Ancient Marianas History

of

History of the Mariana Islands

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Migration for Settlement or Home Range Expansion

What Caused People to First Come to the Marianas c. 3500 Years Ago?

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Abstract: *Archaeological research at the oldest known sites in the Marianas, dated to the Early Pre-Latte Period (1500 and 1000 BCE), has raised important anthropological questions regarding the causes and character of human advent in this remote archipelago. Artifacts and other remains excavated from the lowest layers at these sites strongly contradict a migration and settlement narrative that has been forwarded to explain them. The anomalous data are reviewed and an alternative explanation is offered, based on cultural ecological concepts. Specifically, it is proposed that long-distance ocean travel to the Marianas manifests a home range expansion tactic, which enabled families of foragers specializing in the production of valuables for trade, such as marine shell ornaments, to remain in an Island Southeast Asian marine foraging niche for at least 1000 years. Pertinent information from ethnography and ethno-archaeological research is discussed in light of the model and test implications are derived.*

Introduction

Public interest in the Early Pre-Latte Period has been keen lately, in part because of local mass media reports featuring archaeologists interpreting their findings. I have noted that in these reports, journalists have not presented the reactions of interested colleagues, as is common practice in science writing. Given this lack amid increasing public interest in Marianas archaeology, I have written this paper in order to begin a dialogue about the Early Pre-Latte Period. Without informed dialogue, no learning takes place.

I feel that such a dialogue is needed to evaluate claims that have been made regarding the meaning of the Early Pre-Latte Period archaeological remains, which are the oldest known in the Pacific Islands. These claims, discussed in detail below, derive from a view that archaeology is a form of history, with its own standards, whereas other archaeologists adhere to a natural science paradigm. This is my viewpoint. Because the writing of cultural history is done in essay form, it is difficult (but not impossible, see below) to judge the validity of its interpretive claims.

Another characteristic of a culture history approach is that only certain facts are the focus of inquiry, while others are neglected. For example, not all data are published, only "examples" of types of finds and note is made of general trends, such as decreases in the size of certain shellfish thought to have been consumed as food. The incomplete reporting of finds prevents quantitative study by others. A further limitation in the case of Early Pre-Latte Period sites is that excavations have been restricted spatially, confined to "test pits" of one meter square or somewhat larger. This method of excavation was assumed sufficient to construct chronological sequences that reflect "culture change" over time. The goal of constructing chronologies is reflected in a pre-occupation with radiocarbon dating, the "scientific" part of culture history. While it is clearly important to control the "time dimension" accurate dating of cultural deposits is just the beginning of systematic inquiry, not the means to a limited end like chronology building.

The shortcomings of culture history notwithstanding, a dialogue is possible over the meaning of Early Pre-Latte Period archaeology. To forward that dialogue, I have condensed the elements of recent culture history narratives into The Marianas Migration Story. I then critique this story's unwarranted claims, and offer what I think is a better interpretation of the available facts.

The Marianas Migration Story

Here is a story about how people first came to the Marianas, and what they did when they got there. It has appeared recently in archaeology journals like Antiquity and World Archaeology. Translated into plain English, and omitting extraneous details, the story goes like this.

The time is 3500 years ago and sea around the southern Mariana Islands is about two meters above where it is today, but still coming down from its mid-Holocene highstand. A few narrow beaches have emerged, and between these are mangrove-fringed wetlands and limestone cliffs. Nearby reefs and lagoons are full of edible marine life.

A small party of Neolithic, Austronesian language-speaking migrants arrives. They have come from the Philippines, perhaps from a riverside village called Nagsabaran in the Cagayan Valley of northern Luzon. The migrants may have some cultigens with them but none of the domestic animals from their homeland. Even if they started out with any of them, perhaps the crew got too hungry and ate them along the way. After all, it was a very long trip – a distance of some 1500 miles, straight across the open ocean.

Little did they realize that they had just broken two human achievement records previously set by the Lapita Peoples of Melanesia. One was the "distance traveled by canoe" record: the

Marianas migrants sailed more than twice as far into Remote Oceania as the Lapita folk. The other was the "Island Southeast Asian culture-carrying" record: the Marianas migrants beat the Lapita folk by 500 years as the first people to bring their cultural heritage to a remote Pacific island.

The main proof of that Island Southeast Asian heritage came with the migrants is the designs on their pottery. The incised and stamped designs at their settlements in the Marianas are very similar to the designs used on pots in the Cagayan Valley. Pottery designs reflect ethnic identity, and so clearly these migrants were ethnically the same as people living at or near Nagsabaran village.

The strictly coastal location of their settlements and the kinds of artifacts and food debris excavated at these sites all indicate a "shoreline-oriented" way of life. For at least 500 years, the settlers continued to live in this manner. Things were about to change, however, as sea levels declined further throughout the tropical western Pacific, but that is another story for another time.

A Critical Evaluation

Migration stories, of people leaving their homeland and starting a new life far away, are found in many cultures. Sometimes they are even true, but not this one, not entirely, and maybe not even mostly. The Marianas migration story, summarized above from scholarly publications, has been offered as an authoritative account based on archaeological facts (Carson 2013; Carson and Kurashina 2012; Hung et al. 2011). It is still just a story because, among its other problems, it lacks a very important feature of scientific models, "warranting one's propositions." This means showing how prior, reliable knowledge "warrants" or justifies the selection of terms in the propositions that comprise the model.

A scientist looking at the Marianas migration story, as an explanatory model published in scholarly journals, would ask, why should we believe these particular propositions about what happened in the past and about who the actors were? Should we accept it because of **who** is making the propositions? After all, they are archaeologists with hands-on experience with the primary data. No, to accept an explanation because of **who** its authors are is to rely unduly on authority. Authority is fine in religious matters but out of place in science, where the empirical world is the testing ground for the validity of ideas. The real-world testing ground includes all sorts of prior knowledge descriptions and discoveries by others. This knowledge supplies the appropriate frames of reference that guide the search for meaning in the data.

It appears to me that the Marianas migration story was composed without benefit of appropriate frames of reference and hence no warrants for its propositions have been attempted.

Consider the proposition that the first voyage to the Marianas, for purposes of permanent settlement 3500 years ago, began in northern Luzon and proceeded straight across the Philippine Sea (Fig. 1). Such a journey is touted in the Marianas Migration Story as a remarkable human achievement, a recording-breaking "first."

Fig. 1. Detail of a larger map of "colonizing migrations in Micronesia in relation to larger Asia-Pacific patterns," after Carson (2013:Fig. 1). Note the straight-line crossing from the northern Philippines to the Marianas, and that the arrows imply the colonists descended from Taiwanese ancestors and that Palau and Yap were colonized later from the southern Philippines and Solomon Islands, respectively.

With respect to the proposed colonizing voyage from the Philippines, what are the scientific warrants for expecting that a sailing canoe with a small group of would-be settlers would undertake a straight-line journey across 1500 miles of open ocean assuming their navigator knew the destination from earlier exploratory searches for suitable islands to colonize? Was this route feasible, and was it likely, given currents and wind patterns? Prior knowledge of sailing conditions in the region is helpful in evaluating this proposition

Figures 3 and 4 depict the dominant winds in the Carolines and Marianas, in winter and summer. During neither season would it be appropriate to sail a canoe straight across the Philippine Sea to the Marianas. If you left northern Luzon in January, you would be pushed back southwest toward Mindinao. If you left in July, you would be pushed north toward Japan.

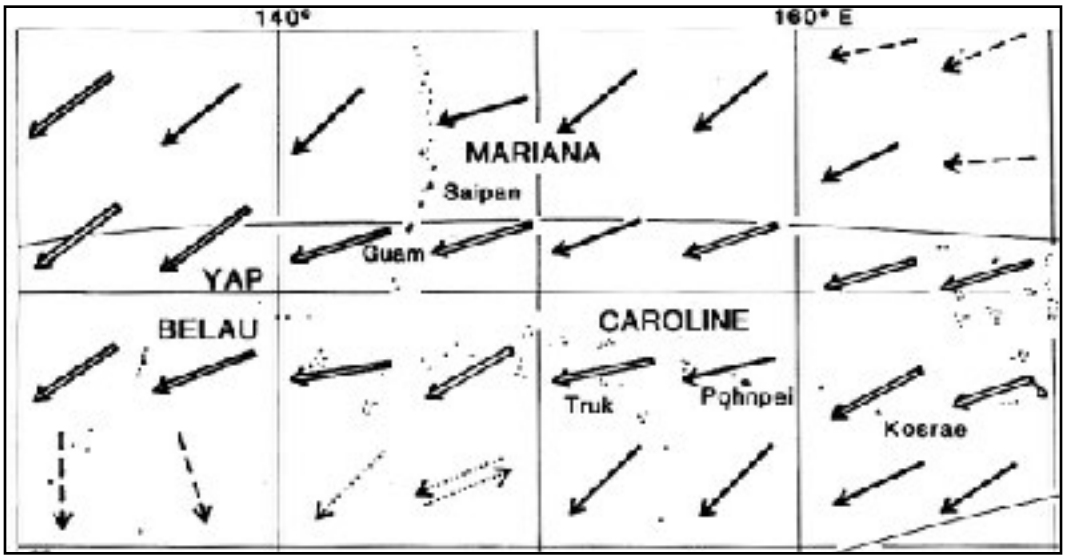

Fig. 2. Detail of map of direction and constancy of prevailing winds in January; thickest lines show most constant winds. After Irwin (1992:Fig. 41).

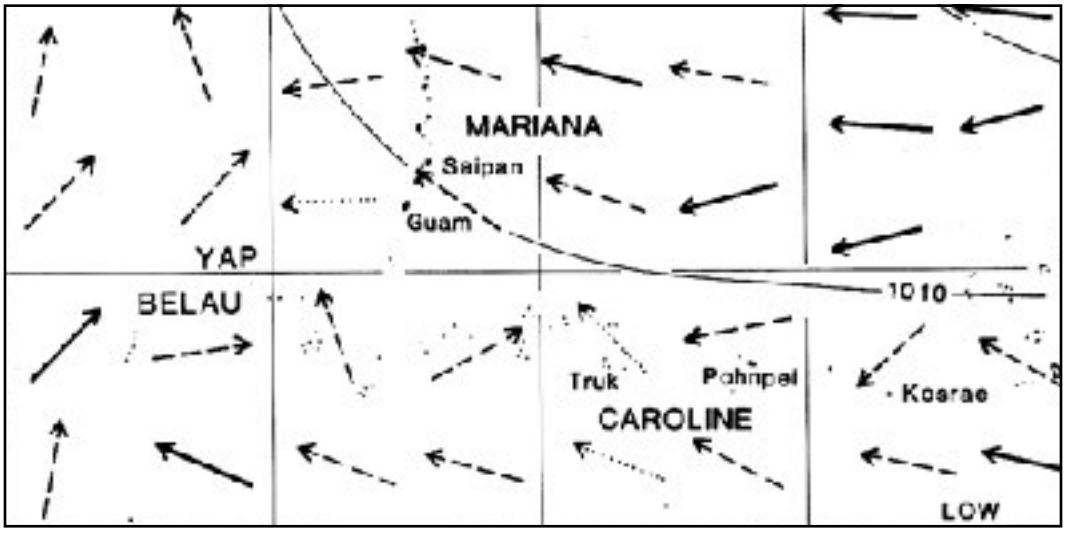

Fig. 3. Detail of map of direction and constancy of prevailing winds in July; thickest lines show most constant winds. After Irwin (1992:Fig. 42).

