and elongated claws. Similar crocodilian figures are found on many ceramic plates in the Cocle style (fig. 9b). Figure 9a is of a reptilian figure with appended more highly stylized crocodilian heads. The large, often sharply pointed teeth portrayed on these figures--particularly the former two--are typical of Panamanian crocodilian representations, but are generally absent from otherwise very similar figures found on Greater Nicoya cylindrical metates, ceramics, and stone pendants.

Lothrop concentrated his analysis on the anthromorphic "crocodile god" (he insisted the label reflects the true animal for, and thus changed the appelation from "alligator" to "crocodile"). He distinguished between the full figural form seen on the gold pendants, which typically displays a tightly recurled snout, and the representation portrayed in low relief on gold plaques, which is characterized by a trapazoidal head among other of the above noted traits (fig. 10).

Lothrop (1926) found that similar forms occur on the painted and modeled ceramics of Greater Nicoya as well. Both the zoomorphic figure with upturned and recurled snout (ibid.: Pl. LXXV, fig. 78, 143) and the crocodilian god motif (ibid.:

Pl. LXXVII, a --note the trapezoidal shaped head) (fig. 9c) are depicted.

The crocodilian earth creature motif, distinguished by many of the elements used by Panamanian artisans in their portrayals of the crocodilian form, occurs with great frequency on carved cylindrical support metates as noted above. Before returning to the description of the University Museum piece, some of the variations evidenced in the treatment of the motif will be illustrated and briefly discussed. These images can be placed along a continuum, which runs from the more naturalistic to the more abstract or stylized, including headless variants.

Figure 11a is an example of the motif in one of its more naturalistic and markedly crocodilian variations. Note the prolonged, recurled snout and curled lower jaw, the open mouth, the triangular scutes arrayed along the top of the snout, and the encased eye. The snouts are especially elongated in this case, leaving little room in between the heads for the sinuous body represented by the gilloche design. Compared to this example, the crocodilian earth creature motif found on the as yet partially described metate is more stylized (fig. 11b). The snouts are more tightly curled, much shorter, and perhaps less crocodilian in a strictly naturalistic sense.

Figure 11c shows a variation in which the body weave has been transformed from a curvilinear to a geometric

design. The treatment of the heads is here even more stylized, the short recurled snouts squeezed into what small space remains in the corners of the grinding plate. In figure 12a a single head variant is shown, which again features a geometric design for the body. Finally, two examples of headless variants are illustrated. Figure 12b is an example of the guilloche design carved around the entire perimeter of the plate underside. At no point does it terminate in a head representation. A geometric headless variant is illustrated in figure 12c. It needs to be emphasized that this is but a small sample of the numerous occurrences of the crocodilian earth creature motif on cylindrical support metates.

If we refocus our attention on the University Museum metate, and turn it over to examine the carving on the underside, the identificaiton of the recurled snout and other traits discussed above as indicative of crocodilian forms will become evident. Characteristic of almost all metates of this class, the principal field of decoration is the underside of the grinding plate. In this case the design is particularly rich and complex, both in terms of content and execution (fig. 13). On this piece--again as is typical of this class--the underside is divided into two design spaces, a frame and a central or inner panel. Here the frame consists of the guilloche design bordered by single thin raised lines, which run around the very edge of the

plate and around the inside of the curvilinear weave, separating it cleanly from the panel. The guilloche is identical with that on the upper surface, composed of three continuous strands which double back over themselves to create the chain design.

The inner panel measures a perfectly proportional 34 cm. by 17 c.m. and is filled with a naturalistically depicted crocodilian carved against a finely packed background. From head to tail and side to side, the figure fits snuggly within the panels confines. The crocodilian is carved lying on its underbelly, its limbs naturally posed, and its long tail curving slowly to one side. The front support emanates from the region of the saurian's neck, and its head and snout emerge from the front side of the support and extend to the inner edge of the frame. This treatment of the crocodilian's head is unusual on carved metates of this class. On two other known examples where crocodilians are portrayed in full on the underside panel (one of which is described in detail below), the animal's head, instead of continuing on the surface of the plate, is carved in relief on the upper part of the front support (fig. 22).

The crocodilian is carved in several levels of relief. The head is carved in near full relief, standing out from the panel background, whereas the limb's and elongated claws, the spherical torso, and the last two-thirds of the creature's tail are depicted in standard low relief. The animal's

spine is carved at an intermediary level: raised above the torso, it drops closer to the background as it winds into the tail. Except the head, each part of the body--the sinuous front limbs, the more angular hind limbs, the torso, the spine, and the tail--is outlined by a thin raised line, which has the same effect as on the frame of cleanly separating the figure from its background. The total effect of the multi-relief carving and the definitive outlining of the whole and each of its parts, creates an impression not unlike that of certain M. C. Escher prints, where saurian creatures appear to suddenly pop out of the background in full relief. The carving technique of combining several distinct levels of relief is unusual for this class of metate where most carving is restricted to low relief.

The crocodilian's head is protrayed in finely carved detail (fig. 14). The prominent features include encased almond-shaped eyes which project from the top of the head and a tightly curled snout with flaring nostrils. The scales on top of the head are represented by flat diamond and triangular forms.

The overall design on the underside appears more dynamic when it is observed how the frame design and the carved front support interact with the central figure. Similar to the manner in which the gilloche designs on the grinding surface end in a double-headed creature, the weave on the underside does so at both the front and back

of the plate. At the front of the plate, the gilloche design culminates in crocodilian earth creature heads which face each other in the middle of the plate, separated by a small gap, their snouts and tongues nearly touching (fig. 15a). Seen in profile each head is characterized by the conventionalized recurled snout, the open mouth and hooked tongue, and the dropped jaw. The eye is almond-shaped, and between it and the snout, a cluster of three flat triangular scales or scutes is carved. The design elements employed in the execution of these profile heads are nearly identical to those featured on the full figural representation of the crocodilian head in the inner panel. The transformation of the elements from one perspective to the other is exact and perfectly clear, and the juxtaposition of the more naturalistic figure with that of the more stylized profile representation allows for a certain identification of the creature depicted by the double-headed curvilinear weave design--and its variants--as predominantly crocodilian.

Another look at the double-headed earth crocodilian profiles reveals that the two mirror image heads facing one another combine to form a single head-on image of the same creature. The two recurled snouts become a single snout with prominent, outflaring nostrils; the eyes of separate creatures become the eyes of the same; and so on. It is as if the frontal representation was produced by reflecting profile forms through a vertical axis or as if the profile

forms were generated by bisecting the frontal image. The convention of combining profile and frontal variants has a long tradition in Mesoamerican visual imagery. It is perhaps best known from the architectural sculpture that adorns many Puuc style buildings in the northern Maya lowlands. In many cases the central doorway is incorporated in a mask design which is constructed to portray both mirror image profiles and a single frontal view of the creature depicted (Pollock 1980). The convention extends well back into the Formative, where it is seen on Olmec representations (Joralemon 1976:36).

Whether perceived as two heads in profile or as a single one from a head-on perspective, it appears that the creature(s) is portrayed in a threatening stance in relation to the outstretched crocodilian in the central panel. The jaw(s) hang open, the long tongue(s) shoot out of the open mouth(s) almost brushing the top of the crocodilian's snout. It looks as if the one crocodilian representation is poised to swallow the head of the other.

The impression of imminent harm or intimidation is strengthened by the scene carved at the back of the plate. There, each end of the guilloche design which enframes the underside terminates in the head of a crocodilian earth creature. The head profiles face the center of the plate just behind the back supports. Each head has its mouth open around one of the hind legs of the central crocodilian,

seemingly on the verge of devouring the animal's appendages (fig. 15b). Apparently, the crocodilian in the panel is under siege or being held prisoner by several crocodilian earth creatures ready to attack.

Turning our attention to the carving on the front support, the theme of entrappment becomes even more obvious. On the back face of this support, a frog-like creature with a large protrusive face and two large goggle eyes is depicted (fig. 16). Just above his head, a nested geometric square, perhaps a headdress, with circular designs attached at both sides is carved. The frog sits on the crocodilian's neck, its front limbs projecting in the round off the support and resting on the crocodilian's shoulders. The arms are folded, each hand grasping the other elbow, and thus forming a small hollow space, which may have served to hold an offering, a ritual substance, "food" for the frog-figure. The animal's hind legs run down the sides of the support and onto the plate surface, where they continue up to and across the crocodilian's wrists. On each side, three of the frog's fingers lie on top of the crocodilian's limb, and a fourth, apparently opposable digit, slips under the wrists. The frog then sits atop the crocodilian and pins it to the surface of the underside plate, while at the same time, the latter is threatened by other saurian creatures from all sides. Of course, the exact nature of the scene depicted on the metate underside is open to speculation, but casting

it in terms of a captive and its captors is not beyond reason.

In finishing up the description of the under plate design, the remainder of the carving on the front support and that on the back set need to be detailed. On the front support three continuous single strand guilloche desings are carved, two on the front side, and one which starts just above the frog's "headdress" and runs down and across the bottom of the support, ending on the front face in a series of short parallel lines. The front side exhibits two weave designs which start together just below the series of parallel lines and slowly diverge as they run up the support, terminating on each side just behind the frog figure (fig. 17a). A small circular hollow, which may have held a small jade or similar stone ornament, is carved about half the way up the support in the middle of the separating guilloche designs. Just below it appear three nested triangular designs. The pattern produces the image of a crocodilian snout facing toward the bottom of the support, and when viewed from the front, it appears as a stylized reflection of the crocodilian head carved below it on the plate underside.

The bottom half of each of the back supports is encircled with low relief geometric designs, which protray reptilian (crocodilian?) heads (fig. 17b). The design elements include raised bands, spirals, and triangles. The

animal depicted is probably a crocodilian earth creature due to the prominent snout and outflaring nostrils and the triangles which likely represent scales or scutes. The bottoms of the supports are carved with overlapping teeth placed just beneath the snouts (fig. 17c).

2.) The second cylindrical support metate to be described was found in Burial I at Las Guacas by Hartman (Hartman 1907: Pl. IV, 1,2; Pl. V, 1) and is presently housed in the Carnegie Museum of Pittsburg--Catalogue no. 2793/4. It is considerably larger, though identical in form, than the University Museum piece, measuring 62 cm. in length, 36 cm. in width, and 23 cm. in height. The plate exhibits the characteristic graceful longitudinal curvature with the front ending slightly higher than the rear. The plate is very thin, measuring 1.5 cm., and like the previous piece and many other examples, it has been grooved along all four sides.

Narrow bands of an intricate guilloche pattern with a small avian design in the middle are carved at each end of the grinding surface (ibid.: Pl. V, 1). Each avian figure displays curvilinear wings, a fan shaped cluster of tail feathers, and a highly stylized head carved nearly in full figure which projects off the end of the grinding plate, in a fashion germinal to the projecting avian pendants exhibited on some of the later triangular-slab support metates.

The design on the underside is again very complex, but here it is carved completely in low relief, although at a high level of craftsmanship (fig. 18). The space is divided into a frame and an inner field, which is subdivided into a larger panel, covering the area behind the front support, and a smaller panel, located in front of the support. The frame includes two design elements carved in discrete sections. Across the back, along the side behind the back supports, and in front of the front support, the frame consists of a series of geometric spirals with circles in the middle, while between the supports the same intricate guilloche or crocodilian earth creature weave seen on the grinding surface is found. The front end of the plate underside is left partially unframed. The entire frame is bordered on both its inner and outer edge by a raised line, cleanly isolating it from the inner panels. The underside of the avian figures carved on the grinding surface appear at each end in the middle on the under plate, standing on crudely sculpted legs (fig. 19a).

A highly stylized owl-like avian is carved in low relief against the smooth pecked background of the large inner panel. Its head abuts against the base of the front support, its wings reach to the borders of the frame on each side, and its tail extends to the mid-line of the back supports, leaving a third of the panel blank. The owl's body and head are incorporated in a rectangular shape comprising

four interlinked geometric spirals with circles in the middle, the two top circles representing the bird's eyes. The outstretched wings are portrayed by geometric spiral designs which jut out perpendicular to the body. The owl stands on two spindly legs, its claws pointing to each side. The tail hangs between the legs, its upper portion comprised of a rectangular interlocking geometric design, from the bottom of which spreads a fan of tail feathers, each feather a raised isosceles triangle.

The smaller panel is enframed on three sides by a series of geometric spirals, the bottom section serving as a divider between the two panels. The frame terminates in each corner in a winged motif (fig. 19a). In the center of the panel is carved a double spiral motif on a long stem or neck which runs part way up the front face of the support. The design may represent a highly stylized zoomorpic head, or given its resemblance to the Mesoamerican curl glyph, it may symbolize fertility and abundance or be an earth sign (Kubler 1967:7-8, fig. 28).

The space between the inner spiral design and the frame is occupied by two opposing crocodilian earth creature figures, their bodies composed of geometric spiral elements running parallel to the sides of the plate just inside the frame. Small triangular scutes are carved at the tail end of each body. Their heads turn inward at the edge of the plate perpendicular to their bodies, and they face

each other across a gap created by the carved underside of the avian figure (fig. 19a).

The bottom half of the front support is elaborately carved in a series of raised bands, spirals, and raised lines which run parallel to the support (fig. 19b). The total design configuration may represent a reptilian (crocodilian?) with an elongated snout. The very bottom ends of the back supports exhibit encircling geometric elements.

3.) This piece was found in Burial VIII at Las Guacas and is now in the collection of the Carnegie Museum--Catalogue no. 2793/16 (Hartman 1907: Pl. VIII 1,2). It is about average length and width, measuring 55 cm. long and 37.5 cm. wide, but for a cylindrical support metate of this size, it is not very high, standing only 14 cm. off the ground. The grinding plate exhibits the characteristic curvature and thinness, although none of the sides are grooved to accentuate the latter trait. Neither end of the grinding surface is decorated, but the entire underside is covered with carved design.

The central panel is bordered by a composite frame which consists of a three raised linear ridge design on each side and a double-headed guilloche design at both ends (fig. 20). The profiled heads bear clear crocodilian attributes, including prolonged and recurled snouts, flaring nostrils, and triangular scutes, here arrayed along the top of the creatures' snouts (fig. 11a).

The panel is filled with the body and wings of a stylized avian whose head is sculpted in the round on the front support (fig. 21), its legs carved in low relief on the front face of the back supports. The bird's body is squat, roughly rectangular in shape with rounded corners. It bears no markings other than a raised circle just behind the front support in the vicinity of the bird's gullet. The wings are carved outstretched raised above the head, represented by a series of wavy lines which extend into the corners of the panel. A cluster of tail features fans out from the avian's body extending to the frame edge. It is not possible to identify the kind of bird represented by the treatment of the body, wings, and tail feathers, but a glance at the head carved on the single support leaves little doubt that the creature is a raptor, possibly an eagle or a buzzard. The long, hooked beak and hooded eyes distinguish it as such. The sculpting of the head is remarkably naturalistic in contrast to the stylized foreshortened portrayal of the bird's body and appendages. Full figural sculpting of the supports rarely occurs on metates of this class, although on one piece from a private collection in Costa Rica, all three supports are executed in this manner, the back pair finely sculpted in the form of monstrous anthromorphic heads (BCBS: Pl. 48).

The back supports of this metate are not nearly as elaborately carved. The bottom end of each is encircled

with four raised bands, and as mentioned above, the bird's legs are carved in relief on the front side of the supports running down as far as the first band. The supports are short and thick relative to the size of the plate, lacking in the graceful elongation so prominent in the shape of the supports of the two metates previously described.

4.) This cylindrical support metate was originally collected by Hartman at Las Guacas, although it was not recovered from controlled context (Hartman 1907: Pl. XII, 1,2). It too is housed in the Carnegie Museum--Catalogue no. 2438/1413. Of average size for a metate of this class, it measures 53 cm. in length, 33.5 cm. in width, and 18 cm. in height. The plate is noticeably thicker and exhibits a more severe longitudinal curvature than is seen on the pieces previously described. The grinding surface shows no decorative carving.

A large crocodilian is carved in slightly raised relief on the underside, enframed by a number of nested T-designs, which dot the perimeter of the plate (fig. 22). The crocodilian is depicted lying outstretched on its underside in much the same position adopted by the crocodilian on the University Museum metate, but, although the pose is similar, the treatment is quite different. The torso of this saurian is narrower, ellipsocal in shape rather than circular; the scales are fewer and much larger; and none of the body parts nor the whole figure are outlined, as they were on the earlier piece. But perhaps the most outstanding

difference is the incorporation of the snout on the back side of the front support. It does not continue on the same plane as the rest of the body, but instead bends sharply upward onto the support. Similar treatment of a crocodilian figure is seen on a metate from the collection of the Costa Rican Instituto Nacional de Seguros. On that metate, the entire head and neck of the outstretched saurian is carved on the front support (BCBS: Pl. 47).

The lower portion of each of the three supports is deeply fluted, the grooves capped several centimeters from the bottom by a single raised band which encircles the support.

5.) This metate is attributed to Las Guacas, but like the previous piece, it was not recovered in controlled excavation (Hartman 1907: Pl. X, 3,4). It measures 64.5 cm. in length, 38.5 cm. in width, and 21 cm. in height. The ends of the grinding surface are decorated with bands of gilloche design, which lack the earth crocodilian heads. They are somewhat wider than usual because they are bordered by double raised lines on both sides (ibid.: Pl. XI, 1).

The underside is again clearly divided into a frame and a field. The frame, like the bands on the grinding surface, is relatively wide, due to the double line border around its inner edge. It is filled with a gilloche or crocodilian earth creature weave which runs continuously around the perimeter of the plate.

The panel is completely filled with a highly stylized double-headed creature, here interpreted as a crocodilian. The heads are trapezoidal, the conventional shape used in depictions on flat surfaces of the "crocodile god" identified on Panamanian ceramics and gold plaques and Costa Rican polychromes as detailed above (fig. 23). The heads and necks are outlined in double raised lines and are filled with rows of parallel lines. The torso and the two sets of limbs are composed of outlined rectangular forms, and the front limbs (those carved on either side of the single support) are filled with a single continuous earth crocodile weave (the other set and the torso lack any embellishment). At each corner of both heads, and at several points along the body, small spirals emanate. These may be stylized representations of crocodilian snouts or vegetal motifs.

The same highly stylized crocodilian or "crocodile god" figure appears on a metate said to come from Filadelphia, Guanacaste (Stone 1977: fig. 51). It too features the double trapezoidal heads, the rectangular body parts, and the guilloche design, all of which Stone labels "reptilian symbols." The same representation is also seen on another metate from the collection of the Costa Rican Instituto Nacional de Seguros (BCBS: no. 15). A somewhat more 'naturalistic' portrayal of the crocodile god is carved on the underside of yet another cylindrical support metate from Las Guacas (Hartman 1907: Pl. XIII, 4) (fig. 24). Like the figures depicted in

Panamanian goldwork and bone and ivory, the head is trapezoidal and is crowned with a row of knobs interpreted as scutes (see Lothrop 1937: figs. 158, 162).

The most striking feature of the visual imagery carved on the cylindrical support metates is the primacy of zoomorphic forms--ranging from the purely naturalistic to the highly stylized--and among the animal forms, the predominance of crocodilian and crocodilian-like representations. Naturalistic crocodilians appear as the central figure on the underside of two of the metates selected for detailed description, as well as two others from Las Guacas (Hartman 1907: Pl. XIV, 2, 4) (fig. 25), and the piece previously referred to from Costa Rican Instituto Nacional de Seguros collection (BCBS: P. 47), and, as noted, "crocodile god" figures are featured on several pieces. Now, if the identification of the zoomorph represented by the double-headed guilloche motif and its variants as primarily crocodilian is accepted, then, given the omnipresence of the motif, it seems that crocodilian and crocodilian-like representations are carved on almost all known decorative cylindrical support metates. The form represented by the motif has been called the crocodilian earth creature, a variation on the Mesoamerican "earth monster," because it appears to combine serpent attributed with those clearly crocodilian. For example, the curvilinear weave body may be interpreted as serpentine (although crocodilian bodies are tubular in profile) and some of the figures are depicted

with what may be serpentine or lizard tongues (but note the tongues on fig. 8 and on many other ancient Panamanian crocodilian representations).

The significance of the pervasiveness of crocodilian and crocodilian-like figures on the cylindrical support metates will be discussed in the following chapter, but before leaving the subject until then, it should be noted that these representations show up with great frequency on many other Greater Nicoya artifact types found in mortuary contexts from the same and later time periods. These include jade pendants (e.g. Hartman 1907: Pl. XXXVIII, 1, 2, 3, 4, 5, 7, 9, 11, 16; BCBS: Pl. 71, 86; Ferrero 1977; Lamina IV; Illus. I-81, III-16--note the carved gilloche motif on the tubular bodies of several of these examples--e.g. fig. 26a), mace heads (e.g. Hartman 1907: Pl. XXX), ceramic censers (e.g. BCBS: no. 89-92; Ferrero 1977: Illus. I-70, I-71; Stone 1972:146), and polychrome and modeled ceramics (e.g. Lothrop 1926: Pl. LXII, CIII, a, b; Stone 1972:147--note the guilloche weave which encircles this latter vessel and terminates in a crocodilian applique figure). Finally, the top of an elaborately carved mano from the Bay of Culebra region (Accola and Ryder 1980: fig. 5) is decorated with crocodilian figures carved at each end (fig. 26b). This listing is of course only a partial inventory.

Other animal forms appear on metates of this class, but with much less frequency. They include avians, among

them the raptor and the owl above described, and the hummingbird (?) (Hartman 1907: X, 2); and simians, among them the spider and possibly the howler monkey (Hartman 1907: Pl. XIII, 2; BCBS: Pl. 48), and on one with a face verging on the anthropomorphic (Hartman 1907: XII, 2). Jaguar and canine representations, so prominent on the triangular-slab metates, are absent, except perhaps in one instance.

Anthropomorphic figures and features occur, but they are rare. A remarkable depiction is the figure carved on the underside of a metate from a private Costa Rican collection (BCBS: no. 17). A human figure stands beneath an elaborate headdress and mask with large goggle eyes, an upper row of pointed teeth, and a plume of feathers which fan out from the top. The figure also wears a cape, which Snarskis (1981b:180) identifies as a feline pelt. The carving is extraordinary in its fine line detail, the ornately costumed figure reminiscent of central Mexican images.

On several metates of this class, the frame is the only portion of the underside carved with the panel left blank (Hartman 1907: Pl. VII, 1; Ferrero 1977: Illus. I-72) (fig. 12b). In nearly every case, the frame is filled with the standard gilloche pattern or its geometric variant. The gilloche design is extremely versatile, for it can be widened, stretched, or foreshortened, depending on the size and shape of the space to be filled. On one example, the frame consists of four raised ridges separated by shallow grooves,

which surround a panel carved in angular and curvilinear L-shaped forms (limbs?) (Hartman 1907: Pl. XI, 4). All in all, the choice of motifs is not large.

Almost all of the decorative carving on cylindrical support metates is executed in low relief on a flat surface (the low relief carving which encircles the supports is included herein). The full figure sculpting of the crocodilian head on the University Museum piece is a noted exception, as is the sculpting of the raptor head on the front support of the Las Guacas piece, and that of the heads on the back supports of the metate from the private Costa Rican collection (BCBS: Pl. 48). Another metate illustrated in the same catalogue shows a small anthropomorphic head carved in high relief on the back face of the front support (ibid.: no. 15).

One most unusual piece displays openwork carving at one end of the grinding plate and a low relief design on the upperside at the opposite end (BCBS: no. 18; Ferrero 1977: Illus. III-6). The open work apparently depicts a human figure standing between two circular forms which may be highly stylized saurian forms (Snarskis 1981b:181), although Ferrero (1977:279) identifies them as mushrooms.

Two compositional modes dominate the organization of the design space on this class of metate. The most obvious is the division of the space on the plate underside into a clearly defined frame and panel. This is witnessed on most of the metates, but there are examples where the frame is

absent or vaguely delineated. The perhaps less apparent compositional feature is the emphasis on design symmetry. Forms are normally arranged symmetrical to the longitudinal axis on both the underside and the grinding surface. Take for example the University Museum metate on which a longitudinal division of both surfaces reveals near precise symmetry. On the grinding surface, the double-headed guilloche bands are rendered into single-headed mirror image equivalents. On the underside, the central crocodilian figure is neatly bisected (except the tail, which curves away from the axis to one side), as is the frog figure on the front support. Both double-headed earth crocodile motifs are also arrayed with perfect longitudinal symmetry.

Design symmetry in relation to the longitudinal axis is apparent on both the owl and raptor metates and the "crocodile god" metates as well as most other examples; there are of course exceptions to the rule. Correspondingly, the principle of longitudinal symmetry extends to the morphology of the metates themselves: the axis bisects the single front support and leaves one of the back pair with each half.

4.2 Triangular-Slab Metates

1.) The first triangular-slab metate to be described is from Burial XI at Las Guacas, now in the collection of the Carnegie Museum of Pittsburg--Catalogue no. 2793/24 (Hartman 1907: Pl. IX. 1, 2, 3, 4). The metate is an example of the

sub-class characterized by double avian-head pendants, which are attached at and project a short distance off the front edge of the grinding plate (fig. 27a). For a piece of this type, its dimensions are about average, measuring 38 cm. in length, 20 cm. in width, and 14 cm. in height. The grinding plate, although it is only 2.5 cm. thick, has a much heavier appearance than do the plates of the standard cylindrical support metate, and the longitudinal curvature of the plate is somewhat more pronounced than those of the other class. Typical of metates of this class (and all Greater Nicoya carved metates for that matter), the front rests slightly higher than the back end, reflecting the difference in length between the front support and the back pair.

The layout of the relief carving on the grinding surface is similar to that on metates of the cylindrical support class, being limited to the ends of the plate. However, it differs in that the field at the front end is several times the breadth (10 cm.) of the very narrow (2 cm.) band at the back end (fig. 27b). Moreover, whereas the carvings which fill the bands on the grinding surface of a metate of the former class are identical in content as well as field size, the designs on the opposite ends of this metate are decidedly different--a trait typical of triangular-slab metates (e.g. Hartman 1907: Pl. XV, 2). The front field encompasses the tops of the protruding avian heads and is filled with an interlocking geometric pattern. The pattern is concentrated

in the middle of the plate in a knot-like form, from which single strands extend to each side of the plate, where they turn inward and terminate in opposing spirals. The pattern is executed in double raised lines. Hartman (ibid.:22) identifies the design as "two highly conventionalized human figures opposite each other," but close examination has not yielded a similar interpretation.

The design pretends to symmetry in relation to the longitudinal axis of the plate. Nonetheless, close inspection shows that, while the design is balanced in that there is a one to one correspondence of elements in about the same place in relation to one another on each side, the arrangement is not precisely symmetrical. For instance, the spiral on the right hand side initially rotates toward the front, whereas that on the left rotates toward the back, although both spiral clockwise.

The low relief band at the back of the grinding surface consists of a truncated zig-zag pattern carved in three parallel raised lines, which defines a series of alternating triangular units. It is bordered on the inside by a thin engraved line.

The sides of the grinding plate are decorated with a continuous scroll pattern, which ends at the back of the plate in a checker-board design of triple raised lines. Neither the front nor the back edge are carved.

The avian-head pendants are sculpted in full figure and project 3 cm off the front end of the plate, positioned just in from the corners in line with the back supports. The heads, which are square on the top, narrow on the underside to elongated beaks, which extend in matching loops beneath the plate and reconnect along the edge almost as far back as the front of the single support. The stylized avians feature large bulbous eyes, which in combination with their long curved beaks allow for their identification as macaws-parrots. Similarly sculpted and positioned bird-head pendants appear on quite a number of triangular-slab metates (e.g. Hartman, Pl. XV, 1; Pl. XVI, 1) (fig. 1b).

The plate underside is carved in a low relief linear pattern of triple raised lines (fig. 27c). The design conforms to and fills the available space defined by the placement of the supports and the pendants. Like the undersides of all triangular-slab metates, the design space is not divided into an outer frame and an inner panel but is continuous. While the representation on the underside of the panel is difficult to interpret with absolute certainty, it seems likely that a conventionalized avian is portrayed. The lines describe a square form in front of the single support (the bird's head?) and then bifurcate to represent the wings and legs carved on each side of the support. The long tail feathers (characteristic of the macaw) are depicted

as the linear design re-knots just behind the support and then extends in a narrow path to the back edge of the plate, where the lines once more fan out to each side.

The triangular-slab supports are intricately carved in relief and openwork. The back pair are decorated identically. The front support appears to have been treated similarly, but that cannot be judged accurately because a substantial portion is broken off. The supports feature large openwork slits and smaller perforations in combination with curvilinear relief carving. Observed from almost any angle or perspective, a myriad of fantastic zoomorphic forms emerge: with the convoluted cluster of design elements, there seems always to be a pair of eyes, a mouth, a nose, snout, or beak waiting to be visually matched up.

The back faces of the paired supports are carved as standing human or simian figures (fig. 27d). To identify these forms, the metate must be placed with its grinding surface to the ground, the supports sticking up into the air. The anthropomorphic figures are sculpted in both relief and openwork carving. The arms and legs are separated from their background by small perforations, while the heads and facial features are simply etched in relief. The figures' arms are raised to the level of their heads in an atlantean pose.

2.) This triangular-slab metate was collected by Hartman at Las Guacas, although its exact archaeological context is

uncertain (Hartman 1907: Pl. XIX, 2, 3, 4). It is presently part of the collection of the Carnegie Museum--Catalogue no. 2438/1408. The piece is unusual in that it features a single bird-head figure at the front of the grinding plate, which, instead of projecting off the end, protrudes straight downward. The metate is somewhat larger than average, measuring 48 cm. in length, 24.5 cm. in width, and 13.5 cm. in height. The plate is 3 cm. thick, and again exhibits pronounced longitudinal curvature.

On the grinding surface the front end is carved in a field 12 cm. wide, which contains an incised plaited design (fig. 28a), very similar to variations of the woven mat represented in Maya visual imagery (Robicsek 1975: fig. 181) (fig. 29). The field is separated from the rest of the grinding surface by a thin engraved line. Like some other triangular-slab metates (e.g. Hartman 1907: Pl. XVI, 2), the back end of the upper surface is left uncarved.

The underside is also carved in a plaited mat pattern, concentrated between the paired supports, and extending from just behind the front leg to the back edge (fig. 28b). Single plaits shoot out from the weave into the rear corners and toward the front of the metate. The frontward extensions of the mat weave blend into an abstract linear design which covers the front third of the plate underside. It is carved in a single engraved line which emanates from both sides of the crudely carved avian head, perhaps as a

representation of the rest of the bird's form. The mat motif with similar single plait projections is found on a number of metates of this class (fig. 30).

Neither the sides of the plate nor the supports are decorated.

3.) This piece is attributed to Las Guacas and is part of the Velasco collection of the National Museum of Costa Rica (Hartman 1907: Pl. XVIII). The metate is a finely crafted example of the triangular-slab sub-class which are sculpted with large animal heads projecting off the front end of the grinding plate (fig. 31). From the tip of the animal's nose to the back edge of the plate, it measures 69 cm. long, whereas the plate itself measures 50 cm. in length, 28 cm. in width, and stands 22.5 cm. off the ground.

The field at the front of the upperside measures 11 cm. wide and is carved in a multiple raised line, geometric interlock pattern, from which the highly stylized profiles of an animal head emerge at both sides of the plate, facing outward. The (feline?) heads feature large squared jaws and mouths filled with interdigitating triangular teeth. They are depicted similarly, but the heads are clearly not identical: again symmetry is approached, but not produced.

Scroll designs stretch from one side to the other in the narrow band carved at the back end of the grinding

surface. The band is 4 cm. wide and is bordered on the inside by a thin engraved line.

The sides of the grinding plate are decorated in a continuous series of squared spirals, which open wider as they progress from the front toward the back of the metate (as the plate itself becomes perceptively thicker), until the spiral is transformed into a more linear element. While the spirals still hold their form, the centers are dotted, the design possibly representing the spots on the pelt of a jaguar-ocelot. Neither the front nor the back edge of the grinding plate are carved decoratively.

The figural sculpting of the jaguar head which projects off the front edge is extraordinary because it is worked in a most naturalistic fashion, in contrast to most other feline and canine heads attached to metates of this class, which in general are disproportionally large and exhibit individual features (eyes, ears, nose, etc.) which, in a naturalistic sense, are depicted out of proportion in relation to one another (e.g. Hartman 1907: Pl. XVII, 3; Pl. XVIII, 4). On this piece, the animal's ears, eyes, and nose are realistically carved in a manner respecting their natural proportions. Only the mouth is perhaps a little too large for the size of the head and other features. Typical of jaguar representations on this type metate, the mouth is carved with long, pointed teeth bared, as the lips are rolled back as if the animal were snarling. The gaps between

the gritted paired teeth are perforated, providing the only clue that the head is hollow.

A multiple raised line, figure eight design adorns the top of the feline's head, followed by dotted curvilinear designs on each side of the back of the head, and a geometric interlock pattern on the animal's neck. A row of triangular elements with a crude curvilinear weave carved beneath them decorate the sides of the neck. The elongated neck attaches to the grinding plate on the front edge and continues beneath the plate, abutting against the front support. Undoubtedly it was sculpted in this way to assure the structural strength and durability of the metate.

The plate underside is carved in a loose geometric interlock pattern, which may represent, in a highly conventionalized fashion, the torso, limbs, and feet of the jaguar. This is clearly the case on other examples (see below). It should be noted at this point that the supports of the metate do <u>not</u> represent the animal's legs (or any other anatomical appendage, such as the tail, etc.), as they very definitely do on the "jaguar-effigy" metates of the Central Highlands-Atlantic Watershed region of Costa Rica (fig. 32).

The three supports display a combination of relief and openwork carving, and like the previous piece and many others, the complexity of the design encourages the identification of a number of fantastic zoomorphic forms. Both

sides and both edges of the front support are decorated, whereas the insides of the back supports are left blank. The actual patterning of the relief carving differs on the front leg, where a spiral and dot motif similar to that on the sides of the plate predominates, from that on the back pair, which are covered with interlocking geometric designs. Unlike the first triangular-slab metate described, the back edges of the paired supports are not adorned with miniature atlantean figures.

