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The purpose of this paper is the statement and examination of relevant data pertaining to the subject of trans-Pacific pre-Columbian contact. The paper's contents will be organized in to five major areas: oceanography, ship building, archaeology, religion and history, plus an introduction and conclusion. Each of these chapters will contain the most important and thorough evidence available in their respective fields. In an attempt to be completely objective, all sides of each question will be presented and thoroughly explored. The conclusion will draw specific as well as overall judgments based on all the evidence presented.

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An Examination of Historical and Archaeological
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INTRODUCTION

During the past few years, man's knowledge and understanding of his own past have undergone some dramatic changes. Discoveries in Africa have pushed back man's antiquity to levels undreamed of just a few years ago. Recent works in Southeast Asia have also shed doubts on the long-held theories of the location of the so-called cradle of civilization. In few places, however, have the changes been so great as in America. The discovery of the Viking Stone and the more recent finds of the Viking Map and settlement have caused a re-evaluation of the development of culture and civilization along much of the American East Coast.

The East Coast is, however, not the only place in America where dramatic changes are taking place. In recent years an impressive amount of information has come to light which strongly suggests that the American West Coast, like the East Coast, was also visited by pre-Columbian transoceanic voyagers. It will be the purpose of this paper to present and examine the evidence available concerning possible pre-Columbian trans-Pacific voyages between Asia and America. This work will present evidence on both sides of the issue; evidence which will often be contradictory and frequently arrive at totally opposite conclusions. The evidence is presented this way, not to

confuse the reader, but rather to present both sides of the issue and to give the reader as complete a picture as possible. In this way it is hoped that this paper will present the pertinent evidence while at the same time keep any bias to a minimum. This treatise will not, however, rehash work already done but rather will present evidence and then attempt to analyze this evidence before drawing any conclusions. It is hoped that at the conclusion of this research the reader will have a good understanding of the triumphs and problems of the Asian claim to pre-Columbian trans-Pacific contact, and that even if he does not agree with the conclusions drawn, he will understand how they were reached and on what evidence they were based.

Although the preceding is the stated purpose of this paper, it is not its only thrust. Simply proving that such a pre-Columbian trans-Pacific voyage could, or even did, take place, is only the first step in the process. For decades it has been thought that the civilizations of America developed independently and in total isolation from the Old World. This total isolation would mean that any invention, whether in social programs or technological advancements, would have been an independent invention of the American continent. This independent invention is the cornerstone to most models for the development of American culture. If evidence indicates that American culture did not develop in total isolation but that it, in fact, had at least sporadic contact with the Old World, then these models must be redesigned to include independent invention and diffusion.

This point of diffusion versus independent invention is the most

important and at the same time often the most abused part of the entire theory of trans-Pacific contact. To understand fully the theory of trans-Pacific contact we must first understand diffusion and how it works. Diffusion in its simplest form is the act of one cultural area (donor) giving to another area (receiver) a part of their own culture, whether technological, sociological, religious, etc. This diffusion takes at least two separate forms: the diffusion of simple or complex ideas such as religious traits and the diffusion of material goods such as pottery. Any diffusion may occur in one or the other or even both of these two forms.

In theory any part of any culture could be diffused to any other culture, however, in actual practice certain limitations are always in effect. For example, diffusion is impossible between two groups if there is an insurmountable physical barrier between the two cultures involved. Certain forms of diffusion are also impossible due to technological or sociological differences between the donor and receiver groups; for example, diffusion of pottery techniques may be impossible due to the lack of a pottery tradition or the lack of the necessary raw materials for such a tradition in the receiving area. In the same way, diffusion of religious traits may be prevented due to a well-established religious system already in the receiving area.

In the same vein, there are at least two ways in which the diffusion of traits can occur. The first is that traits could diffuse from one cultural area to another by way of a third intermediate culture. This indirect type of diffusion usually occurs along well-established trade routes and often spreads diffused

material over a wide geographical area. The second form of diffusion is the direct movement of goods or ideas from the donor culture to the receiving culture. This second form of diffusion is the more important since, for there to be a direct movement of ideas and goods from the donor culture to the receiving culture, there must also be a corresponding movement of people. This migration of people from one culture to another is a major part of the pre-Columbian trans-Pacific theory. If proved, it would show major, prolonged and personal contact between the people and cultures of Asia and those of America.

It is sometimes held that for diffusion to occur there must be a stimulus or reason for such diffusion. It is true that diffusion often occurs in response to a certain stimulus such as religious missionary work, desire for trade and even war, but at the same time diffusion may also occur accidentally with no stimulus involved. A prime example of this form of diffusion would be a shipwreck where a member of a culture is deposited wholly accidentally into a new culture and there becomes an agent of diffusion. This type of accidental diffusion is especially important in the early stages of the pre-Columbian trans-Pacific contact theory.

These, then, are the ways in which diffusion can and cannot occur and the restrictions placed on such diffusion. All that remains is to present the criteria for proving that such diffusion actually took place. It is not enough simply to show that there are superficial similarities between the material or sociological cultures of two separate groups. It must also be shown that the

similarities did not arise independently to similar stimuli in the two areas. To prove diffusion, the following criteria are often employed: (1) any material element thought to be diffused should appear fully formed in the receiving area; (2) the evolution of the diffused item should be traceable in the archaeological record of the donor area; (3) the extinction of the trait in the donor area should post-date its appearance in the receiving area; and (4) it should not have evolutionary, environmental or functional limitations that make it subject to independent invention. All of these criteria must be met before an item can be absolutely determined to be a diffused rather than independently invented artifact. Using this understanding of diffusion the following questions can be formulated. Did such diffusion actually take place? How did such diffusion take place; was it by actual physical contact and migration between Asia and America or was it merely a movement of ideas and artifacts, perhaps by way of the Pacific Islands? If there was diffusion of ideas, how were the ideas adapted to fit the existing social and technological environments of the Native American cultures? How far inland did such diffusion spread? Was it limited to the West Coast or were the developments incorporated into the extensive trade networks, spreading through them to the bulk of the American continent? What impact did this diffusion have on the already existing social and technological systems of the Native American cultures? All of these are questions raised by the theory of pre-Columbian trans-Pacific contact and although this paper will not answer all of these questions, it may give some idea of the role that diffusion played in the development of the Native American cultures.

CHAPTER I

Ocean Currents

To begin this examination, something should first be said about the nature of ocean currents, how they are formed, by what factors, and what role they play in the theory of trans-Pacific diffusion.

Nature of Currents

Most currents are caused by the movements of the earth, the pull of the moon and the effects of the wind. These factors combine to form three types of currents: currents in the same direction in which the currents formed by the earth and the moon and those formed by the wind all travel in the same direction; currents in opposite directions caused when the base current travels in one direction and the wind current moves in the opposite direction; currents in a different direction in which the base current is moving in one direction and the wind current is moving in a different, but not opposite direction. It is this combination of factors which form the major current patterns in the North and Middle Pacific regions.

South Equatorial Current

The current system located in the Middle Pacific area consists of the South Equatorial Current running from America to Australia and Indonesia, and the Equatorial Counter Current which runs in the opposite direction from Indonesia and Australia to America. This route would seem the most feasible for any trans-

Pacific contact since it travels in a direct line from the Indonesian area to the American coast. On closer examination, however, several problems become evident. Paramount among these is the weakness of the current. The Equatorial Counter Current is relatively weak along much of its course, in some areas becoming, as one author puts it, "Nothing but a series of upwellings, and of scant use to trans-Pacific voyagers."¹

The South Equatorial Current and the Equatorial Counter Current also have a drawback in their nearly total lack of adequate landfalls. In early Asia, most ship travel was confined to voyages along the coast, and was never more than a short distance from land. A trans-Pacific voyage following these currents would have meant being out of sight of land throughout most of the voyage, a distinct drawback in any early day undertaking.

Finally, there is the problem of winds and opposing current. One article, referring to the work of De Bisschop who spent three years before World War II on a Chinese junk studying the Equatorial Current, states:

He was constantly opposed by the trade wind and the ever-present Equatorial Current which over ran the supposed counter stream and made his progress impossible.²

The article goes on to quote De Bisschop as stating: "'As a seaman, I have primarily strived to study and throw light on the maritime difficulties of such migrations. They are too numerous!'"³

Urdanta Route

Besides the mid-Pacific route, the only other feasible trans-Pacific sea route is the northern route which is made up of two currents. The Kuroshio (or Japan) Current begins off the coast of Japan and proceeds northeasterly to the coast of the Aleutians. There it joins with the North Pacific Drift which runs southeasterly from the Aleutians to a point approximately at the mouth of the Columbia River. These two currents join to form what Heyerdahl refers to as the Urdanta Route, named after the sea captain who first discovered its existence. The author states that the Urdanta Route is, "The only natural access to the New World on the Pacific side ..."⁴

This route is unique in that it has none of the drawbacks associated with the Equatorial Counter Current and the South Equatorial Current. Unlike the Equatorial Counter Current the current itself in the Kuroshio and North Pacific Drift areas is well-defined and in some places extremely strong. A short chart is included which will show the minimum and maximum speed in knots of the current at various points along the Northern Route (see Table 1).

The northern route is again remarkable on the issue of land-falls, since it allows nearly the entire trans-Pacific voyage to take place within sight of land. This is possible, of course, due to the close proximity of Siberia to Alaska, as well as the favorable location of the Aleutians. It has been stated that:

At only one point--between the Komandorskies and the Aleutians--there is a stretch of some two hundred miles of open sea, and even there land can

TABLE I^s

Area	Knots			
	Maximum	Date	Minimum	Date
Aleutians				
Aleutian Pass	8.7	Oct. 25 Dec. 20 Dec. 21	1.7	Feb. 12
Unimak Pass	6.3	Nov. 22 Nov. 23 Dec. 21	0.0*	Numerous
British Columbia				
Seymour Narrows	15.7	Nov. 23	4.1	Mar. 10
Active Pass	6.3	Nov. 23 Nov. 24 Dec. 22	0.8	Oct. 18
Alaska				
North Indian Pass	8.0	Apr. 16 Apr. 17 Oct. 26	0.3	Sept. 17 Oct. 17
Isanotski Strait (False Pass Cannery)	4.7	Nov. 23	1.4	Aug. 19 Feb. 10
Washington				
Puget Sound	5.8	Nov. 24	1.0	Feb. 11
Admiralty Inlet	4.3	Nov. 2	0.3	All months**
China				
Huang P' u Chiang	2.7	Oct. 25 Oct. 26 Nov. 24	0.5	Feb. 11 Mar. 25 Mar. 26
Ch'ang Chiang Entrance	4.2	Mar. 17 Mar. 18	0.3	Mar. 25
Japan				
Akushi Kaikyo	6.9	Dec. 23	0.2	Apr. 22
Kurushima Kaikyo	10.0	Oct. 26	2.1	Mar. 25

* Currents controlled almost entirely by moon.

** Current often weak and indirect.

sometimes be seen ... at no other place in the entire archipelago are the numerous islands out of sight of each other or as much as one hundred miles apart.⁶

The Urdanta Route is also unique in that, unlike the Equatorial Counter Current, by using the northern Urdanta Route, most of "the contrary winds of the trade belt are avoided ..."⁷ This would be a major asset to any sailing vessel.

Given this evidence, it would appear that at least on these three major points, currents (direction and strength), landfalls and contrary winds, the northern route would seem the most feasible and perhaps the ideal route for trans-Pacific contact. The route does have its drawbacks, of course, especially the presence of the Alaskan Current, but these drawbacks would have been of minimal importance when compared with the advantages.

California Current

Joining the Kuroshio and North Pacific Drift currents at their southeastern end is the California Current. Although this current is never mentioned by Heyerdahl, it is important not only because it connects the North Pacific Drift Current with the easterly flowing North Equatorial Current (which will be discussed later), but it also provides for easy travel down the American coast. This is an important factor since it would have made widespread diffusion of Asian traits a simple matter of following the current southward.

The California Current starts where the North Pacific Drift Current ends, near the mouth of the Columbia River, and travels down the West Coast as far as Baja, California. The current runs

basically north between the months of November and February, at which time it has a low speed of 0.5 knots, and a high speed of 1.9 knots. It then reverses itself and runs south from March to October, when it has a low speed of 0.6 knots and a high speed of 2.2 knots.⁸

Saavedra Route

At its southern end, the California Current joins the North Equatorial Current to form what Heyerdahl refers to as the Saavedra Route (again named after its discoverer). The Saavedra Route begins in Mexico and travels west, flowing past Indonesia and eventually returning to Japan. This route, too, has some advantages over the slightly more southern Equatorial Counter Current. First, it is a strong current, easily capable of carrying a vessel along its path. Second, it is a current in the same direction, that is, the base current and the wind current (formed by the strong trade winds) travel in the same direction. Third, this route has an advantage even over the west-east Urdaneta Route in that it has a favorable climate along its entire course. This route does have its drawbacks, however, the most important of which is the absence of land. The Urdaneta Route was nearly ideal for early sea travel, since most of its course was within sight of land. Unfortunately, the Saavedra Route does not have this advantage, being mainly an open sea route with only a few islands such as Hawaii for landfalls. It should be noted, however, that since this open sea route would have been used for the return voyage, the men involved would have known basically what lay ahead, giving them at least a psychological advantage.

The Kuroshio, North Pacific Drift, California and North Equatorial Currents make a large circular movement beginning off the coast of Japan, flowing to America, down the American coast to Baja, California, then returning past the Hawaiian Islands to Japan. This route would have had adequate landfalls along its northern portion, with strong currents and good winds throughout the entire circle; all in all, a very possible route.

Distance Traveled

In depicting distances on the open sea, a two-dimensional map is misleading since it gives the impression that the ocean exists on a flat plane. In reality, due to the egg-shaped contour of the earth, the oceans, rather than being flat, are complete hemispheres with equal curves in each direction. For this reason the northern route, as depicted on a two-dimensional map, looks substantially longer than the Equator Route, but the fact is that the distance to be traveled on either route is relatively equal.

The direction as a crow flies between the Pacific coast of South China and the Pacific coast of Peru is just as short by way of the North or South Pole as by way of the equator.⁹

Besides the distortion inherent in the two-dimensional map, there is also the problem of the distance measured in miles versus the actual distance traveled. Heyerdahl illustrates this problem by using the example of the Kon-Tiki sailing from Peru to the Tuamutu Islands, a voyage of 4,000 miles. The Kon-Tiki actually traveled only 1,000 miles before reaching the Tuamutu Islands.

The discrepancy here between dead miles and actual sailing miles is due to three factors: First, the effectiveness of the artificial propulsion, i.e., sails, oars, etc.; second, the pull of the current; and third, the shape of the earth. Conversely, the Kon-Tiki, traveling from the Tuamutu Islands to Peru, would cover some 7,000 miles since it would be fighting the current. Then, too, if the artificial propellant of the craft did not propel it as fast or faster than the local current, the craft would never reach Peru and, in fact, would never leave the Tuamutu Islands. All these factors must be taken into consideration when studying the currents and possible ocean routes of trans-Pacific travel.

Ship Evidence

Now the question arises, given the nature of the Pacific currents, would such a trans-Pacific voyage have been possible? Documented cases of junks caught by storms off the Japanese coast and swept by the Kuroshio and North Pacific Drift Currents to the American coast are numerous.¹⁰ Between the years of 1613 and 1876, 60 ships were reported found adrift in the Pacific or grounded on the American coast. Of these 60 wrecks, four were reported from 1613 to 1694, three from 1710 to 1782, six from 1804 to 1820, 11 from 1831 to 1848 and 36 from 1850 and 1876. This steady rise in the number of wrecks reported is probably due, not to increased storm activity, but rather to an accelerated European occupation of America's West Coast. By the same token, it may be assumed that simply because there were no wrecks reported before 1613, it was not because there were none, but rather there was no one to

report them. Important to the subject of trans-Pacific contact is the statistic given that in the 33 cases that reported survivors, 222 persons were rescued, or 6.75 persons per wreck. Since this many people survived this voyage in historical times, it may also be assumed that some survived to reach America in pre-Columbian times.

The location of the wrecks can also be broken down to show the influence of the currents; of the 60 wrecks reported, 27 were found adrift with no specific location given. For wrecks located in the Kuroshio and North Pacific Drift areas, there are eight in the Aleutians (probably the victims of the Alaskan Current), six on the coast of Kamchatka, two each in Alaska, Oregon and Brooks Island, British Columbia, and one each at Nootka Sound, Queen Charlotte Island and Providence Island. Wrecks in areas corresponding to the California Current include San Diego and San Bonito in California and Cedros and Acapulco in Mexico. Wrecks corresponding to the returning North Equatorial Current are two in Hawaii (although Hawaiian legend tells of several junks that wrecked before 1778), one each from the Kure (or Ocean) Island, Stapleton, Ladrone and Baker Island. There is, of course, no evidence of wrecks near Japan that could be proved to have traveled to America; however, it has been stated: "I have learned that in rare cases, occurring from 400 to 260 years ago, crews actually reached Japan with tidings of the American coast."¹¹

It has now been shown that a strong ocean current runs both from Asia to America and from America to Asia. Not only is it possible that this current could carry a vessel along its route, but

it has occurred frequently from the time of the European arrival on the Pacific.

