# OLMEC JADE:
# A CROSS-CULTURAL PERSPECTIVE

by

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## ABSTRACT

In the ancient stone-age world, jade was the supreme material. Utilitarian tools and weapons, tediously rendered from the intractable stone, were strong, durable and maintained a sharp blade edge after much use. Some jade stones could be worked and polished to a vitreous, transluscent beauty surpassing the aesthetic allure of other available materials. Several deposits of jade ore are known throughout the world, almost all of which were exploited in antiquity, but jade was relatively rare and rather difficult to procure. As a practical and artistic resource jade was ideal. The rarity of the stone and the intensive labour required to work jade further predisposed the material to preciousness and status-identification among increasingly stratified Neolithic societies.

Jade was worked by several ancient cultures and was highly regarded by the early peoples of Siberia, China, Oceania, Mesoamerica and Central-South America. Ritual objects were carved from jade in these places. In some cases, jade was attributed with magical or curative powers. The prolonged, consistant production of ceremonial forms in jade

and a complex of cultural traits related to a special esteem for this material, however, occurred only in China, Mesoamerica and New Zealand. Of these three, such jade-related traits show the greatest degree of similarity and protraction in China and Mesoamerica. Furthermore, jade use in China and Middle America was clearly a direct function of status and elite motivations in hierarchical societies.

The Olmec are the earliest known Mesoamerican civilization to archaeologically manifest a specialized and semi-religious pattern of jade use. This pattern appears on the record with a dearth of known precedents. The exigency of archaeological studies in the Olmec heartland region and in locations, such as Guerrero and Oaxaca, evincing strong trade connections based upon status goods, impedes conclusions about the origins of Olmec jade-working traditions and the events which led to the special prizing of jade by that group. Epigraphic and ethnohistorical data are absent for this period in Mesoamerica. Direct historical comparisons with later cultures have enabled some interpretations of Olmec jade. Inroads have also been made through continued excavations and through scientific

investigations. Yet work remains to be done in the elucidation of form and function of Olmec jade and in the analysis of the possible universality, or distinctivity of Olmec jade-related cultural traits in relation to other groups which esteemed the material -- particularly China. A comparative-analysis with observable parallel traits in the jade cultural complex of China may provide data for such considerations and concurrently address the recurring issue of diffusion as regards similarities in Chinese and Olmec jade traditions.

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If jade is not polished
It cannot be made worth anything
If (woman) does not suffer trials
(She) cannot be perfected
(Chinese proverb)

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**DEDICATION**

This thesis is dedicated to my son
and inspiration, Campbell Boyd Orr.

Ca njcan tonca, tinopiltzin, in tinocozquj,
in tinoquetzal, in tinotlacachioal,
in tinotlatlacatililil, in tinezio,
in tinotlapallo, in tinonejximachiliz...

Here art thou, thou who art my child, thou who art my **precious necklace**, thou who art my precious feather, thou who art my creation, my offspring, my blood, my color, my image...

(Fray Bernardino de Sahagún,
Florentine Codex, Book VI,
Chapter 18.)

## Introduction

There has been perhaps as much fascination in modern western scholarship with Oriental and Middle American antique jades as there was with the material itself in these places during ancient times. The high position with which jade was regarded, the important social and religious roles that were played by objects of jade, and the remarkable plastic sculptures which the ancient Chinese and New World inhabitants rendered from the unyeilding stone are, indeed, intriguing to minds unaccustomed to such great intrinsic cultural value placed solely upon a rock. Shaped by the gifted hands of past Asian and American jade-carvers, the natural beauty of high quality jade is equally as infatuating. The eminent late scholar Matthew W. Stirling, for instance, whose love affair with Mesoamerica's earliest civilization, the Olmec, led to some of this century's most important discoveries, made this evocative statement: "The limpid transparent beauty of imperial jade when first exposed in an Olmec tomb embedded in moist, vivid red cinnabar is almost beyond description."[1]

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[1] Matthew W. Stirling, "The Olmecs, Artists in Jade," in Samuel K. Lothrop and Others (eds.), Essays in Precolumbian Art and Archaeology (Mass.: Harvard University Press, 1961), 52.

One vein of scholarship which emerged from the appeal of antique jade perpetuated what might be referred to as the "jade myth." Though usually having some basis in fact, this early work manifests an enthusiasm which tends to distort the true picture. Furthermore, pioneering studies of Chinese jade often relied heavily upon dubious or apocryphal sources for diagnoses of the use and function of jade. The underlying presupposition, conscious or unconscious, of this genre of scholarship is that a special social and religious significance for a stone over other precious substances, such as gold or gems, is somehow mystical, romantic, or aberrant. Such bias may be understood in the light of long-standing Occidental imperial and religious artistic traditions emphasizing gold, silver and gemstones as the most valued materials, denotative of status and worthy of devotional expression. The jade myth has, however, affected an issue relevant to the present paper: jade use as evidence for transpacific contacts between the Old and New Worlds.

As outlined in Chapter I, jade was earliest recognized in Europe to be a distinct, valuable, substance following the Conquest of Middle America and the subsequent exportation of precious goods

from the New World. When supplies of carved American jades dwindled and indigenous sources and carving techniques were lost, so too did the European memory of the highly developed New World jade traditions diminish. During the mid-seventeenth century, exotic carved jades came into Europe from China and India. Over the course of the following centuries, the Oriental artifacts gradually came to be synonymous with the source of the material and with jade itself. New World carvings, jades from Oceania -- brought into Europe as curios following the exploration and settlement of the region, and archaeologically-known Paleolithic European jade artifacts, were thought of as lesser materials than the better known jades of the Orient and were even referred to as "pretended jades...some inferior sorts of compact feldspar...."[2] In situ occurrences of jade were known only for Asia and New Zealand. This rarity of geological occurrence gave rise to an elaborate hypothesis among some scholars, by which wide-spread trade, based upon the restricted

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[2] Spire Blondel, Le Jade. Etude historique, archéologique et littéraire sur la pierre appelée "yu" par les Chinois (Paris, 1875), cited in Jeffrey Yu-teh Kao, The Archaeology of Ancient Chinese Jades: A Case Study from the Late Shang Period Site of Yinxu (Ph.D. dissertation), (Mass: Harvard University, 1985), 30-31.

locality of jade sources, was presumed to have taken place in antiquity. Although this hypothesis was shortly dispelled by several finds of raw ore elsewhere, it continued to have a lingering effect on jade scholarship -- particularly regarding the relationship between China and Mesoamerica. The location of native jade deposits in the Motagua River Valley, Guatemala during the 1950's, however, finally laid to rest any theories of an Asiatic source for American jades.

In response to theories such as the latter, and others more extraordinary for the origin of indigenous American cultures, American archaeology came to emphasize the independent development of New World cultures over cultural stimulus via diffusion. However, during the 1950's and 1960's a growing number of scholars began writing authoritative diffusionist arguments, postulating Asian cultural intrusions into the New World through transoceanic crossings. As further research provided greater information about the use of jade in Mesoamerica, the similarities with Chinese jade traditions were inescapable and scholars such as Miguel Covarrubias commented on these parallels and their ramifications. Some of the new wave of proponents of

diffusion, including more recent studies, have seen specialized jade use as plausible evidence for interhemispheric contacts between China and Middle America. This approach has been opposed by some adherents to the antithetical isolationist view as an extension of late nineteenth century 'sinocentricity.' Kao, for example, suggests that:

> "To a large extent it would seem that the topic of jade in the field of ethnology or anthropology today exists very much in the shadow of the resolution of the nephrite "question" of the late nineteenth century. The little attention that is paid to jade in comparative perspective seems for the most part ultimately directed once again to establishing a case for long distance movements and contacts of peoples and their cultural baggage."[3]

The implicit attitude expressed in Kao's statement poses a problem for the serious consideration of such cross-cultural arguments. Anti-diffusionists tend to stress the pitfalls into which any cross-cultural study is liable to fall, if only as a result of the barriers of language or inadvertent dependence on outdated sources. Some diffusionist arguments themselves have been hindered by the pursuance of the jade myth. Archaeological studies in China have invalidated many of the suppositions of the pioneering studies on Chinese jade, consequently undermining those diffusionist

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[3] Kao, Yinxu, 496.

examinations reliant upon information provided by the early publications. Some comparisons of jade use in China and Mesoamerica emphasize general assumptions with a wide temporal and spatial spread. A trait-by-trait analysis within a limited temporal framework has yet to be accomplished.

The case for or against transoceanic crossings as a means of cultural diffusion is as complicated and volatile as is the theoretical chasm, among disciplines concerned with cultural history, between diffusion versus independent invention as hypothetical conduits for cultural innovation and development. This problem particularly addresses the interrelationship between the Old World and the Americas. In the simplest of terms, diffusion refers to the dissemination of ideas, material goods and technologies through physical contact between groups, either via land, or sea. Some patterns of cultural similarity are seen to be explicable through diffusion. The basic premise of independent invention, also known as isolationism or convergence, is the development of cultures on a local or regional level. Humanity is seen to be unified by genetic, psychological and biological

make-up, as well as by inherent potentiality.[4] Parallels between cultures are attributed to the natural limitations imposed by these and other factors, such as environmental, material, and technological constraints.[5] Although both sides admit that neither process alone can account for all aspects of cultural elaboration, the disagreement over the significance of each in relation to the other tends to become polarized and highly emotional.[6] The reasons for this partisanship and the controversy itself have been dealt with in innumerable papers and are not the concerns of this study. Neither are the mechanics of ancient diffusion or transoceanic travel (navigational skills and viable watercraft) addressed here.

The primary emphasis of this thesis is an

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[4] Stephen C. Jett, "Precolumbian Transoceanic Contacts," in Jesse D. Jennings (ed.), Ancient South Americans (San Francisco: W.H. Freeman and Company, 1983), 337.

[5] Ibid., 338.

[6] As Jett summarizes: "The relative importance of these two sources of culture change has long been debated among culture historians and theorists. This debate has often been heated, even acrimonious -- particularly concerning the question of possible ancient interhemispheric influences. The reasons for the lapses into partisan polemics over this issue are complex, but emotionalism on both sides has often impeded calm consideration of the evidence." Ibid.

interpretation of the use, function, and form of Olmec jade, attempted largely through a comparative-analysis with contemporary Shang and Zhou Chinese jade traditions. In relation to the nature of this analysis, the evidence commonly cited in support of the transoceanic introduction of specialized jade use into Mesoamerica is reviewed. Such data as the appearance of jade in Mesoamerica, precedents for this occurrence, local development and non-parallel traits, and similarities between the jade traditions of China and Mesoamerica are reassessed. An attempt is made to clearly identify the parallels which exist between Chinese and Middle American jade and the degree to which these can, if at all, be correlated. Finally, Chapters III and IV examine similar traits which appear to cluster in the jade cultural complexes of the Olmec and the Shang and Zhou Chinese. Although the jade traditions of the New Zealand Maori are very similar to those of China and Middle America, Maori jade is not considered here for several reasons. Ideally, a cross-cultural study of jade should include all known jade-loving cultures. Such an analysis would elucidate the role of jade as a cultural trait, in terms of possible universal factors and cultural distinctions revealed by observable similarities and contrasts in jade

traditions.[7] The extensiveness of this type of study is beyond the scope of an M.A. thesis. Moreover, it is believed that a narrower focus is equally as feasible. A specific comparative-analysis of the jade traditions with the highest degree of correlation in terms of parallel traits and temporal overlap is at once a felicitous point of departure for broader considerations and inferential in terms of the information expected from a more comprehensive approach. The jade traditions of China and Mesoamerica have demonstrable antiquity, a high degree of cultural continuity, closely relatable traits and show temporal correlation. The Maori may have procured their knowledge of jade from the indigenous New Zealanders when the Polynesians inhabited that place between the seventh and twelfth centuries A.D. The use of jade in New Zealand, however, is not as ancient, or as well known as that of China and Mesoamerica. Furthermore, New Zealand jade-working, particularly that of the Maori, does not occur within the time period constructed for this examination on the basis of the appearance of jade in Mesoamerica.

The initial point of departure in this paper is

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[7] Kao, Yinxu, 497.

an examination in Chapter II of the earliest manifestation of specialized jade use in Mesoamerica, at the Olmec center of La Venta, and a definition of the cultural traits related to jade which co-occur with this incidence. Jade enters the archaeological record of La Venta without clear evidence of precedents at this site or elsewhere. A highly developed complex of cultural traits related to jade as a precious material appear coevally. This sudden, full-blown appearance is frequently taken to indicate external influences. Given the strong connections with Olmec jade-craft which are known to have existed in the Pacific coastal state of Guerrero, Mexico, that region has been posited both as the place of origin for Olmec jade and as a likely dissemination point for possible cultural intrusions from Asia. These possibilities are discussed critically. A precedent for La Venta jade is also suggested with the use of green-stone in an earlier context at San Lorenzo.

A large part of this thesis considers a series of traits which were believed to cluster in the jade complexes of China and Mesoamerica. These traits interrelate jade with water, rain magic, agricultural fertility, powers of vitality and fish.

This cluster was identified through a comparison between the jade traditions of Shang and Zhou China and Olmec Mesoamerica. Following the initial discernment of some aspects of this cluster in both areas, further research provided insight into a category of Olmec jade artifacts which are hypothesized in Chapter IV to form a status-religious complex.

Fundamentally, the methodology for this study combines art historical and cultural diffusionist approaches. Published jade artifacts, museum collections and museum exhibitions were examined together with site reports and archaeological data. Primary textual evidence and reliable secondary sources were also investigated for China and Middle America. A temporal framework of between ca. 1250-1150 B.C. and 600 B.C. was delineated on the basis of the earliest evidence for specialized jade and green-stone use in Mesoamerica. Although many primary documents fall outside of this time range, a certain level of cultural continuity was presumed for the traits in question and, where possible, literary data was substantiated with archaeological evidence. The applied diffusionist methodology was culled from several publications on the issue of

transpacific contacts.[8] Traits are considered in terms of their rarity, their relative arbitrariness, their spatial and temporal co-occurrence or overlap i.e.: clustering in both China and Mesoamerica, and the observable temporal relationship in both regions, or the date of appearance of a trait (cluster of traits) in China and in Middle America

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[8] Gordon F. Ekholm, "Transpacific Contacts," in Jesse D. Jennings and Edward Norbeck (eds.), Prehistoric Man in the New World (Chicago: University of Chicago Press, 1964), 489-510; _____, "Diffusion and Archaeological Evidence," in Carroll L. Riley et al. (eds.), Man Across the Sea (Austin: University of Texas Press, 1971), 54-59; Douglas Fraser, "Theoretical Issues in the Transpacific Diffusion Controversy," Social Research Vol. 32 (1965), 452-477; Robert Heine-Geldern, "The Problem of Transpacific Influences in Mesoamerica," in Gordon F. Ekholm and Gordon R. Willey (eds.), Handbook of Middle America Indians Vol. 4 (Austin: University of Texas Press, 1966), 277-295; Stephen C. Jett, "Diffusion versus Independent Development: The Bases of Controversy," in Man Across the Sea, 5-53; _____, "Precolumbian Transoceanic Contacts;" David H. Kelley, "Diffusion: Evidence and Process," in Man Across the Sea, 60-65; Betty J. Meggers, "The Transpacific Origin of Mesoamerican Civilization: A Preliminary Review of the Evidence and Its Theoretical Implications," American Anthropologist 77 (1975), 1-26; Jon Muller, "Style and Culture Contact," in Man Across the Sea, 66-78; Paul Tolstoy, "Diffusion: As Explanation and As Event," in Noel Barnard (ed.), Early Chinese Art and Its Possible Influence in the Pacific Basin Vol. 3 (New York: Intercultural Arts Press, 1972), 823-841; _____, "Transoceanic Diffusion and Nuclear America," in Shirley Gorenstein (ed.), Prehispanic America (New York: St. Martin's Press, 1974), 124-144; Jerry Towle, "Jade: An Indicator of Trans-Pacific Contact?" John F. Gaines (ed.), Yearbook of the Association of Pacific Coast Geographers Vol. 35 (Oregon: Oregon State University Press, 1973), 165-172.

and the applicable elaboration of that trait.

The term cultural complex is referred to throughout this paper and is taken to indicate the cultural traits, or distinctive characteristics, which relate to the use of jade in a specialized, socially restricted and semi-religious manner:

> Use of jade as a raw material may be called a culture trait. When the material becomes associated with ritual observance and is the subject of myth or when it is arbitrarily valued above similar materials, a number of traits relating to its use become joined in a culture complex.[9]

My aim is not to provide a case either for or against the possibility of the transoceanic introduction of the jade complex into Mesoamerica. Rather, I hope that a clear, objective presentation is made of the evidence, to enable more detailed assessments in subsequent relevant considerations. Furthermore, I intend that the preferential use of jade is presented here as a cultural function, rather than isolated as disjunctive to cultural processes. It is my express wish that any insights

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[9] Towle, "Jade: An Indicator of Trans-Pacific Contact?" 166. This writer does not concur with Towle that jade was "arbitrarily valued" over other materials. As shown in Chapter I, there are particular material and aesthetic reasons which effected the value of jade in jade-loving cultures.

gleaned through the particular comparative-analytical approach taken in this study will stimulate scholars to similarly pursue the fascinating subject of ancient jade use in future research.

# I.

## The Benevolent Stone

> Zi Gong inquired of Confucius, "May I ask why it is that the Gentleman cherishes jade while despising soapstone? Is this because one is scarce and the other abundant?"
>
> Confucius replied, "No, jade is not prized for its rarity nor soapstone desregarded simply because it is common. Since ancient times the Gentleman has measured his character against the qualities of jade: warm and lustrous like benevolence; strong and solid like wisdom; pure and resilient like righteousness; suspended, it hangs gracefully with propriety; struck, it emits a clear, resonant tone, vibrating long but stopping abruptly, like music; as if loyal, though faulty its good points are not concealed, and yet when superior its defects are not hidden; its brilliancy illuminates things near it, like truth; like heaven it casts a bright rainbow; its essence is manifested among the hills and streams, like that of the earth itself; ritual jades are unique insignia, like virtue. There are none in the world who do not esteem jade, this is the Way."[1]

A contemporary philosophy which purports gems and minerals to have properties of therapeutic value

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[1] Cited and translated from the Li ji (Book of Rites) in Jeffrey Yu-teh Kao, The Archaeology of Ancient Chinese Jades: A Case Study from the Late Shang Period Site of Yinxu (Ph.D. dissertation), (Mass.: Harvard University, 1985), 43-44. Cf. Li Chi, Book of Rites: An Encyclopedia of Ancient Ceremonial Usages, Religious Creeds and Social Institutions Ch'u Chai and Winberg Chai (eds.), James Legge (transl.), 2 Vols. (New York: University Books, 1967), 463-464.

refers to jade as the "dream-stone."[2] Indeed, the salient physical characteristic of many high-quality jade stones is a translucency which evokes the ephemerality of dreams. The cool, smooth textures and luminosity of colors which can be brought forth from this material by the skilled craftsperson are unequalled in any sculptural medium but the finest of marbles. Tools and weapons produced from jade have a remarkable durability and the special capacity to retain a keen blade edge even after much abuse. These metal-like qualities of jade made it an efficient material for ancient lithic cultures. Perhaps the concomitance of these distinctive qualities and a certain cultural predisposition for a deep appreciation of the stone contributed to the special reverence for jade in a unique group of ancient societies.

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[2] Julia Lorusso and Joel Glick, Healing Stoned: The Therapeutic Use of Gems and Minerals (Albuquerque, New Mexico: Brotherhood of Life, 1987), 44-45. Several principles of this 'New Age' theory are rooted in the ancient medicinal premises of various civilizations and cultures. Though self-admittedly lacking in scientific bases, this philosophy can be seen as a contemporary successor of ancient natural medicine. Gems and minerals are believed to have physical and psychic healing properties, when either ingested or worn next to the body. The qualities attributed to jade under this body of thought are largely derived from the convictions of the ancient Chinese, Middle American and Maori peoples and possibly from European medicine of the sixteenth and seventeenth centuries.

Chapter I provides a general foundation for the considerations of this thesis. An understanding of the characteristics of jade, the historical background of the material, the mineralogical composition of the stone, geographical locations of jade sources, and carving techniques, are essential to any examination of this material in a cultural context, and especially integral to the cross-cultural focus of the present study. The following is a description of the elemental composition and geographical sources of jade; a brief outline of the history of the knowledge and mineralogy of this stone in the European world; and a discussion of ancient jade-carving techniques in China and Middle America. In relation to the focus of this paper, the jade of China and Mesoamerica is emphasized here. However, a deliberate attempt is made to create a general, over-all picture of the stone and its place in other cultures. This is done to construct a broader setting for the more narrow comparison of Chinese and Middle American jade traditions undertaken in following chapters, and to avoid the misrepresentation of jade use as exclusive to ancient China and Mesoamerica. Furthermore, some considerations in this chapter are pertinent to

later discussions regarding the issue of diffusion of specialized jade use.

## Nephrite and Jadeite

A variety of mineralogically related hardstones are frequently classified under the generic heading of "jade." However, only nephrite and jadeite are scientifically and legally acknowledged as such today. Nephrite and jadeite were recognised as two distinctive mineral aggregates by the mid-nineteenth century French mineralogist Damour. They lack a unique mineralogical status, however. Nephrite belongs to the amphibole group of minerals and is comprised of a crypto-crystalline silicate of calcium and magnesium. Jadeite is a silicate of sodium and aluminum which is classed with the pyroxene group of minerals. Hardstones which are sometimes loosely referred to as "jades," especially in connection with Chinese and Mexican artifacts, include tremolite, actinolite, chloromelanite, serpentine, horneblende, pyrophyllite, and greenish steatite, which are all much softer materials than jade.[3] Nephrite and jadeite are formed beneath the surface of the earth as a result of great pressures

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[3] Barry Till and Paula Swart, Chinese Jade: Stone for the Emperors (Victoria: Art Gallery of Greater Victoria, 1986), 9-10.

and, in the case of nephrite, intense heat.

The presence of varying quantities of trace elements alters the physical properties and appearance of jade stones and determines a wide range of colors. For example, green nephrite results from the inclusion of iron, while chromium in the composition of jadeite probably renders several hues of green.[4] The greatest variety of colors in both stones (pale greens, yellows, browns, gray, black and rare blues) are produced by diverse compounds of iron oxides and silicates.[5] Some shades of gray or black and uncommon pinks are related to the occurrence of manganese.[6] Mineralogically pure forms of nephrite and jadeite are extremely rare. The quality of jade stones is largely determined by their relative purity and translucency.

Under microscopic examination, nephrite and jadeite have distinctively compact, fine, crystalline textures. The needle-shaped grains of nephrite and globular-like crystals which comprise

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[4] Ibid.

[5] Richard Gump, Jade: Stone of Heaven (New York: Doubleday and Company, 1962), 70.

[6] Ibid.

jadeite are finely felted together into extremely tough, hard materials.[7] On the Mohs scale of hardness, nephrite is 6.5 and jadeite 6.75. In comparison, steel is slightly less than Mohs 6.5 and diamond is 10.[8] Against other important lithic culture materials, jade measures mineralogically harder than obsidian and slightly less hard than quartz.[9]

The visual differentiation of nephrite and jadeite from one another, as well as from related hardstones such as actinolite and chloromelanite,[10]

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[7] Nephrite is related to fibrous actinolite, or amphibole asbestos. Some fibrous examples of jadeite are known. The most typical, grain-like structure of jadeite makes it somewhat less resistant to impact than nephrite. Joseph Needham, Science and Civilization in China Vol. 3, Sections 19-25 (Cambridge: Cambridge University Press, 1959), 664.

[8] Till and Swart, Emperors, 10. Diamond is at the hard end of this scale, while talc is at the soft. Jade is harder than any pure metals.

[9] Elizabeth Kennedy Easby, "Jade," in Elizabeth P. Benson (ed.), Between Continents/Between Seas, Pre-columbian Art of Costa Rica (New York: Harry N. Abrams, 1981), 135.

[10] These materials can resemble jade stones. Actinolite is a less compact member of the amphibole group of minerals, which is similar in appearance to nephrite. Chloromelanite is a dark green hardstone distinct from nephrite and jadeite, which was identified in 1881 by Damour. This mineral appears to have been employed by Mesoamerican peoples for the production of such objects as celts, and more infrequently for ornaments. See Tatiana

is a task which requires a well-trained eye. However, several superficial qualities do characterise these stones. When polished, nephrite will achieve a waxy, somewhat oily, appearance. Jadeite can be highly polished into a vitreous gloss and its colors tend to be brighter than those of the other stone.[11] Nephrite is relatively more opaque, jadeite in some forms resembling the jewel-like quality of emerald.[12] In terms of working, nephrite is somewhat tougher and jadeite fractures more readily.

Ultimately, the mineralogical content of stones or objects believed to comprise jade can only be determined with accuracy through scientific examinations. These procedures are rarely practised due to the expense, and museums and private owners are sometimes hesitant to subject artifacts to such

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Proskouriakoff, "Jades from the Cenote of Sacrifice, Chichén Itzá, Yucatan," Memoirs of the Peabody Museum of Archaeology and Ethnology Vol. 10, No. 1 (Mass.: Harvard University Press, 1974), 1.

[11] Matthew W. Stirling, "The Olmecs, Artists in Jade," in Samuel K. Lothrop and others (eds.), Essays in Precolumbian Art and Archaeology (Mass.: Harvard University Press, 1961), 52.

[12] The emerald-like appearance is caused by the presence of chromium. This so-called "jewel" jadeite is highly prized on today's market and is mostly associated with Burma.

tests. Some methods of analysis require minute samples, which can be taken from unfinished areas of artifacts. All examination processes are completely harmless. The most favored methods scrutinize objects intact. For example, researchers are able to investigate artifacts in their entirety with light spectrometers, specific gravity tests, X-ray florescence, and neutron activation analysis (NAA).[13] Light spectrometers measure the wave-length 'signatures' of the light reflected from different minerals, providing a mineralogical profile of the stone or article being analyzed. The specific gravity test is accomplished with the use of a chemical mixture, mainly comprising methylene iodide, which has been prepared to a specific gravity lower than jadeite and nephrite. Jades immersed in this solution will sink, while other minerals will not. X-ray florescence uses x-rays to classify the mineralogical composition of whole artifacts with similar, though less precise results than the NAA. The neutron activation analysis test is much more useful and apparently more successful than others. Extremely small samples or whole

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[13] For descriptions and illustrations of these methods, see Fred Ward, "Jade: Stone of Heaven," National Geographic 172, 3 (September 1987), 310-313; Kao, Yinxu, 459 ff.

artifacts, up to roughly 3 cm diameter X 10 cm in height, may be analyzed with this method:

> The samples are exposed to a flux of thermal neutrons, which are infinitesimally small, electrically neutral, elemental particles, produced in nuclear reactors. Because of their nature, the neutrons tend to penetrate the sample completely. By interaction of a small fraction of these particles with the nuclei of the various chemical elements that constitute the sample material, a minute portion of these stable nuclei are converted into radioactive ones. These nuclear reactions will create different radioisotopes for each element, each decaying with its own half-life, emitting characteristic radiation. Of the various kinds of radiation emitted, the gamma rays are of special importance, because the energy spectrum of the gamma rays emitted by a particular radioisotope forms a characteristic "fingerprint." Thus, by measuring the compounded gamma-ray spectrum of a sample, one is able to identify the radioisotopes within it, and, hence, their parent chemical elements. By the same token, the intensity of the gamma rays of a certain energy emitted from the sample constitutes a measure of the amount of parent elements present. Following a sufficient decay period, the sample, or object, if the latter was activated in its entirety, is left in essentially its original condition. The technique affords the ability to determine minute concentrations of some elements, in an extremely small sample.[14]

Further mineralogical examinations include such devices as X-ray diffraction cameras, polarizing

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[14] Frederick W. Lange, Ronald L. Bishop, and Lambertus van Zelst, "Perspectives on Costa Rican Jade: Compositional Analyses and Cultural Implications," in Between Continents/Between Seas, 168, as cited in Kao, Yinxu, 462-463.

microscopes, and electron microprobe analyzers.[15] The mineralogical analysis of jade artifacts provides researchers with clues as to the ancient provenience of raw materials, and trade links between cultural groups.

Although the research into sources of jade in antiquity is on-going, many existing deposits are now known throughout the world. Nephrite is the relatively more common of the two minerals, being present in several locations, including the northwestern Chinese province of Xinjiang, the Lake Baikal area of Siberia, Taiwan, New Zealand, New Caledonia, Australia, Zimbabwe, and parts of North America and Europe. Jadeite has been found in Burma, Japan, the East Indies, New Guinea, parts of North America, and Guatemala.[16] Neither nephrite nor jadeite is found anywhere in great abundance. High quality stones are even rarer in occurrence. Compounding this infrequency is the difficulty of

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[15] Till and Swart, Emperors, 51. Forgeries can sometimes be spotted using these and the above examinations, in such instances where low-grade jade, or jade-like colored stones, have been selected for their impression of age. For a discussion of forgeries and methods of forgery, see Ibid., 51-52.

[16] Ibid., 10. Refer to Ward, "Heaven," 291, for a general map showing sources of jadeite and nephrite.

the labour required to extract the mineral from its source. Jades are frequently found as water-worn stones and boulders in rivers and streambeds. Long hours, frustration, and an incredible expenditure of energy must have accompanied the search for, and transportation of, these stones in antiquity. Moreover, the sporadic evidence for ancient mining may attest to the unfavorable conditions which met jade prospectors of the past. Mining involved alternate heating and cooling to shatter and remove raw ore from the mother stone, a laborious and wasteful endeavor.

## The History of Jade

Several ancient cultures have shared a common appreciation for the use of jade stones in the production of tools, weapons and decorative objects. The Neolithic Swiss peoples of the Lake Geneva region, Neolithic and Bronze Age Lake Baikal inhabitants, and indigenous northern and north-west coast cultures of North America, produced highly serviceable utilitarian artifacts from jade stones. Other cultures who exploited and worked jade are found historically or archaeologically in Taiwan, the Phillipines, Vietnam, the British Isles, Guyana,

Brazil and Colombia.[17] More recent centuries have brought remarkably crafted luxury goods onto the world market from China, Persia and India, many of which are sumptuous composites of jades and other precious materials such as gemstones, gold and silver. In general, there appears to be some level of correspondence between the proximity of jade sources to early cultures and the exploitation and working of the stone.[18] The exceptions to this pattern are Wyoming, where high quality nephrite deposits seem to have held little or no interest to past inhabitants, and the area of Xinjiang province in China, where, although jade sources were exploited and raw materials exported to China proper, only a small group of Neolithic period jade axes are known.[19]

Apart from their practical and decorative functions, jade stones have been culturally imbued with therapeutic and magical capabilities. Historical records suggest that the tribespeoples of eastern Brazil, the indigenous peoples of the Guianas, and the Maori of New Zealand attributed

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[17] Kao, Yinxu, 498-499.

[18] Ibid., 499.

[19] Ibid.

talismanic powers to jade and/or employed it as a component in medicinal remedies.[20] However, a complex of cultural traits surrounding an exceptional veneration of this stone, in combination with the selective and consistent production of jade ceremonial forms, appears to have occurred tangibly in only three cases: ancient China, beginning with the Neolithic period; Precolumbian Middle America (including Costa Rica) from Olmec times until the Spanish Conquest; and amongst the Maori of New Zealand.[21]

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[20] Matthew W. Stirling, "Aboriginal Jade Use in the New World," 37th International Congress of Americanists, Mar del Plata, Buenos Aires, 1966, 4 (1968), 22, 25; Foshag, "Mineralogical Studies;" Proskouriakoff, "Cenoté," 1; Elsdon Best, The Stone Implements of the Maori (Wellington, New Zealand: A.R. Shearer, Government Printer, 1974), 189 ff.; Elsdon Best, Maori Religion and Mythology, Part 2 (Wellington, New Zealand: P.D. Hasselberg, Government Printer, 1982), 46 ff.; The Captivity of Hans Stade of Hesse in A.D. 1547-1555 Among the Wild Tribes of Eastern Brazil, Albert Tootal (transl.), annotations by Richard F. Burton, (London: Hakluyt Society, 1874), 139, n. 2; Hans Staden: The True History of His Captivity, 1557, Malcolm Letts (transl. and ed.), (New York: Robert M. McBride and Company, 1929), 143.

[21] The Maori probably introduced their jade culture and supplies of the stone itself into Eastern Polynesia. Consequently, such traits as the ritual use of jade and the creation of ceremonial jade objects are found sporadically among these latter peoples. This jade culture does not seem to have reached levels of any unique consequence. Therefore, Eastern Polynesian jade use is hereafter referred to implicitly in most places where mention is made of the Maori.

China clearly has the greatest legacy of jade craft and reverence for the mineral among all the cultures in which it was prized. By the Neolithic period (ca. 8000-2000 B.C.) jade artifacts are found archaeologically in an elite and ritual context.[22] In the New World, the Olmec civilization of Mexico appears to be the first of many Mesoamerican peoples which imbued jade with semi-religious properties and carved the stone with superior craftsmanship. These traits appear archaeologically for the Olmec during the Middle Formative period (ca. 1000 B.C.) at the site of La Venta, Tabasco State. The Maori apparently discovered the beloved pounamu (greenstone) after the twelfth century, following their immigration to New Zealand (8th century to 12th century A.D.).[23] Until the arrival of European

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[22] Ritual and Power: Jades of Ancient China (New York: China Institute of America, 1988), 9-10 and Yeung Kin-Fong, Jade Carving in Chinese Archaeology, 1 (Hong Kong: The Chinese University Press, 1987), 183-187.

[23] The Maori originated in Eastern Polynesia, however, their exact place of origin is unknown. These people may have immigrated to New Zealand as early as 600-800 A.D. By 1100 A.D., Maori groups were established at a number of places along the coast. Greenstone seems to have first been worked sometime between this period and 1200 A.D. Nephrite ornaments appear between 1200 A.D. to 1500 A.D. Janet Davidson, "Voyagers from Distant Shores: Origins of the Maori," in John Wilson (ed.), From the Beginning: The Archaeology of the Maori (New

explorers in the later part of the eighteenth century, the Maori were entirely a lithic culture. They found in jade a perfect material, suitable for many of their utilitarian and religious needs.[24]

Despite an awareness archaeologically of local Stone Age jade use, Europeans considered the mineral to be a completely ordinary substance until the beginning of the sixteenth century. At this time the Spanish explorers of Mexico returned with reports of a green stone which was held in great esteem by the native peoples there. Early chroniclers frequently referred to these stones as "emerald," due probably to the striking emerald hue of some Mexican jade, as well as its preciousness amongst the New World inhabitants.[25] The Spanish conquerors imputed to jade

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Zealand: Penguin Books, 1987), 35-36; Janet Davidson, "From Seeds to Flowering: Cultural Change," in Ibid., 46. Greater understanding of the earliest settlement period might reveal that the Maori inherited jade-working from the archaeological indigenous culture which was virtually extinguished by the Polynesian invaders.

[24] Ward, "Heaven," 308.

[25] William F. Foshag, "Mineralogical Studies on Guatemalan Jade," Smithsonian Miscellaneous Collections 135, 5 (1957), 7; "Chalchihuitl -- A Study in Jade," American Mineralogist 40, 11-12 (1955), 1062. Sahagún, Peter Martyr, Martinus de la Cruz, Lopez de Gomara, Molina, Acosta, Tezozomoc, Herrera, Torquemada, Carochi. The semi-precious emerald gemstone has not been found in Mexico, either mineralogically or archaeologically.

an ability to cure pains in the side and in the kidneys, when amulets of the material were worn close to the body.[26] Physician Nicolas Monardes, in his 1569 publication dealing with New World medicines, was the first of several writers to refer to the stone as piedra de yjada, or literally, "stone of the loin," in regard to the purported

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[26] Foshag, "Mineralogical Studies," 9; "Chalchihuitl," 1063. Most scholars are convinced that this practice did not originate in Mexico. According to Martinus de la Cruz (1552, in Foshag, "Chalchihuitl," 1063) the Mexicans only used jade in small quantities in compounds with herbs and "green pearls," as remedies for head injuries, fever, and gout, or as an aid to the dying. This writer has only found one (later) reference to jade in a medicinal context -- where the stone is mentioned metaphorically in relation to a spell used for curing pain in the loins: "I have brought forth my patched mantle. Wherever has it gone? Wherever has it gone to rest? Within the jade bed, the bed of our sustenance?" Michael D. Coe and G. Whittaker, Aztec Sorcerers in Seventeenth Century Mexico. The Treatise on Superstitions by Hernando Ruiz De Alarcón 7 (New York: Institute for Mesoamerican Studies, State University of New York at Albany, 1982), 266. Eastern Brazilian native peoples may have employed jade, possibly as amulets, to cure pains in the side and kidney ailments; see Foshag, "Mineralogical Studies," 9; Proskouriakoff, "Cenote," 1. It may be possible that the Spanish acquired the same practice from the Brazilians. However, in Jeffrey Kao's exhaustive dissertation he proposes that a more likely origin for this belief in Europe may be traced to Europe itself; Yinxu, 28-29. A 1502 work by Camillus Leonardus, for example, which describes a number of medicinal stones, includes two stones which were particularly prescribed for bladder and kidney diseases. The alternative Spanish name for jade, piedra de los riñones ("stone of the kidneys") is therefore considered significant. Cf. Foshag, "Mineralogical Studies," 10.

healing properties of jade.[27] Apparently by this time, widespread belief in the efficacy of this cure had initiated the wholesale exportation of jade stones and carved jades from New Spain into Europe, where they were sold for exorbitant prices. Mexican royalty and nobles were deprived of their prized jades, and, in due course, the conquered peoples lost their technical knowledge and love of the stone. Monardes commented that jade had almost disappeared from Mexico -- a statement made not even fifty years following the Conquest.[28]

In mid-seventeenth century western Europe numbers of elaborately carved Chinese, Persian and Indian sumptuary items began to be imported. The substance comprising these articles was so close in

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[27] The Spanish term piedra de yjada came to be translated into French as pierre de l'ejade, from which the English word "jade" was eventually derived. Seventeenth century scholars writing in "modern" Latin rendered the Spanish piedra de los riñones into lapis nephriticus, which was then transformed into the English mineralogical name of "nephrite." Foshag, "Mineralogical Studies," 9; Foshag, "Chalchihuitl," 1063; cf. discussion by Kao, Yinxu, 26 ff. Jade does not appear to have been a material of any consequence in the classical Greek and Roman worlds. No word exists in Greek or Latin to refer to jade. Sir C.E. Hardinge, Jade: Fact and Fable (London: Luzac, 1961) cited in Kao, Yinxu, 26.

[28] This brief history has been derived from Foshag, "Mineralogical Studies," 5-7; "Chalchihuitl," 1062-1063; Proskouriakoff, "Cenoté," 1; and Kao, Yinxu, 26 ff.

appearance to Mexican jade that the Asian stone, like the American, was thereafter referred to as nephrite.[29] Damour examined the Chinese material in 1846 and 1863 and found it to consist of the two mineralogical forms, which he termed jade nephritique and jadeite.[30] In a later investigation (1881) the scientist discovered that jades from Mexico were jadeite as well. By this time jade had paradoxically come to be synonymous with the appealing objects imported from Asia and, since native deposits of jade were not yet known in Middle America, some scholars posited the Orient as the source for raw materials in Mexican antiquity.[31]

The question of jade sources permeated relevant

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[29] Foshag, "Chalchihuitl," 1063. Refer to note 27.

[30] Ibid.

[31] Ibid., 1068; Proskouriakoff, "Cenote," 1. In 1955 Foshag still found it necessary to contest the idea that ancient Middle American jades were derived from Asian sources: "The occurrence of jadeite in the Mesoamerican region should put at rest the last remaining hints that American jade is an importation from Asia." William F. Foshag and Robert Leslie, "Jadeite from Manzanel, Guatemala," American Antiquity 21 (1955), 82. More surprising is the 1963 publication by Jan Kinle, "Jadeite -- Its Importance for the Problems of Asia -- America Precolumbian Relationships," Folia Orientalia 4, which hypothesizes ancient transoceanic contacts between China and Mesoamerica based upon the exportation of raw jade from China to the New World.

scholarship for many decades. Jade was thought to occur naturally in very limited distribution. Long-distance trade networks, based on known sources of the mineral in the Orient and Oceania, were hypothesized by such writers as Heinrich Fischer.[32] Increasing discoveries of raw jade outside of these areas, however, soon displaced this stance and jade-working came to be seen more as a function of local availability of raw material.

## Jade Sources: Mesoamerica and China

The hypothesis of an Asiatic source for Mesoamerican jades was dispelled by a 1902 publication dealing with Aztec tribute lists.[33] These Postclassic documents kept a tally of the tribute, or tax, in material goods, which was excised regularly by the Aztecs from their vassals. Zelia Nuttall's article entitled "Chalchihuitl in ancient Mexico" demonstrated a concentration of jade in southwestern Mexico indicated by the composition of tribute taken from that area.[34] Indeed, in 1910 William Niven confirmed native sources in this region when he

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[32] Kao, Yinxu, 32.

[33] Proskouriakoff, "Cenote," 1.

[34] Ibid. The article was published in Volume 3 of American Anthropologist.

disclosed raw jadeite nodules procured from the Oro and Balsas rivers, in Guerrero State.[35]

Isolated finds such as Niven's have sporadically come to light, but reports of jade in the mother rock in Middle America are few.[36] Native deposits have been described, though not substantiated, in Zimapan, Hidalgo; Torreon, Coahuila; and in the states of Zacatecas, Queretaro and San Luis Potosi.[37] At present the most widely accepted source for a large percentage of Precolumbian Middle American jades is a series of deposits in the Motagua River Valley, Guatemala, first discovered near Manzanel by Robert Leslie in 1955.[38] Jade artifacts from several Mesoamerican cultures match the chemical profile of the Motagua Valley stone. However, mineralogical deviants from this source, such as the bright green jades from

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[35] Ibid.

