

The Portuguese Discovery of the Isles of Sequeira

WILLIAM A. LESSA

*Professor Emeritus of Anthropology, Department of Anthropology,
University of California, Los Angeles, California 90024*

Abstract

The identity of the Isles of Sequeira discovered in 1525 by some marooned Portuguese sailors has never been satisfactorily determined. Here, using anthropological, geographical, and biological clues contained in early accounts, the merits of the claims for Australia, Tobi, Palau, Ngulu, Yap, and Ulithi are subjected to intense scrutiny. "Ethnological sleuthing" serves to reject all but one candidate.

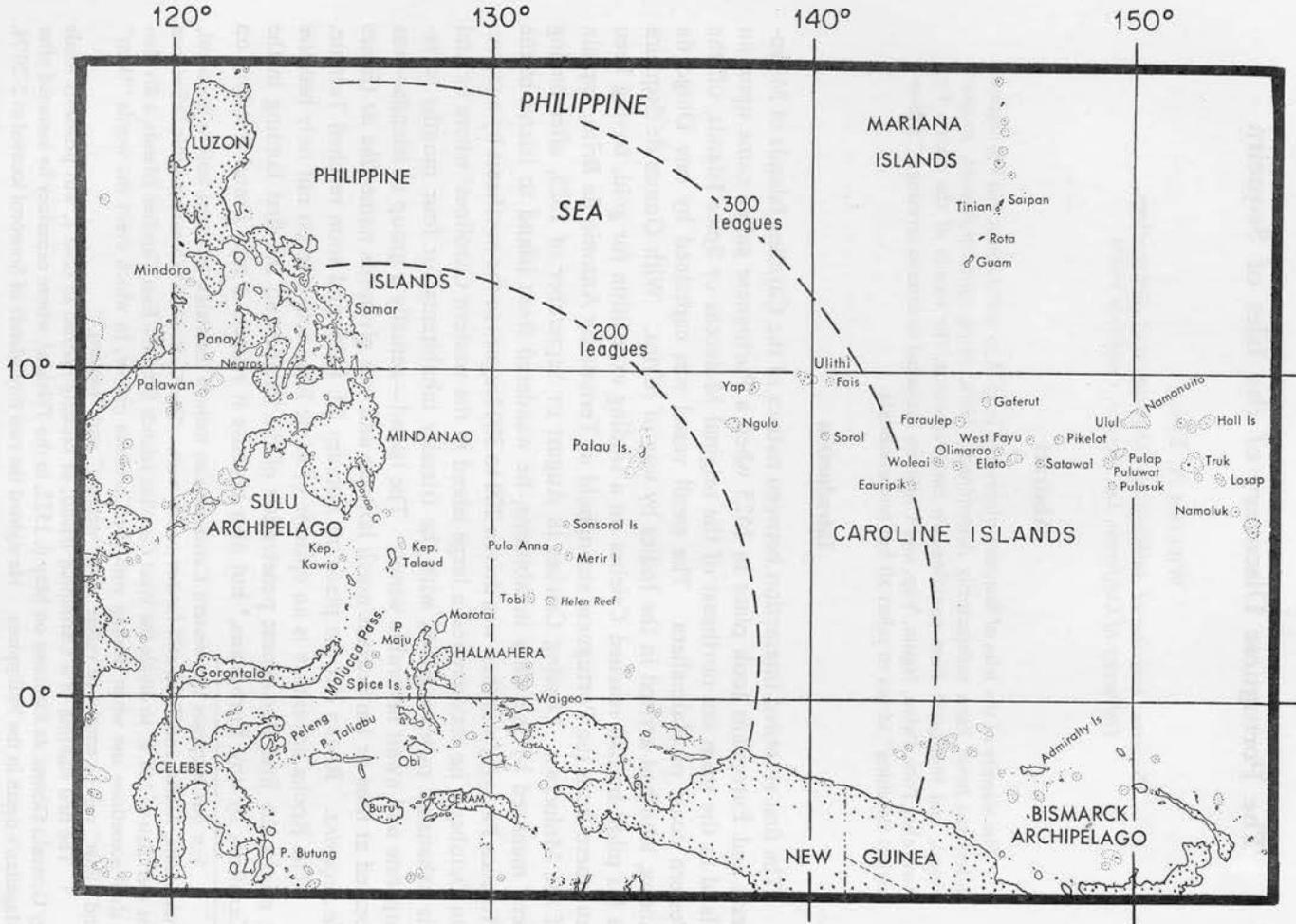
Introduction

The first recorded interaction between natives of the Caroline Islands of Micronesia and Europeans took place in 1525 when a Portuguese galley came upon an island in the open sea northeast of the original Moluccas or Spice Islands, off the western coast of Halmahera. The small vessel was captained by one Diogo da Rocha, who had arrived in the Indies by way of Africa. With Gomes de Sequeira as his pilot, he had reached Celebes on a trading expedition for gold, having been sent there from the Portuguese stronghold at Ternate by Antonio de Brito, captain of the Moluccas. Leaving Celebes in August or September of 1525, after having been menaced by the wary inhabitants, he wandered from island to island in the Molucca Passage, and then was driven 200 to 300 leagues to the northeast by a storm. On October 1 he encountered a large island in the western Carolines¹ where he and his exhausted men remained with the friendly inhabitants for four months to recuperate and await favorable winds. The island—actually a group of islands—was located at nine or ten degrees north latitude and was given the name *Ilha de Gomes de Sequeira*. Rocha left the place on January 20, 1526, and soon reached Ternate.

The Rocha adventure is an episode of some historical interest not only because it marks the first Portuguese penetration of the Pacific and the first landing in the Carolines by any Europeans,² but also because it reflects a new found freedom on

¹ For our purposes the western Carolines also include the Palau group as well as Sonsorol, Pulo Anna, Merir, and Tobi, still further to the west. The U. S. Naval Oceanographic Office uses the meridian of 148°E. to divide the West Caroline Islands from the East Caroline Islands, a division I shall sometimes use when dealing with the Carolines proper, in which event the words "West" and "East" will be employed rather than "western" and "eastern."

² The first sighting of a Carolinian island, as broadly defined in note 1, was probably made by Gonzalo Gómez de Espinosa on May 6, 1522, in the *Trinidad*, whose captaincy he assumed after Magellan's death in the Philippines. He sighted the two tiny islands of Sonsorol located at 5°20'N. on the western edge of the Carolines, but he did not land.



the part of mariners and historians from the fantasies of medieval and Renaissance Europe regarding so-called savages. My purpose is to identify the Isles and to ascertain the facts concerning their discovery.