One point should be made in relation to the historical section of this study:

Every junk found adrift or stranded on the coast of North America, or on the Hawaiian or adjacent islands, has, on examination, proved to be Japanese, and no single instance of any Chinese vessel has ever been reported, nor is any believed to have existed.¹²

This fact is important since, due to the ocean current pattern, Chinese junks, unlike Japanese junks, would drift southward down the coast rather than northward up the coast. Therefore, any accidental discovery of the New World would probably have been made by the Japanese. If indeed the Chinese did make one or more deliberate voyages of discovery to the New World, they were probably based on evidence of an earlier accidental Japanese discovery. This is, of course, only a hypothesis, but the ocean current evidence as well as the archaeological evidence to be presented later seem to support this theory.

From at least the standpoint of the ocean currents, a pre-Columbian trans-Pacific voyage would have been possible. The Pacific Ocean does not present an insurmountable obstacle to the diffusion of Asian traits to America.

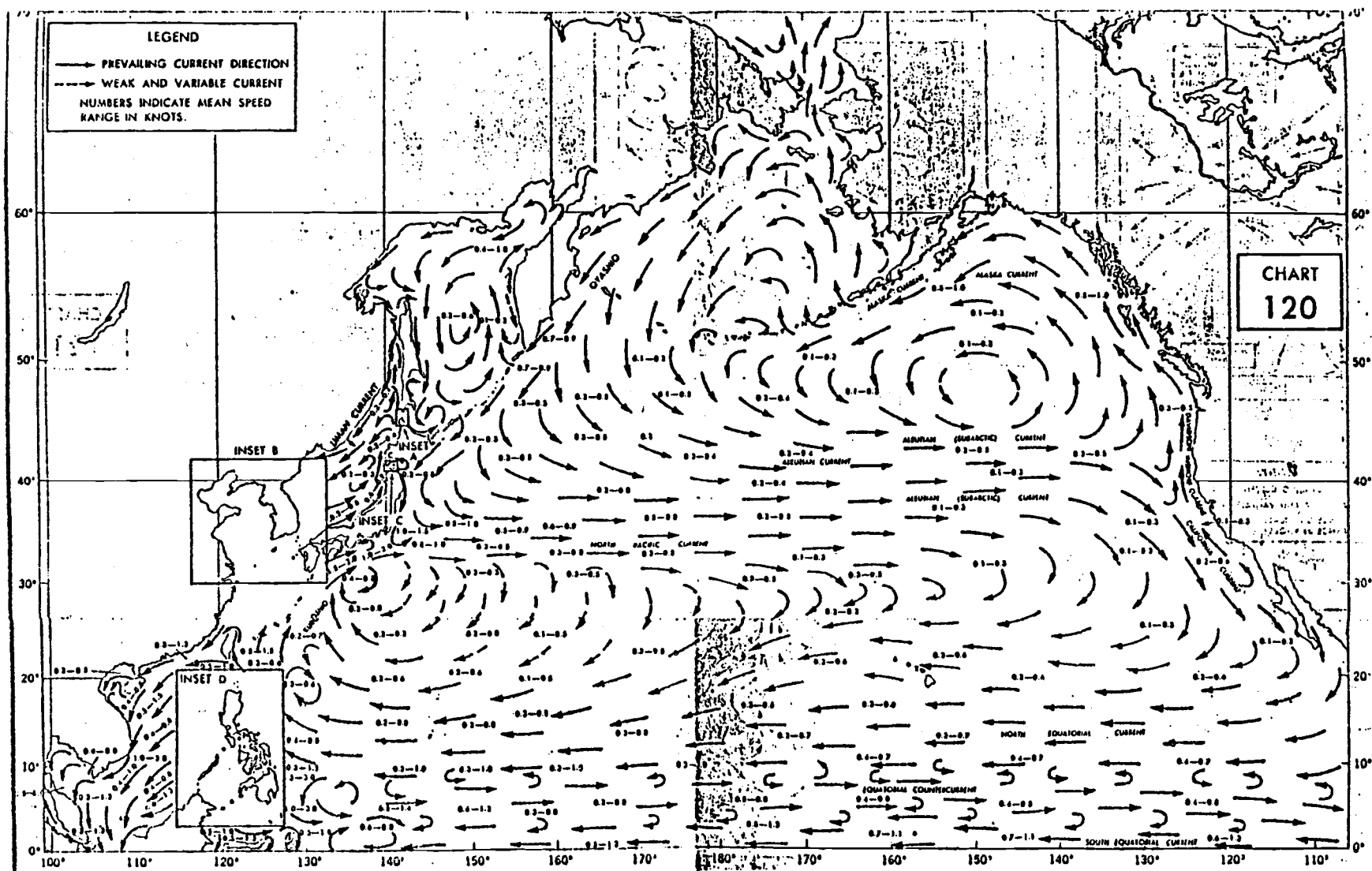


FIGURE 1. Pacific Ocean Currents--Winter

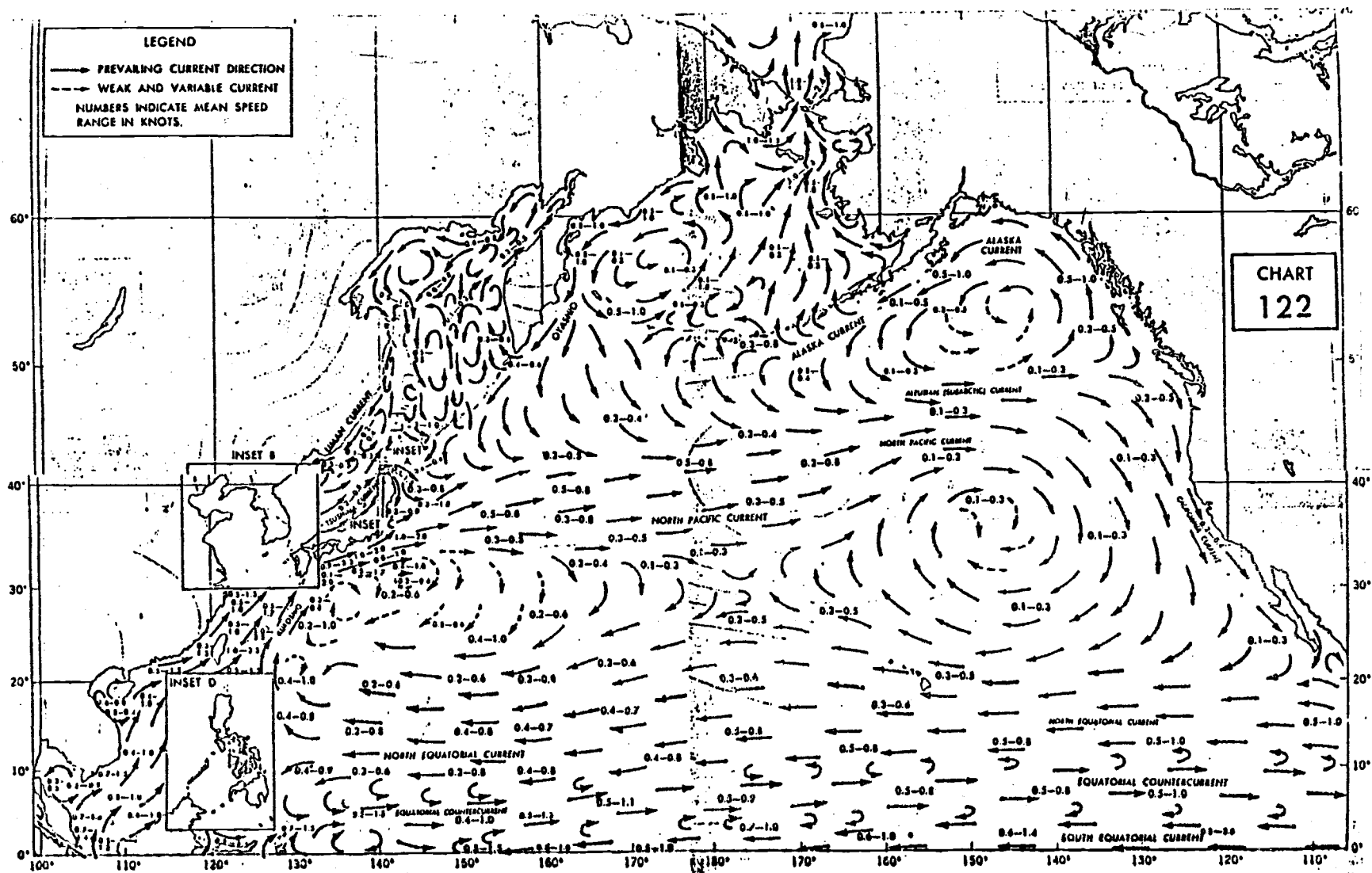


FIGURE 2. Pacific Ocean Currents--Summer

CHAPTER II

Junk Construction

From ancient times, most of East Asia used one basic ship design, the junk, which was used for both river and ocean travel. The name junk comes from the Chinese word "chhuan" meaning boat, which was translated into "djong" in Malay, and finally into "junk" in English. The center for junk construction was located in China, where three main wood patterns were used. In the first pattern, bottom planks and bulkheads were built of fir with the sides of cyprus. The second type was reversed with the bottom of cyprus and the sides of fir. In the third type, the entire structure was made of fir.

In design the junk looks awkward and clumsy to most Western observers, due mainly to the appearance of the bow. The Asians built their ships so that "bows and stern ... were inclined outward and rounding smoothly into the bottom."¹³ In this way, the junk was meant to pass over, rather than through, the waves. Fitting over these rounded bows and projecting outward is the anchor windlass, which serves the purpose of a cat-head. Attached to this anchor windlass were the anchors themselves, sometimes as many as four on a large junk. The anchors were made of wood, but were often weighted with large stones. Two of these anchor stones have recently been found in the waters off the California coast. Dr. Moriarty (archaeologist at the University of San Diego), after

studying one of these stone anchor weights, came to the conclusion that he "believe(s) the stone anchor is about 3000 years old and Asian in origin."¹⁴

Another important feature in the design of the junk is the high poop. The poop is important, not only for the construction of the ship, since the mizen is located on it and the tiller is located beneath it, but also for the space that it affords.

Along with the high poop, "all junks have a certain number of watertight bulkheads dividing the hold into separate compartments."¹⁵ These compartments were formed by nailing planking onto the sides of the ship's ribs. The theory behind this type of construction was that, if the junk received a hole below the water line, the water would flood only one compartment, leaving the rest with enough air to keep the ship afloat.

The junk also had no keel or end posts, and instead of a frame, had sealed bulkheads which withstood much of the strain on the vessel. "The key to successful shell construction lies in procedures by which planks fastened edge to edge provide adequate strength."¹⁶ To achieve this strength each plank was placed edge to edge, one on the top of the other, then nailed to the one below it. In this way, the nails acted as keepers to prevent the planks from moving laterally. To prevent the planks from separating, iron dogs or large staples were made and attached along the joints between the planks. Due to the heavy reliance on iron in junk construction, similar ship-building procedures in the New World would have been impossible without the development of an iron industry, an

event that took place much later than the pre-Columbian period under discussion.

Even though the preceding construction outline would have made the junk sturdy, it would not have made it watertight. This was accomplished by the use of chauam for calking purposes. Chauam is a mixture of ground lime and tung oil which was combined with chopped hemp, rope strands or even old fish nets. This mixture was pushed into the seams between the planks, as well as into any holes in the hull. It was then left to harden for 48 hours at the end of which time it had formed a solid watertight joint.

Next to construction, the most important feature of the Chinese junk was its sail. Most sea-going junks were multi-masted, some larger ones being equipped with as many as five sails. These multi-masted ships were in use in China at least as early as the third century A.D. (a full two centuries before the voyage of Hwui Shan, the Chinese priest reported to have visited America). The construction of the junk's sails differs from that of European sails largely due to the use of ribs. On a junk the sail is attached to the mast and also to a series of ribs, usually made of bamboo. These bamboo ribs served two purposes: first, to restrict the sail's movement, controlling unnecessary tearing; and second, to help with the lowering of the sail, especially in an emergency. Unlike those of European ships, the sails do not have to be folded since the ribs naturally stack in the correct order. The average junk was equipped with three of these sails: first, the foremast which is situated on the front, or bow of the ship; then the main mast which is

slightly forward of amidship; and finally the mizen, located on the poop. It is the foremast and the mainmast which give the junk its main driving power. The mizen, on the other hand, is used for the same purpose as it is used in Europe: "Instead of having to hoist the heavy mainsail in maneuvering in the harbor, the mizen can there be used in combination with the fore sail."¹⁷

A final point concerning the construction of the junk is the use of the stern rudder, which has been used in China since at least the Han dynasty (206 B.C. - A.D. 220), or at least 279 years before Hwui Shan's voyage. This rudder is unique in having at least three unusual features not found in European ships. First, sea-going junks typically had a system by which they could hoist or lower their rudder. Using this system, a junk could maneuver over shallows and ground safely at low tide. In deep water the rudder can in turn be lowered far below the bottom of the ship to prevent excessive leeway. The second innovation is the use of the balanced rudder, a development that goes back at least 2,000 years. This rudder is arranged so that one-third of the blade extends forward of the axial post. With this arrangement the water pressure on the rudder itself reduces the effort required to turn it, making possible a large rudder area with minimum draft. The third innovation is the fenestrated rudder, a standard rudder which has a series of diamond-shaped holes drilled through it. By this design, the water pressure on the rudder is reduced, while at the same time the steering capabilities are only slightly diminished.

All this is not to say that the Chinese junk was a perfect ship.

Indeed, like all ships, junks had their drawbacks, three of which are of major importance. First was the weight of the sails, which was dramatically increased by the use of bamboo ribs. The added weight made the sails easy to drop, but also made them too heavy to raise easily and so heavy they had a tendency to swing forward. To compensate for this, the fore end of the sail had to be tied to the mast. Second was the shallow hull and inadequate means of lateral resistance which prevented the vessel from working well to windward. Third, sailing to windward in a rough sea would have caused a large amount of pounding against the transom bow. Even with these problems, one expert states that "For any date prior to 1800, the Chinese junk was better than any Western ship."¹⁸

What all this discussion proves is that the Asian world probably had the marine and nautical technology necessary to make pre-Columbian trans-Pacific voyages possible. This is an important conclusion since if an adequate level of technology had not been achieved in Asia before 1492, then any pre-Columbian trans-Pacific voyages would have been impossible. One author states that perhaps we can never prove that such trans-Pacific voyages actually took place, "but what sails the [Asian] settlers had, or what means they took to steer their vessels over broad waters, are matters not beyond all conjecture."¹⁹

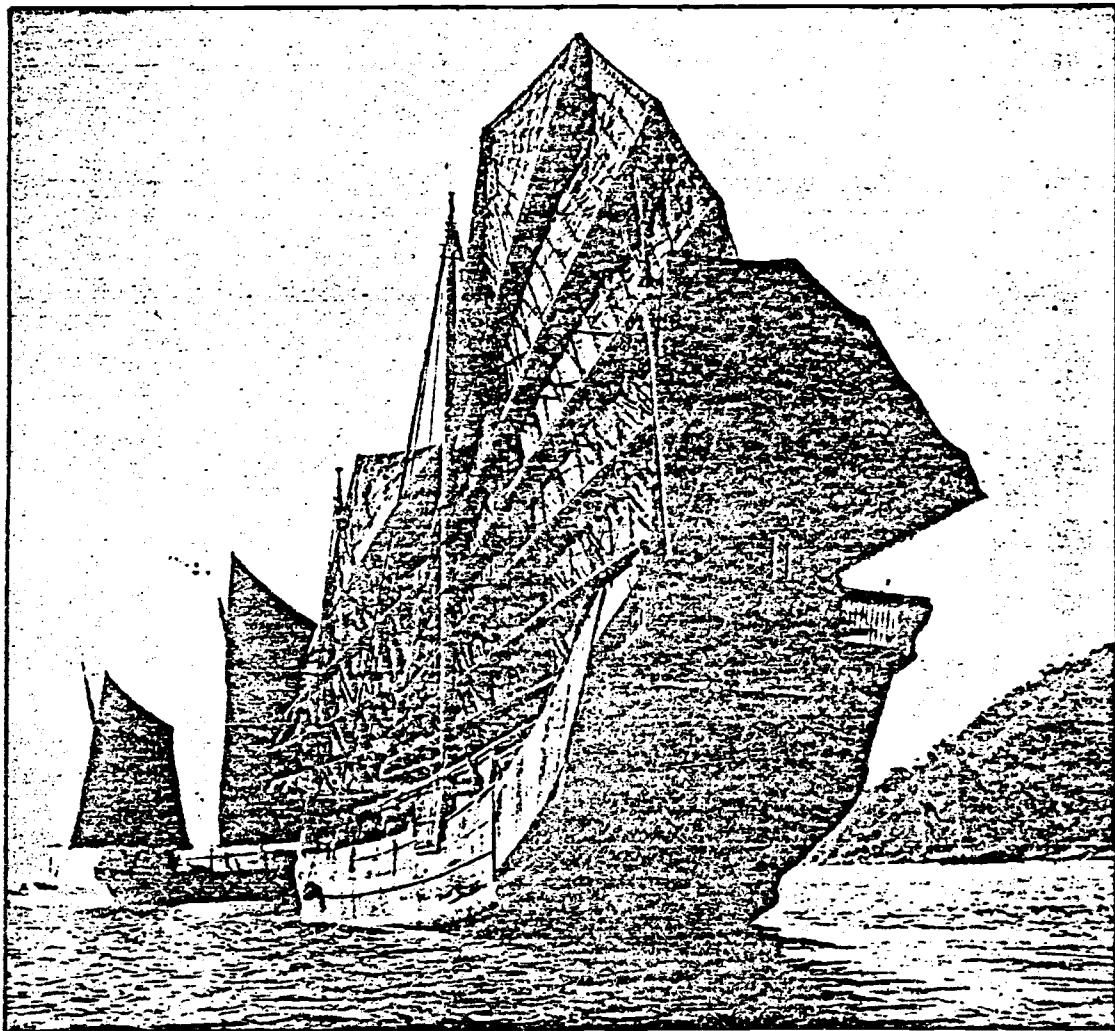


FIGURE 3. Typical Asian Junk.