[36] Ibid., 2. Refer also to Lange et al., "Perspectives on Costa Rican Jade."

[37] Foshag, "Chalchihuitl," 1068-1069; "Mineralogical Studies," 11-14.

[38] Foshag and Leslie, "Manzanel," 81-83. This area is also considered to have been a major jade-working center, due to archaeological finds of worked stones and leavings in and around the valley. Foshag, "Chalchihuitl," 1069.

Belize and blue-green Olmec and Costa Rican jades, suggest the probability of additional sources.

Several potential deposits of jade exploited during Olmec times have been posited. The zone of the Isthmus of Tehuantepec and the Rio Balsas region in the state of Guerrero have been named as likely jade sources in discussions related to Olmec trade routes.[39] Significant finds of the mineral have yet to corroborate these suggestions; however, it has been postulated that not only raw materials, but finished products as well, may have been brought into the Olmec region from Guerrero. As Michael Coe observes:

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[39] Michael D. Coe, America's First Civilization (New York: American Heritage Publishing, 1968), 94; Robert F. Heizer, "Commentary on: the Olmec Region -- Oaxaca," Contributions of the University of California Archaeological Research Facility 11 (1971), 56, cited in Susan Milbrath, "A Study of Olmec Sculptural Chronology," Dumbarton Oaks Studies in Precolumbian Art and Archaeology 23 (Wash., D.C.: Dumbarton Oaks, 1979), 43. Refer also to Michael D. Coe, The Jaguar's Children: Pre-Classic Central Mexico (New York: The Museum of Primitive Art, 1965), 123; Ignacio Bernal, The Olmec World (California: The University of California Press, 1969), 142-143; Elizabeth Kennedy Easby, and John F. Scott, Before Cortés: Sculpture of Middle America, A Centennial Exhibition at the Metropolitan Museum of Art from September 30, 1970 through January 3, 1971, (New York: Metropolitan Museum of Art, 1970), 116; and Philip P. Drucker, "On the Nature of Olmec Polity," in Elizabeth P. Benson (ed.), The Olmec and Their Neighbors: Essays in Memory of Matthew W. Stirling (Wash.: Dumbarton Oaks, 1981), 35.

> It has long been noted that there are probably more Olmec jades from the Pacific coast and Balsas River basins of Guerrero than from all the rest of Mexico put together. Could Guerrero itself have been the source of the raw material and of many of the worked objects in Olmec style? Metamorphic chlorite schists of late Paleozoic and Mesozoic age are extensively distributed around the Taxco region of northern Guerrero; there are also Paleozoic metamorphic formations over much of the lower Balsas. Chances are good that deposits of the blue-green jade so prized by the Olmec will be found in Guerrero some day.
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> The developing Olmec state on the Gulf Coast could have known about such sources, and set pochteca (trader) groups out to barter with the chiefs of these foreign territories for jade and serpentine....Various areas along the Balsas and coastal Guerrero may have been "ports of trade" visited by the Olmec pochteca, for which Guerrero artisans supplied both raw jade and finished works of art in the Olmec taste.[40]

Easby and Scott advance a similiar opinion:

> Guerrero, which extends from Taxco in the north to Acapulco on the coast, is traversed from east to west by the great Balsas River....Midway along its course, spectacular art in fine stone has been uncovered during extensive tomb hunting. Because a considerable number of carvings from just north of the Balsas are in the

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[40] Coe, Jaguar's Children, 123. Large numbers of Olmec jades have recently turned up in the Gulf Coast region. The discovery of over 35 jade and serpentine masks and 1000 jade and serpentine celts at Arroyo Pesquero and nearly 800 jades and other precious objects at Cerro de las Mesas in heirloom caches has now reversed the impression that most Olmec jade artifacts derive from Guerrero and Oaxaca. Gillett G. Griffin, "Olmec Forms and Materials Found in Central Guerrero," in The Olmec and Their Neighbors, 221.

> purest Olmec style...a few scholars have proposed that Guerrero or the adjoining states were the original home of the Olmecs prior to their settlement in Veracruz-Tabasco. Although this theory has not been disproved, the apparent absence of Olmec ceremonial centers and large stone sculpture suggests that Guerrero's principal contribution to the Olmec style was in the art of lapidary work. Since jade and fine greenstone were unavailable in the low-lying Olmec heartland, they had to be obtained from such mountainous regions as Guerrero, this trade providing the means by which that aspect of Olmec culture took root. Rather than transporting the stone in uncarved form from Guerrero, the Olmecs may have preferred to have many objects carved locally by native artisans, thus introducing their lapidary techniques without most other aspects of their civilization.[41]

Some scholars have indicated northern Costa Rica as another potential source of jade in antiquity.[42] This speculation is largely based upon

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[41] Easby and Scott, Before Cortés, 116. The evidence cited above has been considered by some scholars to indicate the means by which the use and veneration of jade could have been introduced into the Olmec civilization from China. The port city of Acapulco is close to the Rio Balsas region, and was, in fact, used by the Spaniards for its convenience in transpacific trade. Stephen C. Jett, "Precolumbian Transoceanic Contacts," in Jesse D. Jennings (ed.), Ancient South Americans (San Francisco: W.H. Freeman and Company, 1983), 353.

[42] Easby, "Jade," 135 ff., summarizes the scholarship and discusses the possibility of Costa Rican jade deposits, Olmec trade contacts, and Olmec and Mayan influences upon Costa Rican jade crafting. Cf. Anatole Pohorilenko, "The Olmec Style and Costa Rican Archaeology," in The Olmec and Their Neighbors, 324-327, and Carlos Balser, El Jade de

the unparalleled incidence of Olmec and Costa Rican artifacts carved from a particular variety of jade. Rare, intense-green "jewel" jades were the most highly valued of all jade stones in Mexico by around 600 B.C.[43] Jewel jade occurs as inclusions in the equally uncommon "blue" jades. These almost pure, translucent, forms of jadeite are found combined in only two Mesoamerican styles, the Olmec and Costa Rican.[44] Moreover, carvings from these combined blue/jewel jades are most plentiful in Costa Rica.[45]

The precise nature of the connections between the Olmec and Costa Rica is not yet understood. However, several factors indicate that these ties were in some way based upon the jade trade, viz.: the singular predominance of the effigy-celt form, or axe-god, in the Olmec heartland and northern Costa Rica during the period in which the blue/jewel jade source was being exploited; parallels between the styles and techniques of jadeworking in the two

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Costa Rica (San José: Librería Lehmann, 1974), 7.

[43] Easby, "Jade," 138. Mexican "jewel" jadeite closely resembles the renowned "jewel," or "imperial," jadeite derived from Burma.

[44] Ibid.

[45] Ibid.

regions; and a number of Olmec artifacts which have surfaced with a Costa Rican provenience, one such object being documented.[46] Contrary to these provocative data, however, there is very little evidence for local workshops and, regardless of a few unfounded rumours, native deposits of jade *in situ* have yet to be located.[47]

Middle American jade is jadeite, or mineralogical cogeners thereof. Nephrite is not found in this region; the major New World sources for this mineral being Brazil, California, Wyoming,

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[46] *Ibid*. The documented object is an extraordinary Olmec, or Olmec-style jade pendant in the form of a clamshell which was excavated in 1977 at Talamanca in the Tibás area of San José. Michael J. Snarskis, "El Jade de Talamanca de Tibás," *Vinculos. San Jose, Museo Nacional de Costa Rica* 5, 2 (1979), 89-107. This artifact was apparently a prized heirloom, having been unearthed from a burial in conjunction with indigenous jade objects which post-date it by several centuries. Classic and Postclassic Mexican cultures valued 'antique' Olmec jades and passed along such objects through successive generations. The Tibás jade may have been brought into Costa Rica either during its own, or later times. Many Olmec and Olmec-style jades may have actually come into Costa Rica during the Late Formative to Early Classic periods. Pohorilenko, "Costa Rican Archaeology," 309-327. The Tibás jade is discussed further in Chapter IV.

[47] Lange et al., "Perspectives on Costa Rican Jade," 172; for jade trade routes and compositional analyses of Olmec, Maya and Costa Rican jades, see 167-175.

British Columbia and Alaska.[48] As mentioned above, jadeite is rarely found in its purest state.[49] In Middle America this mineral is most commonly coupled with albite and diopside.[50] Mineral inclusions of acmite, muscovite, mica, quartz, or others, have

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[48] Proskouriakoff, "Cenote," 1; Foshag "Chalchihuitl," 1064. In past decades, a group of Mesoamerican artifacts which had originally been identified as nephrite were later disclosed to comprise jadeite, its cogeners, or actinolite. One such example is the superbly rendered, composite winged-duckbilled-human figurine known as the Tuxtla Statuette. When first published in 1907, this object was identified by W.H. Holmes as "A nephrite statuette from San Andres Tuxtla, Vera Cruz." Charles R. Wicke, Olmec: An Early Art Style of Precolumbian Mexico (Arizona: The University of Arizona Press, 1971), 4. In relation to the Mesoamerican area, the nearest sources of nephrite are located in eastern Brazil and southwestern United States.

[49] The selection of high-quality jade stones for esteemed forms and valued objects, along with such documentary evidence as the Aztec nomenclature for various grades or categories of jades, (discussed in Foshag, "Mineralogical Studies," 8-9) recorded by Sahagún, suggests that the Mesoamerican peoples both desired and were capable of distinguishing jadeite in its various forms from other stones. However, the green color of these stones seems to have been an aspect of fundamental importance to their social function (see discussion below, Chapter 2, Section I). Therefore, a process of substitution may be presumed to have taken place in which it was acceptable to carve ceremonial and ritual forms normally associated with jade in lesser green stones. Indeed, a number of such Mesoamerican artifacts are known. Some archaeologists are currently attempting to deal with this problem by including all carved green stones under the term "cultural jade." Ward, "Heaven," 314.

[50] Foshag, "Chalchihuitl," 1064.

also been detected.[51]

Both jadeite and nephrite are commonly found in association with deposits of serpentine.[52] Therefore, where serpentine is known to occur, mineralogists presume the likelihood that jade may also be found.[53] Foshag has mapped the several known occurrences of serpentine throughout Mexico, and particularly in Guatemala, as hypothetical locations for jadeite deposits.[54] Although prospecting and archaeology have yielded many clues, Guatemala's Motagua Valley remains the most securely documented deposit identified thus far.

The question of ancient jade sources is as problematic for Chinese scholarship as it is for Middle American. The earliest reliable information relating to this subject is provided by Han dynasty

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[51] Ibid., 1064-1065, 1068; Proskouriakoff, "Cenote," 1.

[52] Magnesium silicate.

[53] Stan Leaming and Chris Leaming, Guide to Rocks and Minerals of the Northwest (Surrey, B.C.: Hancock House Publishers, 1986), 6.

[54] Foshag, "Mineralogical Studies," 13; "Chalchihuitl," 1069; Proskouriakoff, "Cenoté," 2.

(206 B.C. to 220 A.D.) historical records.[55] These texts have indicated that jade was obtained from the area of Central Asia which comprises modern China's northwestern Xinjiang province.[56] River boulders, or mined stones, from Khotan, Yarkand, and the legendary Kunlun mountains of Chinese Turkestan,[57] assuredly provided China with her principal source of jade from at least the early part of the Han (the Western, or Former Han dynasty, 206 B.C. to 8 A.D.)

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[55] The principal primary Han dynasty sources for information about jade are: the Records of the Historian, (Shiji) by Sima Qian, first century B.C.; History of the Former Han Dynasty, (Han shu) by Ban Gu, first century A.D.; History of the Latter Han Dynasty, (Hou Han shu) (largely by) Fan Yeh, fifth century A.D. Jeffrey Kao and Zuosheng Yang, "On Jade Suits and Han Archaeology," Archaeology 36, 6 (Nov./Dec. 1983), 30.

[56] See Kao, Yinxu, 461, for map of Chinese jade sources.

[57] Khotan and Yarkand are located in the Taklamakan desert. Khotan is an oasis at the foot of the Kunlun mountains. Nephrite boulders wash down from these mountains through the action of the major rivers, the Karakesh and the Yurungkash, in the area. A seventeenth century Ming dynasty compendium of crafts and techniques, Tian Gong Kai Wu (Song Yingxing, 1637), illustrates and describes a purported method of searching for river stones. Nude young women are shown wading in the waters of Khotan's Karakash, or Green Jade, River -- the yin (female) principle which they embody being considered to attract the yang (male) substance of jade. Reproduced in Till and Swart, Emperors, 44. The actual mining of nephrite is first mentioned in the Yunlin shipu by Do Wan, a Sung dynasty lapidarium dated 1133. See Chinese Jade Throughout the Ages (London: Victoria and Albert Museum, Oriental Ceramic Society, 1975), 6.

through to modern times.[58] Far-flung trade was well established by this time and materials could be moved with relative ease, precluding periodic interruptions due to political instability and the accompanying increased risk of travel, along the famous Silk Road trade routes.[59] Until the emergence of recent contradictory evidence, it was generally held that these historically known deposits supplied Stone and Bronze Age China with her jade resources as well. However, scholars were also aware of the comparative limitations in the complexity and development of Chinese Stone and early Bronze Age society and technology.[60] Political and technical capacity during these periods would have made the necessary transportation of raw materials over a

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[58] Kao and Yang, "Jade Suits," 33; Till and Swart Emperors, 11.

[59] Khotan was brought under Chinese control for the first time with the properous reign of the sixth Han emperor Wu Di (141-81 B.C.), who expanded China's borders westward. Travel was therefore made safer, and extensive transportation networks developed. Relatively large quantities of jade were made available in China for the first time as well. However, Han political strength and stability was not maintained consistently in the later part of the period. By the early Six Dynasties (220-589 A.D.) internal struggles caused China to lose the western territory, and it was not regained until the Tang (618-906 A.D.). Till and Swart, Emperors, 21, 24; cf. Howard Hansford, Chinese Carved Jades (London: Faber and Faber, 1968), 19-20.

[60] Kao and Yang, "Jade Suits," 33.

distance of some 3,000 miles an extremely difficult task indeed.[61] Recent attention has focussed upon the possibility of local jade deposits in China proper, which, as a result of heavy demands, could have been exhausted by historic times.[62]

Nephrite, or zhen yu ("true jade"), was the jade of China from antiquity until the eighteenth century.[63] Most ancient jades which have been examined comprise nephrite, or its mineralogical

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[61] Ibid. Early Chinese civilization tended to cluster towards the eastern region of the country, in the area later known as the Central Plains. This center comprised the territory around Lake Tai, the middle reaches of the Yangtze and the mid and lower reaches of the Huanghe. Travel between Central Asia and China proper would have involved crossing several political boundaries, a situation which implies a much more intricate level of diplomatic activities and organisation than appears to have existed during this early period. Moreover, a highly developed system of transportation would have been necessary to move loads overland across such an expanse. By way of contrast, Olmec travel from the site of La Venta to the northern region of Costa Rica, for example, would have only involved crossing roughly 900 miles. A great proportion of this distance could have been traversed via water routes, requiring skills in which the Gulf Coast Olmec, with their riverine environment, most likely excelled.

[62] Till and Swart, Emperors, 11.

[63] Jadeite was virtually unknown in China until a trade treaty was signed with Burma in 1784. The flashier nature of this stone, its ability to achieve a high polish, and the remarkable gem-like quality of Burmese 'imperial' or 'jewel' jadeite, resulted in such a sweeping popularity that it largely displaced nephrite for trade and commerce within two hundred years.

cogeners. There is dearth of known nephrite deposits in China.[64] This negative evidence originally supported Central Asia as the source region for Chinese jades of antiquity. However, nephrite-related deposits of tremolitic-actinolitic jades recently have been postulated to exist within a known band of metamorphic rock stretching along the mountainous region of China's eastern seaboard, south of Lake Tai, through northern Zhejiang and southern Jiangsu provinces.[65] It is significant that a flourishing incipient Neolithic jade tradition appears to have concentrated in the geographical region corresponding to this mineralogical belt.[66]

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[64] The possibility of local deposits of nephrite has not been entirely ruled out, since China's mineralogy has not yet been sufficiently explored. Kao and Yang, "Jade Suits," 33. Several native Chinese jade sources are, in fact, mentioned in historic records: Lantian (Shaanxi province), Jiuquan (Gansu province), Xiuyan (Liaoning province), and Nanyang (Henan province). See Ibid., and Till and Swart, Emperors, 11, (the documents cited are not identified by these writers). Upon examination, the so-called 'jades' from the first three locations were discerned to comprise a form of serpentine, whereas, the fourth site yielded a material containing mineral inclusions of jadeite and horneblende (the latter belonging to the amphibole group with which nephrite is classed). See Till and Swart, Emperors, 11.

[65] Zheng Jian, of the Huadong Institute of Geology, in Nanjing; in Ibid.

[66] Ibid. This tradition seems especially dense in the Neolithic core cultural area of northern Zhejiang and southern Jiangsu, and has been identified in the region between Liaodong Peninsula

Furthermore, many artifacts excavated from the Liangzhu culture (thrived ca. 3300-2250 B.C., in the region around Lake Tai) have been identified as tremolite-actinolite jade.[67]

Although Neolithic and early Bronze Age cultures could have exploited native deposits of jade, evidence suggests that during the subsequent Shang dynasty (sixteenth to eleventh centuries B.C.) supplies of the stone may have been derived from Khotan. The extraordinary 1976 discovery of the royal tomb of Lady Fu Hao at the Shang capital of Anyang[68] made extensive reliable information about Shang jades available for the first time.[69] Analysis

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to Guangdong. Excavations at Hemudu, in Yuyao, Zhejiang, have yielded the earliest Chinese examples of jade ornaments, dating ca. 5000 B.C. Although this site was roughly contemporary with the Yangshao culture in the Huanghe valley to the west no jade artifacts have yet been excavated from early Yangshao. See Ritual and Power, 7.

[67] Kao and Yang, "Jade Suits," 33; Till and Swart Emperors, 11, 13. The majority of Neolithic jade objects have not been scientifically analyzed and are therefore properly referred to as jade prototypes.

[68] The Anyang phase or Late Shang dynasty is dated ca. 1400-1100 B.C. Yeung, Jade Carving.

[69] Till and Swart, Emperors, 15. Lady Fu Hao was the fourth consort of Shang emperor Wu Ding. The phenomenal number (seven hundred plus) of superbly rendered jade objects excavated from her tomb provided unprecedented, vital documentation for the chronology, form, function, and decoration of Shang

has revealed most of the exhumed jades to comprise a nephrite bearing relationships with that of Khotan.[70] By the Zhou dynasty (ca. 1100-221 B.C.),[71] Central Asia may have provided China with a large proportion of her jade supply. Nevertheless, conclusive data have not yet come to light.

## Carving Techniques: China and Mesoamerica

The procurement of raw jade stones for working is no easy task, as jade sources are relatively rare and often located in forbidding environs. During ancient times, extreme hardships accompanied the extraction and transport of raw materials. Such difficulties most certainly contributed to the value of this stone culturally and materially. Indeed, the rarity and unparalleled qualities of jade augmented the high esteem with which it was regarded in China and Mesoamerica. As a result of these factors, then, jade crafting was undoubtedly a skill involving

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jades. Kao, Yinxu, examines the jades from this tomb. See also Max Loehr, Ancient Chinese Jades from the Grenville L. Winthrop Collection in the Fogg Art Museum (Cambridge: Harvard University, 1975), 21.

[70] Till and Swart, Emperors, 15.

[71] Till and Swart, Emperors; Yeung, Jade Carving; cf. Cho-Yun Hsu and Katheryn M. Linduff, Western Chou Civilization (New Haven: Yale University Press, 1988), 390.

considerable responsibilities.

Jade cannot actually be 'carved' in the strict sense of the word. Rather, this highly refractory material is worked with methods of attrition, or the gradual wearing-down of the stone's surface by means of moistened abrasives used in conjunction with various tools. The techniques involved in this process are extremely time-consuming and painstaking. Even in modern workshops, with the advantages of hard, man-made abrasives and diamond-tipped drills, the creation of a single, well-crafted object can require weeks of labour.

The long and arduous processes involved in jade-working necessitated a division of labour for this activity. Since very early times in both China and Mesoamerica, lapidaries seem to have worked in teams which subsequently developed into substantial, highly organised workshops.[72] A single jade object would pass through the hands of several craftsmen,

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[72] A royal stonecrafting workshop is known at the late Shang capital of Anyang (Yinxu); Kao, Yinxu, 317-319. Recent excavations (under University of Pennsylvania graduate student Wm. F. Rust, unpublished, National Geographic Magazine, 175, 3 (March 1989), "Geographica") at the early Mesoamerican center of La Venta, have revealed lapidary workshops where many of the extraordinary jade objects found there were probably created.

each mastering one or more of the many skills involved in working this stone. Initially, methods of jade carving were no different from techniques employed for the creation of implements in other stones and bone.[73] Over time, however, these skills were modified in accordance with the special requirements of the jade stone. Essentially, jade-working involved four primary techniques: percussion, sawing, drilling, and polishing. These general methods can be found among all the societies which carved this stone and, in relation to their effectiveness, have altered little into present times.[74]

The jade-carver of antiquity embarked upon his task with the prudent selection of a segment from a

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[73] Ritual and Power, 14.

[74] Mesoamerican jade working techniques were first studied in detail by Alfred V. Kidder in Kidder, Jesse D. Jennings and Edwyn M. Shook, "Excavations at Kaminaljuyú, Guatemala," Carnegie Institute of Washington, Publication 561 (Wash., D.C.: Carnegie Institute, 1946), and Foshag, "Mineralogical Studies," 44 ff. Aztec period jade-working was described in the documented accounts of Sahagún and Torquemada. Stirling, "The Olmecs," 56. See also Miguel Covarrubias, Mexico South (New York: Alfred A. Knopf, 1946), 112-113.

The first detailed report on Chinese jade carving techniques was published in Cheng Te-k'un, "The Carving of jade in the Shang Period," Transaction of the Oriental Ceramic Society (1954-55), 13-30; cited in Yeung, Jade Carving, 189.

jade stone estimated to best suit his purposes. The requirements governing this process involved several factors (such as coloration, grain, size, shape, fracture lines, etc.) which increased in complexity with the development of lapidary skills and shifts in social function. Once desired pieces had been delineated, they could be detached or extracted by means of percussion and sawing. Hammerstones effectively removed unwanted projections (or pieces blocked out for use by sawing), and pecking was employed to shape usually lesser quality stones.[75] Preliminary forms could also be both removed from the motherstone and established by means of sawing with rigid, abrasive tools (e.g., pottery shards, flint, hardstones and, in China, metal wire, or rotary-motion devices) used with pulverized materials and water.[76] Both sides of a stone could be worked with the sawing utensil, enabling the carver to eventually break pieces free by hand. Late Neolithic Chinese lapidaries had the use of bronze wire for sawing. By the Shang dynasty, bronze rotary

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[75] Stirling, "The Olmecs," 56.

[76] Apart from methods of percussion, all techniques of jade working which are described in this section rely upon the use of moistened abrasives for their effectiveness. In jade craftsmanship, the abrasives and water, rather than the tools employed, perform the actual cutting, shaping and incising.

disks were employed for stone cutting and shaping, increasing the efficiency and reducing the hours of labour involved in this activity.[77]

Following the initial stage of separating the working material from the main stone, further application of percussion, sawing and grinding (accomplished with stones, pottery 'files,' or rotary metal disks in China) would hence shape the jade roughly into its projected form. Therefore, pendants would begin as flat sections, axes as oblongs, figurines as round or cylindrical silhouettes, etc. After the general contours of an object had been fashioned, lapidaries employed drilling, engraving, string-sawing, bow-sawing and grinding for the definition of features, details and decoration.

Drills were generally of two varieties, solid and tubular. Remarkably fragile materials such as bird bones, reeds and bamboo usually comprised tubular drills. Harder materials were necessary for solid drills. Mesoamerican lapidaries may have employed such hardstones as chloromelanite for these

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[77] Yeung, Jade Carving, 189.

utensils.[78] In China, solid, as well as tubular, drills were being produced from bronze by at least the Erlitou culture phase of the early Bronze Age.[79] Tubular drills primarily functioned to cut circles and arcs, or to create larger holes and remove circular cores.[80] Perforations, cup-like cavities and some types of ornamention were created by solid drills with cone-shaped bits.[81] In some instances, particularly that of the Mexican Olmec, drilling was employed as a means of establishing points of reference for the carving of details and features. Thus, facial features, for example, would be demarcated at the ears, nostrils, and the corners of

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[78] Robert L. Rands, "Jades of the Maya Lowlands," in R. Wauchope (general ed.), G.L. Willey (volume ed.), Handbook of Middle American Indians, 3, 2 (Austin: University of Texas Press, 1965), 513.

[79] Yeung, Jade Carving, 187-189; Till and Swart, Emperors, 10. The Erlitou culture (19th-16th century B.C.) is named after the archaeological site of Erlitou, Yanshi County, Henan province. Most Erlitou jades have been excavated from this site. This culture flourished in the time frame which corresponds with the legendary first dynasty of China, the Xia (21st-16th century B.C.) Some scholars refer to this period as the Erlitou phase of the Xia culture.

[80] Rands, "Maya Lowlands," 574.

[81] Ibid. Paper-thin surfaces and remarkably slender drill holes were the triumph of Olmec jade carvers. Some drill holes are so narrow that bristles have actually been suggested as the means by which they were created. Stirling, "The Olmecs," 58.

mouths and eyes.[82] Drills were either rotated by hand, or mechanically, with such devices as the bow-string.[83] As with sawing, jade workers frequently drilled holes from both sides of an object. The use of this method resulted in biconical impressions -- wherein the drilled hole would be narrow at the centre and wider at its mouths.

The general forms and features of objects having been attained through the foregoing means, ancient lapidaries then employed several methods for the further refinement of jade artifacts. Careful drilling with smaller utensils could render some details and relief decoration. Sawing was an effective means of freeing appendages and circumferential decoration from the corpus of an object.[84] Finer details, linear decoration, and relief designs were engraved or generated through

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[82] Miguel Covarrubius, Indian Art of Mexico and Central America (New York: Alfred A. Knopf, 1957), 56, Fig. 20.

[83] The bow-string would be attached to the shaft of the drill and drawn back and forth, working the drill bit slowly into the stone. For illustrations and discussion, see Paul E. Desautels, The Jade Kingdom (New York: Van Nostrand Reinhold, 1986), 94-98.

[84] The use of sawing for the delineation of arms and legs is clearly evident in some Olmec figurines for example. See Stirling, "The Olmecs," 56 and Fig. 8.

the use of sharp quartz and possibly jade tools in Mesoamerica. During the Erlitou culture period in China, it appears that bronze blades and a nail-shaped instrument known as a tuozi were used in conjunction with moistened abrasives for certain types of linear decoration.[85] The tuozi was probably mounted on a work bench of some sort and spun by a rotary-motion mechanism. While decoration or shaping was being applied to the jade, it was apparently turned by a contrivance based upon the principle of the potter's wheel and operated with a foot treadle.[86] The disk-shaped head of the tuozi would then be slowly worked into and along the artifact.

The extremely complex skill of openwork decoration was mastered with virtuosity by the ancient jade carvers of Mesoamerica and China, although the techniques involved were quite different in both cultures. The use of openwork for the ornamentation of jades reached its summit in Mesoamerica among the Classic period Maya (ca. 300-900 A.D.) The elegant, lacy designs were achieved

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[85] Yeung, Jade Carving, 187-189, Fig. 2.

[86] Ibid., 189.

with the technique of string-sawing.[87] Holes were initially drilled through the object at appropriate points and a tough, fibrous string, coated with moistened abrasives, was drawn back and forth through these perforations until the desired pattern emerged. In China extraordinary openwork objects are known from as early as the late Neolithic period.[88] A primary means of creating jade openwork decoration in Neolithic China probably involved the use of bronze wire in a manner similar to that of string-sawing; however, by the Shang dynasty, the evidence suggests that jade workers employed a bronze instrument closely resembling a bow-saw, which is known as a suogongzi.[89] With the development of a high level of skill in the use of this tool, openwork decoration flourished in the latter part of

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[87] Rands, "Maya Lowlands," 513. String-sawing was also known in Costa Rica and possibly as early as the Olmec period in Mexico. Samuel K. Lothrop, "Jade and String Sawing in Northeastern Costa Rica," American Antiquity, 21, 1 (1955), 43-51; and Carlos Balser, "A New Style of Olmec Jade with String Sawing from Costa Rica," Verhand-lungen des XXXXVIII, Internationalen Amerikanisten Kongresses, Stuttgart-München, 12, bis 18, August 1968, Band I (1969), 243-247.

[88] Ritual and Power, cat. nos. 78, 79, 81.

[89] Yeung, Jade Carving, 189.

China's Zhou dynasty.[90]

Grinding and polishing comprised the final stages in the production of jade artifacts. The complete definition of features and rounding off of edges were accomplished with grinding. Objects were then polished to a smooth finish with hard stone implements, or the silica-rich stems of bamboo.

## Summary and Conclusions

The intention of this chapter is to provide such general information so that references to materials, technical matters, sources, and the history of jade, etc. in other chapters are clearly understood. Moreover, an attempt is made to place jade in a wider cultural setting than do subsequent discussions. The question of diffusion in relation to specialized jade use is not the concern of this chapter, although some of the considerations here are relevant to this issue.

Jade was an insignificant stone to Occidental Europe until the Conquest of Mexico. New World jade

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[90] Especially during the Warring States period (480-222 B.C.) when jade craftsmanship in China reached an unprecedented level of mastery, complexity and creativity.

achieved some renown as a medicinal substance in the late sixteenth century, although the recognition of the American material was soon surpassed by a penchant for Oriental jade exotica. This later inclination, together with limited information about jade sources, affected some of the earlier scholarship on Mesoamerican jade and cross-cultural studies of jade as a cultural trait. Such studies originally depended upon an hypothesis of actual historical contact between cultures, which was purportedly based on the acquisition of jade ore. The invalidation of this work has often created an adverse reaction to more recent diffusionist publications, in the sense that the examination of jade as evidence for transpacific contacts is seen as an extension of earlier, rather dubious methodologies.[91]

The proposition that ancient New World jade was acquired from Asia was repudiated by native finds of raw jade in Middle America. Furthermore, the materials carved in China and Mesoamerica in antiquity are fundamentally dissimilar: the variety of jade characteristic of Chinese artifacts is nephrite, while that of Mesoamerica is jadeite. At

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[91] See, for example, Kao, Yinxu, 494 ff.

varying times, both cultures were willing to cover great distances to acquire the precious stone. The earliest Chinese sources of jade may have been located along the eastern seaboard, from northern Zhejiang to southern Jiangsu provinces, in close proximity to Neolithic culture sites. During the Shang dynasty until the eighteenth century, however, China was supplied with jade from the region now within the boundaries of Xinjiang province, some 3,000 miles from the focus of ancient Chinese civilization in the Central Plains. The only confirmed jade source for Mesoamerica is the Motagua River Valley region of Guatemala, although the Formative Olmec civilization may also have exploited sources in Mexico's Guerrero state or Costa Rica. Several hundred miles separate any of these regions from the Gulf Coast Olmec heartland.

Jade-working techniques are generally the same for ancient China and Mesoamerica, essentially involving methods of sawing and grinding, with the exception that the former culture had bronze tools and rotary mechanisms from very early times. Basic techniques of working and, to some degree, the stylistic properties of certain forms, are generally

uniform in most cultures which worked jade.[92] These similarities are determined by the material constraints of jade itself. Jade-working technology does not, therefore, constitute practicable evidence for arguments of transpacific contacts.[93]

A number of factors probably contributed to the position of jade as a precious substance in the ancient world. This stone is foremost an ideal lithic culture material. Jade is hard, durable and retains a sharp edge longer than other stones. There is a high degree of correlation between the location of jade sources and the occurrence of jade-working in antiquity, but jade was relatively rare, difficult to acquire and intractable. These characteristics in combination with the striking aesthetic appeal of this substance most certainly restricted the use of jade, probably in a social context. Of all jade-loving groups, however, only the ancient Chinese, Middle Americans and the Maori regarded jade with a status approaching reverence and consistantly produced ceremonial objects from

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[92] Ibid., 501.

[93] In contrast to Jerry Towle's position in "Jade: An Indicator of Trans-Pacific Contact?" John F. Gaines (ed.), Yearbook of the Association of Pacific Coast Geographers, 35 (Oregon: Oregon State University Press, 1973), 168-169.

jade -- forms which were specifically identified with the stone. The veneration of jade in China and Mesoamerica long surpassed the appearance of metallurgy in those regions. The highly important Chinese bronze ritual vessels and the stunning gold of Middle America never replaced jade in religious, ceremonial, or social significance. Jade was, indeed, the stone of benevolence.

II.

## The Jade Heart: A Reconsideration of Olmec Jade and The Question of Transpacific Contacts

Let me take pleasure
Let me not perish
I am the tender corn
of jade is my heart made[1]

The date generally taken to mark the earliest firm appearance of the significant use of jade in Mesoamerica is ca. 1000-900 B.C., when it occurs suddenly and without precedents at a major heartland site of the Olmec civilization, La Venta, Tabasco state, Mexico. The dearth of known local antecedents is frequently emphasized in discussions related to Olmec jade, but especially for transpacific diffusionist considerations.[2] Where archaeological precedents are absent for cultural traits, external

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[1] From the Song of Xipe Totec Youallauan (Aztec god of Spring), Fray Bernardino de Sahagún, Florentine Codex: General History of the Things of New Spain, A.J.O Anderson and A.E. Dibble (translators and eds.), (Utah: University of Utah Press, 1981), Book II, 240.

[2] Jett, "Precolumbian Transoceanic Contacts," 352; Betty J. Meggers, "The Transpacific Origin of Mesoamerican Civilization: A Preliminary Review of the Evidence and Its Theoretical Implications," American Anthropologist, 77 (1975), 2-6; Joseph Needham and L. Gwei-Djen, Transpacific Echoes and Resonances; Listening Once Again (Philadelphia: World Scientific, 1985), 35; Stirling, "The Olmecs," 43-44; Jerry Towle, "Jade: An Indicator of Trans-Pacific Contact?" 165-172.

origins might be implied.

The question of Olmec origins, or the origin of the Olmec art style, has been polemic since the earliest recognition of this civilization in the lower Gulf Coast region of Mexico.[3] The scholarship pertaining to this issue belongs roughly to two camps: those which hold for a southern Veracruz and Tabasco states Gulf of Mexico coastal-plains origin, where the greatest concentrations of "classic" Olmec cultural remains exist;[4] and those who postulate a western genesis, in the highlands encompassed by the modern Mexican Pacific states of Oaxaca and Guerrero.[5] Others have suggested foreign cultural intrusions as stimuli for the somewhat abrupt shift from village agrarian existence to the centrally organised, socially stratified "high" civilization

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[3] For example, Michael D. Coe, "The Olmec Style and its Distribution," in Handbook of Middle American Indians, 3, 2, 739-775; Covarrubius, Indian Art; Griffin, "Olmec Forms and Materials Found in Central Guerrero," 209-222; Louise Iseut Paradis, "Guerrero and the Olmec," in The Olmec and Their Neighbors, 195-208; Wicke, Olmec.

[4] Coe, "Olmec Art Style."

[5] Covarrubius, Indian Art; Wicke, Olmec; Griffin, "Olmec Art Forms and Materials in Central Guerrero;" Paradis, "Guerrero and the Olmec."

which is now known as Olmec.[6]

The focus of Formative Olmec culture is the southern Gulf Coast, where it appears full-blown at San Lorenzo, Veracruz, around 1150 B.C. "with an established pantheon, iconography, symbolism, extraordinary knowledge of stones foreign to the heartland, an incredible lithic technology, organization, (and) hierarchy...."[7] Although isolated Olmec traits appear earlier at San Lorenzo, clearly Olmec developmental stages are lacking.[8] However, as

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[6] Meggers, "The Transpacific Origin of Mesoamerican Civilization." Refer also to discussion in Stephen Jett, "Diffusion versus Independent Development: The Bases of Controversy," in Carroll L. Riley, et al. (eds.), Man Across the Sea: Problems of Pre-Columbian Contacts (Austin: University of Texas Press, 1971), 38-39.

[7] Griffin, "Olmec Forms and Materials found in Central Guerrero," 222.

[8] "(Within the) almost unbroken succession of Formative occupations at San Lorenzo Tenochtitlán from 1450 B.C. until about 750 B.C....evidence has been presented of the gradual introduction of certain Olmec traits, such as typically Olmec figurines, which perhaps begin as far back as Bajío, and monumental sculpture which is as old as Chicharras. Nonetheless, we have no real antecedents as yet for the mighty cultural upsurge which we see in the San Lorenzo Phase; the primary impetus in the establishment of Olmec civilization there may well have come from some yet-undetected outside area." Michael D. Coe, "The Archaeological Sequence at San Lorenzo, Tenochtitlán, Veracruz, Mexico," Contributions of the University of California Archaeological Research Facility, no. 8 (Berkeley: Dept. of Anthropology, 1970), 25.

discussed below, the want of extensive excavations in the Olmec heartland region (as well as in Guerrero and Oaxaca) compounded with the profound disturbance of archaeological records at important sites, severely limits the body of reliable data.

The coastal highlands region is thought to be a viable birthplace for, or to have contributed significantly to the Olmec art style by reason of the area's strong trade connections with the southern Gulf Coast, the availability of sources of stone, and the long-standing lapidary traditions

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Cf. David C. Grove, "Olmec Origins and Transpacific Diffusion: Reply to Meggers," American Anthropologist 78 (1976), 635: "(Coe's) excavations revealed not only significant Olmec cultural levels which pre-date those at La Venta, but pre-Olmec levels as well. Although Coe does not identify the culture at San Lorenzo as Olmec until 1150 B.C. (the San Lorenzo Phase), a careful reading of the chronological sequence indicates a relatively gradual rather than "sudden" appearance of various recognized Olmec traits such as differentially fired ceramics (Bajio Phase, 1350-1250 B.C.), hollow pudgy figurines (Bajio Phase, and Chicharras Phase, 1250-1150 B.C.), monumental stone carving (Chicharras Phase), and green stone celts and ornaments (Chicharras Phase). Thus, contrary to Megger's statement that "About 1200 B.C. something unusual occurred; namely the sudden appearance of Olmec civilization in full flower," there seems to have been a gradual development of Olmec culture. There was no "quantum jump" or any significant "break in continuity with the earlier farming village culture.""

which existed there.[9] Furthermore, Formative Oaxacan and Guerrero arts bear many iconographic and symbolic similarities to the heartland Olmec style.[10] The highlands supplied the Olmec with raw status-related materials, such as magnetite and ilmenite which were used for mirrors and elements of elite costume.[11] Sources of jadeite and serpentine, integral to Olmec social and religious life, may have been procured from the Rio Balsas basin of Guerrero, where significant numbers of carved Olmec and Olmec-style jades have been found.[12] A tradition of monumental stone sculpture, which is diagnostic of the Olmec style, is unknown in Guerrero; but the evidence strongly suggests a genesis for Olmec small-scale lapidary arts and jade-working in this

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[9] Griffin, "Olmec Forms and Materials found in Central Guerrero;" Coe, Jaguar's Children, 123; Easby and Scott, Before Cortés, 116.

[10] Kent V. Flannery, "The Olmec and the Valley of Oaxaca," in Elizabeth P. Benson (ed.), Dumbarton Oaks Conference on the Olmec (Wash.: Dumbarton Oaks, 1968), 101. Flannery proposes a model for inter-regional interaction between the heartland Olmec and the Valley of Oaxaca, based on the exchange of goods and materials related to hierarchy and status-affirmation between the two stratified societies. See also Robert D. Drennan, "Religion and Social Evolution in Formative Mesoamerica," in Kent V. Flannery (ed.), The Early Mesoamerican Village (Florida: Academic Press, 1976), 345-368.

[11] Flannery, "The Olmec and The Valley of Oaxaca," 101-102.

[12] Chapter I, note 40.

region.[13] By extension, proponents of transpacific contacts view Guerrero as the dissemination point for the Asian introduction of the jade complex into Mesoamerica.[14]

The absence of developmental stages for the use of jade at La Venta may be seen as an analogous problem to that of Olmec origins. This negative evidence suggests either a situation involving cultural diffusion, or, more simply, an incomplete archaeological record. For the jade complex of La Venta, from the perspective of either conjecture, it is necessary first to define and analyze the jade-related traits which form a cultural complex at this site and second, consideration should be made of the relevant archaeological configuration preceeding the advent of the complex. These subjects form the focus of Section I of this chapter, which commences with a definition of the use of jade and related features at La Venta, and follows with speculations about earlier green stone use at the other important heartland site, San Lorenzo. Proceeding from these considerations, Section II collates seemingly

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[13] Easby and Scott, Before Cortés, 116.

[14] Jett, "Precolumbian Transoceanic Contacts," 353. Refer also to Chapter I, note 41.

parallel attributes of the Mesoamerican and Chinese jade complexes which are frequently cited as evidence in transpacific diffusionist arguments.