Given this frame of reference, it is more likely that a voyage to the Marianas from Island Southeast Asia, including the Philippines, would start from a much more southerly position than northern Luzon, and would not involve a straight, unbroken line of travel, if it could be avoided.

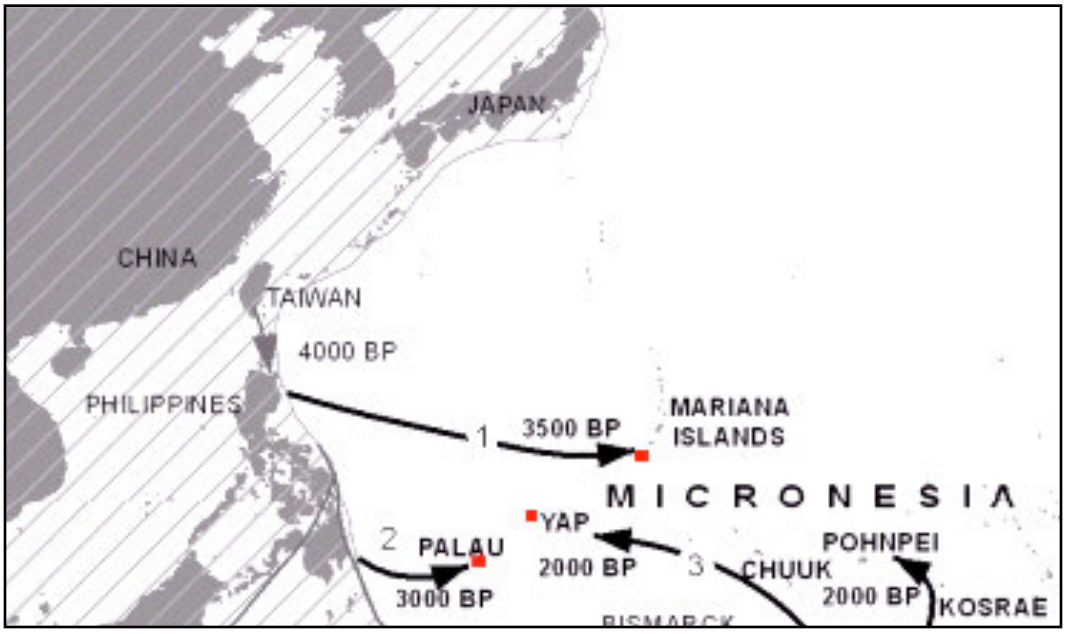

Fig. 4. Map detail as in Fig. 1, with locations of Palau, Yap, and Guam highlighted in red, to show another possible route from Island Southeast Asia to the Marianas.

As can be seen in Fig. 4, had the trip started, say, in Mindanao, or farther south, there are two intervening island groups, Palau and Yap, that could have served as rest stops along the way making the journey safer and more in line with prevailing winds in this part of the western Pacific. No archaeological sites contemporary with the oldest Marianas sites have been found in Yap or Palau, however. Yet if these islands served only as temporary rest-stops, the chances of preservation of the "archaeological signature" of this activity are slim to non-existent.

For a thorough and detailed critique of various aspects of the Marianas migration story, see Winter et al. (2012), who also demonstrate, by using prior knowledge about sailing conditions as well as with regard to ceramics and linguistics, that the claims by Hung et al. are untenable. Hung et al. (2012) replied to these criticisms in the same issue of *Antiquity*, unsuccessfully in my opinion because they are either more modestly stated reiterations of their original claims or vague references to possibly different climatic conditions. The reader is encouraged to read these arguments and decide for him/herself, with an important caveat. The Marianas linguistic data in dispute pertain to Chamorro, with all sides assuming that there was cultural continuity from the Early

Pre-Latte Period to the "ethnographic present." Such an assumption has not been warranted and should be questioned further in light of other possibilities raised here.

Another source of relevant prior knowledge is the expertise of Micronesian navigators (Flood 2002). These men live in the central Carolines, and some even can be found in the Marianas on occasion! They could be consulted as to feasible and practical routes to the Marianas from various departure points in Island Southeast Asia. They would want to know what the winds and currents are like in the region of interest, as well as the astronomical configurations that would be useful, just as Mau Pialug did when deciding his course from Hawaii to Tahiti (see an account of Mau's learning techniques in Finney1994).

Warranting one's propositions with appropriate prior knowledge is especially important in archaeology. The primary observations, such as pottery fragments and modified stones, clearly pertain to past human behavior that obviously is no longer observable. Archaeologists can often agree on "what is it" type of questions about primary observations, such as, is it an adze or a pounder, a fishhook or a gorge? Disagreements usually pertain to the meaning and causes of **patterning** in the archaeological record. Examples of archaeological patterns include unchanging (or changed) technologies over time or space, consistent (or random) placement of houses, high (or low) densities of artifacts in cultural deposits, differences in artifact type frequencies, diversity, etc. Suggesting the causes of these patterns is to engage in answering "why" questions, and these answers are the heart of an explanatory model.

The best such models are comprehensive, they account for all the data. We want a good match between the model and the original observations, and we especially appreciate models that predict new facts, in addition to those that peaked our interest in the first place. The model-data match test is called "goodness of fit." If the original data do not fit the model well, are not well accommodated by it, the model is inferior because it suffers from anomalies. A model is also tested for non-circularity in its logic, for simplicity, and if it accurately predicts new observations, all the better (Lakatos 1995).

Actually anomalies are not necessarily bad news. In science, anomalies are not just mistakes, they often can be opportunities to learn something new. If we recognize the anomalies, they force us to re-consider our subject and what we think we know about it.

Anomalies and What They Might Mean

Some of the anomalies in the Marianas migration story derive from imprecise terminology that causes a mismatch with the data. For example, the story says the first people to arrive in the Marianas were Neolithic in culture and spoke an Austronesian language. Archaeologists speak of the Neolithic as a period in world history when hunter-gatherers first adopted agriculture; it started at the end of the Pleistocene in some places, including Asia. Generally accepted archaeological markers of the Neolithic are pottery, domestic animal remains, polished stone adzes, permanent villages, and human burials. Yet at the earliest Marianas sites, only one of these traits, pottery, is present. Therefore it is inaccurate to characterize these sites as occupied by "Neolithic" people. Not noticing this anomaly is a missed opportunity to learn something new about the earliest phase of Marianas prehistory.

As to the Marianas migrants speaking an Austronesian language, this is a tenuous inference from historical linguistics, a field rife with scholarly disagreements regarding the classification of present languages in the Pacific, much less what languages were spoken nearly four millennia ago.

Other anomalies include the continued use of decorated red ware pottery, for over five hundred years, by "shoreline-oriented" people, who were living far from the Philippine Neolithic; and their decorating this pottery in the same manner, by stamping or incising with fine lines, throughout this very long time.

Prior knowledge about the function of decorated items in subsistence-level societies indicates that non-random decorations, those that can be recognized as a "style" on publicly visible items, function to convey social information, usually about the group identity of the makers and/or users. As a marker of group identity or affiliation, decorated items such as pottery, jewelry, and dress, develop in complex social milieus, where it is important to distinguish one group from another. Therefore we have to ask, since the most ancient Marianas pottery was decorated in a consistent manner for five hundred years or more, where was the complex social milieu in the Marianas?

Analysis of the Early Pre-Latte pottery designs (Butler 1994) revealed two distinctive design styles, called Achugao Incised and San Roque Incised. This fact is not considered important in the Marianas Migration Story, which emphasizes the similarities between Nagsabaran designs and all Marianas pottery designs. Ignoring the

significance of two consistent design styles is another missed opportunity for a better understanding of the Early Pre-Latte Period.

Other anomalies or data misfits include the fact that these "shoreline-oriented" settlers left no evidence of permanent occupation, even though their purpose was colonization. Their sites actually resemble those of mobile marine foragers such as the "sea nomads" of Phuket, Thailand, called the Chao Lay (or Chaw Lay). These "shoreline-oriented" people have been studied by ethno-archaeologists Richard Englehart and Pamela Rogers (1997a, 1997b) in a ten-year long investigation. The Chao Lay occupy different types of camps within their territory (Fig.5).