CHAPTER III

Archaeological

The preceding chapters have shown that from the standpoints of ocean currents and marine technology, a pre-Columbian trans-Pacific voyage probably would have been possible. The evidence indicating that such voyage actually took place will now be presented, beginning with the archaeological evidence and including the various fields that pertain to this research, i.e., botany, zoology, art motifs, etc.

Botanical Evidence

Two points should be considered when dealing with the possibility of trans-Pacific movements of plants and their possible relationship to human migration. First, it should be pointed out that the same plant does not originate twice; that is, a plant such as wheat may originate in one area, but it probably cannot originate in two separate areas and develop into the same plant. Second, if one plant is found in two areas, it does not automatically mean that it was transported there by human means. With these factors in mind, certain plants which give evidence of possible trans-Pacific migration will be examined.

Bottle Gourd

The appearance of the bottle, or white-flowered, gourd (*Lagenaria Siceraria*) in America is by far the earliest evidence offered in support of trans-Pacific diffusion. The bottle gourd "occupies a strategic position with respect to the theories of cultural diffusion between the New and Old World."²⁰ Regarding the bottle gourd, Safford states: "From the archaeological point of view *Cucurbita Lagararia* (*L. Siceraria*) is perhaps the most interesting of the economic plants."²¹

The geographic origin of the bottle gourd is still unknown, but it probably occurred in Asia or Africa. The gourd is known to have arrived in America sometime between 7000-5500 B.C., this date having been reached by radio carbon dating of material from Ocampo caves in Meso America. The plant was first cultivated in South America around 3000 B.C. It is still unknown how the bottle gourd reached America, but "The gourd could have been introduced into the Americas by drifts, from Africa or Polynesia, but introduction by human transportation remains a distinct possibility."²² One author goes further and states that the possibility of the gourd floating to America is remote and that "The gourd is not a salt-tolerant stand and not adapted to long-distance transportation across seas by drifting."²³ Another author, in her article on the same subject, takes an opposing view and states that

The fruits of the *Lagenaria*, like those of other genera of the *Cucurbitaceae*, are structurally adapted to the dispersal by water ... the buoyancy of

their fruit and the impervious nature of their shell wall make it highly probable that they could float for an indefinite period.²⁴

The case of the bottle gourd is a prime example of one piece of evidence being interpreted two different ways by two different experts, both of whom reached different conclusions. It is this type of contradictory evidence which presents a major problem in the study of trans-Pacific diffusion. In the case of the bottle gourd, it would seem that, due to the dates given (7000-5500 B.C.), any plan involving human dispersal of the gourd must be looked upon with extreme caution.

Cotton

All plants, like all animals, are made up of chromosome chains. In the case of cotton, there are two types of chromosome combinations. There is Old World, both wild and domesticated, which has 13 large chromosomes each, and New World cotton which includes wild, with 13 small chromosomes, and domesticated, with 26 chromosomes, 13 small and 13 large. The earliest known dates for these forms of cotton in America are 2000-3000 B.C. from a sample taken from the Tehuacan Valley in Mexico.

The importance of cultivated types of cotton is obvious. For a 26-chromosome chain to be developed there must be close proximity between the New World cotton with 13 small chromosomes and the Old World cotton with 13 large chromosomes so that a cross-pollination can occur between the two. This cross-pollination could have occurred in any of three ways. First the dispersal of cotton could

have occurred in ancient geological times when the Bering Land Bridge existed between the two areas (its last submergence occurred approximately 10,000 B.P.); second, an Asian type 13 large chromosome cotton could have existed in America and eventually died out; or third, through some unknown agent, plants or seeds were transported from Asia to America. The first ways are unlikely due to geological or biological problems, i.e., the unlikely nature of the cotton spreading across the land bridge by itself, and the even more unlikely possibility of all 13 large chromosome cotton plants dying out. The third possibility (transportation by an unknown agent), however, seems to be feasible.

The seeds of the "wild" form of cotton are small, hard-coated and extremely long-lived. More important to this subject is the fact that the "wild" seeds can "survive prolonged soaking in sea water without apparent loss of viability." This is an important quality which would make it possible for cotton seeds to travel from the Old World to the New World by way of ocean currents, quite possibly the same currents described in Chapter I.

Another way the "wild" cotton could have traveled from the Old World to the New World without the aid of human contact would have been the agent of migratory birds. Studies show that one the "wild" seeds have been eaten by a bird, they can stay in the bird's system for several days with no loss of viability. In other words, if a seed was ingested by one of the many types of birds that annually migrate to the New World by way of the Bering Strait, this could

account for the cotton's transportation to the New World without human contact.²⁶ The one drawback to this scheme for the transportation of cotton is that since most birds migrate from Asia to America by way of the Bering Strait, it would seem logical to assume that cotton would exist in the area of the Bering Strait and southward down both coasts. This, however, is not the case; wild cotton does not exist in this area, and its absence indicates that cotton probably was not spread to the New World by way of the Bering Strait.

Although both of these explanations could account for the spread of the "wild" form, they do not apply so well to the cultivated form since, unlike the "wild" forms, cultivated forms make up complex "locks" or groups or seeds. These complex locks severely restrict the spread of the domesticated cotton and would not allow for the type of spread described above.

From all of this, a theory of non-human trans-Pacific exchange could be derived in which "wild" cotton reached America from either Africa or Asia, cross-pollinated with the native cotton in America and then died out. This theory, while possible, does have drawbacks, including the extremely uncertain nature of a seed accidentally reaching America. Once in America, it would have to take root, presumably without human help. After living long enough to cross-pollinate, it would then have to die out for some unknown reason. Even if this theory should be proved to be true, it still would not explain the spread of 26 chromosome plants which appear not only in America, but also in Polynesia and Hawaii.

It is for these reasons that the appearance of the 26 chromosome

cotton in America is the best plant evidence of trans-Pacific diffusion. Based on the evidence presented, there is a good possibility that 26 chromosome cotton was brought to the American continent by human transportation.

Coconuts

For many years the pre-Columbian presence of coconuts in America was in doubt. With the uncovering of a 1539 Spanish document,²⁷ however, the coconut has been shown to have been well-established in America at the time of European contact. Again the question arises, how did the coconut reach America? As with the bottle gourd, there are two possible methods by which the coconut could have spread to the American continent: one, by natural causes in the form of floating and, two, through human movement. On the side of natural diffusion, it has been pointed out that many of the world's coconuts exist in a near wild state and that they grow on deserted beaches, with no help from man. Atolls, which have apparently never been visited by man but still have a coconut population, are often cited as proof of non-human diffusion.²⁸ The optional word here is "apparently," since, in fact, the Pacific was widely explored by the native inhabitants of the area and it would be impossible to prove that any specific island was never visited by man.

Coconuts also do not keep well in water, as was proved by Heyerdahl's experiment of placing coconuts under the raft Kon-Tiki where they rotted after only a few thousand miles.²⁹ Some authors contend, however, that the Kon-Tiki experiment was not legitimate

since being placed under the raft greatly restricted the coconut's natural movements.

Looking at this evidence, one author concludes:

In view of its [the coconut] great importance in Asia and its apparent unimportance in America, I think it's probable that man carried it to America, probably relatively late in pre-contact times.³⁰

Another author, looking at the same evidence, states that:

At our present level of understanding, the trans-Pacific distribution of the species [coconuts] is not reliable evidence of human dispersal.³¹

This latter conclusion seems to be more logical, with special emphasis on the phrase "at our present level of understanding ...". It is well-known that coconuts can drift great distances; what really needs to be discovered is whether this long submergence in salt water would adversely affect the coconut's ability to take root and grow.

Maize

Maize is unique among the botanical evidence in that it is one of the few plants that is reported to have traveled from the New World to the Old World. On the subject of maize, one author quotes Stamp as saying that he had actually proved maize to be "an Old World crop."³² Although most authorities do not challenge the American origin of maize, some do place its introduction into Asia at well before the European discovery of America. Using historical records, the first mention of maize in China has been placed at A.D. 1414,

when a Chinese expedition to Africa reported "extraordinary large ears of grain,"³³ which it has been concluded could only have been maize. The theory is that maize traveled to Asia, not by way of the Pacific, but rather by way of the Atlantic into Africa, from there to Asia, and from Asia by way of the Silk Road to as far away as Spain.

The historical evidence of the pre-Columbian introduction of maize into Asia seems to be some of the weakest of all the comparisons given. The supposed allusion to maize given here is far too vague to be identified definitely as maize or to give any real evidence of diffusion.

Although the preceding approach to the question of the pre-Columbian distribution of maize is from the historical standpoint, other authors take a different course and approach the question from a botanical and ethnological standpoint.

Two authors, working from the botanical standpoint, did their work among the hill people of Assam in Asia where they identified five types of maize grown in the area. The most important of these were "Race A" grown in central Asia which resembles archaeological maize found in South America; and "Race C" which occurs both in Asia and America and which is grown mostly in the coastal areas of Asia. The authors list a variety of characteristics common in these two races, including "uniformly green leaves, culms, silks, and anthers ... slender pendant tassel branches."³⁴ Using these characteristics, their evidence falls into three categories: First, that Assamese maize is unique and related only to archaeological maize in America;

second, that the present distribution of "Race A" and "Race C" can be explained only in terms of pre-Columbian diffusion of one or the other of them; and third, that Assamese maize resembles sorghum.

Other authors have reviewed the same evidence, only to arrive at a completely different conclusion. After taking an item-by-item analysis of the characteristics of Assamese maize and showing how each was not unique and were indeed reflected in American maize, they in turn drew the conclusion that:

We find nothing in either the botanical or ethnographic evidence presented by Stoner and Anderson on Assamese maize to justify their conclusion that maize must have originated in Asia or been there in pre-Columbian times.³⁵

These findings compare favorably with those of other authors who state that:

The origins of the many food plants grown there [China] have been studied, and nearly all authorities agree that these can be traced back only to post-Columbian introductions. The fact that closely related wild species and ancient archaeological remains of corn and squash are only found in the New World seems proof that their origin must be American.³⁶

Although the conclusions drawn for maize are again contradictory, it still offers an interesting case for diffusion. Unlike some other plants such as coconuts, maize was a progressive plant; that is, it was always changing with new varieties being developed. Because of this constant change, if it could be proved that "Race A" or "Race C", or any other form of maize in Asia, was derived from an antiquated

form of American maize not in use after 1492, then the only logical conclusion that could be drawn is that these forms of maize came to Asia by way of the Pacific in pre-Columbian times.

Besides historical and archaeological evidence, ethnographical evidence has also been employed in an attempt to prove the pre-Columbian introduction of maize into Asia. Comparisons have been made between the Corn Mother myths of Indonesia and those of America. Unfortunately, the author of these comparisons does not commit himself on the question of trans-Pacific contact and states only:

If pre-Columbian agriculturists crossed the ocean with their food plants, they certainly also brought their folklore with them. And that may be the reason for the similarities between the Indonesian and American agricultural myths and rites.³⁷

Sweet Potato

The appearance of the sweet potato (*Ipomea batatas*) at an early date in both America and Asia has occasionally been used as possible proof of trans-Pacific contact between the two areas. Using historical, archaeological and botanical evidence, some authors have mapped out a system of distribution of the sweet potato in pre-Columbian times that, although taking in much of the South Pacific including Polynesia and Hawaii, excludes any pre-Columbian contact with Asia:

Its [the sweet potato] distribution in Asia is accounted for by its introduction by the Spanish trading galleons ... in the sixteenth century.³⁸

Another author on the same subject states:

Considering the claims that have been made for the pre-Columbian occurrence of the sweet potato in Europe, Africa and Asia, it is most interesting that there is no description of the plant and root ... until that of Oviedo in 1526.³⁹

Other Crops

Besides the crops that have been presented here, there are several other crops that have been mentioned in connection with trans-Pacific contact. The most important of these include peanuts, grain amaranths, what Carter refers to as cosmopolitan weeds and of most importance to this study, the common bean (*Phaseolus vulgaris*).⁴⁰ The ones presented in this paper, however, are the most important for trans-Pacific contact and give a good idea of the type of evidence available.

Taken as a whole, the botanical evidence of trans-Pacific diffusion offers a wide variety of proofs. Even allowing for the shortcomings of this evidence the findings still give substantial support to the theory of trans-Pacific contact. Some duplication of crops is to be expected, due to diffusion by natural means and if the evidence were limited only to crops that take well to natural diffusion such as the bottle gourd, then natural diffusion would easily account for the crop's trans-Pacific spread. The evidence, however, is not limited in such ways and instead includes crops such as cotton which, in this writer's opinion, could probably only have spread through the agent of human migration.

Zoological Evidence

Unlike botanical evidence, the zoological evidence is very limited, relying only on two animals.

Hookworms

The first of these two animals are two species of the common hookworm, *Necator americanus* and *Ancylostoma duodenale*, both of which are found in Asia and in American Indians. There are three different ways by which the hookworm could have been introduced from Asia to America. These include by way of the Bering Land Bridge, which must have been warmer than at present to permit the hookworm infestation to persist. The hookworm could also have come from Asia or Indonesia by way of temperate latitudes, in which case both forms would have been present. And finally, it could have come from Polynesia in which case only *Necator americanus* would have been found. Since both forms have now been found in America, option number three is probably no longer a realistic supposition:

This [both forms found in America] will suggest their having come to this continent via the sea from those countries in Asia where *A. duodenals* and *N. americanus* are found to be inflicting the natives, i.e., Japan and China ...⁴¹

This same hookworm evidence sheds some light on another area of trans-Pacific diffusion, that of migration. Unlike some of the other evidence of trans-Pacific diffusion which could have reached America from Asia by means other than direct diffusion, i.e., by way of the Pacific Islands or even as cargo on wrecked junks, the hookworm,

since it infests humans, could probably have come to America only by the direct migration of people.

Chickens

Carter, in a surprisingly unbiased work, examines the possibility of Asian forms of chickens in pre-Columbian America. In his article he lists points both pro and con for the introduction of chickens into America in pre-Columbian times. His points on the affirmative side include diffusion rates several times faster in America than in Europe (i.e., chickens spread several times faster in America than when they were introduced into Europe); names of chickens that pre-date A.D. 1500; botanical data indicating Southeast Asian rather than European sources; chickens which resemble other species in Japan and India; spurs used on cocks are Asian in type; and uses of chickens are Asian. On the negative side he lists Spanish introduction of chickens, Spanish introduction of Asian animals, early Spanish penetration into back country, and frequent Spanish voyages to India. Carter's conclusion on the subject is that:

It seems to me that the case for the Spanish and Portuguese introduction is weaker than the case for the pre-Columbian Asiatic source, but it is easy to underestimate the Spanish.⁴²

The zoological evidence is actually some of the most interesting evidence presented for trans-Pacific diffusion. Carter makes a good case for chickens, unfortunately, as he states: "... it is easy to underestimate the Spanish." It would be possible to account for nearly all Carter's points by citing the early invasion and

exploration by the Spanish. The single exception to this might be the rapid spread of chickens in America. This could, in turn, be explained by the simple fact that chickens might have filled an ecological or economic niche that had long existed in American Indian culture. The case of the hookworm, on the other hand, is not so easy to explain. If, indeed, the evidence presented is correct--and there is no reason to doubt it--then probably the only logical conclusion that can be drawn is that the hookworm came by man from Asia to America by way of the Pacific.

Architecture

Along with archaeological and historical plant evidence, similar evidence has also been used in the field of architecture to try to prove trans-Pacific cultural exchange. This type of evidence is important in that the findings can easily be checked through archaeological means, especially since most of the comparisons made in this area are based on monumental architecture, i.e., temples, palaces, etc. Ekholm, in an article on the subject, lists a number of elements which he contends appear both in Meso American and Asian (especially Cambodian) architecture. Among others, these elements include "the use of corbelled vault, serpent balustrades, serpent columns and attached columns in panels."⁴³ Besides these architectural forms, the same author in another article lists and elaborates on a number of other forms as well, some of which will be examined in detail.