## Section I: Olmec Jade

### La Venta

The jade cultural complex first appears archaeologically in the New World at the site of La Venta.[15] Cultural traits relating to the use and function of jade, as they are found at La Venta, are a maximal manifestation, or reflect the climactic development, of the Olmec jade complex. There is a dearth of known evidence suggesting any direct precedents for many of the cultural traits which accompany the appearance of jade at this site. The massive scale[16] and unique nature of jade offerings

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[15] The use of a blue-green stone, in this case turquoise, is found earlier in the New World, before 2000 B.C., at La Galgada in the Peruvian Andes. Terence Grieder, Origins of Pre-Columbian Art (Austin: University of Texas Press, 1982), 182.

[16] A possible total of three thousand jade objects, including celts, figurines, ornaments, beads, minute beads and broken pieces, were ritually interred here in tombs, Small Dedicatory Caches (sic) and Massive Offerings (sic). Philip Drucker, "La Venta, Tabasco: A Study of Olmec Ceramics and Art," Bureau of American Ethnology Bulletin 153 (1952); Philip Drucker, Robert F. Heizer, and Robert J. Squier, "Excavations at La Venta, Tabasco, 1955," Bureau of American Ethnology Bulletin 170 (1959). Cited in Drucker, "On the Nature of Olmec Polity," 36.

unearthed from several excavations[17] at La Venta are unequalled at any other time or place in Mesoamerican history; however, this Olmec center[18] marks the naissance of a 2,500 year old tradition of elitist, semi-religious jade use in Middle America. For these reasons, La Venta is examined as the type-site of this thesis.

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[17] Excavations reported in: Matthew W. Stirling, "Great Stone Faces of the Mexican Jungle, National Geographic Magazine, 78 (1940), 309-334; "La Venta's Green Stone Tigers," National Geographic Magazine, 84 (1943), 321-332; "Stone Monuments of Southern Mexico," Bureau of American Ethnology Bulletin 138 (1943); M.W. Stirling and Marion Stirling, "Finding Jewels of Jade in a Mexican Swamp," National Geographic Magazine, 82 (1942), 635-661; Drucker, "La Venta;" Drucker et al., "La Venta, 1955," 1, and Appendix 1. See further: Robert F. Heizer, Philip Drucker, and John A. Graham, "Investigations at La Venta 1967," in Contributions of the University of California Archaeological Research Facility, no. 5 (Berkeley: Dept. of Anthropology, 1968), 1-33; Robert F. Heizer, John A. Graham, and Lewis K. Napton, "The 1968 Investigations at La Venta," in Ibid., 127-154; Robert F. Heizer, "New Observations on La Venta," in Conference on the Olmec, 9-36. Some remarks on the extensive investigations carried out in the Complex A court in 1958 by Piña Chan and Roberto Gallegos in Román Piña Chan and Luis Covarrubius, El Pueblo del Jaguar (Mexico: Museo Nacional de Antropología, 1964), 16-24; Heizer, "New Observations," 13, 9. For a documentary discussion of these excavations and contextual information, see Wicke, Olmec, 20-28.

[18] La Venta has traditionally been considered a ceremonial center, with a small resident elite and a larger supporting population located in the distant highlands. However, recent excavations have provided evidence indicating that a large population actually occupied the town itself, with villages surrounding the site nearby. See Chapter I, note 72.

The earliest New World evidence for the prizing of jade over other hard stones and a more general category of green stones occurs in Middle Formative construction levels of Complex A at this site.[19] Prior to the Middle Formative (ca. 900-ca. 400 B.C.) jade wares are found only occasionally -- these comprising simply beads and tools of production.[20] During this time, jade stones were not imbued with any special status and were carved indifferently from other hard stones.[21]

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[19] Drucker et al., "La Venta, 1955." The chronology of La Venta is based upon a sequence of four phases of construction evident in changes in the architectural features of Complex A: Phase I belonging to the Early Formative; Phases II, III and IV belonging to the Middle Formative. Most surface structures were added to with the advent of each successive construction phase. La Venta was abandoned after Phase IV until the Late Classic, with only one short-lived post-Phase IV occupation. A limited number of small caches have been found in post-Phase IV context, otherwise no offerings, constructions or monuments were created. The apogee of La Venta occurred around 600 B.C.

Complex A is the principal ceremonial complex and the most intensively excavated sector of La Venta.

[20] Jett, "Precolumbian Transoceanic Contacts," 352; James A. Ford, A Comparison of Formative Cultures in America: Diffusion or the Psychic Unity of Man (Wash.: Smithsonian Institution Press, 1969), 58, cited in Ibid.; Norman Hammond, et al., "The Earliest Lowland Maya? Definition of the Swasey Phase," American Antiquity 44, 1 (1979), 92-110.

[21] La Venta has yielded a major corpus of scientifically excavated materials, providing extensive and reliable information for the study of Olmec jades. This data is invaluable, since a great

In Complex A at La Venta, jade and serpentine offerings have been found for every construction

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number of Olmec or 'Olmecoid' jades lack, or have doubtful provenience. A number of jades were apparently looted from La Venta itself after the 1955 excavations of Drucker, et al. According to Heizer: "...a treasure hunt of considerable magnitude occurred...and it seems probable that many Olmec jades which have appeared on the collectors' market were found in the second half of (1955). No records, of course, exist concerning this activity since the combination of the considerable dollar value of these materials and their automatic contraband status effectively suppress information." Heizer, "New Observations," 13. This particular case is exemplary of many Middle American and Central American jades. The archaeological context of such objects is impossible to determine. Furthermore, the high incidence of forgery creates yet a further complication in the study of jade. The controlled excavations at La Venta, therefore, provide a basis for comparison with such materials. Other jades originate from far-reaching sites in western Mexico and Costa Rica. Jade objects were the perfect art mobilier and were carried over great distances during Olmec (and later) times, either as elite belongings or as articles of trade. Olmec or Olmec-like jades have been collected from the Yucatán, Tabasco, Veracruz, the Basin of Mexico, Guerrero, Oaxaca, Chiapas, Guatemala and Costa Rica. Furthermore, Olmec jades also turn up in excavations of Classic and Post-Classic dates. Olmec jades were prized by later peoples as treasures, heirlooms and objets d'art. Antique jades were frequently reworked, or carved on the unfinished surfaces. Partially this was done in response to the rareity of the material -- Olmec jades being of exceptionally fine quality -- but there was also a sense of inherent value and power in these objects. Mary Ellen Miller, The Art of Mesoamerica from Olmec to Aztec (New York: Thames and Hudson, 1986), 19. For example, some Olmec jades have actually had pieces extracted from them. One such object is the Kunz axe, from which sections were periodically removed on the unworked side.

phase in Complex A at La Venta.[22] The incidence of

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[22] The occurrence of La Venta's construction phases and offerings seems to have been based upon some form of religious and/or calendrical cycle. Drucker et al., "La Venta, 1955," 129; 124, n. 15. The Massive Offerings were deposited at the beginning of each phase. Phase I (ca. 1050 B.C.-ca. 800 B.C.) may have been marked by a serpentine-block 'pavement' offering later displaced by Massive Offering 3. Ibid., 124, 130-133. Phase II (ca. 800 B.C.-ca. 700 B.C.) was initiated by the excavation of two approximately 280-square-meter pits, 7.3 meters deep, at the Southeast and Southwest corners of the Ceremonial Court. Into these were deposited twenty-eight courses apiece of rough serpentine stones, each layer separated by bluish clay, followed by the two 4.5 meter by 6 meter dressed serpentine block mosaic masks and olive-green colored clay, then celt offerings 1942-E and 1943-E, mottled pink clay fill and platform caps of shaped adobe bricks. Ibid., 125, 78 ff.; Drucker, "La Venta." Phase III began with the deposition of Massive Offering 3 (Feature A-1-h) between Mound A-2 and the South-Central Platform. This feature comprised six pavementlike layers of carefully finished and fitted serpentine blocks, alternating with thin layers of green clay fill, in a pit measuring 77 feet by 77 feet at the top, 63 feet by 66 feet at the bottom and about 13 feet deep. The dressed stone layers of La Venta's Massive Offerings resemble floors. However, these 'floors' were never meant to be walked upon and, indeed, show no trace of usage whatsoever. With the exception of Massive Offering 3, all pavementlike constructions were covered up almost immediately. The sheer immensity of Massive Offering 3 necessitated installment over several dry seasons. See Drucker et al., "La Venta, 1955," 128, 130-133; Heizer, "New Observations," 10. Some of the stone blocks measured up to 26 inches by 11½ inches. The aggregate weight of the blocks has been estimated at 50 tons.

Since the nearest source of serpentine to La Venta is located by the Pacific coast, approximately one hundred miles away, it has been calculated that at one hundred pounds of serpentine per person per trip, twenty thousand loads would have been required to amass enough material for each of the Southwest and Southeast platform offerings. David C. Grove, Chalcatzingo: Excavations on the Olmec Frontier,

offerings also increases temporally, showing local development. Thus, the highest percentage are concentrated in Phase IV (ca. 600-ca. 400(?) B.C.) deposits. Funerary offerings of jade are distinctive to the latest phases, no evidence of tombs or burials having been found for Phases I and II.[23]

The earliest jade and serpentine offerings in

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(London: Thames and Hudson, 1984), 128; Howel Williams and Robert F. Heizer, "Sources of Rocks used in Olmec Monuments," Contributions of the University of California Archaeological Research Facility, no. 1 (Berkeley: Dept. of Anthropology, 1965); Foshag, "Mineralogical Studies," 11-14. The last construction phase in Complex A, Phase IV, was marked with Massive Offering 2 (Feature A-2-d). Drucker et al., "La Venta, 1955," 128-129. This offering was installed beneath the center of Mound A-2, at the southern periphery of the Ceremonial Court. Into a pit measuring 49½ feet long, 20 feet wide and 16 feet 3 inches deep, was installed a bed of bright red clay and a serpentine block 'pavement.' The rectangular pavement blocks were attentively crafted and originally highly polished. Unlike Massive Offering 3, which was constructed over a period of time, Massive Offering 2 was deposited in one single dry season.

In keeping with the precise symmetry of Complex A and its major offerings, the greater majority of Small Dedicatory Offerings, or caches, were buried in conjunction with the locations of architectural features, important offerings and the centerline. Smaller caches were particularly concentrated near Massive Offerings 1, 2, and 3, which appear to have been deemed especially propitious locations. Ibid., 132, refer to Fig. 4; it may be possible that records of some form were kept of the locations of these large deposits. The tomb features were buried within Mounds A-2 and A-3. The Northeast platform is another area of offering density.

[23] Ibid., 127.

Complex A are probably the Phase II (ca. 800-ca. 700 B.C.)[24] depositions under the Southeast and Southwest Platforms (which comprise serpentine block layers, mosaic masks, celt offerings 1942-E and 1943-E) and Offering No. 3, located east of the centerline, under the South-Central Platform.[25] However, Offering No. 7 was found in the Phase I mound fill of the Northeast Platform, where it was apparently deposited during the construction process.[26] This cache is very tentatively assigned Phase I dating, as the internal evidence of Offering No. 7 suggests a correspondence to a type of Phase III and IV offering. The latter have been described by some scholars as burials, but might be more properly referred to as "pseudo-" or "substitute-burials."[27]

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[24] The chronology and dating of Complex A, La Venta have been problematic. The stratigraphy of the site was disturbed before the earliest scientific excavations and population overflow in the archaeological sector presently makes further investigations impossible. Drennan, "Religion and Social Evolution," 359-360. Carbon-14 dating is only an approximation at best, and Phase II construction levels may in fact begin as early as 1000 B.C. or as late as 800 B.C.

[25] For Offering No. 3, see Drucker et al., "La Venta, 1955," 146-152.

[26] Ibid., 171-174.

[27] These offerings were arranged to imitate burials, but there were no traces of actual interment -- either human or perishable effigy. Organic remains may simply have been undetectable, due to extreme decomposition in the humid

Apart from the masses of serpentine deposited at this site as rough or worked blocks and carved objects, jade is the most common offeratory material recovered from La Venta. The jade and serpentine objects which occur with the greatest frequency in offerings are celts, ear plugs, figurines, maskettes and other pendants, and beads. All offerings were associated with colored clays (which, in the case of massive serpentine offerings, were usually green) and Small Dedicatory Caches were laid out in beds of cinnabar, then covered over with colored sands or clays.[28] La Venta offerings were almost always carefully arranged in special patterns. Some of these patterns were repeated, while others are virtually unique.[29]

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environment. However, it seems likely that these configurations functioned as symbolic burials. This may indicate an initial abhorrence of interment in the sacred precinct, which possibly suggest external influences. See discussion below, 100-102.

[28] Stirling, "La Venta's Green Stone Tigers," pl. I, for the excavation of Tomb E (Feature A-2-b) clearly showing a red cinnabar patch beneath the jade offering.

[29] The cruciform celt arrangements and Offerings Nos. 9 and 11, which were conceived of as a pair, were probably repeated because they had religious significance. Unique offerings include Offering No. 1 (Figure 32), Offering No. 2 (Figure 33), and Offering No. 8 (Figure 46), in Drucker et al. "La Venta, 1955," 133, 135, 174, see also 176-184. Symmetrical arrangements of celts especially characterize Olmec and Olmec-related sites of Middle Formative horizon.

By Phases III and IV, the La Venta jade complex is fully developed. Traits which appear in Phase II are repeated and elaborated upon with few exceptions. One exception is the use of jade in a mortuary context, which initially appears in Phase III with the "substitute" or "pseudo"-burials.

The earliest depositions in Complex A show a number of fully realised traits which characterize offerings with jade (or serpentine) as their major component throughout Middle Formative occupation at La Venta. Fundamentally, an established pattern of usage for jade as a status-identifying substance integral to ritual observance had already reached a high point of development by the time it materialized at this center. One of several factors may account for this occurrence. The La Venta archaeological record was interfered with at various times,[30] thus making observations about many of the

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[30] Pillaging huaqueros and souvenir seekers have frequently destroyed the achaeological context of a site beyond any hope of redemption. Earlier peoples also plundered graves and ancient sites to acquire supplies of rare jade and other precious goods, for personal and sacrificial use. The evidence of the Sacred Cenoté at Chichén Itzá, for example, affirms that these activities were practised among the late Classic and Postclassic Yucatec Maya. Proskouriakoff, "Cenoté." Modern development and construction have further effected permanent damage upon archaeological sites. For instance, the activities of Petróleos Mexicanos and an ever-

sites' features conditional at best. Furthermore, the use of jade and serpentine here, in an elite and ritual context, may have had its actual development elsewhere, at Olmec sites yet unknown or not so well documented as La Venta,[31] or entirely outside of the Gulf Coast heartland region. Finally, certain traits, discussed below, which are observable in earlier contexts at the other great Olmec center of San Lorenzo may be viewed as precedents, or the culture-base from which the use of jade would have been an acceptable and natural development.

As an entity, La Venta is a remarkable testimony to the creativity and originality of the Olmec people. Indeed, two characteristics can be said to summarise the artistic enterprises of this civilization: uniqueness and a phenomenal

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expanding boom town on La Venta island have intruded extensively upon the archaeological zone. Moreover, some investigations have themselves damaged stratigraphical sequences in such cases as that at La Venta, where bulldozers were used for monument removal in Complex A. Refer also to note 24.

[31] Michael D. Coe and Richard A. Diehl, In the Land of the Olmec, 1 (Austin: University of Texas Press, 1980), 394. Sites with Olmec features have been spotted from the air along the Gulf Coast, from Tuxtlas to Coatzacoalcos.

expenditure of labour.[32] For example, several types of La Venta jade and serpentine offerings are repeated at other La Venta phase and post-La Venta sites,[33] as are the use of jade in burials and other status contexts; however, none exactly reproduces the patterns found at La Venta, and individual traits distinguish each site. Enormous quantities of stone were moved over great distances for the creation of Olmec artworks. Most of these artifacts were then buried in seemingly wasteful and extravagant testimonies to religious and/or political beliefs. Powerful forces and deeply held convictions motivated these activities. These motivations should in no way be underestimated or disregarded in a consideration of cross-cultural influences. Neither should the possibility of foreign intrusions be taken as a depreciation of the creative potency of Middle American civilizations.

The observable and definable features which comprise the La Venta complex of cultural traits

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[32] Michael D. Coe, "Olmec and Maya: A Study in Relationships," in Richard E.W. Adams (ed.), The Origins of Maya Civilization, (Albuquerque: University of New Mexico Press, 1977), 190-192.

[33] See for example Gareth W. Lowe, "Olmec Horizons Defined in Mound 20, San Isidro, Chiapas," in The Olmec and Their Neighbors, 231-255.

relating to jade use may be described as follows: 1) Offeratory jade was closely associated with other precious materials or objects, namely cinnabar, obsidian artifacts, concave mirrors, and precious stones such as rock crystal and amethyst. 2) The majority of Small Dedicatory Caches were buried in specially prepared pits and associated with colored clays and red cinnabar. 3) Jade was a significant grave good, forming a major part of the offerings from both "pseudo" and "true" burials. 4) The use of jade was restricted, probably in a social context, to a ruling class or ruler-priests. 5) It seems apparent that the burial of jade, serpentine and other goods at this site occurred during periods of ritual observation, which were directly or indirectly related to status-affirmation, or the preservation of the status quo. 6) All small carved stone objects from each construction phase at La Venta display highly developed lapidary techniques. Some jades are less skillfully rendered than others, having a rather blocky, angular quality to them; however, La Venta jade objects are characteristically gently modelled, carefully delineated and smoothly polished. 7) Celts were a major component of both small- and large-scale offerings, suggesting a special significance for

this form. 8) With few exceptions, green jades were the favored stones. 9) The color green, in fact, generally dominates the composition of Complex A offerings, including buried impacted clays and Massive Offerings.[34]

The importance of green to Olmec social and/or religious convictions may have been a priori to the cultural significance of jade and the centrality of jade and green stone to pious expression, as witnessed in the extraordinary finds of La Venta. The ensuing discussion is concerned with green stone use at San Lorenzo and its relevance to the appearance of jade at La Venta. The interchange of green stone with the more precious jade, at La Venta and elsewhere, is seen as significant, inasmuch as the two materials share a common feature -- the color green.

## A Case for Precedence to Middle Formative Olmec Jade Use at La Venta

There is a strong indication that Middle Formative groups who prized jade utilized green

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[34] This trait -- the preference for green materials -- is one characteristic of the shift from the Early Formative phase to the Middle Formative. Early Formative artifacts stress basalt and other dark-colored hard stones.

stones, and especially serpentine, as symbolic substitutes for jade in the production of objects otherwise linked with the rarer and more precious stone. At La Venta, the serpentine blocks and celts characteristic of large-scale and Massive Offerings could have functioned symbolically in the place of jade.[35]

High quality jades were certainly the preferred materials for the Olmec; however, the cost alone in terms of the expenditure of human labour involved in the acquisition of serpentine might have made it a worthy offering.[36] Furthermore, in situ occurrences of jadeite are found in intimate association with

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[35] Drucker et al., "La Venta, 1955," 102; Bernal, Olmec World, p. 79.; Drucker, "On the Nature of Olmec Polity," 37. The carving of jade itself in the Formative and Pre-Classic was restricted to Mesoamerica, Central America and northwestern South America (jade objects have also been found in the Greater Antilles, Venezuela, and Colombia; Easby, "Jade," 135); however, the frequent use of softer green stones in other regions may attest further to both the importance of jade and a widespread practice of substitution. Ford, Comparison of Formative Cultures, 65.

An interesting note to this postulation is the pair of ceramic earspools painted blue as if in imitation of jade, which Stirling described from "Tomb D" at La Venta; Stirling, "La Venta's Green Stone Tigers," 324.

[36] Drucker et al., "La Venta, 1955," 102. See also above, note 22.

serpentine deposits.[37] Serpentine is also similar in appearance to some forms of jade and, as attested to in some La Venta objects, can be brought to a fairly high polish.[38]

A relevant pattern of substitution is discussed by Lange et al., regarding Costa Rican materials:

> (An) aspect remaining to be assessed and evaluated is the aesthetic-functional-social relationship between jadeite and jadelike materials, on one hand, and on the other, the somewhat different materials that were used to produce the same forms with many of the same decorative motifs....Possible interpretations of imitative behavior or adaptation can be suggested. The jade artifacts are usually found in what, based

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[37] This geological co-existance may have been common knowledge during Formative times, however, no record of such an observation exists in the chronicles. Foshag "Chalchihuitl," 1068; Ch. I, 41.

[38] By the Post-Classic, this type of substitution had evolved into a system of classification for 'jade' stones. Sahagún records the Aztec nomenclature assigned to grades or categories of jades, in which such jade-like stones as turquoise were included, along with differing qualities of pure jadeite, under the generic heading of chalchihuitl. There was also a category of lesser green stones used by the common people, who were prohibited from the use of chalchihuitl, which Sahagún labels false chalchihuitl, chalchihuites fingidos. Foshag, "Mineralogical Studies," 9; "Chalchihuitl," 1068; these might have been mottled green metadiorite. Common to all these stones was their green and blue-green coloration. See also Kao, Yinxu, 41, 42: the Maoris and Chinese also had different terms for varieties of nephrite. "The main criteria for distinguishing nephrite varieties were aspects of coloration...."

> on limited, controlled excavations, we might refer to as higher-class cemetery remains. It is, therefore, tempting to propose that these jade artifacts might have come into Costa Rica as a result of exchanges of exotic goods between upper-class elites in various parts of lower Central America and southern Mesoamerica.[39]

These ideas were also expressed by Lange in an earlier paper: "...some of the materials or objects of real jadeite are imitated in form and design in locally available stone in Costa Rica. This presumably represents secondary and tertiary expansion of the social pattern into the lower elite strata."[40]

**San Lorenzo**

The earliest clear indication of Olmec presence in the Gulf Coast heartland region occurs with the Chicharras Phase of San Lorenzo (ca. 1250-1150 B.C.) which foreshadows the 'classic' Olmec San Lorenzo Phase (1150-900 B.C.).[41] The Chicharras period is marked by changes in the San Lorenzo ceramics

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[39] "Perspectives on Costa Rican Jade," 172.

[40] Frederick W. Lange, "Definition of a Status Mortuary Complex from Costa Rica, Central America," (1986), (unpublished).

[41] Based on C14 calibration. Michael D. Coe, "The Archaeological Sequence at San Lorenzo, Tenochtitlan, Veracruz, Mexico," Contributions of the University of California Achaeological Research Facility, no. 8, (Berkeley, Dept. of Anthropology, 1970), 25.

sequence which show a considerable influx of people and/or ideas into the resident population.[42] It may be significant that the first Olmec green-stone wares appear during the Chicharras Phase: the earliest San Lorenzo celt and a pendant.[43]

Evidence for a sharp increase in the importation and working of serpentine, and an influx of exotic goods -- which included rare green obsidian and green schist -- during San Lorenzo B (1000-900 B.C.) may suggest a somewhat greater demand for green materials.[44] Two ritual caches containing serpentine celts have been uncovered from San Lorenzo Phase stratigraphy in association with

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[42] Ibid.

[43] Coe and Diehl, Land of the Olmec, 242; Coe, "The Archaeological Sequence at San Lorenzo," 25. The earliest evidence of an American lapidary "industry" emerges around 1200 B.C. in this region; Ford, Comparison of Formative Cultures, 58.

[44] San Lorenzo B was a 'cosmopolitan' phase, during which the center established extensive trade relationships with other parts of Mesoamerica. New types of projectile points were introduced, and foreign figurine types appear. The occurrence of green stones increases coevally with the influx of other exotic goods, red and brown obsidians being as much in demand as green, for example. However, there is more serpentine and schist in San Lorenzo B refuse and a greater percentage of green stones than earlier. Serpentine and schist were used in the production of celts, ear plugs and beads. See Coe, "The Archaeological Sequence at San Lorenzo," 28,29; Coe and Diehl, Land of the Olmec, 240 ff.

the ceremonial burial of Monuments 21 and 22.[45] Very few caches and offerings are known for San Lorenzo. These two are the only pre-Nacaste Phase Olmec deposits which include green stones; the usual offeratory goods being pottery. Jadeite is unknown at San Lorenzo until the Post-Olmec Nacaste (900-700 B.C.) and Villa Alta (900-1000 A.D.) Phases.[46] During the cessation of Olmec civilization at San Lorenzo and the rise to political prominence of La Venta, the usage of green materials increases greatly, with La Venta's impressive offerings,

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[45] Coe and Diehl Land of the Olmec, 332, 333. Monument 21 is a box-like basalt stone 1.3 meters in length, with a bas-relief carving of a canine on the obverse side. The cache containing pottery, celts, and celt-like natural stones, was buried in a pit under Monument 21 during San Lorenzo A times. The offering beneath Monument 22, a flattened oval boulder 1 meter high, comprised pottery shards, a metate leg and a green-stone celt.

The original excavation notes by Matthew Stirling described the celt from the Monument 22 cache twice as "blue jade." One of these notations was crossed out, with "chloromelanite" written in. (Cited in Ibid., 333.) This artifact has since gone missing; if indeed it was jade, it is the only object of this material to come from San Lorenzo stratigraphy.

[46] Coe and Diehl, Land of the Olmec, 45, 242, 243. Coe, "The Archaeological Sequence of San Lorenzo," 29. These objects are few in number and unspectacular. Jade was apparently never a significant material at this site, although the appearance of the stone during the Nacaste Phase indicates some contact with La Venta. An Olmec style green stone plaque has been found in Nacaste Phase materials; Coe and Diehl, Land of the Olmec, fig. 247, p. 243.

caches and "pseudo-burial" depositions.[47]

Several points may be drawn here. First, the heightened desire for green stones during San Lorenzo B and an even greater demand for jade at La Venta and other regions of Middle Formative Mesoamerican,[48] coupled with the use of these materials in a restricted, elitist and ceremonial context, appears to indicate an early special significance for the color green affinitive with religious ideas perpetrated by the ruling class.[49]

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[47] If, indeed, the shift of Olmec power from San Lorenzo to La Venta is seen as a direct cultural continuum. However, this change is not yet understood. The Olmec occupation at San Lorenzo may have ended abruptly and violently. Monumental sculptures were pitted, smashed, and buried along the man-made ridges around 900 B.C. About the same time, La Venta took prominence as the major Olmec heartland center. But the decline of La Venta was also marked by the destruction and burial of sculptures. This type of image-smashing also occurred at the Olmec outpost of Chalcatzingo, Morelos, and monuments were buried, though not destroyed, at the decline of Tres Zapotes. Whether these "iconclasms" signified political upheavals at these sites, or ritual practices of some kind is still a matter of much discussion. See David C. Grove, "Olmec Monuments: Mutilation as a Clue to Meaning," in The Olmec and Their Neighbors, 49-68.

[48] Cf. Grieder's Third Wave migration of peoples from Asia, 5000 B.C. to 1500 B.C. One Third Wave trait is the preference for blue-green as a sacred color. Origins of Pre-Columbian Art, 182.

[49] Kenneth G. Hirth, ed., Trade and Exchange in Early Mesoamerica (Albuquerque: University of New Mexico Press, 1984), 3, 191; T. Stocker, S. Meltzoff, and S. Armsey, "Crocodilians and Olmecs:

Secondly, an indirect precedent for the use of jade at La Venta is suggested at San Lorenzo by Chicharras Phase green-stone objects, notably the celt -- a form which later had important religious implications -- and serpentine artifacts buried in distinctly ritual contexts during the San Lorenzo Phase.[50] Furthermore, the ceremonial use of green stone objects at San Lorenzo may indicate contact with a fully developed complex of cultural traits surrounding the use of green-stone or jade outside of the Olmec heartland area. The practises found at San Lorenzo possibly represent the culture base from which the eventual veneration of jade developed, or into which the jade complex might have been readily transmitted.

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Further Interpretations in Formative Period Iconography," American Antiquity 45, 4 (Oct. 1980), 740-758; Drennan, "Religion and Social Evolution," 346.

[50] This occurrence may have been more extensive than the available evidence currently suggests; however, green stone is lacking from the important site of Laguna de los Cerros, which was a contemporary of San Lorenzo at its apogee and possibly its co-"capital." Coe and Diehl, Land of the Olmec, 394; Frederick J. Bove, "Laguna de los Cerros: An Olmec Central Place," Journal of New World Archaeology II, 3 (Jan. 1978), 1-55. The stratigraphy of San Lorenzo was disturbed by later occupants and others. For example, Palangana Phase occupants altered many of the architectural constructions on the site. Furthermore, the colossal heads which had been ceremonially buried along San Lorenzo's ridges rolled off as a result of erosion.

## Summary and Conclusions

The Olmec center of La Venta is focussed upon in this examination as the Mesoamerican jade complex type-site, for several reasons. The selective use of jade as a status-identifying, semi-religious material and cultural traits relating to jade in that context first appear in the New World in Middle Formative levels at La Venta. These features are found without known direct precedents, and, although local development and elaboration are evident, most traits appear simultaneously. The characteristics which define the jade complex at La Venta generally typify subsequent Preclassic, Classic and Postclassic jade use in Mesoamerica.

Certain evidence from San Lorenzo is believed to be relevant to the independent development versus diffusion issue as regards the Olmec jade complex. The great majority of offeratory materials from Complex A of La Venta are green, suggesting a special significance for this color. Green stones first appear in a ceremonial context during San Lorenzo A at that site. An intensification in the use of green materials for the production of ritual and status-identifying objects is a characteristic of the shift from the Early Formative to the Middle

Formative.[51] It is possible that the increasingly powerful Olmec ruling class promoted status-affirming religious convictions to which the color green was integral. Greater archaeological incidence of green materials during San Lorenzo B and the ritually buried serpentine celts from San Lorenzo Monuments 21 and 22, then, are likely indicative of a culture base, or precedence for the manifestation of the La Venta jade cultural complex.

The evidence at San Lorenzo is considered here to be more significant than is usually given credit, although the degree of that significance is certainly questionable. Without archaeological substantiation, it is impossible to determine such ramifications as: a) whether independent, local evolution occurred, b) whether jade use at other centers was copied in lesser stones until supplies of the more precious material were procured, or c) if the jade complex came into Mesoamerica before jade occurrences were located, so that commoner green stones were the initial expression of the cultural complex in that area. This paradox is succinctly addressed by Tolstoy:

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[51] Cf. Hirth, Trade and Exchange, 191. Jade and green-stones become popular exchange goods during the Guadalupe phase (900-850 B.C.) in Oaxaca.

> (The identification) of pre-existing factors which tolerated or favored the changes that actually took place..., i.e. the need for such a technology and the pre-existence of means to meet that need in the form of familiar features of the cultural landscape, would (also) dispose a culture to adopt the technology if it were proffered from the outside. Such factors are naturally of great concern to anyone in search of adequate explanations, whether diffusion is claimed or not...But the fact remains that they, in themselves, do not add up to an explanation, since they describe circumstances which made diffusion or independent development possible, even likely, but fail to tell us which of the two actually took place.[52]

At the very least, the San Lorenzo evidence indicates that the La Venta jade complex did not simply appear from a void. Indeed, the occurrence of a highly developed set of traits relating to the use of jade as a venerated material at La Venta cannot be treated as an isolated event, but rather, must be considered as part of an ongoing process, whether the argument is made for either independent invention or diffusion.

However, if the case is to be made for transpacific diffusion of these traits from Asia, in contrast to the Olmec and later Mesoamerican cultural preference for green hues of jade stones,

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[52] Paul Tolstoy, "Diffusion: As Explanation and as Event," in Noel Barnard (ed.), Early Chinese Art and its Possible Influence in the Pacific Basin 3 (New York: Intercultural Arts Press, 1972), 827.

the Chinese of the late Shang and Western Zhou did not have any special preference for specific colors over sustained periods of time.[53] Furthermore, there is no correlation between color and artifact production at any time in the early history of Chinese jade carving.[54] Western Zhou jades, for example, which correspond temporally with La Venta Olmec materials, are particularly striking for their variety of coloration.

Given the possibility that external influences did, in fact, effectuate the Olmec fascination with green stone and jade, Guerrero is considered the most likely source of these cultural interchanges. Olmec heartland cultural remains attest to an extremely developed lithic technology and an advanced knowledge of stones unknown in the region.

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[53] Chinese Jade Throughout the Ages, 6.

Coloration and hardness, together with subtle variables distinguishable to the expert, were the primary means of discerning jades from other stones in ancient China, as well as in Mesoamerica and New Zealand; Kao, Yinxu, 39-43.

Green hues tend to be slightly more prominent than other colors among the jade artifacts of the late Shang and Western Zhou, such as in the case of the jades from the tomb of Lady Fu Hao, although this does not appear to have been a deliberate choice. Ibid., 133.

[54] Till and Swart, Emperors, 19.

Lithic sources were more readily available in highland Guerrero. Although monumental stone sculpture, which typifies much of Olmec art, appears to have been absent in this area, the traditions of small-scale lapidary art and a special preference for jade were well established. Guerrero might feasibly have contributed these latter practices to the Olmec art style. Furthermore, a comparatively large number of carved Olmec jades have been found in the Rio Balsas region of central Guerrero and the possibility exists of local jade sources. Both raw ore and finished products could have have been exported from this area into the southern Gulf Coast. If future research proves these latter speculations positive, the "jade connection" between Pacific coastal Guerrero and the Olmec heartland might further provide a viable argument for the means by which cultural traits related to jade could have been introduced into the Gulf Coast by transpacific cultural interpenetrations.

The presence of the Olmec in Guerrero is evident at least as early as 1150 B.C., slightly post-dating the Chicharras Phase San Lorenzo green stone objects, but concurrent with the beginning of the San Lorenzo Phase and somewhat pre-dating La

Venta jades. The criterion of reliable dating is obviously critical to the considerations at hand. However, the chronology of San Lorenzo and La Venta is based on carbon-14 calibration, which yields approximate rather than specific dates. Additionally, the dating of early Olmec remains in Guerrero, such as the paintings of Oxtotitlán and Juxtlahuaca caves, is reliant upon stylistic data and comparisons with heartland materials.[55]

## SECTION II: Transpacific Contacts?

Among the numerous studies and commentaries paralleling jade use in Mesoamerica with that of China, the traits most predominantly emphasized as significantly correspondent are: the names of exotic birds being applied to prized varieties of stones;[56]

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[55] David C. Grove, "The Olmec Paintings of Oxtotitlán Cave, Guerrero, Mexico," Dumbarton Oaks Studies in Pre-Columbian Art and Archaeology, Number Six (Wash.: Dumbarton Oaks, 1970), 32-33.

[56] The names of green-feathered birds were given to specially valued emerald-colored jades in Classic and Post-Classic Mesoamerica and in China. In Mesoamerica the Nahuatl name for this variety of stone, as described by Sahagún, is quetzalitzli, referring to the brilliant plummage of the quetzal bird. Foshag, "Mineralogical Studies,"8. The Chinese Jin Dynasty (265-420) Jade Records, which classifies jade stones into nine colors and their mixes, mentions a jade the emerald color of kingfisher feathers. Till and Swart, Emperors, 10. This may be the earliest indication of a term which was employed by the eleventh century A.D.: "kingfisher jade" or feicuiyu. Hansford, Chinese Carved Jades, 28. The

term apparently fell out of use in later years, until it was revived to distinguish the emerald-like jades arriving from Burma in the eighteenth century. Ibid. Hansford describes the use of kingfisher feathers as decorative elements in womens' ceremonial headgear during the later Chinese dynasties. Ibid., 39; Howard S. Hansford, "Jade and the Kingfisher," Oriental Art I, 1 (1948), 12-17. The feathers were apparently restricted to the elite and were alluded to in poetic and historical works, as early as the fourth century B.C. "Jade and the Kingfisher," 13.

The feathers of the quetzal bird are ubiquitous in the ceremonial and status-related arts of Classic and Post-Classic Mesoamerica. These feathers were strictly the domain of the upper echelon of Middle American society and functioned as important components in costumes designating kingship and honor. Mural 1 from Oxtotitlán cave in Guerrero depicts an elaborately costumed and befeathered priest-ruler seated upon a table-top altar-throne. Grove, "Oxtotitlán," frontispiece, 10. This work and others showing important personages wearing feathers suggest precedents perhaps as ancient as the early Middle Formative for the significance of quetzal plummage. The feathers of the Oxtotitlán raiment are painted ocher, red and blue-green. Although it is impossible to positively identify the blue-green feathers as quetzal, they are quite likely so. The imagery at Oxtotitlán is almost exclusively concerned with the themes of water, rain and fertility. In Classic and Post-Classic times the feathers of the quetzal were symbolically associated with these ideas. The bas-relief carving of La Venta Monument 19 shows an individual (a priest?) seated within the coils of a feathered serpent -- possibly an early manifestation of the Classic Mesoamerican god Quetzalcoatl, the Feathered Serpent. Feathers also protrude from a carved element on the figure's headdress. Whether or not jade or specific varieties of jade were associated with the feathers of the quetzal as early as the time of these works is unknown, however, this trait is not so arbitrary that it could not have been arrived at independantly in Mesoamerica. Furthermore, although a certain degree of antiquity is indicated for a possible importance for quetzal or kingfisher plummage in both regions, the Mesoamerican evidence is much earlier than comparable material for China. The

the preference for green hues of jade; similar carving techniques; similar decoration, i.e. feline motifs; similar forms, such as weapons, pierced disks and figurines; the ceremonial use of jade; the funerary use of jade; the insertion of jade beads into the mouths of the dead; and the association of jade with cinnabar.[57] The first of these points is beyond the temporal scope of this paper. The coloration of early Chinese and Mesoamerican jades has been addressed in the preceeding section, and in Chapter I carving techniques have been shown to bear parallels strictly on the grounds of material requirements. Of interest to the concerns in this paper are the latter six cited parallels. These are reconsidered in the following discussion. It is not the purpose to challenge or support the suppositions

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earliest reliable evidence for the kingfisher or quetzal nomenclature of jades in China and Mesoamerica falls well out of the time period considered in this study.

[57] For example, Carlos Balser, "Jade de América Central con una posible influencia China," China Libre, VI, 6 (julio/agosto, 1988), 14-21; Covarrubius, Mexico South, 108-109; Jett, "Precolumbian Transoceanic Contacts," 351-353; Kinle, "Jadeite -- Its Importance for the Problems of Asia -- America Precolumbian Relations;" Meggers, "The Transpacific Origin of Mesoamerican Civilization," 10-11; Stirling, "The Olmecs," 44; Towle, "Jade: An Indicator of Trans-Pacific Contact?"

Cf. Kao, Yinxu, 506.

of earlier hypotheses, but rather to analyze the relevant similar traits in the context of more recent studies and the general issues of this thesis.

A working temporal framework, for this and subsequent considerations, is established with the appearance of jade at La Venta. Since the dating for this occurrence is somewhat problematic,[58] a terminus post quem of ca. 1000 B.C. and a terminus ante quem of ca. 600 B.C. are established here. Given the possibility that the La Venta jade complex had its development outside of the heartland, the terminus post may be extended to ca. 1250-1150 B.C., coeval with the earliest florescence of Olmec culture in the Gulf Coast region and the appearance of green stone wares at San Lorenzo. These dates correspond with the late Shang (ca. 1400-1100 B.C.) and Western Zhou (ca. 1100 B.C.-771 B.C.) dynasties.[59]

The funerary use of jade is most commonly cited as a significant parallel between the jade complexes of ancient Chinese and Mesoamerican cultures. This

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[58] See note 24, this chapter.

[59] Yeung, Jade Carving. A date between 1087-1027 B.C. and 771 B.C. for the Western Zhou is given by Hsu and Linduff, Western Chou Civilization, 390.

trait so permeated the mortuary traditions of both areas that members of the lower societal strata were commonly buried with objects of cheaper materials imitating jade.[60] Funerary jade use in China and Middle America was inextricably a function of social hierarchy, and publicly-sanctioned ritual related to that hierarchy.[61] The removal from circulation of great quantities of precious jades underscored the social position and power of the deceased. Objects belonging to the individual during his or her lifetime -- which were distinctly indicative of elite status[62] -- went with them to the grave, along

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[60] An interesting result of this practice in Eastern Zhou China was the development of glass manufacture. Glass became increasingly popular during this period for the production of smaller ceremonial forms normally associated with jade. Because funerary jades were so much in vogue during the Eastern Zhou, the tendancy to supplant jade artifacts with cheaper materials began quite early in the period. Other materials carved into "jade" artifacts were stone (mainly marble and steatite), pottery, and wood. See Cheng Te-k'un, "Chou China," Archaeology in China 3 (Cambridge: W. Heffer and Sons, 1963), 197-198.

[61] Kao, Yinxu, 490; Chinese Jade Throughout the Ages, 9.; Hirth, Trade and Exchange, 205.

[62] The useage of these objects, as well as jade itself, was clearly restricted to a small sector of the population in both China and Mesoamerica. These objects comprised either ornaments to be worn on the body (ear flares, necklace assemblages, and other objects during the Olmec period; jue ovoid slit discs, t-section bracelets, pendants, pendant assemblages, and hair ornaments in Neolithic, Shang and Zhou China) or a class of artifacts which may have served ritual functions. In Shang and Zhou

with goods specifically created for the individual's interment and, in China, subsequent ancestral offerings.[63] This constant consumption is evident for Middle Formative Mexico in the number of jades excavated from, or reportedly found in burials, or caches,[64] and in the burial cult of the Late Shang which produced "one of the great Bronze-Age industries"[65] -- a practice which changed little into the Western Zhou.[66]

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China, the latter jades included axe blades, certain bi discs, and zong. In Mesoamerica, figurines and some celts may have been related to ritual practices, these forms otherwise having no utilitarian value. Kao, Yinxu, 275, 330 ff.; Miller, Art of Mesoamerica, 29-30; Bernal, Olmec World, 79.