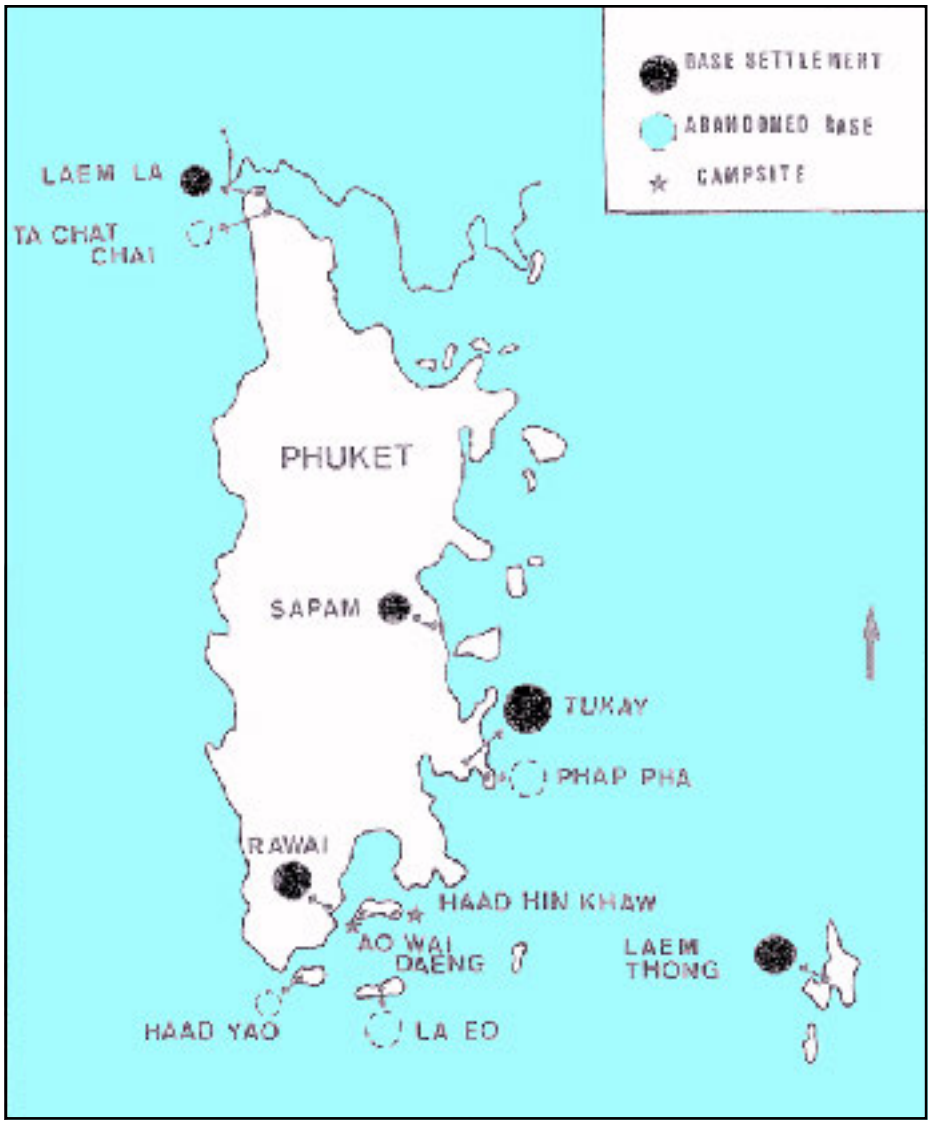

Fig. 5. Different kinds of sites within Chao Lay territory; the size of dots indicates the size of population using the site (after Englehardt and Rogers 1997a:Fig. 1).

Figure 6 shows Chao Lay moves throughout their Phuket area territory in 1980. Over time these flows changed. In 1996 the base camp at Laem Thong was abandoned.

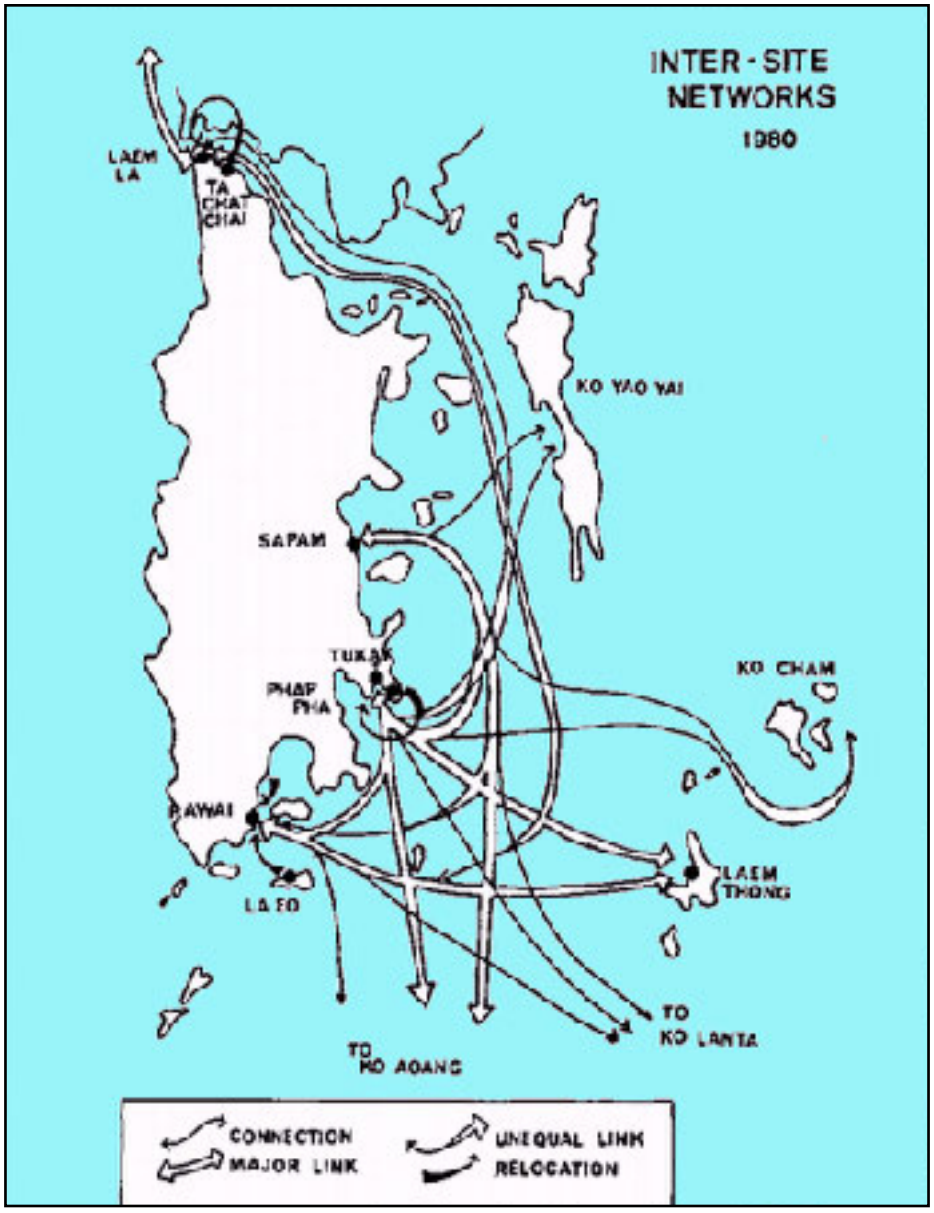

Fig. 6. Chao Lay population flows in 1980 (after Englehardt and Rogers (1997b:Fig. 5).

Englehardt and Rogers (1997a, 1997b) conducted surveys and excavations after people had abandoned their sites to see what artifacts and features were present and to map their distributions horizontally and vertically. They found that in general, Chao Lay leave few artifacts behind, curating them until they cannot be repaired any more. Such a high rate of curation is expected when raw materials are scarce and therefore must be conserved through careful maintenance.

Englehardt and Rogers (1997b) characterize Chao Lay sites as "palimsests," which refers to the imprinting of repeated occupations but not all of the same kind, group size, or duration. They found that at sites occupied repeatedly by larger groups, the post holes from abandoned residential structures overlapped but tended to be placed beside a central, communally used area that was swept daily. This eventually resulted in a thick, linear midden at the rear of the site. At special-purpose camps used by one or two people for a day or two, no middens formed, and only expediently made items remained near where they had been used; no whole tools were observed at these sites.

The Chao Lay case is just one of the many ethnographically and historically known sea nomad groups (e.g, Sopher 1965; Sather 1997). It is the only one I know of that has been studied by archaeologists interested in site structure and artifact distributions. Similar studies of other groups would certainly increase our knowledge in respect to what the various "archaeological signatures" of sea nomad groups might be.

Ethnography has shown that sea nomadism, or marine foraging, to use an ecological term, is not a stand-alone, self-sufficient adaptive system; it always needs a land component to make it complete and viable. The gamut of economic and social relationships between landed groups and sea nomads runs from relatively symmetrical exchanges of marine products for land products, to less symmetrical exchanges involving low payments for services, to complex down the line trading, to piracy to generate income for commodities.

The variability in sea nomadism is great due to varying historical and geographic circumstances. Nonetheless, these marine foragers are all involved in either mutualistic, symbiotic, or parasitic relationships with nearby landed groups. These relationships involve exchanges of foods and other items, as well as occasional inter-marriage between partnering groups.

The various co-dependencies among land people and sea people in the tropics are not unlike those among other species in tropical settings. Studying such relationships among tropical species other than people can help us think about the causes of variation that is evident in sea nomadism, such as ecosystem stability and complexity (Montoya et al. 2006; Morris et al 2003; Odum 1985).

There are negative and positive archaeological indications that marine foraging/sea nomadism of a kind yet to be well described or understood in full, is represented at Early Pre-Latte sites. The negative evidence includes the lack of concentrated

household debris or midden at their seaside encampments as well as the lack of substantial structural remains, burials, or implements useful in agriculture or in the exploitation of forest resources. It has been suggested that the Marianas migrants lived in stilt houses (e.g., Carson and Kurashina 2012) that were built over the inter-tidal zone, so that debris would be discarded over the water. This practice could explain the eroded condition of some of the pottery and the lack of intact features that are typical of most Early Pre-Latte sites.

Prior knowledge of the use of stilt houses by sea nomads, however, indicates they build them in fairly large clusters on wide reef flats, where and when the seas are calm. An example of this practice is shown in Figure 7.

Fig. 7. Cluster of stilt houses occupied by related families of Bajau Laut. Source: http://amazingstuff.co.uk/humanity/bajau-laut-sea-gypsies/#.UhT3fTTiZig.

Most Early Pre-Latte sites are located on the lee side of the islands (Ritidian and Mangilao are exceptions), indicating an avoidance of the prevailing easterlies. But the Marianas are subject to frequent typhoons, making stilt housing less than optimal as a first choice, and the reef flats tend to be narrow and discontinuous. Furthermore, there is the apparent absence of wood-working tools in the deposits, whether they were accumulated under water or on land. How did the Early Pre-Latte people build stilt structures without such tools? Canoe-making tools, such as small and large adzes

are absent as well, but they may have been carefully curated and rarely discarded. However, the absence of these adzes, combined with the lack of heavy stone tools for felling trees and trimming wood parts, make it seem unlikely that canoe making took place in the Marianas at this time.

The positive evidence for sea nomadism for short periods and involving small numbers of people includes the apparently low artifact densities at Early Pre-Latte sites and the consistently fragmentary condition of the artifacts. The latter could be due to erosion processes but in sites relatively protected from direct wave action, such as those located within a protected cove, it could relate to discard practices as seen among the Chao Lay. Typically reported are flakes of chert and marine shell; small, fragmentary adzes of chert and clam shell; pieces of marine shell bracelets; and lots of shell beads, some of them in different stages of manufacture, as well as sea urchin spine files that may have been used to make these ornaments.

These facts and the anomalies raised by the Marianas Migration Story present an explanatory challenge, a puzzle to be solved. Some of the archaeological observations indicate that the Early Pre-Latte people participated in a complex cultural milieu, not a pioneering culture, for example, the decorated pottery, and perhaps also the jewelry, if their particular forms were socially significant in ways they have been observed ethnographically. Yet the absence of evidence for reliance upon plant foods and the presence of fishing gear, fish bones, and shellfish remains suggest that obtaining and consuming marine resources made up the majority of activities.