Trefoil

The oldest architectural comparison given is that of the trefoil arch, an arch which is designed basically in the shape of a three-fold leaf, which was used in Pakistan in the fourth or fifth century A.D. and became common in the twelfth century. The same form was used in America from the Classic Maya Period to the fifteenth century A.D. The most unusual use of the trefoil arch is at Palenque, Mexico (the only site with this feature) where the arch is used over doorways and as a framing for niches in the upper walls. This same type of arch is also used at Ang-kor, Cambodia where it was used as a framing for decorative panels.

It is interesting that this architectural form has only been found at one site in the New World. This limited application may be due to a number of reasons, not the least likely of which is that the form diffused from an outside area and due to cultural, technological or other reasons, was only adapted into one area in America.

Columns

After trefoil arches, the next oldest architectural form listed is that of columns, which appear in Cambodia in the sixth century A.D. and in America in the Late Classic Mayan period. The author states that in many of the so-called "palace type" buildings, rounded columns were frequently used along the front exposure:

It is possible also that they [columns] stem from Asia where a variety of columns have been in use for at least a thousand years previously.⁴⁴

The optional word here is "possible." Rounded columns are not a good

yardstick for measuring possible trans-Pacific exchange for the simple reason that their use in monumental architecture was nearly universal in the ancient world.

Colonnade Decorations

Along with columns, the author also uses colonnade decorations, which he defines as colonnades arranged in panels and used at the corners of doorways, to show Asian traits in architecture. He points out that there is a strong similarity between the colonnades of Puuc from the Mayan area and those of Khmer from Cambodia. There are some similarities in colonnade styles in both areas. The argument, unfortunately, has one major weakness, that being the dates given for each ruin. The Cambodian example is dated as the tenth century A.D., well after the date of the Puuc example. Of course, the Cambodian example may have been a later example of a much earlier architectural form, or the form could have diffused from the Mexican area to Cambodia (an explanation that is not seriously considered by most scholars). Until one of these explanations is proved, the dates given for the colonnade example are going to be a major problem in any model of trans-Pacific diffusion.

Gallery Structure

Ekholm also uses the example of the gallery structure in both Asia and America and their relationship to diffusion. He points out that in both areas, using the example of Angkor Wat in Cambodia and Chichen Itza in Yucatan, galleries consist of the following: " ... a long passage with corbelled vault roof supported on one side by a row

of columns and on the other by a wall covered with low relief sculptures."⁴⁵

Unfortunately, this argument is weakened somewhat by the statement that this pattern may well have been reached independently in both areas. The use of galleries, like the use of columns, was nearly universal and as such not a good yardstick for diffusion.

Monster Doorway

Besides these examples, Ekholm lists two more possibilities of Asian influence in the architecture of America. The author holds that in both of these areas--at Hochob in the Chenes area of Meso America and at Candi Kalasan in Java--buildings were erected with a façade in the form of a monster's head with a doorway being its open mouth. The façade depicts a serpent extending from the monster's mask and moving downward, ending with its profile at the doorway. Although the depiction of various monsters is again a world-wide phenomenon, the placement of the monster's head as a framework for the doorway is a complicated and rather unique architecture style and is probably too complex to have been developed in more than one area.

Serpent Columns

The comparison which is referred to as "among the most significant to things Asiatic"⁴⁶ is what are called serpent columns and balustrades which amount to the placement of a serpent's head at the base of stairs and columns. These serpent columns are used in exactly the same way at both Chichen Itza and at some smaller and

earlier "Hindu" temples in Java. In the writer's opinion, the serpent columns are the most important and interesting of all the architectural examples given. They are by no means identical; but the similar theme--that of the serpent's head--and the similar placement at stairs and columns are very striking and appear to be too complicated a design to have been invented twice.

Non-Asian Architectural Parallels

As with every other aspect of possible trans-Pacific diffusion that has been examined, the possibility of exchange of architectural forms has both its supporters and its detractors. One of the latter, Kubler, rather than showing the problems and drawbacks of the comparisons of Asian and American architecture, indicates that for each of the examples presented "an older European parallel can also be proposed ..."⁴⁷ It is this author's contention that by showing these non-Asian parallels, "the thesis of Asian origins is thereby diluted to include the entire Old World," and therefore it loses "both precision and meaning."⁴⁸ His point is well-taken. Although the author does not apply himself directly to the comparisons set forth earlier, he does extend the scope of the comparison to apply to such things as the use of courtyards, etc. In this way this author gets away from the limited view of American Indian architecture, and instead gives a more complete and thorough view of the available evidence. Since the comparisons made between European and American Indian architecture are outside the realm of this study, all that will be said here is that the author does cite

convincing evidence that selected architectural forms can be paralleled just as effectively to Europe as to Asia.

Although architecture presents an interesting case, the comparisons are often superficial and, more often than not, of an isolated nature from other architectural forms. In studying architectural forms, not listed in the preceding study, ten differences in form can easily be found for every similarity listed. It should be noted, however, that if indeed architectural borrowing was occurring between the two areas of Asia and America, it may well have been of a sporadic nature with only certain elements being exchanged due to the cultural, environmental or technical differences between the two areas.

Art Motifs

Of a more striking nature than the architectural forms are the comparisons drawn between the various art motifs of Asia and those of America.

Standing Figures

The first motif to be examined is that of the standing figure. The most striking feature of the standing figure is the comparison of clothing, particularly the diamond pattern which is represented in relief by raised intercepting lines. This diamond pattern is well-represented in archaeological examples from both Asia and America, as well as modern examples from Asia. There is no denying the close similarities between the diamond-shaped patterns represented in the standing figures of both areas, however, since the

diamond is one of the basic geometric shapes, this close resemblance could conceivably be attributed to independent invention.

More interesting than the diamond pattern is the use of a monster head with either a loin cloth or decorative adornment coming out of its mouth. In both Asian and American art these heads are used in two forms, one, as a waist ornament from which a loin cloth is hung down the front and two, as leg ornaments positioned just below the knee from which decorations are hung. These heads are interesting since they not only have the same theme--the monster's head--but they also have the same position on the body and the same use of hanging loin cloths and decorations.

The last major feature of the standing figure is the use of a head dress which takes the form of a monster's head depicted from the lower jaw upward (this may well be closely related to the monster with no lower jaw, which was described in an earlier section). Again this form appears frequently in both Asia and America.

It is unlikely that these two forms of decoration were developed independently in two different areas. The theme of the monster's head, its placement on the body and its use for hanging loin cloths and beads are simply too complex and too closely related to have been reached independently. Besides these features, the standing figures also have some similarities to their Asian counterparts on such points as the double-headed serpent bar and the various positions of the hands, but these similarities seem to be less striking than those already described.

Multi-headed Figures

The second comparison to be examined is the use of the multi-headed figures. For the purposes of this comparison, the subject is divided into two categories: first, those figures whose heads rise vertically one on top of the other and, second, those whose heads are arranged in a semi-circle. The first is less striking, partly due to the use of different materials. In the Asian examples given, the vertical multi-headed figures are depicted as two-dimensional on paper, while those from America are three-dimensional in stone. Since the cultures of Meso America did possess paper, there is no technical reason for this discrepancy, although there may be some cultural reason which can only be guessed at. There is also the fact that while the heads of the Asian figures are all realistic, only those on the top and bottom of the American examples are depicted realistically.

The other form, those with heads in a semi-circle, makes a far more striking comparison. In examples from both the Asian and American areas, the heads are arranged in a semi-circle, both have heads that are basically realistic, and both have figures which are depicted in the same position with the legs crossed.

The mere fact that both examples depict figures with three heads, all shown realistically, is striking enough. Add to this the same circular arrangement of the heads and the same crossed-leg sitting position, and it becomes hard not to acknowledge some form of contact between the two areas which these figures represent.

Sitting Position

Of all the comparisons made, the figures depicted in the sitting position are by far the most striking. In both areas the figures are shown as sitting in the lotus position. In certain figures from both Asia and America, the head is shown as being bald, the eyes are closed, and the mouth is in a closed half-smile. In some examples, the figure is shown wearing a loin cloth which is draped over the front of the crossed legs. There are, of course, some differences in the figures, but the similarities are much more obvious and more striking.

The examples are unique when compared with the others listed in that, unlike other examples whose comparisons are based mainly on artistic likenesses and on Asian features applied to an American Indian figure, they show instead close physical similarities. These extremely close physical likenesses--bald head, closed eyes and half-smile--would imply a system of direct diffusion or migration from Asia, rather than simply a movement of abstract ideas.

Figure Standing on Figure

The next area to be studied is that in which a human figure is depicted as standing on another figure, usually also human. These figures do not show the close physical parallels of the sitting figure, but they are still very interesting, due mainly to the subject matter depicted. To be completely objective, it should be pointed out, subject matter of this type (one figure standing on another) could have been arrived at independently due to similar

cultural situations; for example, the motif could depict a king standing over his people or a warrior over his enemy, but the comparison is so close that the possibility of trans-Pacific diffusion should not be ruled out.

Long-nosed Motif

The long-nosed motifs are examples of art that are reputed by some to depict elephants. The appearance of non-appearance of the elephant in American art has been debatable for 65 years, ever since Dr. G. Elliot Smith declared that motifs in America could be identified as "an Indian species of the elephant."⁴⁹ Smith was in turn refuted by Alfred Tozzier who held that what Smith mistakenly identified as an elephant was "unmistakably a mascow."⁵⁰ Since this has been such a hotly debated subject, it will be stated here only that the motifs do indeed seem to depict an elephant, complete with trunk and large ears (a feature that a mascow would not have).

Hand Gestures

Comparisons of the hand gestures rendered in both Asian and American art have also been studied by the author, specifically the similarities between the Maize God and the Asian Buddha. In both of these motifs the figures have arms bent at the elbow so that they are horizontal in front, both wrists are bent with hand turned upward and one downward with both hands open. The significance here is that this is not a normal hand position, and for that reason the same hand position is not likely to develop independently in both areas since it is both uncomfortable and unnatural. If it

was not invented independently, it must have been diffused quite possibly from Asia.

Tiger Art

To this point only one authority has been cited in this study of art motifs, and as such the scope of the comparison is rather limited, however, other authors have also noted close similarities between Asian and American art. These include such things as the tiger art motif where four similarities are noted: tigers with vessels or mortars on their backs; the use of scales (on tigers in Peru and dragons in China); legs in two flat arches meeting at an angle and spiral designs with spiral-type stripes on the legs.⁵¹

Other Motifs

Other motifs common to American and Asian art include: Hocker motif; bilateral splitting; totemic posts; interlocking spiral motifs; carved jade; turquoise mosaics; al-fresco mural painting; and lacquer.⁵²

Altogether the art motifs examined here show a number of very close similarities between Asian and American art, both in subject matter and artistic style. The unnatural hand position nearly identical to Asian examples, the Asian features of the sitting figures and the depiction and arrangement of the three heads in the multi-headed figures are all too similar to their Asian counterparts to deny some type of diffusion between the two areas.

These art motifs also give some interesting evidence on the way imported material can be changed and adapted by the culture into

which they are accepted. With the exception of the sitting figure motif, all the other art forms take what is apparently an Asian style motif and superimpose it onto American Indian-style figurines.

Pottery

Pottery could easily be referred to as the life blood of archaeology. Its durable nature, never decaying or changing even under the most adverse conditions, plus its steady progress of types and styles, makes for easy identification of various cultures as well as of various time periods within each culture.

In the interest of clarity, this subject has been divided into two geographical areas: Japan and Mainland Asia (specifically China and Indo-China).

Japan

Similarities between the pottery of pre-Columbian America and that of Japan have been studied by a number of scholars. Extensive work has been done in Ecuador comparing the pottery of that area with similar Japanese samples. For this comparison, the pottery complex of the Early and Middle Jomon period of Japan dated 5102 ± 400 B.P.* with overall dates between 3000 and 2000 B.C. will be compared with the Valdivian phase of Ecuador, the earliest examples of which are dated 5151 ± 150 B.P.

Common Jomon and Valdivian Pottery Techniques

There are a number of motifs and techniques used in pottery making which are common to both the Jomon and Valdivian cultures.

* See Table III, p. 110, for conversion of B.P. dates to B.C.

Included in these techniques are folded over edges, where the vessel's rim is folded over and then pressed with the fingertips. Braid or cord impressions were also used with the pottery being given decorative impressed lines which had the general appearance of a rope impression. Castellated rims were used in one form of pottery, where the corners of the pot were raised, creating a saddle effect between them. Besides these similarities, many others also existed between the two cultures including:

... zoned punctuation; incised lines embellished with nicks; shell stamping in rows; small rectanguloid areas with a central punctate; crude anthropomorphic faces on rim exterior of open bowls; finger made grooves; incisions in zig-zag, cross hatch and zoned parallel line patterns; undulating rims bordered by an incised line on the exterior; alternating incised lines and rows of punctuation; small trianguloid excised areas incorporated into excised designs; ornamental unsmoothed coils; three parallel incised lines partly obliterated by later surface smoothing along the rim exterior; red slipped surfaces; and small tetrapod supports.⁵³

Along with these motifs, there are also some close similarities in the ways that these various motifs are combined. These include the combination of:

... shell scraping and shell stamping, finger tip punctuation and finger grooving, excision and broad-line incision, rocker stamping and incision, incision and punctuation, [and] incision and nicked or finger pressed rib.⁵⁴

Direction of Movement

If indeed these similarities do demonstrate trans-Pacific contact, the question arises, in which direction did these crossings

move? Meggers, Evans and Estrada contend that the pottery styles depicted in both the Valdivian and Jomon cultures originated in Japan and from there spread eastward to America. As proof of this, certain pottery techniques are cited that are represented in both complexes but which have a sound developmental history in Japan. Included in these are the multiple drag-and-jab punctation which is rare in the Valdivian complex, but which are widely used and developed into a number of variations in the Jomon complex. Also included is the finger-tip punctation and pseudo-corrugation which both appear in the Valdivian complex, but which have no intermediate connecting styles between the two styles. Both forms also appear in the Jomon complex, but here they have well-defined intermediate stages of development. Finally, the two types of incised designs used in the Valdivian complex have no obvious relationship, but both can be related to the incised styles of the Jomon complex. On this point one author states, "The Jomon incised style can be viewed as a common ancestor out of which the two Valdivian types are differentiated."⁵⁵

These pottery examples make for an impressive case. The close proximity of the dates, the number of techniques in common, the way these techniques are combined, and especially the lack of intermediate stages of development for the Valdivian culture all combine to make a case that would be hard to refute. In fact, the Valdivian and Jomon comparisons are probably the strongest yet presented for trans-Pacific diffusion.

Meggers, in her article, sees this Japanese contact as being trans-Pacific and probably accidental. She makes a good case for

this argument by citing the frequency of typhoons off the coast of Japan and the strong pull of the Japanese current.⁵⁶

These views are challenged by others in the field, including one who points out that if indeed the early Japanese did follow the northern route as has been proposed, they would have been picked up by the North Equatorial Current before reaching Ecuador, and then taken back home by way of Hawaii.⁵⁷

Meggors explains this discrepancy by pointing out the fact that the California Current flows south as far as Panama where it meets with the Equatorial Counter Current, both of which then proceed to Ecuador. This explanation is possible but not probable, since the majority of the California Current merges with the North Equatorial Current. What is left is a relatively weak indirect current as is the Equatorial Counter Current with which it merges.

This is not to say that the voyage would have been impossible. As shown in Chapter I of this work, such a voyage has indeed taken place. As a matter of fact, Meggors herself uses much the same evidence as was presented in Chapter I, when she states:

Records during the past century demonstrate the feasibility of such a drift vessel reaching land with living passengers after a voyage of as long as eleven months.⁵⁸

The vessels under discussion here, however, were probably of the junk construction, not the type of sea-going dugout that was in use in the time of the proposed Japan diffusion (3000-2000 B.C.). There is also evidence that America may have been visited by an earlier

type of water craft:

A number of writers have discussed the relationship among rafts of Eastern Asia and South America. The combination of sail, of whatever design, and center board, is thought to represent a navigation technique too complicated to have been invented more than once.⁵⁹

If indeed these navigation techniques were too complicated to have been invented more than once, the only explanation for its existence in both Asia and America would be through diffusion, probably some sort of direct trans-Pacific diffusion.

Northwest Coast

The question is often raised that if indeed Japanese sailors did drift down the American coastline, why were there no Jomon pottery samples found in other areas of the coast? There may be, however, such Jomon evidence in other areas of the American coast. In an article on Alaska, it is stated that:

Oswalt saw parallels between the Alaskan and proto-Jomon ceramics of Northern Japan as illustrated by Groot. However, in view of the early date subsequently established for the proto-Jomon stage, these generalized resemblances can no longer be considered significant.⁶⁰

If, however, the Jomon research proves to be correct, this similarity may well prove to be very significant.