4.) This triangular-slab metate is from the collection of the Museum of the American Indian, Heye Foundation, New York--Catalogue no. 23/7245, which, like so many Greater Nicoya carved metates presently in museum and private collections, lacks provenience more specific than Gunacaste, Costa Rica. For a metate of the large "effigy" head sub-class, it is on the small side, measuring 43 cm. from the tip of the animal's nose to the back edge of the grinding plate. The plate itself is 32 cm. long, 20 cm. wide, and stands 12 cm. off the ground (fig. 33a).

The low relief decoration on the grinding surface consists of a panel at the front end (7 cm. in breadth), which is filled with a simple interlocking weave, enframed by a thin raised line. The narrow band carved at the far end has been almost totally worn away. Like many of the metates examined in the course of this study, the central

portion of the grinding surface is covered with a hard, glossy sheen, a result of the 'welding' of plant mineral deposits to the surface through the pressure and friction generated by grinding action.

The characteristically curved grinding plate is 2.5 cm. thick at the front end but noticeably thinner toward its middle, apparently the result of differential wear. The sides of the plate are carved in a continuous band of step-frets, which fade away as they approach the front end.

The metate shows exceptional sculptural openwork. The hollow feline head is completely carved in delicate, lattice-like openwork, matched in style by that exhibited on the supports. A large number of similarly worked triangular-slab metates are known from collections (e.g. BCBS: no 77-78; Ferrero 1977: Illus. I-102, I-103, III-2, III-4); however, none have been recovered in controlled archaeological excavations.

The distinctive features on this feline head include its small ears, the tops of which are adorned with engraved zig-zags; the large, almond-shaped eyes; a rectangular, chevron-inscribed snout; and a powerful appearing, heavy, squared jaw. All of the features are highlighted by thick engraved lines. Like the previous piece, the mouth is locked shut and the lips are pulled back exposing two rows of sharply pointed teeth, gritted together in the midst of a growl (fig. 33b).

In the same fashion as the last metate described, the animal's neck attaches at the edge of the grinding plate, and from there continues beneath the plate where it joins to the front face of the single support (fig. 33c). The front and back supports are carved similarly, although again, while both lateral faces of the single leg are decorated, only the outside of the paired legs show relief carving. The supports are roughly triangular from the side, but in cross-section, instead of rectangular, they are wedge-shaped, the narrowed edge of the front support facing toward the back of the metate, whereas those of the back pair face the front. The rectangular openwork sections are outlined by raised lines, which partition the solid portion of the support as well. A series of triangular design elements run down the back of the lateral faces of each of the paired supports, and the front of the lateral faces of the single support. The front edge of the single support and the back edges of the paired supports are void of any carving.

The plate underside shows no decoration; nonetheless, it is carefully worked to a smooth, even finish. The lack of carving on the underside is not uncommon on triangular-slab metates with elaborately latticed effigy heads (e.g. Ferrero 1977: Illus. III-2).

5.) This most unusual Greater Nicoya metate is purported to have been found at Moyogalpa on Ometepe Island, Nicaragua,

and it is currently housed in the collection of the Museum of the American Indian, Heye Foundation, New York--Catalogue no. 21/3798. It is the sole known example found in Greater Nicoya of the tetrapod triangular-slab support sub-class (fig. 5). The only other metate morphologically similar detected in the course of this study is reported from Tenampua, Honduras (Popence 1936: fig. 4), its presence more than likely the result of trade (see below). From end to end the metate measures 46.5 cm. in length, while the grinding plate alone measures 36 cm. in length, 25 cm. in width, and 20.5 cm. in height.

Characteristic of triangular-slab metates, the carved fields on the grinding surface are of unequal size. The wider front panel is carved in a tight multiple raised line, interlocking geometric pattern, distinguished by its fine craftsmanship and its balanced regularity (fig. 34a). Two rows of dots placed at the intersections of the mat-like design, suggestive of a jaguar-ocelot pelt, further define the image. The field is separated from the rest of the grinding surface by a thin engraved line.

The narrow band at the far end consists of a row of multiple raised line, L-shape elements. The carving on both sides, the front, and the back edges of the grinding plate is identical. The alternating L-shape units run continuously around the plate, interrupted only by the space occupied by the projecting head.

The boxy effigy head distinguishes this piece from most other sculpted figural portrayals; however, this stylized treatment is not altogether unusual: similar forms appear on two other observed triangular-slab metates (both of the standard tripod type), one in the collection of the Museum of the American Indian, the other from the collection of the Costa Rican Instituto Nacional de Seguros (BCBS: no. 74). Typical of these renderings, the heads show cumbersome square jaws (that of this example unfortunately broken off) affixed to disproportionally small faces with simply depicted features which lack any ornamental embellishment.

On this piece the animal's teeth are characteristically bared, the large triangular canines interdigitated. The animal's ears are carved close to the head in curvilinear raised line figures, while pecked out dots cluster on the flattened sides of the head, undoubtedly representing the spots on the feline's skin. The top and the back of the head are adorned with sections of a curvilinear weave motif in between which more spots are arrayed.

The plate underside is carved in a stylized, flattened representation of the rest of the animal's body (fig. 34b), a convention detected on many triangular-slab pieces. The design is executed in a finely carved, multiple raised line pattern, which stands out against a well-finished background. The front and back legs emanate from the cross-shaped torso and extend to the borders of the plate, where just past the

supports they turn at a right angle toward the sides to portray the paws. The feline's tail is carved at the back of the plate between the hind limbs, represented by two fitted L-shape elements. The ubiquitous dots are arranged at the junctions of the design. Note that the same basic design elements are repeated in slightly different patterns on all the carved surfaces of the grinding plate.

The triangular-slab supports on each side of the metate are joined by a wedge-shaped sculptured bridge, which, like the supports is adorned with relief and openwork decoration. The carvings on the front and back pairs are similar, but again not identical, due in part to their differential length (the front supports are slightly longer than the back pair). The openwork consists of circular perforations and rectangular cut-outs on the supports, and a triangle bordered by rectangular forms on the connecting wedge. All of the openwork is outlined in multiple raised lines. Typically, the convoluted design suggests numerous zoomorphic forms. Standing anthropomorphic figures are carved in low reliefs on the front edges of the front supports and the back edges of the rear supports (fig. 35); they are discernible when the metate rests on its grinding surface with the supports upward pointing.

Naturalistic and conventionalized zoomorphic representations dominate the visual imagery on triangular-slab metate as was the case among metates of the cylindrical

support class. Jaguars are perhaps the most often depicted living form, followed by canines (coyotes?) and avians. The presence of jaguar figures on metates of this class corresponds chronologically with their first appearance on the polychrome ceramics of Greater Nicoya. None of the metates above described display canine forms, due to their absence on metates in collections that were examined at first hand for this study. Nonetheless, published illustrations reveal the canine-coyote as a dominant image on triangular-slab metates (e.g. Hartman 1907: Pl. XVIII, 4; BCBS: no. 77, 78; Ferrero 1977: Illus. III-3). Larger, upright ears and a slight upturning of the snout distinguish the canine-coyote from the feline-jaguar. The jaguars and coyotes are typically depicted with bared teeth featuring disproportionately large canines (e.g. fig. 36b). On one exceptionally stylized piece from the collection of the Museum of the American Indian, the teeth are the only feature carved (fig. 36a).

Avian forms appear not only as bird-head pendants, but also as large single head effigy figures. The specific avian types most often portrayed are the macaw-parrot (e.g. BCBS: Pl. 48; Ferrero Illus. I-77) and the harpy eagle--identified by its hooked beak and double crest (BCBS: no. 76; Ferrero 1977: Illus. I-34, III-5; Hartman 1907: Pl. XX, 1, 2?) (fig. 37a). Hartman (1907: Pl. XX, 3, 4) illustrates a piece with the head of what is apparently a toucan.

As mentioned in the previous chapter, crocodilian representations are rarely found on triangular-slab metates. In the course of this study only two pieces with carved crocodilian figures were detected, one in a private Costa Rican collection (BCBS: no. 73), the other from the collection of the Museum of the American Indian (fig. 37b; compare with fig. 14b).

The tiny anthropomorphic (simian?) figures which are often carved on the edges of the supports are the only representations suggestive of the human form on metates of this class. The figures bring to mind the so-called "trophy-heads" sculpted beneath the raise rims of many of the decorative tetrapod metates known from the Diquis region of Costa Rica and western Panama (see below).

Plaited mat representations occur with some frequency on metates of this class, carved both on the grinding surface and the plate underside. They normally appear on metates of the double bird-head pendant sub-class, but one is found on in association with a jaguar effigy head metate in the collection of the American Museum of Natural History. These plaited patterns are indistinguishable from many of the variations this motif takes in Maya visual imagery.

While the visual imagery of the two principal classes of metates is similar in content insofar as animal forms prevail, it is markedly different in style and composition. Stylistically, the chief difference lies in the predominance

of sinuous, curvilinear designs on the cylindrical support metates, versus the ubiquity of predominantly geometric design elements and patterns on triangular-slab metates. The difference is exemplified by the zoomorphic guilloche weave which recurs on cylindrical support metates, as opposed to the often rigidly geometric interlock patterns carved on the upper and undersides of many triangular-slab metates as zoomorphic representations. The squared heads and facial features of some of the animals depicted on the latter class, along with the rectangular in cross-section supports, add to the geometric impression in both style and morphology created by these metates. This is not to say that geometric forms do not appear on the former class, nor curvilinear forms on the latter.

In terms of composition, the differences between the two classes involve both those of presence/absence and degree. The most striking difference of the first kind is the absence on triangular-slab metates of the division of the plate underside design space into the clearly defined outer frame and inner panel, so prominent on cylindrical support metates. Another difference of this nature is the presence of carving on the thicker plate sides of triangular-slab pieces, versus the lack of such on the former class (with the exception of the grooving which occurs on some examples).

Differences in degree stand out as well. While ornamentation is found on the grinding surfaces of both

classes, in general more of the surface is occupied by decorative carving (and less is available for grinding) in an absolute and relative (to size) sense on metates of the triangular-slab class, a result primarily of the wide field at the front of the plate. A second difference involves the principle of longitudinal symmetry so noticeable in its precision on many cylindrical support metates. A sense of symmetry is preserved in the design composition on triangular-slab metates, but as noted above, symmetry is only approximated, as precision in compositional balance was apparently no longer of great concern. Still, in strictly morphological terms, the triangular-slab metate itself is as perfectly symmetrical in relation to the longitudinal axis as are their forerunners.

The carving methods employed in producing triangular-slab metates are obviously the more complex. On these pieces low relief carving is regularly combined with full figure sculpture and frequently with elaborate openwork. The technical skills required of this work, while they do not necessarily evidence more profound artistic talent, do indicate a greater knowledge of sculptural technique. But with this technical elaboration comes a certain loss of compositional integrity and the sense of the object as a metate. On cylindrical support forms, the grinding plate, principally the underside, receives the greatest attention. The supports, when decoratively carved, are clear extensions or reformulations

of the central representation. In contrast, the carving of triangular-slab metates does not exhibit this degree of interrelationship, nor is it focused on the grinding plate. The upper and underside surfaces of the grinding plate are often adorned and their imagery interrelated, but the ornately sculpted heads and the intricately carved supports distract from the plate itself. True, the carving on the plate underside is often a conventionalized depiction of the body of the animal represented by the projecting head, and thus an interrelationship exists, but the supports, with their emergent zoomorphic forms and the upright anthromorphic figures seem to have an existence all their own.

CHAPTER 5

INTERPRETATION OF THE PREDOMINANT ICONOGRAPHIC THEMES PORTRAYED

This chapter seeks to provide an interpretation of the predominant iconographic themes depicted on the carved metates of Greater Nicoya. Iconography is here defined as the "attempt to extract specific meanings from . . . pictorial and sculptural representations, over and above purely formal esthetic-stylistic analyses" (Nicholson 1976:159). In this particular case, the task is undertaken against a very limited background, in light of the paucity of systematic studies of the figures and motifs depicted on the richly endowed ceramics and stonework of Greater Nicoya. The iconographic study of Costa Rican visual imagery has received little attention since Lothrop's pioneering work (1926), which focused on painted and modeled ceramic representations, while making only passing reference to stone sculpture. Recently, Mark Graham (1981) offered a brief iconographic interpretation of the predominant figural representations carved on Greater Nicoyan stonework, and presently, Jane Day is preparing a doctoral dissertation centered on an iconographic analysis of imagery found on Greater Nicoya polychromes (a study to which this paper did not have access).

Undoubtedly, a rich and complex mythological symbolism is portrayed on the ceramics and stone sculpture of Greater

Nicoya. Still far from clear, it will sadly always resist the kind of finer-tuned interpretation potentially feasible for other parts of Middle America and South America, where local references for iconographic analysis exist. For Greater Nicoya, there is no text-associated visual imagery like that found on Classic Maya monuments and in some Postclassic codices; nor have any native cultures survived to provide post-Conquest ethnographic insight into ancient ideology and symbolism, as the indigenous population of Greater Nicoya vanished--physically, not to mention culturally--shortly after Spanish contact. While the anthropological potential of ethnohistoric materials relating to the conquest and colonization of the Greater Nicoya area has recently been reaffirmed (Abel-Vidor 1980b), to date little has surfaced to aid in the interpretation of Precolumbian symbolism and cosmology (but see Lothrop 1926 for an account).

For these reasons it is necessary to look beyond the geographic frontiers of Greater Nicoya for assistance in the iconographic interpretation of native visual imagery (as did Lothrop 1926; Stone 1977; and Ferrero 1977, intersperse their synthesis of Costa Rican achaeology with suggestions of symbolic-ideational analogues from external sources). To the south a wealth of ethnographic data has been gathered on eastern Panamanian (primarily Cuna Indian) and northern South American cultures, many of which had not been profoundly culturally altered by transculturative interaction at the time fieldwork was carried out. Much of the data are rich in mythological-

ideational-symbolic material. To the north, Mayan and Mexican inscriptions and codices, Spanish ethnohistoric commentaries, and ethnographic accounts provide a sound foundation for iconographic analysis. Fortunately, and particularly of late, the interpretation of iconographic themes depicted in Middle American visual imagery, utilizing all of these sources, has received a good deal of attention. Thus the present study has a range of up-to-date analyses from which to draw.

The attempt to assign accurate meaning--functional as well as ideational--to ancient remains by analogy with ethnohistorical and ethnographic data is variously labeled "upstreaming" (Fenton 1952), "the direct historical approach" (Steward 1942), and more widely "ethnographic analogy." In brief, this analytic method "involves the elementary logic of working from the known to the unknown" (Steward 1942:337), or as Nicholson (1976:159) elaborates, "from the living to the dead: utilizing knowledge of the cultures flourishing in the area at the time of European Contact to interpret the archaeological finds in that same area."

This approach necessarily assumes a substantial degree of cultural-ideational continuity through time. It is felt that this assumption is valid for at least the most basic cosmological-ideational precepts for Mesoamerica and the Intermediate Area (and neighboring regions of tropical northern South America), from the Formative period onward. Given Greater Nicoya's frontier position vis-a-vis both areas, and evidence indicating its marginal participation within both

spheres throughout its prehistory, it seems valid to employ archaeological, ethnohistorical, and ethnographic sources from both areas to at least set the parameters for the interpretation of the fundamental cultural-ideational-ritual concepts symbolized by Greater Nicoya visual imagery.

The assumption of Mesoamerican cultural continuity over the two to three thousand year span from the Formative to Late Postclassic has been widely accepted and made use of by Americanists, particularly those who have undertaken iconographic studies. However, it has been disputed. Prominent in this regard is the art historian, George Kubler, who has pointed out that care should be taken in "assuming that similar forms in different periods and places of Mesoamerica must carry similar meanings" (Kubler 1967:11). Kubler, recalling the work of the European art historian, Erwin Panofsky (1944, 1960), suggests that "we must beware of disjunctive situations where form and meaning separate and rejoin in different combinations" (ibid.:11). Moreover,

> Continuous form does not predicate continuous meaning, nor does continuity of form or of meaning necessarily imply continuity of culture. On the contrary prolonged continuities of form and meaning on the order of a thousand years, may mask or conceal a cultural discontinuity deeper than that between classical antiquity and the middle ages. This warning holds best under conditions where literary sources are unavailable, as in the study of the older stages of the native civilizations of ancient America. Thus we may not use Aztec ritual descriptions as compiled by Sahagún about 1550 to explain murals painted at Teotihuacán a thousand years earlier, for the same reason that we would not easily get agreement in interpreting the Hellenistic images of Palmyra by using Arabic texts on Islamic ritual. The idea of disjunction not only makes every ethnological analogy questionable, by insisting upon discontinuity

> rather than its opposite wherever long durations are under discussion, but it also provides a serviceable explanation for the most complex mechanisms of cultural change. (Kubler 1970:143-144)

H.B. Nicholson argues against this position. He points out that Panofsky applied his "disjunctive principle" to Western Europe and the particular historical development which witnessed the revitalization of Classical form and imagery imbued with a radically different, Late Medieval Christian, meaning. Nicholson posits that Kubler's application of this principle to Mesoamerican cultural development is inappropriate, given the specific historical model it is based on. He offers the following, and, it is felt, convincing rebuttal:

> In short, in [Panofsky's] view the Classical-Late Medieval form-meaning disjunction was caused, above all, by the comparatively sharp break between two successive religious ideological systems, Classical paganism and Christianity. When Classical images were employed during the Late Middle Ages they perforce had to be divested of their pagan connotations and reinvested with a "correct" interpretatio Christiana. Obviously, only a very special set of historical circumstances could have led to such a result. In Mesomerica there is certainly no evidence for any comparable historical development. No Mexican viewing a Teotihuacán cultic image could have exhibited the same attitude of ambivalence and trepidation that a twelfth-century European might well have felt on beholding the statue of a pagan deity. Archaeological data evidence some significant changes in religious-ritual systems over time but hardly any replacement as drastic as that of Classical paganism by Christianity. Violent political shifts must not have been infrequent--and were probably accompanied by rituals favored by and in certain cases actually imposed by politically successful groups--but there do not seem to have been any sweeping supersedures of whole religious ideological systems comparable to those that followed the rise of Judaeo-Christianity and Islam. All that is known about indigenous Mesoamerican religious-ritual systems would point precisely to the contrary. Far from being militantly exclusivist they seem to have been characteristically rather eclectic,

> generally tolerant of other systems, and receptive to the incorporation of compatible foreign religious concepts and rituals. Under these conditions changes in the religious sphere of the culture normally tend to be more gradual and, especially accretive, frequently exhibiting a tenacious conservatism in the retention of fundamental concepts. (Nicholson 1976:161-162)

The following iconographic interpretation of the preeminent representations on the carved metates of Greater Nicoya will rest on the assumption of temporal and spatial continuity in the meaning of certain manifestly central animal figures and motifs, which occur on objects and in the myths and ritual practices of Middle American and northern tropical South America. This paper then agrees with those Americanists who see clear similarities in visual representations and motifs as indicating that at least a core of interrelated basic concepts was widely shared by most Middle American and tropical northern South American groups, and that as Nicholson states for Mesoamerica,

> once the fundamental structure of the overall Mesoamerican religious system had crystallized, probably no later than the end of the Preclassic, it steadily evolved without major breaks or broad scale "disjunctions" until Cortes. (Nicholson 1976:163)

Considering the marked divergence in the figural representations and motifs between the two classes of carved metates, this discussion will treat the iconography of each class separately, starting with the sequentially antecedent cylindrical support metates. Before proceeding with the analysis, it should be emphasized that the following presentation concentrates on what are felt to be the major, transcendent iconographic themes. While lesser ones will be

mentioned, this discussion does not pretend to cover in detail the whole range of representations and motifs.

Many anthropologists, including Levi-Strauss (1969, 1973), Reichel-Dolmatoff (1971, 1975), Furst (1968), Thompson (1970), and Helms (1977, 1979), have noted that in the native ideological systems of the Americas, animals often fulfill the role of culture heroes, acting as the mediating agents between human society and other-than-human forces to ensure the smooth functioning of the universe. In myth the presence of these "animal actors" is felt most strongly at times of crisis, when the dynamic balance between human society and the rest of the universe is disrupted and in need of restoration to ensure the survival of the former (Helms 1977:54-55).

5.1 The Iconography of Carved Cylindrical Support Metates

The ubiquity of crocodilian representations on carved cyclindrical support metates, and its frequent appearance on stone pendants, mace heads, and ceramics, clearly establishes this creature as a major animal actor in the cosmological system of ancient Greater Nicoya. The question to be addressed, then, is what role did the crocodilian play within this system, or put another way, what concept(s) or life forces did the animal symbolize? The visual imagery of ancient Middle America and the mythology of tropical northern South America abound with references to crocodilian and crocodilian-like figures. Although much iconographic research has focused on

the jaguar and asserted its role as the principle animal actor, more recent analysis has emphasized the frequent and widespread occurrence of crocodilian representations, especially in Formative period visual imagery, and the potential importance of the crocodilian's role-meaning (Lathrap 1971; Muse and Stocker 1974; Joralemon 1976; Puleston 1976). This has led some investigators to suggest that "the crocodilian may well have been a more central cosmological figure" than the jaguar, at least during the Formative, for many Middle and South American peoples (Stocker, et al. 1980:740). It is not essential to this study, or even possible, to measure the degree of importance of cosmological figures within a native ideological system; it is enough to realize, as Helms (1977: 56) states, that "saurians and crocodilians [are] actors of major significance."

Thompson (1939:152-161, 1970:209-233) was perhaps the first Americanist to write extensively on the cosmological role-meaning of crocodilians and other saurian forms--often referred to as "earth monsters"--in ancient Maya and Mexican thought. He compiled ethnohistoric, epigraphic and archaeological evidence indicating that to Mesoamerican peoples the crocodilian earth creature was conceived of as responsible for and symbolic of agricultural fertility. He demonstrated that both the Maya and the Mexicans believed that "the surface of the earth is an isolated crocodile floating in a huge pond" (Thompson 1970:219), and that from its back grew all

fruitful vegetation. Puleston (1977) takes Thompson's conclusion an interpretive step further and suggests that the back of the crocodilian, sectioned as it is into epidermal scales, served as a metaphoric image for cultivated fields throughout much of Mesoamerica.

According to Thompson, Itzamna, a being of saurian origin, was the central, all-embracing cosmological figure for the Yucatec Maya. He writes,

> Itzam Na means "Iguana House." Itzam is defined in the Vienna dictionary as "largatos like iguanas of land and water." Largato can mean anything from lizard to crocodile, but lizard is usually lagartija. (Thompson 1970:212)

Furthermore,

> As to the na part of Itzam Na's name, I believe it is to be interpreted in the ordinary sense of "house." I surmise . . . that the Maya conceived the world to be set within a house, the roofs and walls of which were formed by four giant iguanas, upright but with their heads downward, each with its own direction and color . . . the Itzam who form the na of the world appear to continue their courses to form the floor of the house, which normally is the surface of the earth, and are then called Itzam Cab or Itzam Cab Ain, "Iguana Earth" or "Iguana Earth Crocodile." (Ibid.:214-215)

But Itzamna symbolized more than just the earth's surface, for as an all-embracing cosmological actor, he simultaneously incorporated several interrelated aspects or roles. Among these were Itzamna or Itzam Tzab of the celestial realm and rain, Itzamna Kauil of the abundant crop, and Itzam Cab or Itzam Cab Ain of the earth and underworld. Thompson continues:

> Whereas the Itzam in their celestial aspect are senders of rain to earth, in their terrestrial aspect they are

> the soil in which all vegetation has its being, and now they receive the rain which formerly they dispensed from on high. (Ibid.:216)

And the third aspect, Itzam Kauil, "Iguana House Bountiful Harvest,"

> could refer to both aspects for both the rain of the celestial and the soil of the terrestrial iguana god are essential for a good harvest. (Ibid.:216)

Itzamna then had both earth and celestial aspects, the former incorporating underworld aspects, and his portrayal in Classic period Maya art often involves a blending of motifs symbolizing the various aspects. As an example of the admixture, Thompson refers to the imagery on the Panel of the Foliated Cross and the Panel of the Cross at Palnque. On both, the tree or cross rises from the head of the earth monster. On the former, the head is adorned with bil growth affixes (Thompson 1962: no. 130), symbols of vegetation (maize), while the saurian body is decorated with celestial motifs. The earth monster head depicted on the latter panel is adorned with symbols of death and the underworld, such as a fleshless jaw, as well as vegetal motifs (ibid.:218-219, figs. 2, 3).

Maya visual representations of the earth crocodilian monster revolve around a core of crocodilian-like attributes (prominent among them the long snout and characteristic scutes and scales), combined with lizard, serpent, fish, terrestrial mammal, and a wide range of fantastic zoomorphic elements (Thompson 1970: figs. 4, 5; Joralemon 1976: fig. 25, e). Occasionally, one was executed in a very naturalistic style,

such as the crocodilian figure draped over Altar T at Copan (Puleston 1977: fig. 4) and the pottery vessel from Santa Rita, Belize (Thompson 1970: fig. 5, e) (but note the human hands for paws on the former, and the deer antlers on top of the head of the latter). The more conventionalized portrayals of the earth monster are of a creature with an elongated saurian torso to which a head is attached at each end (Thompson 1970: fig. 5, d, f). These figures are often depicted with one or more of the following attributes: fleshless jawbones, which symbolize death and the underworld; the absence of the lower jaw; sharp upturning of the snout; representations of maize growing out of the head; and attachments of water symbols to the body (ibid.:220-222).

Thompson, Puleston, and others firmly believe that the crocodilian form explicitly symbolizes the earth's surface, and with it vegetation, fertility, and abundance. But its metaphoric cosmological significance does not end there: as the earth monster, the crocodilian is often associated with symbols of death and the underworld, and in its celestial aspect the crocodilian signifies the rain necessary for the growth of all living things. Considering all of its intertwined aspects, Itzamna was a major animal actor in Maya cosmology, whose aid was undoubtedly sought to ensure a productive life--one which so clearly hinged on agricultural success--and a smooth transition from life to death. He was

> the creator to whom all men owed their very existence; mankind--in fact, all creation--depended on his caprice

> as giver of the two essential requisites of life: rain at the right time and fertile soils . . . He gave life, but he could take it away and then, if he so willed, restore it again, even to the dead. (Thompson 1970: 232-233)

The concept of a crocodilian as the fertile surface of the world was not limited to the Maya. The Postclassic peoples of Highland Mexico express this metaphor as well. Visual representations are found in the Codex Borgia (1963: 24, 27), which is thought to come from southeastern Puebla (Chadwick and MacNeish 1967). On page 24 a crocodilian figure is portrayed in a diving position with its tail blossoming in vegetation, and on page 27, a large crocodilian is depicted with a row of maize plants growing on its back, its snout markedly upturned, a vegetal motif sprouting from its very end. Stocker, et al. (1980:744) remark that the Aztec figure Cipactli is "a crocodilian that grants corn to men in return for the proper blood-water sacrifices." Cipactli is the first of the twenty named days of the Mexican 260-day cycle, and Duran (1971:399) writes that children born under Ce Cipactli will become especially successful cultivators.

There are indications that the Mesoamerican metamorphic connection between the crocodilian and vegetal fertility extends well back into the Formative era. On Stella 25 at Izapa (Norman 1973: Pl. 42), a crocodilian is carved in association with the "tree of life." The animal is depicted suspended upside down, its upturned snout touching the base of the tree, its tail transformed into a freshly bloomed

climbing plant with broad leaves. A bird with a vegetal blossom on its head sits atop the highest "branch" of the tail.

Joralemon (1976:61) suggests that the multi-faceted creature he has defined and named the "Olmec Dragon" (also referred to as "God 1") may belong to "the same mythological family" as Itzamna. Olmec Dragon representations boast crocodilian, eagle, human, and serpent attributes, and its primary associations are with earth, water, and agricultural fertility (Joralemon 1976:37). Lathrap (1971) has argued that the crocodilian attributes are predominant, and that the Olmec Dragon is actually a crocodilian "deity"; however, Joralemon (1976:37) perceives the creature as a "polymorphic being" and avoids a specific zoological designation. Clearly many of the Olmec representations which Joralemon illustrates are of a crocodilian figure, or at least one whose attributes are primarily crocodilian (ibid.: figs. 4, a; 5, e; 7, a, b, r).

To the south of Mesoamerica, crocodilians as major animal actors associated with agricultural fertility and life-death transitions appear in the Precolumbian visual imagery of Panama and northern South America, and in the myths of surviving ethnographic groups from the same areas. As in Mesoamerica, the evidence suggests that the crocodilian has long held this metaphoric value.

Lathrap (1973, 1974) proposes that the crocodilian figured prominently in the cosmological systems of ancient

northern South American groups (lowland and highland) as the original donor or "bearer" of useful cultivated plants. His principal piece of evidence is the Peruvian Obelisk Tello from Chavín de Huantar (see Tello 1961: fig. 31; Rowe 1967: fig. 6), which is carved on both sides as a giant crocodilian from whose body sprouts a number of tropical lowland food plants, including the bottle gourd, peanuts, achira, and manioc. Based on Rowe's chronology of Chavín art (1962), Lathrap dates the monumental sculpture between 1000-800 B.C.

As discussed at some length in the previous chapter, crococilian figures abound on the ceramics and goldwork of ancient Panama. Helms (1977), in an elaborate, thoroughly conceived, and very complex analysis of the role of iguanas and crocodilians in ancient Panamanian belief systems, concludes that "crocodilians in native Panamanian cosmology have traditionally been associated with water and with female and earthly fertility and procreation" (ibid.:121). Helm's study involves an interpretation of crocodilian and iguana representations on the ceramics and goldwork based on an analysis of myths and chants of the San Blas Cuna Indians of eastern Panama. To place the Cuna mythemes in a wider context, she also examines the myths and cosmologies of other Central American and northern South American native groups.

Like the crocodilian-iguana in Maya cosmology, this creature in Cuna and South American cosmology is associated with more than just agricultural fertility. Helms eloquently

summarizes the multi-faceted role of the animal as follows:

> A general overview of some of the mediating and metaphorical roles accorded various crocodilians and saurians in tropical American myths and tales can be found in the diverse myths from northern and central South America assembled by Levi-Strauss in the first two volumes of the Mythologiques (1969; 1973). Broadly speaking, caimans or crocodiles and iguanas and other lizards are closely associated with at least three of the most basic themes in tropical American native cosmologies. First, their mythological activities emphasize the need for effective communication or mediation between segments of the universe. Second, they symbolize aspects of the mystical "creative energy" or "life force" which is thought to imbue the cosmos and which must be controlled and properly expressed or channeled in order to be beneficial to man. Third, they are associated with aspects of the nature-culture dichotomy familiar to us through Levi-Strauss's work. (Helms 1977:56-57)

Referring back to the passage just quoted, Helms states,

> Within the context of these broad cosmological themes we also find these reptiles associated with knowledge, strength, and power, and with the maintenance of proper social behavior. (ibid.)

She points out that the crocodilian in particular is metaphorically connected to esoteric knowledge and shamanistic prowess. For instance, among the Cuna, crocodilians are addressed in curing chants sung by shamans (ibid.:85), and they are thought to provide transport for shamans on their "flights" to otherworldly locales, where they can communicate with and combat the other-than-worldly forces responsible for their client's condition (ibid.:88).

Before turning to a discussion of the iconographic themes just examined and what insight they might provide into the function and meaning of cylindrical support metates, it is necessary to refer back to the scene depicted on the metate

from the University Museum earlier described (no. 1). Recall that the crocodilian carved on the plate underside is apparently being held captive by a frog-like creature which sits perched on its shoulders, while the encircling earth crocodilian creatures appear to threaten imminent harm. What does this interaction signify? Is the crocodilian endangered? Does the scene portray some kind of power struggle or its resolution?

Olga Linares (1977), in a study of the visual imagery of central Panamanian Coclé polychrome ceramics, postulates that the overriding iconographic theme expressed is social and political aggression. Based on some archaeological evidence, rich Contact period ethnohistoric descriptions, and analogy with northern South American tropical tribes, she posits that ancient Coclé was a rank-society with tribal groups organized under leaders whose status was achieved and maintained in competitive displays with rival members of the group. Aggressive, hostile behavior was a necessary condition of survival both within the group, as well as being the governing principle in relations between groups.

In her opinion the animal-dominated Coclé visual imagery reflects this state of affairs and extols the value of competitive aggression and hostility (Linares 1977:9): the portrayal of animal figures was either limited to those potentially dangerous, noxious, or injurious to humans (and the rest of the animal world), such as stingrays, hammerhead

sharks, crabs, and animals with crocodilian features, or other potentially less dangerous animals (birds, dogs, turtles, deer) represented with exaggeratedly threatening beaks, teeth, claws, and so on. She concludes that

> the animal-centered art of the central provinces was a kind of symbolic projection, or at least reflection, of values that glorified the qualities and attributes of aggressive individuals. (Ibid.:77)

Is it valid to read hostility into the scene carved on the underside of the University Museum piece? And if so, is this a reflection of a rank-society dominated by aggressive social and political infighting? The first question cannot be answered definitely. The earth crocodilian creatures on the underside of the piece surely seem threatening (certainly more so than the same motifs on other metates of this class), but the frog figure, although it occupies a position which intimates control, appears somehow benign. The second question must be answered in the negative. With the possible exception of this piece, none of the cylindrical support metates examined exhibit imagery outwardly expressive of overt aggression or hostility. There are few--if any--suggestions of antagonism in the manner in which the animal figures are depicted: the crocodilian figures are usually represented without teeth or claws; the avians are portrayed with normal size beaks and claws, and so on.

5.2 Discussion

The foregoing iconographic review suggests that the crocodilian was an animal actor of major importance in the

cosmological systems of the inhabitants of Mesoamerica, Lower Central America, and tropical northern South America. No one would claim that each of the diverse cultural groups of this immense region assigned the creature the exact same, locally elaborated, metaphoric role or symbolic meaning; however, it is apparent that on a higher, pan-regional level, the crocodilian's cosmological role-meaning was homologous. As a central symbol of multiple interrelated meanings, the animal represented (and continues to represent in certain ethnographic contexts) forces or energies which contribute to and assure vegetal (agricultural) fertility, life-death transitions, and at least in Lower Central America and northern South America, esoteric knowledge.

In light of this iconographic interpretation, the ubiquity of crocodilian imagery on cylindrical support metates affirms that these objects were in essence (ritual) implements for and symbols of transformative processes. The crocodilian imagery, metaphorically linked to the earth's surface, vegetal (agricultural) fertility, and creative "life forces" throughout Middle and South America, strengthens the argument that these objects were designed as and ceremonially used for food processing implements (i.e. metates). An additional piece of evidence suggesting the crocodilian's metaphoric role in food preparation is the existence of Greater Nicoya ceramic representations of crocodilian figures grasping and apparently grinding with manos (Lothrop 1926: fig. 142; Stocker, et al.