Historical Sources

Apparently the one who has left us the earliest disclosure of the Portuguese incident was the Spaniard Andres de Urdaneta, a survivor of the second crossing of the Pacific after Magellan. Stranded in the Moluccas in 1526 after the flagship of García Jofre de Loaysa was destroyed, he returned to Spain in 1535 in Portuguese ships via the Cape of Good Hope and gave a report there to the emperor concerning Portuguese maritime holdings in the East Indies. In it he said: "To the northeast of the Moluccas is an archipelago of islands which are very close together, which a fusta³ of the Portuguese discovered 200 leagues from the Moluccas, and they are from 3 to 9 degrees north" (*Col. doc. inéd. Indias*, 1864-1884: V, 63). There is some suggestion here that the islands extended a distance of 6 degrees or 400 miles,⁴ and that they may have constituted more than one group; but no other accounts mention such a spread and the meaning of this distance must remain obscure.

The next account, in point of time, is much fuller and has been left to us by the Portuguese historian, Fernão Lopes de Castanheda (d. 1559), in his *Historia do descobrimento & conquista da India poloz Portugueses* (1551-1561: VI, 188-189). After leaving the Dominican order he had spent ten years in Goa, when ill health forced him to return home to Portugal. His is not the most cited version; nevertheless it is of major importance. However, I shall hold its contents in abeyance for the time being, except for two details not mentioned in other accounts that relate to the storm that drove the fusta off course as it tried to return to Ternate. The vessel went "towards the islands that are called Meyo, at which they could not drop anchor due to the rising tempest" (Castanheda, 1551-1561: VI, 189). Meyo, or Mayo, actually a single island, lies midway between Halmahera and the northeastern extremity of Celebes. The other statement by Castanheda is that the Portuguese "came upon a large abyss of sea which is between the Strait of Magellan and the islands of Maluco and many others" (Castanheda, 1551-1561: VI, 189). This of course implies the open Pacific. Castanheda's account is an excellent one and is rivalled only by the next version, which is the most used.

This notice is that of João de Barros (1496-1570), another sixteenth century historian, who published it nine years after that of Castanheda, which it greatly

³ Known in English as a foist or fust, this was "a single-masted vessel, rowed by anything from ten to thirty-five pairs of oars and sometimes mounting three or four very small guns" (Boxer, 1969: 388). According to one historian (Andrada, 1613: 110v) the galley in question "was equipped with twenty-five Portuguese," but we cannot be sure if this excluded the slaves said to be aboard. A picture of an Italian fusta shown in an atlas of 1482 indicates the use of 92 oars and oarsmen (Landström, 1961: 129), but the galley whose adventures we describe was undoubtedly on the small side.

⁴ All distances and lengths in this article are expressed in statute rather than nautical miles, unless otherwise indicated.

resembles. The narrative appears in Barros' well known *Terceira decada da Asia* (1563: 259v-260v).⁵

He begins by telling us something about the events preceding the arrival of the fusta in the islands of the open sea. Antonio de Brito, the first captain of the Moluccas, and Garcia Henriques, the man who had been sent out by the governor of Portuguese India in Goa to take over the running of the islands, were on Ternate together while the former prepared to return to Portugal. Barros tells us that,

both captains had news that in the islands of the Celebes (as the natives of that place are called) there was gold, of which a man going there and knowing how to barter could negotiate a good quantity. As these islands are up to sixty leagues away, more or less, it seemed advisable that they should send someone there to investigate the rumor and for Antonio de Brito to carry the great news to the king. Because he was competent in this they chose the *almoxarife*⁶ of the fortress, who departed for that place in a fusta with some cloths, more to probe than to barter. For that reason he did not take along another ship and, moreover, wanted to make his trip before Antonio de Brito departed. Leaving in June with the idea that he could return in July or August at the latest, the *almoxarife* arrived at one of the islands, where he was well received. But when [the natives] saw the cloths and other items with which to trade for gold, sensing that this was the purpose of their voyage, they made a turnabout; for they had heard that on account of cloves we had taken the islands of Maluco and that the war we were waging against these same natives was due to this. They decided on a plan, which was to see if they could seize the fusta so that no message could come from our men [to Ternate]. One night several of them went to the fusta, which was tied to a tree by a painter because it was so craggy that an anchor could not be cast. Pulling on the cable they hauled the fusta on dry land, the impact against the shore telling our men what had been done to us. With great speed [the Portuguese] attacked them with arms and artillery and dealt with them in such a way that they made them release the fusta; and they floated it again, for most of it was still in the water. From there they went to another island, where they did not allow us, and even less so in three or four others, where they received us with arrow shots, without even letting us take on drinking water, like people who hated us out of fear that we would take their land. Seeing us going from island to island and finding more trouble than gold, the captain decided to return to Ternate in order to give an account of the state into which these people were working up themselves against them. But it seems that there was still another new hardship to undergo, and it was this: With the change of seasons, because the waters between that large number of islands in the passage that they were trying to traverse are a vortex with the

⁵ The pagination of the 1563 edition that I have used contains some errors. I have taken the liberty of correcting them.

⁶ An *almoxarife* was the collector and keeper of the royal rents and duties on goods, wines, olive oils, and so on, for a given territory.

winds and ocean currents, the fusta was snatched up and carried into a very wide sea without their knowing where they were, running always towards the rising of the sun. Finally, having lost any notion as to their whereabouts, and running at God's mercy with a tempest at the stern that was swallowing them—for it was a sea unsheltered by islands and they did not dare nor were they able to take another course—it seemed to them that they had run about three hundred leagues. Going along, relying more on the mercy of God than any confidence in their navigation, one night in the midst of all this to their greater disorder the pin of the rudder jumped out of its gudgeon. As it was night they could not repair it and they waited until morning came, at which time they were consoled because they found themselves near a large island that appeared to them very beautiful with a wooded freshness. Having adjusted the rudder, whose disrepair was the reason why they had not got lost by running past the island, and by having had to wait until morning, they landed. The people came to receive them, showing by many signs the great pleasure and surprise they had on seeing them. And in truth, as evidenced by the assured manner in which they went near [the Portuguese], it appeared that they were a people who had never received any harsh treatment or harm whatsoever, because they approached our men with simplicity. Because of their simplicity and assurance one of our men was sent in their company to see their chief. Since some slaves that [the Portuguese] were carrying from the nearby islands of Maluco did not understand their language, they found through gestures that the natives had been there many hundreds of years. They were more white than black; both men and women were quite pleasant in appearance, with happy faces, quite friendly, neither thin nor fat, without a sign of physical ailments. The men had long beards like ours, and straight hair. Their dress consisted of woven mats, which were very soft and flexible, and which served them as our shirts do us. Above them they wore other mats more coarsely woven without any shape whatsoever, like merely a loose piece of cloth that covered them from the waist down. When the chief saw our man he expressed great happiness, and because of the easiness and mildness [of the natives] everyone thought that the people of that island were of simple rationality, without any malice, fear, or cautiousness, such as our men had seen in the isles of the Orient; wherefor, it seemed to them that they were amidst the simplicity of the First Age. Their food consisted of some roots like yams, legumes, coconuts, and figs like those of India. During the four months that our men stayed there waiting for the monsoon in order to return to Maluco, they showed them samples of iron, copper, tin, and gold. Only of the latter did they show any knowledge, and by gesturing with their hands they informed us that this metal was found in a high mountain to the west of the island. They had large proas, but since our men did not see them use iron they asked them how they made them. They showed them fish spines which they used for cutting and which were such that our men were able to use them just like iron. Finally, as the time for sailing

came, the island's position was marked down and placed on a navigational chart by Gomes de Sequeira, who was the pilot, and after whom it was named. They left there on the twentieth of January,⁷ having informed those simple people that they would return, all of them showing that they regretted their departure. Making their voyage they reached Maluco eight months after they had left, and found that their property had been sold and placed in custody, as they do with the deceased. They found Antonio de Brito embarked for departure. . . .