[63] Kao Yinxu, 491; see p. 114 for ming qi jades made especially for the grave.

[64] Some Guerrero jades are reportedly from burials; Cerro de las Mesas and Arroyo Pesquero are discussed in Ch. 1, n. 40; jade has been found in burials contemporaneous with La Venta Phase II in Oaxaca: Hirth, Trade and Exchange, 191, 205, and in El Arbolillo: George C. Vaillant, "Excavations at El Arbolillo," American Museum of Natural History Anthropological Papers 35, II (1935), 136-279; jades have also been excavated from status burials at Chalcatzingo: David C. Grove, Chalcatzingo, 105.

[65] David Keightley cited in Kao, Yinxu, 491.

[66] The ultimate motivations responsible for such regular removal from circulation of massive amounts of valuable goods has been the subject of some scholarly speculation. See for example David Keightly and K.V. Flannery, cited in Kao, Yinxu, 490 ff. The function of jade in early China and Mesoamerica was intricately enmeshed in the social organisation of those cultures. As Kao (490) points out "(burial jades) are less reflections of a private desire to transfer personally enjoyed levels

Burial was a primary means by which the act of sacrificing jade was expressed in both China and Mesoamerica. Funerary jades were in use in China as early as the Neolithic period.[67] Jade ornaments were also involved in different kinds of sacrificial burial. At Yinxu (Anyang), two jade bi discs were excavated from beneath the pounded-earth foundations of the ritual architectural grouping C1 and its associated features, north of Xiaotun village.[68] This group of structures included shrines and altars. The bi are thought to have been buried as sacrificial offerings in the course of rituals carried out at this site.[69] Although jades such as these, from non-funerary, ritual contexts, are infrequent in the archaeology of ancient China, there are some references to the sacrificial burial of jade objects

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of luxury from the world of the living to that of the dead, than of publicly sanctioned rituals directed towards the maintenance of...political and economic structures...."

[67] Refer to Ritual and Power.

[68] Kao, Yinxu, 310 ff. In addition, the remains of human sacrificial victims, burnt animal sacrifices, pottery, wood ash, and remains of grain and empty pits were also found. Jades were also recovered from the foundations of nearby structures F10 and F11, which are believed to have been part of a royal lapidary workshop; 317 ff., Fig. 92 and Table 30.

[69] Shih Chang-ru, cited in Ibid. 314-317.

in literary sources.[70] In Mesoamerica, green stones were ritually buried as early as the Chicharras Phase (1250-1150 B.C.) at San Lorenzo, and jade was first sacrifically deposited during Phase II construction levels (ca. 900-800 B.C.) at La Venta. At La Venta and other Olmec heartland sites, jades and greenstones were buried in association with ceremonial architectural features. This tradition was perpetuated in the later cultures of Mesoamerica and was particularly evident for the Maya. Caches of jade and other precious materials, such as those at Cerro de las Mesas and Nebaj (though usually less magnificent), have been recovered from beneath the stairways of principal temple structures from later phases. An extraordinary find of a 200 lb. jade boulder beneath the stairway of Structure A-6 at Kaminaljuyú is a particularly striking example of this practice.[71] Jades and other offerings were also buried beneath stelae at such great Classic sites as

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[70] For example: Shang Shu cited in Kao, Yinxu, 314; James Legge, "The She King, or The Book of Poetry," The Chinese Classics in Five Volumes IV (Shanghai: Oxford University Press, 1935), 529, n. 9; Bernard Karlgren, The Book of Odes (Stockholm: The Museum of Far Eastern Antiquities, 1974), 224.

[71] Kidder, Jennings, and Shook, "Excavations at Kaminaljuyú, Guatemala," 119.

Copán, Seibal and Quiriguá.[72]

Funerary jade use at La Venta seems to postdate the appearance of jade here by 200 to 300 years. Funerary jade is first found with the "pseudo"-burials. These depositions may be restricted to Phase III Offerings 5, 6, and 7.[73] However, of the great Phase IV tombs, only Monument 7 (Tomb A) contained any detectable human remains, while Tombs B, C, D and E showed no trace of actual interments.[74] In pseudoburial Offerings 5 - 7 and Tomb D, jade ornaments were distributed on the pit floors as if they had originally decorated a body. Two earspools (or earspool-like objects)[75] were laid out several inches apart on a line perpendicular to the remainder of the offering, defining the 'head' of

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[72] Gustov Strómsvik, "Substela Caches and Stela Foundations At Copán and Quirigua," Carnegie Institution of Washington Contributions to American Anthropology and History, no. 37 (Wash.: Carnegie Institution, 1941), 71, 75, 76, 83; at Pusilha, 86; at Uaxactun, 88.

[73] Drucker et al., "La Venta, 1955," 127, 162-174.

[74] Ibid., 162; the remains found in Monument 7 included tooth caps and fragments of long bones from two young persons. The extremely deteriorated condition of these remains due to the acid soil of the site has been taken to suggest the likelihood that remains from other tombs have simply disintegrated beyond detectability.

[75] Drucker et al., "La Venta, 1955," 172.

the "burial." Ear pendants, beads, maskettes and other pendants were usually found below and within the boundaries delineated by the earspools. Several inches down from this arrangement, in Offerings 5 and 6, a string of small beads terminating at each end with larger ones was laid out parallel to the line created by the earspools. These latter necklace assemblages were found to be so little disarranged that the excavators concluded neither a real nor a perishable-effigy interment could have been possible.[76]

Phase IV tomb burials B, C, and E are believed by some scholars to have been actual burials of powerful persons, high priests or rulers.[77] However, others consider all La Venta burial-like offerings, with the exception of Monument 7, to have functioned

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[76] Ibid., 162, see also Figs. 41, 44, Plate 38.

[77] See Stirling and Stirling, "Finding jewels of jade in a Mexican swamp," 635-661; Stirling, "La Venta's Green Stone Tigers," 321-332; Drucker et al., "La Venta, 1955," 127; Diehl, "Olmec Architecture," 78. Tombs A and E were constructed of enormously heavy columnar basalt; Tomb B is a lidded sandstone sarcophagus; and Tomb C was formed with large limestone slabs. The "burials" of Phase III, as well as Phase IV Tomb D, were laid directly in the soil in specially prepared pits. Columnar basalt became an important construction material during Phase IV at La Venta.

as caches, symbolically representing entombment.[78] The pseudoburial offerings are not known to have been repeated outside of La Venta. The significance of these features has incurred much speculation, but no hard answers are available as yet. It does seem likely, however, that the pseudoburials functioned as substitute interments, either for elite human burials, or those of deities.[79] These caches indicate the likelihood of an initial abhorrence of actual burials within the sacred precinct, which may further suggest that this type of funerary arrangement developed, and was imported from outside of, the Olmec heartland. The selective use of jade in a funerary context appeared at La Venta concurrently with the tradition of elite burial in association with civic-ceremonial architecture.[80] This latter practice is not paralleled in ancient

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[78] William R. Coe and Robert Stuckenrath, Jr., "A Review of La Venta, Tabasco and Its Relevance to the Olmec Problem," The Kroeber Anthropological Society Papers, 31 (1964), 1-43.

[79] Drucker et al., "La Venta, 1955," 162, 167, 171.

[80] This tradition was perpetuated throughout the history of Mesoamerica, beginning with La Venta, and culminated in the Maya tomb-temple stuctures such as the Temple of Inscriptions at Palenque and Temple I at Tikál. See also Pierre Agrinier, Mound 20, Mirador, Chiapas, Mexico, (Provo, Utah: New World Archaeological Foundation, Brigham Young University, 1970), 68.

Chinese material remains.

Tomb offerings in Phase IV were extremely elaborate, including large numbers of high-quality jade objects, along with such precious materials as cinnabar, obsidian, stingray spines,[81] rock crystal, and, for the first time in a funerary context, iron-ore concave mirrors.[82] These rich burials are generally comparable, both in luxuriousness and in the inclusion of numbers of quality jades, to Chinese elite burials of the Shang and Western Zhou periods. Jades were important burial offerings in noble Chinese graves and were sacrificed together with other status-identifying and ceremonial objects or materials, such as ritual bronze vessels, cinnabar and bronze mirrors. Although the Formative Middle Americans did not have metal, iron-ore stones were masterfully carved and polished to a high degree of reflective capacity. Pyrite mosaic mirrors are also known from the Formative.[83] Iron-ore concave

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[81] Stingray spines were associated with bloodletting rituals and were highly restricted artifacts. A jade effigy of a stingray spine was found in the burial offerings of Monument 7.

[82] Drucker et al., "La Venta, 1955," Appendix I, 272-275; and Table 1, 281.

[83] Ford, Comparison of Formative Cultures, 74, cited in Jett, "Precolumbian Transoceanic Contacts,"

mirrors initially occur in Middle Formative Mesoamerica. At La Venta and some other Formative sites, these objects are found in direct association with ritually buried offerings of jade or green stone.[84] Olmec mirrors were associated with royal lineage and power, and used in rituals related to religious beliefs and earthly secular/religious authority.[85] Olmec and Maya mirrors may also have been connected with geomantic practices and

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356.

[84] Offerings 9, 11, 1943-E, 1943-N, Mound A-2 fill; see Drucker et al., "La Venta, 1955," Table 1, and Appendix 1; Robert F. Heizer and Jonas E. Gullberg, "Concave Mirrors from the Site of La Venta, Tabasco: Their Occurrence, Mineralogy, Optical Description, and Function," in The Olmec and Their Neighbors, 109.

[85] Mirrors are depicted as pendants on sculptural images of Olmec rulers or deities. The form and function of these objects have been well considered: Drucker et al., "La Venta, 1955," 282-283; Heizer and Gullberg, "Mirrors from the Site of La Venta," 109-116; John B. Carlson, "Olmec concave Iron-Ore Mirrors: the Aesthetics of a Lithic Technology and the Lord of the Mirror," in The Olmec and Their Neighbors, 117-147; Figs. 25-39 for representations of mirrors.

During the Maya period, mirrors continued to be related to the power of rulers and to have religious significance -- the mirror was a metaphor for something of brilliance and power. Linda Schele and Mary-Ellen Miller, The Blood of Kings: Dynasty and Ritual in Maya Art, (Fort Worth: Kimbell Art Museum, 1986), 284, 71, 74, n. 6; Michael D. Coe, "Olmec and Maya," 188-189; Michael D. Coe, The Maya (New York: Thames and Hudson, 1987), 72.

cosmological concerns.[86] In China, metal mirrors are known as early as the Neolithic period.[87] Bronze or copper mirrors were status goods, worn by the living, or buried with the dead for their reflective, talismanic powers.[88] By the Warring States and Han Dynasty periods, the decoration and function of these objects had become increasingly complex and intricately related to astronomy, divination and cosmology.[89] The correlation of bronze

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[86] Carlson, "Olmec Concave Iron-Ore Mirrors," 130: "...the Olmec may have discovered the principle of the lodestone geomagnetic compass as a result of...fashioning the concave mirrors from naturally magnetic iron-ore materials...If this was true for the Olmec...and later Maya...we have a further association of the Smoking Mirror with four-directional cosmology ...suggested that the Olmec would have used a geomagnetic compass for geomantic purposes, as did the Chinese, to align cities, dwellings, and tombs so as to place them in proper balance and harmony with the perceived cosmic forces of the universe...." Cf. Burr Cartwright Brundage, The Jade Steps: A Ritual Life of the Aztecs, (Salt Lake City: University of Utah Press, 1985, 121.

[87] Kwang-chih Chang, The Archaeology of Ancient China, (New Haven: Yale University Press, 1986), 282, 285.

[88] Michael Sullivan, The Arts of China (Berkeley: University of California Press, 1986), 52.

[89] For the decoration and function of ancient Chinese mirrors, see: A. Bulling, "The Decoration of Mirrors in the Han Period," Artibus Asiae Supplementum XX (1959); A. Bulling and Isabella Drew, "The Dating of Chinese Bronze Mirrors," Archives of Asian Art XXV (1971-1972); W.T. Chase and U.M. Franklin, "Early Chinese Black Mirrors and Pattern-Etched Weapons," Ars Orientalis XI (1979); Cheng Te-k'un, "Three Dated Chinese Mirrors,"

mirrors in China with the iron-ore concave mirrors of the Olmec is not of more than general concern here. Rather, a parallel may be drawn between Shang and Zhou China and Middle Formative Mesoamerica in the funerary sacrifice of these objects in direct conjunction with jade offerings.

The most closely relatable feature of mortuary jade use in China and Mesoamerica is the act of placing a jade bead or cicada-shaped object into the mouth of the deceased.[90] The use of mortuary jade is

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Oriental Art 1, 1 (1948), 86-87; Milan Rupert and C.J. Todd, Chinese Bronze Mirrors, (New York, 1966); Sullivan, The Arts of China, 52-53 and 74-76.

There appear to be a number of significant parallels between ancient Chinese and Mesoamerican mirrors (viz. these forms are usually round, they are sometimes pierced and worn at the neck, some Chinese bronze mirrors and Mesoamerican pyrite mosaic mirrors have very similar relief decorations on their backs, the function of these objects included divination and use as burial offerings), which have been dealt with thoroughly in two examinations by Stephen C. Jett: "Precolumbian Transoceanic Contacts," (1983) 356-359; "Precolumbian Transoceanic Contacts," Ancient Native Americans, Jesse D. Jennings (ed.), (San Francisco: W.H. Freeman and Company, 1978), 612-616; see also Gordon F. Ekholm, "The Archaeological Significance of Mirrors in the New World," Congresso Internazionale degli Americanisti 40, 1 (1973), 133-135. The function of Chinese and Olmec mirrors is discussed in Carlson, "Olmec Concave Iron-Ore Mirrors," 126.

[90] For example, Towle, "Jade: An Indicator of Trans-Pacific Contacts?" 168; Jett, "Precolumbian Transoceanic Contacts," (1983), 352.

found occasionally among other jade-loving cultures, such as the Maori. However, the custom of placing a jade piece into the mouth of the deceased is found only in ancient China and Mesoamerica. Therefore, this trait can certainly be considered arbitrary; no physical, social or environmental factors can concretely be defined as predeterminates for this practice. The trait, furthermore, has equal complexity in both places, as the mouth jade was also sometimes coated with cinnabar prior to insertion. In China, the use of a cicada-shaped mouth jade dates back to at least the ninth century B.C. (Western Zhou) and was particularly frequent during the Han dynasty (206 B.C.-220 A.D.). The han

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Olmec and Maya funerary jades are frequently directly associated, or painted with red cinnabar (mercuric sulphide). This trait has been compared with similar practices in Shang and Zhou China. See Covarrubius, Mexico South, 1946, 106; Stirling "The Olmecs," 44; Towle, "Jade: An Indicator of Trans-Pacific Contacts?" 168; Jett, "Precolumbian Transoceanic Contacts," (1983), 352. In Chinese burials of the Neolithic, Shang and Zhou periods cinnabar is found as an elite burial offering, often covering the body or the region of the interment. A consideration of archaeological finds shows, however, that the association of cinnabar with jade in these burials is more often incidental than deliberate. See Cheng Te-k'un, "Chou China," 54, 55, 95, 155; Chang, Archaeology of Ancient China, 276, 294, 310, 311, 363. Red cinnabar mines in the state of Queretaro were first exploited by the Olmec and intensively worked during the Classic period. This mineral was used for the decoration of pottery and as a red paint, as well as for ritual purposes. Porter-Weaver, The Aztecs, Maya and Their Predecessors, 220.

mouth plug is found inside the mouths of corpses from the Neolithic Songze culture (5800-4900 years ago).[91] These mouth plaques appear to have been used on a somewhat more popular level than orifice plugs, solid beads which were exclusive to aristocratic burial.[92] In Mesoamerica, the practice of placing a jade bead in the mouth of the dead is documented for the late Yucatec Maya and for the Aztec.[93] However,

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[91] Till and Swart, Emperors, 22. A cicada-shaped jade was found in the mouth of a corpse from a tomb at Luoyang. See "Report on the excavation of Sites at Zhongzhoulu Luoyang," Institute of Archaeology (Bejing, 1959), 59, cited in Ibid., 29 n.8; Cheng Te-k'un, "Chou China," 188. A number of cicada-shaped pendants are known for the Shang and Western Zhou dynasties. Neolithic han-plugs are found in three forms, all essentially flat perforated disks. The origins of the han may be related to an earlier practice of inserting a small round stone in the mouth of the individual immediately prior to death. See Ritual and Power, 8.

[92] Till and Swart, Emperors, 24. Jade plugs to stop the orifices of the body came into use during the Late Zhou dynasty, but especially characterise elite Han dynasty burials. See Ibid., 23, for illustration of the "nine jade plugs." These may have been related to the concept of jade as a protection against physical decay. A fourth century A.D. Daoist scholar, Ke Hung, said "if there be gold or jade in its nine orifices, then the corpse does not putrefy." J.J.M. de Groot, The Religious System of China (Leyden, 1882), 273, cited in Ibid., 29 n. 7. See also similar mention from the Han Shu, cited in Kao, Yinxu, 49.

[93] Coe, The Maya, 108-110. Alfred M. Tozzer, "Landa's Relación de las Cosas de Yucatán: A Translation," Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University (Cambridge: Peabody Museum, 1941; New York: Kraus Reprint, 1966), 130. Landa is referring to the burial of a commoner, so the stone(s)

there are no known Formative examples of this custom, which seems to appear first among the Classic period Maya (ca. 100 A.D.-900 A.D.) in the context of noble burials.

Some Costa Rican artifacts are also relevant to this discussion. These are a small number of cicada-shaped jade objects, manufactured around 300 B.C., which were reportedly found as grave goods in the

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inserted into the corpse's mouth is (are) most likely a lesser variety of green-stone. Refer to Proskouriakoff, "Cenoté," 2-3. Fray Bernardino de Sahagún, A History of Mexico: Anthropological, Mythological, and Social, Fanny R. Bandelier (transl.), (Nashville: Fisk University Press, 1932), 193: "They also say that when a chief or noble died they placed a green stone (chalchihuitl) into his mouth as he was dying. In the mouth of a dying person of the lower classes they did not insert such a precious stone, but one of little value...." Refer also to Torquemada, cited in Foshag, "Mineralogical Studies," 7. An illustration in Sahagún's Florentine Codex shows a jade plaque being tied to the mouth of the corpse in preparation for burial. (Reproduced in Alberto Ruz Lluhuillier, Costumbres Funerarias de los Antiquos Mayas, Mexico, UNAM, Seminario de Cultura Maya, 1968, Fig. 27.) This practice, as it is shown, is not found archaeologically.

Although the comparison of these parallel traits is outside of the temporal framework dealt with in this examination, and involves a considerable time gap in the correlation of Chinese with Mesoamerican evidence, it is discussed here for its relevance to the considerations of this paper. A greater degree of temporal overlap is evident for the Costa Rican cicada jades with Chinese materials.

Nicoya Peninsula together with pottery offerings.[94] A cicada-shaped jade was also found in the Classic period cache of luxury goods from Cerro de las Mesas, Veracruz state, Mexico.[95] Balser and others have suggested that the use of these jades as funerary goods may have had a similar ritual significance in both China and Costa Rica, related to an association between the cicada's unusual life-cycle and concepts of transformation or resurrection.[96]

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[94] Balser, "Jade de América," 18, and illustration p. 20. Middle Formative and Classic Mesoamerican graves sometimes include jade beads alone as funerary offerings.

[95] Philip Drucker, "The Cerro de las Mesas offering of jade and other materials," Bureau of American Ethnology Bulletin 157, (1955); Matthew W. Stirling, "Expedition Unearths Buried Masterpieces of Carved Jade," National Geographic, 80, 3 (July/Dec. 1941), 301. In 1943, nearly 800 luxury articles were found in what appeared to be a hurriedly-prepared cache beneath a stairway at this site. Many of the objects were heirloom Olmec jades. The cicada jade could also have been of Olmec manufacture.

[96] Balser, "Jade de América," 18; Till and Swart Emperors, 24. Cicada eggs are deposited within tree branches. When the hard-shelled, beetle-like nymphs hatch, they burrow into the earth, where they live for thirteen to seventeen years, feeding off the soil. After this protracted incubation period is complete, the fully formed adult rises out of the ground, Phoenix-like, as a strikingly attractive, emerald-green winged insect. The adult cicada has only a very short life-span, during which it mates and lays its eggs. David B. Orr and Candy Orr, Department of Entomology, Iowa State University, personal communication.

Both China and Mesoamerica had ceremonial or ritual artifacts which were almost exclusively produced in jade or jade-like materials. Shang and Zhou Chinese jades of this category include such objects as the bi, zong, huang, jue, gui, and a group of axe, or blade-like weapons.[97] These jades are described as ritual forms in the Zhouli, or "Rituals of the Zhou."[98] Jade and green-stone figurines, celts, and some ornaments, such as ear flares and certain pendants, were important

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[97] Kao, Yinxu, 75.

[98] The Zhouli was relied upon heavily by earlier scholars of Chinese jade such as Wu Dacheng and Berthold Laufer. Today it is still consulted, though with strong reservations. The original text, which was one of the thirteen Confucian Classics, compiled in the late Zhou (third or fourth century), was lost in the Qin "Burning of the Books" (213 B.C.), but was preserved through oral tradition until it was retranscribed in the early Han dynasty. The Zhouli purportedly describes the proper ceremonial procedures of the early Western Zhou, a period which was idealized in the Eastern Zhou and Han periods. In the "Da Zong Bo" and "Dian Rui" entries of the Zhouli, an account is given of certain "auspicious" or "sacred" jade objects and their functions. Glosses added later in the Han dynasty also provide information about the meaning and symbolism of Zhou jades. Although these comments are full of inaccuracies when compared with archaeological data, the nomenclature and interpretations of jades provided by this text have been useful to the scholarly study of ancient jade. See Kao, Yinxu, 50 ff.; Till and Swart, Emperors, 17-20.

ceremonial forms for the Olmec in Mesoamerica.[99] During the Maya period, the category of ceremonial jade objects grew to include a number of emblematic articles which belonged to costumes of kingship.[100] There are no strong comparisons with either the forms or the decoration of Shang and Zhou Chinese and Olmec Mesoamerican ceremonial jades. Any similarities between such objects as figurines or perforated disk-shaped objects from both cultures, for example, are strictly superficial.[101] However, the

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[99] Anatole Pohorilenko, "On the Question of Olmec Deities," Journal of New World Archaeology 2, 1 (1977), 3.

[100] Schele and Miller, Blood of Kings, 66 ff.

[101] Humanoid or anthropomorphic figurines were an important element of the jade culture of Shang and Zhou China and Olmec Mesoamerica. The sculptural style and iconography of these objects are diversely different. Moreover, Mesoamerican cultures had a strong ceramic figurine tradition prior to the advent of jade. Most Chinese figurines from these periods were perforated to be worn -- possibly as amulets or symbols of some sort; whereas, the majority of Olmec figurines lack perforations, and many seem to have been used in didactic ritual offerings, as indicated by the configuration of Offering No. 4 from La Venta and similar representations of significant events found in ceramics elsewhere. See Drucker et al., "La Venta, 1955," 152-161, Plates 30-36; Easby and Scott, Before Cortes, Plate 98; Miller, Art of Mesoamerica, 29-30.

A small group of perforated annular rings from Mesoamerica and Costa Rica have been compared with the Chinese ritual perforated disk bi; Balser, "Jade de América," 16-18. In Mesoamerica, these objects were probably closely related to the ear flare form. See, for example, the well-known Pomona

function of certain blade, axe or celt forms may be an exception.

In general appearance, some broad-axe forms, rounded celts, and cuchillo or knife-like blades, from Formative Mesoamerica and Costa Rica bear formal resemblances to some ge halberd blades, axes, and gui sceptres from Shang and Zhou China.[102] Some Chinese weapon implements are decorated at one end with composite creatures[103] in a manner which has been seen as similar to Olmec effigy celts and Costa Rican "axe-gods."[104] The incidence of objects such as

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ear flare, from Belize, Late Preclassic (50 B.C.-50 A.D.), illustrated and discussed in Schele and Miller Blood of Kings, 79, Plate 9. These artifacts appear to have been worn as elements of elite, ceremonial garb. Ibid., 66 ff. Some Mesoamerican and Costa Rican perforated ring artifacts have been recovered from burials, and one was found among the offerings of the Cenoté of Sacrifice at Chichén Itzá. See Balser, "Jade de América," 16-18, and illus. p. 20; However, these objects were not by any means as significant in the total repetoire of jade types as were the bi to the Neolithic, Shang and Zhou period Chinese.

[102] Jett, "Precolumbian Transoceanic Contacts," (1983) 352; See illustrations in Balser, "Jade de América," 14-16, and Kao, Yinxu, 157, Fig. 31.

[103] See, for example, Yeung, Jade Carving, Plates XXVI:7, XXXII:4; Kao, Yinxu, Fig. 31.

[104] Jett, "Precolumbian Transoceanic Contacts," (1983), 352. For illustrations see Wicke, Olmec, Fig. 34 for Olmec effigy celts; Elizabeth Kennedy Easby, Pre-Columbian Jade from Costa Rica, (New York: André Emmerich, 1968), 26 ff. and Easby, "Jade," 139, Plates 80-83, for Costa Rican axe-

these is very limited, however, in China. Moreover, the primary forms, or formal blanks, from which jade weapons were derived in Mesoamerica, Costa Rica and China were fundamentally different, thus resulting in substantially dissimilar objects.[105]

Mesoamerican and Costa Rican celts, in general, conform to a type of artifact referred to archaeologically as the "rounded celt."[106] Olmec celts are particularly in keeping with the cultural aesthetic for rounded, three-dimensional forms.[107] The essential form of Olmec and Costa Rican celts is also closely related to that of Neolithic utilitarian axes or adzes.[108] In contrast, the predominant finished form of many Shang and Western Zhou jades is basically two-dimensional.[109] Shang and

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gods.

[105] Kao, Yinxu, 506-509.

[106] Ibid.

[107] Coe, "The Olmec Style and its Distribution," 747-749.

[108] Kao, Yinxu, 507. Many of the unearthed green-stone celts from La Venta actually showed signs of useage. This may have been related to rituals performed prior to burial, as many of these artifacts were produced from materials too soft for utilitarian purposes. Drucker et al., "La Venta, 1955," 139.

[109] Yeung, Jade Carving, 190-192.

Zhou ritual weapon forms are observably rendered from flat, simple slab or plaque blanks.[110] The thin, sawn-slab preform of these ceremonial weapons, in fact, has precedence in a distinct class of ritual Neolithic artifacts.[111] It is apparent that objects such as these were primarily conceived of as ceremonial forms, rather than having developed from utilitarian prototypes.[112]

These basic differences of form between Chinese and Mesoamerican weapon implements belie any strict formal comparisons. Conversely, however, the function of such artifacts was essentially the same. Ceremonial weapons were highly related to elite status. Chinese documentary sources indicate that ceremonial forms such as ge and gui were used in political and diplomatic transactions.[113] At La Venta,

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[110] Kao, Yinxu, 507.

[111] Ibid., 508. Ritual and Power, cat. nos. 39, 46, and 53; Yeung, Jade Carving, chart behind catalogue entries: Development of Jade Types.

[112] Kao, Yinxu, 508. See also Loehr, Ancient Chinese Jades, 9, for non-utilitarian character of the ge halberd.

[113] Zhouli, cited in Kao, Yinxu, 52 ff.; Hansford, Carved Chinese Jades, 60 ff.: Shu jing, Shi jing, Zhouli and Zuo zhuan; Chinese Jade Throughout the Ages, 22-23; Tsung-tung Chang, Der Kult der Shang-Dynastie im Spiegel der Orakelinschriften, (Wiesbaden: Otto Harrossowitz, 1970), 174, 178, 184; jade pieces are sacrificed to

only a powerful ruling class could have commanded the exhaustive labour and complex organisation required to manufacture and bury the tons of jade and green-stone celts found there in Massive Offerings, caches and burials.[114] Celt preforms or "pseudo-celts" were also deposited in these sacrifices, indicating the significance of the celt form itself.[115] This form continued to have ceremonial and status associations during the Classic period. For example, three celts were suspended from the royal belt-head assemblage which was an important element of the sacred costume of Maya kingship.[116] Jade weapon forms are found regularly in elite graves of Shang and Zhou China and Formative and Classic Mesoamerica.[117]

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ensure fortune in battle.

[114] Drucker, "On the Nature of Olmec Polity," 38.

[115] Drucker et al., "La Venta, 1955," 137-139.

[116] The Leiden Plaque is a famous example of one such celt, dating from the Early Classic, 320 A.D. Incised decoration on one side of this object depicts a Maya king dressed in his royal regalia. This costume was of symbolic central importance to Maya kingship. Schele and Miller, Blood of Kings, 120-121.

[117] Jett, "Precolumbian Transoceanic Contacts," (1983), 352.

## Summary and Conclusions

A temporal framework is suggested for the comparison of jade use in ancient China and Mesoamerica with a terminus post of ca. 1250-1150 B.C. and a terminus ante of ca. 600 B.C., as conservative dates for the appearance of the jade complex in Mesoamerica. The corresponding period in China encompasses the late Shang (ca. 1400-ca. 1100 B.C.) and the Western Zhou (ca. 1100-771 B.C.) dynasties.

Burial was a foremost means of expressing the sacrifice of jade in ancient China and Mesoamerica. Archaeological evidence shows that jade was ritually buried in association with ceremonial architecture in Shang and Zhou China and Olmec Mesoamerica. The elaborate use of funerary jades in Shang and Zhou China is comparable with the lavish grave offerings of Phase IV tombs at La Venta. Jade was more integral to the mortuary customs of China and Mesoamerica than any other jade-loving culture. However, these features are cognate only on the bases of general function. Since, for example, the burial of precious goods with elite personages is a pervasive universal trait, it is difficult to draw hard conclusions about the origin of funerary jade

in Mesoamerica. Local development may also be indicated by the time gap between the initial use of jade at La Venta (and green-stone at San Lorenzo) and the appearance of burial jades. Two relatively strong parallels do exist, however: the association of jade with other precious and ceremonial goods, most particularly cinnabar and mirrors[118]; and the tradition of inserting a cinnabar-coated jade piece into the mouth of the corpse, which was practised by these cultures and nowhere else. The latter feature appears late in Mesoamerica, but cicada-shaped jades occur in a funerary context in Costa Rica at about 300 B.C. Perhaps earlier incidences of the mouth jade practice are as yet unknown archaeologically.

Both cultures had a class of ceremonial jades which functioned in these and other political/ religious rituals and which were identified with status. These objects do not bear any but the most superficial similarities in form or decoration; however, Olmec celts functioned as ritual, high-status artifacts, in a similar manner to Shang and Western Zhou ceremonial weapons. Again, the correlation of function rather than material

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[118] Although the Chinese did not have stone mirrors.

evidence is rather a gray area. Jade and green-stone were vital to the social and religious life of the Olmec, particularly at La Venta. These people were willing to expend enormous amounts of labor to acquire, work, and bury literally tons of this material. Nothing exists on this scale for ancient China. Perhaps the most important task at hand, therefore, is to achieve some level of understanding for the motivations and convictions behind the lavish displays of power and piety in the Olmec sacrifice of jade and green-stone. This might be achieved through a comparison with the more complete Chinese record. Furthermore, more profound conclusions regarding the development of civilization could emerge from such a consideration.

# III.

## Jade, Fish, Water and Renewal: A Parallel Cluster of Traits?

The following two chapters are a comparative-analysis of similar specific cultural traits isolated from the jade complexes of ancient China and Mesoamerica. These traits were considered to have formed clusters in both areas, in which jade, jade fish, water/rain (magic) and agricultural fertility or regeneration were associated on the levels of mythology and ritual. This set of traits does not seem to appear collectively elsewhere. Single elements of the cluster are known only for the Maori, who, at Contact, are recorded to have associated jade with fish and with water, but these connections were not extended to the concepts of fertility and the induction of rain.[1] As concerns diffusionist methodology in relation to the question of transpacific influences, the criterion of rarity of correspondent trait clusters was thus met in this case. This cluster of traits, furthermore, appeared to be relatively arbitrary. Spatial and temporal clustering of the traits seemed evident as well;

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[1] Capt. James Cook, A Voyage to the Pacific Ocean, 1 (Dublin, 1786), 139-140, cited in Elsdon Best, "Maori Religion and Mythology," 448.

that is, the traits showed co-occurrence or temporal overlap in both China and Mesoamerica. The traits were also considered to be apparent in both regions for the temporal framework delineated in Chapter II. Moreover, in terms of the central interest of this thesis in the use and function of Olmec jade, it was believed that this comparison might yield some explanations where an isolated examination of the Olmec jade complex might not. Given these above considerations, a further investigation was presumed to be justified.

The identification of the series of traits in question began in part with a quote cited in Berthold Laufer's "Jade: A Study in Chinese Archaeology and Religion," which Laufer interpreted as indicative of the sacrificial use of jade fish in ceremonial applications for rain.

> In the Han Palace Kun ming ch'ih a piece of jade was carved into the figure of a fish. Whenever a thunderstorm with rain took place, the fish constantly roared, its dorsal fin and its tail being in motion. At the time of the Han, they offered sacrifices to this fish in their prayers for rain which were always fulfilled.[2]

It is now widely accepted among scholars of Chinese jade that much of Laufer's work was based on dubious

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[2] Field Museum of Natural History 10 (Chicago, Feb. 1912), 309.

sources and contextual misinterpretations.[3] This particular quote is an excerpt from the Peiwen yunfu, a Qing dynasty (completed 1716) compendium of expressions combining two or three characters, which were derived from a variety of works dating from antiquity to the seventeenth century. The veracity of this text itself is considered to be somewhat uncertain in terms of the authenticity of the sources from which its entries were purportedly extracted. Since Laufer did not provide the characters for the relevant expression in the Peiwen yunfu, it is not possible to locate the passage to discern which sources were quoted there.[4] In an isolated context, it is difficult to interpret this passage. It may have been a metaphorical account, or related to the scholastic philosophy of correspondences -- like things responding to one another -- which developed during the Han period.[5]

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[3] See for example Hansford, Chinese Carved Jades, 55; Max Loehr, Ancient Chinese Jades, 6.

[4] The organizational complexity of the Peiwen yunfu makes the location of the original section in this case extremely difficult. The six volumes of this text were originally set down in scroll form, without chronological or periodic organization; specific extracts are located according to the pronounciation of the last character of each entry.

[5] Jacques Gernet, A History of Chinese Civilization, J.R. Foster (transl.), (Cambridge: Cambridge University Press, 1982), 158.

However, what is certain is that jade and jade fish are mentioned in connection with the invocation of rain.

In the Mingyou ("Rain Sacrifice") section of Lunheng ("Critical Essays") by Wang Chong (ca. 82-83 A.D., Eastern Han), fish are described as follows: "...though living in the water, yet follow the clouds and the rain flying, and riding on them ascend to Heaven."[6] As creatures, fish are related to the coming of the rains, similar to the principal rain deity and portent of rain, the dragon, "(which) belongs to the class of fish...."[7] and which was also considered to ride on the clouds.[8] The references from Wang Chong are outside of the established time frame. However, since the premise of Lunheng was the criticism of the views of other scholars and folk traditions, regarding natural phenomena, earlier

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[6] Alfred Forke (transl.), Wang Chung's Lun-hêng (Leipzig: Otto Harrassowitz, 1907), 357.

[7] Ibid.

[8] Dennis Wing-sou Lou, "Rain-Worship Among the Ancient Chinese and the Nahua-Maya Indians," Zhongyang yanjiu yuan. Minzuxue yanjiusuo, Nankang, Formosa, Bulletin, no.4 (1957), 36. The concept of the dragon as a rain deity is known at least as early as the late Shang dynasty. See Peter Glum, "Rain Magic at Anyang?" The Museum of Far Eastern Antiquities, Bulletin, no.54 (1982), 241-272.

concepts might be imbedded in this work.[9]

In Rawson's discussion of Shang and Western Zhou jades, she states that fish symbolically referred to concepts of fertility and rebirth.[10] Under later Zhou Daoist philosophy, jade was imbued with life-giving potency.[11] It is possible that similar earlier notions effected the mortuary use of this material.[12] In the context of this study it is, therefore, considered significant that jade fish comprise a proportionately large percentage of the repertoire of jade ornaments found as tomb offerings for the late Shang and Western Zhou periods.[13]

A cultural disposition to the use of water

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[9] Forke, Lun-hêng, 9.

[10] Jessica Rawson, Introduction, Chinese Jade Throughout the Ages, 34. Rawson does not indicate sources for her information. This writer was unable to substantiate Rawson's assertion with documentary evidence. An imbued concept of fertility and/or rebirth may have been concommitent with the magical properties attributed to jade, compounded with a cognizance of the abundant generative powers of fish and cicadas; see for example Kao, Yinxu, 48; Chapter II, note 96; Chapter IV, 161-162. Cf. Henry S.J. Doré, Researches into Chinese Superstitions, S.J. Kennelly (transl.), (Taipei: Ch'eng-Wen Publishing, 1966), 716.

[11] Kao, Yinxu, 48-50; see Chapter IV, 162-163.

[12] Kao, Yinxu, 48-50.

[13] See Ch. IV.

control or rain magic is presumed for early China in this examination. For example, Shang oracle bone inscriptions show that rain was a primary concern and that prayers were offered to several deities for rain.[14]

Epigraphic and ethnohistorical materials are absent for Formative period Mesoamerica. The sole documentary reference to jade fish comes from the sixteenth century Florentine Codex. Jade fish are mentioned in the context of water and renewed life in a late Aztec hymn recorded by Sahagún:

> Cinteotl was born in the rain mist
> Where are made the children of men
> Where fishermen fish the jade fish[15]

This "Song Sung Every Eight Years When Water Tamales Were Eaten" was recited during the Atamalcualiztli Festival celebrated in eight-year cycles, after

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[14] Glum, "Rain Magic at Anyang?" 242. See also David N. Keightley, Sources of Shang History: The Oracle Bone Inscriptions of Bronze Age China (Berkeley: University of California Press, 1978), Table 29, 222; and Chang, Der Kult der Shang-Dynastie, 98, 167, 169, 171, 181, 186, 188, 190, 192, 196, 199, 204, 207, 209, 211, 243-252.

[15] A.J.O. Anderson and A.E. Dibble (translators), Florentine Codex: General History of the Things of New Spain, Book II, (Utah: University of Utah Press, 1981), 238, fourth stanza.

harvesting.[16] These festivals were held as a means of apologizing to, and rejuvenating, the corn, which had suffered from human labours over it during the growing and harvesting months.[17] The rain god Tlaloc and his first wife Xochiquetzal[18] were honored in addition to the maize god Cinteotl.[19] The Atamalcualiztli Festival song describes Xochiquetzal's unjust banishment into the Underworld and subsequent mishaps, leading ultimately to the birth of Cinteotl on the day One Flower.[20] Although the imagery is appropriate to pictorial constructs of the mystical other-world, in terms of the idea of creatures of precious materials, it is difficult to interpret the precise meaning of "jade fish" in this song. Associations with water and fertility (probably both agrarian: crop renewal, and human: "where are made the children of men") are evident in

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[16] Brundage, The Jade Steps, 34. The reference to water tamales indicates the maize cakes eaten for sustenance during the eight day fasting period prior to the celebrations.

[17] Ibid.

[18] Patron goddess of craftsmen; inspirer of pure love, legitimate sexual relations and beauty, and mother of Cinteotl.

[19] Ibid., 32-34. Cinteotl was conceived from the coupling of Xochiquetzal and the great Feathered Serpent, Quetzalcoatl.

[20] Ibid.

the cited passage and in the ceremonial context of the song.

Fish and fishing are linked with a rain deity during the Classic period. The Maya rain god Chac had four aspects, of which Chac-Xib-Chac, the Red Chac of the East, was the foremost.[21] On an important set of incised bones found as grave offerings in the Late Classic tomb (735 A.D.) of Temple I at Tikal, Guatemala, Chac-Xib-Chac is shown in the act of fishing.[22]

Several Olmec and Olmec-style fish-shaped jade objects are known from Formative Mesoamerica and Costa Rica. A certain class of these artifacts were formally related to a larger group of pendants, which are posited below (Ch. IV, 164 ff.) to have been employed in ceremonies ensuring agricultural fertility and underlining status. By their formal

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[21] Schele and Miller, Blood of Kings, 312, 49. Chac-Xib-Chac was profoundly associated with the sacrificial death dance in both the Underworld and in human ritual. Cf. Michael Coe's "Rain Beast," Lords of the Underworld, Masterpieces of Classic Maya Ceramics, (Princeton: The Art Museum, Princeton University, 1978), 76-77.

[22] Aubrey S. Trik, "The Splendid Tomb of Temple I at Tikal, Guatemala," Expedition 6 (1963), 13; Schele and Miller, Blood of Kings, 49. The other iconographic activities of this rain deity are dancing and playing music.

qualities, i.e. references to both fish and shells, these artifacts were tacitly denotative of water.