1980: fig. 3) (fig. 38). The carved visual imagery then avouches inference drawn from archaeological sources (i.e. the frequent association of manos and appreciable grinding plate wear) and the object's metate-like morphology.

Considering their inclusion in burials, it is clear that carved cylindrical support metates were not limited in their function and meaning to the world of the living. On top of that, iconographic interpretation links the crocodilian to death and the underworld in ancient Maya thought, and mythology assigns it a role as a mediator and communicator between different realms of the universe in tropical South American cosmology. Therefore, both behavioral context (mortuary) and visual imagery merge and reinforce one another and imbue the carved metates with a further function and meaning as symbols of transformation. Not only do they symbolize the transformative processes involved in food preparation, but they were also representative of the transition of the individual from life to death. Food preparation was conceived on some level as homologous with transformations in the human life-cycle, with the ceremonial metate a metaphor for both (Graham 1981:123). The iconography and the funerary context of these metate-shaped objects indicate a Levi-Straussian structural relationship in Greater Nicoya thought between potentially edible substances (Nature) and processed foodstuffs (Culture) on the one hand, and social life (Culture) and death (Nature?) on the other.

Let us now turn to an analysis of the visual imagery portrayed on triangular-slab support metates, and its meaning in relation to the morphology and archaeology of those objects. At the conclusion of that discussion, problems related to both classes of metates, such as when they were used, by whom, and with whom they were buried, will be addressed.

5.3 The Iconography of Triangular-Slab Metates

The chief iconographic figures sculpted on triangular-slab support metates are the feline (jaguar), canine (coyote), and various avians (predominant among them the macaw and harpy eagle), and the mat motif. With the exception of the macaw, all of these have received ample attention from investigators seeking to interpret Precolumbian visual imagery and ethnographically documented myths and rituals of Middle American and South American groups. The following discussion of the role and meaning of these animal actors will be able to incorporate only a fraction of the voluminous literature published on these subjects.

One of the most significant and widely recognized animal actors in both areas is the jaguar. In both Mesoamerica and northern South America, the jaguar is closely associated with shamanism and esoteric knowledge, leadership and authority, death and the underworld, and perhaps to a lesser degree, agricultural fertility. Jaguar symbolism identified with these concepts is well documented in Mesoamerica from

the Formative period Olmec to the Highland Maya of the ethnographic present (Furst 1968; Coe 1972).

The origin myth of the Maya Quiche of Highland Guatemala, presented in the Fourth Creation of the Popol Vuh, relates that of the four original men, three were named or titled "Jaguar" (Balam): Balam Kitze (Jaguar Quiche), Balam Aqab (Jaguar Night), and Iq'i Balam (Wind Jaguar) (Edmonson 1971:148). On the meaning of this appelation, Edmonson expounds:

> Balam "jaguar" is rich in connotations in Quiche. The Central American jaguar (Felis vel Panthera onza) is of course a large and dangerous animal. It is also a day name. It connotes magical power and is one of the words for "witch." It appears to be used in the Popol Vuh as an epithet, almost a title, and can be interpreted as something like "mighty." (Edmonson 1971:148, note to line 4825)

In Yucatec Maya as well, balam translates as "jaguar," but it can also mean priest (Roys 1967:111, note 3).

Thompson identifies the jaguar as both a symbol of authority and the underworld-night-death in Maya ideology. He combines epigraphic and ethnographic data to support the latter metaphoric connection:

> The Lacandon have a belief that the god of the underworld, Cisin, has a number of jaguars under his control, and eventually they will end the world by eating the sun. That the jaguar symbolized night and the underworld for the Maya is, I think obvious from the fact that the burden of the lord of the night in the full-figure glyphs of Capan D is a roll of jaguar skin. (Thompson 1971:74)

In another passage, Thompson (ibid.:134) relates that for the Maya, the jaguar was no ordinary resident of the underworld,

but that "the jaguar is the god of the underworld, and appears to be merged with the night sun." He becomes then like Itzamna, "yet another case of duality, for he reigns in the sky and on or under the earth" (Thompson 1970:293). Thompson (1971:82) suggests that the jaguar was linked with the underworld and death in Mexican thought as well.

Hunt emphasizes the jaguar's ancient connection with esoteric knowledge and the continuity of this metaphor into the ethnographic present:

> The jaguar was sometimes associated with the gods of the underworld, and with witches, sorcerers or priests (metaphysically jaguars = carnivores = soul eaters = witches or knowers of dark mysteries = priests). The symbolishm is still extant in many Mesoamerican communities . . . The jaguar is also, in the auditory code, the voice of thunder and the voice of the earth deities. (Hunt 1977:80-81)

Among the modern day descendents of the ancient Maya, the jaguar figures prominently in the pan-Mesoamerican ideational complex known as nagualismo, which Gossen (1975: 448) defines as an ancient belief, which

> involves the association of an individual . . . with an animal soul companion which roams in a quasi-natural habitat and shares for a life-time the sickness and health, good and bad fortune, of its human counterpart. In many Meso-American Indian societies, the concept is specifically associated with the behavior of witches. In others, such as Chamula, animal soul companions affect the destiny of all people in the community.

Imbedded in the Mesoamerican concept of the nagual is the belief that certain individuals are able to transform themselves into the form of their animal companion, and then back again into their human form (Foster 1944:87).

In Chiapas, Mexico, the Tzotzil Maya of Chamula believe that the animal companions (čanul) are ranked in several levels and that "the most powerful shamans and political and religious leaders typically have the jaguar soul companion" (Gossen 1975:452). Prominent but less powerful individuals take the coyote, ocelot, and fox as their čanul. One of Gossen's Chamula informants, in speaking of his grandfather, a shaman, stated, "since he was a strong shaman, he was a jaguar; average shamans were coyotes and foxes" (Gossen 1974:273).

The neighboring Tzotzil Maya of Larraínzar, Chiapas, hold similar beliefs regarding the jaguar. In this community, the most highly regarded čanul is the jaguar, followed by the ocelot, puma, and coyote, all of whom dwell atop several of the higher mountains in the surrounding area. Holland (1964: 304) writes,

> The companion animals, or naguals, of the most powerful principlaes in Larrainzar [the elders and shamans] occupy the most important seats in the . . . sacred mountain. The companion animal of the principal of principlaes, a giant jaguar, has the most imposing position from which he consults directly with the ancestor gods.

It is clear from the above references that the Tzotzil Maya (and other Highland Maya groups by extension) conceive the coyote, a canine, as like the jaguar and other large felines, in that it too is associated with shamans and other individuals with inherent power. The coyote is also paired with the jaguar in Precolumbian visual imagery. For example, in the murals at Teotihuacán, the two animals are depicted in at least one instance as alternating forms. Kubler translates

this relationship:

> Cats and dogs do not usually walk together, but at Atetelco jaguars and coyotes appear in peaceful procession inside a border where a coyote body intertwines with a netted jaguar, suggesting the interchangeable and complementary character of the two ideas. (Kubler 1972:33, fig. 19)

Moreover, the relationship is apparently unique, "for the jaguar-serpent-bird associates with no other land animal at Teotihuacán unless it is with humans" (ibid.:35).

In ancient Maya and Mexican thought, canines were metaphorically linked with the underworld. According to Thompson, their role was one of "conducting the dead to their last resting place in the nether regions" (1971:74). Hunt (1977: 80) characterizes the dog as "a messenger of the god of death and the guardian, like the Greek Cerberus, of the underworld entrance." Intertwined in ancient Mesoamerican cosmology, the canine and jaguar are "intimately associated with the underworld, the former because he led the sun and the dead to the underworld; the latter because the jaguar god is a denizen of the underworld" (Thompson 1971:173).

Throughout the repertoire of Classic and Postclassic Maya visual imagery, the mat motif is presented in clear association with representations of authority and special power. Robicsek (1975) illustrates an unending series of examples of this relationship found on Maya monuments, murals, ceramics, and in codices. Epigraphic and linguistic data, metaphorically link the "mat" to concepts of authority, the jaguar, and perhaps to a lesser degree, esoteric knowledge. Loundsbury (1973:130) expounds:

> The title Ahpop . . . literally [reads] "He of the mat," i.e., the one who occupies the symbolic mat (póp, pōp, or pohp, depending on language) which was placed on the dais (tz'am) where rulers sat and councils convened. It was quite clearly an internationally known and used title among the Maya nations.

Thompson elaborates on the symbolic connections involved:

> The glyph for [the month Pop] is a plaited pattern with the kan cross, a water symbol, as an infix. Pop means straw mat in almost all Maya languages, and therefore is in agreement with the sign, for the plaited symbol suggests the mat pattern. The kan cross probably reinforces the idea that the mat was reed. Pop, however, has a secondary meaning of chief in some Maya languages or dialects because the mat was the symbol of authority, and this mat of authority is sometimes called the jaguar mat (Roys 1933:66, 74); it was probably only a mat in name, being in actual practice a throne with a jaguar skin over it or a seat carved as a jaguar, of which there are many representations in Maya art . . . The extension of Pop to mean chief is natural. In the Pokomchi dictionary of Cachoh occur Ah Pop, "chief," and Im pop im, "I am chief." The jaguar, too, was a symbol of authority. Thus "jaguar mat" is a reinforced term for authority. Accordingly the first 20-day period of the Maya year was the symbol of chieftanship as shown by its Yucatecan name. Its patron the jaguar god, the jaguar, too, connoting authority. (Thompson 1971:107)

A further epigraphic connection between the mat motif and the jaguar is demonstrated by the fact that the head variant of the "pop" glyph is a jaguar head with an exposed canine (ibid.: fig. 22:1-7). The same association is explicit on many carved monuments, painted ceramics, and in the codices, where, as Thompson noted, the seats of individuals of obvious special status are covered with jaguar pelts, and in some cases actually shaped in the form of the animal (Robicsek 1975: figs. 78-89). Finally, linguistic evidence, which supports the metaphoric connection of mat and jaguar, suggests

that the relationship extends to include an association with shamanism:

> There are several data indicating both direct and indirect relationship between . . . pop, the mat, and balam, the jaguar. In Quiche balam and pop are sometimes used alternatively, balam as "mat" and pop as "jaguar." In Cakchiquel, the word ahitz may mean either "sorcerer," "matmaker," or "jaguar." (Robicsek 1975:111)

Ethnographic reports document the continuity of the mat as a symbol of special status and power. Among the Highland Maya reed mats are an integral component of many ritual events involving the "seating" of the wooden images of patron and other local saints. For example, in Chichicastenango during the ritual festivities held in honor of the saints of each of the community's cofradias, the room in which it is held "is swept clean and the floor is strewn with fresh pine needles . . . A new mat is spread upon the table at one end of the room away from the door, and on it the saint is placed" (Bunzel 1959:165). Similarly, in San Cristobal Verapaz during the fiesta titular, the images of the saints, which have been carried about the pueblo in ritual procession, are set down in front of the local chapels on mats rolled out on the ground.

Ethnographic accounts of Indian groups inhabiting tropical northern South America provide a wealth of information pertaining to the metaphoric role and symbolic meaning of the jaguar. Again, there is space to cite but a small portion of the ever increasing number of sources. These accounts

emphasize the inextricably intertwined South American association of jaguars and shamans. To quote Furst (1968:154):

> If one concept cutting across geographic, linguistic, and cultural boundaries among South American Indians can be singled out, it is that of the qualitative identity between jaguars and shamans and accordingly their interchangeability of form . . . Shamans are capable of transforming themselves into jaguars whose inherent qualities they share; the reverse side of the coin is that jaguars--at least those appearing under unusual circumstances or those attacking human beings--are not animals, but transformed shamans or sorcerers, or the soul bearers of deceased shamans who assist the living disciples as tutors and spirit helpers.

A great deal of linguistic data points to the union of jaguars with shamans and other powerful individuals. In certain areas and among certain language groups, the ideational equivalence of jaguar and shaman is underlined by the use of a single or closely related term for jaguar, shaman, and chief. This is true especially in northwest South America. As an example, Reichel-Dolmatoff notes that,

> This tendency toward feline names for important people can be observed at present, especially in the Sierra Nevada of Santa Marta in northern Colombia, where several thousand Kogi Indians, another Chibcha-speaking tribe, still live. The Kogi name for jaguar is nebbi (nabi) and the root neb-, nem-, or nam- occurs frequently in the names of mythical priests or chiefs, divine personifications, important mythical ancestors, and constellations of stars. Among the many names of mythical ancestors, most of whom are reported to have been chieftains or priests, we find Namaku/"jaguar-lord," Namsiku/"jaguar-man," Namsaui/"jaguar-devourer," all of them referring explicitly to "jaguar people" (nebbi-kve) . . . Jaguar names are still in use among other tribes in Colombian territory; in 1958 the principal chief of the Chocó Indians of the headwaters of the Sinú River, in northwestern Colombia, was known under the name imama purru/"red jaguar," and in the early forties several Guahibo shamans of the Orinoco Plains had names derived from their word for jaguar: negüiti. (Reichel-Dolmatoff 1975:45)

Among many northern South American tribes, the jaguar-shaman transformation is closely linked to concepts of death and the afterlife. For instance,

> The modern Tunebo [of Colombia] believe that their shamans are occasionally able to visit otherworldly spheres where they turn into man-eating jaguars and that, at his death, the shaman turns into a jaguar. Moreover, the idea that a man will turn into a jaguar after death does not seem to be limited to shamans only. The ancient Indians of Antioquia (Central Cordillera) believed that "the souls of those who die are transformed into jaguars." (Simón 1882-92, 4:327; cited in Reichel-Dolmatoff 1975:46)

The Kogi Indians share in the idea that many who die--not only shamans--are transformed into jaguars (ibid.:59). Among the Paez of the Tierrandentro district of Colombia, to dream of jaguars signifies that one's dwelling is built upon an ancient Pijao cemetery, the Pijao Indians being the legendary enemies of the Paez (ibid.:236, note 63).

Among at least some of the tribes of northern South America, the jaguar is metaphorically related to vegetal fertility and the rain and accompanying thunder it is dependent on. Certain avians of particular relevance to this paper figure prominently in this relationship. The Kogi believe that jaguars are the guardians for all their food plants (Reichel-Dolmatoff 1950:265-266), as do the Tacana of Bolivia and other tribes of northern South America (Furst 1968:152). The sixteenth-century Indians of Caramanta in the Pacific lowlands of Colombia, petitioned stone idols carved in feline forms "when they require water or sunshine for their crops" (Markham 1864:19; cited in Reichel-Dolmatoff 1975:50). In

Mesoamerica as well, iconographic evidence links the jaguar to agricultural fertility. Pasztory (1978:132) suggests that in Middle Classic period (A.D. 400-700?) imagery at Teotihuacán, "fertility deities," particularly the "sun god," were associated with the jaguar and the underworld.

The avian actors associated in this jaguar-shamam-fertility complex are the harpy eagle and macaw. Reichel-Dolmatoff (1975:53) states that with the Paez "many shamanistic activities are concerned with the fertility of crops," and that "in all essence the transformation of the shaman into thunder and jaguar are one and the same thing, thunder and the jaguar-spirit form a single concept" (recall the Tzotzil reference to thunder and the jaguar). Among the Indians of the Vaupés, an equatorial rain forest area of the northwestern Amazon,

> thunder is closely related to the jaguar-spirit and may occasionally appear in the shape of a roaming jaguar. In the celestial sphere the harpy eagles are thunder's companions and messengers. (Ibid.:78)

The macaw joins the harpy eagle as a consort of jaguar-thunder-fertility. In a Desana Indian oral tradition, which recounts the ritual use of trance producing snuff by a group of men preparing to transform themselves into jaguars, it is said,

> The men have a macaw that is also fasting and taking <u>viho</u> snuff so that it can turn into a jaguar. When a jaguar-man fails, the macaw replaces him in jaguar form. The macaw will turn into a jaguar. (Ibid.:110)

Reichel-Dolmatoff explains that

> the role of the macaw is not wholly clear; because of the yellow and red plumage this bird is often associated with shamanistic practices, both as a helper and bearer of fertilizing colors, and also as a spy, a messenger who may overhear an enemy's conversation or warn a [shaman] of approaching danger. (Ibid.:111)

The ancient Maya, at least the Yucatec Maya, associated the macaw with their principal food plant. They believed that the bird assisted man in obtaining maize by digging under a rock where it was hidden (Roys 1967:111). Thompson (1971:86) characterizes the macaw, and the woodpecker which plays the same role in other versions of the myth, as "the bird who aided in bringing maize to mankind."

Precolumbian visual imagery is replete with jaguar-avian unions. Frequently, one form is depicted with attributes of the other. The feathered jaguar representations in the murals of Teotihuacán are a good example (Miller 1973: figs. 40, 43, etc.), as is the bird-jaguar motif seen in Olmec imagery, such as the winged were-jaguar jade figure reportedly found in Guanacaste, Costa Rica (Coe 1965: fig. 16). This visual association also occurs on the snuffing paraphernalia of some northern South American groups, which Furst (1968:162) interprets as evidence of "the widespread concept of birds as tobacco spirits or patrons of ecstatic intoxication, and as the avatars or spirit helpers of the shaman in his celestial flight."

5.4 Discussion

Like the crocodilian, the jaguar is assigned several interrelated role-meanings in the cosmological-ideational systems of native Middle and South America. Pan-regionally, jaguar is a principal symbol and personification of shamanistic prowess and esoteric knowledge; jaguar is intimately associated with (chiefly) authority and leadership; jaguar is closely linked to the underworld and life-death transitions. Moreover, intimations exist of a jaguar-thunder-agricultural fertility metaphoric connection in Mesoamerica and northern South America, which are strengthened by the association of jaguar-thunder-harpy eagle and jaguar-shaman-macaw-agricultural fertility. In Mesoamerica canine-coyote is jaguar's metaphoric partner, similarly associated with shamanism, temporal authority, and the underworld. Likewise, the mat motif symbolizes authority and is linked to jaguar and shamanism. The animal actors and symbols depicted on the triangular-slab support metates overlap and reinforce one another in a symbolic-ideational complex as apparently unified as that represented by the single ascendent crocodilian figure on cylindrical support metates.

In light of this interpretation, it seems probable that carved triangular-slab metates were emblematic of shamanistic prowess-esoteric knowledge and temporal authority, both of which are themselves intertwined and closely related in primitive cultures to matters of agricultural fertility

(and availability of other food resources) and transitions in the human life-cycle (Eliade 1964).

The dissimilarity in visual imagery content (and stylistic execution) are as distinct as the difference in form between the two classes of Greater Nicoya metates. Nonetheless, archaeological associations and context remain constant, and, although form has undergone distinct alterations, the basic metate-like shape is retained. The question to be addressed then is whether, and to what degree, the dissimilitude in visual imagery and morphology indicates a change in the function and meaning of the carved metates from one class to the next. In attempting to answer this question, it will be helpful to raise the issues of when or in what kinds of settings the carved metates were used, by whom, and with whom they were buried.

That the metates were employed in ritual-ceremonial situations is accepted beyond reasonable doubt. But what kinds of ceremonies were these? And what substances were ground on their surfaces for or during the rituals? The latter question would appear to be the easier one to answer. What was processed can be determined with some certainty from an analysis of the plant deposits preserved on the grinding surface. Unfortunately, this type of analysis has yet to be undertaken, and thus specific data is lacking. That the metates were employed in ceremonial contexts does not necessarily narrow down the range of possible substances. Many food

plants, maize for instance, which are used to make ceremonial consumables, are at the same time quotidian staples.

For a variety of reasons the kind of ceremonials in which the carved metates may have been utilized is unknown: these include, the absence of ethnohistoric descriptions on the prehispanic ceremonial usage of metates in Greater Nicoya and other parts of Middle and South America; the lack of known ethnographic parallels in the same area; and the paucity of solid archaeological data directly related to the carved metates and Greater Nicoya ceremonialism in general. That they are found in burials may indicate that they were employed to process foods consumed at the time of internment or offerings made during the mortuary ritual. Without any other associational or contextual data, it is exceedingly difficult--if not impossible--to identify particular or even limit the range of ancient Greater Nicoya rituals in which ceremonial foods may have been consumed or used as offerings. Given ethnographic indications of the importance of the consumption and offertory role of foodstuffs in a wide range of rituals throughout Middle and South America, it seems likely that the metates were employed to grind foodstuffs for fertility rituals, rites of passage, ritual feasting and exchange, and so on.

The question of who actually used or owned the metates and with whom they were entombed is more readily answered and, it is felt, may provide the key to any discussion of a change

in the function and meaning of the objects from the chronologically earlier class of carved metates to the subsequent one. Iconographic analysis suggests that the triangular-slab support metates were both emblems and essential paraphernalia of persons who possessed shamanistic skills and esoteric knowledge. It is conceivable that the carved triangular-slab metate was both a symbol of the person's abilities and an implement for the successful performance of his work. Each practitioner would have "owned" and used the metate for ritual purposes (of a public, private, domestic, etc. nature) while he lived, and would have been buried with the metate upon death.

Can the same be said in regard to cylindrical support metates? Recall that the shift in visual imagery involves the transition from predominantly crocodilian representations to the jaguar-canine-avian complex (of course, as noted, some avian imagery does appear on cylindrical support metates, and rare crocodilian figures do occur on triangular-slab support metates). Thus, explicitly earth-agricultural fertility symbols are replaced by those symbolic of esoteric knowledge, authority, and implicitly agricultural fertility. At the same time, amidst the innovation, a strong metaphoric connection with the underworld and life-death transformations is maintained.

The dissimilitude in function and meaning between the two classes of metates may be less than the divergence in

visual representations suggests. Considering that both classes retain a metate-like form and are known from mortuary contexts, a clear association with agricultural fertility and food preparation on the one hand, and life-death transformations on the other, is evident for both. The assurance of a dependable food supply is a principal concern of shamanistic practitioners in traditional societies; assisting at the critical junctures in the human life-cycle is another. It is very possible then that the crocodilian iconography of agricultural fertility, and the objects' association in the context of the ultimate life crisis, indicate that cylindrical support metates were emblematic of shamanistic abilities as well. Recall too that the Cuna Indians of Panama associate the crocodilian with esoteric knowledge and shamanistic flight.

How then is the dissimilarity in visual imagery to be explained if indeed there exists a marked degree of constancy in the function and meaning of the metates? The sharp decrease in crocodilian representations may indicate a decline in the metaphoric significance of the animal and its replacement as the principal animal actor-central symbol in native cosmology-ideology by the jaguar-canine-avian complex toward the end of the Zoned Bichrome era in Greater Nicoya (the juncture at which the earlier class gives way to the subsequent one). A parallel, although slightly later, shift from crocodilian to jaguar dominated representations is witnessed on

the ceramics as well. Jaguars begin to appear on the pottery of the Early Polychrome period, their presence increasing in the Middle Polychrome period and continuing in the Late period. On the other hand, crocodilian imagery, preeminent during the Zoned Bichrome period and into the Early Polychrome period, is greatly reduced in the later periods in Greater Nicoya. Stocker, et al. (1980) suggest that the metaphoric importance of the crocodilian was at its peak during the Formative era in Mesoamerica; therefore, the shift in animal figure representations carved on the metates may reflect a pan-Mesoamerican phenomenon.

However, it is also conceivable that the shift signals changing social conditions. The iconography of the triangular-slab support metates may be indicative of an increase in status consciousness, a result of the social-political-religious organization of Greater Nicoya becoming more structured and status more institutionalized. Symbols of fertility are replaced by emblems of knowledge, power, and authority, as the iconography becomes more explicitly concerned with role and status.

Supportive of this hypothesized trend toward greater status acknowledgement may be the attention paid to the depiction of what could be interpreted as visual metaphors of competitive aggression. Here reference is made to the large pointed teeth so prominently displayed on the jaguar and canine figures, and the "trophy-head" figures sculpted on the

supports of some triangular-slab metates. Might not these representations be evidence of an emergent rank-society organized along the lines and expressive of the same values which Linares (1977) postulates for roughly comtemporaneous central Panamanian society? The "fierce" aspect lent to the jaguars and canines on triangular-slab metates certainly contrasts to the predominantly benign zoomorphic imagery portrayed on cylindrical support metates. Is it possible that while on one level the function and meaning of the carved metates is unchanged, on another, a marked change has occurred? That is, their use as ceremonial grinding platforms and the metaphoric connection with agricultural fertility and human life-cycle transitions remains constant, whereas their function and meaning as emblems is transformed from an association with individuals known solely for their shamanistic prowess to those acknowledged as shaman-chiefs.

Indeed, this must be considered a reasonable interpretation; but remember, not all animals depicted on triangular-slab metates exhibit features suggestive of aggression or hostility (the avians do have large beaks, but there is nothing particularly threatening about them). Moreover, in light of the paucity of archaeological information on Zoned Bichrome and Early Polychrome social organization, solid supporting evidence is unavailable. To write about a ca. A.D. 500 emergence of a rank-society led by shaman-chiefs is potentially misleading because of the dearth of archaeological data

in support of such a development. The only clear evidence for status differentiation in Greater Nicoya at this time are the differences in the quality of funerary goods placed in one burial to the next. This may very well indicate status differentiation, but the fact is that these qualitative differences are as noticeable in the latter half of the Zoned Bichrome period as they are during the subsequent Early Polychrome period. Basic archaeological data touching on the size and complexity of settlements and the frequency of carved metate occurrence in burials is needed before this hypothesis can really be tested.

A final comment on the dissimilitude between the two classes of carved metates: there are the slightest intimations that the triangular-slab metates are in essence less metate-like than their cylindrical support counterparts. As noted previously, the triangular-slab pieces have smaller grinding surfaces (both relative to their total size and in an absolute sense), and the carving they display does not focus attention on the grinding plate per se, but instead puts emphasis on the appendages. The grinding plate shrinkage may only indicate a more specialized use, and the distraction from the grinding plate may be solely in the author's mind. But then again, perhaps the metates <u>were</u> on their way to becoming benches, "seats of power," whatever. In other words, there is evidence which suggests a conceptional as well as functional transformation from one class to the next.

CHAPTER 6

SPATIAL AND TEMPORAL DISTRIBUTION OF SPECIAL PURPOSE METATES IN MIDDLE AMERICA AND SOUTH AMERICA

Greater Nicoya has long been famous for its often elaborately carved special purpose metates. For at least one thousand years these objects figured in rituals of the living and the burial of the dead. It would be a mistake, however, to conclude that their presence in ancient Nuclear America was limited to Greater Nicoya. While there seems little doubt that special purpose metates were more prominent in the ritual behavior of the inhabitants of Greater Nicoya (and the rest of Costa Rica; see below) than among other Nuclear American groups, special purpose metates of local design are known archaeologically from other parts of Lower Central America, Mesoamerica, and northwestern South America.

The purpose of this chapter is to trace the spatial and temporal distribution of this phenomenon outside of Greater Nicoya, beginning with the special purpose metates of the Central Highlands-Atlantic Watershed and Diquís regions of Costa Rica. At the conclusion of the chapter, inference will be drawn concerning the origin of the phenomenon and its possible avenues of diffusion. Before proceeding, a disclaimer must be registered: although a great number of sources (site reports, area syntheses, etc.) has been consulted, I do not claim to have exhausted all relevant sources on metates

outside of Greater Nicoya (to do so is really a separate study itself). It is felt, however, that the literature survey has been extensive enough to elicit reliable patterns of distribution.

6.1 Central Highlands-Atlantic Watershed and Diquis Regions of Costa Rica

Special purpose metates and metate-like stone forms are known from the Central Highlands-Atlantic Watershed region of Costa Rica from the Zoned Bichrome II period (A.D. 1-500) until Spanish Contact. Several distinct forms develop during the sequence, all of which are known from mortuary contexts. The ensuing summary of the sequence follows after Snarskis (1978, 1981b); its brevity does not do justice to the lengthy and elaborate tradition, nor does it touch on interpretations of function and meaning offered by Snarskis and others. Snarskis as well as Mason (1945) and Graham (1981) should be consulted for more detail.

Several forms of tripod special purpose metates are present during the Zoned Bichrome II period and for at least the first half of the succeeding Transitional period (A.D.500-1000). These include plain trough-shaped metates on short conical and cylindrical supports (Mason 1945: Pl. 13, A,C), rectangular and round metates on long cylindrical supports with carved raised rims (ibid.: Pl. 13, B,D,E,F; Pl. 14, C) (fig. 39a), and the so-called "flying-panel" metates (fig. 39b). At the beginning of the Late period (A.D. 1000-1500) circular

cut-out pedestal base metate-like platforms (often labeled "altars") appear in the region (BCBS: Pl. 53; no. 200, 201), and at about the same time, the well-known, four-legged "jaguar-effigy" metate makes its first appearance (fig. 32). The latter are present throughout the region as late as Spanish Contact (see Mason 1945: Pl. 15-23 for a sample of the stylistic variety this form exhibits).

Considerably less is known about the Diquís special purpose metate tradition, its chronology the result of correlating similar forms with those dated within the Central Highlands-Atlantic Watershed and Chiriqui, Panama sequences. Very large ovoid tetrapod metates with carved raised rims, like those from the Barriles site just across the border in Panama (see below), are the distinctive form from this region. The edges of these metates are often carved in a series of small human heads which hang just beneath the grinding plate (BCBS: no. 234), and in one example the supports are carved in the form of human heads (ibid.: no. 233). It is thought that these forms date to A.D. 300-800. Jaguar-effigy metates are known from Diquís as well as in the several centuries prior to Contact.

6.2 West-Central Mexico

The presence of special purpose metates first occurs in the archaeological record of Mesoamerica and Lower Central America at sites not far from the Pacific coast in the Mexican state of Colima. There, Kelly (1980:83-86) found legless slab

metates and manos in Late Archaic/Early Formative Capacha phase (1870-1720 B.C.) burials. From one of the burials excavated, a "miniature tetrapod" metate with nubbin supports was recovered as well. Traces of red pigment were detected on its grinding surface, leading Kelly to suggest that it was used for the processing of this substance.

Following the Colima archaeological sequence (Kelly 1980) through time, no mention is made of the presence or absence of special purpose metates in periods succeeding the Capacha phase until the late Postclassic. Whether this reflects a genuine absence or a bias in the record cannot presently be determined. Regardless, non-quotidian metates show up in both the El Chanal phase (A.D. 1290-1450) and the Periquillo phase (A.D. 1450-1600). The data here is scanty, but Kelly (1980:12) reports finding metates with short supports in El Chanal deposits, one of which "has on its underside a human figure with headdress in low relief; the style suggests Toltec work." She also mentions that decorated metates are known from Periquillo phase interments, and they are described as finely crafted with simple geometric designs carved on the sides of their grinding plates (ibid.:16).

Outside of Colima in west-central Mexico, metates in funerary settings occur in the states of Michoacan, Guanajuato, and Jalisco. At La Villita, Michoacan, Chadwick (1971:665) found a metate in a burial dating to the Infiernillo phase (ca. 700 B.C.). The particular grave held three

individuals, and "the most important person, to judge from the funerary costume and offerings, was a woman . . . a small polished greenstone ritual metate with nubbin supports had been placed at the xiphoid process of the sternum."

The excavation of a cemetery at Chupícuaro, Guanajuato yielded ten metates and manos, the latter found in association with the metates and independently in the burials (Porter 1956:566). The metates comprised both supported and slab forms. It should be noted that only 5 of the 390 excavated graves at Chupícuaro contained metates. Of these 5, 3 date to the Early Chupícuaro phase (500 B.C. to A.D. 300) and 2 are Late Chupícuaro (A.D. 300-500) in date. Two of the metates were tetrapods with carved animal heads and tails projecting off the grinding plates at opposite ends (ibid.: fig. 27). The head and the tail of the illustrated piece appear disproportionately small for the size of the metate (27 cm. in length, 14 cm. in width, and 14 cm. in height), but they do not evidence distinct enough traits to allow for an identification of the kind of animal portrayed. The bottoms of the supports are crudely carved to represent animal paws, and the sides of the grinding plate are etched with triangular designs.

In the state of Jalisco, a Coralillo phase burial from the early Postclassic period in the Autlán-Tuxcacucsco area contained a metate and mano (Kelly 1949:146). The metate is of the supportless trough type.

A survey of the archaeological literature of Central Mexico, including the Valley of Mexico, turned up no references to special purpose metates in burials or other ritual contexts. For example, Vaillant's detailed reports of his excavations at Zacatenco (1930), Ticoman (1931), and El Arbolillo (1935) fail to mention the phenomenon. That the presence of metates in mortuary contexts is not mentioned in Vaillant's El Arbolillo report is particularly noteworthy, given the attention it pays to burials and their contents throughout the lengthy sequence at the site. However, at Tectihuacán a Tetitla mural provides evidence of a ceremonial role for metates: a feathered-jaguar is depicted sprawled on a low-swung platform (Miller 1973: fig. 289), which Kubler (1972:19) identifies as a "corn-grinding table."

6.3 Highland Guatemala and Chiapas and the Pacific Slope

Special purpose metates first appear in the archaeological record of this Highland-Pacific slope region during the Early Classic period in the Guatemalan highlands. At Kaminajuyu several Esperanza phase (A.D. 300-500?) burials contained "excellently fashioned grinding sets" consisting of plain metates and matching manos (Kidder et al. 1946:140). Altogether eleven finely worked metates were found, each with a flat to slightly concave grinding plate and three short conical supports. The grinding plates vary in shape from the perfectly rectangular to those with slightly rounded corners

to still others more ovoid (ibid.: fig. 158). All of the metates recovered exhibit wear, but the authors note that those from funerary contexts differed markedly in both form and the amount of wear evidenced from the quotidian "large service metates" detected in the fill of the Esperanza phase mounds.