In a seldom noted passage appearing laconically in his posthumous *Quarta decada da Asia*, Barros has a puzzling passage saying that in 1527 Jorge de Menezes (the third captain of the Moluccas),

sent Gomez de Sequeira to seek provisions in the isles of Mindanao, who being led astray by a storm discovered many islands close together, in ix or x degrees north, which were given the name Isles of Gomez de Sequeira (Barros, 1615: 55). Here Barros is specific about latitude, whereas in the long account above appearing in the *Terceira decada* he writes only of a distance of 300 leagues in an easterly direction. Moreover, the instigator of the voyage is now the newly arrived Menezes rather than Brito, and the year is 1527, not 1525. Later, I shall have occasion to comment on the disparity between the two accounts.

A few more details are contained in a brief note by the distinguished Portuguese historian, Antonio Galvão, who had been seventh captain of the Moluccas from 1535 to about 1540. In his well-known *Tratado dos descobrimentos*, published in the same year (1563) as Barros' first account of the adventure, he gives the name of the captain of the Portuguese vessel as Diogo da Rocha.⁸ He says that Rocha had been sent in 1525 on a voyage of discovery to the north by Jorge de Menezes, captain of the Moluccas. The vessel reached some islands in nine or ten degrees north and they were close together. The fusta passed between them. The Portuguese returned to their fortress at Ternate by way of the island of Batachina do Moro (Halmahera) (Galvão, 1563: 54-54b). It has been pointed out by modern writers that due to reverses at sea Menezes, the captain-designate, did not arrive in the Moluccas until May of 1527, the outgoing captain who awaited him there being Garcia Henriques, successor to Antonio de Brito, and that the fusta, being a small type of galley, would hardly have been sent on a mission of discovery. However, the geologist Arthur Wichmann (1909: 16 n. 5) thinks that Galvão merely got the

⁷ Castanheda gives this as the date of the *arrival in the Moluccas* but this must be an error as it is inconsistent with his own statement that the fusta left Ternate at the beginning of July, 1525, and did not return for seven months. Seven months demand all or most of January. He agrees with others in saying that the stay in the Sequeiras lasted four months but he does not say when the Portuguese arrived, so we have no starting point from which to count off four months. By contrast, Barros' dates are consistent with a late departure from the Sequeiras: an initial sailing from Ternate in June; the discovery of the Sequeiras on October 1; a stay of four months, with a leaving late in January; and a total elapsed time of "eight months."

⁸ Presumably, Rocha was the unnamed *almoxarife* of the fortress at Ternate mentioned in the account by Barros, as well as Castanheda, Andrada, and Sousa.

date wrong, and that it was indeed Menezes who sent Rocha out on the voyage, in 1527. His solution is not generally accepted.

Writing in Latin, the Italian Jesuit Giovanni Pietro Maffei (1533–1603) has left us a description of the Portuguese adventure in his history of India, agreeing with Barros in saying that Sequeira drew a map showing on it the island where he and the others had stayed (Maffei, 1588: 168). Maffei concurs with the majority in saying that the distance of the isles from the Moluccas was 300 leagues; that the natives wore supple mat clothes with long outer garments; that they used fish bones for tools; and that the men had long beards and hair. He writes about the amiability of the inhabitants, who were of "ancient customs and marvelous simplicity". Of the direction of the isles and their latitude, and of their domesticated plants and animals, he says nothing.

Another of the Portuguese historians to mention the Isles of Sequeira was Diogo do Couto (1542?–1616), but although frequently cited he repeats almost verbatim, and in only a single brief sentence, the second account by Barros quoted above. Menezes is again the instigator of the search for supplies in Mindanao, and a latitude of nine to ten degrees north is mentioned (Couto, 1602: 67). Couto, who is the historian who continued to write subsequent volumes of the historical work called *Asia* which Barros had initiated, seems to have borrowed from Barros' as yet unpublished manuscript and therefore seems undeserving of the prominence he has been afforded as a source on Sequeira. To be sure, his *Decada quarta*, in which the Sequeira account appears, was published prior to Barros' own *Quarta decada*, but the latter was composed at a far earlier date and remained in manuscript form until 1615.

Still another early Portuguese historian to give an account of the island to which Rocha was driven was Francisco de Andrada (c. 1540–1610). It appears in his history of King João III (1613: 110v). He tends to parallel the Castanheda version, especially in asserting as we shall see below that chickens and goats were found on the island. According to him it was Antonio de Brito who sent the galley to Celebes.

Among the last of the early writers to recount the experiences of the men in the fusta was the colorful Dominican monk, Luiz de Sousa (1555–1632), whose original name was Manoel de Sousa Coutinho; but the *Annaes de elrei Dom João terceiro* containing his version was never published until almost the middle of the last century.⁹ He says nothing that has not already been said in previous narratives. He is in agreement with those who say that it was Antonio de Brito who instigated the voyage in search of gold and, like Barros and Maffei, mentions a map. In general, his version closely resembles those of Castanheda and Barros.

In comparing the various accounts by Portuguese, Spanish, and Italian writers,

⁹ Lisbon: Typ. da Sociedade propagadores dos Conhecimentos uteis, 1844, pp. 263–264. A few other historians offer accounts of the Sequeira discovery but we have reached a point of diminishing returns. Thus, the lengthy work by Manuel de Faria y Sousa, *Asia Portuguesa* (3 vols., Lisbon: H. Valente de Oliuera, 1666–1675) contains a condensed summary (tomo I, parte III, cap. 10) that says nothing that has not already been said by Castanheda or Barros.

one wonders what their sources may have been. Possibly there was borrowing from one another, or even some independent inquiry, but it seems likely that there was access by some to an undisclosed original document, now lost. If such a document did once exist it was not always followed to the letter. Some accounts suggest condensation while others suggest accretions, although the latter are few and seem to argue for a fairly faithful adherence to an original source.

Geographic Clues

Any effort to identify the Isles of Sequeira must rely heavily although not exclusively on the geographic clues provided by the historians' statements. Most obvious of these is the latitude of nine or ten degrees north at which, according to Barros (second account), Galvão, and Couto, the islands were said to be located. We can place some confidence in the ability of the Portuguese to be fairly accurate in determining latitude, for at that time the cross-staff and the astrolabe had been in use for some time. Longitude, on the other hand, was another matter, the chronometer not having been devised as yet, and the Portuguese do not even provide a crude estimate of it.