Prior knowledge of the caloric returns for effort from tropical marine resources indicates that this kind of diet can support very few persons per kilometer of reefs (Bayliss-Smith 1974, 1975). Therefore we can anticipate a very sparse population, one perhaps not even a viable year-round. But if these were indeed committed colonists, why did they not at least adopt agroforestry, assuming lowland agriculture was limited by a few narrow coastal areas? Avoidance of agriculture is unlike other known frontier situations; it could be a lack of labor, as Pichon (1996) found, or it could be that these early Marianas people had another agenda.

Figure 8 is a map showing the distribution of known Early Pre-Latte sites, all eight of them.

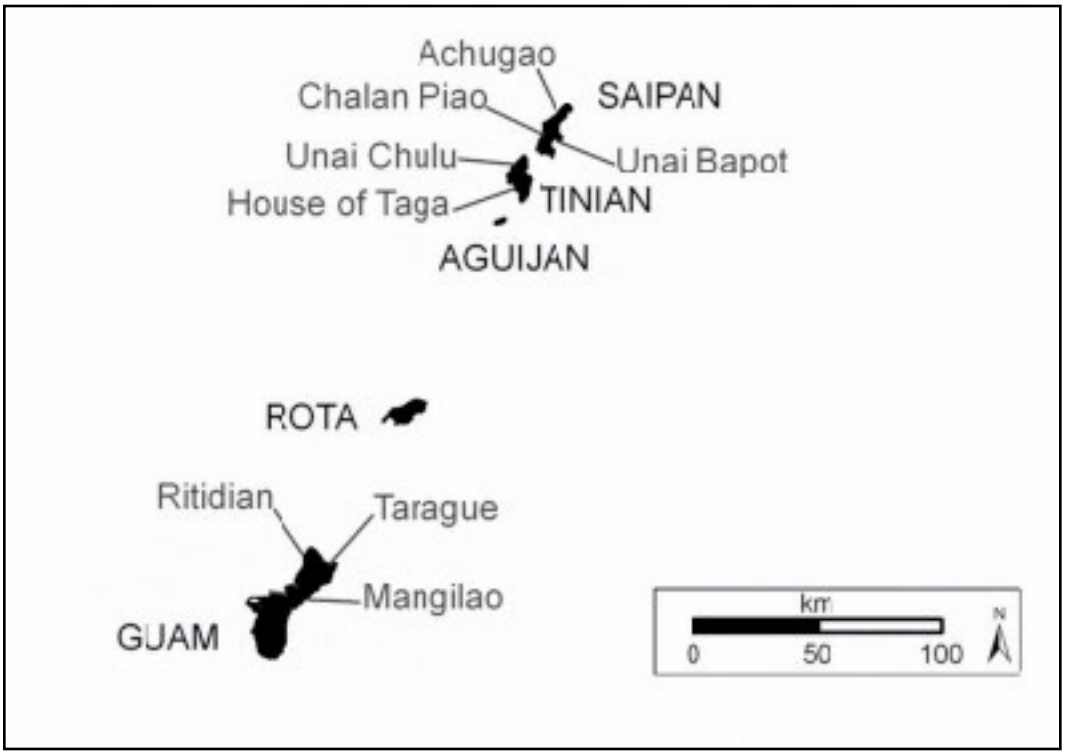

Fig. 8. Early Pre-Latte sites: three in Saipan, two in Tinian, and three in Guam (modified from Carson and Kurashina 2012:Fig.2). Note the absence of sites in Rota, suggesting less hospitable shoreline conditions at this time of relatively high sea level.

This is not a lot of sites for half a millennium of colonization effort. No doubt there were more, but archaeologists have not found them, perhaps because these early sites are buried deeply in backstrand areas beneath cliffs. Judging from the sites we know about, the people who created them left a very light "archaeological footprint."

I suggest the solution to this puzzle is to change the terms in the model and view the problem of explaining the attributes of Early Pre-Latte Period sites through the lens of cultural ecology. For example, we can ask, what sort of ecological niche did these people occupy?

My answer is that they were indeed marine foragers but without landed partners in the Marianas. Prior knowledge indicates that marine foragers always have partners on land with whom they are connected economically and socially if not politically. The two partners provide each other certain necessities. Usually marine foragers provide

dried fish and finished items like woven mats, for instance, and in return, they receive cultivated foods, as well as permission to harvest trees and to shelter on land during storms and/or seasonally. Figure 9 illustrates the result of a land-sea exchange.

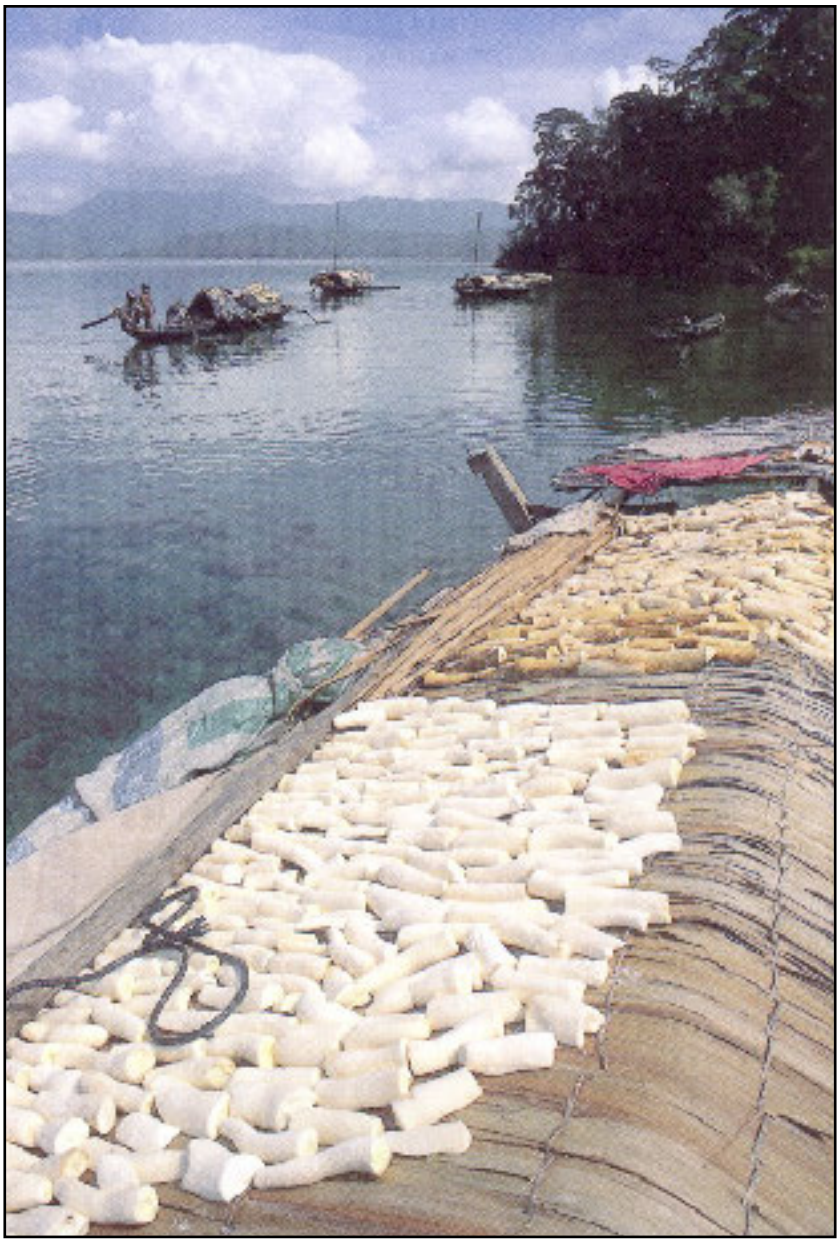

Fig. 9. Drying cassava on sea nomad boat roof. Unknown internet source.

Since there were no landed partners in the uninhabited Marianas, where were they? I propose that they were back across the Philippine Sea in what Bill Soheim calls "Austronesia" that zone of thousands of large and small islands stretching from Taiwan to eastern Indonesia. In Fig. 10 this zone is within the black triangle.

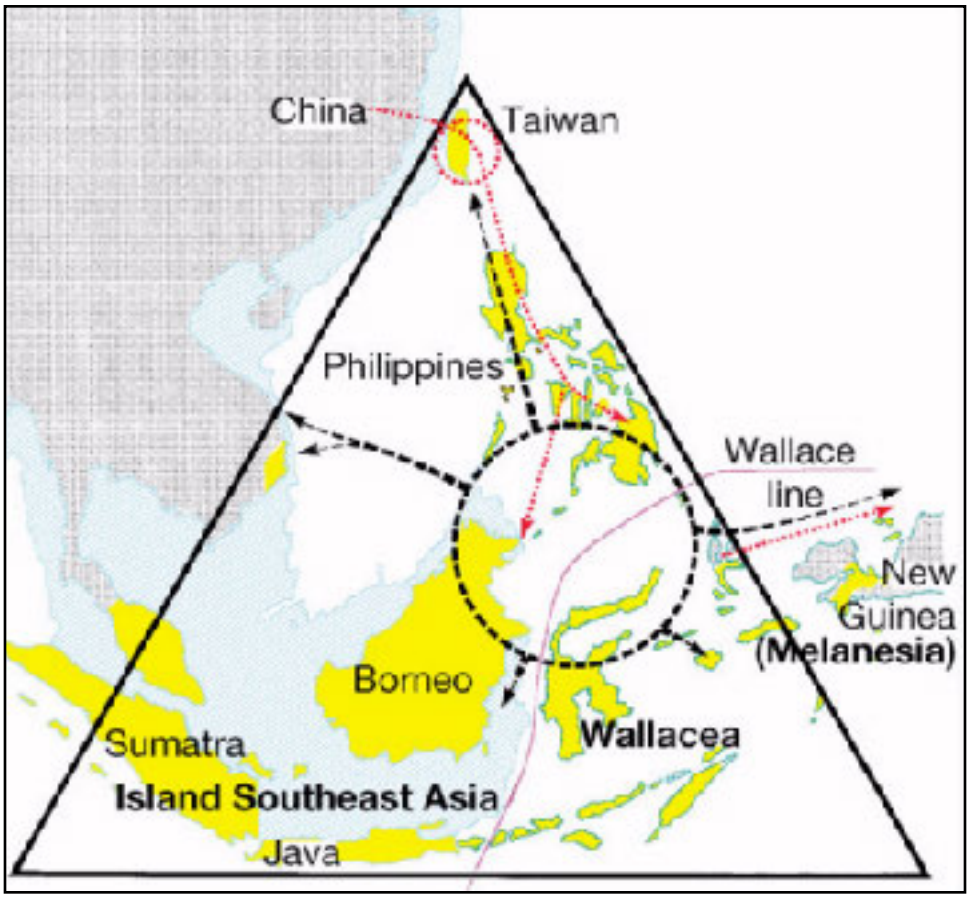

Fig. 10. "Austronesia" is within the black triangle, possibly the source area for marine foragers who visited the Marianas. After Oppenheimer and Richards (2001:Fig. 1).