All but two of the Esperanza phase tombs yielded a single metate and mano, "the metate usually standing on the tomb floor with its mano in place." In one of the burials, the metate lay face down and no mano was present (ibid.:140; see figs. 19, 26, 27, 29, 31, 32, 34, and 35 for the exact location of the metates and manos in each burial). In attempting to explain the absence of metates from the two burials, Kidder et al. fall prey to the potential bias mentioned earlier of assuming that metates and other grave goods were placed in tombs so that the deceased could use them in the afterlife:

> The small metate was standard. Why one was not in A-III might be explained by the fact that only skulls rather than the complete body of a servitor--who might be expected to have been the user of such an instrument--accompanied the owner of that tomb. B-VI, whose component was without a slave, likewise contained no metate. But the servitor-metate correlation fails to hold in A-V, which had a metate but only skulls. (Kidder et al. 1946:92)

At Zaculeu in the western highlands of Guatemala, an Early Classic Atzam phase tomb contained three plain tripod metates with accompanying cylindrical manos (Woodbury and Trik 1953:220-223, fig. 41). The metates are well made and very similar in form to those found in the roughly

contemporaneous burials at Kaminaljuyu, with the exception that two of the metates from Zaculeu have rectangular front support (ibid.: fig. 279, q,q'). Only one of the metates had been ground upon to the point that its surface appears polished.

Tripod metates are also known from Postclassic mortuary contexts at Zaculeu, occurring in one burial of the early Postclassic Qankyak phase, two late Postclassic Xinabahul phase burials, and a Xinabahul phase cache. One of the later phase burials contained two metates, each with matching cylindrical mano, placed over the adjacent extended remains of two femals (ibid.: fig. 48, a). These finely crafted metates exhibit thin steeply sloping rectangular plates with rounded corners, the surfaces of which have been worn smooth. The front support is about three times the length of the paired back supports, and in all but one case, it is carved as an animal head with projecting eyes and ears and a shallowly grooved mouth (ibid.: fig. 279, o,p). The animal represented on one of the pieces illustrated bears close resemblance to a deer (ibid.: fig. 279, p). This style metate--both in form and decorative carving--is typical of those recovered from Postclassic mortuary contexts in the Guatemalan Highlands and Pacific slope.

Woodbury and Trik (1953:82) point out that metates "cannot be considered typical grave furniture" because they are only found in four out of the 108 graves excavated. They

attribute a primarily ritual role to both the Atzam phase undecorated tripods and the later carved metates, and they suggest a correlation between the sex of the individual(s) interred and the presence of metates in the Qankyak and Xinabahul burials:

> It would seem reasonable for metates to be buried with women, assuming that they were implements with which women ground meal. These metates may not have been for domestic use, however, as their workmanship and shape are rather exceptional. Only three can be definitely determined to have been buried with females, though all may have been, and none is unquestionably with a male, thus suggesting that even ritual grinding was still the work of women. (Woodbury and Truk 1953:222)

Nonetheless, they note that at Kaminaljuyu in only two of the twelve Esperanza tombs with metates were the principal occupants female.

In the Guatemalan highlands carved metates have also been reported from Tajumulco, San Marcos (Dutton and Hobbs 1943:45-47) and the Salcaja-Momostenango area of Totonicapán (Lothrop 1936:92). Dutton and Hobbs illustrate a single tripod "effigy" metate found at Tajumulco (ibid.: fig. 26): a "well executed" animal head protrudes from the front end of a thin, slightly curved, rectangular grinding plate. The supports are rectangular slabs, the one in front placed transversely, the two in back running longitudinally. The authors identify the head as that of a turtle, and they note the presence of red pigment around the mouth and eyes. A Post-classic date is inferred for the piece.

Lothrop (1936: fig. 99) shows a metate with a pentagonal grinding plate, attributed to the Salcaja-Momostenango region. The piece rests on two short conical legs, and the underside is carved to represent what appears to be a frog. Figure 40 illustrates a similar two-legged metate reportedly from Totonicapán. Lothrop (ibid.: fig. 107) also illustrates a carved tetrapod from unknown Highland provenience with a badly weathered animal head projecting from one end of the thick grinding plate. The plate has a raised rim, and at the end opposite the animal head, a small human head is carved in relief, separated from the grinding portion of the surface by a raised partition.

In the Highlands to the east, at Zacualpa, Quiche, thin steeply sloping rectangular plate metates are reported. The one Lothrop (ibid.: fig. 53) shows is identical to those from the Postclassic burials at Zaculeu, although lacking the zoomorphic carving on the front leg.

Further east, Sharer and Sedat (in press) found a plain single footed metate in a grave at the Las Tunas site, Baja Verapaz. The burial also contained a Plumbate vessel and a painted vessel very similar in style to the so-called "Nicoya Polychromes" (i.e Papagayo and Pataky Polychromes). The pottery dates the burial to the early Postclassic. At a later date, shortly after Spanish Contact, Las Casas observed the burial of a high status person in the Verapaz. Among the goods included in his burial were metates, although of a

quotidian sort from the sound of his description:

> Luego, en muriendo el señor, le mataban los esclavos y esclavas que le habian de ir á servir. A los varones labradores ponían les los aparejos é instrumentos con que hacian las semeteras, y a los cazadores, para cazar, sus arcos y flechas, y así de los demás. A las mujeres, las piedras en que habian de moler el mahiz, las ollas para cocer ó guisar la comida, los cántaros y vasija para la bebida, platos y escudillas, etc. (Las Casas 1909:)

The presence of carved "effigy" metates at sites along the Pacific slope of Guatemala has been reported by Thompson (1943, 1948) and Parsons (1969) among others. Unfortunately, here as in so many instances in other areas, the archaeological context of the metates is uncertain. Thompson describes and illustrates a most unusual decoratively carved tripod from southeastern Quetzaltenango:

> In the Robles collection there is a magnificent metate from Finca El Paraiso, the front support of which is a superbly modeled human head, beneath or in the jaws of a long-snouted reptile. There is a certain Totonac feeling in the treatment of the head. (Thompson 1943:107, Pl. 112, L).

The metate has a thick grinding plate which is grooved along both sides. The reptilian figure portrayed exhibits crocodilian traits such as an elongated snout, scute-like knobs carved on the top of the creature's head and neck, and the raised eye and thick brow. The head is massive relative to the size of the grinding plate.

The University Museum of the University of Pennsylvania houses a very large (120 cm. in length and 54 cm. in width) and finely worked tripod metate accompanied by an equally large tapering mano (Mason 1943: fig. 31) (figs. 41a, b),

which Thompson (1948:41) attributes to the Santa Lucia Cotzumalhuapa region, Escuintla (Mason wrote on the museum's catalogue card his belief that the piece was originally of Nicaraguan origin). The animal head which projects off the front end of the grinding plate is similar to that on the metate from Finca El Paraiso (although lacking the human head trapped in its jaw) seeming to combine serpent and crocodilian traits. Again the extended snout is topped with knob-like protrusions, perhaps representing scutes (or horns?), and the raised eyes are encased by the pronounced brow and lids typical of crocodilians. The angle at which the jaw opens and the curling tongue which runs out of the gaping mouth and loops up and back to articulate with the tip of the snout give the animal a serpent-like look. But the teeth are decidedly not those of a snake: complete upper and lower rows are exposed and pronounced upper fangs are absent; instead the lower canines are by far the largest teeth in this saurian-like dentition. The four sides of the grinding plate are engraved with low relief geometric interlace designs, whereas the underside remains uncarved, and the grinding surface undecorated except for single transverse lines grooved near each end. The grinding surface is worn polished by use (or design?). The grinding plate exhibits graceful longitudinal curvature, but is proportionally considerably thicker than those of the Greater Nicoya metates. It rests on short rectangular supports. This metate is very similar in form to those discussed

below from eastern Honduras and El Salvador.

Parsons (1969:85, pl.25, b) reports carved metates from surface collections at Bilbao in the Cotzumalhuapa region of the same type found in Postclassic burials in the Highlands. Based on this resemblance, he dates the Bilbao metates to the same period. Of the three metates he illustrates, one is carved with a deer head, one is unidentifiable, and one shows not only carved features on its front support, but also an outstretched feline (?) body engraved in relief on the underside.

In the Mexican state of Chiapas in the Middle Grijalva region, Lee (1974:69) found a small tripod metate and associated mano in a Late Classic Mechung phase burial at San Isidro. The metate is like those found in Atzam phase graves at Zaculeu with the distinctive laterally elongated front supports. At nearby San Antonio, Agrinier (1969) uncovered three metates of the same kind with cylindrical manos in burials dating to the same phase.

6.4 Lowland Maya Area, Tabasco, and Veracruz

Special purpose metates appear in the archaeological record of the lowland Maya in small numbers. They are exceedingly rare in the Peten, the Classic period heartland, apparently occurring with somewhat greater frequency in the Yucatan and southeastern Maya area.

Perhaps the most notable appearance of the phenomenon in the Peten occurs in Burial 48 at Tikal, dated to ca. A.D. 450

on the basis of epigraphic evidence, where a tripod metate and mano were found next to the body of the principal personage--"Stormy Sky" (Shook and Kidder 1961). The presence of Central Mexican style cylindrical slab vases in this and other Tikal burials has often been cited as one of several data which suggest a link between the rulers of Tikal and Teotihuacán-controlled Kaminaljuyu during the Early Classic (Coggins 1976). The inclusion of the tripod metate in Burial 48 corresponds nicely with the presence of metates in Esperanza phase burials, offering further evidence of a Tikal-Kaminaljuyu relationship.

Elsewhere in the Peten plain tripod metates are first detected during the Late Classic. They are reported from Uaxactun (Kidder 1947), Piedras Negras (Coe 1959), Altar de Sacrificios (Willey 1972), Seibal (Willey 1978), and in lowland Chiapas at Paleque (Ruz 1958). Small distinctly crafted plain tripods are present at Piedras Negras, Altar de Sacrificios, and Seibal. Most if not all of these pieces are made of non-local igneous rock, whereas the larger, cruder metates found at the same sites are produced of locally available stone. Given their size and workmanship, Coe (1959:34) suggests that they were traded into the Peten "for the ceremonial grinding of maize." Although none of the finely worked metates were recovered in mortuary contexts, Willey (1978:64) notes that they are rarely found in domestic settings, suggesting a ceremonial usage. He concludes that they were too

delicate to have served as daily maize grinding implements, and he proposes that they were used to grind cacao or paint pigments.

At Uaxactun a plain trough-shaped metate was found "inverted over the head of the skeleton in Burial E6, under the floor of the doorway to Temple E-V" (Ricketson and Ricketson 1937:192-193, Pl. 64, a,b). A carved tripod was discovered at Uaxactun as well as the base of Pyramid E-VII. It has a thin, flat grinding plate made to appear even more delicate by the beveling of its edge. The front support is notched at its base on both sides, and the center of this key-shaped leg has been punched out and is enframed by a thin engraved line. The Ricketsons assign the piece a late date in the Uaxactun sequence.

East of the Peten proper in Belize carved and mortuary metates are equally rare. At Baking Pot Ricketson (1931) uncovered a plain metate with a mano resting on its surface in one of fifteen burials excavated. Joyce et al. (1927:313, fig. 6) (fig. 41c) illustrate a low-swung tripod metate with a relatively thick longitudinally curved grinding plate, rectangular legs, and a highly stylized animal head, supposedly found in the vicinity of Lubaantun near San Jacinto. It is morphologically similar to the Santa Lucia Cotzumalhuapa piece in the University Museum (see above) and the class of carved metates typical of eastern Honduras and El Salvador.

Carved metates lacking specific provenience are reported from Copan and Quirigua in the southeastern Maya area. At Copan two tetrapod metates were found, one with a crudely carved animal head extending from one end (Longyear 1952:105, fig. 89, a). The originally flat grinding plate shows marked concavity due to wear, and the short legs are rectangular in cross-section.

Thompson (1970:131; illustrated in Hartman 1907: fig. 64) (figs. 42 a, b) makes brief mention of a carved tripod of igneous stone reportedly from nearby Quirigua. The small metate (22.5 cm. in length and 16 cm. in width) has a thin, rectuangular grinding plate with rounded corners. A feline (?) figure is carved in relief on the underside, the animal's fully-sculpted head serving as the higher front support. Twisted to the side, it emerges from its body in the plane of low relief in similar fashion to that described for the crocodilian figure on the underside of the Greater Nicoya cylindrical support metate (see above). The paired cylindrical back supports are set at the knee joint of the creature's hind legs. Although they are broken off, they appear to have been somewhat longer than the animal head front support. Thompson (ibid.:132) also mentions a small tripod metate found at Quirigua with the profile of a monkey carved in relief on the underside (fig. 42c). The conical paired supports are considerably longer than the single knob support. The carving of the monkey, like that of the feline figure on

the other Quirigua metate, is distinct in its clear-lined execution.

On the Yucatan peninsula the presence of special purpose metates is reported from Chichén Itzá, Labna, Balankanché cave, and Tulum. Stromsvik (1931:152, fig. 11) illustrates a tetrapod metate found at Chichén Itzá which exhibits a finely beveled grinding plate edge and geometric engravings on three of its supports. One set of the legs are notched at the base of their outer edge; positioned so close together that the two suppots look like a single key-stone shaped leg, like that on the carved metate from Uaxactun. A metate with a notched front support is also attributed to Labna (Ricketson and Ricketson 1937:193). Also at Chichén Itzá, Stromsvik notes several miniature tripod metates, which he suggests may have served ritual functions, although he adds, "it is equally possible that they srved for the pulvarizing of materials other than corn (a small metate for grinding chile is made at Tixualatun and sold in the Merida market)" (Stromsvik 1931: 151).

A remarkable find of clearly non-quotidian metates in a ritual setting was made at Balankanché cave, some four kilometers west of Chichén Itzá (Andrews 1970). Thompson recreates the setting in dramatic prose:

> Close by Chichén Itzá a warren of caves, called Balankanché, devoted to the worship of the Mexican rain gods, the Tlalocs, and also to Xipe Toltec, has recently been discovered. The serried ranks of incense burners, miniature metates and mullers and pottery plates . . . frequently grouped around

> stalagtites are as they were left when the caves were last used some nine centures ago by the Mexicanized invaders of Chichén Itzá. (Thompson 1970:268-269)

Within the underground labyrinth, six concentrations of offerings were located, in groups consisting in varying amounts of Tlaloc-effigy censers (some decorated with what Andrews and Thompson consider Xipe Totec attributes), carved stone censers, miniature ceramics, and miniature metates and manos. Of the 493 artifacts catalogued, 252 are metates and manos. Over 200 were discovered in Group III alone, dumped in a chaotic mound on a small rise just above the edge of an underground lake (Andrews 1970: fig. 6, 45). The metates are truly tiny, measuring on the average 13.5 cm. in length and 8.8 cm. in width. Most of them are tripods, although a few are four-legged. The supports vary in shape from rectangular to triangular to round, and a few are notched or fretted in a fashion similar to that described for the key-stone support metates found at Chichén Itzá and Uaxactun (ibid.: figs. 25, 26). Several of the miniatures showed traces of Maya blue pigment: three in Group II were completely covered, and one from the "altar" of Group I had five circles painted on its grinding surface in Maya blue, one directly in the center and one at each corner (ibid.:32, fig. 27). An early Postclassic date seems likely for the ceremonial activities participated in at Balankanché.

Carved metates were not found in excavation or on the surface at Tulum, but one is depicted on the wall in the West

Passage at the Temple of the Frescoes (Lothrop 1924:57, Pl. 7). In the upper panel to the left of the Diving God, a female figure crouches over a tripod metate with its front leg carved in the form of an animal head. Concentric circles are engraved on the edges of the grinding plate, and the metate is identical in form to those from Postclassic burials in the Guatemalan highlands. Lothrop describes and comments on the painted scene, offering possible insight toward an explanation of the iconographic theme(s) portrayed:

> A young goddess . . . kneels in front of a metate and holds a mano in one hand. On her head is an elaborate head-dress with plumes, and she wears a sleeveless blouse and a skirt reaching to the ankles. The metate rests on an animal head, a form which is not common to the Maya area, but is typical of the Pacific coast of Nicaragua and northern Costa Rica. The figure is without a parallel in Maya art. In three instances in Mexican codices (Codex Borgia, 9; Codex Vaticanus V, 28, 94), however, there is represented an old woman in a white robe who kneels in front of a metate and holds a mano broken in two pieces, from which blood flows. She is associated with Xochiquetzal, the young and beautiful goddess of flowers and craftsmanship, the wife of Tlaloc, whom Tezcatlipoca stole and placed in the ninth heaven as goddess of Love . . . . The Mayan figure does not exactly agree too exactly with the Mexican divinity, for she is evidently not old. However, although her mano is not broken, the tassels on it are not unlike the spurts of blood which issue from the Mexican mano.(Lothrop 1924: 57)

West of the Yucatan peninsula at San Lorenzo in the Mexican state of Tabasco, evidence has been unearthed suggestive of a ceremonial role for metates at this early Olmec center (Coe and Diehl 1980). In a section of this site excavated by Stirling in Drucker in 1946, a "cache" of two-legged metates neatly stacked one on top the other, was found

(ibid.:34, figs. 18, 19). Unfortunately, the cache has not been dated because the associated ceramics are either lost or not yet analyzed. Also at San Lorenzo, a miniature metate was discovered in a San Lorenzo A (ca. 1100-1000 B.C.) deposit. Coe and Diehl (ibid.:231) believe that it may have been a toy or associated with "cult activities such as grinding hallucinogenic mushrooms."

Further west, in Veracruz, Weiant (1943:69) excavated small tripod metates from several burials at Tres Zapotes. Noting that they were probably too small for grinding corn, he concludes that they must have been used for processing ritual substances or paint pigments. Also in Veracruz, a carved tripod metate is reported from the Jalapa region (Thompson 1970:131) and is illustrated by Hartman (1907: fig. 63). The figure of a frog-like (?) animal is carved in low relief on the underside, the animal's head serving as the single front support. The metate is very similar to the piece that Thompson mentions from Quirigua (figs. 42 a, b), which has led him to suggest that the metates indicate Terminal Classic contact between the two areas (see Sharer in press, b).

Paddock (1970) illustrates and comments on a remarkable carved tetrapod metate reportedly recovered (from a burial?) in the San Juan Quitotepec region of Oaxaca, but which, Paddock asserts, was probably manufactured in central Veracruz. The grinding plate is ovoid in shape and slightly curved

longitudinally, measuring 26.7 cm. in length and 18.5 cm. in width. A squat human figure, infantile in its proportions and lack of musculature, is carved in relief on the underside (fig. 43). The body is treated frontally, depicted in what Paddock terms a "seated baby posture," one he remarks is reminiscent of the hollow figurines attributed to Olmec artisans. Two nipples have been pecked out on the figure's chest which is raised slightly to indicate the rib cage. A triangular shape emanates from the area of the figure's groin, perhaps representing a phallus, although Paddock identifies the shape as a loincloth. The figure's legs form two of the metate's supports, projecting from the relief surface in fully-rounded form, while the arms are held up to the side of the figure's head, the hands or whatever they grasp serving as the other set of supports. The head is turned to the side and rendered in profile. In sharp contrast to the infant-like body, it appears to belong to a fully mature adult. The face is without ornamentation and the head is apparently shaven, except for a tuft of hair tied in a bundle at the back. The execution of the head is very similar in style to figural carving seen on central Veracruz sculpture, and Paddock (1970) suggests that "the dimensions of the facial features are exactly right to recall Veracruz stonework on palmas, hachas, and the ballcourt reliefs of El Tajin."

The piece is like none other from Mesoamerica and Lower Central America, its uniqueness unfortunate given that its

provenience and context are a matter of speculation. In Paddock's words:

> Not having a group of works to fit this one into, we are not able to say whether it is a more or less normal object in a tradition or whether it must be attributed to some ancient, isolated artist.

6.5 Honduras and El Salvador

The section of Central America south and east of the Maya area proper and north of Greater Nicoya--encompassing almost all of Honduras and El Salvador, and northern Nicaragua--is rich in reports of carved metates, but poor in finds from verified archaeological context. This is truly unfortunate because several pieces attributed to sites in the area are either exact duplicates of Greater Nicoya metates or sure trade items. If their context had been preserved, further refinement of the chronological sequence of Greater Nicoya metate forms might have been possible.

Carved tripod 'effigy' metates are known from surface collections and looters' reports from sites in several regions of northern Honduras (Stone 1941). Two metates with protruding reptilian heads were found in the Paya region. The carved head on the first (Stone 1941:20, fig. 3) is very similar to that on the University Museum piece described above. The form of the metate is also similar, except that the Paya region piece, besides being considerably smaller, is supported by three very long, angled, rectangular legs. The projecting

head on the second Paya region metate represents the same kind of reptilian animal, but in this case, the carving is highly stylized (Stone 1941: fig. 99). Two metates with the standard regional thick longitudinally curved plate and short rectangular supports are reported from Los Andes in the Black region. One has a protruding bird head, the other lacks any carving (Stone 1941:39, figs. 27,28). Stone also illustrates several carved metates from the Aguan valley typical of the Honduras-Salvador area. One features a projecting reptilian head with an extended tongue and knobbed head; another is morphologically identical except without the projecting head. A carved stone bowl from the Aguan valley with a protruding animal head and tail at each end is reminiscent of the jaguar effigy form from Highland and Atlantic Costa Rica; however, it is supported on three and not four legs, the double supports positioned at the end from which the head protrudes.

Many metates typical of northern Honduras have been detected in central and southern Honduras as well. At the Las Vegas site in the Comayuga Valley, metates with projecting reptilian heads have been found. Long tapering manos are also reported from the site (Stone 1957:16, figs. 43,a,b). Further south, at Tenampua, Popenoe (1936:fig. 4) "encountered" an intricately carved metate "in one of the mounds of the southwestern group." This particular piece is in the style--both morphologically and decoratively--of the triangular-slab metate of Greater Nicoya, in fact its execution is so exact

that it probably was traded up from the south. It features a protruding bird (macaw?) head and elaborate open-work carving under the grinding plate (whether the underside itself is carved cannot be determined from the illustration). Although it is impossible to be absolutely sure from the illustration, it appears that this piece is four-legged, and thus reminiscent of the triangular-slab tetrapod discussed earlier from Ometepe Island, Nicaragua (fig. 5).

Stone (1957:53, fig. 56,c) illustrates a carved parrot head she says Lothrop found at Tenampuá: it too is identical to those seen on Greater Nicoya triangular-slab metates. Stone also mentions the presence of a tripod metate in the typical regional style from Amapala on Tigre Island in the Bay of Fonseca. She claims it was found under the floor of a domestic structure (Stone 1957:101, fig. 78,b). Other carved metates are reported from Jamastrán (ibid.: fig. 69,b), Guajiquiro (ibid.: fig. 80,a), and Talgua (ibid.: fig. 83,a). The latter two are crudely carved tripods with projecting animal heads, whereas the former features a carved head but lacks supports.

In El Salvador, carved metates are known from Tazumal, Quelepa, and the Balsam coast. Sheets (1978:31) makes brief mention of two tetrapods with incised lines carved around the edges of the grinding plate, which were found by Stanley Boggs at Tazumal. Andrews (1976: fig. 166,c) illustrates a metate fragment with a single groove on the side of the

grinding plate recovered in excavation at Quelepa. The grinding surface itself bears traces of red ocher. Also at Quelepa, Longyear (1944: pl. 12, fig. 10) notes the presence of a tripod metate identical to those from Honduras with the protruding knobbed reptilian head. Furthermore, he found a carved jaguar head, which had broken off what might have been a Greater Nicoya triangular-slab metate (ibid.: Pl. 12, fig. 22). Andrews (1976:161-162, fig. 166,a,b,d) illustrates three fragments from Greater Nicoya triangular-slab metates. Reportedly discovered in the Quelepa environs, he found them in a local private collection. Lothrop (19271:31, fig. 8) discovered a carved tetrapod at a site along the Balsam coast. An animal head projects off the front end of a thick rectangular grinding plate, which rests on short, squared supports. A matching cylindrical mano was recovered as well.

6.6. Northwestern South America and Panama

Reports of special purpose metates are rare in northwestern South America, which is here defined as that part of the continent included within the Intermediate Area (the Ecuadorian Andes and Pacific coast, the Columbian Andes and Pacific coast, the Columbian Caribbean coast, the Andes of western Venezuela, and the adjoining Venezuela coast). The only mention of decoratively carved metates in Precolumbian northwestern South America detected in the literature was found in Stone and Balser (1957), who make passing reference to their presence in Ecuador, citing Verneau and Rivet

(1912-22), a source which could not be located. In Ecuador, however, plain metates are known from mortuary contexts in the Guano region of the central highlands. Meggers (1966: 149) notes that Puruhá phase (A.D. 500-1500) burials occasionally contain metates and manos. The presence of metates in burials is also reported from the Nariño region of southwestern Columbia (Bennett 1963:834) and the Quimbaya region of western Columbia (ibid.:841). These occurrences have yet to be accurately dated. The rarity of special purpose metates in the archaeological record of the rest of northwestern South America may be a true reflection of Precolumbian ritual-mortuary practices. Of course, it might also be the result of the relative paucity of research carried out in this extensive geographic area.

Panama can be effectively divided into three broad archaeological zones: Panama east of the Canal zone; central Panama, comprising the regions of Coclé and Veraguas, and the Azuero peninsula; and western Panama, which includes the Bocas del Toro and Chiriqui regions. The metates found in western Panama are of the same types which occur in the Central Highlands-Atlantic Watershed and Diquís archaeological zones of Costa Rica, including the jaguar-effigy metate, and as such--with one exception--they will not be treated in this section. The archaeology of Panama east of the Canal zone is practically unknown, with little work undertaken there since the surveys of Sigvald Linné in the 1920s. Thus the present

discussion will focus on those regions which comprise central Panama.

Carved metates in central Panama are first known from the Pueblo Nuevo phase of the Veraguas region, for which a single C-14 date of 340 B.C. has been obtained (Ladd 1964:12). Burials from this phase often contain "intricately carved three-legged metates" according to Willey (1971:238), but unfortunately, illustrations of these late Formative Veraguas metates are lacking. From Pueblo Nuevo time on the carved mortuary metate tradition in Veraguas appears to persist until Spanish Contact; however, the exact sequence and absolute dating still need to be worked out. Lothrop (1950) describes and illustrates several carved tripods and tetrapods excavated from burials at various Veraguas sites. The three-legged metates exhibit openwork sculpting beneath the grinding plate, whereas the tetrapods are of the jaguar-effigy form familiar to Chiriqui and much of Costa Rica. The tripods have thin, slightly concave grinding plates and long cylindrical supports which angle slightly toward the center. Three of these pieces from the site of Las Palmas display openwork carving reminiscent but less intricate than that seen on the flying-panel metates of Costa Rica (Lothrop 1950:30, fig. 30,b,c,d). On the Veraguas metates, a latticed panel hangs from the center of the underside running from the single front support to a bar between the back supports. In the first example (ibid.: fig. 30,b) the panel design consists of a geometric grid,

while the panels of the other two (ibid.: figs.30,c,d) feature a sinuous serpent and a series of bats hung upside down respectively. The fourth tripod from Las Palmas illustrated (ibid.: fig. 30,a) is of a different form. It too has tapering conical supports, but on this piece they angle outward, and the grinding plate, while concave, is so laterally, not longitudinally. It is decorated with a series of highly stylized avian figures with pronounced curved beaks, which hang upside down just inside the edge from the metate's underside.

Plain tetrapod metates with insloping, slightly curved legs are also found in Veraguas burials (Lothrop 1950:30, fig. 32). Some of these are very large, weighing up to 90 kilograms. Lothrop believes that certain Veraguas sites were metate manufacturing centers,

> for they occur in large numbers and it is not unusual to find several in one grave. Evidently trade took place but the large size of many specimens makes it improbable that they were transported to any great distance. (Ibid:30).

On the Azuero peninsula east of Veraguas, carved and plain metates occur in mortuary settings. In the Tonosí valley on the southern tip of the peninsula, in an El Indio phase (AD 200-500) burial, the upper half of a skeleton was found resting on the grinding surface of a plain tripod metate with a beveled ovoid plate (Ichon 1980:191, fig. 60). In the same region, a carved tetrapod was uncovered in a Bijaguales phase (AD 1300-1500) grave. A double-headed

serpent motif was carved in low relief running along the side of the grinding plate (ibid.:377, fig. 121). Further north on the Azuero peninsula at the Sixto Penillo Place site, Ladd (1964:209, pl. 22, 23) excavated a burial holding 32 individuals and a single carved tripod with short tapering conical legs. The carving on this piece is very similar to that on one of the metates from Veraguas which Lothrop illustrates, consisting of several stylized bird figures with long curved beaks hanging from the plate's underside. Unfortunately, the date of the mass burial containing this metate is not clear from Ladd's account. Ladd (ibid.:204) also mentions finding a plain tripod metate covered with white ash in a burial with Late Coclé (A.D. 700-1100) ceramics.

At Sitio Conte in the Coclé region, a Harvard University Peabody Museum expedition led by Lothrop discovered a series of richly furnished burials, which date to A.D. 500-900 (Linares 1977:58). The grave goods consisted of polychrome vessels, gold ornaments, figurines, and hammered breastplates, feathered headdresses, stone and bone pendants, mirror backs, whole tortoise shells, among other ornate objects and many bundles of tools and implements, including in some of the graves (6 of the approximately 50) what Linares (ibid.:38) terms "crudely shaped," "unpretentious" ovoid tripod metates and cylindrical manos (see Lothrop 1937: figs. 11,207,212,215, 230,231,243). It appears from Lothrop's illustrations that all but two of the mortuary metates at Sitio Conte were

undecorated, making their presence all the more enigmatic in light of their ornate surroundings. Linares (1977:43) suggests that the metates and other implements may have been used for processing foodstuffs consumed during the funerary activities.

Of the two carved metates (Lothrop 1937:96, figs. 62,b,c), one is a tripod with an ovoid grinding plate and crude conical supports. An animal head is carved between two of the legs, barely projecting from the side of the plate. The other is a miniature tetrapod, more finely crafted, with an ellipsical grinding plate, a highly stylized animal head at one end, and its tail hanging off the other end. The sides of the plate and the outer faces of the irregularly shaped supports are covered with incised circular designs. This tetrapod is the only one of its kind reported from the Coclé region, and Lothrop feels it was traded in from western Panama; however, it differs markedly in style from the typical animal-effigy form from Chiriqui and Costa Rica.

Finally, before leaving Panama, mention should be made of the monumental metates from the Barriles site in the Chiriqui highlands discovered by turn-of-the-century antiquarians and later visited by Matthew Stirling (1950). Sterling describes a stone-lined ceremonial precinct replete with atlantian statues and giant metates, the latter measuring several meters in length. Like their smaller counterparts from Diquís, the metates are four-legged (the supports often

carved truncated atlantian figures) and are decorated around the rim with "trophy heads" which hang just beneath the grinding plate (linares et al. 1975: fig. 5,A). In light of the themes portrayed on the metates and statues, Linares concludes that "whatever its specific meaning and function, Barriles sculpture associates symbols of rank and warlike attributes with maize agriculture" (ibid.:141). The ceremonial district of the site and the metates therein are thought to date ca. A.D. 500.

6.7 Discussion

In concluding this chapter, the chronological and spatial distribution of special purpose metates will be synthesized. Then, working under the indisputable assertion that Greater Nicoya, the rest of Costa Rica, and western Panama, became the heartland for the cultural practice of decoratively carving metates and using them in ritual contexts by Late Formative times, tentative suggestions will be offered concerning possible avenues that the diffusion of this custom may have taken within Mesoamerica and Lower Central America. In undertaking this last task, it must be made clear that it is not the purpose of this paper to discuss in great detail the nature of the Precolumbian relationship between Greater Nicoya on the one hand and Mesoamerica and the rest of Lower Central America on the other. That would involve several complete studies in itself, all of which eagerly await attention. The intention here is to relate the information derived from

the survey just completed to what is already widely acknowledged as evidence of the interplay of Greater Nicoya groups and their neighbors (due to the paucity of information on the presence of special purpose metates in northwestern South America, the discussion will focus on the potential significance of findings in areas to the north and just south of Greater Nicoya).

The survey indicates that metates (plain slab and supported) first turn up in mortuary context at the beginning of the Early Formative period in west-central Mexico. This appearance is apparently followed by a hiatus of approximately one thousand years before special purpose metates are again encountered in west-central Mexico (ca. 700 B.C.), and perhaps at this early date for the first time in Greater Nicoya, where plain tripod metates may occur in burials as far back as 800 B.C. Certainly by Late Formative times, plain tripod metates are found with some frequency in Greater Nicoya graves. Carved tripod metates are first known from central Panama and possibly Greater Nicoya around 300 B.C., and by A.D. 1 the phenomenon has spread throughout Costa Rica and western Panama, where distinct local special purpose tripod metate traditions flourish for several centuries before vanishing by no later than A.D. 800.

Sometime toward the end of the Early Classic period in Mesoamerica, plain tripod metates are detected in burials at Kaminaljuyu and Zaculeu in the western highlands of Guatemala

and in one burial at Tikal in the Peten, and by the Late Classic they are known from mortuary contexts in neighboring Chiapas. During the Late Classic period (or its chronological equivalent) carved special purpose metates show up, though sparsely, at lowland Maya sites and at Sitio Conte in central Panama (perhaps around this time the practice of interring individuals with metates begins in certain regions of northwestern South America). The carved metates reported from Copan and Quirigua may very well be of very late or Terminal Classic date, given that these sites reach their florescence at this time.

The timing of the emergence and demise of the animal-effigy tripod metate tradition of Honduras-El Salvador is problematic. Given the sheer number of pieces carved in the regional style (as seen in museum collections), it is apparent that the tradition was of marked importance to local groups. Unfortuately, none of these special purpose metates has been recovered from undisturbed context, and thus the tradition is not securely dated. Based on morphological similarities with the triangular-slab metates of Greater Nicoya, it is proposed that the animal-effigy tripod metates of Honduras-El Salvador date to roughly A.D. 500-800.

By the Early Postclassic, the carved tripod metate tradition throughout Lower Central America apparently died out. In Greater Nicoya carved special purpose metates are never again produced, but in the rest of Costa Rica and western

Panama, the tripod form gives way to the tetrapod, which first appears as early as A.D. 300 in Diquís and Chiriqui, Panama. The four-legged jaguar-effigy metate makes its appearance ca. A.D. 1000 and endures throughout this area until Spanish Contact.

To the north, the Early Postclassic period witnesses a marked increase in the occurrence of metates in mortuary and other ceremonial contexts. The first carved metates from verified mortuary context are found in the Guatemalan Highlands at Zaculeu, and a plain one-legged metate is known from an Early Postclassic burial in the Baja Verapaz, central Guatemala. Carved metates similar to those at Zaculeu are also known from the nearby Pacific slope, and may very well date to this period. Further north, the presence of hundreds of miniature metates in clear ritual settings within the caverns of Balankanche cave also dates to this period. The distinctive carved metate tradition of the Guatemalan Highlands continues into the Late Postclassic at Zaculeu and during this time it is detected at Tulum on the Yucatan peninsula. Finally, special purpose metates are uncovered anew in west-central Mexico, where carved pieces are found dating to the period just before Conquest.