Castanheda, Barros, Maffei, and Sousa do say, however, that the fusta was blown about 300 leagues from what must have been the Molucca Passage. Urdaneta says 200. The old Portuguese league was just under four land or statute miles (Sharp, 1960: 3), so the distance involved was approximately 1200 miles maximum and 800 minimum. Given the crude methods for determining the distance traversed in an hour or a day, and the conditions of enormous stress to which the men and their vessel were subjected, these distances can only be very approximate.

It is important to note that the accounts say that the fusta was carried to an open sea, in what Urdaneta says was a northeast direction. True, Barros and Sousa imply the direction was eastward, but they use the more literary terms, *nascimento do sol* and *contra o nascente*, respectively, to indicate this direction. In this instance, northeast is more credible than due east, as the latter would take one into empty space until one reached distant Kapingamarangi Atoll or the Gilberts. Moreover, the winds in August and September, when the Portuguese were attempting to return to Ternate from Celebes, come predominantly from the south and southwest in the Molucca Passage, and southeast and east, with a slight increase in southerly winds, in the ocean area as far as 10°N. of the Passage. Because of the southerly element in the wind during the two months in question, a northeast rather than a direct east direction is all the more plausible as being the path into which the fusta was forced. As an aside, it should be remarked that it was not a typhoon that drove the Portuguese so far away from their destination. A typhoon is a cyclonic wind, which in the southwest Pacific moves slowly from east to west, not the other way around. In any event, typhoons are virtually unknown in the equatorial latitudes (see Gago Coutinho, 1940: 4).

As for the return voyage home from the Sequeiras, four of the historians say the Portuguese waited until January, or four months, for a favorable wind. Barros,

Andrada, and Sousa specifically mention the monsoon, which would be consistent with our knowledge of wind change and direction. Systematic hydrographic observations made over a period of years by modern hydrographers show that in the general area between the West Carolines and the Molucca Passage the winds in January are predominantly from the northeast. They represent the Asian winter monsoon and although they slow up as they reach the equator, they are stronger, on the average, from December to March than any other seasons. North of 5° the mean wind speeds are 10 to 15 knots; south of 5° to the equator they average mainly 5 to 10 knots. All this is very favorable for a return journey. In short, wind conditions as we know them fit in with the information provided us by most of the chroniclers.

Two remaining geographical clues are at our disposal, the first being that the island group was large and the second that the fusta sailed between the islands. The latter, especially, has more significance than might appear at first glance, as we shall see later.

An ambiguous geographical feature is whether the locale of the Portuguese's sojourn was a single island or a group. Even though it is referred to as "a large island" by Barros or simply as "an island" by Castanheda, Maffei, Andrada, and Sousa, this would appear to be a loose use of the word. The terms "archipelago of islands" (Urdaneta), "some islands" (Galvão), and "many islands" (Couto) seem to be a correct description and will be here accepted as indicating what the historians had in mind, particularly in view of their use of such terms as "close together", "went between", and so on.

Notwithstanding mention of plentiful fresh water on the Isles of Sequeira by Castanheda and even "rivers of water" by Andrada, we cannot include this as one of the clues because we do not really know what these two historians had in mind. "Rivers of water" is probably a figure of speech denoting an abundance of water. Rainfall in the western Carolines is heavy, averaging for instance 147 inches annually on Palau (at Koror) and 121 inches at Yap, with some seasonal variations. Even atolls, despite the porosity of their coral rock islets and the almost instantaneous drainage that it provides, have a good supply of water due to the Ghyben-Herzberg lens underlying such islets. The underground water there has varying degrees of brackishness, which is not true of the water obtained by catchment. Conditions are of course different on the high islands of Palau and Yap. Palau has numerous small streams and rivers, as well as ponds and even a lake. Yap has no rivers but does have small streams; yet in former times these were not much relied upon for drinking, cooking, and bathing because coconuts supplied most of the drinking water, while catchment of rainwater from tree trunks supplied cooking water, and the sea provided means for personal washing. Nowhere in the islands would the Portuguese have encountered anything but a sufficiency, even during a drought.

Anthropological Clues

The cultural, anthropomorphic, and botanical traits mentioned in some of

the historians' statements are invaluable in placing the Sequeiras in a particular part of the western Pacific, especially as they enable us to exclude other areas that have been loosely proposed by some writers. The items of material culture are: woven mat clothing, consisting of a fine loincloth, a loose and coarser upper garment coming down to the waist, and a second loose, coarse overgarment apparently extending to the ankles; large proas or canoes; and "fish bones" used as cutting tools. Not diagnostic for any particular islands of the Carolines but nevertheless of some usefulness in analysis are the relatively light skin color of the natives, as well as their fairly straight hair and long beards. Then there are certain cultigens and domesticated animals. All these bear closer scrutiny.

The clothing clues are very important, although not as clearly specified as one might hope. Four historians have concerned themselves with descriptions. Castanheda (1551-1561: VI, 189) tells us that the men had garments that reached from the waist down to the ankles and were of straws like reeds, except that they were whiter and as soft as holland. They covered themselves with another cloth that reached to their navels. They made shirts from another fine similar cloth. Castanheda seems to be talking about three garments: (1) a fine and long lower garment extending from waist to ankles; (2) an upper garment reaching only to the waist; and (3) another upper garment comparable to a shirt. What is disconcerting about this description is that Castanheda appears to be talking about a skirt-like garment rather than a loincloth, and about two upper garments, which if worn together would be unduly oppressive in a humid tropical environment. What is valuable is his reference to a straw-like and supple woven cloth.

As we have seen, Barros (1563: 260r-v) says much the same thing as Castanheda. The men wore upper garments that were made of a soft and flexible woven matting, and above them they wore other long shapeless garments, more closely woven, that covered them from the waist down. This appears to imply a long coarse cloak over a fine "shirt" and says nothing about a loincloth; but it is significant that whereas Castanheda apparently says that the garment that reached the ankles started at the waist, Barros seems to be saying that this garment was a long enveloping cloak that covered everything from the shoulders down. Again, Barros strengthens the clothing clue by pointing up that the clothing was of a fine matting, and strengthens it even more, as we shall ultimately see, by noting that the undergarment was of a finer weave than the overgarment.

A garment extending from the waist downward, together with "other garments well made of reed straw," is mentioned by Andrada (1613: 110v). But he gives no details.

Neither does Maffei (1588: 168), who says merely that both sexes wore handsome clothes and the men covered their bodies with very soft mats. He serves, however, to reinforce the importance of fine woven mat garments, without describing their length or placement on the body.

Despite the shortcomings of these descriptions, I feel confident that they can be rephrased to match known garments.

Regarding the proas mentioned by the historians, as one might surmise they are present in all the islands of the Pacific in which we are interested, so that our only remaining interest is in knowing if, as Barros and Sousa have stated, there were any large sizes of such watercraft. To be sure, rafts of some kind are found in all areas of Oceania, including the western and central Carolines, but as far as we know they have always been clearly subordinate to outrigger canoes, except perhaps in very remote times when they were undoubtedly more abundant. Rafts, then, will not concern us, whereas large canoes will.