Meggers' scheme for the Jomon pottery diffusion in America and especially her theory for the introduction of pottery into America from Japan has been challenged by others, one of whom states:

Recent radio-carbon dates from California and Washington now provide evidence that a ceramic tradition was established in the Pacific coast region by 4500 B.C., over a thousand years earlier than the hypothesised diffusion of ceramics from Japan to Ecuador.⁶¹

If this source is correct and pottery did exist 1000 years before the proposed Jomon diffusion, it opens up a number of other possible questions. Since the similarities between Valdivian and Jomon pottery cannot be denied, other explanations must be found for the early appearance of Jomon-type pottery on the West Coast. These explanations may include the following. One is that pottery techniques reached America from Japan 1000 years before what is currently proposed, an unlikely theory, but still one that cannot be dismissed. A second is that pottery from California had not spread as far as Ecuador by the time of the Japanese visit. A third is that the Jomon methods and models were applied to an already existing pottery complex. Given the data presented, the last supposition is probably the most likely, but it would require further original research to prove.

Mainland Asia

Like Japan, Mainland Asian pottery has also been studied in an attempt to prove some trans-Pacific contact between Asia and America. A number of pottery forms, both decorative and utilitarian, have been proposed as possible links between the two areas. Among others, these forms include the following.

House Models. Of the eleven house models cited for the American

examples, one forms the upper part of a jar, three are containers and seven are models. When compared with these examples, the Asian models are "similar in size and construction to those of Ecuador."⁶² More important than the fact that both areas made pottery houses is the construction style depicted in these models. These models do not represent a typical New World house of Meso or South America, as would be expected with independent invention. Instead, the models consist of concave or saddle-ridged roofs which are often accentuated by decorations, rectangular floor plans, gable beams which rest on small support posts, and a double roof with a hollow space or attic. These models compare well with Asian houses which frequently had saddle roofs low in the center and high on the ends. Double-roof construction to provide storage space was used in Japan as were outward projecting eaves and cross logs placed on ridge poles. This last example was also found in pottery samples from Indo-China dating from the Han period. Ornamental treatments of gables, either carved or painted, were also a common feature throughout Asia.

If the above features were examples of typical American houses of the time, or if the similarities were confined to one or two minor points, then they could easily be attributed to parallel development. This, however, is not the case. The models depict Asian, not American, houses and the similarities are major and not just superficial. For this reason trans-Pacific diffusion of house models either as an abstract idea, or perhaps more likely as an actual physical model, must be given serious consideration.

Neck Rests. Neck rests, pottery supports for the head and neck,

appear in pottery examples from Ecuador. Pottery neck rests were first used in India about 1700 B.C., and have appeared in China since at least the eighth or ninth century A.D. with possible references going back to the third century A.D. There are no stylistic comparisons drawn between the American and Asian neck rests. Since neck rests were in use world-wide, they give little in the way of evidence of diffusion and, in fact, are probably more likely to have been invented independently in America.

Figurines. The most impressive and important example in the area of figurines is the La Olata figure, which is depicted with one leg on top of the other so the right foot is on the left knee, and vice versa. This position is in close likeness of the adamantian position of India. Examples of this type of figurine appear in Ecuador as well as in Copan in the Mayan area.⁶³

Again, as with the earlier examples of the hand gestures, this example is important in that the position depicted is far from a natural sitting position and for that reason is unlikely to have developed independently in two separate areas. This particular example may also be seen as physical evidence of religious diffusion, since this particular sitting position was often used in meditation in Asian religions.⁶⁴

Panpipes. Also used for a comparison are the symmetrically graduated panpipes (an early musical instrument), which are pipes graduated in size from both ends toward the center. In Southeast Asia a similar two-part panpipe was known, with a probable literary reference in China dating back to 1100 B.C. The two sets of notes

that are produced by this pipe were known both in East Asia and by the Cuna Indians of Panama as male and female notes, again implying a relationship between the two areas.⁶⁵ This similarity in the names of notes could, of course, simply be due to the fact that one set of notes is higher than the other in the same way that a female voice is higher than a male, but the possibility of diffusion should not be overlooked.

Net Weights and Ear Plugs. Two more very short pottery comparisons are frequently used in an attempt to prove trans-Pacific diffusion. One of these is the pottery net weight of Ecuador which is often compared to similar examples from the Han period of Indo-China. One author, comparing the two examples, states that they have a "striking resemblance."⁶⁶ The other of the two comparisons is the ear plugs, which occur both in Ecuador and Japan. These "golf-tee" ear plugs date to the Jomon period of Japan (the same period as the earlier pottery examples) and closely parallel the examples from Ecuador in both style and material.

Teotihuacan Cylindrical Tripod Pottery. Although most of the preceding comparisons have been based on material from South America, one other geographical area of America has been studied extensively for trans-Pacific influences in pottery making. This area is Meso America, where pottery styles and techniques have been compared with those used in the Han dynasty period of China (206 B.C. - A.D. 220). Most of this evidence rests on the style and technique used to make Teotihuacan cylindrical tripod pottery. One point is brought out: Teotihuacan pottery, with its "conical cover, with squared mold-made

legs and horizontally arranged decorations,"⁶⁷ is not in the same style as most other Meso American works which were usually rounded and more structurally sound. It is in close similarity, however, to the tripod pottery of the Han pottery of Mainland Asia, not only in its general style but also in the use of thickened portions at the top and bottom, with some thickened only at the bottom.

The number and combination of similarities here are not as great as those in the Jomon examples, but there are enough similarities of sufficient complexity to shed doubt on whether two forms, so closely related, could have been developed independently without some interchange of ideas.

Molds. The two areas are also similar in the use of molds. In both areas molds were used as a way of applying decorations to the tripod vessels. The fact that the tripod was one of the earliest vessels on which the molds were used is very important, as is the fact that the molds were probably first used in Ecuador, where most of the earlier examples of trans-Pacific diffusion of pottery were found.⁶⁸

In direct relationship to the Teotihuacan tripod pottery is their chronological appearance in both areas. In China tripods became dominate (as has already been implied) by at least the Han period, while in America it appears in the Teotihuacan II or Miccaotli period and became common during the Teotihuacan III period, both of which fell within the Han period. This is the same Han period that two of the earlier examples, house models and ear plugs, were compared earlier in this work.

Another author, discussing these same stylistic pottery parallels states:

Two varieties of cylindrical tripods from Mexico (Teotihuacan III) and Central America (Kaminal juyu, Zacalco, Copan, etc.) are so similar to Chinese types of the Han period that some kind of connection can hardly be doubted.⁶⁵

The time comparisons here are important, being some of the closest yet presented. What the case of the trans-Pacific origin of the tripod pottery really needs is documentation of well-established earlier stages leading up to the tripod in Asia and the lack of the same stages in America, if indeed they are lacking. This type of proof would be invaluable here since a vessel as complex as the tripod could not have developed without some intermediate stages.

Fresco Decorated Pottery and Wheeled Toys. Besides these pottery similarities, two other forms of pottery, as well as a number of non-pottery traits which will not be discussed here, are mentioned in connection with trans-Pacific contact. One of these forms is the fresco-decorated pottery which has been compared to the Chinese lacquer pottery and the second is the use of wheels on pottery toys, which is examined in greater detail in other articles (see Ekholm, 1953).

It should be pointed out that pottery is not the only connecting link between the West Coast of American and Asia. Numerous other similarities between the two areas have been mentioned, including great houses of wood, with central totemic posts, totemic posts with figures of men and animals arranged in series, eyes or human faces in the joints of arms and legs, the squatting figure, singular or multiple, with arms and legs in frog fashion, singular or multiple

with arms and legs in frog fashion, the use of bell-shaped pestles or mauls with peculiar handles, the extensive use of heliotes shell for inlay of wood, etc.⁷⁰

The preceding evidence has drawn extensively on material from Meso and South America, but these are not the only areas of the West Coast where evidence of trans-Pacific diffusion has been found. The Northwest, too, has its share of examples of Asian diffusion:

Heraldically Flaked Figures of indeterminate sex are also common in another area that is regarded as having been influenced by early Chinese culture, namely the Northwest coast of America.⁷¹

This seems to point to at least some, perhaps only sporadic, contact between Asia and the Northwest coast of America.

From all the evidence here presented, a model can be developed for the trans-Pacific diffusion of plants, art motifs, architectural ideas and pottery models from Asia to much of the American West Coast. From the dates given and from the current evidence given in Chapter I, it would probably not be a large jump to assume that diffusion was originally of Japanese motifs and designs and probably accidental in nature. The original Japanese diffusions would have been replaced at a later date by Chinese contacts, probably of a planned and more sustained nature. This is, of course, only a theory, but the archaeological evidence as well as the current evidence would seem to support such a model.

Conclusion

The archaeological evidence of trans-Pacific diffusion is at

times almost overwhelming. Besides the evidence presented here, there is also linguistic evidence (see Kelley, 1964), cultural anthropology (see Keizer, 1943 and McKerr, 1937), as well as further archaeological evidence (see Carter, 1977 and Meggers, 1975). Much of the evidence presented shows similarities that are simply too close and too complex to readily be attributed to any form of parallel development. All of the archaeological examples presented here meet at least some of the criteria set for proving diffusion in the introduction of this work. Most of the examples seem to have appeared fully formed in America. In the cases where specific dates are available the extinction of the Asian examples post-date the introduction of the American example. In most cases the comparisons also seem too closely related to have evolved independently. Finally, in at least one example, the Jomon pottery, the artifacts involved show well-documented developmental stages in the donor area, Japan, but has no early stages of development in the receiving area, Ecuador. Add to this the close proximity of the time frame of the American and Asian examples and it becomes very difficult to deny some form of contact and diffusion between the two areas.



FIGURE 4. Seated Stone Figure, Classical Period
(ca. A.D. 600-900) Santa Clara, Honduras



FIGURE 5. Seated Figure, Jizo, Kanakura Period
(A.D. 1322), Japan

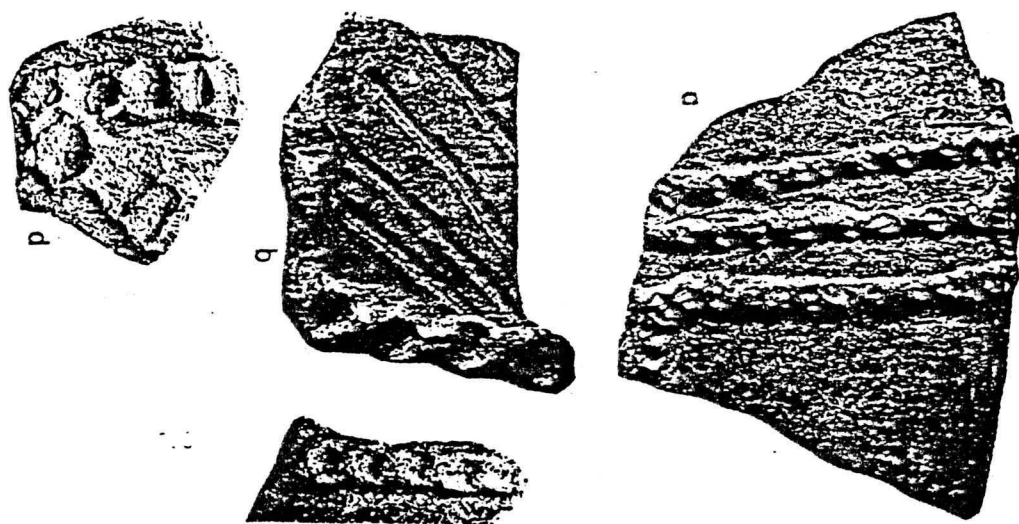


FIGURE 6. Jomon Pottery Complex

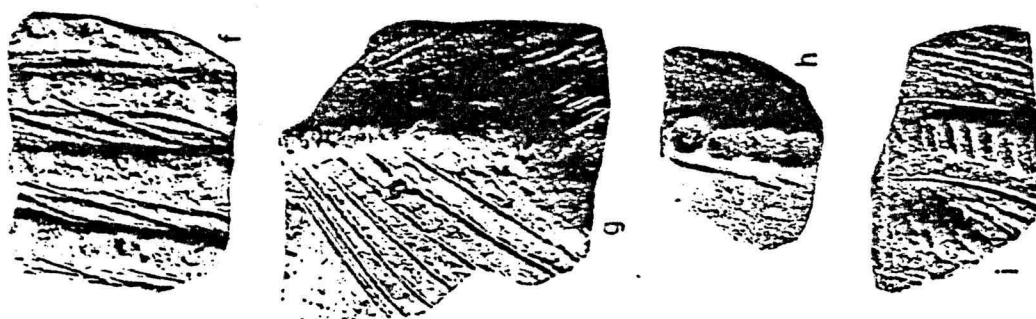


FIGURE 7. Valdivian Pottery Complex

CHAPTER IV

Religious Comparisons

According to Hwui Shan's account, the Buddhist religion was introduced into Fu-Sang (the land listed in various Chinese accounts and thought by many to be the pre-Columbian Chinese name for America) by five priests in the year A.D. 458. Due to the important position that religion held in both Asia and America and the relatively large amount of ethnographical and archaeological work that has been done in this area, some in-depth comparisons of religious parallels seem merited.

The Gods

The most striking religious parallel between Asia and America can be found in the lists of gods, both in Hindu-Buddhist religion and the religion of America, specifically Meso America. For the purpose of such a comparison, a list of the 28 Indian Hindu-Buddhist gods and the 12 Mexican gods is included, along with their attributes (see Table II).

Looking at this comparison table, certain similarities become obvious, notably the use of moon and red in group 2, moon and wealth in group 4 and liquor and destruction in group 5. Certain other similarities, although present, are not so obvious. These include destructive gods which are largely lunar in group 11, and deities of fertility in group 12. The comparison of these two groups

Table II⁷²

India (Hindu-Buddhist)	Mexico
<u>Group 1</u>	
1) Agni, fire	Itzpapalotl, goddess of Tamoanchan, "where the gods were created"; a form of the fire god
2) Prjapati-Brahma, Lord of creation	
<u>Group 2</u>	
3) Chandra-Soma, "Moon" home of the dead	Xipe, lunar god of the earth, agriculture, war, Tezcatlipoca the Red; Maya, old moon goddess
4) Rudra, "Red," god of earth, agriculture, and destruction	mother of gods, often painted red
5) Aditi, Mother of gods	
<u>Group 3</u>	
6) Brhaspati	Tlazolteotl, goddess who judges sinners, sends rains
7) Ahi-sarpah, "Snakes," bringer of rain	
<u>Group 4</u>	
8) Pitarah (Pitr), "Fathers," behind the moon, guardians of wealth	Tezcatlipoca, lunar god of wealth
9) Bhaga, "Distributor (of the wealth)"	
<u>Group 5</u>	
10) Aryaman	Patecatl, lunar god, destroys when drunk with pulque, lord of innumerable pulque gods; Maya destructive rain god
11) Savitr	
12) Indra who destroys when drunk with soma	
<u>Group 6</u>	
13) Vayu, bringer of rain	Xochipilli, god of procreation
14) Indra, bringer of rain	

of gods is not exact, however the similarities in their uses, forms, and even color are striking and go far beyond what would normally be expected through parallel development. These lists of gods, their attributes and even their groups are so similar that it is difficult to deny the possibility of some link between them.

Religious Art

In the area of religious art there are also a number of close similarities between the Hindu-Buddhist of India and the cultures of Meso America.

Fire Serpent

A prime example of religious art similarity is the fire serpent in Aztec and Mayan art, which in many respects resembles the Indian Makara, a mythical sea monster of Hindu-Buddhist origin. The two forms compare closely in such areas as the fish-type bodies, elephant-like tusks, the form of the teeth and

Both in Hindu-Buddhist art and in that of the Maya, varieties with paws occur which resemble a crocodile rather than a fish, and in both regions a human figure often emerges from the mouth of the monster.⁷³

This last point is the best evidence of diffusion since the combination of the monster and the human and especially the placement of the human in the monster's mouth is again a combination that probably would have been too complex to have been invented twice.

Atlantian Figures

Close similarities have also been noted between American art forms and two Hindu-Buddhist forms; the Atlantian figure and the ceremonial figure standing on a crouched human figure both appear in India in the second century B.C. The Atlantian figure has a close counterpart in Tula in Central America and at Chichen Itza', whereas the ceremonial figure compares closely to Mayan sculpture at Palenque, Mexico.

The second of these two forms, a figure standing on another figure, is the more striking of the two, since the subject matter depicted in both the Asian and American examples are nearly identical. The problem here, however, is that the subject depicted is simple enough to have been developed independently in the two areas in response to similar stimuli.

Elephant Masks

Another religious art parallel that is nearly always cited as proof of trans-Pacific diffusion and must be included in any complete work on the subject is the use of elephant masks to represent the Mayan rain god. There has, unfortunately, never been agreement as to whether the mask in question actually represents an elephant. Therefore, any parallel drawn between the two should be viewed with a certain degree of skepticism.