Jade itself was associated with water and agricultural fertility in Mesoamerican belief systems by at least the early Classic and possibly during the late Early Formative. For example, jades are significant elements in the imagery of the Olmec paintings of Oxtotitlán cave and in the Tlalocan iconography of Teotihuacán, which are directly related to these concerns.[23] The Late Formative to Early Classic life-size and under jade and green-stone masks in the collection of the Museum of Anthropology, Jalapa, Veracruz, were recovered from various stream beds, where they had supposedly been cached as offerings to water deities. Perhaps this practice was more widespread than is presently indicated. Some continuity with the Late Classic and Postclassic Cenoté cult at Chichén Itzá is therefore likely. Proskouriakoff notes, for instance, that the "Olmecoid" materials recovered from the Cenoté show no signs of having been burned or broken in

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[23] Grove, "Oxtotitlán," 10; Clara Millon, "Painting, Writing and Polity in Teotihuacán, Mexico," American Antiquity 38 (1973), 296. Cf. Chalchihuitlicue "She of the Jade Skirt," the wife of the Aztec rain god Tlaloc and the Goddess of running and standing waters.

ceremonial 'sacrifice,' such as is prominent among later artifacts.[24] This may indicate that offerings were occasionally made at this site during much earlier times than the establishment of the Cenoté cult.[25] Of the human remains, precious artifacts, and other materials (copal, jade, obsidian, ceramics, gold and copper articles) dredged from the Sacred Cenoté at Chichén Itzá, where they had been sacrificed to Chac, jade objects, mainly beads, were among the most abundant.[26] The sacrifice of jades to the Cenoté is mentioned in Landa's sixteenth century Relación de las Cosas de Yucatán: "Into this well they have had, and then had, the custom of throwing men alive as a sacrifice to the gods, in times of drought, and they believed that they did not die though they never saw them again. They also threw into it a great many other things, like precious stones and things which they prized."[27] The

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[24] Proskouriakoff, "Cenoté," 10.

[25] Ibid.

[26] Proskouriakoff, "Cenoté." Tozzer, "Landa's Relación," 182, n. 950. Balls of copal incense were the most abundant offering.

[27] Tozzer, "Landa's Relación," 179-181, n. 950. Most writers agree that references to "precious stones" in the histories and chronicles usually indicate jades or green stones. In this case, the Cenoté finds corroborate such a translation.

See also Lou's comparison of the Chinese and

termination or avoidance of drought and prognostication appear to have been two of the main concerns in the Cenoté cult.[28]

The heavy, year-round rainfall in the southern Gulf Coast lowland region of the Olmec heartland discounts the use of rain-invoking magic or ceremonies by the ancient inhabitants. Nevertheless, a vast knowledge of rain and seasonal conditions would have been a corollary. Rain and agricultural fertility were undoubtedly primary concerns.[29] In this swampy, humid environment, the element of water most certainly pervaded the Olmec consciousness, planting and harvesting cycles and many other aspects of daily life. Indeed, this concern is probably manifest in the non-utilitarian aqueduct and pond systems found at San Lorenzo and La Venta which appear to have had ceremonial functions.[30]

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Mesoamerican use of human sacrifice to bring rain, "Rain-Worship," 82-88.

[28] Tozzer, "Landa's Relación," 179-181, n. 950.

[29] Bernal, Olmec World, 102.

[30] Coe has suggested a rain-god cult at San Lorenzo to explain the elaborate system of drains and man-made lagunas, or ponds, constructed there during the San Lorenzo Phase. Monument 52, which has been identified by Coe and Joralemon as Joralemon's God IV, the Olmec Rain God, was carved out on its unworked side as a drain stone and buried at the end of a drain line on the western margin of the plateau

The watery Olmec habitat may have been viewed with some awe by peoples living in more arid conditions, such as those of the highlands. Some writers feel that the Olmec prosperity was seen by

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of San Lorenzo. Peter David Joralemon, "A Study of Olmec Iconography," Dumbarton Oaks Studies in Pre-Columbian Art and Archaeology, Number Seven (Wash.: Dumbarton Oaks, 1971), 71; Coe and Diehl, Land of the Olmec, 362-363. Even pending the misidentification of this image as a rain deity, the San Lorenzo water control systems seem not to have served any obvious practical purpose. The southwest drainage system apparently carried water from the lagunas to Monument 9, a duck effigy tub or "fountain" which is marked with two water symbols at the feet. This pattern is believed to have been mirrored in the southeast system. Coe, "Olmec and Maya," 191; Michael D. Coe, "San Lorenzo and the Olmec Civilization" Dumbarton Oaks Conference on the Olmec, 57; Coe and Diehl, Land of the Olmec, 30; Diehl, "Olmec Architecture," 73; George Krotser, "El Agua Ceremonial de los Olmecas," Mexico, Instituto Nacional de Antropologia y Historia, Boletín 2 (1973), 43-48. Evidence of similar, roughly contemporaneous aqueduct networks has also been found for Laguna de los Cerros and in the Stirling Group (Complex B) of La Venta. Bove, "Laguna de los Cerros," 9: many carved-stone trough-shaped objects like those from San Lorenzo and La Venta were found. Heizer "New Observations," 36: five stone drains were located at La Venta, four of which had headgates; these were supposed to have drained open reservoirs or tanks, or excess water from the sloping sides of the Acropolis. Two large round stone tubs, one with a round lid, were also excavated. These possibly served the same function as San Lorenzo's "duck fountain;" see Ibid., Fig. 10.

The ponds at San Lorenzo may have functioned as sacred holding tanks containing water strictly reserved for ceremonial ablutions, Michael D. Coe, America's First Civilization, 87. Cf. Stocker et al., "Crocodilians," 746.

Jade was not found in archaeological association with these features.

the Olmec and other groups with which they came into contact as a direct result of a successful ideology.[31] This conviction was perpetuated by the Olmec in their art. Stocker et al., for example, consider the crocodilian to have been an important deity, related to rainfall, agricultural fertility, the fertility of aquatic life, and "Master of Fish."[32] In Olmec art and ideology, the crocodilian

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[31] Stocker et al., "Crocodilians," 749.

[32] Ibid., 740-754; Donald K. Lathrap in Ibid., "Gifts of the Cayman: Some Thoughts on the Subsistence Basis of Chavín," in D.W. Lathrap and Douglas (eds.), Variations in Anthropology (Urbana: Illinois Archaeological Survey, 1973), 91-105. The "Master of Fish" or "Master of Animals" is fundamentally a conceptual expression of a natural occurrence, based on the highest predator of the particular ecosystem. In the Olmec heartland, for example, the crocodilian had no predators other than man. Moreover, since the feces of these great predators provide nutrients which sustain small plants and animals, a depletion in the crocodile population tends to be followed by a decline in the numbers of fish and other aquatic life. Stocker et al., "Crocodilians," 750.

A more recent publication by Nicholas J. Saunders reformulates the long-standing hypothesis of the central importance of the jaguar to Olmec political and religious life. In his examination of Olmec and Chavín art, Saunders speculates that the jaguar was seen as the lord of all animals, including the crocodile. Saunders points out that the Amazonian Indian tribespeoples describe the jaguar as the "Master of Animals," who "controls the rain, the watery depths and fertility." The prominent position of the feline in Olmec religion and art is seen as an equation by the Olmecs between their position in the human world and that of the jaguar in nature, i.e. the jaguars were the "Masters of Animals" and the Olmec viewed themselves as

was bonded "to rain, corn and earth fertility."[33] It is not the purpose here to discuss the veracity of this, or similar hypotheses. However, the importance of the color green distinctive to Middle Formative Olmec cultural production and the convictions underlying the massive burial of celts and celt preforms at Olmec sites, might be explained in part by a particular significance for the crocodile and/or adjunct symbolic values. Furthermore, jade and green stone celts are believed to have been symbolic of the young corn and associated thereby with agricultural fertility.[34] For instance, Joralemon's God II, the Olmec Maize God, is almost exclusively found incised on these celts.[35]

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"Masters of the Civilized World." People of the Jaguar: The Living Spirit of Ancient America (London: Souvenir Press, 1989), 75, 101-102.

Cf. the Brazilian Amazonian Vaí-mahsë, "Master of Animals" and "Master of Fish," who is described "...as a dwarf with body painted red and covered with the juices of magical plants, by whose strong odor his presence can be known. He appears also in the form of a small lizard...." Joseph Campbell, "Mythologies of the Primitive Planters: The Middle and Southern Americas," Historical Atlas of World Mythology 2, 3 (New York: Harper and Row, (published posthumously) 1989), 347. On a journey induced by hallucinogens, the payé, or shaman must visit the habitat of the Animal Master and negotiate an exchange of human lives for game animals.

[33] Stocker et al., "Crocodilians," 749.

[34] Coe, Olmec and Maya, 186.

[35] Ibid.; Joralemon, "Olmec Iconography," 59.

The above considerations were believed sufficiently consequential, in terms of cross-cultural correlation, to warrant further substantiation with documentary evidence.[36] It was anticipated that a review of primary sources might help to: better determine the extent of the jade, jade fish, water/rain (magic) and fertility/ regeneration traits, both temporal and cultural; obtain a clearer understanding of the nature of these traits and their consequence within the Chinese and Mesoamerican jade complexes; determine the degree to which the individual traits overlap one another to form a cluster; and to ascertain whether parallels can be drawn between these traits as they are found in ancient China and Mesoamerica. The inherent difficulties of applying later records to earlier materials are obvious, but as Nicholson states, this methodology can be applied in particular circumstances: "(if) relatively continuous series of similar iconographic images that endured for long time periods have been discerned...the presumption of persistence of concomitant conceptual significances is not

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[36] In both cases, limitations were imposed in relation to the availability of primary sources and, for the Chinese material, translations into English.

unreasonable."[37] The concepts addressed in this chapter appear to have had some degree of continuity in China and Mesoamerica. In Middle America these traits are believed to show continuity from the Formative through the Postclassic and seem evident in artistic and literary endeavors, if not in the actual material evidence of, for example, significant numbers of carved jade fish from later periods.[38] A limited group of texts was culled, on the basis of authenticity and presumed relevancy, from an initial preview of several sources. All references to jade, water, or fish were explored for their applicability to the topic.

The primary sources consulted for Mesoamerica are Post-Conquest in date. The two native sources

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[37] H.B. Nicholson, "Preclassic Mesoamerican Iconography from the Perspective of the Postclassic: Problems in Interpretive Analysis," in H.B. Nicholson (ed.), Origins of Religious Art and Iconography in Preclassic Mesoamerica (California: U.C.L.A. Latin American Publications, 1976), 172.

[38] See Ibid., 173: "The most basic religious-ritual patterns were probably widely shared throughout Mesoamerica from Late Preclassic or at the latest Early Classic times on. This probability, in my view, provides us with exceptional opportunities to interpret the more ancient Mesoamerican iconographic systems through a sensible, critical application of the direct historical approach -- whereby we move, cautiously but systematically, back from the living of the sixteenth century to the remote dead of the end of the second millenium before Christ."

used are the Maya Popul Vuh ("Book of the Community") and the Chilam Balam of Mani, one of the four Books of Chilam Balam. From the Spanish documentary and historical sources, the following texts, all but one of which are sixteenth-century in date, were examined: the thirteen books of the Florentine Codex: General History of the Things of New Spain, and A History of Ancient Mexico by Sahagún; The Conquest of New Spain by Bernal Diaz; Book of the Gods and Rites and The Ancient Calendar by Fray Diego Duran; The Treatise on Superstitions by Hernando Ruiz de Alarcón (17th century); and Relación de las Cosas de Yucatán by Landa. The only germane entries were found in Duran's Book of the Gods and Rites, Sahagún's Florentine Codex and Alarcón's Treatise on Superstitions:

From Duran comes this passage:

> In ancient times the Indians esteemed the element (water) to such an extent that this fondness was truly a remarkable thing. Their priests, who persuaded and taught them, insisted ardently on their debt to water...preached and extolled of the wonderful things owed to the gods, telling of the great gifts which each one of these offered. They extolled the water -- for they were born in it, and died with it. "Being born in water" means washing newborn babes four days in a row, the nobles in special basins made for that purpose; those of a lower class and condition (were washed) in small springs (or streams). At these washing places were

offered great quantities of jewels;[39] they were carved in the shapes of fish, frogs, ducks, crabs, turtles...(and) all cast (into the water) by the principal lords whose children were washed there.[40]

Sahagún records the following description in his discussion of jade qualification:

"...the good emerald-green jade...attracts moisture...It... becomes wet, has dew...."[41]

Jade is mentioned in relation to fishing in this incantation documented by Alarcón:

> In a spell used for fishing with hooks: "Please come forth, My mother Jade-Skirted One[42] (metaphor for river), Here I shall seek My uncles the priests (metaphor for fishes)...."[43]

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[39] Probably jade, turquoise and other such esteemed stones. It is not entirely clear that the "washing places" to which Duran is referring are those of the nobles. If he is actually indicating the sites where members of the lower classes washed their children, the "jewels" would have been lesser stones than are suggested here.

[40] Fernando Horcasitas and Doris Heyden (translators), (Norman: University of Oklahoma Press, 1971), 263-264.

[41] Florentine Codex Book II, 222-223.

[42] Chalchihuitlicue. Cited throughout the spells in this text as a metaphor for water in various forms and infusions. Coe and Whittaker, The Treatise on Superstitions by Hernando Ruiz de Alarcón, 306.

[43] Ibid., 306. The notes in parentheses are Coe and Whittaker's.

For textual information regarding the jade, jade fish, water/rain (magic) and fertility traits in Shang and Zhou China, four authoritative secondary sources were relied upon: Howard Hansford, Chinese Carved Jades; Jeffrey Yu-teh Kao, The Archaeology of Ancient Chinese Jade: A Case Study From the Late Shang Period Site of Yinxu; Dennis Wing-sou Lou, "Rain-Worship Among the Ancient Chinese and the Nahua-Maya Indians;" and Joseph Needham, Science and Civilization in China 4, 3, Sections 28-29. The primary documents reviewed are those which are generally accepted to be the more reliable of applicable texts:[44] Han sources Han Shu (History of the Former Han Dynasty) (1st century A.D., covers the period between 209 B.C. to 25 A.D.) by Ban Gu, Shiji (Records of the Historian) (ca. late 2nd century B.C.) by Sima Qian, and Lunheng by Wang Chong; Later Zhou Qunqiu ("Spring and Autumn Annnals") and the Zuo zhuan ("Narrative of Zuo:" Zuo's commentary on the "Spring and Autumn Annals") (compiled in the 3rd century B.C., covers the period between 722 B.C. to 468 B.C.), and Warring States period Zhou dynasty sources Shu Jing (Book of Documents) (date unknown; traditionally attributed

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[44] See, for example, Hsu and Linduff, Western Chou Civilization, xix.

to Confucius, but contains later additions and some forgeries; the earliest entry gives a purported date of 626 B.C.);[45] Shi Jing (Book of Odes) (compiled ca. 600 B.C.); and Li ji (Book of Rites) (compiled early 1st century B.C. from Zhou, Qin and Han texts).[46] Translations of Shang dynasty oracle bone inscriptions were also scanned. Following is an account of the information thus gleaned:

One Shang oracle bone inscription has been interpreted as indicating the sacrifice of jade bi disks and jue as chen, or submerged oblations, to the Huanghe (Yellow River).[47]

There are records in the Zuo zhuan pertaining to the sacrifice of jade artifacts to the Huanghe, or, more precisely, to the god of the Huanghe, to witness a prayer, seal a covenant, and ensure success in battle.[48] Two of these mention gui and the other describes the offering of a bi. Only one

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[45] Burton Watson, Early Chinese Literature (New York: Columbia University Press, 1962), 21-36.

[46] All dates given for these texts are derived from Watson, Early Chinese Literature.

[47] Chen Mengjia in Kao, Yinxu, 365.

[48] Lou, "Rain-Worship," 85; Hansford, Chinese Carved Jades, 77.

passage details the actual means by which the jades were sacrificed:

> At this time Yëw Keih, who had been on a mission to Tsin, was returning; but when he heard of the troubles, he did not enter the capital. Entrusting to his assistant-commissioner the report of his mission, in the 8th month, on Këah-tsze, he fled to Tsin. Sze Tae pursued him as far as Swan-tsaou, and there Keih made a covenant with him, -- Tsze-shang, -- dropping two batons (gui) of jade into the Ho, in attestation of his sincerity.[49]

This jade offering was intended to seal a covenant. Another item in the Zuo zhuan describes the sacrifice of a jade gui during an eclipse:

> In winter, in the 10th month, on Kwei-yëw, the (late) king's son Chaou offered the precious sceptre (gui) of Ch'ing-chow in sacrifice to the Ho. On Këah-seuh, a ferryman found it (again) on the bank. Yin Puh-ning with a body of men from Wan was making an incursion southwards, caught this man, and took the jade from him.[50]

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[49] James Legge, "The Ch'un Ts'ew with The Tso Chuen," The Chinese Classics, V, 557, see note about line 7 of Book IX, year XXX. Cf. Hansford, Chinese Carved Jades, 77.

[50] Legge, "The Ch'un Ts'ew with the Tso Chuen," Book X, year XXV, note about line 5, p. 703. This reference is described by Hansford as follows: "...there was an eclipse of the sun, an evil omen. The Chou king had just died and his son offered the 'precious kuei of the city to Ch'êng-Chou,' presumably an important piece of regalia, in sacrifice to the Ho. It was later recovered by a ferry man, but he was caught and relieved of his booty by a military officer, who restored it to the new king, and was rewarded with the gift of a city. Presumably everyone was satisfied with these transactions except the River God and the ferryman." Chinese Carved Jades, 77. Lou cites this passage as referring to the submersion ("'Ch'en," which

The third reference concerns the offering of a jade bi to ensure success in battle:

> "...the earl prayed to the Ho with a peih, about the battle (that would ensue).[51]

Another chronicle in the Zuo zhuan refers to the submersion of a jade "piece" into water to witness an oath:

> When the marquis of Ts'ae had got to the Han on his return, he took a piece of jade in his hand, and sank it in the water, saying, "I swear by thi great stream that I will not cross the Han again to go to the south."[52]

A number of references are made to "great sacrifices for rain" in the Qunqiu. However, none of these specify the nature of these offerings and jade is not mentioned.[53]

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originally meant "to sink in water'") of a jade "tablet" to appease the "lord of the river." "Rain-Worship," 84-85, n. 173.

[51] Legge, "The Ch'un Ts'ew, with the Tso Chuen," Book VI, year XII, note about line 7, p. 261. Cf. Hansford: "...the earl of Ch'in was trying to bring the forces of the neighboring state of Tsin to battle, and petitioned the Ho 'with a pi' for success. Presumably the god was encouraged in the usual way to grant the petition." Chinese Carved Jades, 77.

[52] Legge, "The Ch'un Ts'ew, with the Tso Chuen," Book XI, year III, note about line 5, p. 748.

[53] Ibid., 45, 158, 351, 363, 426, 435, 472, 540, 588, 609, 621, 702.

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The Shi Jing records the sacrificial burial of bi and gui to aid in bringing about the end of an excessive drought:

Legge translates the passage as:

> There is no victim I have grudged
> our maces and other (jade)[54] tokens are exhausted: -- How is it that I am not heard?
>
> The drought is excessive;
> Its fervours become more and more tormenting. I have not ceased offering pure sacrifices; From the border altars I have gone to the ancestral temple.
> To the (Powers) above and below I have presented my offerings and then buried them....[55]

Karlgren's translation varies somewhat, but concurs with the use of gui and bi as sacrificial offerings which were probably included with other goods in sacrificial burial:

> Bright is that Heavenly Han river, it shines and revolves in the sky; the king says: Alas, what guilt rests on the present men? Heaven sends down death and disorder, famine comes repeatedly; there are no Spirits to which sacrifices are not made, we do not grudge those victims; the

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[54] The word 'jade' in parentheses is inserted by this writer from Legge's interpretation in his note about stanza 1, line 2, p. 529, "The She King, or the Book of Poetry," The Chinese Classics, IV. What Legge translates as "maces" and "tokens" are actually "gui" and "bi."

[55] Ibid., 529, note about stanza 2, line 5. Legge considers the passage "...I have presented my offerings and then buried them...." as applying to the sacrificial burial of the jade gui and bi cited earlier in the ode.

> kuei jades and pi jades are exhausted...we have not ceased offering the yin and si (sic) sacrifices; from the suburban altar we have gone to the temple hall; (upwards and downwards) to the powers above and below we have offered up and buried (sacrificial gifts)....[56]

Sima Qian records in Shi ji the sacrifice of a jade ring during a time of disastrous flooding:

> ...the emperor Wu Di made a tour of inspection himself...myriads of men (were raised) by Chi Jen and Kuo Chang, the sacrificing of a white horse and a jade ring, and the carrying of bundles of wicker-work and faggots by high officials and commoners alike in order to fill up the breach (in the dyke).[57]

In the Han Shu a sacrifice of jade to the river deity is mentioned in an edict issued by the emperor Ming Di after the rebuilding of the Bian Canal in the Yellow River:

> ...now (the workers) have rebuilt the dykes, repaired the canal, cut off the waters, and established flash-lock gates. The (Yellow River) and the Pien (Canal) flow separated and are again in their old beds....Therefore (we) have sacrificed excellent jade and pure animals to the Spirit of the River.[58]

## Summary and Conclusions

Archaeological evidence, reliable secondary

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[56] Karlgren, The Book of Odes, 224.

[57] Cited in Joseph Needham, Science and Civilization in China, 4, 3 (Cambridge: University of Cambridge Press, 1965), 232-234.

[58] Ibid., 346.

sources and primary texts were examined to better define a posited cluster of traits involving jade, jade fish, water and/or rain (magic) and agricultural fertility or regeneration, which appeared to exist within the jade complexes of ancient China and Mesoamerica. Some circumstantial and other evidence has been drawn from later periods. Most documentary sources considered are later in date than the 1250-1150 B.C. to 600 B.C. established period. Furthermore, the textual materials dealt with in this survey have been limited. Presumptions cannot, therefore, be drawn without due caution.

**Jade, Water, Rain**

Chinese records show that jade was sacrificed to the Yellow River, (and "water"), but with the exception of the Shang oracle bone inscription and two records in the Zuo zhuan which mention chen, or submersion, the sources do not describe the means by which this sacrifice was undertaken. These offerings were made as testimonies to ritual observances, or to propitiate the river deity. This form of libation was practised during the later Zhou and possibly as early as the Shang dynasty. Non-specific jade sacrifices are mentioned elsewhere in two Han

references to water-related ceremonies. One Zhou record implies that pi and gui ceremonial jades were sacrificially buried to end a drought. Shang oracle bone inscriptions show that, among other meteorological, calendrical, heavenly, and earthly interests of that time, rain was significant. Numerous references to sacrifices for rain are found in the Qunqiu, some of which the Zuo zhuan specifies were made during times of drought. Thus, a concern with rain and the use of rain magic are evident for the period in question.

The Mesoamerican evidence shows that a preoccupation with water and agricultural fertility is discernible in Olmec architectural and artistic endeavors. Water-control systems with possible ritual applications are found at San Lorenzo, Laguna de los Cerros, and La Venta. Given the probable desire to exercise some means of control over the extreme rainfall in this region, these water systems may have had a symbolic function. The ceremonies in which the aqueducts and ponds were used could have had to do with the conceptual (and naturally observable) link between water and crop fluctuations. Another aspect of this suggested concern with agrarian fertility and renewal may be

manifest in the jade and greenstone celts which were buried in great numbers as offerings at Olmec sites and which are considered to have symbolized the germinating corn and the fertility of the land.

Jade masks have been recovered from streambeds in the Gulf Coast region, where they had apparently been ceremonially buried or deposited during Late Formative to Early Classic times, possibly to propitiate water deities. This custom may have had greater continuity than is presently indicated. Jade objects were important offerings in the Late Classic and Postclassic Cenoté cult at Chichén Itzá, dedicated to the Maya rain god Chac. Some Olmec-style jades are known from the Cenoté materials. Whether these were actually deposited in Formative times, and by whom, is not certain. Landa records that oblations and sacrifices were made at the Cenoté partly to ensure rainfall. The idea that jade attracts water is probably evident in one passage recorded by Sahagún.

**Fish, Jade Fish**

Jade fish are not mentioned in the Chinese Shang, Zhou and Han literature examined. Only the Peiwen yunfu extraction quoted by Laufer, which

refers to the Han period, describes a jade fish. This description pertains to the invocation, or the coming of rain. Only a single Middle American textual reference to jade fish was found, in the Post-Conquest Florentine Codex. The Spanish chronicler Duran records that in Mexico, carved representations of fish and other water creatures in precious stone, possibly jade, were given as oblations at special "washing places," where newborns were bathed in hommage to the element water.[59] The first of these Spanish citations refers to jade fish in the context of water. The hymn or song from which this passage is derived is associated with the ceremonial regermination of the maize crop. The reference from Duran may be interpreted, rather tentatively, to imply a relationship between the element of water and the objects which were offered to this element -- which may have been jade and some of which could have been jade fish.

Fish might have been associated with fertility in Shang and Zhou China, probably due to the facts that fish belong to water -- water being essential

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[59] Cf. the bathing of infants in Sahagún, Florentine Codex, Book VI, 201-207.

to agricultural productiveness, i.e. the fertility of the land -- and fish are noticeably fertile creatures, i.e. animal fertility. One secure Han source mentions fish in relation to the coming of rain. An association between the advent of rain and fish probably occurred from a conceptual reference to the creature's natural environment. Many fish-shaped jade pendants are known from Shang and Zhou dynasty tombs. The fish pendants possibly had connotations of rebirth or vitality, as a symbolic extension of both the natural peculiarities of the living creatures and the magical potencies which were attributed to jade. Several Olmec fish-shaped pendants are related to a larger group of artifacts whose formal references associated them with concepts of water and agricultural fertility. The Maya rain deity Chac-Xib-Chac was associated with the act of fishing.

**Table of Referential Trait Relationships**

The following table organizes the literary data into eleven separate categories on the basis of referential trait relationships, or the interrelationship of the traits central to this study as they appeared in the literary sources.

| | China | Mesoamerica |
|---|---|---|
| References to Jade Fish | 1 (dubious) | 2 (Duran possible) |
| References to Fish in Relation to Water Control or Water Magic | 1 | 0 |
| References to Sacrifice of Jade Fish in Water, to Water or in Ceremonies Related to Water/Rain Control | 0 | 1 (Duran possible) |
| References to the Sacrifice of Jades in Water-Related Ceremonies | 3 | 0 |
| References to the Sacrifice of Jades to Water by submersion in Water | 1 | 0 |
| References to the Sacrifice of Jades in Water for Water-Related Ceremonies | (sources do not specify) | 1 |
| References to the Sacrifice of Jades to/in Water for Occasions Not Directly Related to Water | 4 | 1 |
| References Associating Jade With Water | 0 | 1 |
| References to Jade or the Sacrifice of Jades in Relation to Agricultural Fertility | 0 | 1 (Sahagún possible) |
| References to Jade in Relation to Fish | 0 | 1 |

Thus, from the documentary evidence, referential trait relationships are paralleled between China and Mesoamerica in two categories: references to jade fish (the Chinese reference being very questionable) and references to the sacrifice of jades in water during occasions not related to water and water-control. Of the eleven listed categories of trait relationships, references to five have been gathered from the Chinese sources examined and six were found in the Mesoamerican documents. The solitary application of the literary data cited above does not suggest a significant clustering of the traits in question for either China or Mesoamerica. Furthermore, this documentary material does not provide substantial support for parallels between the Chinese and Mesoamerican traits, as only two trait categories correspond.

However, the combined documentary, archaeological and circumstantial evidence reviewed in this chapter indicates the following individual traits:

<u>China</u>

1. (Shang/Zhou) jades were used in sacrifices to the Huanghe river (and others ?) and in times of drought,
2. (Han-later) fish were related to fertility,
3. (Shang/Zhou) carved jade fish were numerous in burial offerings,

4. (Han) fish were associated with the dragon and with rain,
5. (Zhou/Han) jade was associated with life-giving qualities, or vital properties.

Mesoamerica

1. (Late Formative/Early Classic) jades may have been sacrificed to rivers and in the Cenoté as offerings to water deities,
2. (Formative) fish-shaped Olmec jade and green stone ornaments are presumed significant, within a larger group of related objects, in ceremonial activities related to the preservation of life and the maintenance of the status quo,
3. (Late Classic/Postclassic) jades and other precious goods were sacrificed in water to a rain deity, partially to ward off drought,
4. (possibly by late Early Formative/Classic/ Postclassic) jade and green stone were associated with rain, water, concepts of fertility, and possibly maize.

To meet the temporal framework established in Chapter II, only that data which clearly belongs to Shang and Zhou China and Formative Mesoamerica may be considered. The traits which thus show co-occurrence in China are numbers 1, 3, and 5. Jades were sacrificed in rivers and to alleviate drought. Carved jades in the form of fish are found fairly widely in Shang and Zhou burials. It is not evident whether jade was associated directly with concepts of fertility, but during the later Zhou period jade came to have magical properties of vitality attributed to it. The more reliable of overlapping traits in Formative Mesoamerica are numbers 2 and 4:

the presence of Olmec fish-shaped jade pendants which, through formal characteristics, were associated with water and agrarian fertility; jade and green-stone appears to have been conceptually affinitive with water, rain, maize and regeneration. These traits overlap temporally and spatially in both China and Mesoamerica. Additionally, the traits are found somewhat earlier in China or contemporaneously in Mesoamerica.

Certain qualifications must be made to the latter observations. Primarily, it is difficult to estimate the significance in the number of these traits and their importance to the over-all configuration of the Chinese and Mesoamerican jade complexes. Furthermore, whether the traits are ostensibly interrelated, or can be said to cluster in both regions is not clear and perhaps unresolvable. The degree to which these traits are arbitrary, or whether their appearance emanated from determinant factors such as material restrictions, physical or cultural environment, and psychological or biological make-up (i.e. genetic or inherited characteristics) is also problematic. For example, in ancient China and Mesoamerica it is apparent that most raw jade stones were acquired from rivers and

streams, where they had washed down from their original source. Jade, therefore, **came** from water. The association of jade with water in this case is incidental. Under swiftly-flowing water an optical illusion is created whereby objects lodged in stream- or river-beds tend to appear as if they were moving and shifting. In the minds of the jade hunters of antiquity, a relationship between river-washed jade stones, with their slippery "skin" or rind,[60] and fish, would not have been inconceivable. For example, the Maori explained to Cook that pounamu is originally a fish until it is extracted from the water -- at which point it transforms into stone.[61]

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[60] Ward, "Heaven," 284.

[61] Cook cited in Best, Maori Religion and Mythology, 449: "...we were told a hundred fabulous stories about this stone, not one of which carried with it the least probability of truth, though some of their most sensible men would have us believe them. One of these stories is, that this stone is originally a fish, which they strike with a gig in the water, tie a rope to it, and drag it to the shore, to which they fasten it, and it afterwards becomes stone. As they all agreed that it is fished out of a large lake, or collection of waters, the most probable conjecture is, that it is brought from the mountains, and deposited in the water, by the torrents." Maori legends frequently indicate that jade originated in water.

# IV.

## Jade Fish

The documentary evidence examined in Chapter III does not suggest the significant clustering or a notable correlation of certain jade-related traits in ancient China and Mesoamerica which are postulated to form a parallel cluster interrelating jade, jade fish, water/rain (magic) and agrarian fertility. However, the collective application of this material with archeological and circumstantial data demonstrates a spatial and temporal overlap of some of these traits for the ca. 1250-1150 B.C. to ca. 600 B.C. designated period. In China, fish-shaped jades were often included as burial offerings, jade was imbued with life-giving potency, and jades were used in oblations to water and for sacrifice during times of drought. Formative Mesoamericans related jade to water, maize and earthly renewal, and the Olmec had a distinctive class of pendants, some fish-shaped, which referred to concepts of water and agrarian fertility. Thus, in both cultures, jade was related at some level to the principles of water and vitality, and representations of fish were relatively important components of the corpus of carved jades. Furthermore, as shown below, status-identification

and status-reinforcement were tacit functions of these traits. Material evidence is examined in this chapter as an extension of the considerations in Chapter III. The primary concerns here are the form, function and symbolism of Shang, Zhou and Olmec carved jades representing fish. Shang and Zhou pendants, scribers and huang are initially discussed in the context of the aforementioned traits, followed by Olmec fish-shaped pendants. A large part of this chapter is devoted to the definition and analysis of the category of Olmec ritual jade pendants whose symbolic value lay in a set of formal references to shells, fish, and, ultimately, water and fertility.

## Shang and Western Zhou China

Jade representations of fish were carved in China as early as the late fourth millenium B.C.[1] From the Neolithic, Shang and Western Zhou periods, these carvings comprise three types of object. One of these is the pendant. Fish-shaped pendants are almost consistently flat, linear in design, carved on one side, perforated at the head and generally straight -- although there are several Shang and

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[1] Ritual and Power, 8; Yeung, Jade Carving, Plates XXI:7, XXI:5, XIX:19.

more Western Zhou examples which are curled, as fish often appear when jumping out of water.[2] Fish-shaped jade pendants belong to a category of small animal carvings which were pierced to be worn as amulets. A proportionately large number of fish and cicada jade pendants in a funerary context from the Shang and Western Zhou suggests that these forms were imbued with important associations, possibly having to do with renewed life. However, the significance of these artifacts in this early context is uncertain. Neither is the purpose of wearing these objects during the person's lifetime clear, although they could have had talismanic value in a society whose religion was ultimately based in shamanism and which still maintained hunting and fishing as means of food acquisition.[3]

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[2] See examples in A. Salmony, Archaic Chinese Jades: From the Edward and Louise B. Sonnenschein Collection (Chicago: The Art Institute of Chicago, 1952), Western Zhou (?) Plates XLII, XLIII, XLIV; Ritual and Power, 13; Yeung, Jade Carving, Color Plates III-XVI.

[3] Chinese Jade Throughout the Ages, 34; Ake Hultkranz, "An Ecological Approach to Religion," Ethnos, 31 (1966), 143-145. For the shamanistic origins of Shang society see Chang The Archaeology of Ancient China, 414 ff. Chang's hypothesis was arrived at through a comparison with Mesoamerican civilizations. As he explains: "The hypothesis may be summarized in this very brief formula: the wealth that produced the civilization was itself the product of concentrated political power, and the acquisition of that power was accomplished through the accumulation of wealth. The key to this circular

The second type of fish-shaped jade which was carved in China during the Shang and Western Zhou periods is the graver. This artifact was used to inscribe texts on ritual bronze vessels. There are a number of Shang and Western Zhou fish-shaped inscribers.[4] These are generally long and slender, sometimes pierced at the head, and have extended tails which end in a blade edge. Although gravers are found in a number of animal and zoomorphic forms, the most common for the present period of consideration was the fish. It is not known whether there was a significant relationship between the

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working of ancient Chinese society was the monopoly of high shamanism, which enabled the rulers to gain critical access to divine and ancestral wisdom, the basis of their political authority. Most of the markers of the ancient civilization were in fact directly related to this shamanism. (For example: writing, which is earliest found on oracle bones used for divination in China; animal spirit helpers of shamans adorned ritual vessels of bronze and other materials; the elaborate system of rituals in which these vessels were used included instruments such as food, drink, music, dances, costumes, and their appendages....)...(These) shamanistic items...include many of the markers of ancient civilization. Because these items induced authority, their possession invoked political power. Shamans were employed by the politically powerful; in fact, the king himself is known to have possessed shamanistic powers. When the road to Heaven was monopolized by the possessors of such powers, ancient art and ritual were the sources of political clout, and the accumulation of art and ritual objects an instrument of social stratification."

[4] For example, Kao, Yinxu, Fig. 35, E.4.c., p. 140.

function of inscribers and the fish form.

The third type of jade object carved in the form of a fish is the huang, a half-disk or disk-segment, which was rendered into a variety of forms, and either left plain, or decorated with surface designs and openwork.[5] These objects are flat and usually perforated at each end for suspension. Late Shang and Western Zhou examples are often richly ornamented, and there are a few outstanding Neolithic examples with fine decoration.[6] Zoomorphic composites of real and fantastic creatures frequently decorate these objects, amongst which fish are relatively predominant. The fish-form is either transformed into an element of these compositions, or the entire object is conceived of as a fish.[7] The latter appear as early as the Neolithic and several survive from the time frame in question.

Huang are described in the Zhouli as one of the

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[5] Ritual and Power, 8; Yeung, Jade Carving, Development of Jade types; Kao, Yinxu, 149, 137. G.

[6] Ritual and Power, cat. no. 80; Yeung, Jade Carving, pl. XX:16.

[7] For example, the fish/bird composite illustrated in Ritual and Power, 8; Yeung, Jade Carving, Development of Jade Types.

Six Sacred Objects, liu qi. The Zhouli entry dealing with the office of the Master of Ceremonies, "Da Zong Bo," claims that a black jade huang was used to pay hommage to the North in court ceremonies.[8] Furthermore, according to a gloss added to this text in the second century A.D., the Zhou people included this object for a prescribed burial arrangement in which the huang was placed at the feet, or northern end, of the body. Archaeological evidence contradicts these claims, as no such formal system of disposition or coloration for funerary jades has been found. Any ceremonial value attributed to the huang form seems to be entirely related to its use as an element of formal regalia. Hansford's examination of the literary evidence disclosed only two early references to the huang.[9] These derive from the Zuo zhuan, or commentary of Zuo on the Qunqiu ("Spring and Autumn Annals").[10] Both entries

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[8] Cited in Kao, Yinxu, 59.

[9] Hansford, Chinese Carved Jades, 80.

[10] The Zuo zhuan is a late Eastern Zhou (compiled ca. 3rd century B.C. and covers the period between 722 B.C. to 468 B.C.) historical record of wars, intrigues, diplomatic exchanges, events and anecdotes, which was added to the text of the Qunqiu. Although the Zuo zhuan, like the Zhouli, has been corrupted during the Han and subsequent periods, it is considered to be an authentic Zhou work and, indeed, comprises the lengthiest and most important of Zhou historical texts. It is furthermore considered to have a certain amount of

(Hansford dates 506 and 481 B.C.) refer to huang of a royal house in the context of exchanges of insignia or status symbols.[11] During the Neolithic period these objects were worn as neck pendants, or combined with other ornamental jades and materials to form complex assemblages.[12] An assemblage of this type, composed of a jade maskette, beads, bi and terminating with a huang, was found in an early Liangzhu tomb.[13] The ensemble was apparently intended to be suspended from a wooden support rather than to be worn as a necklace; however, it is considered to be the forerunner of elaborate pendant combinations which became fashionable in the later Zhou and Han periods. These latter incorporated huang with other jades, including bi, into lavish ornaments.[14] Such ensembles were buried with the dead, but in life,

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veracity in the picture of Eastern Zhou courtly life which it presents. The Qunqiu chronicles events from the state of Lu between 722-481 B.C., and is the name by which this period is referred to. Hansford, Chinese Carved Jades, 74-75; Watson, Early Chinese Literature, 40-41.

[11] Hansford, Chinese Carved Jades, 80.

[12] Ritual and Power, 8.

[13] Ritual and Power, 9; the maskette from which the assemblage hangs is a visage of a divine being, suggesting a ritual function for the entire composition.

[14] Rawson in Chinese Jade Throughout the Ages, 43 ff.; Cheng Te-k'un, "Chou China," 196, Fig. 18.

they were suspended from the girdle as pendants for formal occasions.[15] There are apparently no textual references to the ornamentation of huang in Zhou and Shang sources.

It has been suggested that during the Shang and Zhou periods, fish and cicadas were symbolic of fertility and rebirth.[16] No references to these ideas have been found in the early literature examined in Chapter III, therefore, these associations might have developed during later periods. The conspicuous fecundity of these creatures would have provided a people who were close to nature with ready material for analogies with regeneration and fertility.[17] For example, the spawning process occurs in very shallow waters, female fish lay great numbers of eggs and the eggs are fertilized by a wash of milt from the

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[15] Hansford, Chinese Carved Jades, 83.

[16] Chinese Jade Throughout the Ages, 34; Doré, Chinese Superstitions, 716.

[17] Refer to Hultkranz, Ecological, 143-147: "Rites, beliefs and myths make use of the natural setting in different ways:
a) Rites are directly associated with the economic progress or prosperity of the society, and they thus present activities which refer to existing flora or fauna...In the enactment of the rites the priests, dancers etc., often make use of objects associated with the purpose in view, in animal rites horns, feathers, skulls and hides of the animal which is supplicated."

male. Such symbolic values might conceivably have emerged during the Shang and Western Zhou, given the proliferation of fish and cicada ornaments in the corpus of jades from this time.[18] The funerary context of most of these objects might also be significant. These artifacts were largely carved from jade or jade-like materials. This could be taken to indicate an even more complex set of associations having to do with the imbued magical properties of jade.

Later Zhou Daoist beliefs presumed the efficacy of jade as a life-sustaining and protective substance.[19] Powdered jade was injested by practitioners of so-called "religious Daoism" for its supposed ability to prolong material life.[20] Burial jades, including orifice plugs, were considered to preserve and protect the body of the deceased.[21] These convictions do not explicitly refer

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[18] Chapter II, note 96 for the life-cycle of the cicada.

[19] Kao, Yinxu, 48.

[20] Ibid., 49. Kao notes that jade is considered capable of these effects in the important Daoist text Bao Pu Zi and medical text Shen Nong Ben Cao.

[21] See, for example, extracts from Han texts cited in Ibid., 49-50:
"In the 'Biography of Liu Penzi' in Han Shu is recounted the plundering of tombs by the then active

to jade as a symbol of fertility or regeneration; however, they do imply a concept of the stone as a potent, vital substance.[22]

**Mesoamerica: The Olmec**

Mesoamerican fish-shaped jade objects come from the La Venta horizon and Post-La Venta period. These can be drawn into two categories. The first category comprises a small number of pendants and beads which are carved as non-species specific, conventionalized fish (See Figures 4, 5, 6).[23] The features which characterize this group are: a large open mouth; round eyes, which in the larger examples were created with a hollow drill leaving a raised pupil area; a simplified body, with some surface

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rebel movement known as the Red Eyebrows: 'Whenever the thieves opened a tomb in which the corpse had been laid out in a jade suit, the body was as if still alive.' In the (fiction) Sou Shen Ji (by Gan Bao) is another description of tomb plundering in which a corpse was found to be in fresh condition, apparently partly due to the fact that some thirty white jade bi disks had been piled on the body. An account in Xi Jing Za Ji states that when the tomb of King Ling of Jin was opened, his corpse was found undecayed because the bodily orifices had been sealed with jade plugs."