Just what were the "fish bone" tools that Castanheda, Barros, Maffei, and Sousa said were used by the islanders for cutting wood and were about as effective as iron? Although the bones, teeth, and skins of fish are occasionally used as artifacts in the Carolines, they are overwhelmingly subordinate to the shells of such molluscs as giant clams (*Tridacna*), auger shells (*Terebra*), helmet shells (*Cassis*), and miter shells (*Mitra*). The atolls of course do not have stone materials, but even on the high islands where basalt is found stone is not used as extensively as shell. It is wholly probable that the historians somehow confused semantically seashells with fish bones, both being of marine origin, just as in our own parlance people loosely refer to edible clams, oysters, and even crustaceans as "shell fish." I know of no place in Oceania where fish bones are used in adzes and knives, so that the only thing that could have aroused the interest of the Portuguese would have been shell tools. I have scoured the literature to find instances of fish artifacts in the whole area where the Isles of Sequeira are to be sought and feel it would be pointless to burden this presentation with the results of my findings. Consequently, I shall delete all references to them and confine myself to the occurrence of shell artifacts alone.

The physical features of the islanders are not very well defined as clues but they must be considered: a light skin color intermediate between white and black; straight hair; and long beards heavy enough to compare with those of the Portuguese. These are not sensitive indicators for the Caroline area, being more or less widespread. Perhaps their main usefulness is in eliminating other areas. Each of the anthropomorphic clues will be weighed in detail at later points in our discussion.

Biological Clues

Three cultigens are to be considered. These do not include the "legumes" mentioned by Barros and others, as the term is too vague to be diagnostic as a criterion. Of the other plant foods that are specified, coconuts are ubiquitous in the Carolines, growing well even on the atolls. Barros' "roots like yams" could have been any of the aroids or even true yams, but not sweet potatoes, which presumably had not yet arrived in the western Carolines. Castanheda, the only other historian to mention tubers, uses the word *inhames* without qualifying it in the manner of Barros; yet I am strongly of the opinion that he was not attempting to be precise. The Portuguese were familiar with true yams in Africa, southeast Asia, and Indonesia, and, if Barros' phrase is reliable, it may be significant that he did not refer outright

to yams. As for the "figs like those of India," this refers to bananas, whose origin is to be found in southeast Asia.

Castanheda (1551-1561: VI, 189) and Andrada (1613: 110v) mention the presence of chickens and goats. Goats are not found aboriginally in the Carolines and we must either reject them as valid clues or conclude that the Isles of Sequeira were in the East Indies, where goats are indeed to be found.¹⁰ I am not willing to take the latter course and must consider that Castanheda and Andrada somehow introduced these ruminants into the Isles by mistake. Certainly Barros, Maffei, and Sousa, as well as the terser Urdaneta, Galvão, and Couto, say nothing of either goats or chickens.

Assuming, however, that Castanheda and Andrada are right at least about the chickens, these cannot be regarded as a discriminating clue because they are present throughout the western Carolines. Observe that Clain (1700: 405) said of the Carolinian castaways of 1696 whom he saw in the Philippines that they had fowl which they used for food but whose eggs they did not eat. In his interviews with the Carolinians stranded on Guam in 1721 Cantova ascertained that the islanders had "some fowl" (Cantova, 1728: 246). The naturalist Adelbert von Chamisso makes the sweeping assertion: "The domestic fowl is met with on all the Caroline islands, though the inhabitants do not understand how to derive any particular advantage from it" (Kotzebue, 1821: III, 188). Nevertheless, with some reluctance I shall include the seldom eaten domestic fowl as a clue.

Conflicting Identifications

Although there is consensus regarding the historicity of the Sequeira discovery, opinions disagree widely as to the identity of the isles.¹¹ Of the various places proposed, the westernmost is the tiny coral island of Tobi, or Lord North's Island, located at 3°00'N., 131°11'E. This landfall was first suggested by R. H. Major (1859: xlviii-li) and concurred in by Albert F. Calvert (1902: 25).

Moving eastward we come to the next suggested locale, the Palau cluster,

¹⁰ Horace Holden, shipwrecked on Palau in 1832, says that among the provisions supplied to him and his shipmates by the natives were "goats" (Holden, 1836: 57), but Captain Henry Wilson who had been stranded there in 1773 had said earlier: "None of the islands the English visited had . . . any quadrupeds whatever" except some rats and a few cats (Keate, 1793: 300). Probably Holden's goats were the progeny of domestic animals deliberately introduced by Captain John McCluer, who had been a midshipman under Captain Wilson on the *Antelope*. Impelled by visionary objectives he had returned to Palau on January 22, 1791, in command of two ships of the East India Company, the *Panther* and the *Endeavor*, having stopped at the Sunda Islands for bovines, sheep, pigs, geese, and fowl. He returned on January 20, 1793, with more "cattle" (Hockin, 1803: 15, 48; Krämer, 1917: 119-126), a broad term which could encompass goats along with all other domestic quadrupeds.

¹¹ There are some who over the centuries have attempted to identify the Sequeiras with the islands given the names "Matalotes" and "Los Reyes" by early voyagers, but I do not consider it profitable to enter into this controversy because the exact location of these islands has long been surrounded by confusion.

whose southernmost island, Angaur, has coordinates of 6°54'N. and 134°08'E., and whose northernmost islands, the Kayangels, have coordinates of 8°02'N. and 134°42'E. at their south end. Palau has many backers, among them being the influential Captain Burney (1803–1817: I, 146 fn., 357), who however like most others makes no attempt to justify his choice. Others are P. A. Thiele (1877: 413 fn. 2), Karl Sapper (Sapper *et al.*, 1920b: 7), and especially the Portuguese geographer, Armando Cortesão (1939: II, 162). The German geographer, Carl E. Meinicke (1869: 377, 378), once supported Palau but later advocated another locale.

According to his later opinion, Meinicke decided that Sequeira's islands are Ngulu Atoll, which he says were probably the first place discovered in the Carolinian archipelago (1875–1876: II, 361); but he gives no justification for his selection except a faintly geographic one.¹² In passing, it is interesting to note that he mistakenly says that Ngulu was later seen by Villalobos in 1543 and named the Matalotes, and again by Drake in 1579 and named the Island of Thieves (1875–1876: II, 361). At its south end Ngulu is located at 8°18'N., 137°29'E.

Yap is the choice of several, including Andrew Sharp, who says: "It is probable that the Islands of Sequeira were those of Yap Atoll" (Sharp, 1960: 14).¹³ Others who have sponsored Yap have usually combined it with the next locale, Ulithi, as we shall see in the paragraph below. At its north end, Yap is located at 9°38'N., 138°10'E.