Temple of the Cross

There is also the Temple of the Cross at Palenque which

... resembles stylistically the cosmic tree as represented in Javanese shadow-play figures. Moreover in both instances a demoniac face, in Java a sun symbol is placed in the tree's branches.⁷⁴

It should be noted that although the Java figure in question is dated only from the nineteenth century A.D., a stylized version at Ankor Wat dates from the twelfth century A.D., with such figures probably dating from even earlier periods.

Kala

The Kala was a monster head without a lower jaw which was often combined with the lotus motif. In medieval India and more so in South-east Asia, the Kala was often combined with the two heads of the Maka. In one area, Cham, these two separate forms eventually merged into a three-headed monster, probably first used around the ninth century A.D. It is this combination of a central monster's head with no lower jaw flanked by two other monster's heads that again appear in Mayan art, notably at Chichen Itza'.

This is the third time that this same motif, a monster's head with no lower jaw, has been used as evidence of diffusion, the first two being as a doorway in the Architectural section and as a head-dress in the Art Motifs. Since this motif is not too complicated, one comparison could be attributed to parallel development; however, three separate examples, all of which have parallels in Asia, seem to go far beyond what would be expected from parallel development.

Diving God

One striking example of Hindu-Buddhist American contacts may

be found in the so-called diving gods of Asia and America. This motif is just what the name implies: the figure of a god with body pointing downward, face looking outward and legs spread in frog-like fashion. In both subject matter and form, the diving god examples from both the areas are nearly identical and are much closer than would be expected through independent invention or parallel development.

Even though the physical comparisons between these two examples are striking, it should be noted that the Asian example from the Balinese manuscript is apparently from a later date than the American example. There are, of course, at least two possible explanations for this: the motif could have been diffused from America to Asia or possibly there could be an older Asian example of the motif not cited in the sources.

Sun Disks

The wheel is a very old symbol in the Hindu religion and is depicted in a wide variety of forms. For the purpose of this study, the most striking feature of the wheel is the central face with its surrounding and overlapping leaves. This central face motif resembles the Aztec calendar and various sun disks with their central figures (in the case of the calendar, a stylized face) and their often overlapping "rays" which compare favorably with the leaves of the Hindu-Buddhist wheel.

Vishnu

Parallels have often been drawn between the Hindu god Vishnu

and similar figures found in Vera Cruz. In each case, the figures are holding a large bulbous headed staff in one hand. In the other hand, Vishnu holds a wheel symbol, while the Vera Cruz figure holds a doughnut-shaped object; in both instances, the object is in the left hand and upraised. Besides this there are also certain similarities in style and design of the loin cloth and necklaces worn by both figures.

These similarities are apparent, but also apparent are a number of dissimilarities as well. For example, the total lack of any Asian features in the face of the Vera Cruz figure, the more stylized than realistic body of the Vera Cruz figure, and the fact that the god Vishnu is always depicted with four arms whereas the Vera Cruz figure is shown with only two.

Lotus Plant

Probably the most striking of all the Hindu-Buddhist American religious art comparisons is the one involving the lotus plant. The lotus was a common motif in Hindu-Buddhist art and in time became a set stylized pattern. In most cases, the plant was depicted as both realistic and stylistic. The upper part of the plant--the flowers and leaves--was usually shown in realistic relief, where the lower part--the rhizome (which in the actual plant runs under water and is often covered with mud)--was shown in a very stylistic fashion, often expanded to form a border around the central flower. The rhizome is usually depicted as forming a

... pattern along the length of the design area, curving back and forth across the width of the panel and leaving spaces which are filled with leaves, buds and flowers.⁷⁵

This complex and intricate pattern is true not only of the Hindu-Buddhist reliefs, but also of the lower temple reliefs at Chichen Itza'.

Another point of comparison is the position of the lotus panel in the overall design. In both the Chichen Itza' and Hindu-Buddhist relief, the lotus design is often used as a border for a larger or more important feature.

The use of a monster or fish in relation to the lotus plant relief is another interesting comparison. At Chichen Itza', one relief shows a fish eating a lotus flower. "The placement of the fish is identical to that of the Makaras or fish-like monster in the lotus panels of Amaravati."⁷⁶ At both Chichen Itza' and Palenque, the lotus rhizome is shown as emerging from the mouth of a monster head or mask, again this is an extremely common figure in Hindu-Buddhist art. In both areas the rhizome is shown as coming out of a jawless mask that is set in the center of the relief. At Santa Lucia Cotzumalhuepa the lotus is shown as coming from behind the mouth of the principal figure, which again is common in Hindu-Buddhist reliefs.

Even though these similarities exist in the lotus motifs of the two areas,

Several points of theoretical interest suggest reasons why considerable similarity might be expected between the water lily in the art of Maya and the lotus depicted in India. The plants are virtually identical ... [they are] among the larger and more showy flowers ... although

the panel designs are especially similar in Maya and Indian floral art, they represent elaborations of basically simple geometric forms. The arts of India and the Maya tend towards a cursive style. They were, in addition, highly symbolic.⁷⁷

Although this explanation could account for some of the stylistic similarities between the lotus art of the two areas, it does not account for all the similarities and more importantly, those in the various combinations of the motif. These combinations of style are so striking that it is hard to account for them by any means other than diffusion.

Another author, also working on religious parallels between Asia and America, states:

Deep in the forests of Copan in Honduras one may see Indra, the god of Paradise in Hindu mythology, riding an elephant. Triloknata, the Hindu ruler of the three worlds, was known to the Mexicans by the same name. In the temple in Guatamala there is a statue of the incarnation of Vishnu as Kurma, the tortoise. At Copan I found the monkey god celebrated in Ramayana epic.⁷⁸

Divination

Besides the areas of lists of gods and art motifs, one other area, that of divination, has also been studied for its relationship to trans-Pacific diffusion. One author, studying this area, comes to the conclusion that:

I am inclined to deduce that the practice of divination from entrails of sacrificial domestic animals in the Andes came into existence under the influence of the South China cultures from the late Chou age across the Pacific Ocean.⁷⁹

Using this type of evidence, Heine-Geldern develops two hypotheses. First, religious material, rather than coming directly from India to America, was diffused from India to its religious colonies in Southeast Asia and from there to America. This concept has some supporting evidence from the historical point in the form of well-known close contacts, not only between India and her Southeast Asia colonies, but also between Southeast Asia and the rest of Asia, notably China.

The second hypothesis is that the religious diffusion took place between the second and ninth centuries A.D. In support of this Heine-Geldern offers the following schedule of religious motifs which he holds occurred both in Asia and India:

Lotus designs with interspersed human figures, probably second century A.D. elephant-headed figures, not prior to the fifth century, probably later. Makara, probably around seventh century ... Kala-Makara head, probably ninth or tenth century.⁸⁰

If this latter hypothesis proves to be true, it would have importance beyond simply assigning dates to religious diffusion. It would, instead, prove that the Asian diffusion and contact with America was not accidental or sporadic but rather of a sustained and substantial nature over a period of several centuries.

Conclusion

Finally, a short analysis should be given. One expert states:

I believe that the ancestors of the people who practice these forms of worship ventured across the Pacific Ocean ... using boats much like the junks known to the Chinese.⁸¹

It would be difficult to fully agree with this statement. After having studied reproductions of many of the examples presented here and having looked at them both for similarities and differences, it is easy to find a number of both. On the archaeological side there are several interesting similarities, some of them quite striking, the prime example being the lotus motif and its related features. There are a number of examples, however, in which the similarities are superficial at best, such as the Vera Cruz comparisons to the Vishnu god. There are also a number of religious items on both sides where there are no similarities. These differences, of course, could be attributed to selective borrowing or to adaptation of Asian motifs to fit already existing American styles and attitudes. Even so, in terms of religious similarities in archaeological materials, the only conclusion that can safely be drawn is that although the material is interesting, only by further examination of existing material on both sides of the issue can any reliable conclusions be drawn.

In terms of the listing and comparisons of gods and their attributes, the information is more conclusive than the archaeological evidence. It should be noted that certain gods, such as those ruling over fire, water, etc., are nearly universal. Still, the close similarities shown in Table II seem to go beyond what could be expected by coincidence and appear to meet all criteria set forth for proving diffusion. This evidence should be seen as at least substantial, if not conclusive proof of some form of early trans-Pacific contact.



FIGURE 8. -Zapotec Three-faced Diety, ca. 8th century A.D., Oaxaca, Mexico



FIGURE 9. Brahma, Chola Dynasty, ca. 19th century A.D., Tanjore, India



FIGURE 10. Balinese Manuscript

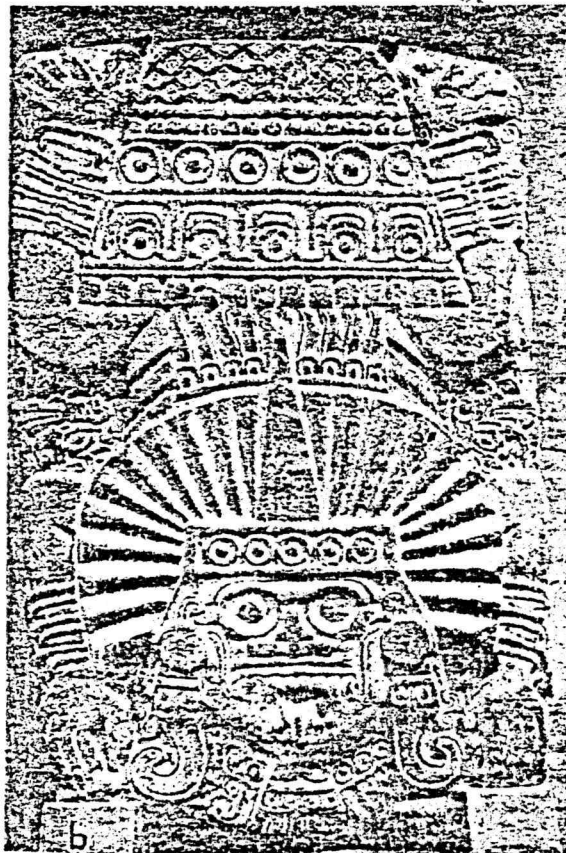


FIGURE 11. Sculpture from Tuxpan, Vera Cruz

CHAPTER V

Historical

The written evidence of possible pre-Columbian trans-Pacific contact relies almost entirely on the Buddhist priest Hwui Shan's* account of Fu-Sang** and its reported relationship to America.

Historical Background

In the year 1761, the noted French sinologist, Charles de Guignes, came across an account in the "Antiquarian Researches," published in 1321. The author of this work, Ma Twan-lin, relates the account of a Chinese Buddhist priest, Hwui Shan, who in A.D. 499 returned to China from a voyage that had taken him eastward approximately 20,000 Li (Chinese miles) to the land which he called Fu-Sang.⁸² M. de Guignes not only translated the account of Hwui Shan but, taking it a step further, he attempted to identify the land of Fu-Sang by using various features given in the account. At the conclusion of this endeavor, de Guignes published a paper titled "Investigation of the Navigation of the Chinese to the Coast of America and as to Some Tribes Situated at the Eastern Extremity of Asia," published in Paris in 1761.⁸³ As the title of this paper indicates, it was de Guignes' opinion that the land described by Hwui Shan and called "Fu-Sang" by him was in reality the coast of Western America

*Also spelled Hoei Shin.

**Also spelled Fu-sang.

or, more specifically, the coast of California and Meso America. Since de Guignes was a member of one of the most prestigious scientific organizations of the time, the French Academy of Science, his paper received wide circulation and came under close scrutiny. After examining the evidence and de Guignes' conclusions, the majority of the Academy found themselves in agreement with his opinion that Fu-Sang was in all probability the Chinese name for America.

Not until seven years later, in 1831, was the first serious challenge made against de Guignes' thesis. In that year the Prussian sinologist, Joseph Klaproth, refuted de Guignes' conclusion and put forth his own, titled "Research Regarding the Country of Fu-Sang, Mentioned in Chinese Books and Erroneously Supposed to be Part of America." Klaproth's basic thesis was that de Guignes had erred in his interpretation of Hwui Shan's account and that in reality Fu-Sang was not any part of America. Klaproth based his thesis on two points brought out in Hwui Shan's account. First was Hwui Shan's mention of horses in Fu-Sang. Klaproth states that horses were unknown in pre-Columbian America and therefore Fu-Sang, as described by Hwui Shan, could not have been America. Klaproth also points out Hwui Shan's reference to "grape" or "grape vine" in Fu-Sang, declaring that:

The circumstance that vines were found in the country of Fu-Sang is sufficient to prove that it could not be any part of America.⁸⁴

Klaproth's thesis of 1831 was the opening round of a literary and scholarly battle that has continued to be fought for the last

150 years. With each new piece of evidence the battle flares anew.

Hwui Shan's Account

Beginning where de Guignes started, that is Hwui Shan's own account of Fu-Sang, we find:

Fu-Sang. In the year 499, a Buddhist priest named Hwui Shan came to China and told about a country called Fu-Sang. Fu-Sang is 20,000 Chinese miles to the East of the Great Han country. It is also situated east of the Middle Kingdom (China). They have a great number of Fu-Sang trees and from them the country takes its name. The leaves of this tree are the color of the oak. In its early stages the leaves look like bamboo shoots. It has an edible fruit which is pear-shaped and reddish in color. The bark of the tree can be made into cloth and from this the people make clothing. In building their houses they make planks such as are used in the construction of adobe houses. Their cities have no walls. They have a written language and make paper from the bark of the Fu-Sang tree. They do not fight as they have no weapons in that country. In this country they have prisons, a southern one and a northern one. For lighter offenses, the culprit is sent to the southern prison but for more serious crimes, he is placed in the northern prison. If the criminal is pardoned, he is transferred to the southern prison but failing to obtain a pardon, he remains in the northern prison. Those men or women confined in the northern prison can marry and have children. However, their sons are made slaves at the age of eight years and their daughters at the age of nine years. The criminal's body is not allowed to be brought out of prison at the time of his death. If a nobleman has committed a crime, the people hold a great assembly placing the offender in the center of a pit or excavation, while they sit around him, eating and drinking, and then take leave of him as of a dying man. He is then surrounded with ashes. If the offense is of lesser nature, or is the first offense, only the man himself is punished. If the crime is greater, or has been repeated, then his children and grandchildren are additionally punished. If it is a third offense, or one of great seriousness, punishment will extend to his seventh generation. The title of the King of this country is the Chief of the Multitudes. The noblemen of first rank are called

Tuilu. Those of the third rank are called Nah-tu-sha. When the King of the country leaves his home, he is both preceded and followed by drums and horns. He changes the color of his clothes according to the years' changes. The first and second years are blue (green); the third and fourth years are red; the fifth and sixth, yellow; the seventh and eighth, white; and the ninth and tenth, black. They have cattle with long horns. These long horns are used as receptacles to put things in and some horns are as large as ten ordinary ones. They have horse carts and deer carts. The people of the country raise deer as is done in China. From milk they make koumiss. They have red pears which are kept unspoiled throughout the year. They also have the grape, or grapevine. The ground of the country is destitute of iron but it has copper. Gold and silver are not valued. Their markets are not taxed and they have no fixed prices. When a man plans to marry, he first builds a small house near, or in front of, that of the young lady he hopes to marry. He sprinkles and sweeps the ground in front of her house both morning and evening throughout the year. If the girl is not pleased with him she soon sends him away but, if there is a mutual attraction, then their marriage takes place. The marriage ceremonies, in general, are the same as those of China. If a father, mother, brother, wife or son dies, the remaining members of the family mourn seven days, not eating; for grandparents, they mourn five days without eating; for an elder or younger brother, a father's elder or younger brother, or his sister or for an elder or younger sister, they mourn three days without eating. An image of the departed spirit is set up and they reverently honor it by libations both morning and evening. The people do not wear mourning garments or mourning badges. During the first three years after his accension to the throne, the King does not occupy himself with matters of State. Formerly this country had no knowledge of the Buddhist religion but, during the Sung Dynasty, in the second year of the period called the "Great Brightness" (458 A.D.), five priests, or Pi-k'iu, from the country of Ki-pin (Kabul) journeyed to that country taking with them their Buddhist religious books and images and taught the people their Buddhist doctrine and to forsake their rude customs and thus reformed them.⁸⁵

20,000 Li

Hwui Shan's account begins by stating that the land of Fu-Sang

was 20,000 Le (Chinese miles) or approximately 7,000 U.S. miles from the Great Han country of China. Even on this opening point there is some controversy since Han, also translated as Ta Han in China's history, refers to a people and to a dynasty (206 B.C. - A.D. 220), but it does not refer to a specific geographical area of China. Because of this, some scholars have speculated that Great Han may not have been in China, but instead may have been in an area as far away as Kamchatka. However, this is only speculation without any real basis and for the purpose of this study, using this as a reference, starting from China, and moving 7,000 U.S. miles east, the plotted location would be approximately on the California coast (the actual distance between Shanghai and San Francisco is 6,270 nautical miles or 7,210 U.S. miles). This distance is measured by traveling in a straight line near the equator, a route which would have been unlikely for ancient Chinese mariners due to conditions stated in Chapter I of this work. The more likely northern route, however, while appearing longer, would actually have been shorter and close to the same 7,000-mile distance.