Examination of the scattering of the dates and localities of special purpose metate finds reveals that the earlier, Formative period, manifestations tend to occur near the Pacific coast in both west-central Mexico and Lower Central America.

This pattern corresponds well with the proposals of many Americanists that the Pacific littoral was the site of significant and recurring contact, and the exchange of materials and ideas, between geographically distant Nuclear American groups, particularly during the Formative period, but continuing into later times (e.g.Willey 1955; Coe 1960; Ekholm and Evans 1962; Meighan 1974; Paulson 1977).

The very early and apparently isolated appearance of metates in burials in west-central Mexico is an enigma in that the phenomenon does not seem to occur again until approximately one thousand years later. Ca. 700 B.C., the mortuary metate tradition re-emerges in west-central Mexico (where traces of it are found over the next thousand years) and possibly appears for the first time in Greater Nicoya. By 300 B.C. the tradition (now including carved metates) is flourishing in Greater Nicoya and central Panama (Pacific watershed). How to interpret the roughly contemporaneous appearance of this phenomenon in much distant regions with no sign of its presence in the intervening area is open to speculation. In light of the lack of any other evidence for exchange-stimulous contact between the inhabitants of west-central Mexico and Greater Nicoya during the Formative, the practice of interring metates in burials, while suggestive, certainly does not in itself make the case for direct maritime or overland contact between the two regions. If indeed the presence of mortuary metates in Late Formative Greater Nicoya and Panama is a result

of the spread of the idea southward from its source of origin in west-central Mexico, it is possible that the Olmec played a role in its transmission, given the evidence for some kind of interaction between Olmec culture and Greater Nicoya groups during this time. However, except for the questionable evidence of special purpose metates at San Lorenzo, there is no indication that the Olmec themselves (or any other Mesoamerican group) adopted this practice.

Outside of west-central Mexico, the special purpose metate tradition (i.e. the carving of metates and/or the inclusion of plain or carved metates in burials) is limited to the Greater Nicoya-Costa Rica-Panama area until toward the end of the Early Classic period. During this time the decorative carving of metates gains in importance, and local traditions, united by the retention of the tripod form, develop in Greater Nicoya, the Central Highlands-Atlantic Watershed region of Costa Rica, Diquís-Chiriqui, and central Panama. Ceramic modal evidence is also suggestive of the existence of strong local traditions sharing in a larger cultural interaction sphere prior to A.D. 500.

In the latter half of the Early Classic mortuary metates appear for the first time in the Mesoamerican core area in the Western Highlands of Guatemala and the Peten. The presence of plain tripod metates in burials at Kaminaljuyu, Zaculeu, and Tikal is particularly intriguing. During the Esperanza phase significant Teotihuacán "influence" is well-documented at

Kaminaljuyu, while at Tikal there is similar evidence during the same period. The tripod mortuary metates then provide another link between Tikal and Kaminaljuyu-Teotihuacán. Nonetheless, no evidence of this tradition has been found at Teotihuacán or any other Central Mexican site. Might the stimulus therefore have its origins in Lower Central America?

By the onset of the Late Classic period in Mesoamerica and the coterminous Early Polychrome period in Greater Micoya, the evidence for north-south interaction and exchange is considerable. The unmistakable decorative and formal similarities between Galo Polychrome and ceramics from the Ulua valley and neighboring regions of Honduras has been pointed out by many investigators (e.g. Baudez and Coe 1962:369; Stone 1977:58; Lange in press). Whereas most of these fairly recent writings have at the least implied that Galo Polychrome indicates northern penetration into Greater Nicoya, earlier investigators suggested that the stimulus for the Ulua style and related polychromes may have originated in the south (Vaillant 1927:170), or minimally reflected an "interplay of northern and southern cultural forces" (Strong et al. 1938:118). As noted previously, it seems likely that the inhabitants of Honduras-El Salvador begin producing the low-swung tripod metates with protruding reptilian heads typical of the area during the Early Classic, signalling a spread of the carved tripod metate tradition from the south. Greater Nicoya triangular-slab metates and fragments have been found in this

region as well. Thus, the occurrence of carved metates--both locally made and traded in from Greater Nicoya--in Honduras-El Salvador, strengthens the ceramic evidence and is a further indication of significant cultural interaction (with an appreciable southern input) between the groups just to the south and east of the Maya and the inhabitants of Greater Nicoya ca. A.D. 500-800.

During the latter half of this interval, the local carved tripod traditions of Greater Nicoya, Costa Rica, and western Panama come to an end, and the tetrapod becomes the sole special purpose metate form in the latter two regions, while it never appears in Greater Nicoya. The participation in separate cultural spheres suggested by this discontinuity in the carved metate tradition is reaffirmed by ceramic data, which shows a similar divergence between Greater Nicoya on the one hand, and the rest of Costa Rica and Chiriqui on the other.

By the end of the Late-Terminal Classic period in Mesoamerica (the beginning of the Middle Polychrome period in Greater Nicoya), the appearance of several apparently related polychrome styles indicates continued interaction between Honduras-El Salvador and Greater Nicoya peoples, as well as the more active participation of the southern lowland Maya. Papagayo polychrome exhibits marked similarities with Las Vegas Polychrome from central Honduras (see Stone 1957: Frontpiece, for illustrations of the latter) and other Mesoamerican

white-slip ceramics. Mora Polychrome and other closely related Middle Polychrome ceramics (the Mora-Chircot-Birmania group) show a striking likeness to Tepeu 3 polychromes from the Peten and Copador Ware from the southeastern Maya area. At this time carved special purpose metates (tripod and tetrapod), in admittedly small numbers, begin turning up at lowland Maya sites such as Copan, Quirigua, and Uaxactun, and even as far to the north as Veracruz, thus strengthening the impression of cultural interplay between northern and southern Central American groups. Interestingly, as the carved tripod tradition dies out in Lower Central America, it emerges in Mesoamerica proper.

Throughout the Postclassic era north-south interrelationships intensify and expand geographically to include the active participation of certain Central Mexican groups. During this time the Pacific coastal plain regains its earlier prominence as the principal north-south exchange route (Sharer in press, a) and becomes a migratory corridor for displaced northern Mesoamerican peoples who eventually settle in Central America. A noteworthy sign of continued southern influence is the introduction of metal working in Mesoamerica. Metal artifacts first appear in Mesoamerica at the end of the Classic period in the southeastern Maya area (ibid.), and at roughly the same time in western Mexico (Mountjoy 1969). Moreover, a distinctive style of white-slipped pottery, often referred to as "Nicoya Polychrome," is found in Postclassic contexts at

many sites in the Maya area, most frequently in the Highlands, including Zaculeu (Woodbury and Trik 1953:194) and Las Tunas (Sharer and Sedat in press). At the latter site an Early Postclassic burial yielded a metate in association with a Nicoya-style vessel. Vessels in this style have also been reported from Central Mexico (Diehl et al. 1974). Correspondingly, evidence of a local, carved tripod metate tradition is found on the Pacific slope and in the highlands of Guatemala, and at some distance, along the eastern Yucatan coast at Tulum. Carved metates (tripods?) are also known from Late Postclassic contexts in west-central Mexico, a final re-emergence. Are these developments to be explained as purely indigenous phenomena, or interpreted, as Lothrop (1924: 57) suggests, as further evidence of the impact of Lower Central American influence on Mesoamerican culture history?

CHAPTER 7

CONCLUSIONS

The elaborately carved tripod metates of Greater Nicoya rank among the most extraordinary examples of stone sculpture in ancient America. This paper has synthesized and added to currently available information bearing on their archaeological associations and contexts in order to expand knowledge pertaining to their chronology and typology, and in addition, by examining their formal characteristics and ornamentation at some length, it has sought to reformulate past ideas and present new ideas concerning their function and meaning. Finally, the study has acknowledged the presence of carved and mortuary metates (i.e. special purpose metates) in other regions of Middle and South America, and in the process charted the spatial and temporal distribution of the phenomenon.

It has been shown that special purpose metates are present in the archaeological record of Greater Nicoya by as early as 800 B.C. and certainly no later than 300 B.C., and that they continue to appear in mortuary contexts until ca. A.D. 800. Evidence suggests that the first special purpose metates were plain tripods, but that by no later than A.D. 300 (and possibly several centuries earlier) a good percentage of the metates placed in burials were decoratively carved. A prior carved cylindrical support class and a subsequent

triangular-slab type have been defined on the basis of morphological attributes. Furthermore, it has been demonstrated that the dissimilarity in form is paralleled by a dissimilitude in decorative visual imagery and the carving techniques by which it is expressed.

By addressing the problem of function and meaning, it is hoped that some insight has been gained into the behavioral and ideational aspects of Zoned Bichrome-Early Polychrome Greater Nicoya society. For the myriad of archaeological and iconographical reasons presented in the preceding chapters, there seems little doubt that the objects under study were indeed designed and used as (ceremonial) metates, that their very essence was as (cultivated) food processing implements. It is felt that the prominence of the carved metate in this culture's ritual-ceremonial complex (even if only limited to its mortuary complex) and its distinction as a focal point in its artistic tradition, strongly suggest the importance of agriculture (perhaps maize) as a technicological adaptation, as a necessary food source as far back as the Zoned Bichrome period in Greater Nicoya prehistory (contrary to Graham's claim quoted in Chapter 1).

There seems little disagreement that the carved metates were symbolic of special status. While iconographic analysis suggests that both classes of metates symbolized shamanistic prowess and access to esoteric knowlecge, it intimates an evolution in the status of those whose special powers were

socially acknowledged, the result of the changing social-political-religious organization of Greater Nicoya society. Specifically, the iconographic shift may indicate the emergence of a more rank or status conscious society ca. A.D. 400-500 led by shaman-chiefs, one of whose principal concerns would have been the control of agriculturally production and the distribution of cultivated foodstuffs.

A thorough testing of this hypothesis as well as some of the other ideas presented in this paper and other problems not broached herein awaits additional archaeological input. The data on special purpose metates is noticeably deficient in many significant areas, some of which have already been noted. First, no systematically collected data is available on the frequency of metates in burials beyond that they occur in many but not all Zoned Bichrome and Early Polychrome graves. In order to address problems dealing with the relative rank-status of individuals using mortuary data, it is necessary to have at hand at least rough figures on the percentage of burials which contain metates, and of these, how many contain more than one, how many contain carved metates, and how many contain plain metates, or combinations thereof. Data on associated funerary goods (jade pendants, mace heads, and ceramics) might shed light on the question of status as well.

Second, no data is currently available on the sex of individuals interred with metates. Given the pan-Mesoamerican

cultural association of women with metates and most food preparation, it might be expected (see Woodbury and Trik 1953:222) that metates would only be buried with females. However, here, in light of the extraordinary nature of these objects and iconographic indications, it is expected that special purpose metates would be more likely to be placed in the graves of assumedly male shamanistic practitioners and male shaman-chiefs, who may or may not have done the actual ritual grinding of food substances themselves. Skeletal evidence to the contrary would of course force a rethinking of some of the conclusions drawn in this paper.

Third, patterns of spacial distribution within Greater Nicoya of the occurrence of special purpose metates have not been charted. Scattered localities are all that can presently be identified. It is not known whether mortuary metates appear with more frequency in the northern sector (Pacific Nicaragua) or in the south (Guancaste-Nicoya), along the coast or inland, and so on. Related to this gap in the archaeological record is the absence of data on where the metates were produced. In light of the technical sophistication and artistic talent that the sculpting of these objects evinces, it is thought inconceivable that each settlement had its own carving industry. Assuming there were production centers, where were they located? How were they organized? By what means were the metates distributed?, etc.

These are just a few of the significant lacunae and problems unresolved. A truly complete list would occupy a chapter in itself and read like many a lament on the poverty of solid archaeological data. But a final issue must be raised.

Clearly the labor and skill required to produce the more elaborately carved metates was considerable. They were fashioned out of a single block of volcanic rock with nothing more than stone or wooden tools and perhaps some string with sand as an abrasive. Breakage would have been avoided only by a careful, gradual attrition, and the final decorative carving required a deft touch. The complexity and quality of much of the work and the hours it must have demanded imply full-time or at least markedly specialized craftsmen. Who were these talented artisans and how much freedom were they granted in their work? The first question will more than likely never be answered. The second may be appropachable. The similarity in form, figural representations, and motifs within each class indicate a high degree of artistic conformity, yet no two metates are exactly alike. A thorough analysis of carving style might reveal regional or even personal styles, and might turn up sculptural idiosyncracies removed from all concern with the expression of social, political, religious, or ideological values, in effect revealing the artist's creative individuality.

BIBLIOGRAPHY

Abel, Suzanne
1978 An Interpretation of Two Burnt Clay Features in an Early Central American Village: Vidor Site, Bay of Culebra, Guanacaste, Costa Rica. Unpub. M.A. thesis, Department of Anthropology, Brown University. Providence.

Abel-Vidor, Suzanne
1980a Dos Hornos Precolombinos en el Sitio Vidor, Bahía Culebra, Guanacaste. Vínculos 6 (1-2):43-50. San José.

1980b The Historical Sources for the Greater Nicoya Archeological Sub-Area. Vínculos 6 (1-2):155-176. San José.

Accola, Richard M.
1977 Análisis de la Difracción de Raos X: Su Aplicación Experimental en el Estudio de la Ceramica Policromada de Nicoya, Costa Rica. Vínculos 3 (1):37-45. San José.

1978a A Decorative Sequence of Prehistoric Cermaics from the Vidor Site, Guanacaste, Costa Rica. Unpub. M.A. thesis, Department of Anthropology, University of Texas, Austin.

1978b Revisión de los Tipos de Cerámica del Periódo Policromo Medio en Guanacaste. Vínculos 4 (2):80-105. San José.

Accola, Richard M. and Peter R. Ryder
1980 Excavaciones en el Sitio Monte del Barco, Bahía Culebra. Vínculos 6 (1-2):67-80. San José.

Agrinier, Pierre
1969 Excavations at San Antonio, Chiapas. Papers of the New World Archaeological Foundation 28. Brigham Young University Press. Provo.

Anderson, Dana
1978 Monuments and Special Deposits. In The Prehistory of Chalchuapa, El Salvador, Vol. 1, pp. 155-1980, ed. Robert J. Sharer. University of Pennsylvania Press. Philadelphia.

Andrews, E. Wyllys IV
1970 Balankanche, Throne of the Tiger Prince. Middle American Research Institute, Tulane University, Publication 32. New Orleans.

Andrews, E. Wyllys V
1976 The Archaeology of Quelepa, El Salvador. Middle American Research Institute, Tulane University, Publication 42. New Orleans.

Baudez, Claude F.
1959 Nuevos Aspectos de la Escultura Lítica en Territorio Chorotega. Actas, 33rd Congreso Internacional de Americanistas, Vol. 2, pp. 286-295. San José.

1967 Recherches Archéologiques dans la Vallée du Tempisque, Guanacaste, Costa Rica. Travaux et Mémoirs de l'Institut des Hautes Etudes de l'Amerique Latine 18. Paris.

Baudez, Claude F. and Michael D. Coe
1962 Archaeological Sequences in Northwestern Costa Rica. Akten, 34th Internationalen Amerikanistenkongresses, pp. 366-373. Wien.

Belt, Thomas
1888 The Naturalist in Nicaragua. London.

Bennett, Wendell C.
1963 The Archaeology of Columbia. In Handbook of South American Indians, Vol. 2, ed. Julian H. Steward. Bureau of American Ethnology, Bulletin 143. Wash.,D.C.

Benzoni, Girolamo de
1889 La Historia del Mondo Nuovo. In Historia de Costa Rica durante la Dominacíon Española, 1502-1881, ed. Leon Fernandez. Madrid.

Bernstein, David J.
1980 Artefactos de Piedra Pulida de Guanacaste, Costa Rica: Una Perspectiva Funcional. Vínculos 6 (1-2): 141-154. San José.

Between Continents/Between Seas: Precolumbian Art of Costa Rica.
1981 The Detroit Institute of Arts. Harry N. Abrams, Inc. New York.

Bovallius, Carl
1886 Nicaraguan Antiquities. Stockholm.

Boyle, Frederick
1868 A Ride Across a Continent. 2 Vols. London.

Bransford, J.F.
1881 Archaeological Researches in Nicaragua. Smithsonian Contributions to Knowledge, No. 383. Wash., D.C.

1882 Report on the Explorations in Central American in 1881. Annual Report of the Smithsonian Institution for the Year 1881. Government Printing Office. Wash., D.C.

Brazaitis, Peter
1973 The Identification of Living Crocodilians. New York Zoological Society: Zoologica 4:59-101.

Brodnicky, Edward
N.D. Utilitarian Stone Tools found in the Playa Panama by the Beloit Field School, 1973. Ms. on file National Museum of Costa Rica.

Bunzel, Ruth
1959 Chichicastenango: A Guatemalan Village. University of Washington Press. Seattle.

Chadwick, Robert
1971 Archaeological Synthesis of Michoacan and Adjacent Regions. In Handbook of Middle American Indians, Vol. 11, ed. Gordon Ekholm. University of Texas Press. Austin.

Chadwick, Robert and Richard S. MacNeish
1967 Codex Borgia and the Ventana Salada Phase. In Prehistory of the Tehuacan Valley, Vol. 1, Environment and Subsistence, ed. D.S. Beyers, University of Texas Press. Austin.

Codice Borgia
1963 Fondo de Cultura Económica. Mexico, D.F.

Coe, Michael D.
1960 Archaeological Linkages with North and South America at La Victoria, Guatemala. American Anthropologist 62:363-393.

1962a Costa Rican Archaeology and Mesoamerica. Southwestern Journal of Anthropology 18:170-183.

1962b Preliminary Report on Archaeological Investigations in Costal Guanacaste, Costa Rica. Akten, 34th Internationalen Amerikanistenkongresses, pp. 358-365. Wien.

1965 The Olmec Style and Its Distributions. In Handbook of Middle American Indians, Vol. 3, Pt. 2, ed. R. Wauchope and G. Willey. University Texas Press. Austin.

1972 Olmec Jaguars and Olmec Kings. In The Cult of the Feline, ed. E. P. Benson, pp. 1-18. Dumbarton Oaks Research Library and Collections. Wash., D.C.

Coe, Michael D. and Claude F. Baudez
1961 The Zoned Bichrome Period in Northwest Costa Rica. American Antiquity 26 (4):505-515.

Coe, William R.
1959 Piedras Negras Archaeology: Artifacts, Caches, and Burials. Museum Monographs, The University Museum, University of Pennsylvania, Philadelphia.

Coggins, Clemency
1976 Teotihuacan at Tikal in the Early Classic Period. Proceedings, 42nd Congress of Americanists, Vol. 8, pp. 252-269. Paris.

Cook, Richard G.
1983 Current Research: Lower Central America. American Antiquity 48 (1):176-178.

Diehl, Richard A., Roger Lomas, and Jack T. Wynn
1974 Toltec Trade with Central America. Archaeology 27 (3):182-187.

Duran, Fray Diego
1971 Book of the Gods and Rites and the Ancient Calendar, ed. and trans. by Fernando Horcasitas and Doris Heyden. University of Oklahoma Press. Norman.

Dutton, Bertha P. and H. R. Hobbs
1943 Excavations at Tajumulco, Guatemala. Monographs of the School of American Research, no. 9. Santa Fe.

Edmonson, Munro S.
1971 The Book of Counsel: The Popol Vuh of the Quiche Maya of Guatemala. Middle American Research Institute, Tulane University, Publication 35. New Orleans.

Ekholm, Gordon F. and Clifford Evans
1962 The Interrelationships of New World Cultures: A Coordinated Research Program of the Institute of Andean Research. Akten, 34th Internationalen Amerikanistenkongresses, pp. 253-265. Wien.

Eliade, Mircea
1964 Shamanism: Archaic Techniques of Ecstasy. Bollingen Series, No. 86. New York.

Fenton, William
1952 The Training of Historical Ethnologists in America. American Anthropologist 54:328-339.

Ferrero, Luis
1977 Costa Rica Precolombina. 2nd Edition. Serie Biblioteca Patria 6. Editorial Costa Rica. San José.

Flint, Earl
N.D. A large number of letters written to Professor F. W. Putnam by Flint, now in the Peabody Museum, Harvard University.

Fonesca Zamora, Oscar and James B. Richardson III
1978 South American and Maya Cultural Contacts at the Las Huacas Site, Costa Rica. Annals of Carnegie Museum 47 (13):299-317. Pittsburgh.

Fonseca Zamora, Oscar and Richard Scaglion
1978 Stylistic Analysis of Stone Pendants from Las Huacas Burial Ground, Northwestern Costa Rica. Annals of Carnegie Museum 47 (12):281-298. Pittsburgh.

Ford, James A.
1969 A Comparison of Formative Cultures in the Americas: Diffusion or the Psychic Unity of Man. Smithsonian Contributions to Anthropology, Vol. 11. Wash., D.C.

Foster, George
1944 Nagualism in Mexico and Guatemala. Acta Americana, Vol. II, pp. 85-103.

Furst, Peter T.
1968 The Olmec Were-Jaguar Motif in Light of Ethnographic Reality. In Dumbarton Oaks Conference on the Olmec, ed. E. P. Benson, pp. 143-174. Dumbarton Oaks Research Library and Collections. Wash., D.C.

Gossen, Gary H.
1974 Chamulas in the World of the Sun: Time and Space in a Maya Oral Tradition. Harvard University Press. Cambridge.

1975 Animal Souls and Human Destiny in Chamula. Man 10 (3):448-461.

Graham, Mark
1979 A New Look at Mesoamerican Influence on Costa Rican Art. Paper presented at the 44th annual meeting of the Society for American Archaeology. Vancouver, B.C.

1981 Traditions of Costa Rican Stone Sculpture. In Between Continents/Between Seas: Precolumbian Art of Costa Rica, pp. 113-134. The Detroit Institute of Arts. Harry N. Abrams, Inc. New York.

Guerrero M., Juan Vicente
in press Recientes Investigaciones en el Valle de Nosara, Guanacaste, Costa Rica. Journal of the Steward Anthropological Society.

Haberland, Wolfgang
1957 Black-on-Red Painted Ware and Associated Features in the Intermediate Area. Ethnos 22 (1-2):148-161.

1961 Two Shaman Graves in Central America. Archaeology 14 (3):154-160.

1963 Ometepe 1962-1963. Archaeology 16 (4):287-289.

1966 Early Phases on Ometepe Island, Nicaragua. Proceedings, 36th International Congress of Americanists, Vol. 1, pp. 399-403. Seville-Madrid.

Hartman, Carl V.
1901 Archaeological Researches in Costa Rica. The Royal Ethnographic Museum. Stockholm.

1907 Archaeological Researches on the Pacific Coast of Costa Rica. Memoirs of the Carnegie Museum, Vol. 3, no. 1. Pittsburgh.

Healy, Paul F.
1980 Archaeology of the Rivas Region, Nicaragua. Wilfred Laurier University Press. Ontario.

Heath, Dwight B.
1973a Bootleg Archaeology in Costa Rica. Archaeology 26 (3):217-219.

1973b Economic Aspects of Commercial Archaeology in Costa Rica. American Antiquity 38:259-265.

Helms, Mary W.
1977 Iguanas and Crocodilians in Tropical American Mythology and Iconography with Special Reference to Panama. Journal of Latin American Lore 3 (1):51-132.

1979 Ancient Panama: Chiefs in Search of Power. University of Texas Press. Austin.

Holland, William H.
1964 Contemporary Tzotzil Cosmological Concepts as a Basis for Interpreting Prehistoric Maya Civilization. American Antiquity 29:301-306.

Holmes, William H.
1888 Ancient Art of Chiriqui. Bureau of American Ethnology 6th Annual Report, 1884-1885, pp. 13-186. Smithsonian Institution, Wash., D.C.

Hoopes, John
1979 Recent Archaeological Investigations at the Site of La Guinea, Tempisque River Valley, Guanacaste, Costa Rica. Unpub. B.A. thesis, Yale University. New Haven.

Hunt, Eva
1977 The Transformation of the Hummingbird: Cultural Roots of a Zinacantan Mythical Poem. Cornell University Press. Ithaca.

Ichon, Alain
1980 Archéologie de Sud de la Peninsule d'Azuero Panama. Etudes Mesoaméricaines: Serie 11 (3). Mission Archeologique et Ethnologique Francais au Mexique. Mexico.

Jennings, Jessie D.
1964 The Desert West. In Prehistoric Man in the New World, eds. J.D. Jennings and E. Norbeck, pp. 149-174. University of Chicago Press. Chicago.

Joralemon, Peter D.
1976 The Olmec Dragon: A Study in Pre-Columbian Iconography. In Origins of Religious Art and Iconography in Pre-Classic Mesoamerica, ed. H. B. Nicholson, pp. 27-71. UCLA Latin America Studies Series, Vol. 31. Los Angeles.

Joyce, T. A., J. C. Clarke and J.E.S. Thompson
1927 Report on the British Museum Expedition to British Honduras, 1927. Journal of the Royal Anthropological Institute, Vol. 57:295-323. London.

Kelly, Isabel
1949 The Archaeology of the Autlán-Tuxcacesco Area of Jalisco. I: The Tuxcacuesco-Zapotitlán Zone. Ibero-American 27. University of California Press. Berkeley.

1980 Ceramic Sequence in Colima: Capacha, An Early Phase. Anthropological Papers of the University of Arizona, no. 37. University of Arizona Press. Tucson.

Kerbis, Julien
1980 The Analysis of Faunal Remains from the Vidor Site. Vínculos 6 (1-2):125-140. San José.

Kidder, Alfred V.
1947 The Artifacts of Uaxactun, Guatemala. Carnegie Institution of Washington, Publication 576. Wash., D.C.

Kidder, A. V., J. D. Jennings and E. M. Shook
1946 Excavations at Kaminaljuyu, Guatemala. Carnegie Institution of Washington, Publication 561. Wash., D.C.

Kirchoff, Paul
1948a The Caribbean Lowland Tribes: The Mosquito, Sumo. Paya, and Jicaque. In Handbook of South American Indians, Vol. 4, ed. Julien H. Steward, pp. 219-230. Bureau of American Ethnology, Bulletin 143. Wash., D.C.

1948b The Guayupe and Sae. In Handbook of South American Indians, Vol. 4, ed. Julien H. Steward, pp. 385-392. Bureau of American Ethnology, Bulletin 143. Wash., D.C.

Kubler, George
1962 The Shape of Time: Remarks on the History of Things. Yale University Press. New Haven.

1967 The Iconography of the Art of Teotihuacán. Studies in Pre-Columbian Art and Archaeology, No. 4. Dumbarton Oaks. Wash., D.C.

1970 Period, Style, and Meaning in Ancient American Art. New Literary History: A Journal of Theory and Interpretations from the University of Virginia 1:127-144.

1972 Jaguars in the Valley of Mexico. In The Cult of the Feline, ed. E. P. Benson, pp. 19-44. Dumbarton Oaks Research Library and Collections. Wash., D.C.

Ladd, John
1964 Archaeological Investigations in the Parita and Santa Maria Zones of Panama. Bureau of American Ethnology, Bulletin 193. Wash., D.C.

Lange, Frederick W.
1971 Culture History of the Sapoá River Valley, Costa Rica. Logan Museum of Anthropology Occasional Papers in Anthropology 4. Beloit, Wisconsin.

1976 The Northern Central American Buffer: A Current Perspective. Latin American Research Review 11:177-183.

1978 Costal Settlement in Northwestern Costa Rica. In Prehistoric Coastal Adaptations, ed. B. Stark and B. Voorhies, pp. 101-119. Academic Press, New York.

1979 Shells, Spoons, Maces, and Stools: A Look at Social Organization in Pre-Columbian Costa Rica. Paper presented at the 78th annual meeting of the American Anthropological Association. Cincinnati.

1980a The Formative Zoned Bichrome Period in Northwestern Costa Rica (800 B.C. to A.D. 500), based on Excavations at the Vidor Site, Bay of Culebra. Vínculos 6 (1-2):33-42. San José.

1980b Pacific Coastal Ceramics in Highland Costa Rican Mortuary Contexts: Commerce or Ritual? Paper presented at the 45th annual meeting of the Society for American Archaeology. Philadelphia.

in press The Greater Nicoya Archaeological Subarea. In Advanced Seminar on Lower Central American Archaeology. School of American Research. Santa Fe.

Lange, F. W. and K. Scheidenhelm
1972 The Salvage Archaeology of a Zoned Bichrome Cemetery. American Antiquity 37:240-245.

Lange, F. W. and Richard M. Accola
1979 Metallurgy in Costa Rica. Archaeology 32:26-33.

Lange, F. W., R. M. Accola and P. R. Ryder
1980 La Administracíon de los Recursos Culturales en Bahía Culebra. Vínculos 6 (1-2):9-32. San José.

Lange, F. W., Ronald L. Bishop and Lambertus van Zelst
1981 Perspectives on Costa Rican Jades: Compositional Analyses and Cultural Implications. In Between Continents/Between Seas: Precolumbian Art of Costa Rica. The Detroit Institute of Arts. Harry N. Abrams, Inc. New York.

Las Casa, Bartolomé de
1909 Apolgética Historia de las Indias. Nueva Biblioteca de Autores Españoles. Madrid.

Lathrap, Donald W.
1971 Complex Iconographic Features shared by Olmec and Chavin and some Speculations on their Possible Significance. Paper presented at Primer Simposio de Correlaciones Antropológicas Andino-Mesoamericano. Ecuador.

1973 Gifts of the Caymen. In Variation in Anthropology, ed. D. Lathrap and J. Douglas, pp. 96-106. Illinois Archaeological Survey. Urbana.

1974 The Moist Tropics, the Arid Lands, and the Appearance of Great Art Styles in the New World. In Art and Environment in Native America, ed. M. E. King and I. R. Traylor. Lubbock.

Lawrence, John W. and Ellen T. Hardy
in press Excavation of an Early Polychrome Period Tomb at Nacasolo. Journal of New World Archaeology.

Lee, Thomas A., Jr.
1974 Mound 4 Excavations at San Isidro, Chiapas, Mexico. Papers of the New World Archaeological Foundation 34. Brigham Young University Press. Provo.

Lehmann, Henri.
1963 The Archaeology of the Popayán Region, Columbia. In Handbook of South American Indians, Vol. 2, ed. Julian H. Steward. Bureau of American Ethnology, Bulletin 1943. Wash., D.C.

Lévi-Strauss, Claude
1969 The Raw and the Cooked. Harper and Row. New York.

1973 From Honey to Ashes. Harper and Row. New York.

Linares, Olga F.
1977 Ecology and the Arts in Ancient Panama. Studies in Pre-Columbian Art and Archaeology, No. 17. Dumbarton Oaks. Wash., D.C.

Linares, Olga F., Payson D. Sheets and E. Jane Rosenthatl
1975 Prehistoric Agriculture in Tropical Highlands. Science 187:137-145.

Lines, Jorge
1936 Una Huaca en Zapandi, Notas preliminares tomadas a propósito de las excavaciones arqueológicas hechas a raíz de la inundación del Río Tempisque en 1933, Filadelfía, Provincia de Guanacaste, Península de Nicoya, Costa Rica. San José.

Longyear, J. M.
1944 Archaeological Investigations in El Salvador. Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 9, No. 2, Cambridge.

1952 Copan Ceramics: A Study of Southeastern Maya Pottery. Carnegie Institution of Washington, Publication 597. Wash., D.C.

Lothrop, Samuel K.
1924 Tulum: An Archaeological Study of the East Coast of Yucatan. Carnegie Institution of Washington, Publication 335. Wash., D.C.

1926 Pottery of Costa Rica and Nicaragua, 2 Vols. Contributions, Vol. 8, Museum of the American Indian, Heye Foundation. New York.

1927 The Museum Central American Expedition, 1925-26. Indian Notes, Vol. 4, No. 1. Museum of the American Indian, Heye Foundation. New York.

1936 Zacualpa: A Study of Ancient Quiche Artifacts. Carnegie Institution of Washington, Publication 472. Wash., D.C.

1937-1942 Coclé, An Archaeological Study of Central Panama, Pts. I and II. Memoirs, Vols. 7 and 8, Peabody Museum, Harvard University. Cambridge.

1950 Archaeology of Southern Veraguas, Panama. Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 9, No. 3, Cambridge.

Loundsbury, Floyd G.
1973 On the Derivation and Reading of the "Ben-Ich" Prefix. In Mesoamerican Writing Systems, ed. E. P. Benson, pp. 99-143. Dumbarton Oaks Research Library and Collections. Wash., D.C.

MacCurdy, George G.
1911 A Study of Chiriquian Antiquities. Memoirs of the Connecticut Academy of Arts and Sciences, Vol. III. Yale University Press. New Haven.

MacNeish, R. A., A. Nelken-Turner and I. Johnson
1967 The Prehistory of the Tehuacan Valley, Vol. 2: Non-Ceramic Artifacts. University of Texas Press. Austin.

Markham, Clements R. (ed.)
1864 The Travels of Pedro Cieza de León. The Hakluyt Society, First Series, No. 33. Burt Franklin. New York.

Mason, J. Alden
1943 The American Collection of the University Museum: The Ancient Civilizations of Middle America. Bulletin University of Pennsylvania Museum.

1945 Costa Rican Stonework: The Minor C. Keith Collection. Anthropological Papers of the American Museum of Natural History 39. New York.

McGimsey, Charles R.
1956 Cerro Mangote: A Preceramic Site in Panama. American Antiquity 22:151-161.

1958 Further Data and a Date from Cerro Mangote, Panama. American Antiquity 23:434-435.

Meggers, Betty J.
1966 Ecuador. Thames and Hudson. London.

Meggers, Betty J., Clifford Evans, and Emilio Estrada.
1965 Early Formative Period of Coastal Ecuador. Smithsonian Contributions to Anthropology, Vol. 1, Wash., D.C.

Meighan, Clement W.
1974 Prehistory of West Mexico. Science 184:1254-1261.

Miller, Arthur G.
1973 The Mural Painting of Teotihuacán. Dumbarton Oaks Research Library and Collections. Wash., D.C.

Molina, Fray Alonso de
1880 Vocabulario de la Lengua Mexicana. B. G. Teubner. Leipzig.