[22] Kao, Yinxu, 48.

[23] Examples known to this writer are as follows: 2 beads and one pendant are from Colima, 1 small and 1 larger pendant are from the Cerro de las Mesas cache, and the fragmentary head portion of a pendant was found at Palenque. Approximate size range: 2 cm.-9 cm. length.

engraving, showing generalized dorsal and ventral fins and tail; and a longitudinal perforation opening at the mouth and the tail.[24] Most of these objects are worked from jade-like green stones of varying types. Although the carving style is somewhat blocky, it can be compared, together with the smooth finish of most of these objects, with some Olmec jade figurines. These artifacts are related in form and style to three-dimensional Olmec fish-effigy vessels from the Tlatilco graveyard.[25]

**The Olmec Jade Shell/Spoon Complex**

The second category of fish-shaped jades from

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[24] The small Cerro de las Mesas pendant is both drilled through the mouth and split width-wise from the tail to just before the head, as though it was intended to fit onto a shaft. The larger Cerro pendant was sawed completely in half longitudinally after it was drilled. Drucker, "Cerro de las Mesas," 45. This may have been done because the drill holes through the piece did not meet, or the object may be related to the split masks or pendants from the Olmec region and Costa Rica. Refer to Lange et al., "Perspectives on Costa Rican Jade," 172; Carlos Balser, "Metal and Jade in Lower Central America," 37th International Congress of Americanists, Mar del Plata, Buenos Aires, 1966, Actas y Memorias (1968), 59. One half of these artifacts would be buried as a grave offering, while the other half was retained by the owner and/or buried elsewhere.

[25] See example from the collection of the National Museum of Anthropology, Mexico City, illustrated in Porter-Weaver, The Aztecs, Maya and Their Ancestors, Plate 4. k. The most common forms of ceramics from this Valley of Mexico Formative graveyard are effigies of ducks and fish. Miller, Art of Mesoamerica, Fig. 15, 34.

the Olmec culture belongs to a larger group of horizontal jade pendants consisting of univalve clamshell-like artifacts, "spoons" or palettes with a stylized bird-monster head at one end, and fish-shaped or atepocate-shaped[26] "spoons" (see Appendix and Figures 7-23). Although their uniqueness has previously been observed, these objects have not been treated as a cohesive group, but rather discussed as either "shells" or "spoons" and considered in relation to other important jade types. However, certain formal qualities and symbolic values relate these jades to one another as a complex. The "shells" and "spoons" bear little decoration by which to aid the evaluation of their

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[26] Atepocate is Nahuatl for "tadpole." Anatole Pohorilenko, "Small Sculptures," 38-39: "It may be that these spoons represented an atepocate tadpole. This idea runs parallel to the presence of neotonistic (the appearance of fetal traits after birth) elements in Olmec art." See also Pohorilenko, "Costa Rican Archaeology," 311, n. 1: "...these artifacts may be representations of tadpoles. They are rendered plain, and in composite or compounded representations... This identification fits very well within the overall thematic aspects of Olmec representation, which is characterized by an extraordinary interest in the genetic process, as is the case with the Olmec "baby-face" representations." Cf. Carlos Balser, El Jade de Costa Rica (San José: Librería Lehmann, 1974), 21, 22. A study by Miguel Covarrubius (1964), cited in Pohorilenko, "Small Sculptures," 38-39, categorizes small Olmec sculpture into 10 classes, of which jade "spoons" are No. 10. This work does not treat the jade "clamshells."

relevance to Olmec society.[27] No indisputable examples are illustrated in the media of sculpture or painting. Excavations reveal only that these pendants were related to elite status and that this class of jade object was, therefore, somehow of consequence. By examining the jade "shells" and "spoons" together, as a unit, their formal relationships are made evident. A consideration of these salient formal qualities elucidates the import and function of these enigmatic objects.

Although they are relatively rare, the "shell" and "spoon" jades have been found in a number of locations, including Veracruz and the southern Gulf Coast region, Guerrero, Michoacán, El Salvador, and Costa Rica.[28] It is likely that these pendants were valuable, or significant, trade items. Excavated and reported examples of jade "shells" and "spoons" derive from high-status burials or ceremonial caches. The largest percentage of the group have a Gulf Coast, Guerrero and Costa Rican provenience. Typically, these pectorals are smoothly polished, of fine blue-green and green-blue jade or green-stone,

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[27] For the decoration of these artifacts, see Appendix.

[28] Easby, Precolumbian Jade, 90.

and Olmec in style and workmanship.[29] Drill holes are usually located on a convex exterior lateral edge, where they would permit horizontal suspension without being seen. A small number of these artifacts have been altered, or reworked with incised decoration or additional perforations at one end. Engraved designs are always located on the concave surface.[30] The largest piece in the group is the impressive 33 cm. "clamshell," found in a status burial at the site of Tibás in the Central Valley of Costa Rica (Figure 7 a and b).[31]

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[29] The Kendal, Belize, shell-shaped ear flare, however, is Early Classic Maya in date. This object is included here for its relationship to the Olmec complex and as evidence for continuity of the Formative tradition. Schele and Miller, Blood of Kings, 79, Plate 10; Appendix no. I. 6; Figure 10 a and b.

[30] For example, the "Flying Olmec" shell jade (Figure 8) of unknown provenance, drawing of decoration in Grove, Chalcatzingo, 118, Fig. 33; photo, Maria Cervantes, "Olmec Materials in the National Museum of Anthropology, Mexico," in Origins of Religious Art and Iconography, Fig. 25. Other examples in Easby, Precolumbian Jade, 66; Pohorilenko, "Costa Rican Archaeology," Figs. 2, 3, 4; Joralemon, "Olmec Iconography," 69. The Kendal, Belize artifact has seven Maya-style glyphs incised on the exterior rather than the interior surface. Schele and Miller, Blood of Kings, 79.

[31] Reported in Snarskis, "Tibás," 89-107. This is the largest jade found in Costa Rica. It was recovered from a status burial in association with a 22 cm. axe god (and a metate). These objects lay parallel to one another on either side of the body. Although not subjected to testing, the shell and axe-god appear to be of monomineralic material. It is not known whether the material is Guatemalan or

The Tibás jade is typical in form and workmanship of many of the shell jades.[32] Like this object, the earlier pieces tend to be larger.[33] Furthermore, many of these artifacts so carefully reproduce realistic form and detail that identification with the natural model is actually possible.[34] Several examples which have hinges located close to the center of the dorsal margin share similarities with species from the Caribbean such as Tagelus divisus, Amygdalum dentriticum, and Lithophaga nigra.[35] The Tibás shell and the "Flying

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Costa Rican. See Lange et al., "Perspectives on Costa Rican Jade," 174. The realistic clamshell form of this object belongs to a stylistic canon predominant in Gulf Coast Olmec sites, but the bas-relief decoration contains iconographic elements which reflect both the Gulf Coast Olmec style and Late Formative-Early Classic Izapan art, the latter style which is considered by some scholars to bridge the gap between the Olmec and Maya artistic styles. Snarskis, "Tibás," 106.

[32] With the exception that this is the only Olmec, or Olmec-style shell jade which is decorated. Furthermore, this design is rendered in bas-relief rather than by engraving, the latter which is characteristic of the shell and "spoon" jades.

[33] Snarskis, "Tíbas," 99. Refer to Appendix.

[34] Although some examples, such as the so-called "Flying Olmec" shell, are very simplified and stylized.

[35] Ibid.

Olmec" shell[36] from the Gulf Coast area show strong resemblances to the Pacific molluscs of the genus Tagelus (Figure 28).[37] The shell jades, like the "spoons," vary greatly in size. From the sixteen known published examples of jade shells referred to here, the smallest length is 5 cm. and the largest 33 cm. (see Appendix). Three of these are 18 cm. and over, the remainder 11 cm. and under. The thirteen shells with known provenience were excavated from burials or the ceremonial deposits of the Cenoté.

A relationship between the Olmec (and Olmec-style) jade "spoons" and the clamshell objects is clearly demonstrable, even in the most simplified or conventionalized examples, by the regular presence of a hinge-like spine along one interior edge of the spoon jades; typical convexity of the outward-facing side; and a general shell-like silhouette (compare Figures 12-23 with 7-11, and Figures 27-

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[36] "Flying Olmec" refers to the incised personage on the inner surface of this artifact who bears a "torch" and an element which has been referred to as both an object used in passive ritual and a "knuckle-duster." See Appendix; Maria Cervantes, "Dos Elementos de Uso Ritual en el Arte Olmeca," Mexico. Instituto Nacional de Antropologia e Historia. Anales (Mexico, 1967-1968), 37-51; Coe, "The Olmec Style," 763-765.

[37] Ibid. These shells are found in shallow waters. It is noteworthy that the largest of Pacific tagelus is 3 inches in length.

30) which resembles a razor clam with a bulge.[38] Furthermore, the smoothly modelled undulations marking the concave inner surfaces, particularly on the fish/atepocate spoons, are evocative of such testaceous characteristics as the rostrum, hinge teeth, pallial sinus, pallial line, ventral margin, etc., which are diagnostic of bivalves (Figure 27). None of these objects is definately identifiable as a particular species of shell, however, the latter shell-like features are readily distinguishable. These markings are, in fact, the only descriptive features on the fish/atepocate spoons. The central conceptual importance of the shell to these pendants may explain the resistance to distracting, superfluous details which would further aid an identification of the creature represented, but diminish the impact of the primary theme. The bird-

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[38] Griffin, "Olmec Forms and Materials Found in Central Guerrero," 219. Family Solenidae, found in the coastal waters of most seas, largest length 6 inches, edible (Figure 29). These objects may also be compared with the winged oyster, especially Pteria sterna, which is found from California to Panama, in shallow waters, average length 3-4 inches (Figure 30). These shells have a slender acuminate wing extending from the posterior end, which is relatable to the "tail" of the fish /atepocate "spoons." The beak of the winged oyster is located near to the anterior end, a further parallel to the form of the jades in question. Percy A. Morris, A Field Guide to Pacific Coast Shells (Boston: Houghton Mifflin, 1966), 39, Plates 1. 5., 23.; 13, Plate 10. 2.

monster of the composite spoons is rendered in the same reduced manner.

The profile of fish/atepocate spoons is evincably fish-like,[39] although the forms are very generalized and simplified. These objects have been described by Pohorilenko as tadpoles or atepocates, in light of a thematic preoccupation in Olmec art with the genetic process.[40] The ambiguity and a sense of transformation which pervades these artifacts may support this hypothesis.[41] Furthermore, the posterior end is typically described as a point in unaltered specimens, rather than as a bifurcated tail such as is found among Chinese examples of jade fish. The last vestige of the metamorphosis from frog to tadpole to evanesce is the tail. However, either identification, fish or tadpole, is equally conceivable. Both creatures are aqueous; the single

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[39] Proskouriakoff, "Cenoté," 36, describes the spoon from Chichén Itzá in the Peabody Museum collection as a "fish."

[40] Pohorilenko, "Small Sculptures," 38-39, and "Costa Rican Archaeology," 311, n. 1; Pohorilenko furthermore separates shells from spoons, and groups both fish/atepocate spoons and bird-monster spoons together under the term atepocates. Refer to note 26 above.

[41] Cf. Peter Furst, "Jaguar Baby or Toad Mother: A New Look at an old Problem in Olmec Iconography," The Olmec and Their Neighbors, 149-162.

most important symbolic value conveyed in this complex of artifacts is, indeed, the reference to water.

Fish or atepocate spoons have tripartite concavities, the central one being the largest. The purpose of this partitioning is unclear. Rather than being a functional choice, the subdivisions were probably a stylization or an elaboration of testaceous features. The anterior partition, for instance, extends from a feature which on a shell would represent the pallial line, but concomitantly has the effect of suggesting the "head" area of a fish or tadpole -- according to the interpretation. Perhaps the convention of subdivision distinctive to the fish/atepocate spoons was intended to create a visual pun between the shell-like qualities and the fish or tadpole aspects of these artifacts. The bird-monster spoons have singular depressions like the jade shells, with the addition of composite zoomorphs carved into the wider end. The contour of the bird-monster composite spoons is very close to that of the clamshell jades (cf. especially Figures 20 and 8), although they also follow the general form of the fish/atepocate jades. The size of the spoons seems to be dependant upon the locations from

which they were recovered. Five of the six bird-monster spoons listed in the Appendix were found in Costa Rica. These objects almost consistently measure around 10 cm. in length. The fish/atepocate spoons have a greater range of sizes, the longest being about 24 cm., as well as a wider provenience. It is probable that some development is evident here. The bird-monster spoons have a later date than many of the shells. The larger of the shell/spoons tend to be earlier.[42]

The fanged and crested avian creature decorating the bird-monster spoons has been noted on a few La Venta sculptures,[43] and with temporally increasing occurrence on Late Formative monuments from the conjunct southern Caribbean coast and Pacific lowlands, and adjoining highland region.[44] By comparison with these sculptures, Easby considers the bird-monster spoons to be of post-La Venta phase dating.[45] None of the eleven known examples of these

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[42] See note 59.

[43] Joralemon, "Olmec Iconography," Fig. 20.

[44] Easby, Precolumbian Jade, 90, notes 40 and 41.

[45] Ibid. However, a small, 3 8/10 cm., clothing ornament described as a bird was found in Phase II Offering No. 3, at La Venta, Drucker et al., "La Venta, 1955," Pl. 27. a. Although the function of

spoons has come from a recorded find.[46] The distinctive elements, or referential signs,[47] of these composite representations comprise: a hooked raptorial beak;[48] a crest or flaming eyebrow; a lower beak, or eyetooth; and a curved, down-projecting, sometimes bifid element which resembles a jaguar fang, but has also been described variously as a stylized represention of a serpent tongue, or the split dead epidermis injested by frogs during the moulting process.[49] The bifid element is present in a number of bird-monster images from La Venta and post-La Venta phase objects.[50] These features are all highly distinctive traits of Olmec iconography.[51]

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this piece is integrally different from that of the spoons, it may be significant that it was intended to decorate the costume of some important personage.

[46] Easby, "Jade," 139; Precolumbian Jade, 90, Fig. 64, (Figure 20) is said to originate from a find which included Olmec jades and an axe-god.

[47] Anatole Pohorilenko, "On the Question of Olmec Deities," Journal of New World Archaeology, 2, 1 (1977), 3; "Costa Rican Archaeology," 312: "(A composite representation) combines different referential signs into an anthropomorphic or zoomorphic figure, as in the bird-monster atepocate."

[48] Possibly that of a harpy eagle. Joralemon, "The Olmec Dragon," 52; Coe, "The Olmec Style," 753.

[49] Furst, "Toad Mother," 158-160.

[50] Joralemon, "Olmec Iconography," Fig. 20.

[51] Coe, "The Olmec Style," 746 ff.

Joralemon identifies the bird-monster image present on some jade spoons as representative of the Olmec God III, "a raptorial bird-monster related to the sky, sun, maize, chinless dwarfs, and religious ecstacy."[52] The bird aspect associates the deity with the sky; the flaming eyebrows with the sun and celestial fire; a few images of God III with corn sprouting from his head relates the god to maize and agricultural fertility; and the occasion of one of these examples inscribed on the cheeks of a chinless dwarf figurine, compounded with other evidence, links the bird-monster with the chinless dwarf and maize.[53] The bird-monster image is also thought to

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[52] Joralemon, "Olmec Iconography," 58, see also 52; representations of the bird-monster are found at San Lorenzo, Las Bocas, and Tlatilco. Seventeen small stone sculptures bear this image in basalt, green and brown stone, jade, serpentine, obsidian, and clay. The characteristics of God III overlap with those of Gods I, the Olmec Dragon, and VII, the Feathered Serpent. Furthermore, the bird-monster shares functional relationships with God I, "a polymorphic dragon, whose associations include earth, maize, agricultural fertility, clouds, rain, water, fire, and kingship."

[53] Joralemon, "The Olmec Dragon," 52. Pohorilenko, "Olmec Deities," 13, points out that the attributes defining Joralemon's deities often overlap, and, therefore, cannot be considered as distinguishing features of single entities. Although similarities occur among artifacts of the same class, no two composite objects possess identical combinations of referential or symbolic signs. This belies iconographic definition of deities, which are identified by their regular depiction with a set of pictorial attributes. Pohorilenko suggests that Olmec composite creatures "are not the

relate to the shaman's celestial flight, experienced in a state of ecstacy induced by the ingestion of

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representation of deities, but are the symbolic embodiments of the different natural realms and the forces or elements that exist in them." By the articulation of referential and/or symbolic signs in a composite figure, the Olmec expressed the imputed powers or attributes of different creatures, as well as their beliefs as regards their relationship with nature. This postulation assumes a more egalitarian shamanistic structure for Olmec society, in which man, or the shaman, might exert some control over the forces of nature by the investiture of bestial powers into his art. However, the structure of Olmec society is by no means a resolved question. As Michael Coe, "Olmec Jaguars and Olmec Kings," in Elizabeth P. Benson (ed.), The Cult of the Feline (Wash.: Dumbarton Oaks, 1972), 5, states, for example, such powerful works as the colossal heads, which undoubtedly portray kings, could only have been produced in a highly stratified society, dominated by hereditary rulers. The shaman's position in such a situation would be directly related to the perpetuation of power within a small elite class. Furthermore, the deities of the hierarchical society, like those of later Mesoamerican civilizations, would necessarily be well-defined in accordance with the world-view perpetrated by the ruling class. Coe sees Olmec religion as a royal cult comparable with that of ancient Egypt, in which the theogony served to confirm royal power and the divine right to rulership via hereditary relationships with the gods. Ibid., p 11. (Refer also to Chang, Archaeology of Ancient China, 414 ff.; and note 3, this Chapter.) Pohorilenko moreover fails to consider the possibility of Olmec deity complexes and multiple manifestations of single deities, such as are found in later Mesoamerican belief systems. For instance, the Maya Popul Vuh Hero Twins appear in many different forms, with a variety of names and visual features, but all manifestations are simply different aspects of the same deities. Schele and Miller, Blood of Kings, 48. It may eventually be possible to decipher a similar pattern in the visual representation of mythological beings in Olmec art.

psychotropic substances.[54] Furst postulates that the appearance of this creature on the jade spoons indicates a possible function for these objects as receptacles for psychotomimetic snuff.[55] The bird-monster motif on Olmec jade spoons can also be related to the Maya Vision Serpent, which bears similar iconographic elements. The fanged Vision Serpent is shown with feather and blood fans on its nostrils, eyebrows and cheeks, and jade disks dotting its body (Figure 31).[56] This mystical creature was brought forth by nobles in visions induced through ritual bloodletting. "Through such visions the Maya came into contact with their ancestors. The great rearing serpent -- the physical manifestation of visions arising from blood loss and shock -- was the contact between the supernatural realm and the world of human beings."[57] The bird-monster spoons are very complex artifacts which

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[54] Coe, "Olmec Jaguars and Olmec Kings," 52; Peter Furst, "The Olmec Were-Jaguar Motif in the Light of Ethnographic Reality," Dumbarton Oaks Conference on the Olmec, 162.

[55] Ibid., 162-163.

[56] Schele and Miller, Blood of Kings, 187-188.

[57] Ibid., 177, 187-188, and Plate 63. Compare bird-monster spoons Figures 20-23 with Figure 31, Vision Serpent on Yaxchilan Lintel 25. Cf. Covarrubius' "Evolution of the Olmec Dragon into the Maya 'Serpent X,'" Indian Art, 82, Fig. 36.

combine elements referring to avian, aqueous and socio-religious principles, in a socially restricted and precious material. These spoons were created for and intended to be worn by a restricted elite group. The paucity of these artifacts, the contexts from which related shell/spoons have been excavated, and the precious material used for their production, all attest to their function as status-identifying objects. Therefore, the pendants were probably worn on ceremonial occasions which were directly, or indirectly, related to hierarchical reinforcement.

Jade spoons and clamshells were presumably used in rites conducted by priest-rulers, the Olmec kings. These events could have involved the use of hallucinogens, but another function has been suggested for the shell/spoon jades than that of snuff palettes. Wicke[58] believes that these objects could have received blood emitted during autosacrifice, and compares them with Maya bloodletting bowls. The Maya used shallow ceramic bowls to hold the sacred instruments of this all-

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[58] Charles R. Wicke (personal communication). I would like to thank Dr. Wicke for his inspiring suggestions. Cf. also Griffin, "Olmec Forms and Materials found in Central Guerrero," 219.

important ceremony.[59] Sting-ray spines or perforators of obsidian and jade were used to pierce the flesh. A rope was then drawn through the wound and the flowing blood directed onto paper strips. The saturated paper was carried on the bloodletting plates to be burned on an incinerator with other offerings.[60] When not in use, these sacred objects (bowl, lancettes, rope) were bundled together under a cloth shroud and tied with cloth strips.[61] Such ritual bundles are frequently depicted in Maya art.

Jade and sting-ray spine "stilettos" are well known from Olmec remains. By comparison with Maya examples, these artifacts have been diagnosed as

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[59] Schele and Miller, Blood of Kings, Plate 74; for visual representations of these bowls in bloodletting scenes, see Plates 37, 63, 65, 70.

The apparent decrease in size of the jade shell/spoons over time may be explained by the process of mimesis, whereby the larger jade pendants were gradually replaced by more accessible, less expensive materials, such as ceramics. In this case, a direct link with Maya bloodletting bowls is possible. For mimesis refer to Alan Gowans, Learning to See: Historical Perspectives on Modern Popular/Commercial Arts (Ohio: Bowling Green University Popular Press, 1981), 106 ff., see especially Fig. 44.

[60] See Schele and Miller, Blood of Kings, 175 ff., for a description of bloodletting ceremonies and the function of this ritual in Maya society.

[61] Ibid., 72.

bloodletters. Some Olmec jade lancets, for instance, copy sting-ray tails, foreshadowing a later Maya practice and indicating the elevated stature of this bloodletting device.[62] Olmec and Olmec-style jade perforators, as in the case of shell/spoon pendants, are found in a wide-ranging territory. Although several Olmec bloodletters are known, no bloodletting vessels have yet been discerned. The jade shell/spoons potentially fulfilled this function. The larger of these pendants are adequately proportioned to have been suitable receptacles for the precious blood given in sacrifice by Olmec nobles.[63] The Tibás jade, for

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[62] See example from the Monument 7 jades, Stirling and Stirling, "Finding Jewels of Jade in a Mexican Swamp," 649. An Olmec bloodletter was found in cache at the Maya site of Seibal, Coe, "Olmec and Maya," 188. Cf. Schele and Miller, Blood of Kings, Plate 60. Coe, "The Olmec Style," 754. Griffin, "Olmec Forms and Materials found in Central Guerrero," 219.

[63] Cf. a possibly related object, which was also worn as a horizontal pendant, the Cerro de las Mesas canoe effigy, length 20.3 cm., Figure 25. Several small canoe-shaped clothing decorations are known from La Venta Offering No. 3; Drucker et al., "La Venta, 1955," Plate 27. These miniatures may, in fact, attest to a special meaning for this form. Covarrubius (1964) in Pohorilenko, "Small Sculptures," classes jade canoes as No. 9: "(which) may have served as symbols of an ancient tradition and been connected with a distant people who were bearers of superior knowledge. But on the other hand, as happens with so many articles of daily use, perhaps they were deified as the means of river travel on which to a great extent contact with other regions under Olmec influence depended. Ceremonially

example, will hold up to almost a pint of liquid. It appears that the Maya extracted greater quantities of blood,[64] although this discrepancy could reflect the elaboration of the practice. The smaller of these artifacts may have been snuff palettes, but were more likely diminutive, non-functional shell/spoon replicas, comparable with such other jades as ear-flare-like objects, pseudo-celts and miniature canoes. The jade shell/spoons were possibly stored with perforators and other sacred objects belonging to the rite of autosacrifice in bundles such as that held by the personage portrayed on a relief carving from Xoc, Chiapas, and known from Maya art.[65] As such, these instruments would only have been displayed publicly in religious celebrations, during which the ruler donned the clamshell or spoon pectorals as part of an elaborate ceremonial costume like those worn by Maya nobility

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they could have served as receptacles of purifying liquids or for libations to symbolize rivers and the sea." A jade celt, length 19.3 cm., with an ovoidal concavity and some crudely incised decoration from La Venta Offering No. 2 is also included in this category; see Ibid., Plate 56, and Drucker et al., "La Venta, 1955," Plate 25, Figs. 34 and 35, p. 140. See also Joralemon's motif 95: 3 teardrops, which appears on this celt as a maize motif, "Olmec Iconography," 13, and Fig. 178.

[64] Schele and Miller, Blood of Kings, 177.

[65] Joralemon, "The Olmec Dragon," 58, Fig. 21. b.

for ritual occasions. The shell/spoon pendants would thus be explicit symbols of the bloodletting ritual, implicitly conveying kingly power and authority.

Material and archaeological evidence strongly suggests that bloodletting and human sacrifice were practised as significant components of Olmec ceremonial, and were intimately associated with the Olmec elite.[66] Explicit scenes depicting these rituals, however, are not present in Olmec art.[67] Indeed, a salient characteristic of Olmec art in general is the avoidance of overt representations of violence, which is utterly antithetical to later Maya artistic tastes. Perhaps there was an aversion to frank depictions of certain sacrosanct observances in the Olmec culture which also prohibited visual representations of particular ceremonial objects.[68] Such a prohibition might

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[66] Coe and Diehl, Land of the Olmec, 392; Grove, Chalcatzingo, 67, 108; Coe, "Olmec and Maya," 188.

[67] Jacques Soustelle, The Olmecs, the Oldest Civilization in Mexico, Helen R. Lane (transl.), (New York: Doubleday and Company, 1984), 89.

[68] Particular avoidance seems to have been made of those scenes involving some form of violence, although non-explicit scenes of submission, and possibly sacrifice, are known. For example, such depictions are found on the Alvarado stele, La Venta Altar 4, the jaguar personage from the "Ritual Hall" cave paintings at Juxtlahuaca and Monument 2 at

explain the apparent absence of positively identifiable Olmec images showing mythological beings or nobles with bloodletting instruments or jade shell/spoon pendants.[69] However, it is possible that representations of these latter objects have been misinterpreted. Three examples of figures wearing either shell or spoon jade ornaments are suggested here, although all have previously been identified as mirrors: La Venta Altar 4 niche figure (possible spoon), La Venta votive axe from Tomb E (possible shell), principle figure La Venta Stela 2 (possible shell) (Figures 1, 2 and 3). This sparsity contrasts markedly with the relatively frequent depiction of Olmec nobility wearing iron-ore mirrors, although, paradoxically, the number of known extant mirrors is somewhat smaller than that

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Chalcatzingo. A violent event is more clearly evident on Monument 4 from Chalcatzingo, which shows two prone human figures being pounced upon, or subjugated, by two felines. A coherent interpretation of this bas-relief has yet to be made. See Grove's discussion in Chalcatzingo, 113-115.

[69] In reference to this point, it is interesting that the only clearly identifiable representation of an Olmec bloodletting instrument is the outline of a perforator which was roughly pecked as a graffito over a bas-relief depiction of a composite being, possibly a deity, on Monument 30 from San Lorenzo. Coe and Diehl, Land of the Olmec, 338-339, Fig. 460.

of jade shell/spoons.[70] If the images cited above do not represent shell/spoons, the question must be posed as to why the Olmec chose to omit this significant category of artifacts from their visual vocabulary of status-identifying elements. Indeed, if the artistic depiction of bloodletting scenes and instruments were abhorent to the Olmec, the dearth of representations of such images and objects supports the hypothetical use of jade shell/spoons in ritual autosacrifice.

Mesoamerican belief systems associated blood with water and maize. The creation myth of the Maya Popul Vuh, for example, describes how the gods created humanity using water for blood and maize for flesh.[71] Bloodletting rituals permeated every aspect of Mesoamerican ceremonial life. Every significant political, religious or calendric event was marked with the act of autosacrifice -- especially by the

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[70] See Carlson, "Olmec Concave Iron-Ore Mirrors," Table 1, 120-121: (in 1981) 25 examples of Olmec mirrors are catalogued. There are approximately 33 known reported shell/spoons (Appendix).

[71] Dennis Tedlock, Popol Vuh: The definitive Edition of the Mayan Book of the Dawn of Life and the Glories of Gods and Kings (New York: Simon and Schuster, 1985), 77-80, cited in Schele and Miller, Blood of Kings, 177.

nobility.[72] The offering of blood by the rulers was necessary for the propitiation and sustenance of the gods and the maintenance of agricultural fertility. This act of selfsacrifice, furthermore, stimulated the growth of the young green maize and thus ensured the perpetuation of human life.[73] Jade, likewise, was equated with blood and maize.[74] This association, for example, determined the act of coating jades with blood-red cinnabar or hematite.[75] Jade was the precious substance which functioned conceptually as the intermediary between the sacrificial blood and the new maize shoots.[76]

Shells were associated with water, fertility and divinity in Mesoamerican ideology. To the Classic Maya, shells and fish (specifically the xocfish, or shark) were also symbolically linked with blood and the act of autosacrifice. This

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[72] See Schele and Miller, Blood of Kings, 175 ff.

[73] Ibid., and Coe, "Olmec and Maya," 188.

[74] Coe, "Olmec and Maya," 188.

[75] Ibid.

[76] Ibid. See also Covarrubius, Mexico South, 109: "Jade was linked to rain, vegetation, life, and godliness, and perhaps it was sacred because of its blue and green colors, those of the sky, of water, and of maize, the three basic religious concepts among the Indians."

association is pervasive in Maya iconography and manifested in ceremonial regalia. One of the two required bloodletting belts was a shell and xocfish combination.[77] Noble men donned these emblems strictly for the bloodletting ceremony, celebrating thereby their roles as nourishers of the gods.[78] Thus, a cultural complex is resultant, whereby water, shells, fish, maize, blood, (jade-either as part of the bloodletting costume or as lancets), and earthly and divine renewal become concomitant through the act of autosacrifice. This set of associations can possibly be seen as a direct cultural continuum from the Olmec jade shell and spoon complex, which is believed here to have embodied similar symbolic values.[79] Shells and aquatic creatures are found as formal referents on these objects and are denotative of water.[80] The

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[77] Schele and Miller, Blood of Kings, 71.

[78] Ibid. The xocfish head and a giant spondylus shell (spiny oyster) were worn more frequently by women, with a macrame-like garment.

[79] Refer also to note 17.

[80] Furthermore, the Kendal, Belize green-stone shell ear flare, which is a direct descendant of the Olmec artifacts in form and material, was part of a Chac-Xib-Chac/God I costume worn by an elite personage during ceremonies honoring this rain deity. Schele and Miller, Blood of Kings, 79. See also Plate 2, a figurine representing a ruler attired in a Chac-Xib-Chac costume.

hypothesis forwarded in this chapter considers the Olmec jade shell/spoons to have played a functional and/or symbolic role in the ritual of autosacrifice. Through their formal references and function, these objects were related to both status-affirmation and fertility. Joralemon considers the bird-monster composite decorating some spoons to be related to maize and agricultural fertility. The iconography of these particular artifacts might also relate them to the bloodletting ceremony, since the bird-monster deity, or deity-aspect, could actually have distant ties with the later Maya autosacrificial Vision Serpent. It is probable that in Olmec thought and practices the roots may be found of Maya beliefs which regarded the blood offering as the elixir of all life.

## Summary and Conclusions

Jade fish are found to be relatively significant forms in the corpus of jades from ancient China and Mesoamerica. These ornaments were worn on the body in both places, but the purposes diverge somewhat. Small jade fish-shaped pendants from Shang and Zhou China possibly had talismanic value, in relation to the perpetuation of earthly life and/or they may have been imbued with

associations of regeneration, particularly in the context of death and the afterlife. Huang were decorated or carved as fish, among other creatures. These jades were emblematic and indicative of royal power or elite status. Huang were included in burial offerings as symbols of the deceased's social position and rank. A group of Olmec carved fish-shaped jades are shown in the preceeding pages, through archaeological, circumstantial and formal evidence, as well as by comparison with later Mesoamerican materials, to have functioned within a larger complex of artifacts and attributions. This category of objects, referred to as shell/spoons, was probably related to social position, inasmuch as they were restricted to an elite group and hypothetically used in ceremonies which ultimately reinforced the status quo. The larger jade shell/spoon pendants are posited to have functioned as receptacles for blood given in autosacrifice. The act of bloodletting augmented the hieratic structure of Mesoamerican society, but it most importantly maintained the existence of all life, worldly and divine. Through their role in this most consequential ceremony and their own internal formal symbolism, jade shells and spoons are seen to be interwoven with concepts of water, blood, and

regenerative potency.

Parallels can be drawn only loosely between Chinese and Mesoamerican fish-shaped jades, on the bases of associations with status and with regeneration. Olmec fish-shaped pendants are spoon-like objects belonging to a larger category of jade shells and other jade spoons which are decorated with composite zoomorphs. The fish spoons cannot be discussed as isolated forms, but must be viewed in relation to the rest of the complex. At this point, correlations with the Chinese artifacts weaken. The Shang and Western Zhou Chinese buried (cowrie) shells with the dead, but these forms were not reproduced in jade. Neither did the ancient Chinese practise anything resembling the Mesoamerican tradition of bloodletting.[81] Therefore, beyond the scope of status-relationship and imbued properties of vitality for jade, Mesoamerican fish-shaped jades and the related complex of artifacts and symbolic values are entirely a unique, independent development.

The comparative-analytical approach taken for

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[81] Although human sacrifice was practised during the Shang and Western Zhou dynasties, primarily in the context of elite burials.

the examination discussed in Chapters III and IV uses diffusionist methodology as its foundation. Transoceanic contacts cannot be proposed as direct stimuli for the development of the Olmec jade shell/spoon complex. The only traits which could feasibly be attributed to external influences in this case are the preciousness of jade itself, its role as an elite material and attributions of life-sustaining powers. These traits are non-specific and cannot satisfactorily be declared arbitrary. Just as gold, with its brilliant yellow gleam, is a symbol of the sun among numerous ancient cultures which worked that metal, so too the special characteristics of jade, such as its endurance or coloration, may have given way to associations with vitality and agrarian fertility. Furthermore, as discussed in Chapter I, jade is relatively rare and was very difficult both to acquire and to carve in antiquity. Apart from the inherent aesthetically-pleasing qualities of jade, these factors certainly effected some of the preciousness of this material.

This study may be seen to add to the present body of knowledge in several ways. The evidence considered here is believed to support the indigenous development of the Olmec jade complex. An

explanation is postulated for the use and function of a class of heretofore unexplained Olmec artifacts. It is possible that the association of jade with fish and water may be seen as a relatively universal trait which appears to have been determined by physical aspects of the material itself. As discussed in the conclusions to Chapter III, for instance, the Maori also associated jade with water and fish -- in direct relation to the source of the material. Another possibly universal trait may be the attribution of some kind of potency to jade. In both places this idea appears to have been related to the concepts of renewal, subsistence and fertility; although the Chinese evidence suggests an association with human life and vitality, and the Mesoamerican material indicates a stronger tie with agrarian fertility. A more extensive comparison with other jade traditions could provide a greater understanding of this trait. Chapters III and IV have also illuminated cultural distinctions, or culturally unique traits, in the jade traditions of ancient China and Mesoamerica. One such distinction is the development of the Olmec shell/spoon complex, which is clearly a result of indigenous needs and characteristics.

## Conclusion

When research began for this thesis, the greater part of my interest was centered on the intriguing possibility of transoceanic contacts between ancient China and Mesoamerica. As work progressed, the study increasingly took a somewhat different direction. What was originally a diffusionist examination metamorphized into what seemed to be more properly termed a comparative-analysis. The focus shifted towards the use and function of jade by Mesoamerica's earliest civilization, the Olmec. Primarily, this change of course was a response to a perceived absence in the literature of a clear definition of the Olmec jade cultural complex and of the precise nature of the appearance of specialized jade use in Mesoamerica. Through an investigation of the manifestation of jade at La Venta and the cultural traits which appeared at that site coevally, these latter concerns were addressed. By correlating similar jade-related traits in Shang and Zhou China and Olmec Mesoamerica, some aspects of the use, form and function of jade in Olmec society were revealed.

As applied here, diffusionist methodology is

considered an appropriate framework for a comparative-analysis of cultural traits. Observable similarities and differences are revealed. Where traits cannot be shown to be arbitrary, a more general, possibly universal nature might be presumed, resulting from material, physical and ultimately, social agencies. Deviations from basic shared traits, such as the shared attribution of potency to jade, may be postulated as cultural distinctions arising from indigenous requirements and adaptations. A study such as this, furthermore, deals reasonably with the question of ancient transoceanic cultural interchanges. By examining this issue in relation to a larger context, such as has been attempted here, perhaps some of the emotionalism and partisanship can be lessened. The problem of transpacific contacts is important in terms of cultural research and should not be dismissed too readily as misguided scholarship. The resolution of this question could be highly productive to the study of cultural history and processes.

Regarding future research in this area, one comparison which might be explored more extensively in a cross-cultural study is that of the funerary

use of jade and the burial of jades as an expression of sacrifice. A detailed trait analysis of several cultures which employed jade in this manner might provide qualitative and quantitative data upon which to base, for example, speculations about parallels between China and Mesoamerica and the cultural function of these traits. The temporal restriction established for this paper in relation to the concern with transoceanic influences need not be imposed in broader cultural comparisons.

During the late Early Formative period in Middle America, particularly in the Olmec heartland region, an ideological development which stressed the color green is believed to have taken place. The apparent intensification of demand for green materials and the use of green-stone celts in a ritual context at San Lorenzo may be considered as precedents for the jade of La Venta. This case suggests several possible scenarios, including the local invention of the Olmec jade complex, or the presence of a culture base into which the specialized use of jade could have diffused facilely, via either insular (Mesoamerican) or external (Asian) agents. Additionally, the Mesoamerican jade cultural complex may have found

its earliest expression in green stone prior to the procurement of jade supplies. It has been suggested here and elsewhere that more extensive excavations in the region of Guerrero state might enhance understanding of the origins of the jade cultural complex in Mesoamerica, since this area is the most likely source for the specialized use and working of jade.

The evidence considered in Chapters II, III and IV tends to support the independent development and elaboration of the Olmec jade complex. The examination of jade as a cultural trait refers fundamentally to one level of culture, the elite strata. The employment of jade as a function of elite motivations is evident in this cultural comparison, where similarities repeatedly reflect status. Parallels existing between jade-related traits in China and Mesoamerica appear to ensue from the factors of material value and its corollary, status-identification. On these grounds, similar parallels may be drawn, for example, between the use of gold in Egypt and that in Central-South America. Such correlations imply rather less a case of interhemispheric contacts than of a basic characteristic of all hieratic societies: the need

to express and affirm power.

Kent Flannery's allegorical tale of the Real Mesoamerican Archaeologist (R.M.A.) is particularly relevant to the scholarship on jade in Mesoamerica. Where R.M.A. is working on ordinary village remains, his reasoning is pragmatic and inductive; but confronted with a ceremonial center enclosing human burials, mounds and a ritual deposition of green stone celts and other offerings, R.M.A.'s deductions take flights of fancy:

> "What have you got here?..."A Middle Formative cult center," he beamed. "Look. The whole ceremonial complex is laid out to face Sirius, the dog star, on the longest day of the year. The pavement of celts, if you look at it from here -- over here, where I'm standing -- can be interpreted as representing a giant Star of David. And the four burials -- that number is no accident either. They represent the four cardinal directions, each associated with a color, just like the Maya..."[1]

Where jade is concerned, interpretations often become clouded by the "jade myth," for it is difficult to maintain the balance between a profound recognition of the cultural position of this stone in Mesoamerica, as well as in China, and the detached analysis of carved jades as cultural

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[1] Kent V. Flannery (ed.), The Early Mesoamerican Village (Orlando Fla.: Academic Press, 1976), 330.

remains. In relation to the use of jade as evidence for transpacific influences from China, the "jade myth" is also problematic. For example, a telling remark is cited from Jerry Towle in the Introduction to this thesis. Towle suggests that the prizing of jade over other materials was an arbitrary trait. The reply to this inference may be posed as the question: on what grounds is a special value for jade more arbitrary in a lithic-based society than the importance of gold to a culture which has metallurgy? Jade was the iron of the stone-age world. It was the toughest and most durable available material. The practical usage of jade in neolithic cultures ranges from the deadly mere war club of the Maori, to other weapons, tools and fine instruments. Jade also lent itself well to artistic concerns. The works of art rendered from jade stones by the cultures examined in this paper are remarkable, silent testimony to the versatility and striking beauty of this material.

Figure 1. Altar 4, detail of niche figure, possible jade spoon pendant, La Venta, Tabasco, Mexico. Basalt.

Figure 2. Jade votive axed, possible jade shell pendant, Tomb E, La Venta. N.M.A., Mexico.

Figure 3. Stela 2, detail of principle figure, possible jade shell pendant, La Venta. Basalt.