Solheim (1984) proposes the term "Nusantao," or people of the sea, for the ancestral groups who eventually peopled the remote Pacific Islands and with whose descendants Solheim enjoyed many encounters during his decades of field research in "Austronesia." Without noting the inter-dependent economic and social relationships that likely were maintained by the Nusantao and their landed partners, Solheim avers that the ancestral Nusantao were the spreaders of the cultural traits throughout Austronesia, and that they spread the **idea** of decorating the red ware pottery to the Marianas during the Early Pre-Latte Period.

This is a partial answer to a why question, namely why there was consistent patterning of pottery decoration throughout Island Southeast Asia during the late Holocene, as well as in the Marianas. However, Solheim's answer is dependent upon the logically circular notion of diffusion. To say that an idea, manifested in an archaeological observation like decorated potsherds, has diffused, is to re-describe the thing that needs to be explained.

Over five decades ago Alexander Spoehr (1957) proposed that the decorated Marianas red ware (and a few sherds of contemporary black ware) was "trade ware," i.e., not locally made. This idea has been abandoned by most archaeologists because Bill Dickinson and colleagues (2001) found that the calcareous sand used to temper Marianas red ware was available locally. Calcareous beach sand, originating from coral reefs, is indistinguishable as to its source area throughout the tropics. Yet because calcareous temper is indistinguishable as to its source, the temper in Marianas red ware indeed may be exotic to the Marianas. Was it made elsewhere? The very similar examples from the Nagsabaran site come to mind.

Answering the Title's Question: Migration for Settlement or Home Range Expansion: or What Caused People to First Come to the Marianas c. 3500 Years Ago?

I can put my answer in the form of a story a well-warranted one. It goes like this. A small segment of the numerous marine foragers living in Island Southeast Asia were experiencing difficulties 3500 years ago. More seasonal climate regimes were developing, for example, requiring adjustments by agricultural and foraging people on land and sea (Donders et al. 2007; Liu and Feng 2012; Toth et al. 2012).

The marine foraging niche had been a viable response to the last pulse of glacial meltwater c. 7500 years ago, which inundated the Sunda shelf and created the thousands of islands, and myriad aquatic habitats in Island Southeast Asia (Oppenheimer 1998). Now, however, the marine foraging niche was becoming crowded, not from population growth, but from more frequent shortage in marine resources. Sea levels were declining in Island Southeast Asia, just as they were in the Marianas. Coastal lands were expanding, mangroves were receding and estuaries were becoming rich, alluvial deltas that could be planted. These changes were good for people with access to land but were bad for people dependent upon productive marine habitats for food and products to trade.

The result was increasing competition among marine foraging groups, as they all sought the same dwindling resources. Lewis Binford (2001) referred to such situations as regional "packing" and showed that hunter-gatherer responses to packing vary according to local environmental circumstances. For example, in the tropics, food production can be increased through agriculture but not by intensifying production of aquatic resources (see discussion in Johnson 2013).

An important motivator for marine foragers to do something and quickly, was that their social and economic relationships with landed groups were breaking down. Landed people were increasing in number as agriculture became more common, but their sea nomadic partners were often failing to keep up their end of the "bargain" in supplying fish and finished items to trade for land foods and other necessities.

One possible response by marine foraging groups to this untenable situation was to integrate more fully with landed groups, who controlled the expanding coastlines. This choice would involve adopting a sedentary lifestyle on land, probably also some agriculture, and certainly a loss of political autonomy and social status. Integration of formerly autonomous groups into a new social and economic system is not new in dynamic multi-ethnic Island Southeast Asia (see examples in Sopher 1965). Nor is this phenomenon confined to marine foragers. It can be witnessed today, as previously autonomous groups lose access to their preferred habitats through various development schemes (Cernea and Schmidt-Soltau 2003).

Another possible response to the competition for marine resources was to enlarge the home range utilized by a cooperating group or groups. This tactic would enable them to remain in the marine foraging niche but would entail paying a high price, in terms of dangerous ocean crossings and a departure from established domestic routines. The benefit would be free access to the uncontested marine resources offered by the Marianas and a way to remain relatively autonomous within the Island Southeast Asian multi-ethnic cultural milieu.

The "pristine" reefs of the Marianas would have abounded in large sized marine shells, and a variety of inshore and pelagic fish and turtles would have been available as well. Occasional or seasonal trips to the Marianas for collecting purposes by small parties would have involved re-organizing of labor and co-resident groups. Temporary housing at seasonally (or less frequently) occupied encampments would have been necessary too.

That a home range expansion tactic was onerous implies that few marine foraging groups would have tried it. The very light footprint of the Early Pre-Latte visitors to the Marianas indicates that marine foraging occurred here. The two pottery design styles, Achugao and San Roque, suggest there were only two groups, perhaps related clans, who had succeeded with the home range expansion option.

Expectations

Marine foraging in the Marianas apparently lasted as long as 1000 years, with the pottery designs becoming simpler and less finely made toward the end of that time, as noted by Moore (2002). Aside from the need to explain this simplification, the range expansion model predicts, a contemporary simplification process in the red ware ceramics in Island Southeast Asia. This is because of the postulated close connections between marine foragers and their landed partners in Island Southeast Asia, from whom they either obtained these ceramics or somehow made them themselves.

That the Early Pre-Latte Period came to an end when it did requires an explanation. I suspect its causes will be found to relate to changing political, social, and economical alignments that occurred during the Metal Age in Island Southeast Asia. The simple trade items made by marine foragers may have lost their attractiveness, as new sources of wealth became sought after. Trying to maintain previous mutualistic relationships using devalued trade items would have been a losing battle for marine foragers, encouraging the further shrinkage of this once broadly practiced niche.

The home range expansion model can be tested further with quantitative data from large excavated areas at Early Pre-Latte sites. Extensive horizontal excavations can expose spatial patterning in the placement of features and distributions of artifacts and faunal remains (e.g., see Carson 2014), which cannot be perceived using the old test pit method. If these newly exposed areas reveal patterns indicate that people lived in large permanent settlements and from the start were establishing colonies similar to the Neolithic villages in northern Luzon, rather than transient encampments resembling the Chao Lay settlement patterns and cultural deposits, then the model needs serious revision. If not, then perhaps we are on to something.

In conclusion, I hope the dialogue begun here (and as seen in the recent dialogue in the archaeological literature between Hung and her colleagues and their academic critics) will continue so that students can judge for themselves what is credible and worthwhile in the fascinating intellectual "pursuit of the past" called archaeology.

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Early European Exploration in the Marianas

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Abstract: *Spanish and Portuguese exploration in the late 15th and early 16th centuries was part of an effort to find a westward route to the Indies and lay claim to these lands – islands known for their rich spices. This pursuit resulted in voyages by European sailing vessels that explored the islands in Micronesia. When Ferdinand Magellan arrived in the Mariana Islands on March 6, 1521, while seeking this westward route to the spice rich Indies, it heralded the beginning of a European dominance in Micronesia that would span more than four centuries. Continuous European contact began with Spanish control of the Mariana Islands in 1565. The exploration and exploitation of Micronesia by European sailing vessels reflects the changing requirements of discovery, conquest, commercialization, and colonization. The influence and impact of Europeans on the indigenous people of the islands was widespread, resulting in changes and resistance.*

During the late fifteenth century, the Portuguese steadily worked their way down the west coast of Africa and established a chain of bases along the way. The Bull of Pope Alexander VI in 1493 and the Treaty of Tordesillas in 1494 gave the Portuguese exclusive rights to colonize and explore all areas east of an imaginary line of demarcation established well out into the Atlantic. As a result of Vasco de Gama's voyage in 1497 around the Cape of Good Hope to India, the Portuguese established a monopoly over the only known sea route to the Orient.

> By 1518 the shipping route down the African coast and across the Indian Ocean to India and the strategic Malaccan Straits was the exclusive estate of John III of Portugal. The Portuguese had succeeded in creating a highly profitable commercial empire in the East, while the Spanish could do little but stand by and watch with covetous eyes (Hezel 1983:8).

In the late fifteenth and early sixteenth centuries, Spain was also interested in a westward route to the Indies. With Portugal's monopoly of the known sea route, the Spanish were forced to look for an alternative, westward route to the Indies.

In 1518, Magellan convinced the Spanish Crown that rounding the tip of South America would bring him to the Spice Islands. When *Trinidad* and its companion ships the *Victoria* and the *Concepción* sailed into a small harbor on the western coast of the lateen-rigged outriggers of the (later called Marianas) in 1521, the hope of a westward route became a reality. Magellan stopped at one of the islands to provision. A misunderstanding over property rights caused him to refer to it and its inhabitants as the island of the thieves (Isla de los Ladrones) (Cusher 1971: 16). Only 18 men and one small ship, *Victoria*, survived the rigorous expedition, but the long-sought route to the Spice Islands was established and the exploration of Micronesia began. During the return voyage of *Trinidad* in 1522 Gonzalo Gómez de Espinosa, who assumed command after Magellan's death, first recorded tiny Sonsorol, an island in the Caroline Islands (Stanley 1874:25-29).

Stirred into action by the Spanish discovery of a western route to the Spice Islands, the Portuguese captain of the Moluccas was ordered to initiate exploration of the surrounding waters and lay claim to them. In particular, were the islands to the north reported to contain spices, gold, silver and other precious metals. In 1525, Diego de Rocha was searching for these lands (refer to Figure 1.1), when a severe storm drove him between 800 and 1,200 miles to the northeast. He sighted a small island group he named Islas de Sequeira, after the ship's pilot. The crew remained on one of the islands, probably Ulithi, in the western Carolines for four months making repairs and waiting for favorable winds. They learned there were no metals, although gold could be obtained from high mountains to the west, possibly in the southern Philippines. After Rocha sailed out of Ulithi on January 20, 1526, the island was forgotten.

A second Spanish expedition with a fleet of seven vessels commanded by Juan García Jofre de Loaysa set out in 1525 with the sole purpose of taking possession of the Spice Islands for Spain, by whatever means possible. Nearly a year after departing Seville, the fleet finally arrived in the Pacific with only two ships remaining. When the fleet was forced to put in at Mexico for repairs, only one ship, *Santa María de la Victoria*, was capable of continuing the journey. Shortly after, Alonso de Salazar assumed command when Captain Loaysa and his second in command died. As the ship continued northward in a desperate search for provisions and water, a small island was spotted and named San Bartolomé. This was probably Taongi, now called Bokaak, and was the first European discovery in the Marshall Islands. *Victoria's* crew, unable to find a suitable anchorage, was forced to sail on and eventually arrived in Guam.