Moreau, Jean-Francois
1975 Deux Amas Coquilliers Costaricains. Unpub. M.A. thesis, University of Montreal.

1977 A Biological Approach to Site Seasonality: Shell Analysis of a Costa Rica Shell Midden. Paper presented at the 43rd annual meeting of the Society for American Archaeology. Tucson.

Motolinia, Fray T. de
1970 Memoriales e Historia de los Indios de la Nueva España. Madrid.

Mountjoy, Joseph B.
1969 On the Origin of West Mexican Metallurgy. In Pre-Columbian Contact within Nuclear America, Meso-American Studies, No. 4. Southern Illinois University. Carbondale, Ill.

Muse, Mike and Terry Stocker
1974 The Cult of the Cross: Interpretations in Olmec Iconography. Journal of the Steward Anthropological Society 5:67-98.

Nicholson, Henry B.
1976 Preclassic Mesoamerican Iconography from the Perspective of the Postclassic: Problems in Interpretational Analysis. In Origins of Religious Art and Iconography in Pre-Classic Mesoamerica, ed. H. B. Nicholoson, pp. 157-176. UCLA Latin American Studies Series, Vol. 31. Los Angeles.

Norman, V. Garth
1973 Izapa Sculpture, Part 1: Album. Papers of the New World Archaeological Foundation, No. 30. Brigham Young University Press. Provo.

Norweb, Albert
1961 The Archaeology of the Greater Nicoya Subarea. Harvard University, Seminar Paper in Anthropology. Cambridge.

1964 Ceramic Stratigraphy in Southwestern Nicaragua. Proceedings, 35th International Congress of Americanists, Vol. 1, pp. 551-561. Mexico.

Oviedo y Valdéz, Gonzalo Fernández de
1851-1855 Historia General y Natural de las Indias, Islas y Tierra-Firme del Mar Océano. 4 Vols. Madrid.

Paddock, John
1970 A Tetrapod Metate from the Chinantla. Boletín de Estudios Oaxaqueños, No. 30.

Panofsky, Erwin
1944 Renaissance and Renascences. Kenyon Review 6: 201-236.

1960 Renaissance and Renascences in Western Art. Almqvist and Wiksells. Stockholm.

Parsons, Lee A.
1969 Bilbao, Guatemala: An Archaeological Study of the Pacific Coast Cotzumalhuapa Region. Publications in Anthropology 12. Milwaukee Public Museum, Milwaukee.

Pasztory, Esther
1978 Artistic Traditions of the Middle Classic Period. In Middle Classic Mesoamerica: A.D. 400-700, ed. E. Pasztory. Columbia University Press. New York.

Paulsen, Allison C.
1977 Patterns in Maritime Trade between South Coastal Ecuador and Western Mesoamerica. In The Sea in the Pre-Columbian World, ed. E. P. Benson, pp. 141-161. Dumbarton Oaks Research Library and Collections. Wash., D.C.

Pollock, Harry E. D.
1980 The Puuc: An Architectural Survey of the Hill Country of Yucatan and Northern Campeche, Mexico. Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 19. Cambridge.

Popenoe, Dorothy H.
1936 The Ruins of Tenampua, Honduras. Smithsonian Report for 1935, pp. 559-572. Wash., D.C.

Porter, Muriel N.
1956 Excavations at Chupicuaro, Guanajuato, Mexico. Transactions of the American Philosophical Society, Vol. 46, Pt. 5. Philadelphia.

Puleston, Dennis E.
1976 The People of the Cayman/Crocodile: Riparian Agriculture and the Origins of Aquatic Motifs in Ancient Maya Iconography. In Aspects of Ancient Maya Civilization, ed. F. Auguste de Montequin, pp. 1-25. Hamline University. St. Paul.

1977 The Art and Archaeology of Hydraulic Agriculture in the Maya Lowlands. In Social Process in Maya Prehistory, ed. N. Hammond, pp. 449-467. Academic Press. London.

Reichel-Dolmatoff, Gerardo
1950-1951 Los Kogi. Revista del Instituto Etnológico Nacional, Vol. 4. Bogotá.

1965 Columbia. Thames and Hudson. London.

1971 Amazonian Cosmos. University of Chicago Press. Chicago.

1975 The Shaman and the Jaguar. Temple University Press. Philadelphia.

Ricketson, Oliver G.
1931 Excavations at Baking Pot, British Honduras. Carnegie Institution of Washington, publication 403, No. 1. Wash., D.C.

Ricketson, Oliver G. and Edith B. Ricketson
1937 Uaxactun, Guatemala: Group E, 1926-1931. Carnegie Institution of Washington, Publication 477. Wash., D.C.

Robicsek, Francis
1975 A Study in Maya Art and History: The Mat Symbol. The Museum of the American Indian, Heye Foundation. New York.

Rouse, Irving
1948 The Arawak. In Handbook of South American Indians, Vol. 4, ed. Julien H. Steward. Bureau of American Ethnology, Bulletin 143. Wash., D.C.

1962 The Intermediate Area, Amazonia, and the Caribbean. In Courses Toward Urban Life, eds. R. J. Braidwood and G. R. Willey. Viking Fund Publications in Anthropology, No. 32. Wenner-Gren Foundation. New York.

Rouse, I. and J. M. Cruxent
1963 Venezuela Archaeology. Yale University Press. New Haven.

Rowe, John H.
1959 Carl Hartman and his Place in the History of Archaeology. Actas, 33rd Congreso Internacional de Americanistas, Vol. 2, pp. 268-279. San José.

1962 Chavín Art: An Inquiry into its Form and Meaning. The Museum of Primitive Art. New York.

1967 Form and Meaning in Chavín Art. In Peruvian Archaeology: Selected Readings, eds. J. H. Rowe and D. Menzel, pp. 72-103. Peek Publications. Palo Alto.

Roys, Ralph L.
1967 The Book of Chilam Balam of Chumayel. University of Oklahoma Press. Norman.

Ruz, Lhuillier Alberto
1958 Exploraciones Arqueológicas en Palenque: 1953-1956. Anales Instituto Nacional de Antropologia e Historia, Vol. 10, pp. 69-299. Secretaria de Educación Pública. Mexico, D.F.

Ryder, Peter R.
1980 Mojica: A Zoned Bichrome Cemetery in Northwestern Costa Rica. Paper presented at the 45th annual meeting of the Society for American Archaeology. Philadelphia.

in press Hacienda Mojica.... Journal of the Steward Anthropological Society.

N.D. Lithic Analysis of the Playa Panamá Collection, 1976. Ms. on file National Museum of Costa Rica.

Sahagún, Bernardino de
1969 Historia General de las Cosas de Nueva España. 2nd Edition. Editorial Porrua, S.A. Mexico.

Scott, N. J.
1966 Ecologically Important Aspects of the Climates of Costa Rica. Organization for Tropical Studies, Inc. Mimeograph.

Sharer, Robert J.
in press a Lower Central America as seen from Mesoamerica. In Advanced Seminar on Lower Central American Archaeology. School of American Research. Santa Fe.

in press b Terminal Classic Events in the Southeastern Lowlands: A View from Quirigua. In Lowland Maya Postclassic: Questions and Answers, eds. A. F. Chase and P. M. Rice.

Sharer, Robert J. and David W. Sedat
in press Archaeological Investigations in the Salama Valley, Baja Verapaz, Guatemala. University of Pennsylvania. Philadelphia.

Sheets, Payson
1978 Artifacts. In The Prehistory of Chalchuapa, El Salvador, Vol. 2., ed. R. J. Sharer. University of Pennsylvania Press. Philadelphia.

Shook, Edwin M. and Alfred Kidder II
1961 The Painted Tomb at Tikal. Expedition 4 (1):2-7.

Simón, Pedro
1882-1892 Notocias Historiales de las Conquistas de Tierra Firme en las Indias Occidentales. 5 Vols. Bogotá.

Skinner, Alanson
1926 Notes on Las Mercedes, Costa Rica Farm, and Anita Grande. In Pottery of Costa Rica and Nicaragua, S. K. Lothrop, pp. 451-467. Museum of the American Indian, Heye Foundation. New York.

Snarskis, Michael J.
1978 The Archaeology of the Central Atlantic Watershed of Costa Rica. Unpub. Ph.D. dissertation, Department of Anthropology, Columbia University. New York.

1979 El Jade de Talamanca de Tibás. Vínculos 5 (2):89-107. San José.

1981a The Archaeology of Costa Rica. In Between Continents/ Between Seas. The Detroit Institute of Arts. Harry N. Abrams, Inc. New York.

1981b Catalogue. In Between Continents/Between Seas. The Detroit Institute of Arts. Harry N. Abrams, Inc. New York.

in press Central America: The Lower Caribbean. In Advanced Seminar on Lower Central American Archaeology. School of American Research Santa Fe.

Snarskis, Michael J. and Aida Blanco
1978 Data sobre Cerámica Policromada Guanacasteca Excavada en la Meseta Central. Vínculos 4 (2): 106-113. San José.

Spinden, Herbert J.
1917 The Origin and Distribution of Agriculture in America. Proceedings, 19th International Congress of Americanists, pp. 269-276. Wash., D.C.

1925 The Chorotegan Culture Area. Proceedings, 21st International Congress of Americanists, Pt. 2, pp. 529-545. Goteborg.

1928 Ancient Civilizations of Mexico and Central America. Handbook Series, No. 3. American Museum of Natural History. New York.

1957 Maya Art and Civilization. The Falcon's Wing Press. Indian Hills, Colorado.

Squier, E. G.
1852 Nicaragua: Its People, Scenery, Monuments, and the Proposed Interoceanic Canal. 2 Vols. New York.

1853 Observations on the Archaeology and Ethnology of Nicaragua. Transactions American Ethnological Society, Vol. III, Pt. I. New York.

Steward, Julien H.
1942 The Direct Historical Approach to Archaeology. American Antiquity 38:337-343.

1955 Theory of Culture Change. University of Illinois Press. Urbana.

Stirling, Matthew W.
1950 Exploring Ancient Panama by Helicopter. National Geographic Magazine, Vol. 97, No. 2, pp. 227-246.

Stocker, Terry, Sarah Meltzoff, and Steve Armsey
1980 Crocodilians and Olmecs: Further Interpretations in Formative Period Iconography. American Antiquity 45: 740-758.

Stone, Doris Z.
1941 Archaeology of the North Coast of Honduras. Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 9, No. 1. Cambridge.

1943 A Preliminary Investigation of the Flood Plain of the Río Grande de Térraba, Costa Rica. American Antiquity 9:74-88.

1957 The Archaeology of Central and Southern Honduras. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 44, No. 3. Cambridge.

1966 Synthesis of Lower Central American Ethnohistory. In Handbook of Middle American Indians, Vol. 4, ed. R. Wauchope, G. Ekholm and G. Willey. University of Texas Press. Austin.

1972 Pre-Columbian Man Finds Central America. Peabody Museum Press. Cambridge.

1977 Pre-Columbian Man in Costa Rica. Peabody Museum Press. Cambridge.

Stone, Doris Z. and Carlos Balser
1957 Grinding Stones and Mullers of Costa Rica. Journal de la Societe des Americanistes. N.S. 46:165-179. Paris.

Stromsvik, Gustav
1931 Notes on the Metates of Chichen Itza, Yucatan, Carnegie Institution of Washington, Publication 403, Contributions to American Archaeology, No. 4, Wash., D.C.

Strong, W. A., A. Kidder II and A. Paul
1938 Preliminary Report on the Smithsonian Institution-Harvard University Archaeological Excavation to Northwestern Honduras, 1936, Smithsonian Miscellaneous Collections, Vol. 97, No. 1, Wash., D.C.

Swauger, James L. and William J. Mayer-Oakes
1952 A Fluted Point from Costa Rica. American Antiquity 17:264-265.

Sweeney, Jeanne
1975 Guanacaste, Costa Rica: An Analysis of Precolumbian Ceramics from the Northwest Coast. Unpub. Ph.D. dissertation, Department of Anthropology, University of Pennsylvania. Philadelphia.

Tello, Julio C.
1961 Chavin: Cultura Matriz de la Civilación Andina, Primera Parte. Universidad de San Marcos. Lima.

Thompson, J.E.S.
1939 The Moon Goddess in Middle America: With Notes on Related Deities. Carnegie Institution of Washington Contributions to American Anthropology and History. Carnegie Institution of Washington, Division of Historical Research, No. 17. Wash., D.C.

1943 Some Sculptures from Southeastern Quetzaltenango, Guatemala. Notes on Middle American Archaeology and Ethnology. Carnegie Institution of Washington, Division of Historical Research, No. 17. Wash., D. C.

1948 An Archaeological Reconnaissance of the Cotzumalhuapa Region, Escuintla, Guatemala. Carnegie Institution of Washington Contributions, No. 44, Publication 574. Wash., D.C.

1962 A Catalogue of Maya Hieroglyphics. University of Oklahoma Press. Norman.

1970 Maya History and Religion. University of Oklahoma Press. Norman.

1971 Maya Hieroglyphic Writing. University of Oklahoma Press. Norman.

Torquemada, Juan de
1943 Los Viente y un Libros Rituales y Monarquia Indiana. Madrid.

Tylor, Edward B.
1861 Anahuac or Mexico and the Mexicans, Ancient and Modern. Longman, Green, and Roberts. London.

Vaillant, George C.
1927 The Chronological Significance of Maya Ceramics. Unpubl. Ph.D. thesis, Harvard University. Cambridge.

1931 Excavations at Ticoman. American Museum of Natural History, Anthropological Papers, Vol. 32, Pt. 2. New York.

1930 Excavations at Zacatenco. American Museum of Natural History, Anthropological Papers, Vol. 32, Pt. 1. New York.

1935 Excavations at El Arbolillo. American Museum of Natural History, Anthropological Papers, Vol. 35, Pt. 2. New York.

Vázquez Levia, Ricardo
in press Excavaciones de Muestro en el Sitio Nacascolo un paso adelante dentro del Proyecto Arqueológico Bahía Culebra, Costa Rica. Journal of the Steward Anthropological Society.

Vázquez Levia, Ricardo and David S. Weaver
1980 Un Análisis Osteológico para el Reconocimiento de las Condiciones de Vida en Sitio Vidor. Vínculos 6 (1-2):97-106.

Verneau, R. and P. Rivet
1912-1922 Ethnographie ancienne de l'Équateur. Mission du Service Geographique de l'Armée pour la mesure d'un arc de méridien équatorial en Amérique du Sud sous le contrôle scientifique de l'Académie des Sciences, 1899-1906, Vol. VI. Paris.

Wallace, Henry and Richard M. Accola
1980 Investigaciones Arqueologicas Preliminares de Nacascolo, Bahía Culebra. Vínculos 6 (1-2):51-66. San José.

Weiant, C. W.
1943 An Introduction to the Ceramics of Tres Zapotes, Veracruz, Mexico. Bureau of American Ethnology, Bulletin 139. Wash., D.C.

West, Robert C.
1964 The Natural Regions of Middle America. In Handbook of Middle American Indians, Vol. 1, ed. R. C. West, pp. 33-83. University of Texas Press. Austin.

Willey, Gordon R.
1955 The Interrelated Rise of the Native Cultures of Middle and South America. In New Interpretations of Aboriginal American Culture History, 75th Anniversary Volume, pp. 28-45, Anthropological Society of Washington. Wash., D.C.

1959 The 'Intermediate Area' of Nuclear America: Its Prehistoric Relationships to Middle America and Peru. Actas, Congreso Internacional de Americanistas, Vol. 1, pp. 184-194. San José.

1966 An Introduction to American Archaeology, Volume 1: North and Middle America. Prentice-Hall. Englewood Cliffs, New Jersey.

1971 An Introduction to American Archaeology, Volume 2: South America. Prentice-Hall. Englewood Cliffs, New Jersey.

1972 The Artifacts of Altar de Sacrificios. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 64, No. 1. Cambridge.

1978 Excavations at Seibal: Artifacts. Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 14, No. 1. Cambridge.

Woodbury, R. B. and A. Trik
1953 The Ruins of Zaculeu, Guatemala. William Bird Press. Richmond, Virginia.

addendum

Coe, Michael D. and Richard A. Diehl
1980 In the Land of the Olmec. University of Texas Press. Austin.

FIGURES

Fig. 1: a) Cylindrical Support Metate from the collection of the University Museum, University of Pennsylvania: 43 cm. in length, 27 cm. in width and 14 cm. in height
b) Triangular-slab Support Metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2438/1410): 38 cm. in length, 18 cm. in width and 15 cm. in height (photograph courtesy of the Carnegie Museum of Pittsburgh)

Fig. 2: Map of the Greater Nicoya Archaeological Subarea (after Lange 1971: fig. 1)

Fig. 3: Chronological Chart for Guanacaste-Nicoya (after Snarskis 1981a: fig. 6)

Fig. 4: Excavation Map of the Las Guacas Cemetery (after Hartman 1907: Pl. XLVII)

Fig. 5: Triangular-slab Support Metate from the collection of the Museum of the American Indian, Heye Foundation (Catalogue no. 21/3798): 46.5 cm. in length, 25 cm. in width and 20.5 cm. in height (photograph courtesy of the Museum of the American Indian, Heye Foundation)

Fig. 6: Cylindrical Support Metate from the collection of the University Museum, University of Pennsylvania: 43 cm. in length, 27 cm. in width, and 14 cm. in height (photographs by Carl Beetz)
a) profile
b) front view
c) grinding surface

Fig. 7: a) Panamanian crocodilian representation on ceramic vessel (after MacCurdy 1911: fig. 208)
b) Panamanian crocodilian representation on ceramic vessel (after MacCurdy 1911: fig. 209)

Fig. 8: Panamanian crocodilian representation on gold plaque (after Lothrop 1937: fig. 85)

Fig. 9: a) Panamanian gold reptilian figure with appended crocodilian representations (after Lothrop 1937: fig. 86a)
b) Panamanian crocodilian representations on Coclé polychrome dish from the collection of the Museum of the American Indian, Heye Foundation
c) Greater Nicoya "crocodile god" representation on ceramic vessel (after Lothrop 1937: fig. 87a)

Fig. 10: Panamanian "crocodile god" representation on gold plaque (after Lothrop 1937: fig. 92)

Fig. 11: Variations on the earth crocodilian weave motif on cylindrical support metates

Fig. 12: Variations on the earth crocodilian weave motif on cylindrical support metates

Fig. 13: Plate underside of the University Museum cylindrical support metate with central crocodilian figure

Fig. 14: a) Crocodilian head: front view
b) Crocodilian head: profile

Fig. 15: a) Earth crocodilian head(s) at front end of plate underside
b) Earth crocodilian head at back of plate underside

Fig. 16: Frog figure carved on front support

Fig. 17: a) Carving on front support
b) Carving on back support(s)
c) Carving on bottom on back support(s)

Fig. 18: Cylindrical Support Metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2793/4): plate underside, 62 cm. in length and 36 cm. in width (photograph courtesy of the Carnegie Museum of Pittsburgh)

Fig. 19: a) Earth crocodilian representations at front end of plate underside
b) Carving on front support

Fig. 20: Cylindrical Support Metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2793/16): plate underside, 55 cm. in length and 37 cm. in width (photograph courtesy of the Carnegie Museum of Pittsburgh)

Fig. 21: a) Avian head sculpted on front support

Fig. 22: Cylindrical Support Metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2438/1413): plate underside, 53 cm. in length and 33.5 cm. in width

Fig. 23: Cylindrical Support Metate from the collection of the Stockholm Ethnological Museum: plate underside, 64.5 cm. in length and 38.5 cm. in width

Fig. 24: Cylindrical Support Metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2348/1413): plate underside, 35 cm. in length and 22.5 cm. in width (photograph courtesy of the Carnegie Museum of Pittsburgh)

Fig. 25: Crocodilian figures on the plate underside of a cylindrical support metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2939/3420)

Fig. 26: a) Carved greenstone crocodilian representation (after Ferrero 1977: Illus. III-16)
b) Crocodilian figures carved on mano (after Accola and Ryder 1980: fig. 5)

Fig. 27: Triangular-slab Support Metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2793/24): 38 cm. in length, 20 cm. in width, and 14 cm. in height
a) profile
b) grinding surface
c) plate underside
d) human figures carved on supports

Fig. 28: Triangular-slab Support Metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2438/1408): 48 cm. in length, 24.5 cm. in width, and 13.5 cm. in height
a) grinding surface
b) plate underside (partial)

Fig. 29: Variations of the mat motif in Maya visual imagery (after Robicsek 1975: fig. 181)

Fig. 30: Mat motifs carved on the plate underside of triangular-slab metates from the collection of the Carnegie Museum of Pittsburgh
a) Catalogue no. 2939/3428
b) Catalogue no.

Fig. 31: Triangular-slab Support Metate from the collection of the National Museum of Costa Rica: 69 cm. in length, 28 cm. in width, and 22.5 cm in height (photograph courtesy of the Carnegie Museum of Pittsburgh)

Fig. 32: Jaguar-effigy metate from the Central Highlands-Atlantic Watershed region of Costa Rica from the collection of the Museum of the American Indian (Catalogue no. 23/5780): 56 cm. in length, 23 cm. in width, and 17 cm. in height (photograph courtesy of the Museum of the American Indian, Heye Foundation)

Fig. 33: Triangular-slab Support Metate from the collection of the Museum of the American Indian, Heye Foundation (Catalogue no. 23/7245): 43 cm. in length, 20 cm. in width, and 12 cm. in height
a) profile
b) jaguar head
c) plate underside

Fig. 34: Triangular-slab Support Metate from the collection of the Museum of the American Indian, Heye Foundation (Catalogue no. 21/3798) (see fig. 5)
a) front end of grinding surface
b) plate underside

Fig. 35: Human figure carved on support

Fig. 36: a) Jaguar head on triangular-slab support metate from the collection of the Carnegie Museum of Pittsburgh (Catalogue no. 2939/2427)
b) Highly stylized feline (?) head on triangular-slab support metate from the collection of the Museum of the American Indian, Heye Foundation (Catalogue no. 24/9302)

Fig. 37: a) Harpy eagle head on triangular-slab support metate from the collection of the Carnegie Museum of Pittsburgh
b) Crocodilian head on triangular-slab support metate from the collection of the Museum of the American Indian, Heye Foundation

Fig. 38: Modeled crocodilian figure grasping a mano on a ceramic vessel (after Stocker et al. 1980: fig. 3)

Fig. 39: a) Tripod metate from the Central Highlands-Atlantic Watershed region of Costa Rica from the collection of the Museum of the American Indian, Heye Foundation
b) "Flying-panel" tripod metate from the Central Highlands-Atlantic Watershed region of Costa Rica (after Stone 1972:177)

Fig. 40: Carved frog shaped metate from Totonicopán, Guatemala, from the collection of the Museum of the American Indian, Heye Foundation: 32 cm. in length (photograph courtesy of the Museum of the American Indian, Heye Foundation)

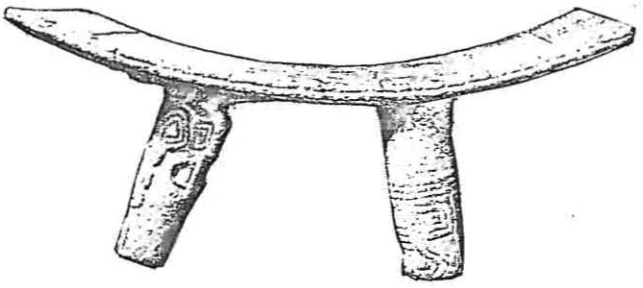
Fig. 41: a) and b) Tripod metate with reptilian head from Santa Lucia Cutzumalhuapa, Guatemala from the collection of the University Museum, University of Pennsylvania: 120 cm. in length and 54 cm. in width

c) Tripod metate with stylized animal head from Belize (after Joyce et al. 1927: fig. 6)

Fig. 42: a and b) Tripod metate with feline(?) figure carved on plate underside from Quirigua, Guatemala, from the collection of the Museum of the American Indian, Heye Foundation: 22.5 cm. in length and 16 cm. in width
c) Metate with monkey figure carved on plate underside from Quirigua, Guatemala (photograph by Wendy Ashmore)

Fig. 43: Tetrapod metate with human figure carved on plate underside from Oaxaca, Mexico: 26.7 cm. in length and 18.5 cm. in width (after Paddock 1970: fig. 2)

A



B

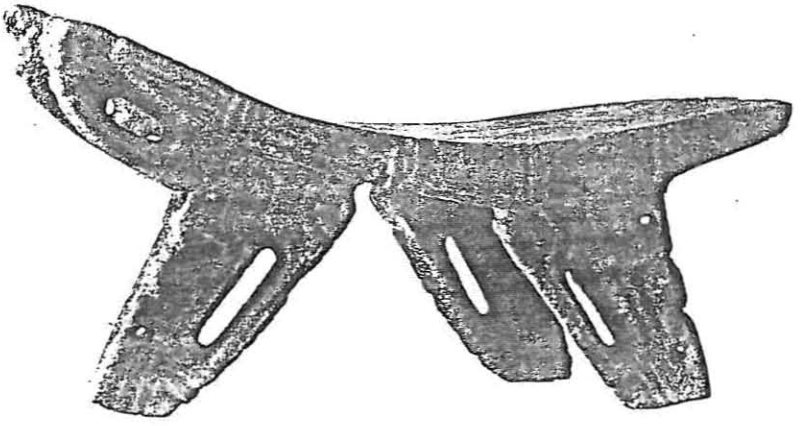
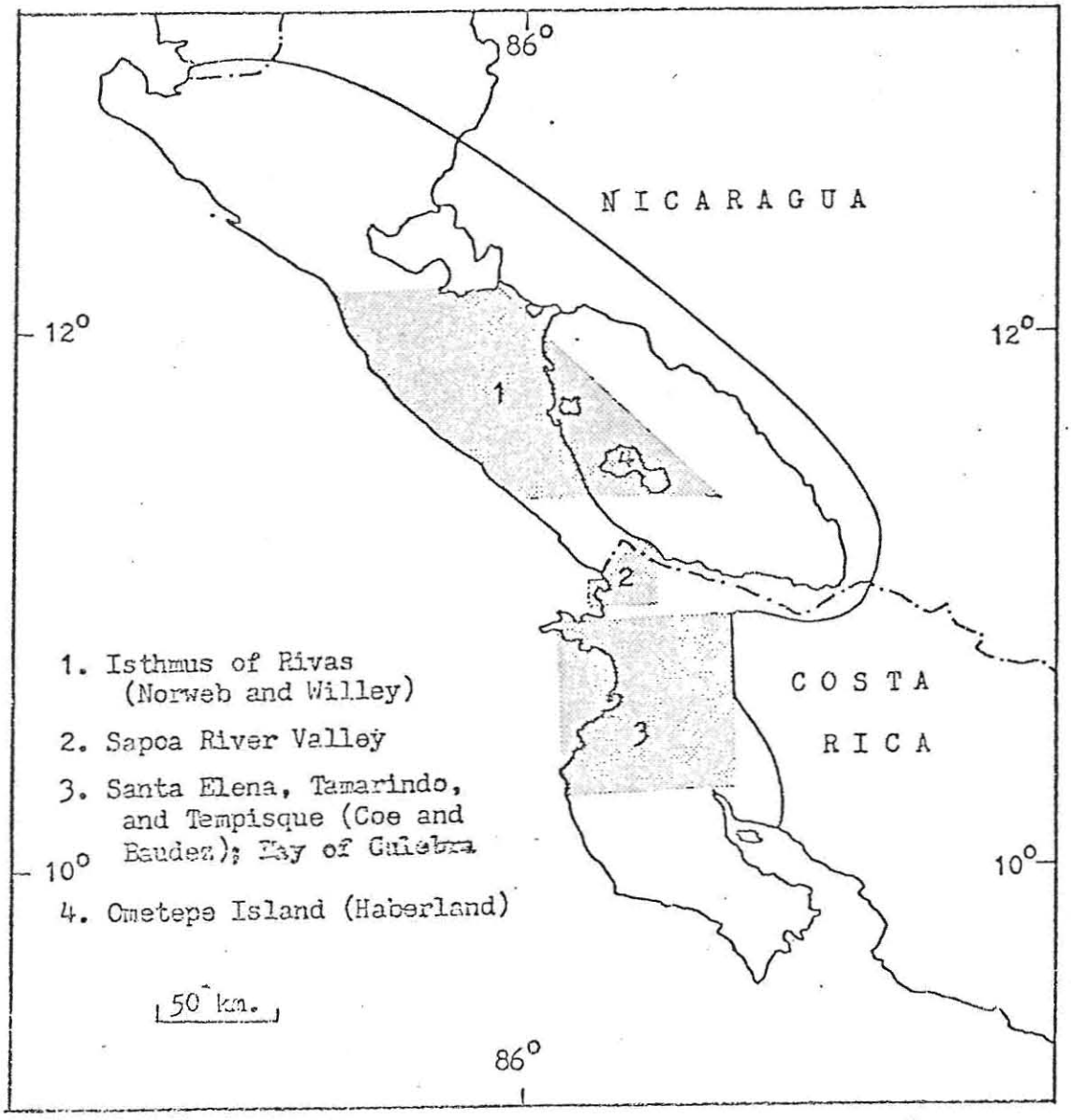


FIGURE 1



Greater Nicoya Archaeological Subarea, showing major centers of research (1959-1980) (after Lange 1971:5).

FIGURE 2

ARCHAEOLOGICAL PHASES

New Central American Periodization	*Old Regional Periodization*	*Calendar Years*	*Bay of Salinas Santa Elena Peninsula*	*Bay of Culebra*	*Tempisque River Valley*	*Matapalo, Tamarindo, Nosara (Lower Nicoya Peninsula)*	*Calendar Years*
		1600					1600
Period VI	Late Polychrome	1500	La Cruz A	Ruiz	Bebedero	?	1500
		1400					1400
		1300	La Cruz B	Iguanita			1300
		1200	Doscientos	Monte del Barco	Palo Blanco B	Tamarindo	1200
	Middle Polychrome	1100					1100
		1000					1000
Period V		900		Panamá	Palo Blanco A		900
		800					800
	Early Polychrome	700	Santa Elena	Culébra	San Bosco	Matapalo	700
		600					600
		500					500
	Linear Decorated	400	Murcielagos	Mata de Uva	Ciruelas	Las Minas	400
		300					300
Period IV	Zoned Bichrome	200	Chombo	Orso	Catalina	Monte Fresco	200
		100					100
		AD — BC					AD -- BC
		100					100
		200					200
		300					300
		400		Loma B			400
		500					500
		600					600
		700					700
		800					800
		900					900
		1000					1000

FIGURE 3

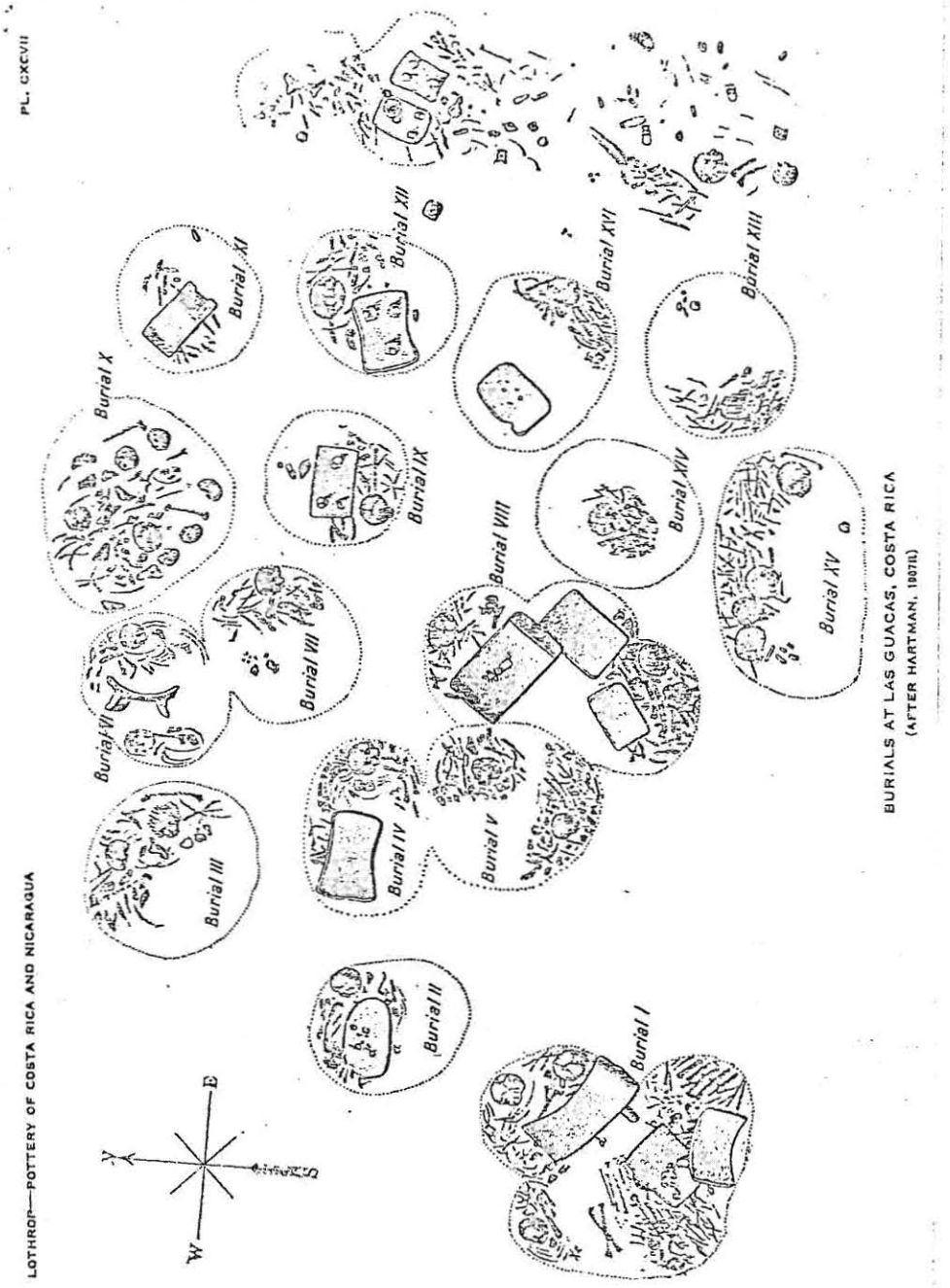

PL. CXCVII
LOTHROP—POTTERY OF COSTA RICA AND NICARAGUA
Burial I
Burial II
Burial III
Burial IV
Burial V
Burial VI
Burial VII
Burial VIII
Burial IX
Burial X
Burial XI
Burial XII
Burial XIII
Burial XIV
Burial XV
Burial XVI
E
S
W
BURIALS AT LAS GUACAS, COSTA RICA
(AFTER HARTMAN, 1907b)