The next place, the easternmost of all these locales, is Ulithi Atoll. It has been mentioned as a probability by Augustin Krämer, who says: "I reached this conclusion while I was there" (1917: 4 fn. 2). However, he thinks it possible that

¹² A surprisingly large number of maps depict an imaginary cluster of islands somewhat northwest of Palau and halfway or more to the Philippines and call them the Isles of Sequeira. Thus, they appear in Francisco Coello's *Atlas de España y sus posesiones de ultramar* (1848–1868), specifically in the map entitled "Islas Marianas, Palaos y Carolinas." They also appear, for example, on a map by H. Berghaus bearing the title "Neu-Guinea und Benarchbarte Inseln" published in 1869 in the prestigious German geographical journal, *Petermanns Mitteilungen aus Justus Perthes' geographischer Anstalt* (1869: Plate 20). They appear in the same locality in many other maps of the last century and are even shown more recently in the French *Atlas international Larousse politique et économique* (1950). I have not particularly tried to track down such examples, old or recent, but they assuredly exist in large numbers. A century ago Meinicke recognized the problem when he said that maps usually placed the Sequeiras 6° more to the west than their actual location; but he was unable to give a reason for this "inexplicable displacement" (Meinicke, 1875–1876: II, 437 n. 8), which he saw as merely a mistake in locating Ngulu Atoll. Possibly the source of the error lies in the earlier effort to place various uncertain islands in their proper location in the western Pacific, prior to the first firm report of the discovery of Palau in 1710. These islands were sometimes bunched together and labelled, for example, the Isle of Saavedra, the Isle of the Martyrs, the Isle of the Matelotes, and the Isle of the Recifes. When Palau's coordinates were ascertained and it was placed on maps, the old locations assigned to the other islands were left standing, so that they came to appear just north and northwest of Palau. Then they began to be labelled the Isles of Sequeira because at least one or more of them had at one time or another come to be thought of as merely rediscoveries of Sequeira's isles. Modern maps have sometimes blindly followed this original mistake.

¹³ Yap is a tight cluster of high islands, not an atoll. The distinction is important.

the Portuguese also saw Yap because Barros "mentions a high mountain on the west side" and Ulithi is low (1917: 4). Our most prominent authority on Yap, Wilhelm Müller, follows the judgment of his colleague of the Hamburg Südsee-Expedition (1917-1918: I, 1). Prior to both of them, Francisco Coello had said that he thought that, depending on the authority, either Ulithi or Yap could be the Sequeiras (Coello, 1885: 298). The position of Ulithi at the island of Mogmog in the north is 10°05'N., 139°43'E., making it the most distant of all the Carolinian islands from the Molucca Passage.

To the best of my knowledge, no other Carolinian islands have been considered as possibilities. Of the places falling within or near the 300 league range, all can be eliminated for sundry reasons, including the following: Fais is a single raised island with no safe anchorage; Sorol Atoll is located at 8°07'N. and never has had more than a handful of inhabitants; Faraulep Atoll is located at 8°36' and has too small a population; Olimarao Atoll is located at 7°42'N. and is not permanently inhabited; Woleai Atoll is located at 7°23'N.; Eauripik Atoll is located at 6°41'; and Elato Atoll is located at 7°31'N. and has always had a tiny population.

It is not possible to take seriously the statement by one writer that the large island reached by the Portuguese vessel "was evidently New Guinea" (Danvers, 1898: 379), but it should be mentioned for the sake of the record, even though we shall not return to it for discussion.¹⁴

Australia

Although it may seem even more farfetched, some have thought that the Isles of Sequeira were near or part of Australia, the chief advocates of this locale being the distinguished French geographer, Jean Denis Barbié du Bocage (1807) and the celebrated Portuguese admiral-navigator, Carlos Viegas Gago Coutinho (1939: 30-34, 42-43; 1940: 3-16), with George Collingridge (1895: 311-315) advancing a related claim.

The advocacy of Australia may be dealt with first. Barbié du Bocage believed that the Portuguese were the first to discover Australia but that they kept their achievement secret because of the then existing dispute with Spain over the hemispheric boundaries allotted to them by Pope Alexander VI. He saw evidence of the Portuguese discovery in a map contained in an atlas of Nicolas Vallard, published at Dieppe in 1547, and he further supported his assertion by referring to Sequeira's voyage, which he maintains brought him to one of the islands that later came to be known as the Prince of Wales' Islands, off Cape York, the locale being close enough to the continent to enable the Portuguese to follow up with the discovery of Australia itself. He notes, further, that Maffei tells us that Sequeira drew a map of the island, to which his name was given (Barbié du Bocage, 1807: 157-160).

The French geographer's views concerning the Sequeiras were rejected in 1859

¹⁴ The invalidity of the New Guinea locale has been argued in part by Gago Coutinho (1939: 32).

by Richard H. Major, who, among other things criticized Barbié du Bocages' use of the accounts by Castanheda and Maffei rather than Barros, whom the French writer does not even mention. Major points out that Sequeira must have been in the northerly part of the Molucca Passage when he made his initial sailings because if he had gone to Celebes the nearest land, at about "sixty leagues" from Ternate, would have been the northernmost of the three easterly arms or peninsulas of the strangely-shaped island. When repulsed by their intended traders, the men on the fusta retreated in haste and proceeded to four or five other small islands in the area, these being to the north of Celebes. Major notes that Barros says the Portuguese tried to return home to Ternate but were driven 300 leagues into an open sea, with not a single island in sight, and always towards the east. If, says Major, Sequeira had been driven by the storm towards Endeavor Strait, as Barbié du Bocage presumed, he would have travelled southeast, not east as some records say, and not through an open sea where no islands were sighted, but through one bestudded with islands (Major, 1859: xlvi-xlviii). Up to this point, Major's position is sound; only when he nominates his own candidate for the Sequeiras does his argument come to a grinding halt, as we shall see.

Another sponsor of Australia, George Collingridge, uses an ingenious argument based on evidence from a world map supposedly made by Gastaldi, published in Venice in 1554 by Tramezini. On this map is depicted a group of islands labelled *Insul de gomez des queria*, or Island of Gomez de Sequeira, located at about 8° of south latitude and in the longitude of the Northern Territory of Australia, which continent is however not depicted.¹⁵ From various nearby islands that are shown and labelled, Collingridge finds the islands of Sequeira oriented in such a way that he identifies them as the Timor Laut group (more modernly known as the Tanimbars) (Collingridge, 1895: 314). He realizes, however, that the Timor Laut islands are not far enough from the Spice Islands to qualify, so he calls attention to the next islands, further east and a little south, which would correspond to the 300 leagues of distance given in the records, and decides: "The Australian islands known as Wessel Islands are the nearest to the distance specified, and they would be reached in the latter part of the voyage through an open Sea—the Sea of Arafura" (Collingridge, 1895: 315). Realizing that there is a dilemma here, he decides that it can be resolved by saying that Sequeira really made two voyages in 1525. He bases this on Galvão's statement that after Menezes had sent Rocha and Sequeira on a voyage to discover land towards the north, the latter "afterwards went as pilot on an Indian voyage" (Galvão, 1563: 54-54b). The first voyage, says Collingridge, occurred during the first five months of 1525 and was directed to the north of New Guinea. At 9° or 10° latitude the islands of Sequeira were found and, as Galvão says (1563: 56b), these were the same as the islands afterwards come across by

¹⁵ The "Gastaldi" chart is reproduced in F. Muller (1894-1899: I) and in Nordenskiöld (1897: 146, map 65). A reproduction of only that portion pertaining to the Sequeiras appears in Collingridge (1895: 314).