After a brief layover in Guam for reprovisioning, Salazar and his crew with several native Guamanian islanders impressed into service, departed for the Philippines. Following a brief stay in the Philippines, Salazar continued to the Moluccas where a substantial Portuguese force quickly routed the Spanish by compelling them to abandon their ship and take refuge in the hills.

In October 1527, Charles V sent another fleet from New Spain (Mexico) under the command of Alvaro de Saavedra Cerón to provide assistance to the Loaysa-Salazar expeditionary force. In December, while crossing the Pacific, Saavedra sighted Los Ladrones but did not put into port (Coello 1885:42). On January 1, 1528, two small islands in the western Carolines were discovered and named Islas de los Reyes (Islands of the Kings); these two were most likely Fais and Yap.

Upon reaching the Philippines, Saavedra heard news of the Loaysa-Salazar survivors. Realizing he could not rescue them, he continued to the Moluccas where he picked up a cargo of valuable spices. Saavedra hoped to find a return route back across the Pacific to New Spain, by following the northern coast of New Guinea and eventually turning northeast. En route he reached an island he called Barbudos because of the beards worn by the natives. The island was recorded as being at 7° north latitude and was Pohnpei (probably Ponape) or one of its outliers in the Caroline Islands. After six months of frustration, and with the winds still against him, Saavedra was finally forced to turn back to the Moluccas.

In May 1529, Saavedra began his second attempt to cross the Pacific (refer to Figure 1.1). He retraced the route of his previous voyage, again sighting islands in the vicinity of Barbudos. Continuing northeasterly into the area of the Marshall Islands in late September, he reached what is probably the atoll of Ujelang. Impressed by the tattooed natives, he named the islands Los Pintados (The Painted Ones). On October 1, another group of islands to the northeast was sighted and because of its lush vegetation, was named Los Jardines (The Gardens). These are probably the atolls of Bikini and Enewetak. After limited reprovisioning, the *Florida* with Saavedra and his crew continued northeastward; however, when both Saavedra and his successor died the *Florida*'s crew returned to Tidore in the Moluccas, where they joined the Loaysa survivors in the hills. The ship had reached the northern latitudes and the winds would have eventually taken them back to New Spain.

Explorers under the auspices of the Spanish Crown had succeeded in discovering a westward route to the Indies, but no ship was able to recross the Pacific and return to

New Spain. Of 15 ships that were sent out, only Magellan's *Victoria* had returned; the loss of life among the crews paralleled the ship losses. With Spanish commercial success less than spectacular, representatives of the Crowns of Spain and Portugal met and signed the Treaty of Zaragoza in 1529. It stipulated that in exchange for 350,000 ducats, Spain would give up its tenuous rights to the Spice Islands to Portugal (Cushner 1971:29).

Spain was denied access to the Moluccas, but there was nothing to stop them from exploring, conquering and colonizing the Philippines, reputedly rich in cinnamon and gold. Thirteen years after the Treaty of Zaragoza on November 13, 1542, the Spanish sent another expedition into the Pacific. Ruy López de Villalobos, captain of a fleet of six vessels, set out from Mexico with orders to seek out the Islas del Poniente (the Philippines).

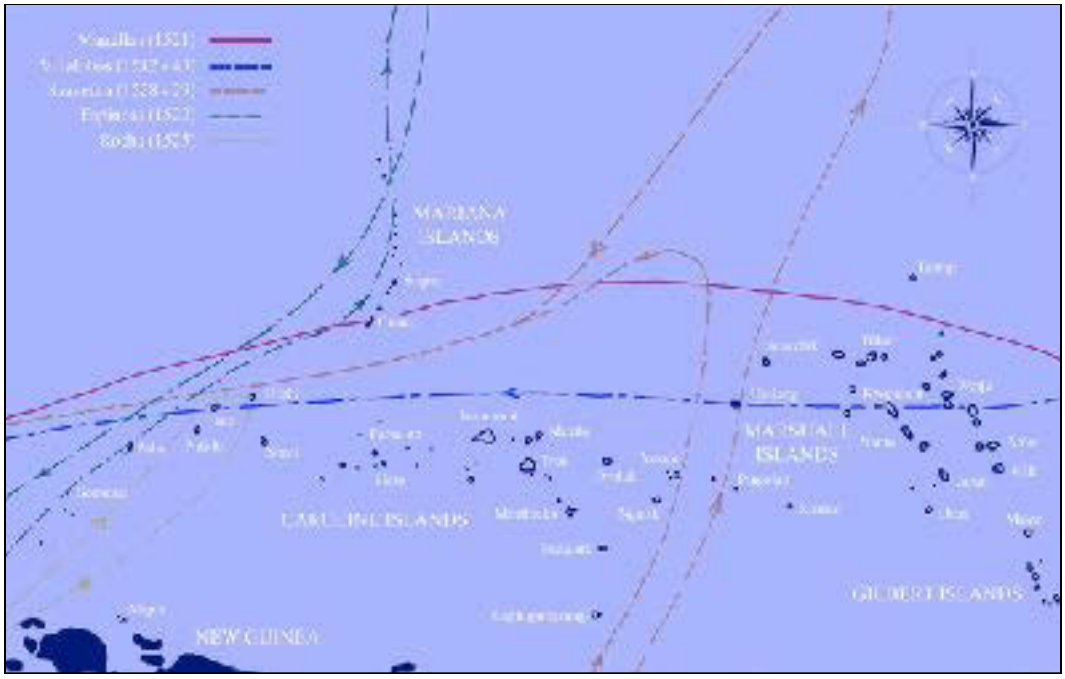


Fig. 1.1. Map design by James W. Hunter III, Ships of Discovery, 2009

During this expedition, the fleet made landfall on December 25, 1542, somewhere in the Marshall Islands that Villalobos named Los Corales (The Corals). Shortly thereafter, they arrived at another atoll suspected of being Saavedra's Los Jardines. They sighted Los Ladrones but did not stop (Colín 1900[I]:149).

In the Carolines, Villalobos rediscovered Fais and Yap where they were greeted in Spanish, "They made the Sign of the Cross and shouted *Buenos días, matalotes* Ahoy, mates! This was an indication of contact with the Loaysa-Salazar expedition 14 years earlier. The island was promptly dubbed, Matalotes (Cushner, 1971: 32).
Villalobos reached the Islas del Poniente in early February 1543 and immediately set out to conquer the local inhabitants on the island of Mindanao. Ultimately, the expedition proved unsuccessful and, after finding out that the Philippines were claimed by Portugal five years earlier, Villalobos set out for the Moluccas. Severe food shortages and loss of life forced him to surrender to the Portuguese, who eventually provided the survivors passage back to Spain. Antonio de Herrera, who accompanied Villalobos, eventually published one of the earliest and best maps of the northern Pacific, which depicted all the islands discovered by the Spanish (refer to Figure 1.2).

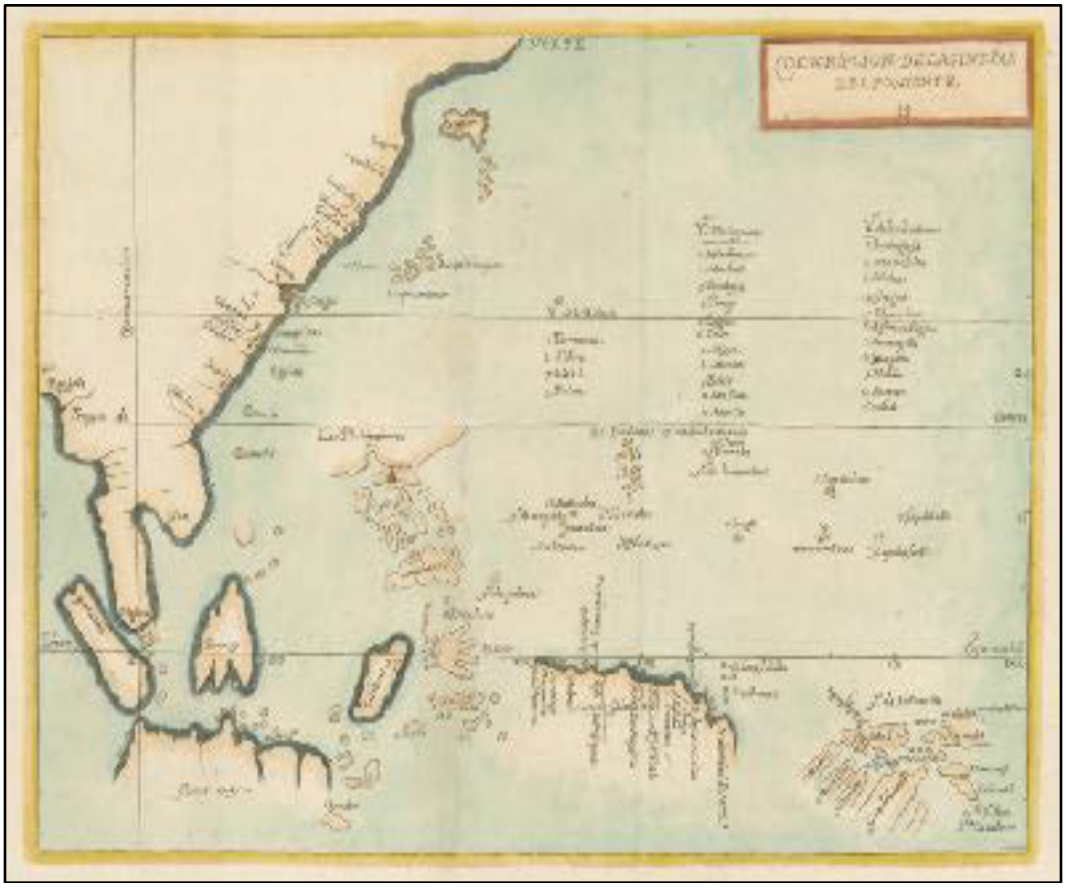


Fig. 1.2. Princeton University, 2010.

Much of the exploration was occurring in the islands to the south of the Marianas. However, in 1552 the caravel *Santa Margarita*, commanded by Pedro de Acuña, was on a trading and exploring venture when it is believed to have wrecked somewhere in the

Ladrones (Potter 1972:414). If so, this was the first Spanish contact in the islands preceding Legazpi by 13 years. Other vessels may have also visited the islands during this period, but their visits were either not recorded or have been lost over time.