Fu-Sang Tree

Hwui Shan's account of the fu-sang tree is not only one of the more interesting points presented, but also one of the more important in any argument in favor of Fu-Sang and America being the same geographical area. In his account, Hwui Shan states that the fu-sang tree, from which the country gets its name, was used by the natives of the land to make clothing as well as paper. This compares favorably with well-known accounts of the Indians of Mesa and

South America using the bark of trees for both clothing and paper, but this is only a superficial similarity at this point.

Hwui Shan lists the fu-sang tree as not only being used for clothing and paper, but also having leaves the color of oak, which at its early stages looks like bamboo shoots, and also having a pear-shaped fruit which is reddish in color. Now, how does this account stand up against the appearance of the trees that were used by American Indians for clothing and paper?

Leaf Color

The Indians of Meso and South America, notably the Aztecs and Mayas, made their paper from three basic trees, all of which belong to the botanical family Ficus: *Ficus Cotinifolia*, *F. Petiolaria* and *F. Padifolia Cottiofolia*.⁸⁶ The color of the leaves of the Ficus family are described as green, usually a brighter color on top than on the bottom, often termed "green above, lighter below".⁸⁷ There is, of course, some variation, especially on the underside of the leaves, which run the color spectrum from white to purple to violet.⁸⁸ Even with this slight color variation, however, the fact is that the color of the Ficus leaves is basically green, not oak color, as described by Hwui Shan.

Edible Fruit

Hwui Shan also goes on to describe the fu-sang tree as having edible fruit which is pear-shaped and reddish in color. The description compared favorably to a number of Ficus trees, including *F. Padifolia* and *F. Cotinifolia* since "the fruits of *F. Padifolia*

are edible as are those of *F. Cotinifolia*."⁸⁹ Another species of the fig family, *F. Habrophylla*, is also described as having purplish red fruit which is in accord with the reddish color of the fruits as described by Hwui Shan.

Hwui Shan also describes the fu-sang tree as having pear-shaped fruit. The *Ficus* tree, in comparison, has a rather wide variety of shapes of fruit ranging from a cluster growing mushroom-shaped fig to the pear shape of the common domestic fig, *Ficus carica*.⁹⁰ At least in part then, Hwui Shan's description of the fu-sang tree parallels some features of the *Ficus* tree, the species of tree used by American Indians for their clothing and paper.

An interesting sidelight to this paper issue comes from the Otomi people of South ^{Mexico}America who, in historical times, were still found to be making native paper from a variety of *Ficus* trees, including *Ficus Padifolia*. Along with the traditional trees, however, the Otomi were also found to be making paper from the *Morus Celtifolia* "the same paper-mulberry used by many Asiatic paper makers."⁹¹ Due to Western contact, the mulberry process could have been introduced in historical times and, therefore, is not presented here as solid evidence of pre-Columbian contact but rather as a basis for speculation about such contacts.

Century Plant

The preceding examination has been based on the *Ficus* tree, however some experts hold that the tree described by Hwui Shan was not the *Fucus* tree but rather the Century Plant (genus *Agave*) of Mexico:

The sprouts of the Century Plant does furnish a rough sort of thread from which a kind of hemp cloth is made and also a fine variety resembling linen. Further paper is made from ... the fiber.⁹²

Of course, it is possible that the fu-sang tree as described by Hwui Shan was the Century Plant, but the comparison seems to be reaching. It also seems to be rather unnecessary considering the close similarities between the fu-sang tree and Ficus trees.

Architecture

Hwui Shan states that "in building their houses, they make planks such as used in the construction of adobe houses."⁹³ Due to the brevity of this description it tells little about the housing of the people living in Fu-Sang; however, it does give one good clue in the use of the word "plank." It is impossible to know Hwui Shan's own definition of the term "plank," but probably the most likely definition is that of a piece of wood with at least one flat surface. The use of planking in houses was indeed known on the pre-Columbian West Coast, most notably in the cedar plank houses of the Northwest Coast cultures. The limitations of Hwui Shan's account, however--the year (A.D. 499) and, more specifically, the use of paper--by cultural definition must place the land of Fu-Sang not on the Northwest Coast but rather in Meso or South America, probably the Maya culture of Meso America. So the question becomes, were planks used in house construction in the Mayan Empire?

First, it should be noted that unlike monumental architecture, house construction leaves little in the way of architectural evidence. Therefore, for the purpose of comparison, the construction

outline of a modern Mayan house is used. This comparison has validity since the huts of the old Mayan area

... have not altered in the space of 2000 years and most of the huts in present-day Yucatan may be regarded as authentic Mayan buildings.⁹⁴

The outline of a modern Mayan house follows:

"HOUSE FRAMING"

PRINCIPLES OF CONSTRUCTION

1. Forked or notched mainposts are implanted in post holes, which have been dug in the ground or superstructure.
2. Mainposts support transverse beams (cross-beams) which in turn carry longitudinal beams (wall plates), or vice versa. This simple basic frame supports the roof.
3. Horizontal longitudinal poles (pole plates) are sometimes lashed across the ends of the crossbeams, a little outside the line of the posts.
4. Additional transverse poles (tie beams) sometimes rest across the ends of the pole plates. If the mainposts carry wall plates instead of cross beams, the positions of the pole plates and tie beams are reversed.
5. Two or more transverse A-frames, with the bases of their arms either forked and resting on cross beams or lashed to the backs of wall plates, carry a ridgepole where the arms cross above the center of the house.
6. Rafters, resting at their upper ends on this ridgepole and at their lower ends on the pole plate, plus longitudinal poles (roof rods) bound to their backs, form a frame on which the roof covering, usually some form of thatch, is fastened.
7. The entire roof framing is strengthened on the interior by roof purlins, by additional cross beams, and sometimes by roof bows, which are poles lashed diagonally across the inner slopes of the roof.
8. Sometimes the ridgepole is not carried by A-frames, but by roof posts (king rods) the bases of which either are implanted in the floor or rest on tie beams. Or the rafters themselves may carry the ridgepole in crotches formed where they cross each other at the top.
9. Normally an upper ridge-piece ("false" ridgepiece) lies in these crotches between rafters. It is bound to the

crest of the thatch.
 10. Walls enclose the house interior.⁹⁵

The significance of this outline is that although the system makes extensive use of poles, it makes no use of "planks" as described by Hwui Shan. It should be pointed out that in ancient architecture, there were often wide differences due to various technological levels, cultural patterns and resources available. Nevertheless, if America or, more specifically, the Mayan Empire was the land of Fu-Sang, more substantial evidence of the use of planks could be expected.

Walls

The only other point that Hwui Shan makes in reference to architecture was his comment that the cities of Fu-Sang had no walls. Again using the Mayan civilization as a focal point, we find that at least here, Hwui Shan's account appears to be accurate:

The use of enclosing walls either for purposes of defense or special definition was extremely rare in any part of the Maya area. Traces of low walls are found at a limited number of sites but a true enclosing wall of the dimensions found at Tulum is unknown except at Mayapan.⁹⁶

This point is second in importance only to the use of paper and writing in any argument of Fu-Sang and America being the same geographical area. Few states were secure enough in their power to leave their cities unprotected by battlements. The fact that Hwui Shan describes Fu-Sang as being this way, plus the fact that the Mayan Empire was this way, constitutes formidable evidence to support the

Fu-Sang-America theory.

Weapons

Hwui Shan next states that there were no weapons or warfare in Fu-Sang. This statement is easy to compare with known facts of the Mayan civilization. The Mayas did make and use weapons, most notably the macuahuitl, a war club with a row of obsidian points on either side.⁹⁷ The Mayas also fought wars, both to take and to hold their empire. On these two points the comparison between Fu-Sang and Mayan America seems to be weak, giving evidence in opposition to, rather than support of, some contact between the two areas.

Penal System

The next point which Hwui Shan brings up is that of prisons and punishments in Fu-Sang. Hwui Shan goes into great detail on this point, describing both the northern and southern prisons as well as the trial and punishment of nobility and the enslavement of the prisoners' children. Here again, there seems to be close comparison between Fu-Sang and known cultures of America. "... ancient Mexico had two kinds of prisons. Ancient Mexico and child slaves, too, the boys beginning at seven and girls at eight."⁹⁸ The only difference between this account and Hwui Shan's account of Fu-Sang is in the ages of the children, where there is one-year discrepancy. Even this can be explained, since it was the tradition of the ancient Chinese to consider a child one year old at birth.

Titles

The titles given in Hwui Shan's account give at least some

indirect evidence pertaining to this study. The titles describe a hierarchical form of government, with at least three different ranks of nobility overseen by a central king figure. Again, using the dates given (A.D. 499) and the reference to writing, we may conclude that Fu-Sang was a Mayan controlled, or possibly Mayan influenced area, and therefore the government of the Mayas must be compared to that attributed to Fu-Sang.

Most of what we know of the Old Mayan Empire is gleaned from records, etc. of the New Empire. "We have no direct evidence as to the type of government ... prevalent in the Old Empire ..."⁹⁹ Lacking any direct evidence, the comparison must be based on two sources, direct evidence as known from the New Empire, and indirect evidence taken from sculptures, vase paintings and frescoes of the Old Empire. From these two sources a governmental system can be pieced together to compare to that of Fu-Sang. Hwui Shan states that there were three ranks of nobles in Fu-Sang, the first being Tui-li; the second Little Tui-lu; and the third Nah-tu-sha. Now compare this with the Mayas. The Mayan nobility was divided into ranks, based on birth. At the top of the nobility stood the Batabs, who held the governmental position of local magistrate and executive. Then there were the Ah Cuch Cabob, the town council or elders; the Ah kulelob or deputies; the Ah Holpopov, or assistants and finally the Tupilas, or town constable. The only major comparison that can be drawn between the account of nobility in Fu-Sang and that of Mayan nobility is that Hwui Shan listed the nobility as being divided into three ranks, while actually the Mayan nobility was

divided into five.

The only other mention that Hwui Shan makes of the government in Fu-Sang is that the chief of the country is called the Chief of the Multitudes. Now again compare this with the Mayan system and certain differences become apparent. For example, Hwui Shan refers to the king of the country, yet in the Mayan Empire "No Emperor ... ruled over all the land at any one time."¹⁰⁰ The Old Mayan Empire was made up of city states, roughly in the same fashion as the city states of Greece, with each of the states being ruled over by a "territorial ruler," who had vast power in his own city state. This being the case, it would have been simple, through misinterpretation on the part of the ruler or on the part of Hwui Shan, for the territorial ruler to be seen as the king of the country. There is also the problem of area, since Hwui Shan never gives any estimate of the size of Fu-Sang; it may have been only one city state, in which case the ruler would have been king of the whole country. Hwui Shan also states that the king of this country is called "Ichi"¹⁰¹ or King (Chief) of the Multitudes, whereas in the Mayan system the ruler was called Halach uninic or True Man.¹⁰² Again, this could be merely a difference in translation or, the two titles could refer to two completely different men in two different countries.

Clothing

On the subject of clothing, there is nothing in the historical or archaeological account of the Mayan Empire to indicate any system of changing clothing with the changing years as described by Hwui

Shan. There are, however, certain areas in cultural studies of modern Mayan society that although far from confirming Hwui Shan's account, do give some idea of the importance of clothing and color in the Mayan hierarchy. For example, the most important symbols of authority in the various Zimacantan hierarchies are special articles of clothing ...¹⁰³ Among these are high-backed sandals, long black robes and, on the highest level, red turbans and black broad-brimmed hats.

Cattle and Horns

Hwui Shan states that the inhabitants of Fu-Sang had cattle, the horns of which were used as receptacles. On this point Hwui Shan's account appears to have no relationship to known American societies. A number of bison species existed in America and were widely hunted, however no American Indian ever domesticated or raised cattle as described by Hwui Shan.

The use of horns as receptacles, however, does seem to have some parallel in known American cultures:

... gigantic cattle horns, probably those of prehistoric bison, which once roamed Mexico, were shown as curios by Montezuma to Cortes and have also been found in ruins in Mexico, indicating that they were indeed used as containers.¹⁰⁴

The example here refers to the Aztec, rather than the Mayan Empire, but the Aztec's use of horns as receptacles could have been a borrowed trait from the more advanced Mayan area.

Deer

Along with cattle (or oxen), Hwui Shan also states that the people of the area raised deer as was done in China. Two deer-like animals, the llama and alpaca, were raised by Meso and South American Indians, but neither were really deer and probably were not the animals referred to by Hwui Shan. There is no solid evidence that true deer (not llamas or alpacas) were domesticated as draft animals as was done in China. Deer were very common in the Yucatan Peninsula, there being five different species in the area. The largest of these were the Swamp Deer (*Odocoileus diehotomas*), the open plains deer, the Pampas deer or Veado branco (*Odocoileus bezoarcticus*), the Andes Deer, called Cuemalus (hippocamales), as well as the gray bracket (*Mazama nemorivage*), and the red bracket (*Mazama Rufa*).¹⁰⁵ All five of these species are native to the Mayan area, and any one of them could have been the deer of Hwui Shan's account. The possibility of the deer of Fu-Sang and those of the Yucatan being the same is strengthened by a later historical account of Yucatan. There is no evidence that the Mayas raised deer in the way that one might raise cattle; however, in the fifth letter of Cortes, he refers to the Cehach Territory of Yucatan as being the "Land of Deer," and in an account by Diaz del Castillo from the same period he tells how the Spanish had no trouble hunting deer since the people of the area worshiped them and had orders not to frighten or kill them. Because of this, the deer had become completely tame.¹⁰⁶

Horses

One of the major arguments opposing the theory of Fu-Sang and

America being the same geographical area is Hwui Shan's mention of horses in Fu-Sang. It has been known for some time that long before the re-introduction of the horse by the Spaniards, a native variety of horse existed in America, a species of which, the *Plihippus*, migrated to South America sometime around the Middle Pliocene and was later replaced by the modern horse (*Equus*) in the Late Pliocene. This later form of horse survived into the human occupation of North and South America; however, best estimates show that it became extinct several thousand years before the A.D. 499 date given by Hwui Shan for horses in Fu-Sang.¹⁰⁷

Carts

Hwui Shan makes one more reference to these animals by stating that both deer and horse carts were used in Fu-Sang. There is no evidence that the wheel was used in any form of transportation, whether for carts or any other type, or in fact for any use outside of toys, in any part of America. To be completely objective, it should be noted that Hwui Shan did not specifically state that the carts were wheeled, but the implication seems clear. Combined with the mention of horses, this mention of carts deals a severe blow to any thesis in support of Fu-Sang and America being the same geographical area.

Grapes

Klaproth makes a special point of mentioning the fact that grapes were not native to America, and therefore Fu-Sang was not America. Considering the way the account is worded, as "grape or

grape vine," Hwui Shan could easily have been referring to any number of plants which produce a vine. For this reason, the mere mention of grapes or grape vines does not automatically exclude Fu-Sang from being America.

Milk

Hwui Shan states that the inhabitants of Fu-Sang used milk to make coumiss, probably a type of yogurt. The American Indians, however, did not make use of milk in the Mayan area and the main domesticated animal, the llama, was never milked.

Iron

The next point is one that is widely quoted by authors who support de Guignes' theory of Fu-Sang being America. This is the reference to the use of copper in Fu-Sang and the absence of iron while at the same time the presence of gold and silver, but the absence of any monetary value placed on them. It is true that the Old Mayan Empire did possess copper which, by using the cold-hammered technique, was made into a wide variety of artifacts. At the same time, the Mayas did not have iron at an early date, aside from some meteoric iron and iron pyrite. So, in this part of the account, the land of Fu-Sang and that of Mayan America are closely aligned. It should be noted, however, that the use of copper by early civilizations was a world-wide phenomena, and a natural step to the discovery of true metallurgy and the use of iron.¹⁰⁸

Gold

Of more importance as evidence of any possible connection between

Fu-Sang and America is the reference to gold and silver. The vast amounts of gold and silver in Meso America and the lack of any monetary value placed on them by the inhabitants of the area is extremely important in this account because with the time frame given (A.D. 499), American is the only known area where monetary value is not attached to gold and silver. Just as the use of horses and carts is a decided strike against the theory of Fu-Sang and America being one, this non-monetary value of gold and silver is substantial support of the theory.

Marriage

Both modern cultural studies and historical records suggest a number of elements of Mayan marriage customs that are not reflected in Hwui Shan's account. For example, Hwui Shan describes a direct approach by the man to the woman he wishes to marry. Both historical and cultural data, however, show the Mayan marriage system to be based on indirect approach through the person of a marriage broker. Nor does Hwui Shan make reference to the use of a bridal price which was an integral part of the marriage arrangement in Mayan society. Finally, the reference to the sweeping of the ground in front of the girl's house seems to have no relationship to the Mayan courtship and marriage system.¹⁰⁹

The one point of Hwui Shan's account that does have a parallel in the Mayan system is the building of the house. In the Mayan system, however, the house is a ceremonial one and is built not by the man himself, as described by Hwui Shan, but rather by the men of the village as a whole.