Saavedra in 1527 and named *Islas de los Reyes*.¹⁶ The second or "Indian" voyage took place later in 1525 and must have been to Celebes. If I understand Collingridge correctly, it was this voyage that brought Sequeira to the Wessel Islands.

As for Gago Coutinho, his selection of Cape York is based on the so-called Gastaldi map of 1554 and his mistaken conviction that the islands of Meyo are Buro and Ceram, both of which are fairly large islands south of Halmahera and below the equator. He relies heavily on his understanding of the prevailing winds but, unfortunately, seems to reinterpret the records to satisfy his own selection and to reject Cortesão's selection of Palau.

The arguments advanced by Barbié du Boucage, Collingridge, and Gago Coutinho in favor of subequatorial Isles of Sequeira are not as outlandish as they may seem if one is willing to accept the view that Gomez de Sequeira discovered two groups of islands on two separate voyages. Nor are they in direct conflict with the investigations and conclusions that I shall be offering in this paper.

Let us first see what lies at the basis of what is essentially an Australian oriented interest. Earlier than any of the written historical sources at our disposal, with the exception of Urdaneta's contemporary statement, are two fine Portuguese atlases in Florence that bear the names of the Sequeiras. Armando Cortesão and Avelino Teixeira da Mota, who have made excellent reproductions of these atlases in their *Portvgaliae Monvmenta* (1960: I, plates 52D and 57A), are convinced that, although they are anonymous and undated, both are the work of Gaspar Viegas and can be dated c. 1537, a remarkably early date. One of these atlases, which for short they designate "A", shows *Ilhas q̄ achou gomez de siqueira* in 6°N. latitude south of the Marianas. The other atlas, which they designate "R", shows some islands, located southeast of Banda at a latitude of c. 7-8°S., labelled *de guomez de siqueira*, and they reappear drawn in the same way and similarly located in the so-called Gastaldi chart of 1554. In short, Anonymous-Gaspar Viegas, recognizes two sets of Sequeiras, one north of the equator and the other one south.

Some further justification for the insistence on two discoveries by Sequeira may be found in the writings of Barros (second account), Couto, and Galvão. It will be recalled that in a brief sentence in his *Decada quarta*, Barros wrote about a voyage by Sequeira that took place in 1527 at the bidding of Menezes. Couto wrote about the same voyage in almost the same words.

Galvão too, as Collingridge observed, hinted at two voyages. The evidence for this, to say the least, is highly speculative; the "Indian" voyage could easily have been to India rather than Celebes.

The whole argument for a second voyage is somewhat undermined by Galvão having the Sequeiras being found at 9° or 10° north during the 1525 voyage, whereas Barros (second account) and Couto have them being found at that latitude during a 1527 voyage. Recall, too, that Galvão erroneously has Menezes in the Moluccas in 1525, whereas he arrived in 1527 and therefore could not have instigated the

¹⁶ The proper identification of Saavedra's "Los Reyes" clearly places them not here but in the Marshall Islands (Sharp, 1960: 17, 23; Brand, 1967: 121).

first voyage. The three historians—Barros (second account), Couto, and Galvão—are in turn in some conflict with the Florence maps, which only in combination may be said to show two sets of Sequeiras, and at that show the northern group at a far lower latitude than these historians say.

It has been argued by Gago Coutinho (1940: 14–15), who thinks of a southern voyage by Sequeira as being the only one he made, that Galvão somehow confusedly injected Jorge de Menezes into the picture because he was thinking of the latter's fitful voyage beginning in Malaca in 1526 and destined for the Moluccas, for which he was captain-designate. Menezes' route took him north of Borneo and south of the coast of Mindanao, but his ship was carried past the Moluccas to the north side of western New Guinea by adverse winds and currents, delaying his arrival at Ternate until May of 1527. Although Gago Coutinho uses his hunch for his own ends, with which I disagree, I am intrigued by the possibility or even probability that all mention of a second voyage, as in Barros' second account and Couto's apparent borrowing from it, stems from Galvão's error.

For us, our only interest in the distracting maps by Viegas and "Gastaldi" and the fleeting mention of a second voyage is with regard to dates and latitudes. We are not concerned with the discovery of Australia but with the identification of the light-skinned natives who played host to the Portuguese for four months. If Gomez de Sequeira came upon other islands that lay off the northern coast of Australia, well and good, but that is not the subject of the present inquiry and it will concern us no further.

As the greater number of early maps and historians place at least one group of Sequeiras north of the equator and date their discovery as the year 1525, we shall adhere to this view. We shall, too, accept a 9° or 10° latitude as belonging to the first voyage, not so much because Galvão so links it but because it cannot possibly be assigned to a voyage that took place south of the equator.

Tobi Island

Turning now to the Carolines the most obvious considerations in the identification of the Isles of Sequeira are geographic, but no less important are cultural, anthropomorphic, and botanical traits.¹⁷ The presence or absence of the latter three must be carefully examined, and in this connection it should be kept in mind that excepting for Palau there is remarkable homogeneity from one island to another of the western and central western Carolines, the main differences being dictated by essentially geological considerations, especially whether an island is "high" or "low."

There is even greater homogeneity among those islands that fall within the Yap

¹⁷ As I shall be looking at sixteenth century traits in the light of anthropological data gathered in the field as late sometimes as the nineteenth and twentieth centuries, I must explain that intensive research has convinced me of the soundness of the comparative approach when seen in the light of cultural stability, which for the area in question has been remarkable. Elsewhere, I have written a justification for this procedure (Lessa, 1975: 69–72).

sphere of political influence,¹⁸ and still greater homogeneity among those belonging to The Woleai, a string of islands stretching eastward of Ulithi but not including the raised island of Fais.¹⁹ Consequently, where the literature is silent on the subject for one locality, I find it legitimate to infer that certain traits are present if they are reported elsewhere in the Yapese empire or, better still, The Woleai, always excepting places where the physical environment places limitations of known character on the development of a trait, such as in plant cultivation.