In 1564 the Spanish again attempted colonization of the Philippines. Despite evidence that the Philippines lay beyond the Spanish zone as set forth in the Treaty of Tordesillas, Phillip II dispatched a fleet of ships from Mexico. The *San Pedro* under Miguel de Legazpi and the *San Lucas* under Captain Alonso de Arellano had orders to discover which of the islands grew spices, obtain samples of those and other riches and establish a colony.

A few days out of port, however, the *San Lucas*, deserted the flotilla. Captain Alonso de Arellano and his crew intended to become pirates and prey on rich merchant vessels in the Indies. Piloted by Lope Martín the ship ran a few degrees south of the usual track to Los Ladrones. Within a month it had made its first landfall at a group of low islets that compose Likiep Atoll in the Marshall Islands. On January 7, 1565, they discovered two more islands Dos Vecinos (Two Neighbors), probably Kwajalein (Figure 1.3). The following day, another island approximately 20 miles south of Kwajalein was discovered. This was, perhaps, Lib Island, also called Nadadores (The Swimmers) as a result of the hostile welcome received by the Spanish. On January 17, several high islands ringed by a barrier reef were seen the Truk Islands. The well-armed natives, hostile and bent on capturing the ship, pursued *San Lucas* in their canoes. On January 18, another small group of islets was discovered, the atoll of Pulap. Unlike the Trukese, the people of Pulap offered to provide water and wood to the crew. Although apprehensive, several men went ashore with the islanders. Unfortunately, their fears were well grounded, and before it was all over two sailors were killed and a third barely escaped. As a result, Arellano named the islands Los Mártires, (The Martyrs). A few days later the natives of Sorol Atoll, in the western Carolines, repeated the hostile greeting offered by the Lib, Truk and Pulap islanders. This time the Spanish were prepared. They fired on the armed natives and seized their canoes and weapons for wood. Once beyond Sorol, the remainder of *San Lucas'* voyage to the Philippines was uneventful.

About the same time *San Lucas* reached its first landfall, Miguel de Legazpi in *San Pedro* reached another island in the Marshalls. He disembarked, claimed it for the King of Spain and named it Isla de los Barbudos (Island of Bearded Ones) on January 11, 1565 (Doc. Ined. 1967, Doc. 27: 228-229). Thus continued a tradition of confusing or duplicate place names; this was the same name given to Pohnpei in the Caroline

Islands more that 30 years earlier by Saavedra. Legazpi subsequently discovered four more uninhabited island groups in the Marshall Islands (refer to Figure1.3).

Legazpi's flotilla finally reached Guam on January 22, 1565 with three ships to officially claim the islands for the Spanish Crown. It was forty-four years after Magellan's initial visit to Los Ladrones. Mass was said in a large boathouse (Doc. Ined. 1967, Doc. 27:251) on the southwest coast of Guam. Legazpi had crosses carved in coconut palms near the shore (Doc. Ined., Doc. 38:80). The flotilla set about reprovisioning. The Chamurres as the natives of Guam were then called known for simply taking items that interested them, swarmed over the ships collecting whatever they could. Tensions mounted following a report that a group of sailors were stoned while ashore seeking water. The death of a young seaman brought matters to a head. As a result, an armed party from the flotilla torched a village and all of the canoes readily available. The reprisals ended with Legazpi hanging four Chamorro and departing.

Arriving in the Philippines in mid-February 1565, Legazpi spent the next two months exploring Samar in the eastern Philippines before arriving off the coast of Cebu in late April. Although he was greeted by a large, well-armed force of natives, they were quickly dispersed by the ship's artillery. Legazpi took possession of the islands in the name of the Spanish king, Philip II and formally initiated an era of colonial rule that would span more than 300 years (Cushner 1971:53-54).

Captain Alonso de Arellano arrived in the Philippines before Legazpi and decided to wait for the fleet in the Davao Gulf. After a brief but unsuccessful search in the area, the *San Lucas* departed the Philippines on April 21, 1565 and tracked northeast, then east in the hope of finding a route back to Mexico. When *San Lucas* reached 40 degrees north, the westerly winds quickly carried the ship across the Pacific to North America. Two months later, Legazpi left the Philippines and sailed northeast along a course similar to that taken by *San Lucas*. Both of these west-east crossings of the Pacific established once and for all the return route that would be followed by the Manila galleons for more than 250 years.

Upon the arrival of *San Lucas* in Acapulco, Spanish authorities had the ship *San Jerónimo* quickly outfitted to bring additional supplies and reinforcements to Legazpi, still believed to be in the Philippines. Lope Martín was again selected to pilot the ship. Not long after departing Mexico, Martin convinced *San Jerónimo's* crew to mutiny and eventually took control personally. Continuing in a westerly course through the

Marshall Islands, *San Jerónimo* sighted several small islands and arrived at Ujelang on July 6, 1565 (Figure 1.3). During their brief stay, some of the mutineers slipped back to the ship, retook it and ultimately left Martín and 26 others marooned.

Fig. 1.3. Map design by James W. Hunter III, Ships of Discovery, 2009.

Legazpi's successful establishment of an outpost in the Philippines opened up trade between the Orient and Spain. Chinese entrepreneurs brought silks, teas, porcelain, spices and gems to the Spanish traders in Manila who purchased these goods with silver mined in Peru and Mexico. The first of the Manila "galleons" to traverse the Pacific were *San Juan* in 1567, under the command of Juan de la Isla, and two unidentified ships, under the command of Felipe de Salcedo. *San Juan* sailed from the Philippines in July and arrived at Acapulco in November, while Salcedo departed Acapulco in April, stopped in Guam to reprovision, and arrived in Manila in August. Departing Manila on July 1, 1568 on the return voyage, *San Pablo*, under the command of Salcedo, became the first Manila galleon lost in the trans-Pacific crossing. One hundred thirty-two survivors eventually made it back from Los Ladrones to the Philippines in a small bark they constructed from a ship's boat (Dahlgren 1917:48).

The last exploratory encounter into Micronesia in the sixteenth century occurred when Álvaro de Mendaña led two expeditions (1568, 1595) to search for the phantom land of Ophir, the source of Solomon's gold (refer to Figure 1.3). On his disastrous

second voyage, Mendaña died and command was assumed by Pedro Ferdinand de Quiros. On December 23, 1595, while attempting to reach the Philippines after the small band was decimated by raids on their camp, Quiros nearly ran aground on an offshore reef that was most probably at Pohnpei in the eastern Caroline Islands. Quiros is credited with being the first European to sight the island of Butaritari in the Gilbert Islands in 1606, which he named Buen Viaje.

Quiros' near disaster at Pohnpei marked the end of the first wave of Spanish exploration into Micronesia. The Gilbert, Marshall and Caroline archipelagos had no riches or precious metals, and the Manila-Acapulco route ran well north, leaving little reason for further Spanish exploration of the region. While the discoveries and general locations of these islands were recorded in journals and logs, they were quickly forgotten and faded into obscurity.

With its foothold in the Philippines and access to the lucrative Chinese markets, the volume of trade from Manila to New Spain increased dramatically. The established sailing route took the ships and men through the Mariana Islands, a critical stop on the outbound leg of the journey. As a result, this led to significant differences in the subsequent history of the Mariana Islands and a cultural break with other people in the region. These differences began in the mid-1560s. European influence in the Mariana Islands can be divided broadly into three time periods:

Contact (1565-1668), Conquest (1668-1700) and Colonization (1700-1898).

Presentation slides begin on the following page.

The Early European Voyages

- 1415 Portuguese king, John I, capture the North African trading center of Ceuta and it "announced the beginning of an empire" (Diffie 1960:1).
- By the middle of the 15th century, Portugal was the leading maritime nation in Europe, thanks largely to the legacy of Prince Henry the Navigator.
- By the end of the 15th century, the Portuguese Vasco de Gama made the voyage to India. In the meantime, Christopher Columbus, sponsored by the Spanish Crown, had returned to Europe in 1493 to announce that he had successfully found a route to the Orient by sailing west across the Atlantic.

Vasco de Gama's voyage in 1497 around the Cape of Good Hope to India

Magellan 1519-1522

- Magellan developed his own theories on the existence of waterway into the Pacific inspired by Juan Diaz de Solís' expedition to the south American coast, who perished with his crew slain by the natives by the Rio de la Plata.
- By early 1518 Magellan, Juan de Anda, and the two Faleiro brothers Ruy and Francisco were in Valladolid to obtain the king's patronage of their project. He sail under Spain's flag.

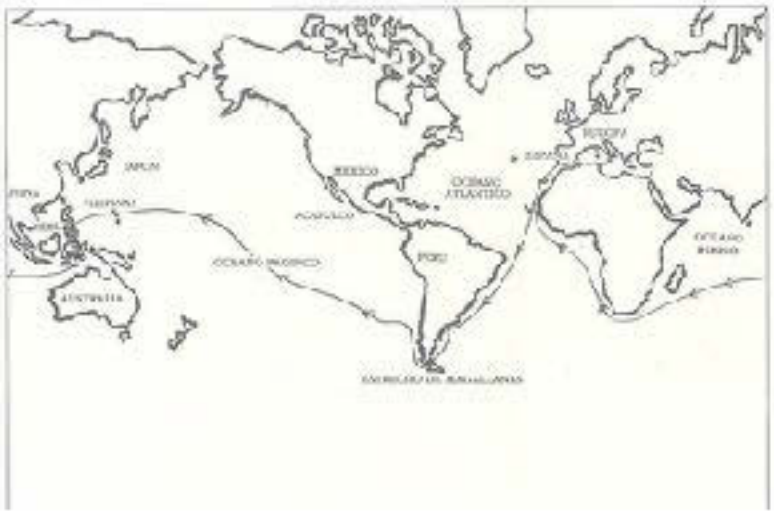
[1] Magellan 1519-1522

- On August 10, 1519, five vessels put out of Seville and headed down the Guadalquivir for Sanlúcar de Barrameda. On September 20, the five vessels crossed the bar and was throw into the Atlantic, heading southwest in search of the waterway to the Pacific, the departing fleet made up of the following vessels:
- *Trinidad – San Antonio – Concepción – Victoria – Santiago* (Navarrete 1971 [16]:247-281).

Magellan 1519-1522

- 106 days after leaving the strait, the lateen-rigged outriggers of the Marianas came into sight of Magellan's reduced fleet the *Trinidad*, the *Victoria*, and the *Concepción* (Cushner 1971:15-16). The chief chronicler of the fleet Antonio Pigafeta described the Marianas' outriggers as narrow and painted with black, white or red colors. The lateen sail was weaved using the leaf of a palm (Pigafetta 1986:65).