Markets

The lack of any reference to taxation of markets would imply that the Mayan markets were tax free and in this way parallel the markets of Fu-Sang. Hwui Shan also states that the markets of Fu-Sang has no fixed prices. In the Mayan market system, "... judges presided over each market place, seeing that fair prices were asked and given ..."¹¹⁰ Whether this judging system can be seen as a system of fixing prices is a matter of interpretation.

Mourning

There seems to be no Mayan system for set days of mourning as was attributed to Fu-Sang. Idols of deceased people were occasionally set up, however, and mourning garments were apparently not worn. These two points again parallel features attributed to Fu-Sang.

King's Duties

There seems to be no parallel in the Mayan system for the Fu-Sang custom of the king not occupying himself with matters of state for the first three years after his accession.

Conclusion

The historical evidence of trans-Pacific diffusion is interesting but at the same time is confusing and often completely contradictory. Due to the contradictory nature of this material, any conclusions based solely on its would only be speculation. It is only by adding this material to the other material presented in this study, and taking it as a whole, that any satisfactory conclusion based on the evidence can be drawn.

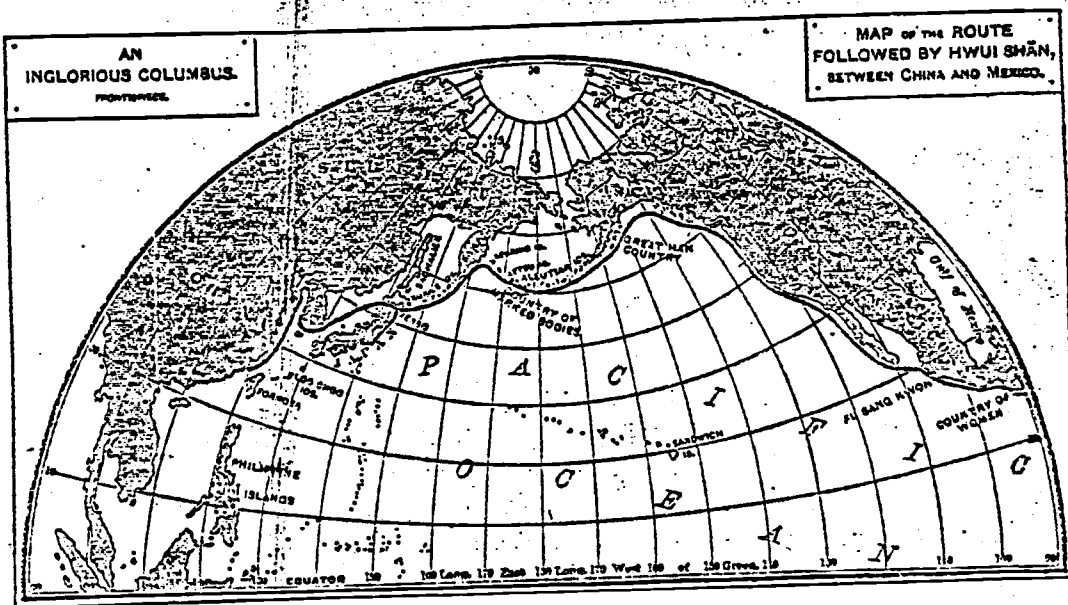


FIGURE 12. Hwui Shan's Possible Route to America

CHAPTER VI

Conclusion

As with any work of this type, it now becomes necessary to draw the final analysis and conclusions based on the evidence presented.

Ocean Currents

Of all the evidence presented in this work, that dealing with the ocean currents is probably the easiest from which to draw conclusions since it was based completely on easily verifiable facts. From the purely physical and mechanical standpoint, the easterly Urdanta Route would have been a nearly ideal route for trans-Pacific contact even at an early date. The strong current prevalent along the entire route would have made early crossings possible even for crafts equipped with only primitive or basic propulsion systems. This strong current, when combined with the effective propulsion system, i.e., multi-sails of Asian junks as described in Chapter II, in all probability would have made for a relatively easy and swift crossing.

The presence of adequate landfalls also makes the Urdanta Route not only unique from other open ocean routes, but nearly ideal for any early-day voyages. The close proximity of land throughout this route would have been, at least theoretically, a major asset to early-day voyages by providing not only food and water, but also protection from storms as well as the psychological advantage of

being within sight of land. This is, of course, largely speculation, but is based on a framework of known facts.

The evidence shows that the California Current is weaker and more indirect than the North Drift Current, yet still quite capable of carrying a vessel along its route. This current not only connected the easterly Urdanta Route with the westerly Saavedra Route, but it also would have provided for relatively easy and swift transportation down the American coast, thus allowing for extensive Asian contact and diffusion along the entire coast.

The return, or westerly, Saavedra Route is again a nearly ideal route for trans-Pacific contact. The strong current and prevailing trade winds would have made for a swift crossing for any sailing vessel. The mild climate along the entire route would also have added to the ease and even the comfort of this crossing. The only drawback to this route is the lack of landfalls, since the Saavedra Route is basically a mid-ocean route with only occasional islands to offer shelter or provisions. Even this, however, would have been a minor drawback considering the many advantages.

Based on this evidence, it is this writer's opinion that using these currents a one-way or round-trip voyage from Asia to America would not only have been possible, but actually relatively easy, at least from the purely technical standpoint of ocean current patterns. Whether a voyage using these currents actually took place is a matter that will be discussed later in this conclusion.

Ship Building

The shell construction technique employed in the building of

junks produced a ship that was sturdy, extremely seaworthy and virtually unsinkable, due largely to the use of watertight compartments. The use of multi-masts by at least the third century A.D. gave the junks the propellant necessary for not only river travel, but also for travel across broad expanses of open water, as in a trans-Pacific voyage. The stern rudder, too, was a major asset to the junk's seaworthiness. This rudder and its later adaptations, the balance rudder and the Fenestrated Rudder, allowed the Asian junk to maneuver across open water with a minimum of effort and a maximum of efficiency. It is this writer's opinion that at an early date the Asian junk possessed the construction, propulsion and navigational requirements to make a trans-Pacific voyage possible. Again, this is not to say that such a voyage actually took place, but only that from the technological standpoint of ship construction, the voyage would have been possible.

Archaeology

Of all the archaeological evidence of trans-Pacific contact, the botanical is probably the most contradictory. The cases made for the bottle gourd and maize are complete enough to be included in this work, yet not conclusive enough to give any real evidence of trans-Pacific diffusion. The early dates given for the bottle gourd and its possible natural introduction by floating both seem to be major points against diffusion by human means. In the same way, the disputed nature of the pre-Columbian appearance of maize in Asia and the disagreement on the importance of the maize varieties grown in Asia throw doubt on its reliability as evidence of pre-Columbian diffusion.

On the other hand, the pre-Columbian appearance in America of a 26 chromosome cotton strain can only be logically accounted for by means of human migration. The need for the 13 small chromosome and 13 large chromosome cotton to coexist and cross-pollinate to produce a 26 chromosome strain and the spread of that 26 chromosome strain into the Pacific seems to be a development too complicated to be achieved without some human intervention.

The appearance of the chicken and more especially the hookworms in America seems to be good evidence in support of trans-Pacific human diffusion. The evidence in this area is limited; however, the appearance of the two varieties of hookworm in American appears to be only explainable through the agent of human trans-Pacific migration.

The architectural examples given are, as with much of the other archaeological evidence, often inconclusive. There is little doubt that there are striking similarities between the architectural forms of America and Asia in such areas as subject matter, placement and use. The subject and placement of both serpent columns and monster doorways are only two examples of nearly identical architectural forms in both areas. However, the real question here is, are the examples given unique enough to constitute solid proof of trans-Pacific diffusion? In this writer's opinion the answer to this question is "no." There is no doubt that the similarities are striking, yet much of the subject matter is common enough (i.e., use of columns or galleries, etc.) that parallel development occurring independently in the two areas cannot be ruled out. For this reason, although the architectural forms give more weight to the overall

theory of trans-Pacific diffusion, they cannot be seen as solid proof of such diffusion.

Of all the archaeological evidence, by far the most impressive, at least at face value, are the art motifs. The art motifs of both Asia and America show a large number of very close similarities. Some of these similarities include subject matter, notably the figure standing on another figure where the identical scene is depicted both in Asian and American art. There is also a close similarity in the arrangement of figures, as in both styles of multi-headed figure, with the heads arranged vertically and in a semi-circle. Both of these forms are well-represented in both Asian and American art. Most impressive of all the art motifs is the sitting figure, nearly identical in both Asian and American art. These figures are striking, not only because of the way they are sitting in the cross-legged lotus style, but also because of the extremely obvious use of Asian facial features depicted in the American example. All of these points would seem to confirm that the similarities are simply too close and too numerous to be attributed to independent invention or parallel development.

The physical similarities between Asian and American pottery are not as apparent as those in the art motifs. Close examination shows that the similarities do exist and that they are well-represented in both Asian and American styles. The comparisons of the Jomon pottery of Japan and the Valdivian pottery of Ecuador indicate that the two styles have a wide variety of similarities in such areas as general shape and construction, decoration style, use

of coils and parallel lines, shell scraping and stamping, etc. As impressive as the long list of stylistic comparisons are, the close proximity of the dates given for the two forms, Jomon being dated at around 5102 ± 400 B.P., and Valdivian being dated 5151 ± 150 B.P. is even more impressive. It is also important to note here that many of the Valdivian styles listed are reported to have no intermediate stages of development; instead they simply appear as complete and fully developed forms. The sudden occurrence of any well-developed pottery form is usually seen as a clear indication of diffusion from an outside source. Given this information, it seems unreasonable to expect that two cultures separated by thousands of miles of open ocean would develop two forms of pottery with so many similarities and that both were developed at approximately the same time without some interchange of ideas or goods.

The similarities between Chinese and American pottery are not as well-documented as the Japanese examples, due mainly to the number of different people working independently in the field, yet there are still a number of striking comparisons. The house model which depicts an Asian rather than an American house, the Asian influence in the Teotihuacan tripod pottery and the use of molds all suggest some form of diffusion between Asia and America.

Although the archaeological evidence presents a wide variety of examples of possible trans-Pacific diffusion, none can prove such diffusion separately, yet together they form a case that, although not completely conclusive, greatly supports some type of diffusion.

Religion

Although there is definitely some similarity between the religious art of Asia and that of America, it is doubtful whether these similarities constitute proof of diffusion. Many of the similarities are superficial and relationships between them are more a matter of speculation than of fact. Even the well-researched comparisons, such as the lotus motif, may be attributed to causes other than diffusion. Therefore, although the religious art adds some weight to the overall theory of trans-Pacific diffusion, it gives little in the way of solid evidence.

The lists of gods and their attributes, on the other hand, offer more substantial proof of diffusion. Certain similarities in the listing of gods would be expected and could be attributed to independent invention, especially gods that represent well-known or spectacular elements of nature such as water or fire. The listing of gods and their attributes given in this work present parallels that go beyond what would be expected from independent invention. The combination of the moon and the color red, the moon and wealth, and the use of liquor and destruction, all of which appear in both sets of lists, seems to be too close a parallel to be attributed to independent invention.

The lists of gods are also important in another respect since, unlike the seed, art and pottery evidence which could have conceivably reached America with no help from man (in wrecked junks, etc.) or by indirect diffusion by way of the Pacific Islands, this list is an abstract and complex idea which probably could only have

been diffused by means of direct migration from Asia to America.

Historical

Of all the evidence presented the historical is the most contradictory, but at the same time, some of the most interesting since it is based on known facts which should be taken at face value and which cannot be reshaped to fit into any model of diffusion or independent invention. It should first be stated that due to the evidence given in Chapters I and II of this work, it appears that a voyage such as the one attributed to Hwui Shan could have probably taken place.

Hwui Shan's account contains elements that give either limited support to the theory of Fu-Sang being America such as the distance traveled and the use of horns as receptacles, or it gives a limited denial of the theory such as the color of the fu-sang leaves or the governmental system. None of these points, unfortunately, are conclusive in either direction. Along with this evidence there is also a small body of evidence which seems to completely deny any connection between Fu-Sang and America or to definitely confirm this connection. On the denial side are the two major points of horses and carts in America. On the confirming side is the close relationship between the Ficus and fu-sang trees, the lack of walls or fortifications around the cities, and the non-monetary value of gold and silver.

It would be extremely helpful to be able to draw one conclusion based on the historical evidence, unfortunately the evidence

is too contradictory. All that can be said is that after looking at all the historical evidence, it is this writer's opinion that the bulk of the evidence supports the theory of trans-Pacific contact, although I am still at a loss to explain the references to horses and carts.

Final Conclusion

A mountain of evidence is accumulating that between the 7th century and the 16th, i.e., throughout the pre-Columbian ages, occasional visits of the Asian people to the Americas took place, bringing with them a multitude of cultural traits, art motifs and material objects (especially plants) as well as ideas and knowledge of different kinds.¹¹¹

Unfortunately, it would be impossible to state unequivocally that the American West Coast was visited in pre-Columbian times by trans-Pacific voyagers. It seems, however, based on the facts presented in this paper and recapped above, that there is substantial if not conclusive proof that such visitations did take place and that said visitations influenced the cultural, religious and technological systems of the people they visited. There is no technical reason, either in the area of ocean currents or marine technology, that such a voyage could not have taken place, and in fact there is substantial proof both historical and archaeological that such a voyage took place, not once, but probably a number of times in the pre-Columbian period.

Finally, if the pre-Columbian trans-Pacific voyages described in this work can be completely proved their importance will go far beyond that of a historical and archaeological oddity. With the proving of such a voyage the entire model for the development of the

Native American Indian cultures will have to be reviewed. Political, religious, economic, cultural and technological developments will all have to be looked at in a new light, taking into account not only independent invention but diffusion as well.

Model

Now that all the evidence has been presented and analyzed, all that remains is to present a model of what this writer believes is the way in which pre-Columbian trans-Pacific contact and diffusion could have occurred.

All pre-Columbian trans-Pacific contact would have been by way of the North Equatorial Current or Saavedra Route from America to Asia.

The original contact would have been by the Japanese. This contact would have been accidental in nature and would have occurred at least as early as 2000-3000 B.C. This first contact would have been accomplished using the sailing rafts of the day.

The articles diffused in this first contact would have been mainly utilitarian in nature including such things as pottery and the construction of the sailing rafts. The utilitarian nature of this borrowing was probably due, not to selective borrowing on the part of the American Indians, but rather to the fact that these items were the items of which the fishermen had examples, knowledge and understanding.

This early Japanese contact and diffusion was supplemented by a later Chinese contact. This contact was again trans-Pacific using the Chinese junks described in Chapter II. This contact occurred

at least between the second and ninth centuries A.D. with the majority occurring in the Han Dynasty. This contact was probably of a more planned nature and based on information of an earlier Japanese contact.

The diffusion involved in the Chinese contact is of a more substantial nature involving not only utilitarian items such as more pottery styles and art motifs, but also involving abstract ideas and concepts such as religion and architecture. It is this wide variety of diffused materials that show that the contact was of a sustained and planned nature since the currents off the Chinese coast do not naturally connect with the easterly flowing Japanese Current.

Sometime after the ninth century A.D., for reasons still unknown, the Chinese contact with America apparently stopped, but not before a number of cultural and technological traits had been diffused. The Japanese contact, since it was accidental in nature, would have continued well into the European arrival on the Pacific.

The full extent of the impact of this diffusion will probably not be known for many years yet. The technological changes brought about by this diffusion are only now beginning to be studied and understood. The sociological changes brought about will be even more difficult to pinpoint than the technological changes, but at the same time an understanding of this form of diffusion may be the more valuable of the two since it will be a great help in our understanding of the many aspects of the Native American Indian cultures.

This model is, of course, largely speculation and any part or all of it could be in error. The model is based, however, on facts presented in the body of this paper and, in this writer's opinion, is a realistic scheme for the pre-Columbian trans-Pacific diffusion of Asian traits to America.

TABLE III

 Chronological Table

7000-5500 B.C. Bottle gourd arrived in America.
 3000 B.C. Bottle gourds cultivated.
 2000-3000 B.C. Cotton in America.
 3211 B.C. (5151 B.P.) Valdivian Phase Pottery.
 3162 B.C. (5102 B.P.) Jomon Pottery.
 1700 B.C. Neck rests used.
 2060 B.C. (3000 B.P.) China stone anchor in California.
 206 B.C. Stern rudder developed.
 Second Century B.C. Atlantian Figures in India.
 60 B.C. (2000 B.P.) Ballast rudder developed.
 Second to Ninth Century A.D. Religious diffusion to America.
 Third Century A.D. Multi-masted ships in China.
 499 A.D. Hwui Shan's voyage to Fu-Sang.
 Fourth or Fifth Century A.D. Trifoil in Pakistan.
 Sixth Century A.D. Columns used in Cambodia.
 Ninth Century A.D. Kala developed.
 Twelfth Century A.D. Elephant masks at Ankor Wat.
 Fifteenth Century A.D. Trifoil in America.
 1492 A.D. Maize in Old World, possibly before this date.
 1500 A.D. Chicken names in America before this date.
 1526 A.D. Probably earliest date for sweet potato in Asia.
 1539 A.D. Coconuts in America before this date.

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