FIGURE 4

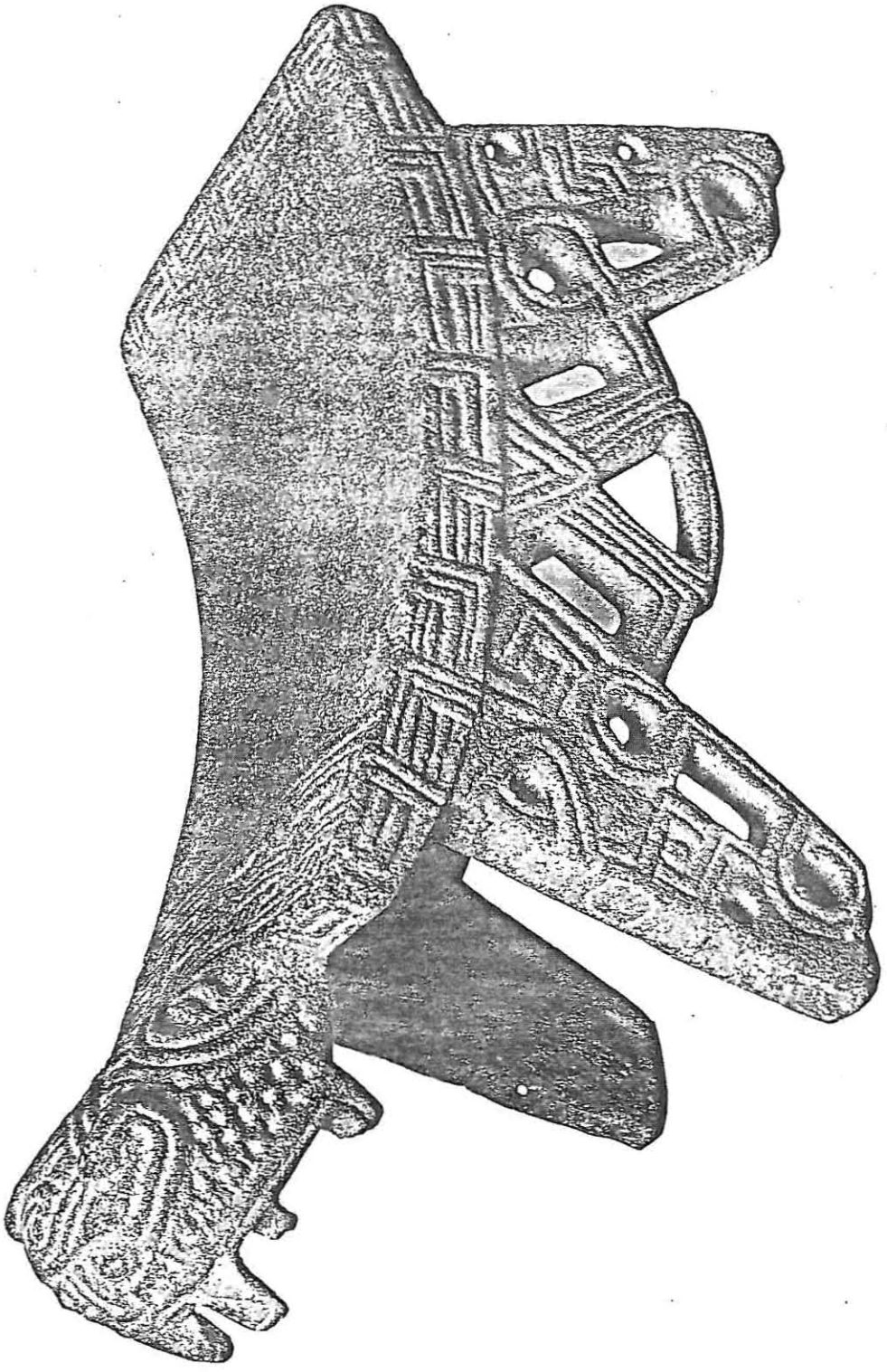
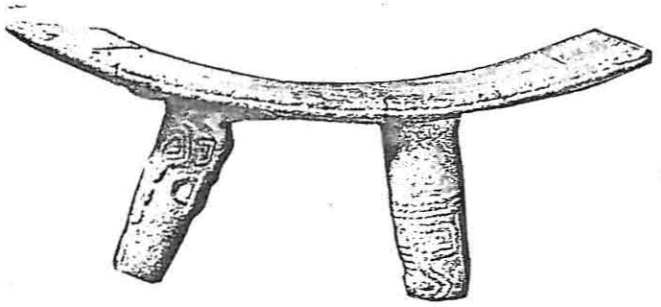


FIGURE 5

A



B

C

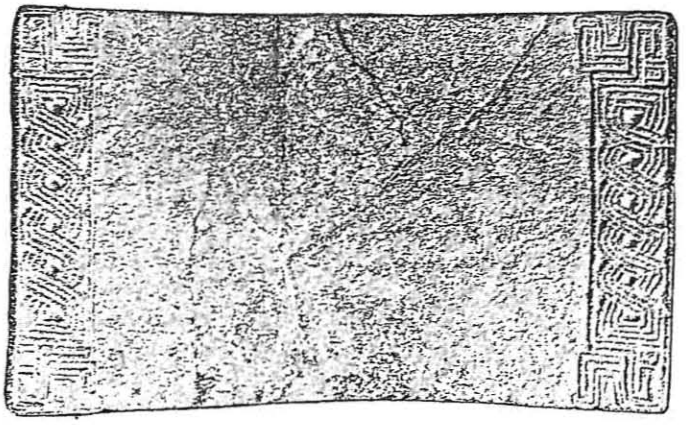
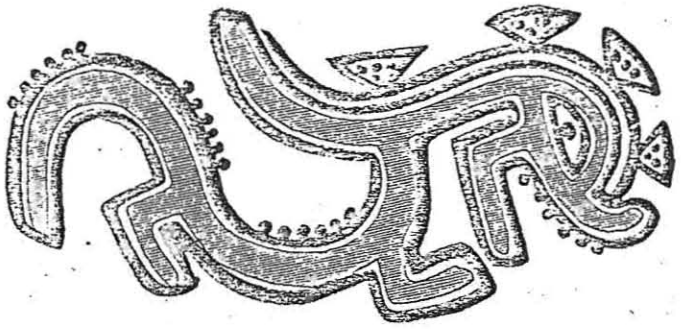


FIGURE 6

A

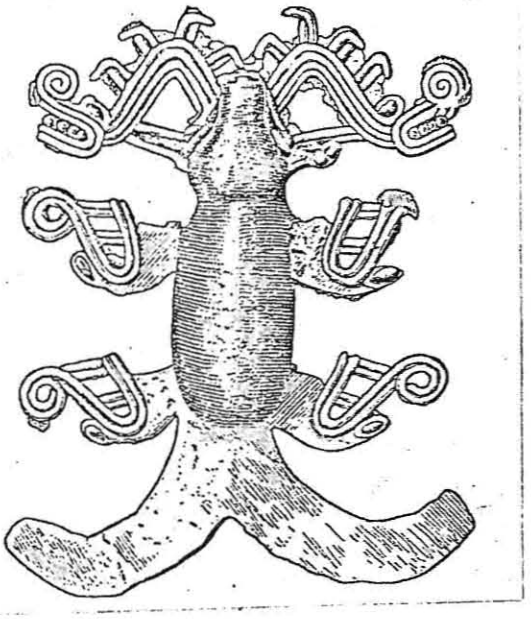


B

FIGURE 7

FIGURE 8

A



B

C

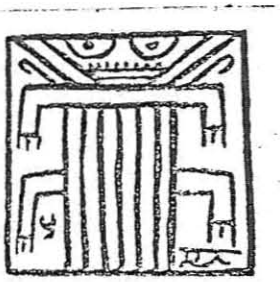
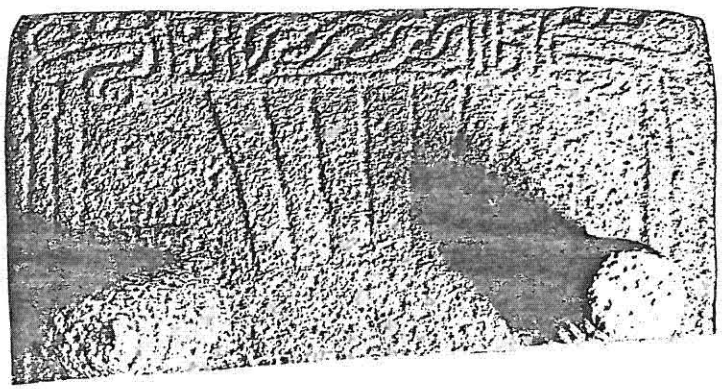


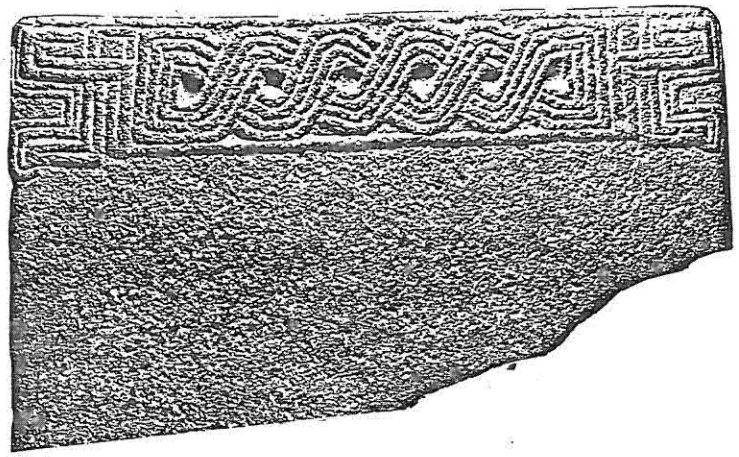
FIGURE 9

FIGURE 10

A



B



C

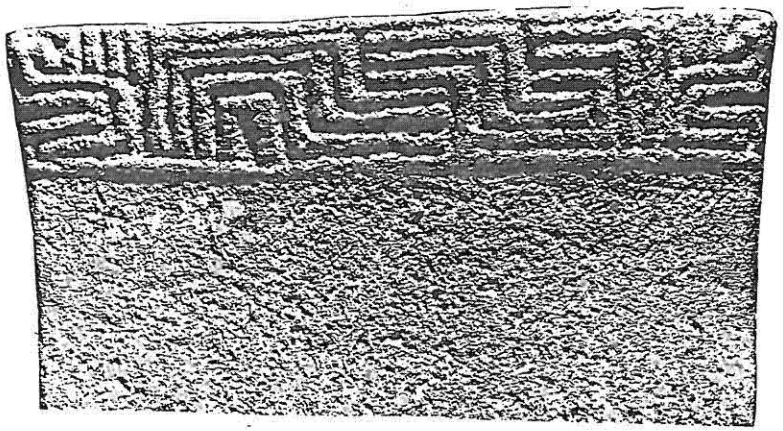
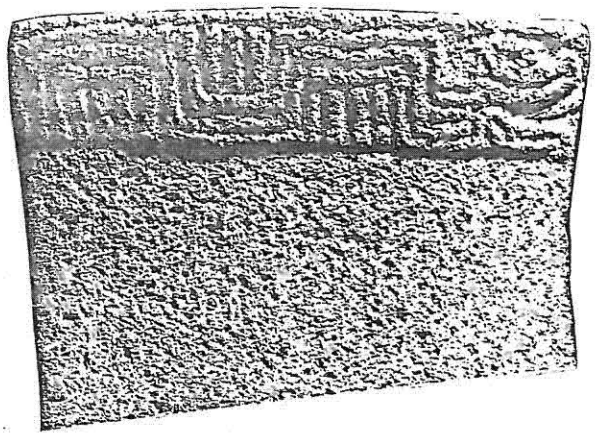
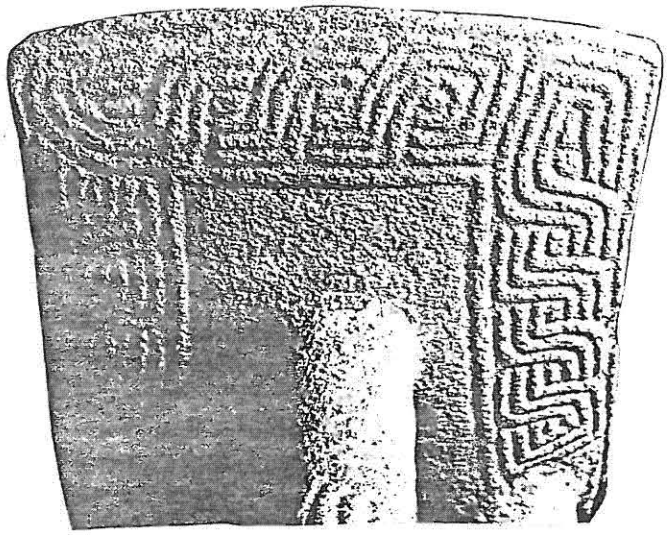


FIGURE 11

A



B



C

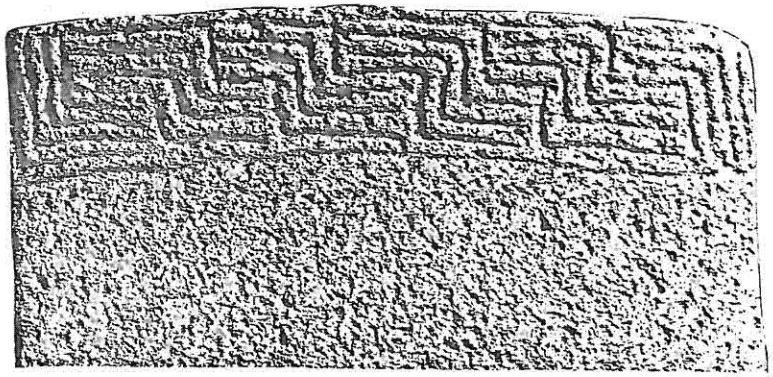
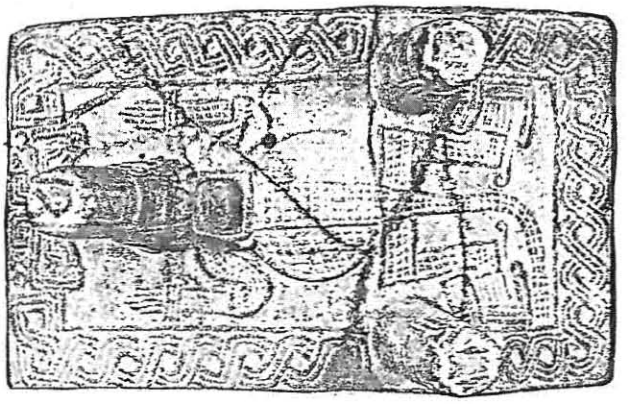
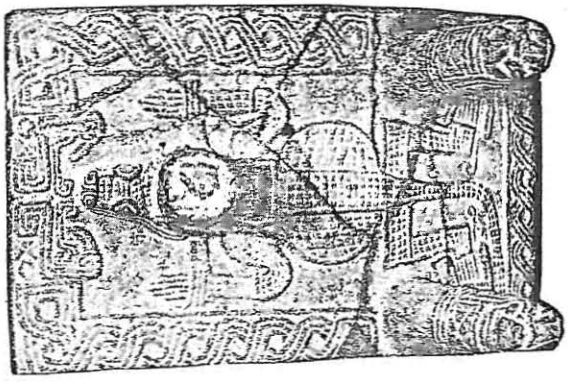


FIGURE 12

A



B



C

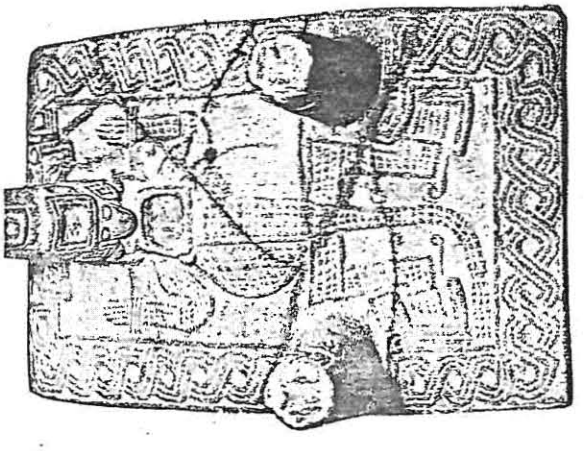
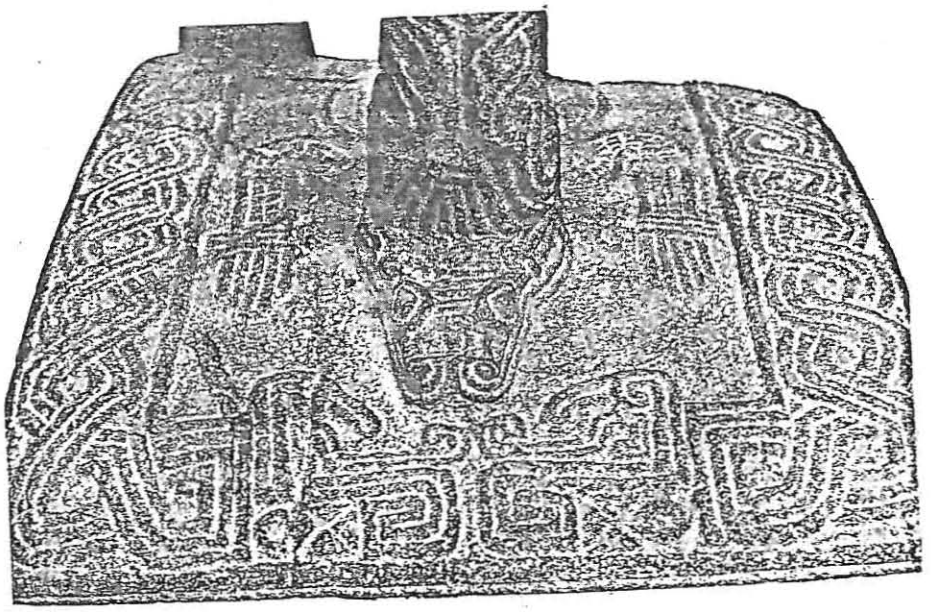


FIGURE 13

A



B

FIGURE 14

A

B

FIGURE 15

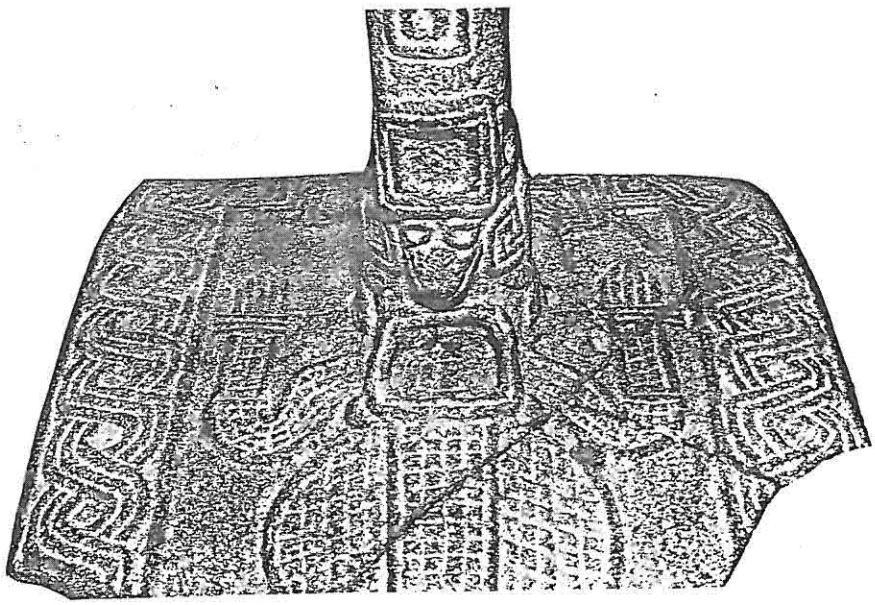
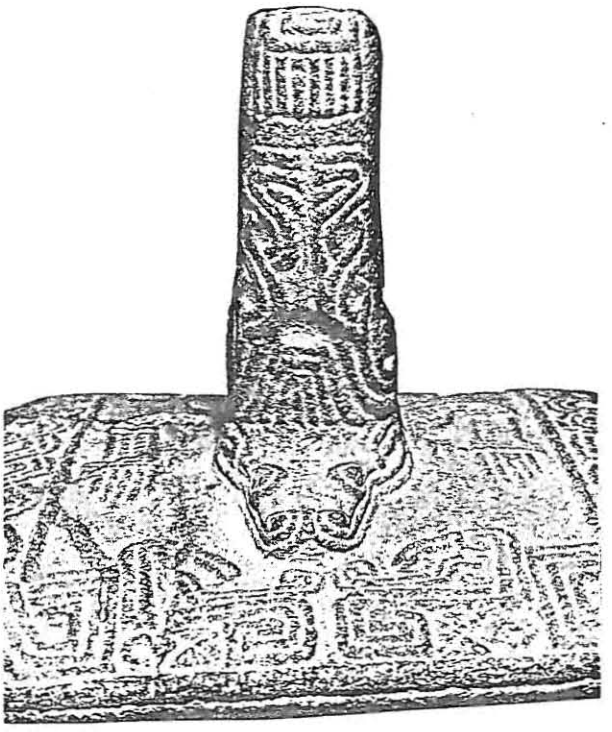
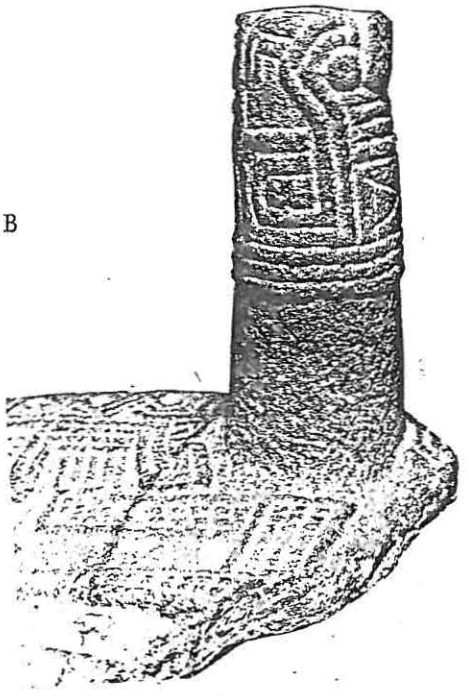


FIGURE 16

A



B



C

FIGURE 17

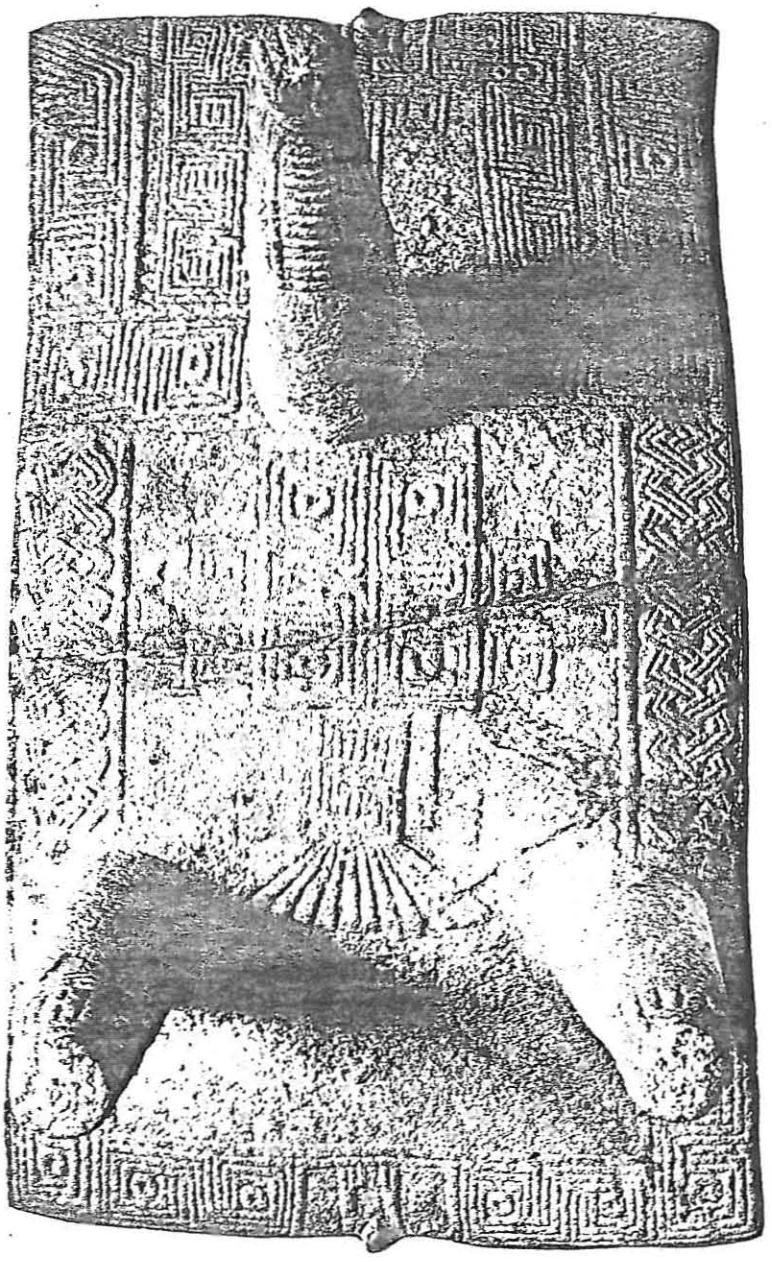
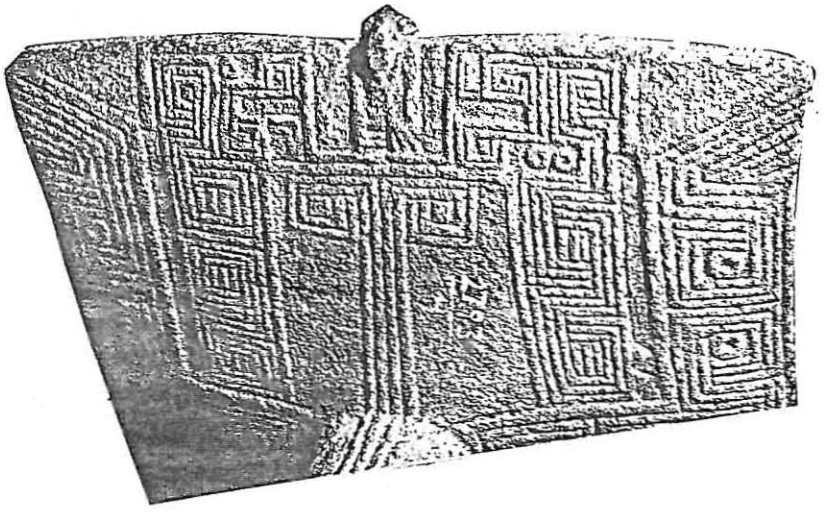


FIGURE 18

A



B

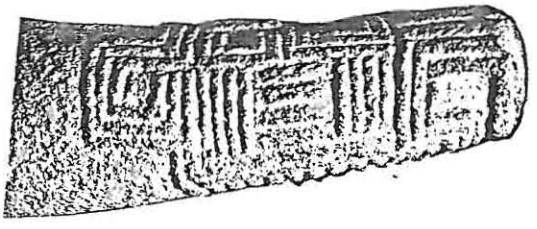


FIGURE 19

FIGURE 20

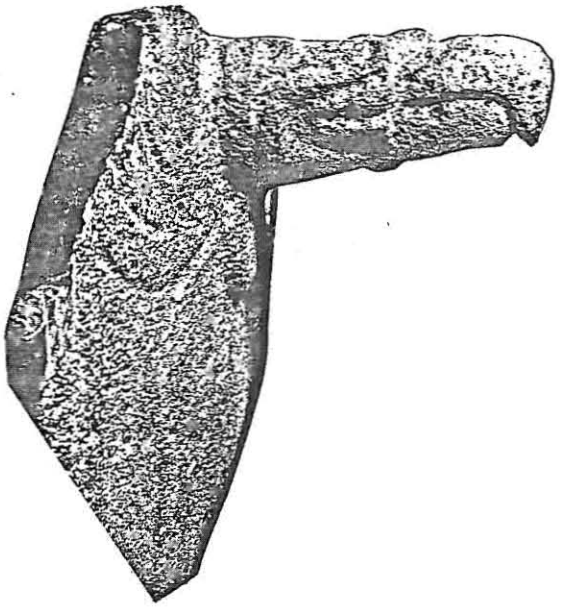


FIGURE 21

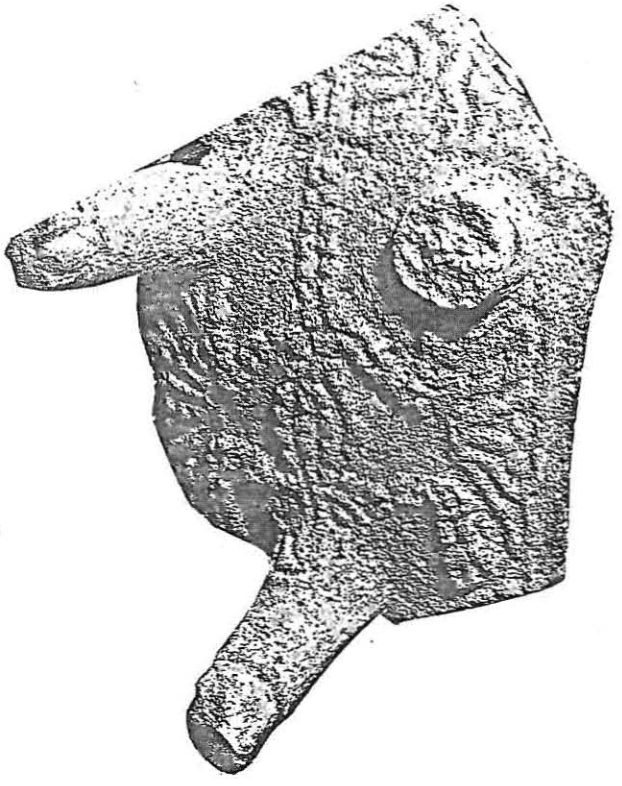
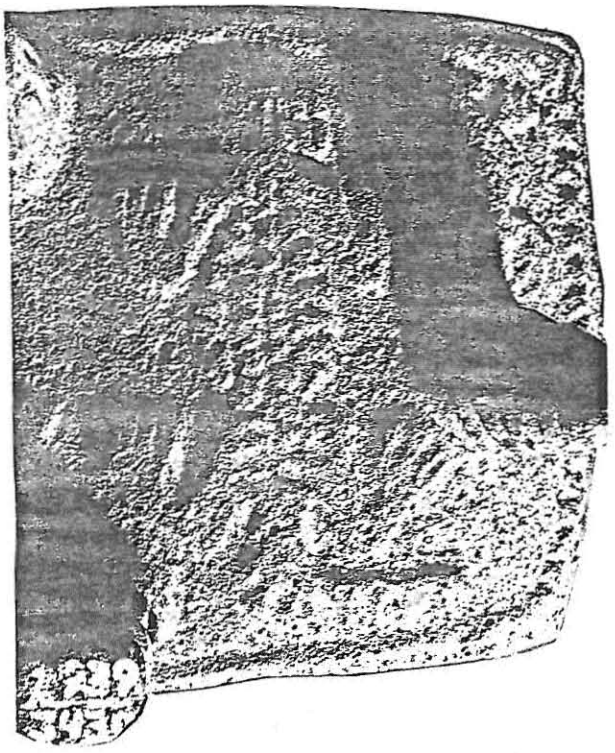


FIGURE 22

FIGURE 23

FIGURE 24

A



B

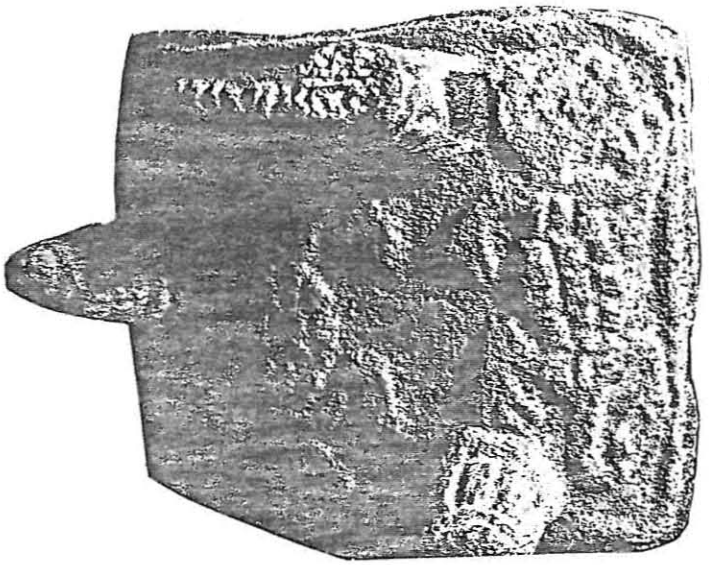
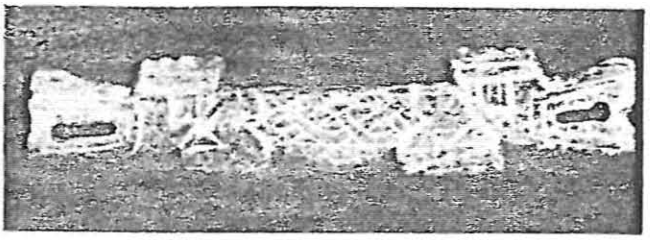