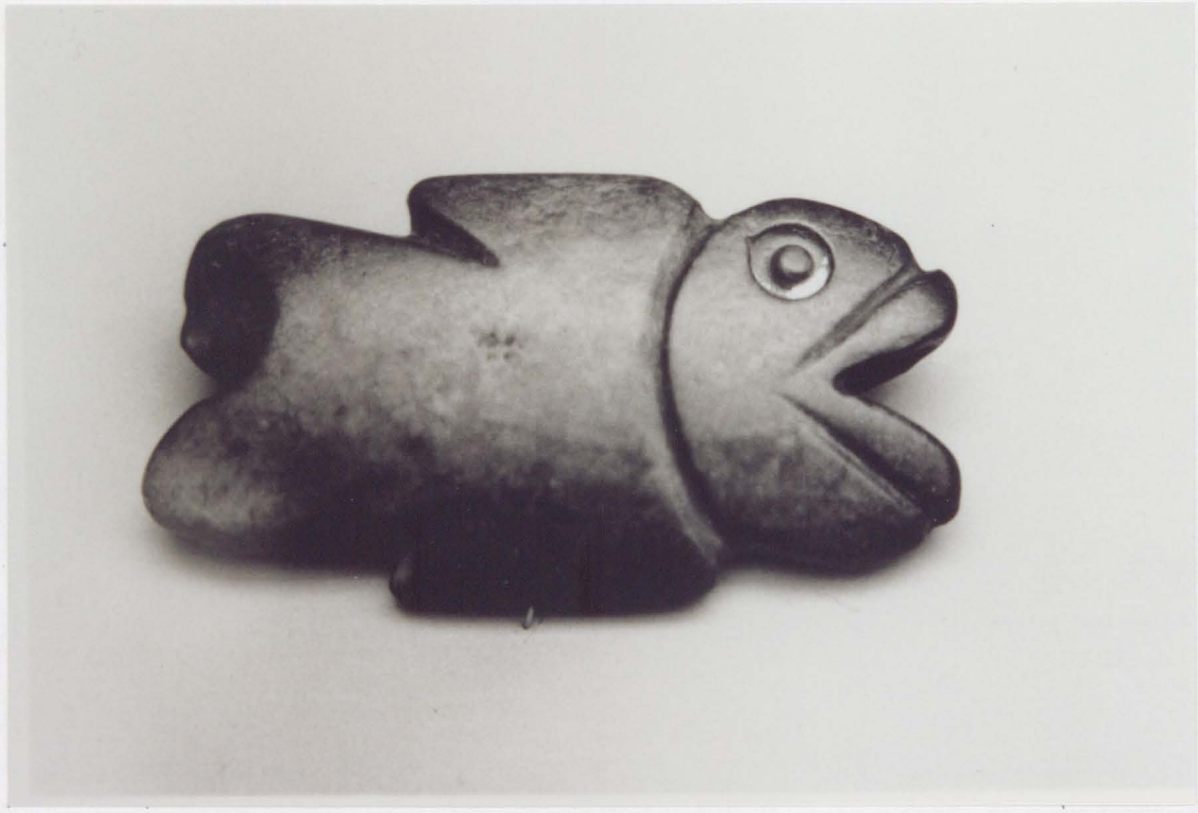

Figure 4. Green-stone fish pendant, Colima, Mexico, over 9 cm. length. N.M.A. Mexico.

Figure 5. Pale green-stone fish pendant, Cerro de las Mesas, Mexico, 9.1 cm. length, N.M.A., Mexico City.

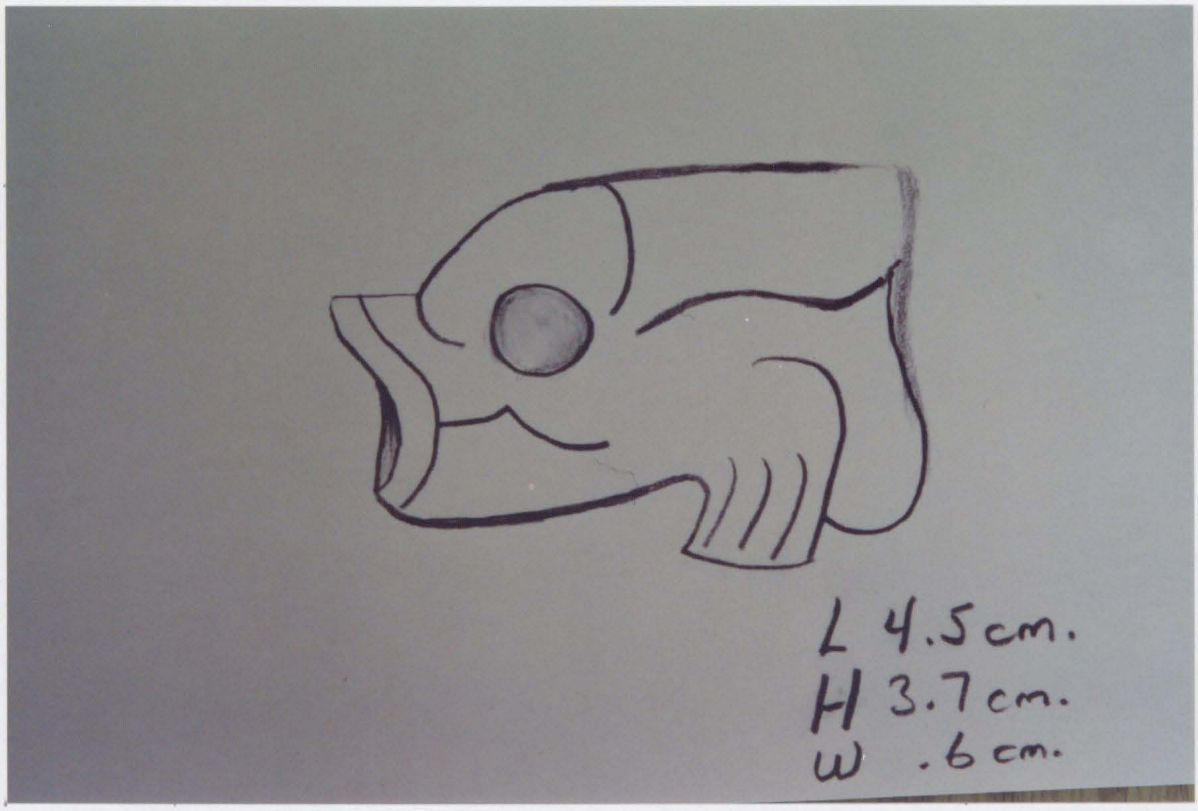


Figure 6. Green-stone fish pendant fragment, Palenque, Chiapas, Mexico, 4.5 cm. length. Palenque Site Museum.

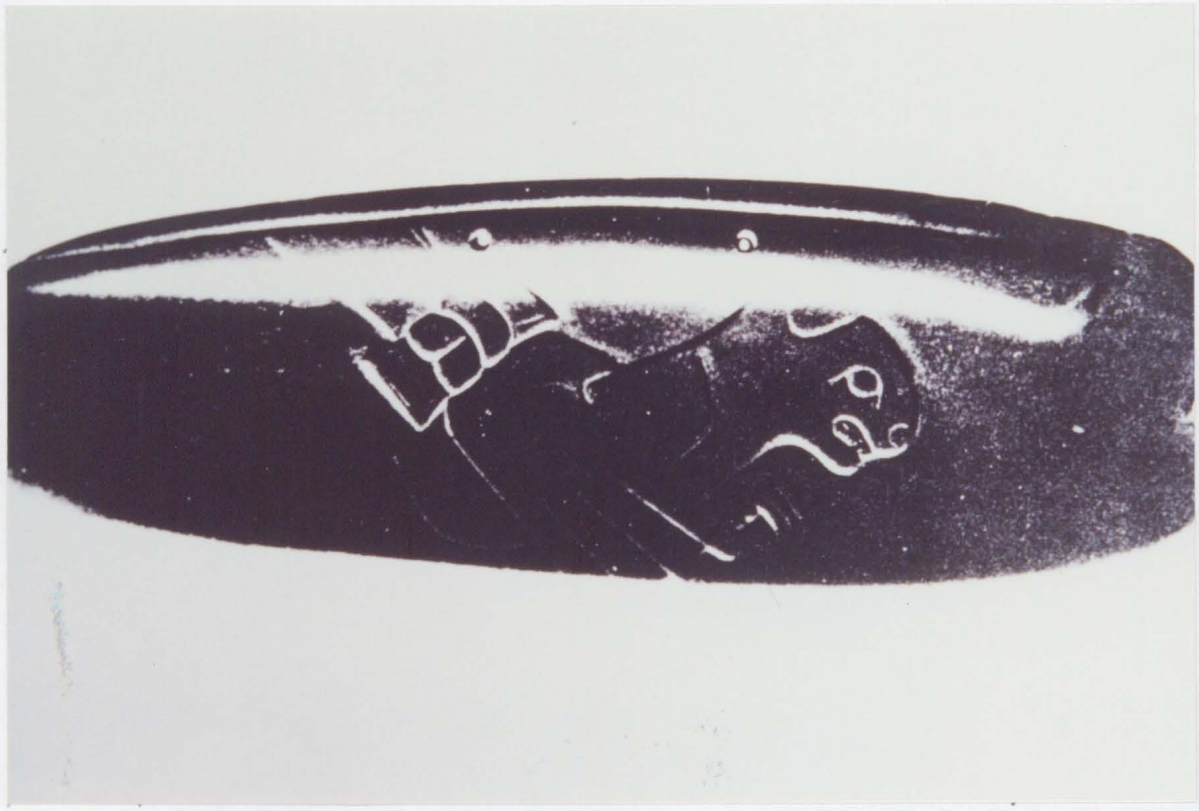

Figure 7. a. Jade clamshell, Tibás, Costa Rica, 33 cm. length. N.M., Costa Rica.

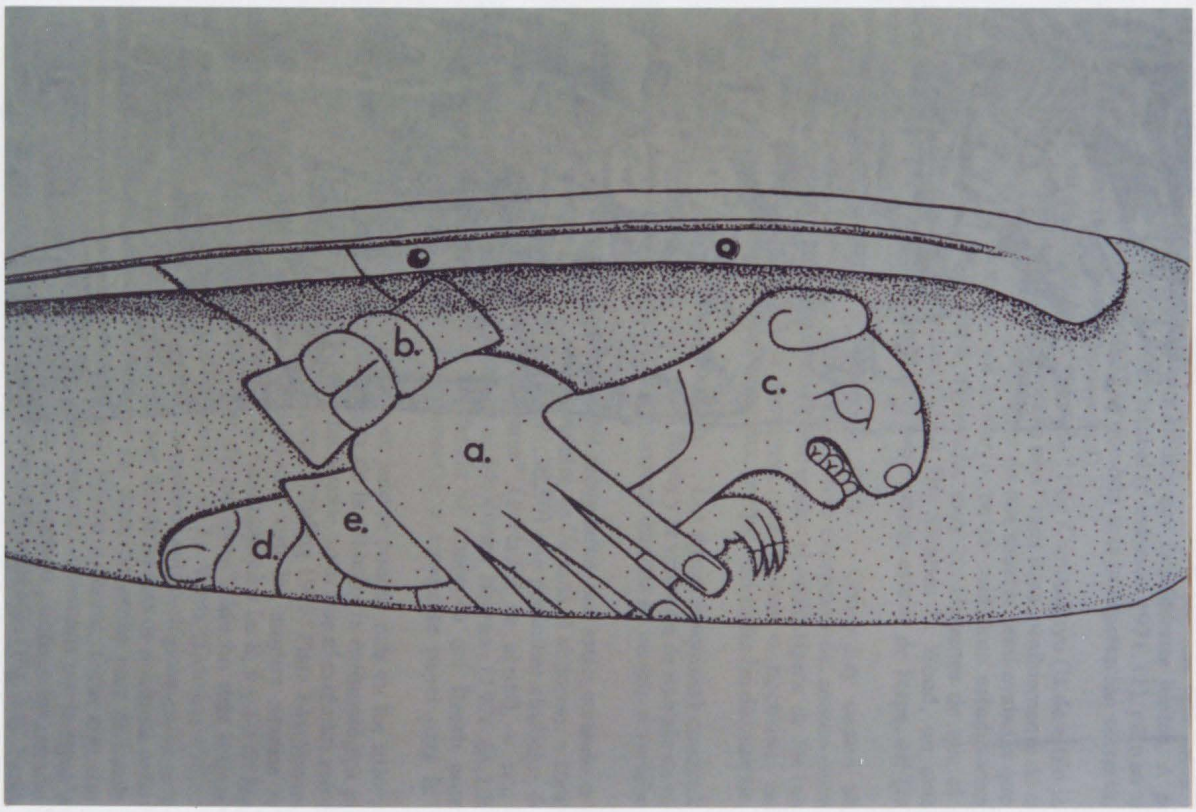


Figure 7. b. Drawing of bas-relief decoration of Tibás shell.

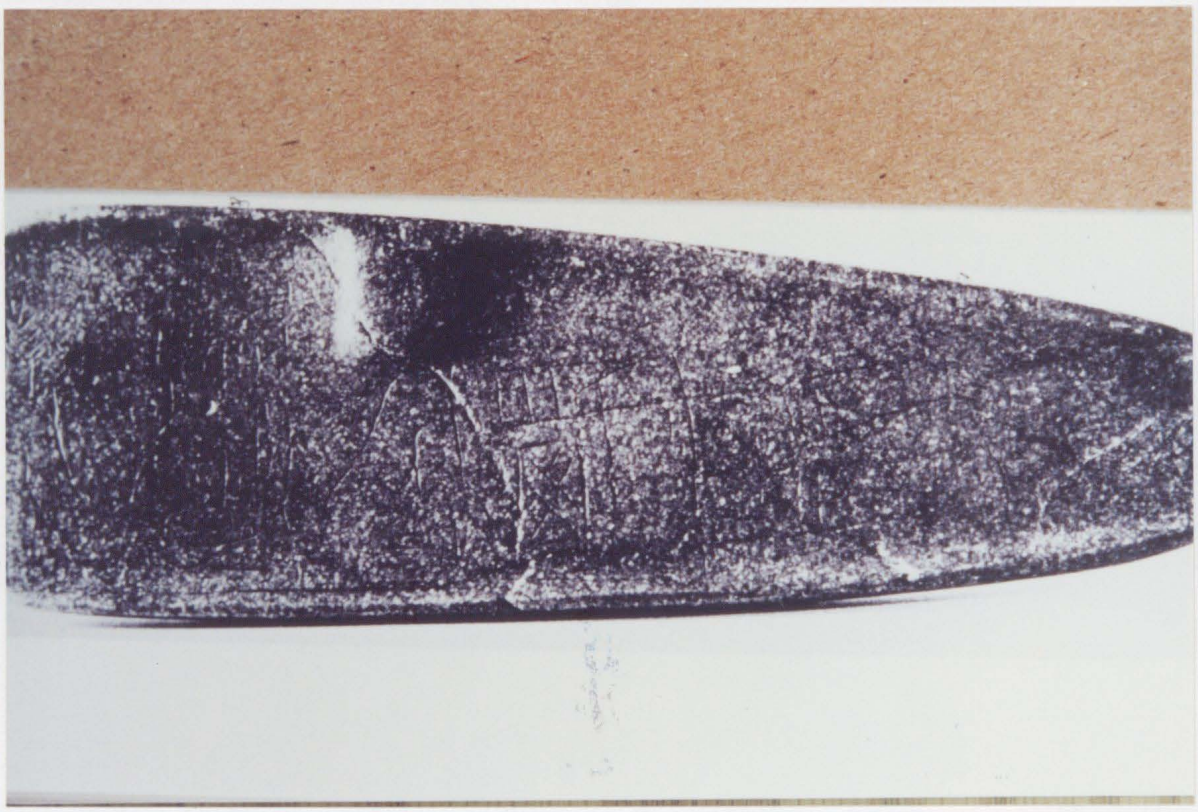

Figure 8. Jade 'Flying Olmec' clamshell, Gulf Coast, Mexico, 22 cm. length. N.M.A., Mexico.

Figure 9. Jade clamshell, La Venta, Monument 7, 18.5 cm. length. N.M.A., Mexico.

Figure 10. a. Green-stone shell-shaped ear flare, Kendal, Belize, 11.8 cm. length. Merseyside County Museums, Liverpool.

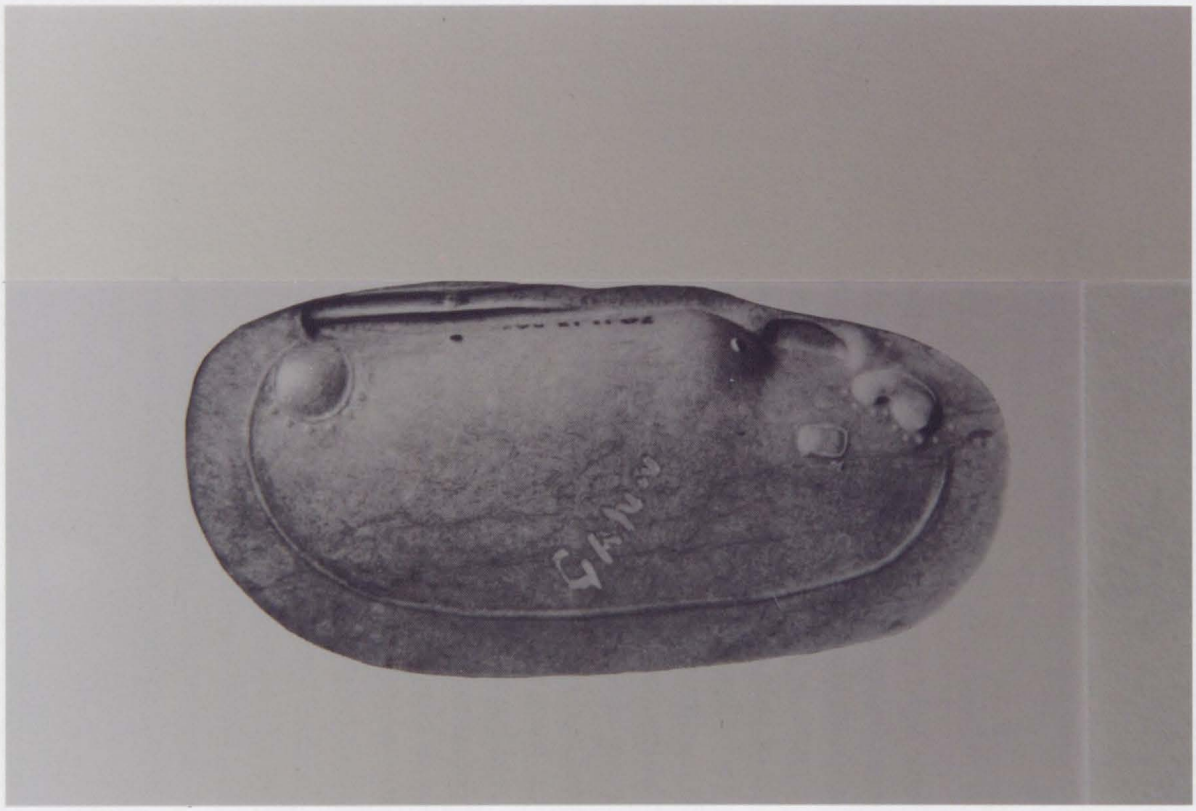

Figure 10. b. Interior of Kendal, Belize, ear flare.

Figure 11. Pair of jade shell-shaped ear pendants, La Venta, Monument 6, approx. 7 cm. length. N.M.A., Mexico.

Figure 12. a. Jade fish-shaped spoon, Cenoté, Chichén Itzá, 10 cm. length. Peabody Museum.

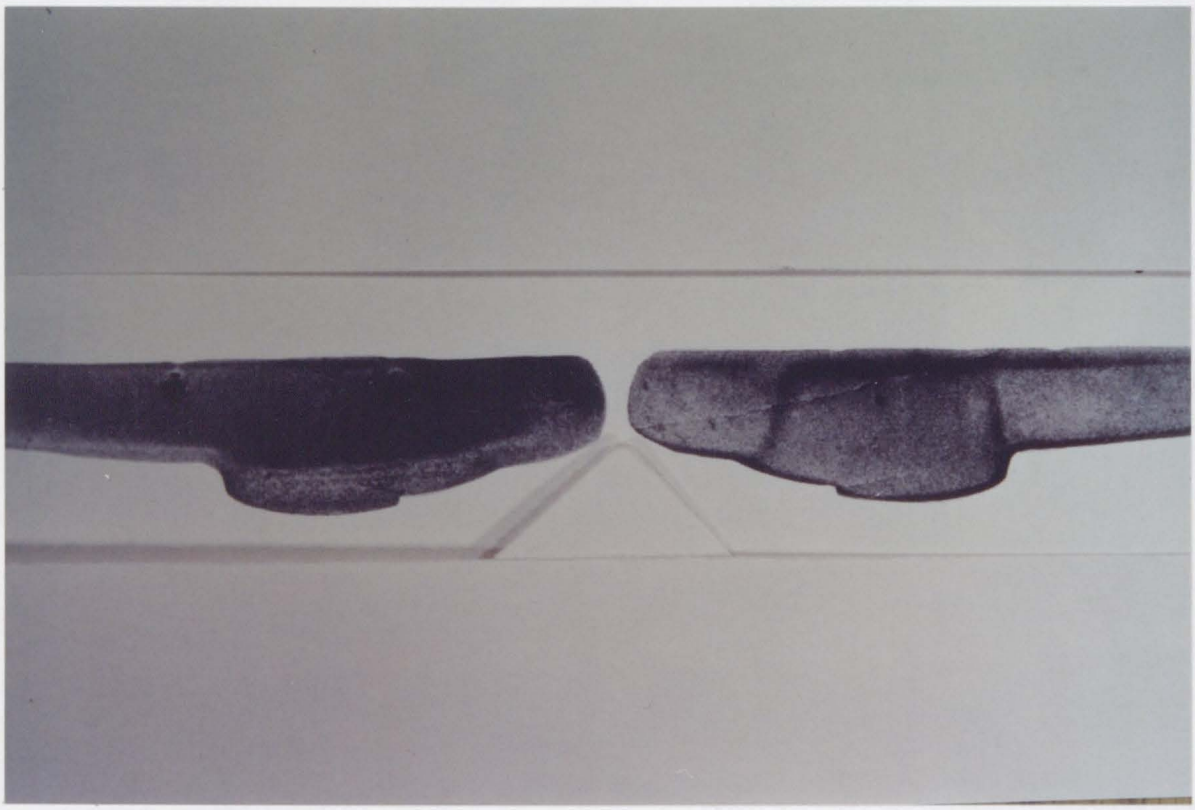

Figure 12. b. Obverse and interior views of Cenoté fish-shaped spoon.

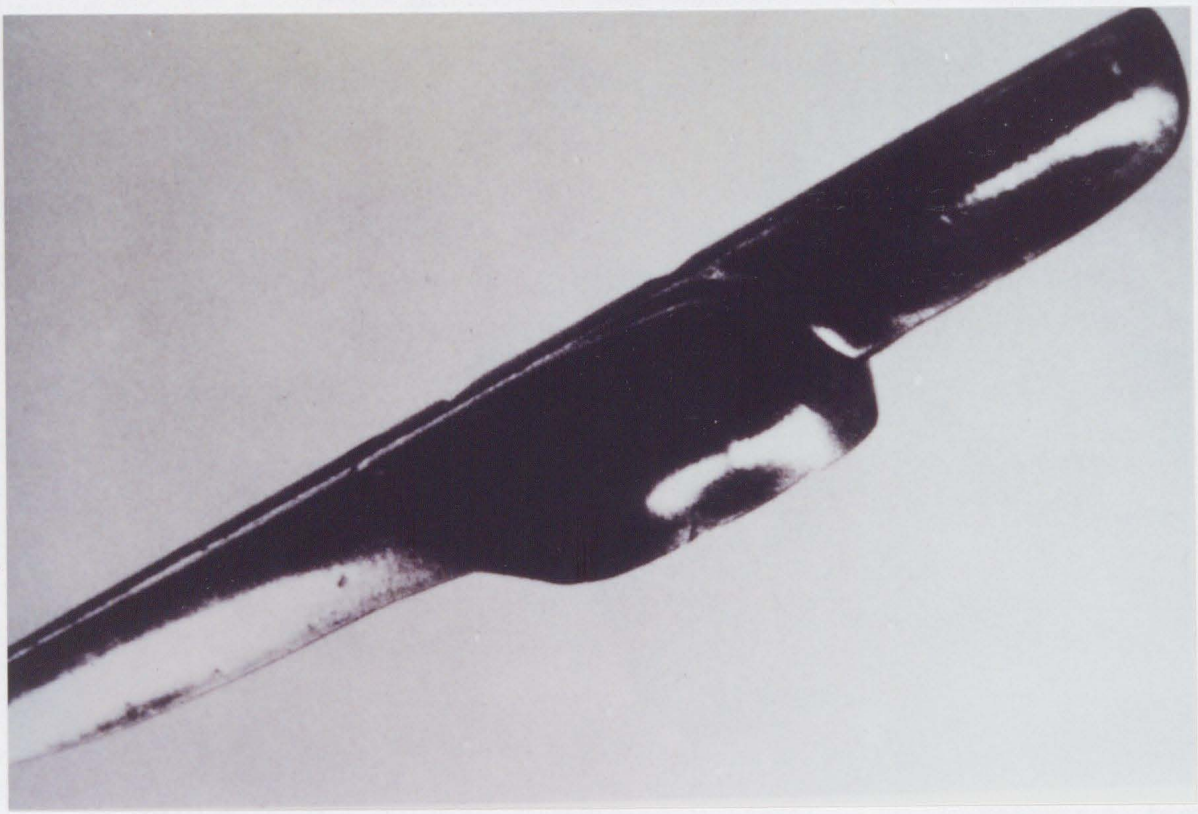

Figure 13. Jade fish-shaped spoon, Guerrero.

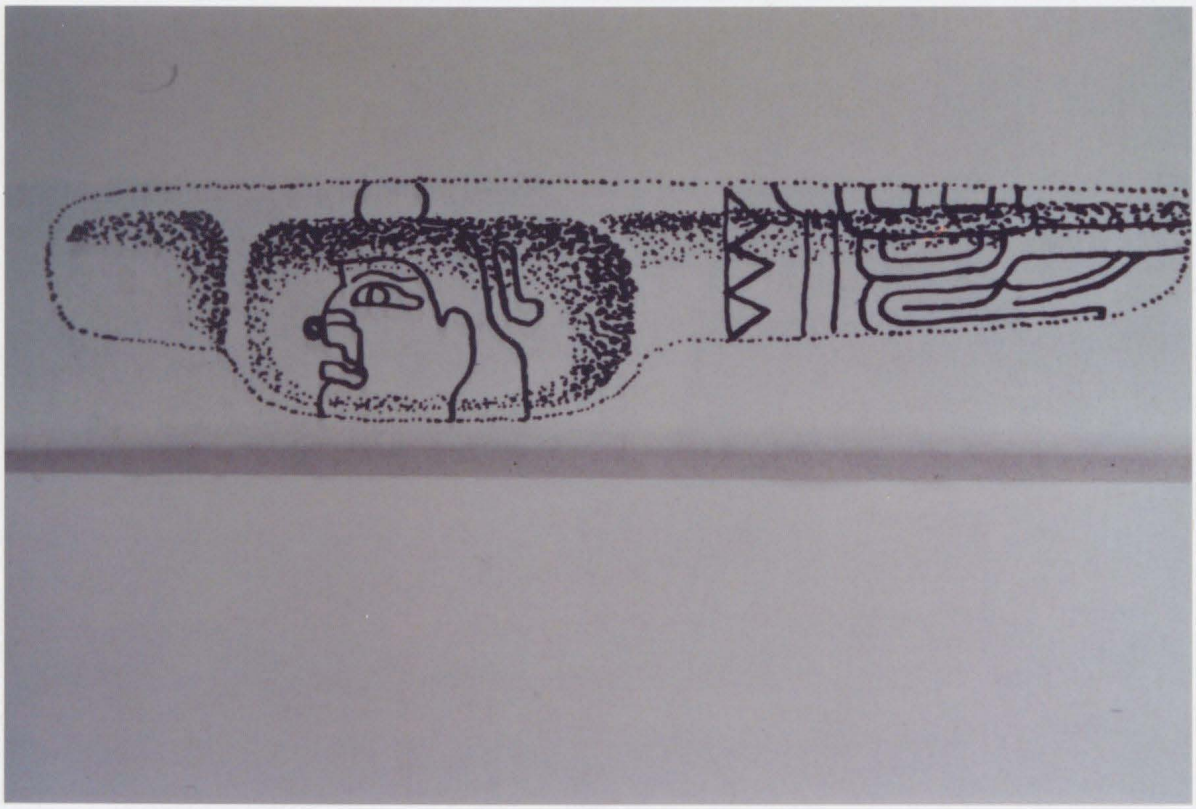

Figure 14. a. Jade fish-shaped spoon, Balsas District, Guerrero, 10.6 cm. length.

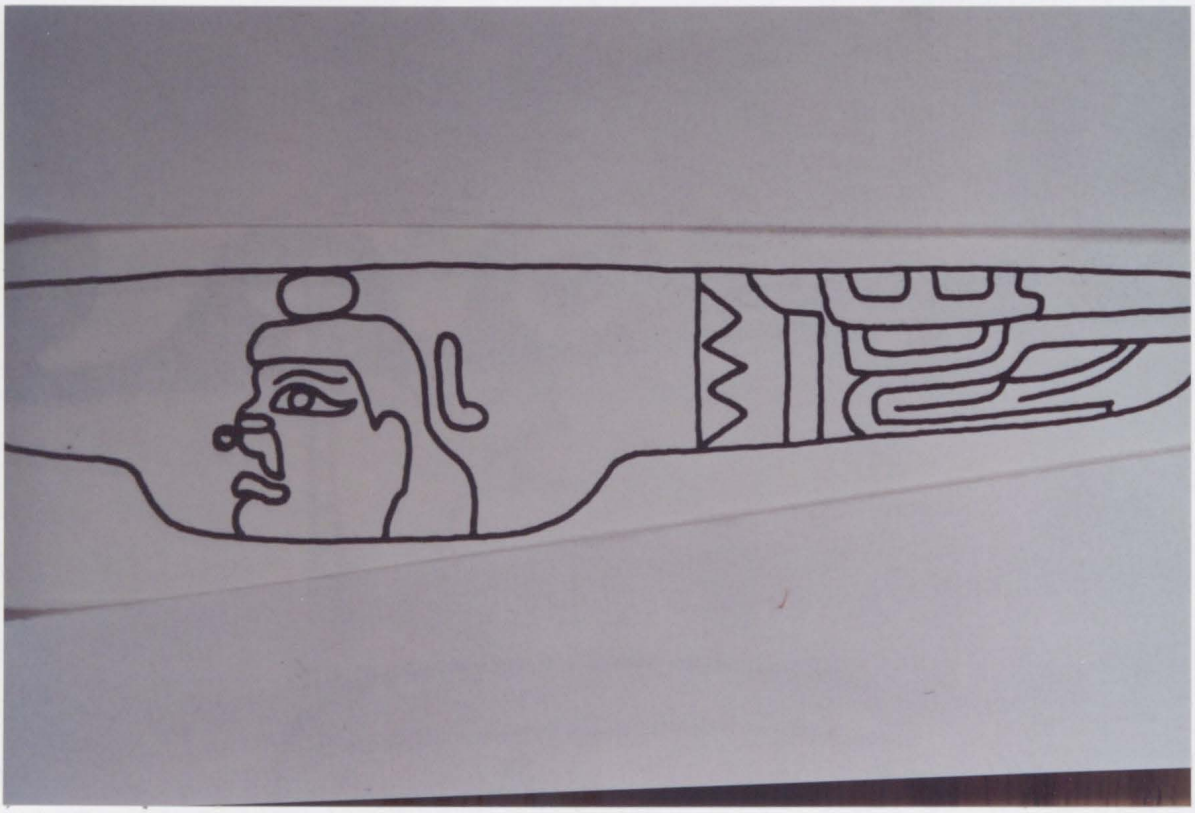

Figure 14. b. Same as Figure 14. a.

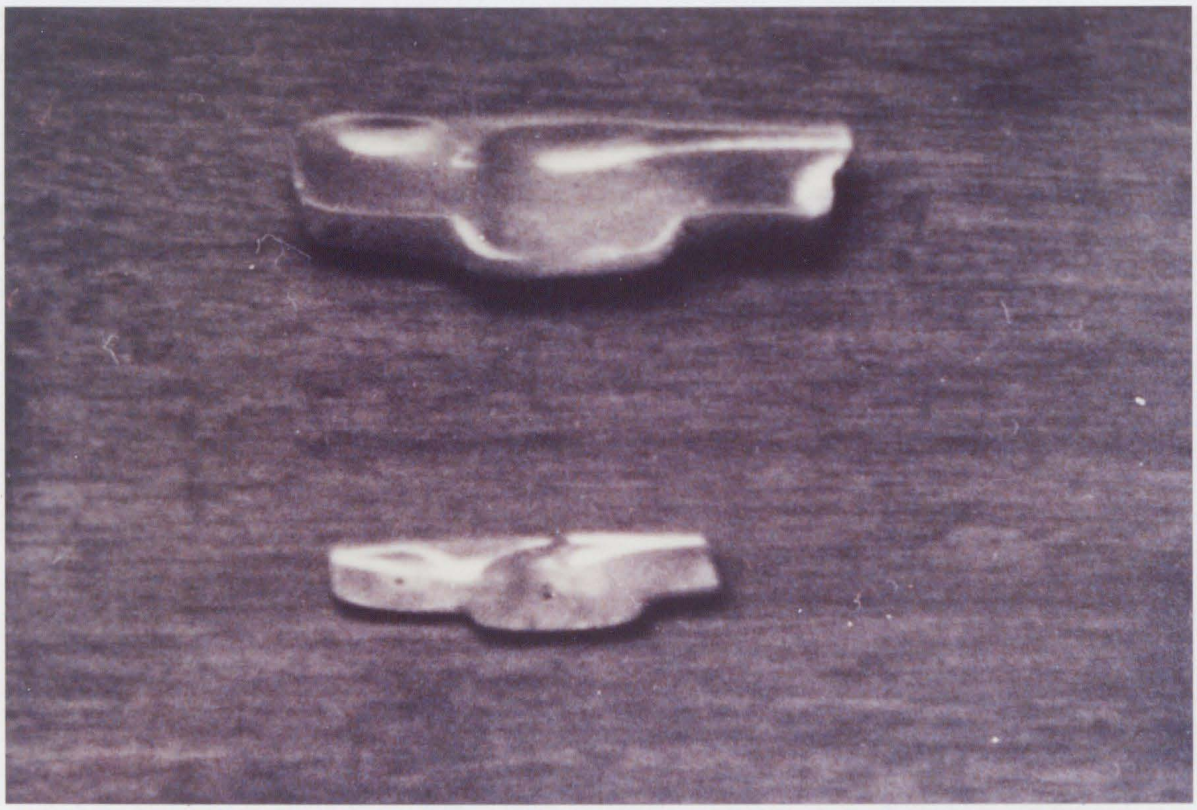

Figure 15. Two jade fish-shaped spoons, Gulf Coast, Mexico, under 7 cm. length. N.M.A., Mexico.

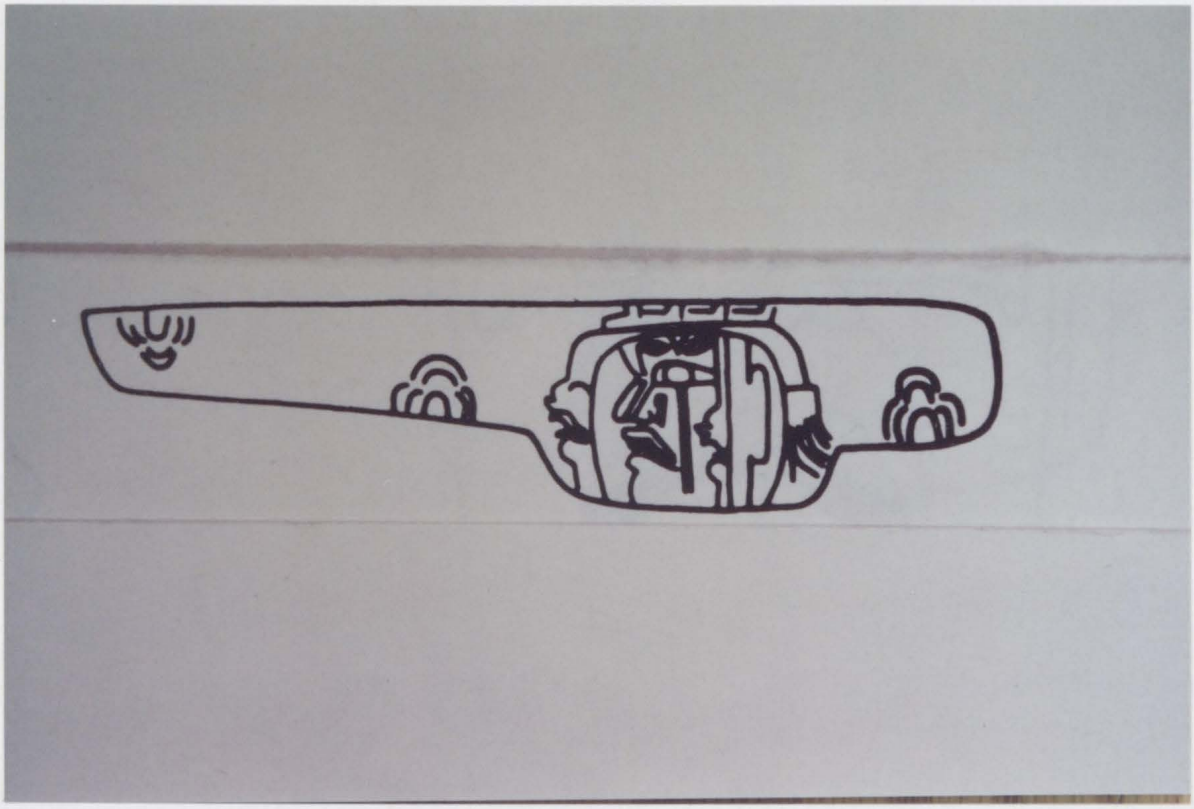

Figure 16. Jade fish-shaped spoon, Veracruz. Private Collection.

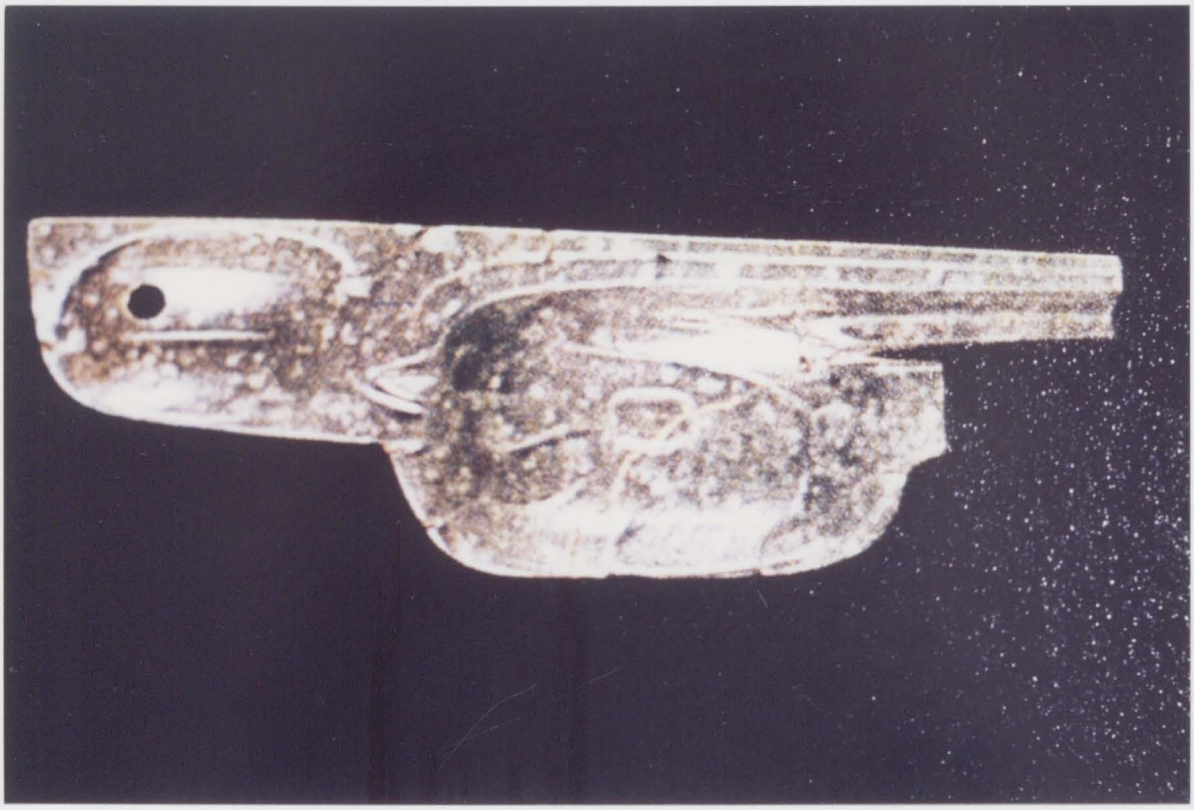

Figure 17. Jade fish-shaped spoon, Bagaces, Guanacaste, Costa Rica, 13.4 cm. length. M.I.N.S., San José.

Figure 18. Jade fish-shaped spoon, Bagaces, Guanacaste, Costa Rica, 10.7 cm. length. M.I.N.S., San José.