Magellan's Expedition 1519-1522



Magellan 1521 – The Marianas

- *Victoria*'s pilot Francisco Albo wrote "We saw many small sails which were coming to us. Each with a single triangular lateen sail." Pigafeta wrote that the proas were "like dolphins jumping from wave to wave" (Rogers 1995:6). Magellan's encounter with the people of the Mariana Islands in 1521, marks the age of European exploration of the Pacific.

Eighteen men aboard of the *Victoria* reached Sanlúcar de Barrameda on September 8, 1522

[2] Juan García Jofre de Loaysa 1525 - 1527

- On April 5, 1525, Charles V appointed Loaysa captain general of the islands of the Molucas, and placed him in charge of the expedition that was to sail from la Coruña to the South Seas by the way of the Strait of Magellan. The Philippines were secondary in the voyage.
- Loaysa's was the second Spanish trans-Pacific voyage to use the Straits of Magellan—and the last for over two centuries.
- The young Basque seaman, Andrés de Urdaneta member of the expedition wrote "Loaysa's fleet of seven ships departed la Coruña on July 24, 1525 (Cushner 1971:21). The navigation was too long and difficult, compared with that from New Spain.

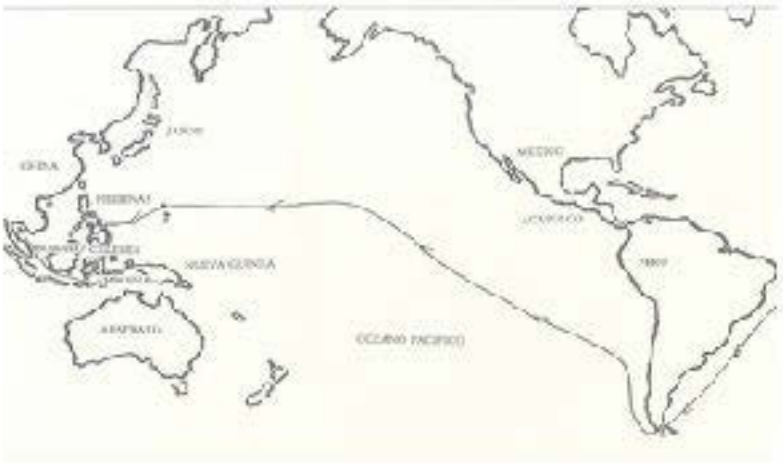
Juan García Jofre de Loaysa 1525 - 27

- By the time Loaysa reached the strait he had only four ships (Naos), the flagship *Victoria*, the *Santa Maria del Parral*, the *San Lesmes* and the *Santiago*. Upon the expedition reached the Pacific a storm struck and separated the *Victoria* from the other three ships, the ship was overcrowded, short of provisions and death and scurvy was claiming his men. Loaysa was determined to continue but he die on July 30, 1526, before reaching the Mariana Islands on September 4, 1526.

Juan García Jofre de Loaysa 1525 - 27

- Next day on September 5, 1526, an outrigger canoe came paddling out and it was Gonzalo de Vigo of the Magellan's expedition. He was a survivor of the *Trinidad*, which had attempted to cross from Maluco to Mexico.
- Gonzalo de Vigo had lived with the people of the Marianas for almost five years.

Juan García Jofre de Loaysa
1525 – 1527



[3] Alvaro de Saavedra Cerón
1527-1529

- The expedition organized by Cortés and headed by Saavedra with a fleet of two naos and a brigantine departed from Mexico on October 31, 1527, *Florida, Santiago* and *Espiritu Santo*. Only the *Florida* reached the Ladrones on December 29, but the ship did not anchor. On Jan. 1, 1528 took off to Yap or Ulithi in the western Carolines. Saavedra reached the Philippines and tried his return to New Spain interested in finding a return rout for Cortés.

Alvaro de Saavedra Cerón 1527-1529

Alvaro de Saavedra Cerón

- The rout Saavedra tried was east, along the New Guinea coast. It proved impossible to battle the winds and on November 19 they were back in Tidore. Later, on May 8, 1529, Saavedra again attempted to cross the Pacific headed east-northeast to the Barbudos (Carolines), they continued their climb up to 26 degrees and Saavedra suddenly died, his successor Laso continued to climb to 31 degrees. Here the winds were found unfavorable, so they went back to Tidore. Laso died a week later and the sprit of the crew was broken.

Alvaro de Saavedra Cerón 1527-1529

- In the month of July, at 30 degrees north, there are not contrary winds impeding an easterly voyage. The *Florida* was directly on the future galleon rout which was to be used for 200 years as the path to New Spain (Cushner 1971:29).
- The crew of the nao *Florida* missed the opportunity to find the return path to New Spain. The *Florida* returned to Tidore, there surrendered to the Portuguese.

The Treaty of Zaragoza

- In 1529 the Treaty of Zaragoza was signed between Charles V of Spain and John III of Portugal.
- The first European treaty on claims in the Pacific.
- The major provision of the Treaty was that a line of demarcation should be adopted from Pole to Pole, defined by laying off 19° on a bearing NE by E from the Moluccas; beyond this line (which in real terms, gave Portugal about 187° of longitude against Spain's 173°) the King of Castile should not claim, trade, or sail.

The Treaty of Zaragoza

- The Treaty temporarily put and end to Portuguese-Spanish power struggle in the Far East.
- With the settlement of the Treaty of Zaragoza, the Moluccas, so significant as a magnet for trans-Pacific voyaging, begin to fade out in favor of the Philippines-New Spain route. The Galleon trade dominated the Pacific for over 250 years.

Ruy López de Villalobos

- Thirteen years after signing the Treaty of Zaragoza, on November 1, 1542, the expedition of Villalobos with six vessels departed from Mexico, port of Navidad or Juan Gallego: four naos, the flagship *Santiago*, the *San Jorge*, the *San Antonio*, the *San Juan de Letran*, a galiot, the *San Cristóbal*, and a small lateen-rigged fusta, the *San Martín* (Fernadez Duro 1972 [1]:297).

Ruy López de Villalobos

- Two months later three other islands were sighted they ere christened Islas de Coral, Islas de los Reyes and Los Jardines , which are today probably the Radak and Ralik chains of the Marshalls. On January 23, the fleet passed an island whose natives must have had some previous contact with Spaniards, for they made the sign of the Cross and shouted, "B*uenos dias , matalotes*" –"Ahoy, mates!"

Ruy López de Villalobos

- In the Carolines, Villalobos rediscovered Fais and Yap. There the explorers were greeted in Spanish that must have been learned from the members of the Loaysa-Salazar expedition 14 years earlier. Accompanying Villalobos was the chronicler Antonio de Herrera, who eventually published one of the earliest and best maps of the northern Pacific, which depicted all the islands discovered by the Spanish (Princeton University, 2010).

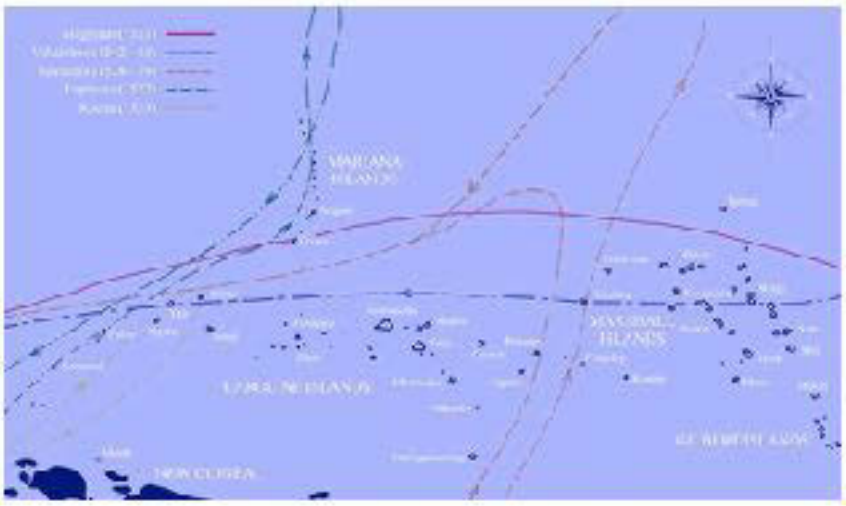
Map of Antonio de Herrera, 1601
Descripción de las islas del Poniente

Ruy López de Villalobos

- Villalobos reached the Islas del Poniente in early February 1543 and immediately set out to conquer the local inhabitants on the island of Mindanao. Ultimately, the expedition proved unsuccessful, and after finding out that the Philippines had been claimed by Portugal five years earlier, Villalobos abandoned Mindanao and set out for the Moluccas. Severe food shortages and loss of life forced him to surrender to the Portuguese, who eventually provided the survivors passage back to Spain.

16th Century European Voyages

1521 – 1543



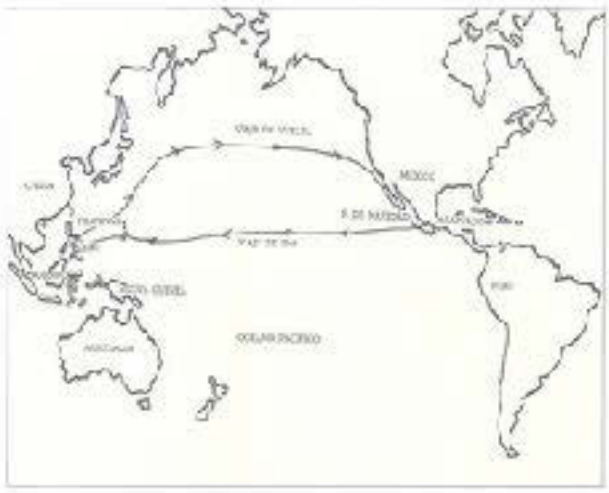
Miguel López de Legazpi

- November 20, 1564, the fleet of four vessels was ready to sail from port Navidad. At the lead was the flagship, *San Pedro*, the almiranta, *San Pablo*, two pinnaces, the *San Juan* and *San Lucas*. The *San Lucas*, later involved in a daring escapade, was commanded by Alonso de Arellano (see map, 1665). Legazpi was to sail directly to the Philippines, following the route of Villalobos.

Miguel López de Legazpi

- The *San Lucas,* commanded by Arellano was separated from the fleet on December 1st.
- Legazpi arrived to the Ladrones on January 23, a large number of natives outriggers, carrying upwards of 400 men surrounded Lagazpi's ships. The swift-moving, lateen-rigged proas made a favorable impression on Legazpi's sailors. For rice and yams, the Spaniards traded nails, useful to the natives for their ships.

Urdaneta Returning Route



Derrotero de la Expedición de Urdaneta (1564-1565).

16th Century European Voyages
1566 – 1595

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