FIGURE 25

A



B

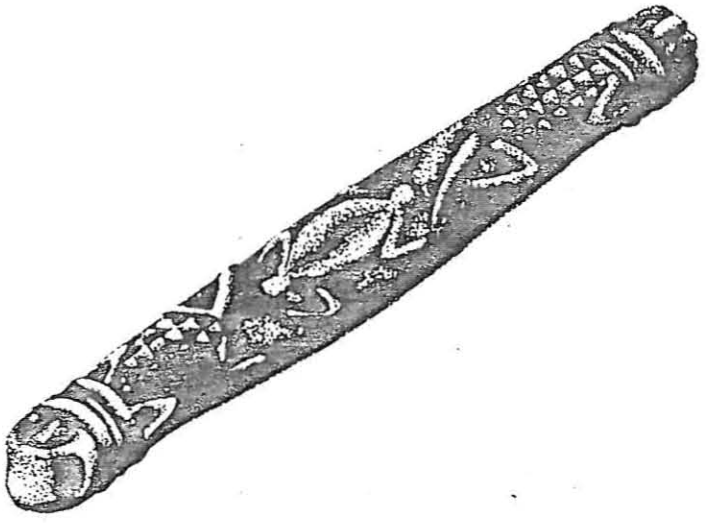
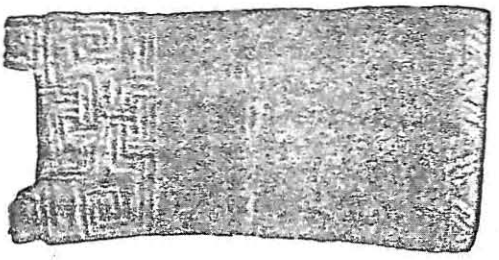
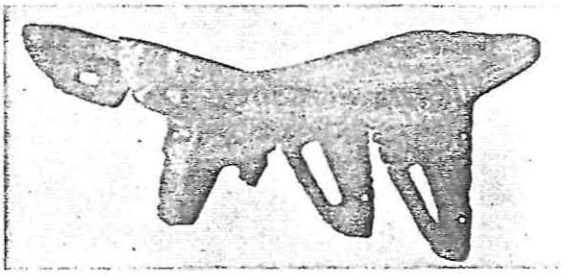


FIGURE 26

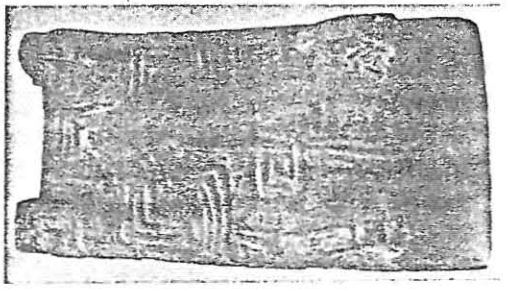
A



B



C



D

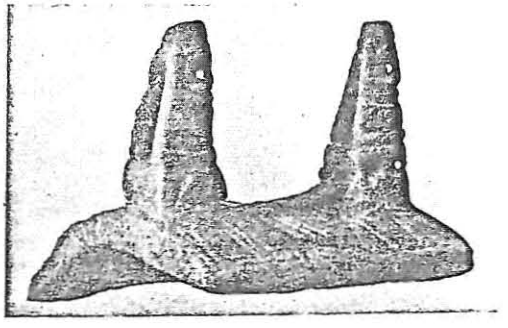


FIGURE 27

A

B

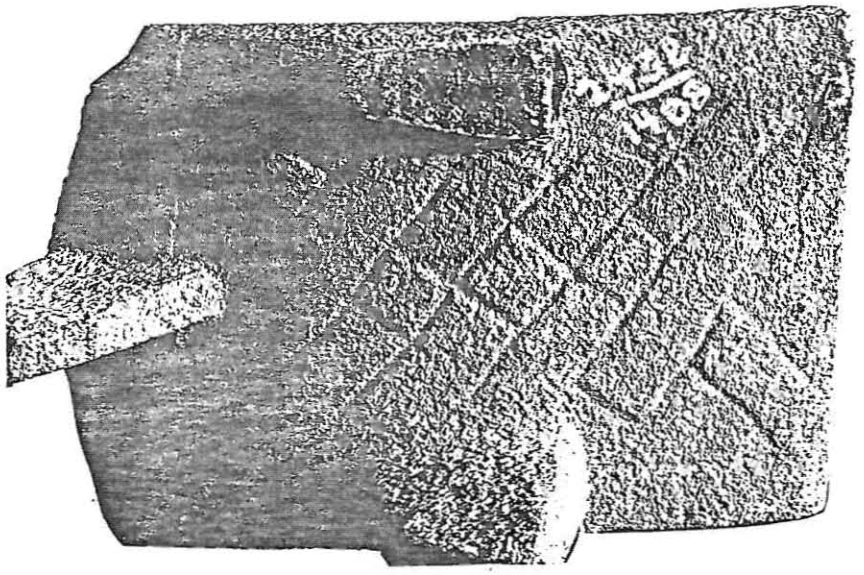


FIGURE 28

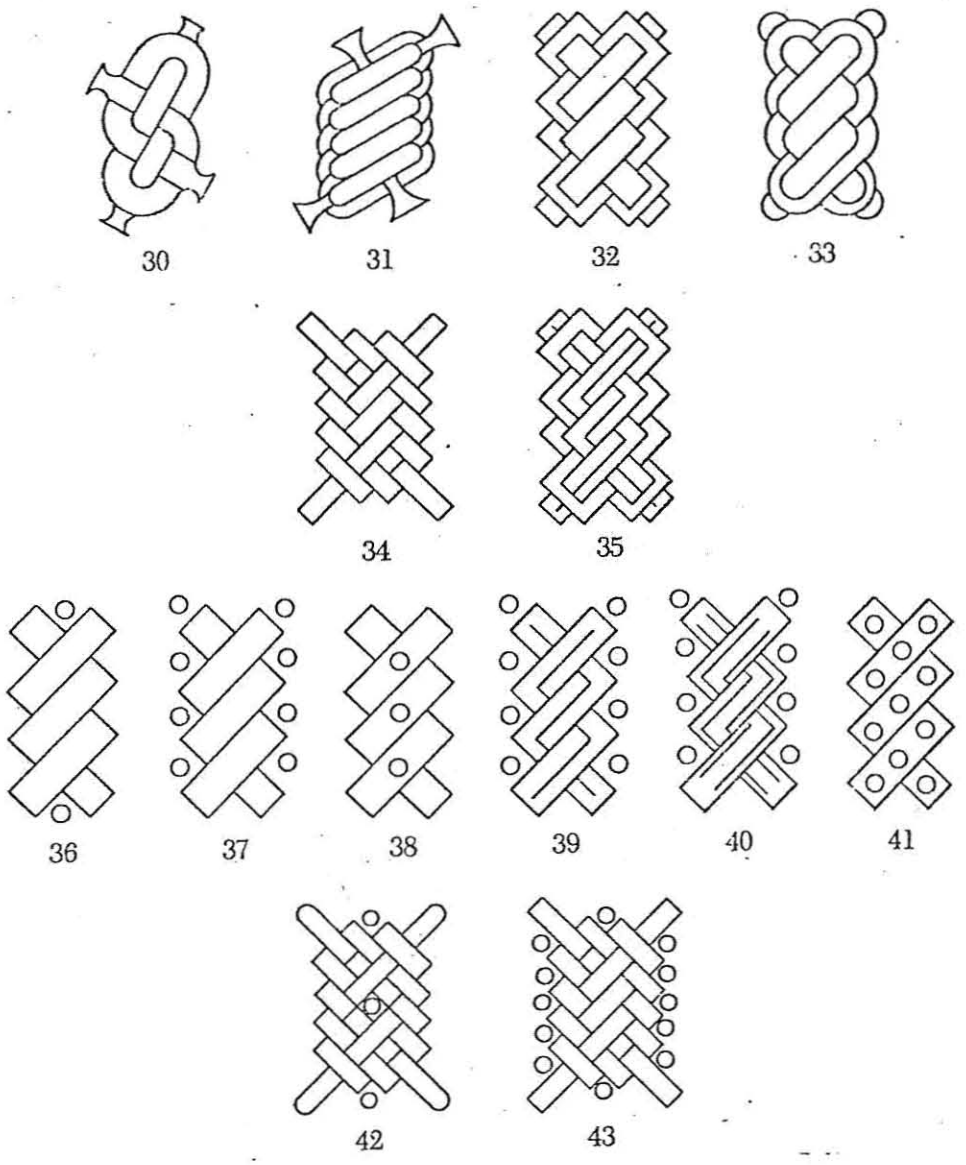
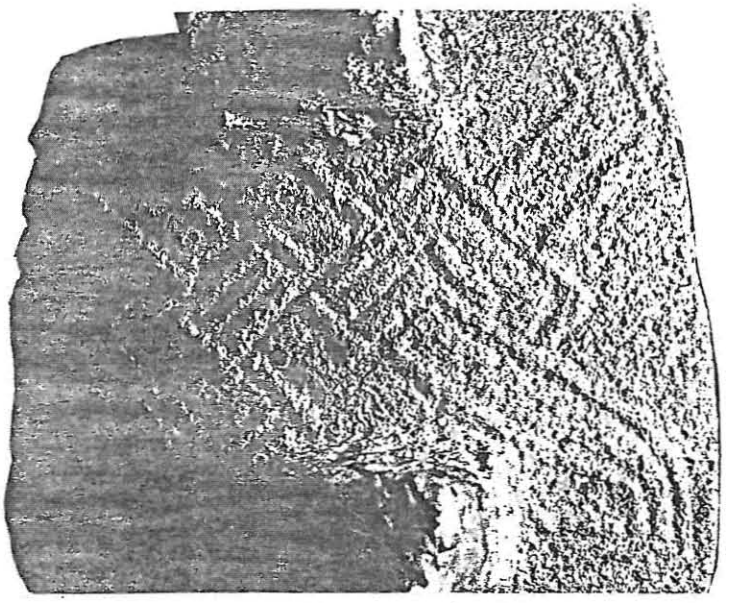


FIGURE 29

A



B

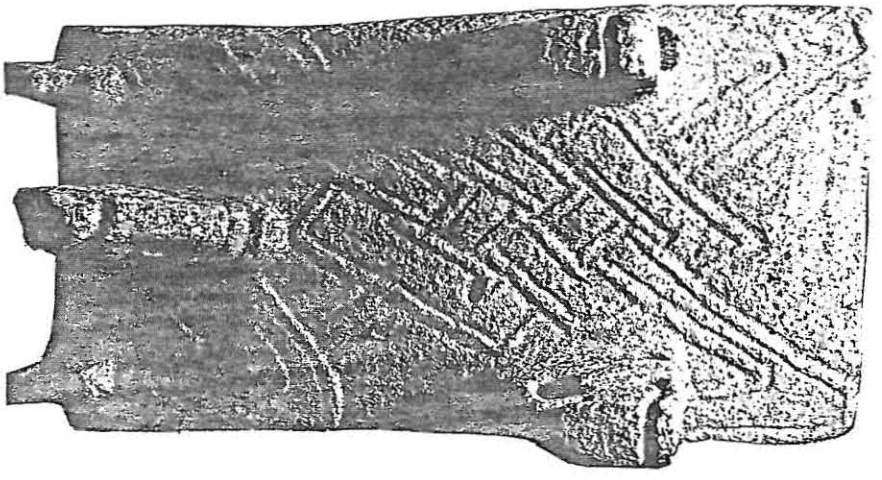


FIGURE 30

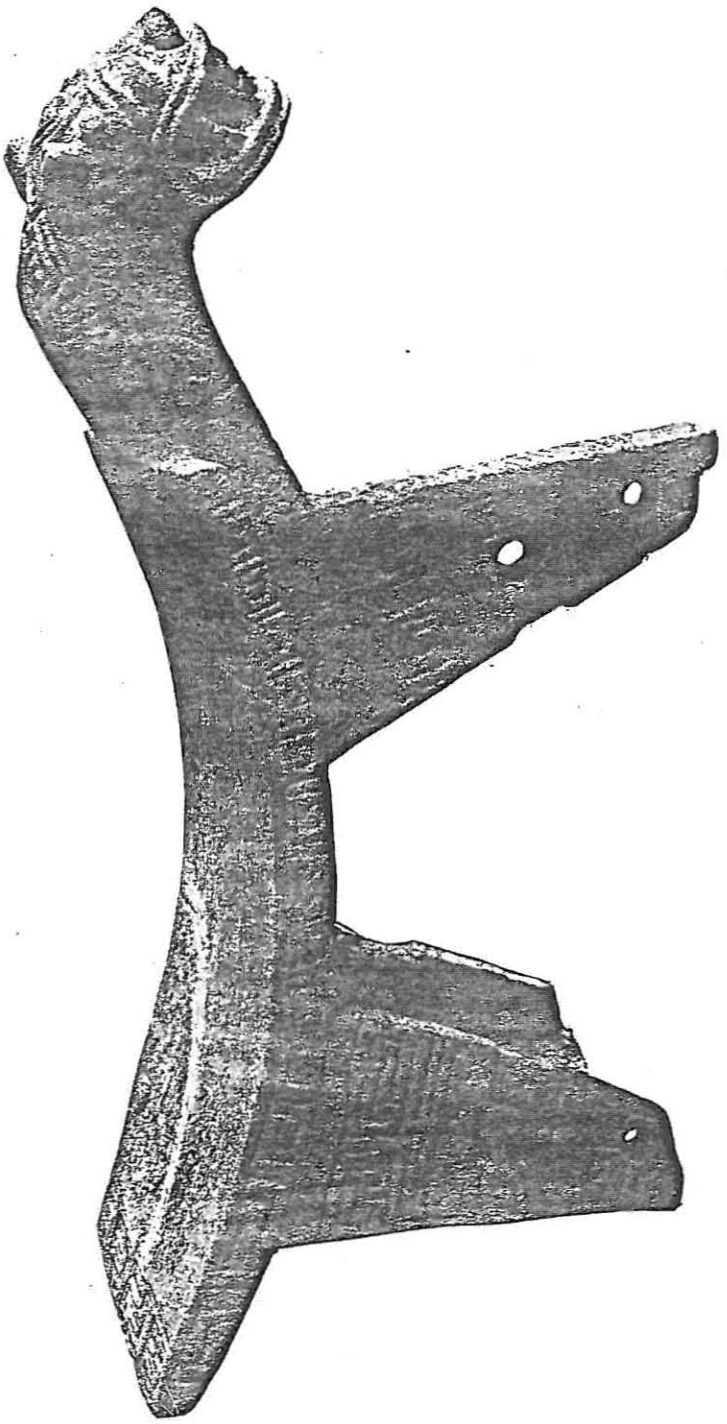


FIGURE 31

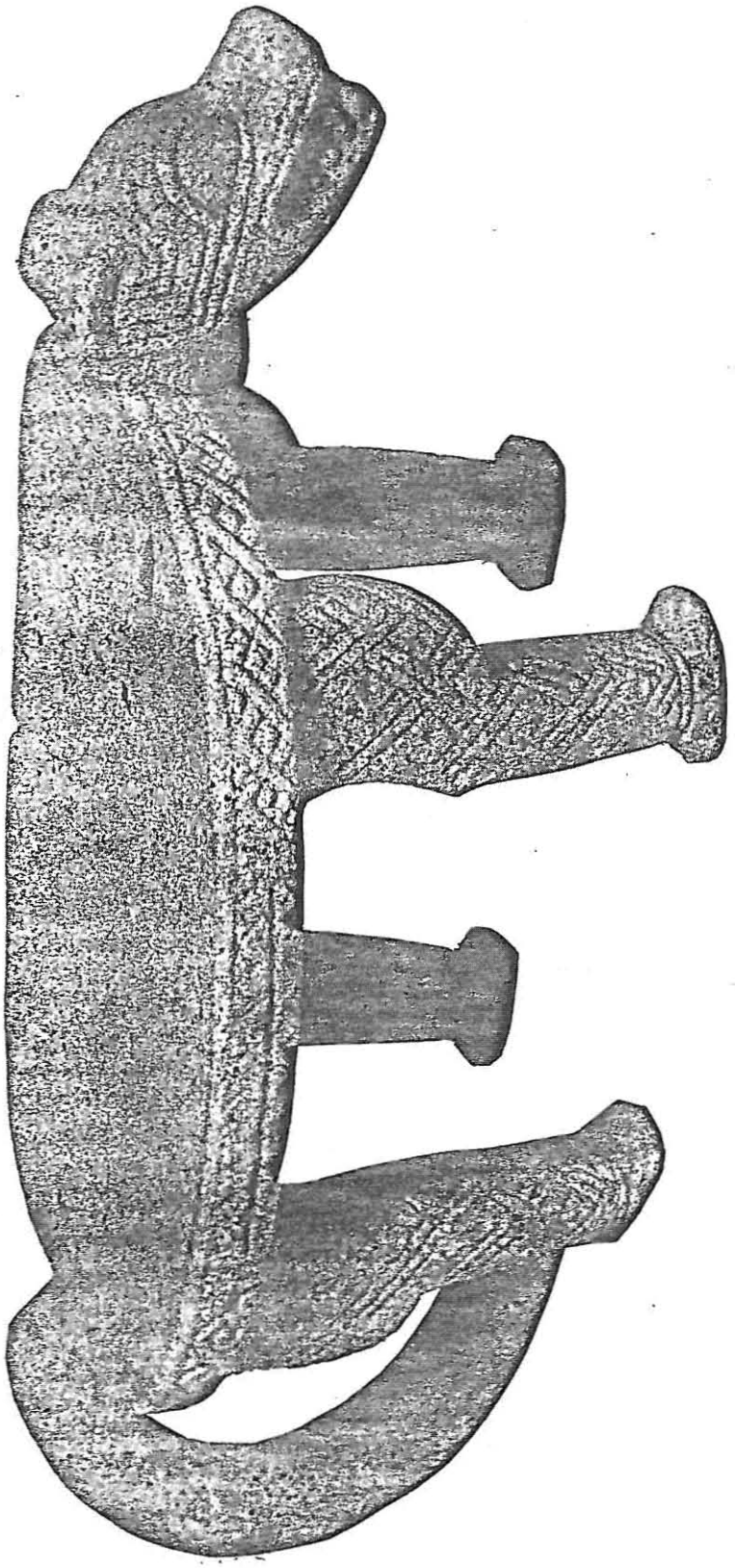
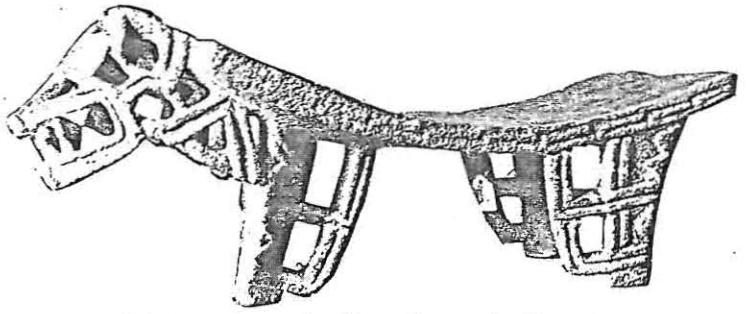
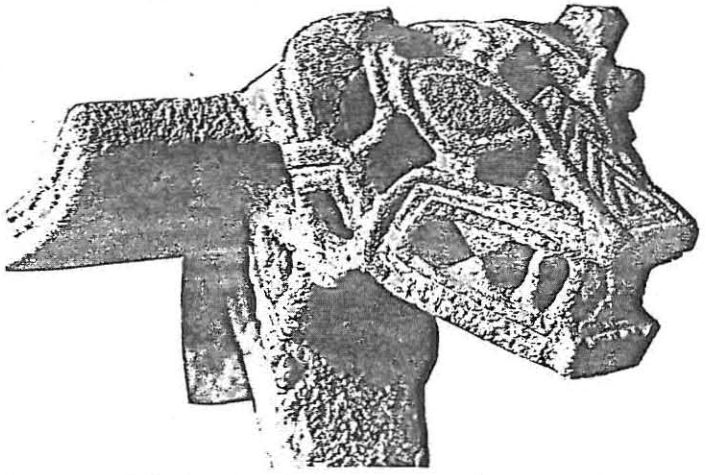


FIGURE 32

A



B



C

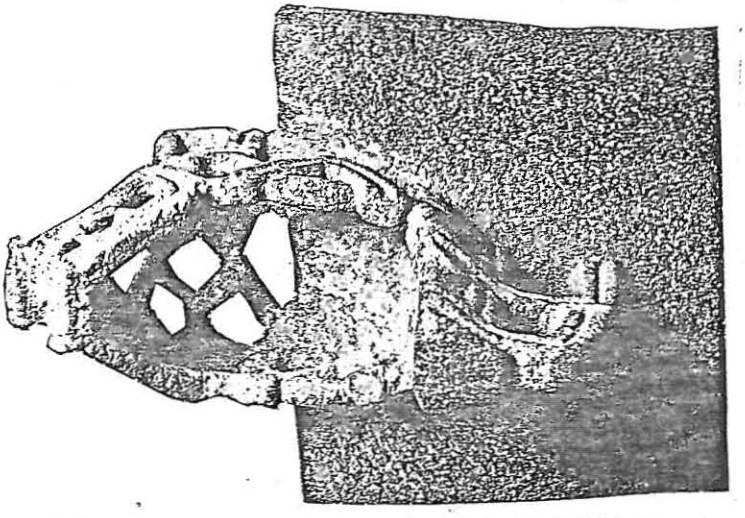


FIGURE 33

A

B

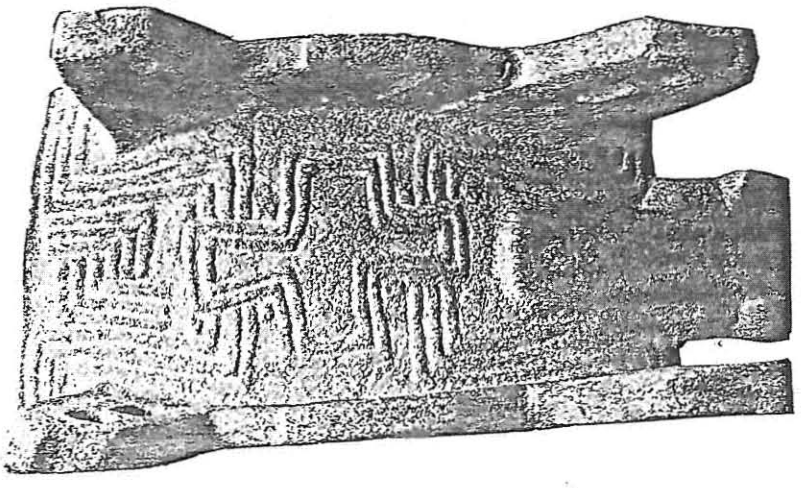


FIGURE 34

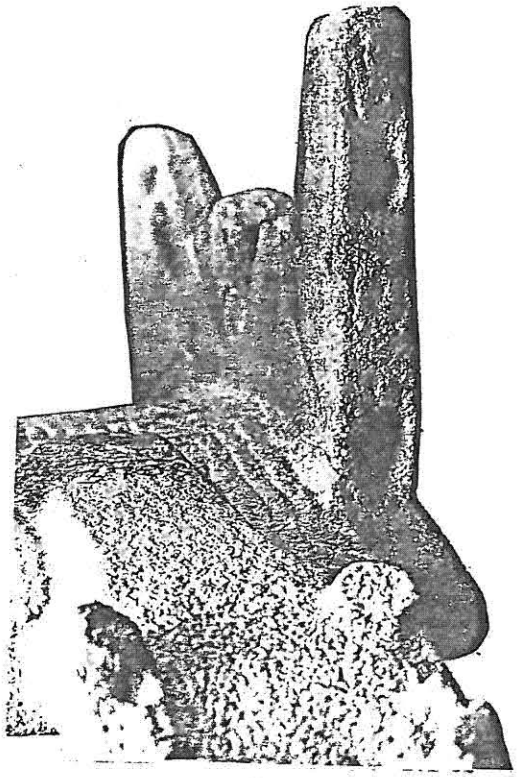
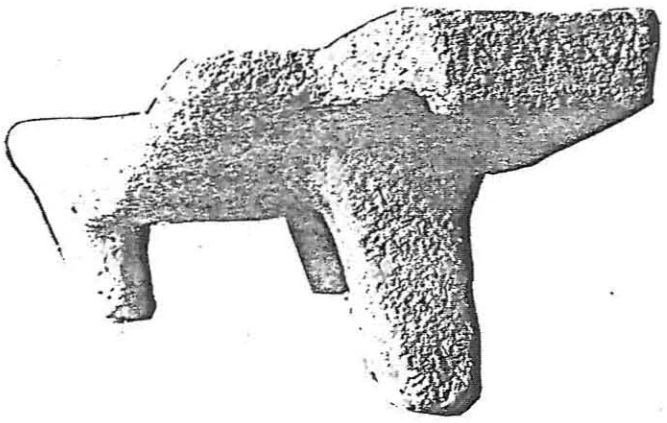


FIGURE 35

A



B

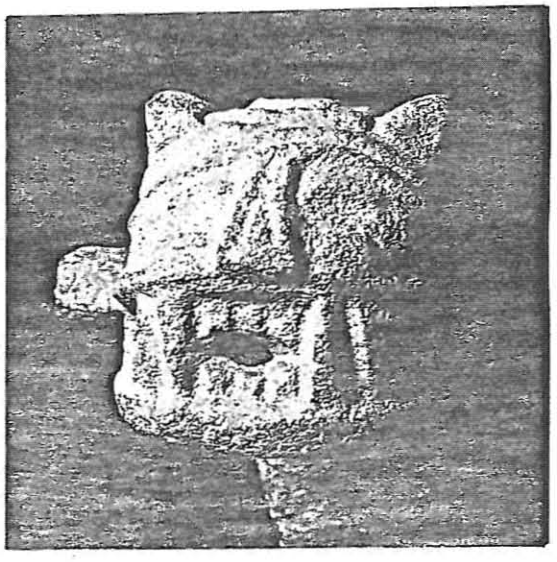
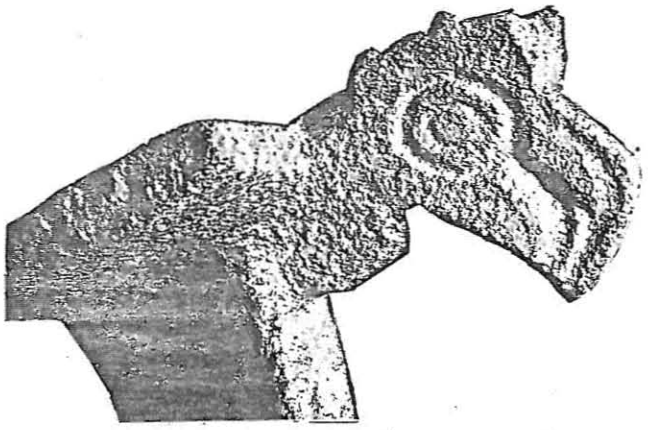


FIGURE 36

A



B

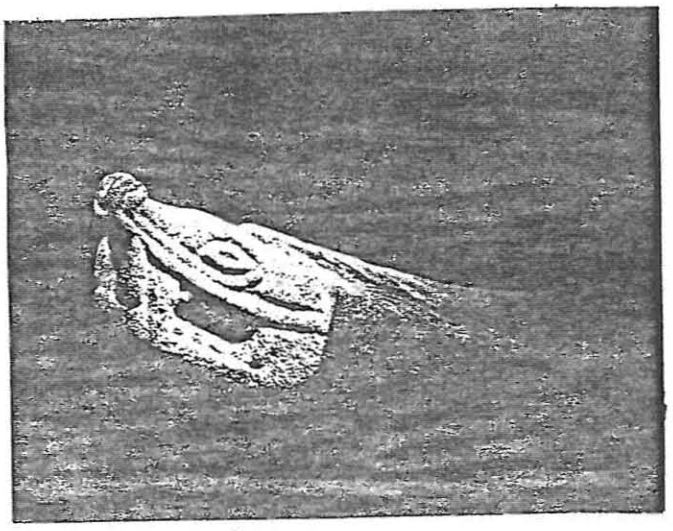
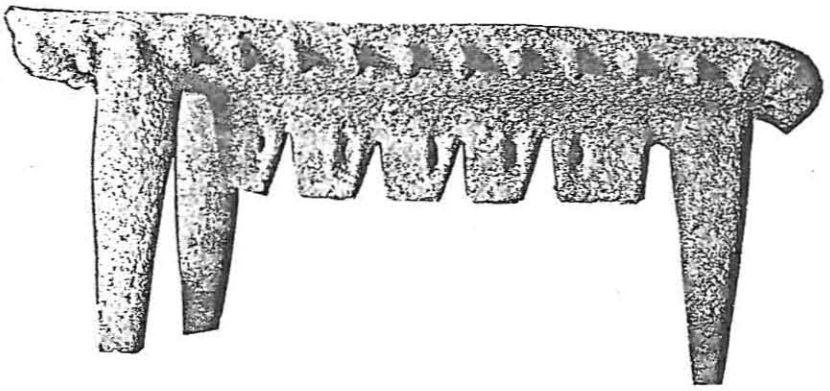


FIGURE 37

FIGURE 38

A



B

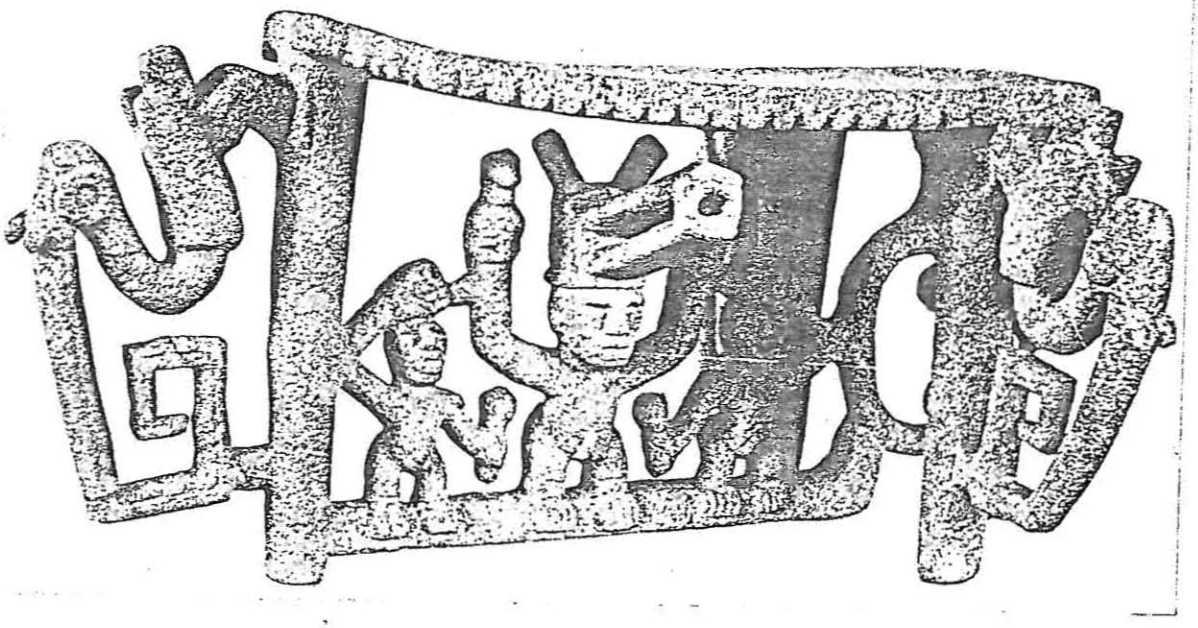
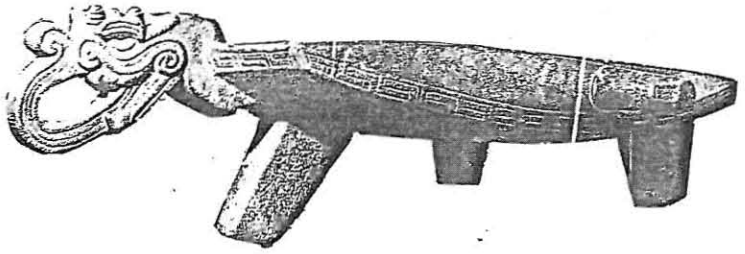


FIGURE 39

FIGURE 40

A

B



C

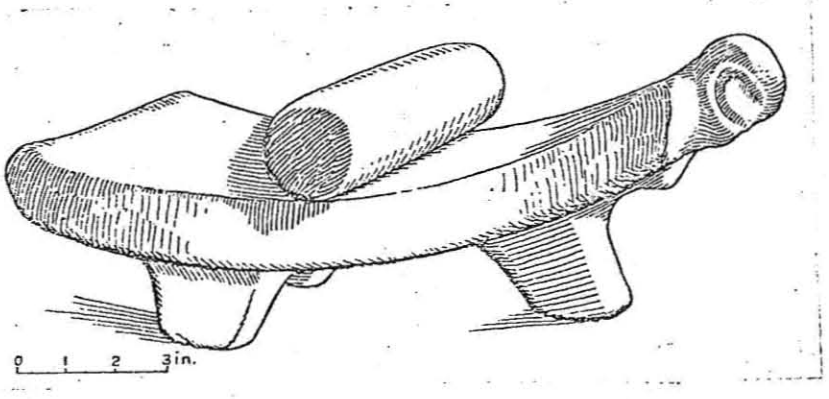


FIGURE 41

A

B

C

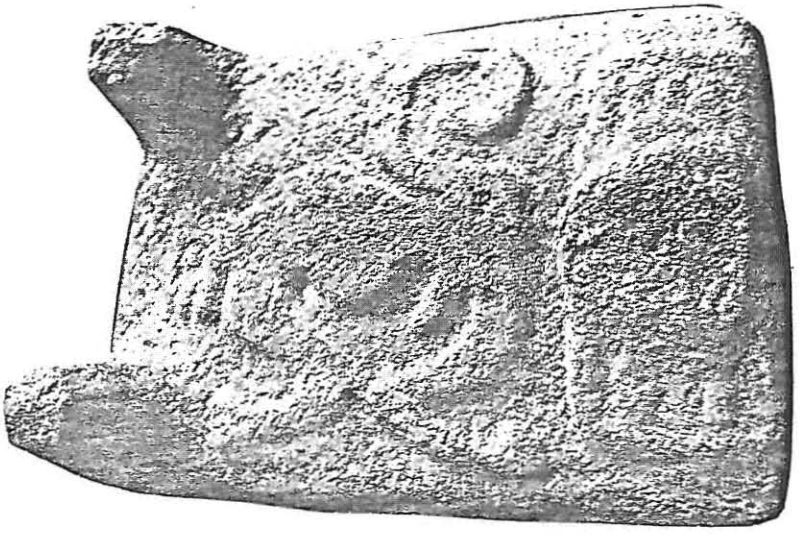


FIGURE 42

FIGURE 43