Figure 19. Jade fish-shaped spoon, Bagaces, Guanacaste, Costa Rica, 13.4 cm. length. M.I.N.S., San José.

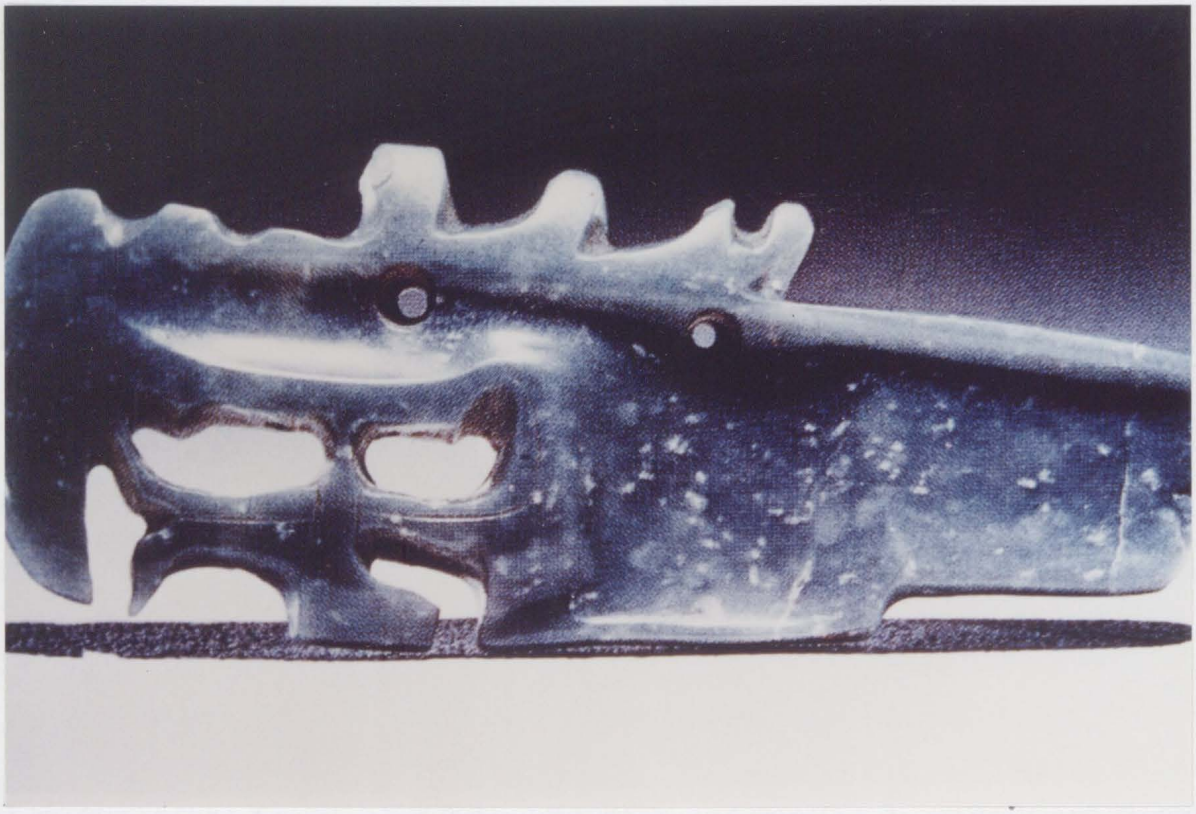

Figure 20. Jade composite spoon, Linea Vieja, Costa Rica, 10.3 cm. length. Coll. Frederick R. Pleasants.

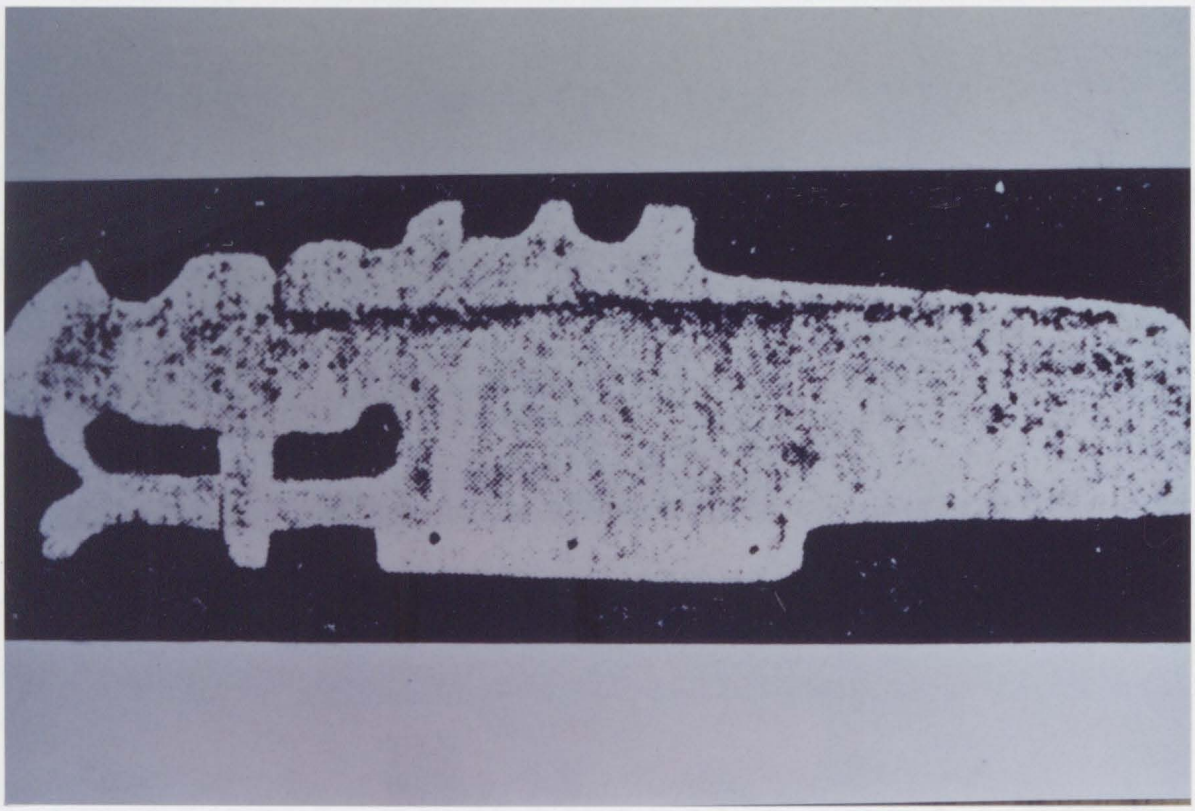

Figure 21. Jade composite spoon, Costa Rica, approx. 8 cm. length.

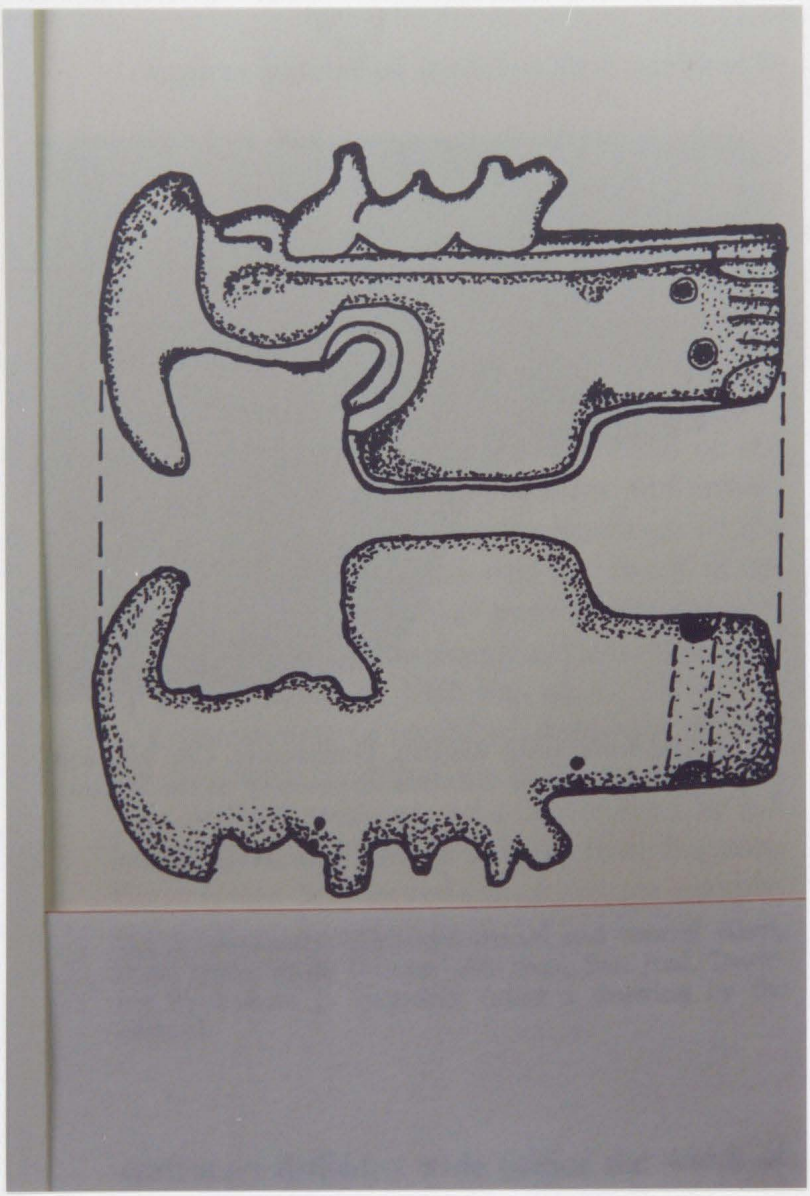

Figure 22. Jade composite spoon, Linea Vieja, Costa Rica, 10.4 cm. length. Private Collection.

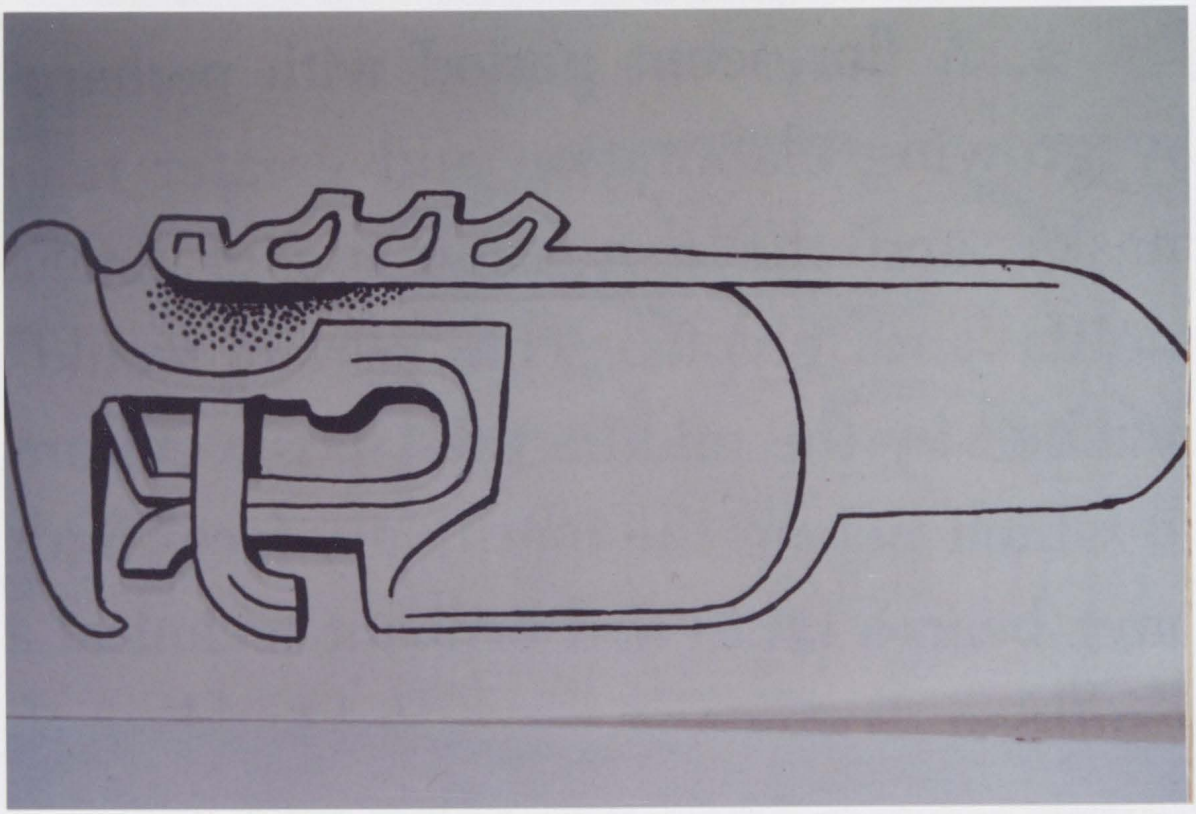

Figure 23. Jade composite spoon, no provenience, U.S.N.M., Smithsonian.

Figure 24. Jade cup (?), Gulf Coast, under 2.5 cm. diameter. N.M.A., Mexico.

Figure 25. Jade canoe-shaped pendant, Cerro de las Mesas, 20.3 cm. length. N.M.A., Mexico.

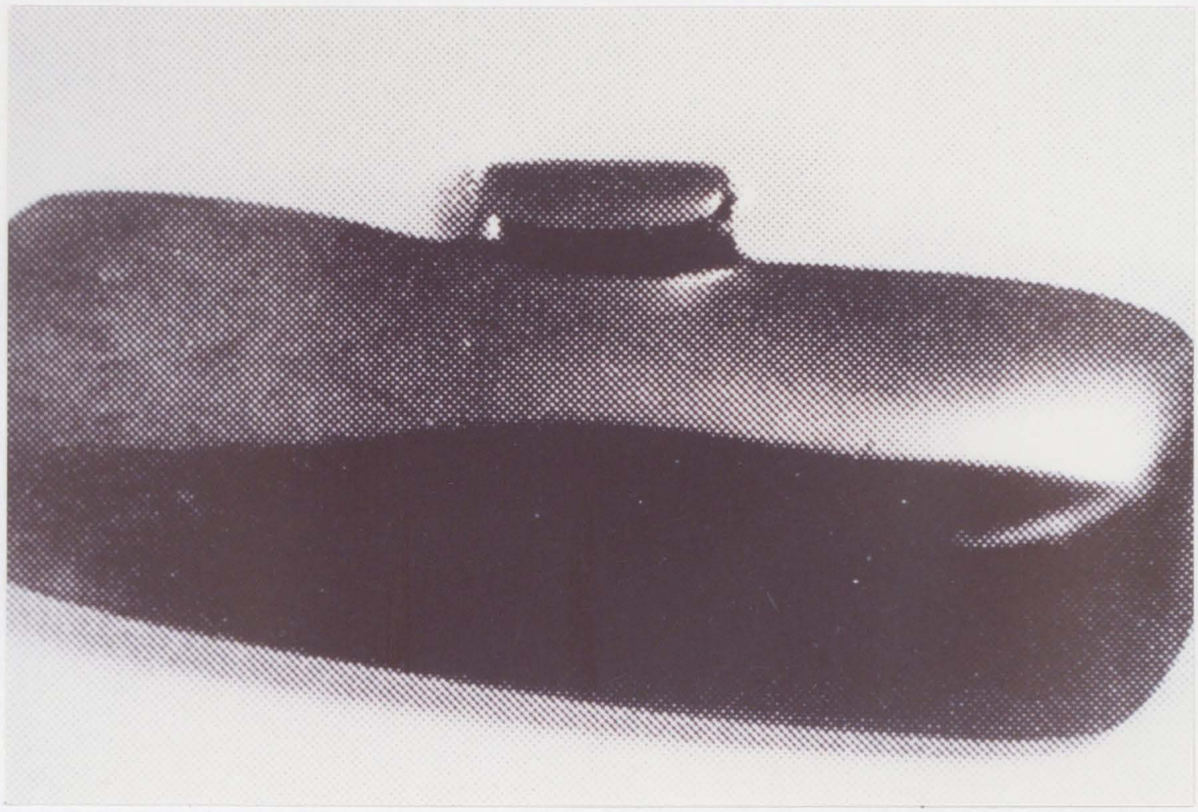

Figure 26. Jade flanged shell (?) pendant, Gulf Coast, Mexico, 7.5 cm. length, N.M.A., Mexico.

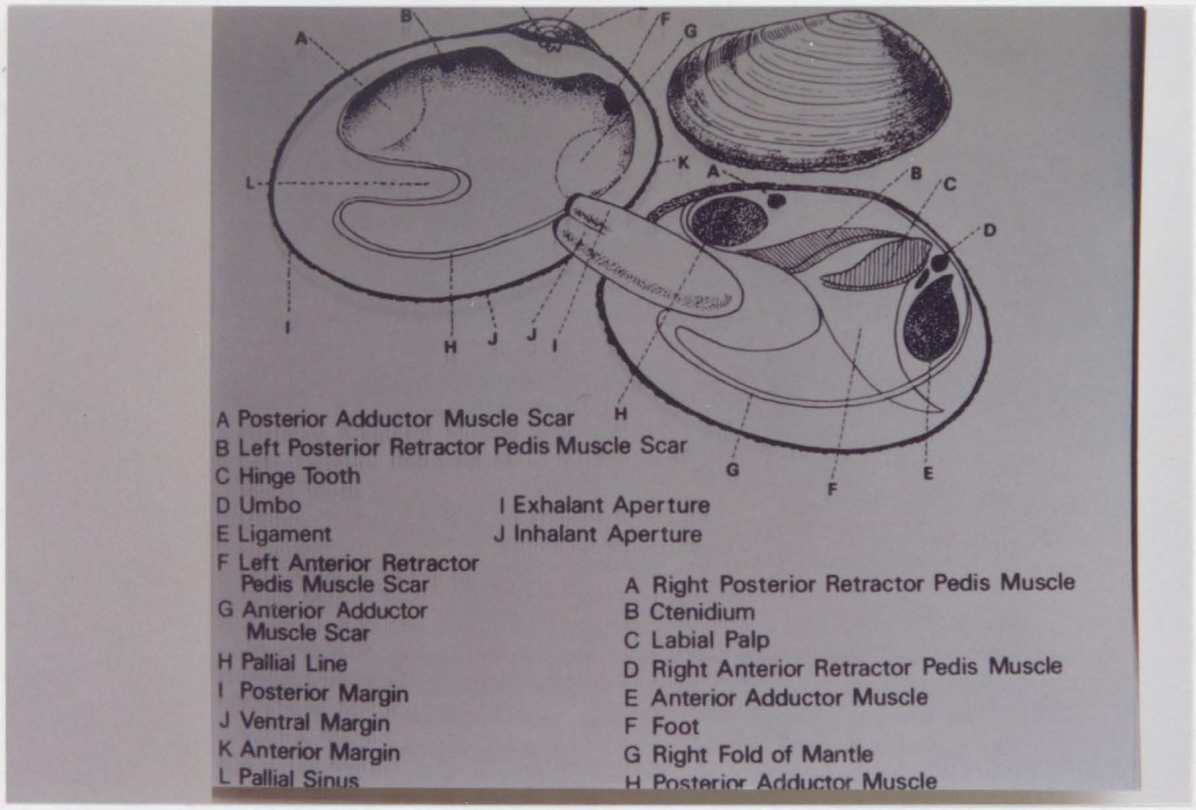


Figure 27. Bivalve Features.

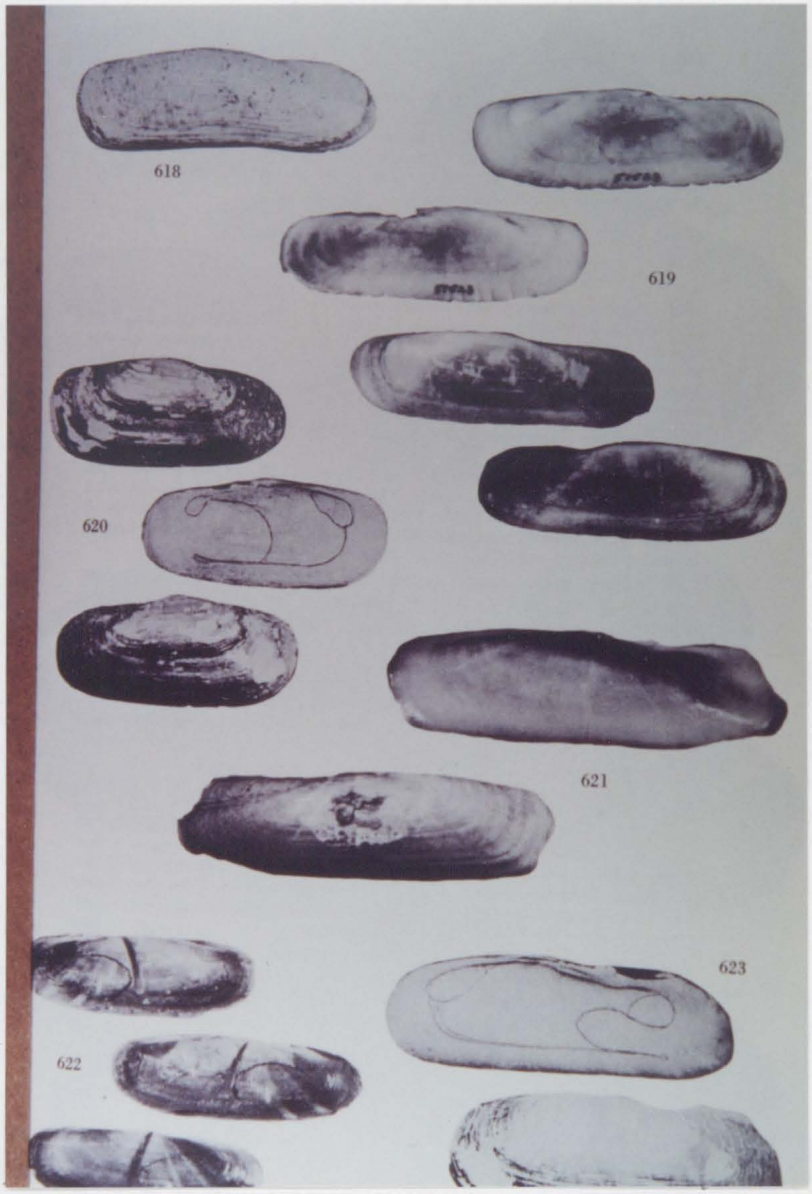


Figure 28. Tagelus.

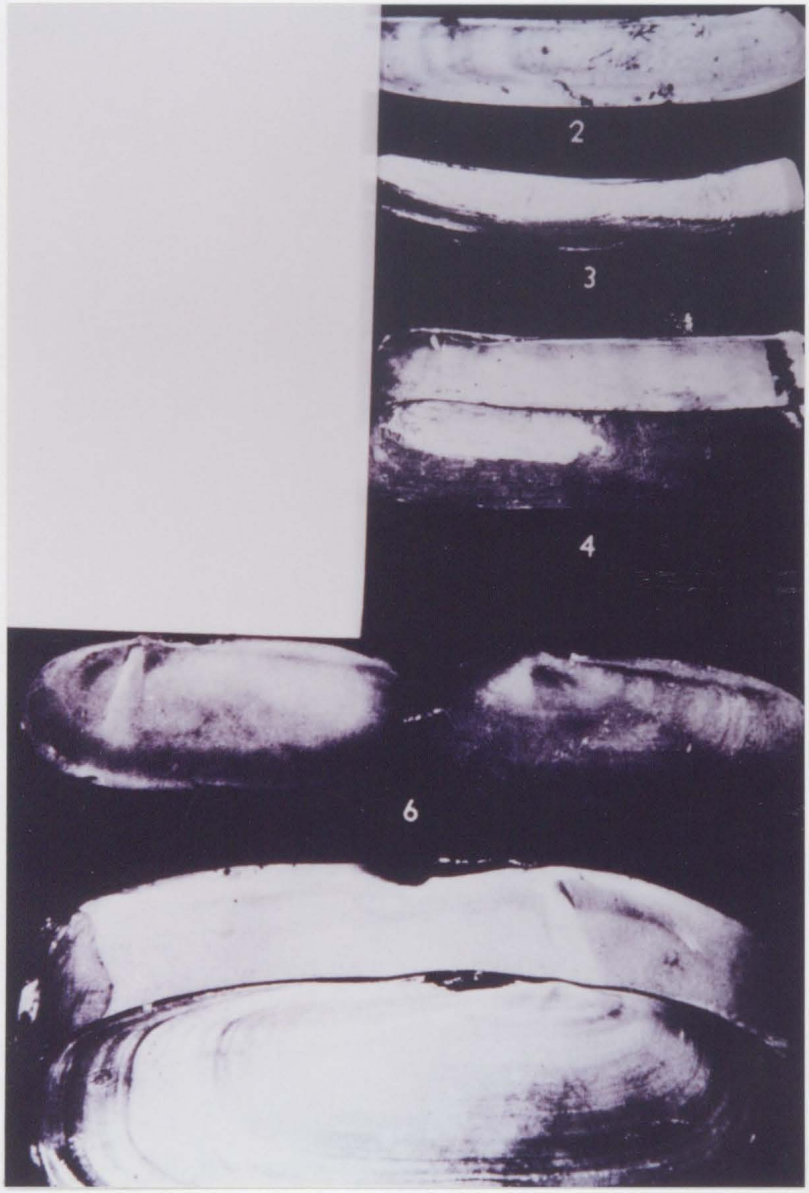


Figure 29. Razor Clams.

Figure 30. Winged Oyster.

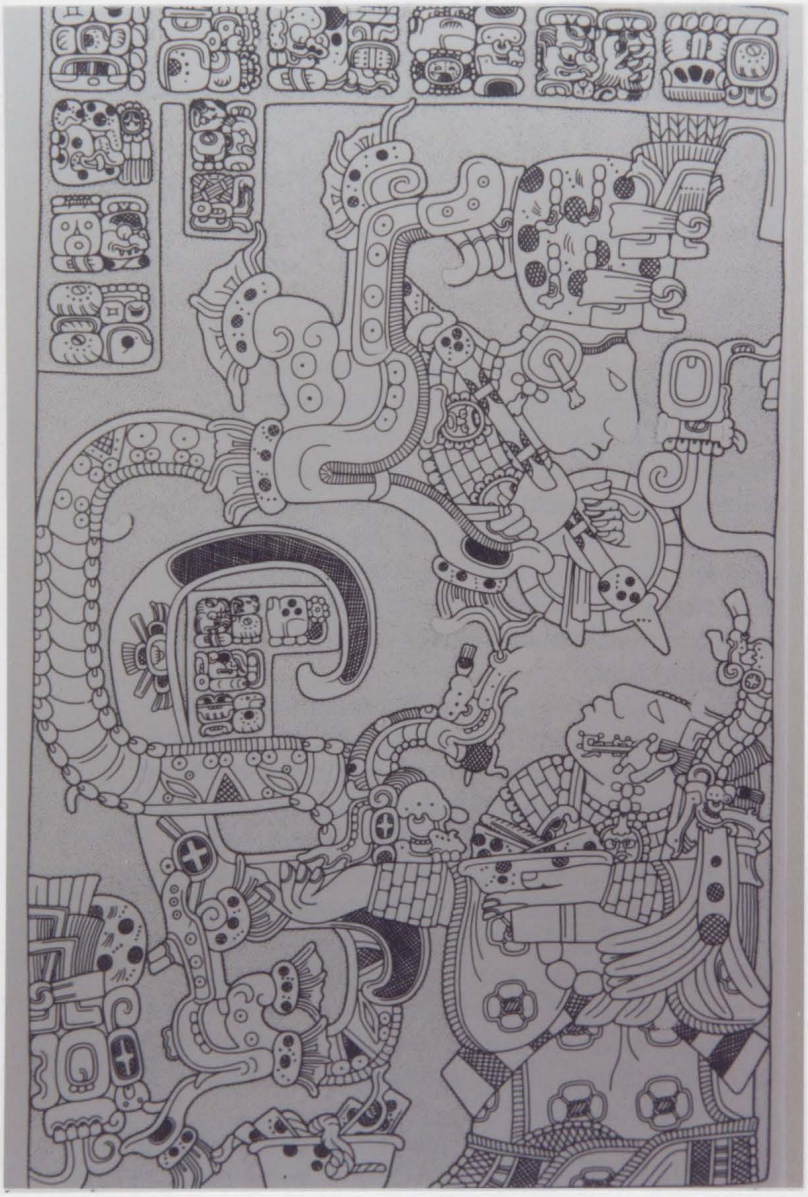

Figure 31. Vision Serpent, Lintel 25, Yaxchilan, Chiapas. Late Classic, 725 A.D. British Museum, London.

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# APPENDIX

## Shells, Spoons, and Related Artifacts

The following table is by no means comprehensive, but serves only to catalogue reported examples of jade shell and spoon pendants which have been described adequately in publications. The intent is to compile the accessible information. Included are the names of publications in which these objects are discussed or pictured and, where known, such data as dimensions and provenience. Figure numbers are given in parentheses for illustrations as they appear in the text of this paper.

### I. Shells

1.) Six small clamshell pendants, from the Sacred Cenoté of Chichén Itzá, Mexico; jade and greenstone; Peabody Museum; up to 5 cm. Illustrated in Tatiana Proskouriakoff, "Jades from the Cenoté of Sacrifice, Chichén Itzá, Yucatán," Memoirs of the Peabody Museum of Archaeology and Ethnology 10, 1 (Mass.: Harvard University Press, 1974), Plate 38. a., Color Plate III g, h, i.

2.) Clamshell, from Tibás, Costa Rica; jade; basrelief decoration; Museo Nacional de Costa Rica, L 33 cm. Formative; Zone Bichrome context. Illustrated in Michael J. Snarskis, "El Jade de Talamanca de Tibás," Vinculos. San José, Museo Nacional de Costa Rica 5, 2 (1979), Figs. 6 and 10. (Figure 7 a and b)

3.) Clamshell, La Venta Monument 7, Tabasco, Mexico; jade; National Museum of Anthropology, Mexico City (hereafter referred to as N.M.A.); L 18.5 cm. Formative. Illustrated in Matthew W. Stirling "The Olmecs, Artists in Jade," in Samuel K. Lothrop and others (eds.), Essays in Pre-Columbian Art and Archaeology (Mass.: Harvard University Press, 1961), 59, Fig. 10; Maria Antonieta Cervantes, "Olmec Materials in the National Museum of Anthropology, Mexico," in H.B. Nicholson (ed.), Origins of Religious Art and Iconography in Preclassic Mesoamerica (California: U.C.L.A. Latin American Publications, 1976), 15, Fig. 10. (Figure 9)

4.) Pair of shell ear pendants, La Venta Monument 6 (Tomb D); jade; N.M.A.; approx. L 7 cm. Formative. Ibid., 58, Fig. 9. (Figure 11)

5.) "Flying Olmec" clamshell, Gulf Coast, no provenience; jade; incised decoration; N.M.A.; L 22 cm. Formative. Illustrated in Cervantes, "Olmec Materials," 22, Fig. 25; David C. Grove, Chalcatzingo: Excavations on the Olmec Frontier (London: Thames and Hudson, 1984), 118, Fig. 33. Anatole Pohorilenko, "Small Sculptures: Man and His Artistic-Religious Experience," in Artes de Mexico, no. 154: El Arte Olmeca, Beatriz de la Fuente (ed.), (Mexico, Comercial Nadrosa, 1972), Fig. 40. (Figure 8)

6.) Shell-shaped earflare, Kendal, Belize; greenstone; incised decoration (outer surface); Merseyside County Museums, Liverpool; L 11.8 cm. Early Classic (250-400 A.D.) Linda Schele and Mary Ellen Miller, The Blood of Kings: Dynasty and Ritual in Maya Art (Fort Worth, Texas: Kimbell Art Museum, 1986), 79, Plate 10. (Figure 10 a and b)

7.) Two small, smooth shells, Tombs 13 and 31, Barton Ramie, Belize; jade. Tzacol, Early Classic. Cited in Snarskis, "Tibás," 98.

8) Clamshell, Costa Rica; jade; highly reworked; Museo del Instituto Nacional de Seguros, San José (hereafter referred to as M.I.N.S.); Olmec-style. Carlos Balser, El Jade de Costa Rica (San José: Librería Lehmann, 1974), Plate VIII, Fig. 3. (Balser classifies this object as a spoon.)

9) Ovoidal clamshell; jade; center removed; M.I.N.S.; Olmec-style. Ibid., Plate IX, Fig. 4.

TOTAL - 16 shells: 4 Gulf Coast, Mexico provenience; 3 Costa Rican provenience; 3 Belize; 6 provenience unknown.
largest known length of published examples: 33 cm. (Costa Rica)
smallest known length of published examples: under 5 cm. (Cenoté)

## II. Spoons

### A. Fish-shaped (Atepocates)

1.) Fish-shaped spoon, Cenoté, Chichén Itzá; jade; Peabody Museum; L 10 cm. Olmec-style, Late Classic/Postclassic context. Illustrated in Proskouriakoff, "Cenoté," Plate 38. a. 7, Color

Plate III j. (Figure 12)

2.) Fish-shaped spoon, Guerrero; jade. Formative. In Gillett G. Griffin, "Olmec Forms and Materials Found in Central Guerrero," in Elizabeth P. Benson (ed.), The Olmec and Their Neighbors: Essays in Memory of Matthew W. Stirling (Wash.: Dumbarton Oaks, 1981), 220. (Figure 13)

3.) Fish-shaped spoon, Balsas district, Guerrero; jade; incised decoration; private collection; L 10.6 cm. Formative. Illustrated in Michael D. Coe, "The Olmec Style and its Distribution," in Robert Wauchope (general ed.), Gordon R. Willey (volume ed.), Handbook of Middle American Indians, 3, 2 (Austin: University of Texas Press, 1965), 754; Peter David Joralemon, "A Study of Olmec Iconography," Dumbarton Oaks Studies in Pre-Columbian Art and Archaeology, Number Seven (Wash.: Dumbarton Oaks, 1971), 69, 199. b. (Figure 14 a and b)

4.) 2 Fish-shaped spoons, Gulf Coast, no provenience; jade; N.M.A. Formative. (Figure 15)

5.) Fish-shaped spoon, Veracruz; jade; incised decoration; private collection. Formative. Illustrated in Peter David Joralemon, "The Olmec Dragon: A Study in Pre-Columbian Iconography," in Origins of Religious Art and Iconography, Fig. 14. h. (Figure 16)

6.) Fish-shaped spoon, Costa Rica; jade; approx. L 7 cm. Olmec-style, Zoned Bichrome. Illustrated in Carlos Balser, "Metal and Jade in Lower Central America," 37th International Congress of Americanists, Mar del Plata, Buenos Aires, 1966, Actas y Memorias (1968), Fig. 5.

7.) Fish-shaped spoon, Bagaces, Guanacaste, Costa Rica; jade; reworked and incised decoration; M.I.N.S.; L 9.2 cm. Olmec-style, Zone Bichrome. Illustrated in Anatole Pohorilenko, "The Olmec Style and Costa Rican Archaeology," in The Olmec and Their Neighbors, 311, Fig. 2. Frederick W. Lange, Ronald L. Bishop, and Lambertus van Zelst, "Perspectives on Costa Rican Jade: Compositional Analyses and Cultural Implications," in Elizabeth P. Benson (ed.), Between Continents/Between Seas: Precolumbian Art of Costa Rica (New York: Harry N. Abrams, 1981), 174, Fig. 45; Balser, El Jade de Costa Rica, Pl. VIII, Fig. 1. (Figure 17)

8.) Fish-shaped spoon, Bagaces, Guanacaste, Costa Rica; jade; reworked; M.I.N.S.; L 10.7 cm. Olmec-style, Zoned Bichrome. Illustrated in Pohorilenko, "Costa Rican Archaeology," 313, Fig. 3; Balser, El Jade de Costa Rica, Pl. VIII, Fig. 2. (Figure 18)

9.) Fish-shaped spoon, Bagaces, Guanacaste, Costa Rica; jade; incomplete or modified and has incised decoration; M.I.N.S.; L 13.4 cm. Olmec-style, Zoned Bichrome. Illustrated in Balser, El Jade de Costa Rica, Pl. VIII, Fig. 4; See also Pohorilenko, "Costa Rican Archaeology," 312-313. (Figure 19)

10.) Fish-shaped spoon, provenience unknown; L 14.1 cm. Olmec-style. Illustrated in Pohorilenko, "Small Sculptures," Fig. 57.

TOTAL - 11 fish-shaped spoons: 4 Costa Rican provenience; 3 Gulf Coast, Mexico provenience; 2 Guerrero, Mexico provenience; 2 provenience unknown.

average length of Costa Rican examples: 10.1 cm.
largest of known lengths in published examples: 13.4 cm. (Costa Rica)
smallest of known lengths in published examples: 7 cm. (Costa Rica)
Pohorilenko, "Small Sculptures," 38, remarks that the largest known examples are 24 cm.

**B. Composite Bird-Monster**

1.) Composite spoon, Linea Vieja, Costa Rica; jade; some reworking; coll. Frederick R. Pleasants; 10.3 cm. Olmec-style. Illustrated in Elizabeth K. Easby, Pre-Columbian Jade from Costa Rica (New York: André Emmerich, 1968), 91, Fig. 64. See also Pohorilenko, "Costa Rican Archaeology," 313. (Figure 20)

2.) Highly reworked fragment of composite spoon, Costa Rica; jade; H 4.4 cm. Illustrated in Easby, Pre-Columbian Jade, 92, Fig. 33.

3.) Composite spoon, Costa Rica; jade; Olmec-style. approx. L 8 cm. Illustrated in Balser, "Metal and Jade," Fig 6. a. (Figure 21)

4.) Composite spoon, Linea Vieja, Costa Rica; jade; private collection, San José; L 10.4 cm. Olmec-style. Illustrated in Ibid., Fig. 6.b.; Pohorilenko, "Costa Rican Archaeology," 314, Fig. 4. (Figure 22)

5.) Composite spoon, Linea Vieja, Costa Rica; jade; some reworking; private collection; slightly over L 10 cm. Olmec-style. Not illustrated. See Pohorilenko, "Costa Rican Archaeology," 313-314.

6.) Composite spoon, no provenience; U.S. National Museum, Smithsonian Institution. Olmec-style. Illustrated in Miguel Covarrubias, Indian Art of Mexico and Central America (New York: Alfred A. Knopf, 1957), 82, Fig. 36. a.; Joralemon, "Olmec Iconography," 69, Fig. 199. a. (Figure 23)

**TOTAL** - 6 composite spoons; 5 Costa Rican provenience; 1 unknown provenience.

largest of known lengths in published examples: 10.4 cm.
smallest of known lengths in published examples: 8 cm.
approximate average length: 9.7 cm.
Elizabeth K. Easby, "Jade," in Between Continents/Between Seas, 139: notes that of the eleven known examples, 5 are from Costa Rica. Easby, Pre-Columbian Jade, 101, note 42, mentions unpublished examples from El Salvador, Michoacán, and Guerrero, in: Museo Regional de Morelia, Mexico, and private collections in San Salvador and Mexico.

## Related Artifacts

1.) Jade cup (?), Gulf Coast, no provenience; N.M.A.; under 2.5 cm. diameter. Formative. (Figure 24)

2.) Canoe-shaped pendant, Cerro des las Mesas cache; jade; incised decoration; N.M.A. L 20.3 cm. Formative. (Figure 25)

3.) Shell (?) pectoral with protruding flange, Gulf Coast; jade; N.M.A.; L 7.5 cm. Illustrated in Pohorilenko, "Small Sculptures," Fig. 46. (Figure 26)

These objects are included for their functional or formal relationships to the shell/spoon complex. For example, the canoe is a large, horizontally-suspended pendant with a depression. The "cup" is also a receptacle of some kind. To this writer's knowledge, this latter object is unique in the corpus of Olmec and Olmec-related jades.

Also included, but not listed here, are four tiny canoe-shaped clothing ornaments from Offering No. 3 of La Venta and a miniature "bird"-spoon (?) from Offering No. 3, which also presumably functioned as some form of clothing ornament. N.M.A. See Philip Drucker, Robert F. Heizer and Robert J. Squier, "Excavations at La Venta, Tabasco, 1955," Bureau of American Ethnology Bulletin 170 (Wash.: Smithsonian Institution, 1959), Plate 27.

Decoration

I. 2.) The interior surface is decorated with a bas-relief hand wearing a knotted wristband and grasping a mariposa (?) feline-insectoidal zoomorph.

I. 5.) A 'flying' personage bearing a torch and handstone is engraved on the interior. The figure is cleft-headed and wears a nose-bead and a headdress with a sprouting maize (?) motif and votive celt. The being is also dressed in a "kilt" with a St. Andrew's cross and a protruding element. The personage has a toothless, were-jaguar mouth.

I. 6.) The exterior surface is incised with seven early-style Maya glyphs, which are considered to record seven god names.

II. A. 3.) The bowl of the spoon is decorated with a profile Olmec head. This personage has long hair, a toothless were-jaguar mouth and wears a nose bead. A bird-monster (Joralemon's God III) is incised on the posterior end.

II. A. 5.) Three jaguar spot designs on the anterior and posterior. The bowl has a profile x-ray image of an individual inside a mask or head of a deity (Joralemon's Dragon-God I). This personage has facial markings and a toothless were-jaguar mouth.

II. A. 7.) The interior is finely engraved with a duck's head which was likely executed by a Costa Rican artist.

II. A. 9.) The concave interior has 2 incised jaguar (?) claws.

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