Examining now the claim that tiny Tobi island is the place where the Portuguese landed, it has no merit but is nonetheless of some historical interest because well over a century ago R. H. Major (1859: xlviiii-li) had selected it in order to counteract Barbié du Bocage's assertion that the Sequeiras were one of the Prince of Wales Islands off Cape York. Chastising the Frenchman for not having made any references whatsoever to Barros, he himself made much of Barros' statement that the fusta had been pushed into an open sea to the east and seen no islands, until of course the Sequeiras were reached. The trouble with Major's suggestion is not so much that Tobi is more northeast than east of Celebes and Ternate but that it is at a distance closer to 89 leagues from the Molucca Passage rather than 200 or 300 leagues. It is the southwesternmost of the Caroline Islands and the one nearest to Halmahera (Batachina). Worse still, it is but a single coral island, 1600 yards long at its greatest axis, so a vessel could not possibly have "passed between" the islands, as Galvão says the fusta did. It is fringed by a reef which at its north end extends nearly a half mile northeastward, so a landing just anywhere is not easy. "During the favorable season of the year a landing can be made easily [on the west side]; at the time of the southwest monsoon a landing here is impossible on account of the strong breakers," albeit a land connection can be established under certain circumstances on the protecting east side (Eilers, 1936: 38). None of this would seem to be helpful for a galley that had been battered at sea.

Nevertheless, for the record we shall look at the way Tobi fares in terms of the various other clues afforded by the Portuguese historians. The island was not sighted by Europeans until the eighteenth century, and apparently no Europeans set foot on it until Horace Holden was shipwrecked there together with some of his shipmates on the *Mentor*. While being held captive there for two years, Holden observed a community that had undergone some changes in material culture and, worse still, was experiencing a serious famine. Notwithstanding, it goes without saying that the islanders had canoes (Holden, 1836: 88; Neyret, 1969c: 19-20). Subsequent to Holden's time various European vessels stopping off Tobi during the

¹⁸ The close political, social, and economic ties of these islands is considered in detail by William A. Lessa (1950; 1966: 36-39) and William H. Alkire (1965).

¹⁹ The Woleai Islands are comprised of Sorol, Eauripik, Woleai (the atoll), Faraulep, Ifaluk, Elato, Lamotrek, Satawal, Puluwat, Pulusuk, Pulap, Namonuito, and Ifaluk, this being explained to me by Ulithian informants as constituting a single tributary block in the Yapese empire. Altogether independently Alfred G. Smith has defined a major dialect area which he also calls "the Woleai" that approximates the above, except that it excludes Sorol, Puluwat, Pulusuk, and Pulap, as well as Namonuito (Smith, 1951: map, p. 16). For our purposes, the difference does not matter.

last century had experiences, mostly ugly, involving natives in large canoes (Eilers, 1936: 24, 25, 26, 27). Tobi proas, contrary to Holden's disparagement of them, have been described by field anthropologists as "extremely seaworthy, well constructed . . . capable of carrying from 12 to 20 men and, if necessary, of being equipped with sails," and, again contrary to Holden, were hewn from a single log of local, not drift, wood (Eilers, 1936: 176).

Iron implements were already being used when Holden was on the island, but he does not tell us if shell tools continued in use. Most likely they did, for evidence of such tools persisted into the early part of the present century, according to field workers from Germany (Eilers, 1936: 196, and figs. 153-158).

The clothing of the Tobi islanders as it was in the sixteenth century cannot be determined with assurance. Holden says that when he was there the only garb of the men consisted of "a sort of girdle or belt made of the bark of a tree" (1836: 83), implying the weaving of the inner bark of the hibiscus. As for the women they wore "an apron made of the leaves of a plant . . . split into fine strips and plaited" (1836: 83). Anthropologists visiting Tobi in the early part of this century reported the use by men of T-cloths made of banana fiber woven on a loom (Eilers, 1936: 140, 189), with the women wearing two kinds of garments: for grown up girls, a fiber or leaf cord from which was suspended leaves or twigs to cover the genitals and long split-up coconut palm leaves to cover the buttocks; for married women, a finely plaited pandanus mat (Eilers, 1936: 140-141, 187-188)—the same sort of stiff garment, anything but supple, described by Holden. If long garments covering the torso or extending from the waist to the ankles were ever worn on Tobi, there is no direct evidence of it.

However, indirect evidence from the nearby Sonsorol islands, about 175 miles from Tobi, strongly suggests that garments resembling those seen by the Portuguese must also have been worn on Tobi. When Sonsorol was discovered in 1710, Joseph Somera, the chief pilot of the *Santísima Trinidad*, noted in his "Diario" that the natives' "privy parts were well hidden behind a yellow cloth of *abaca* [banana fiber]; they wore a short plaited cape" (Eilers, 1935: 2). An anthropologist noted that in 1885 the breasts and backs of the women were covered with a finely plaited mat, with an opening for the head (Kubary, 1889: 92 and plate XII, fig. 3). The important thing about the Sonsorols is that together with nearby Pulo Anna and Merir they form a cultural unit with Tobi, and all of them in turn have affinities with Yap and Ulithi far to the east.

There are ample comments in the literature on the physical appearance of the Tobi islanders, and almost all point to agreement with the descriptions of the Portuguese historians. Thus, all observers have remarked on the relatively light skin of the people. Says Holden: "The complexion of these islanders is a light copper color; much lighter than the Malays, or the Pelew islanders" (Holden, 1836: 84). Rating the skin color on the von Luschan color scale, Hambruch found that for the 26 natives on whom he took anthropometric data and morphological observations the color was in the 20-22 range (Eilers, 1936: 59), meaning that it was medium

brown.

Broadly speaking, Tobi islanders do have "straight" hair. According to Captain Walsen of the bark, *Paul Rickmers*, which stopped at the island in 1898, "The inhabitants of Tobi had smooth and very pretty black hair which they wore either long and loose or tied in a knot" (quoted by Eilers, 1936: 28; see also Eilers, 1936: 143). The anthropologist, Paul Hambruch, says: "The hair is dark brown, being straight or in long waves; occasionally hair may be found which is slightly curly" (Eilers, 1936: 59). Holden says that the hair was "frequently so long as to reach down to their waist" (1836: 89). Hair reaching down that long has to be more straight than frizzly or woolly. A Japanese anthropologist who had been on Tobi in 1927 says that the "hair is black, soft, wavy and more or less curled at the end, but not kinky" (Hasebe, 1928: 66). However, he merely observed six male and two female Tobi islanders, on Palau.

The one seeming exception to the Portuguese anthroposcopic descriptions is the lack of beards found on Tobi, and this is hard to evaluate because at the time of Holden's stay on the island the men were assiduously plucking their facial hair and even forced Holden and his companion, Benjamin Nute, to do the same. While there is no direct information that the lack of beards on Tobi has anything to do with the luxuriance of facial hair, I feel confident that Tobi islanders have facial hair as thick as that of other Carolinians and in most instances could raise beards almost comparable to those of Portuguese.²⁰

As for the cultigens, early in the present century coconut and taro were the two main sources of food, but the banana and the true yam were also cultivated (Eilers, 1936: 135-136). In Holden's time the principal foods were the coconut and a vegetable said to resemble the yam (Holden, 1836: 84, 85), no mention being made of the banana, possibly because of either the famine or oversight.

Domestic fowl are not mentioned by Holden but they are reported by a German magistrate who made an inspection tour of Tobi in 1906 (Fritz, 1907: 667). Members of the Hamburg Südsee-Expedition noted the presence of both fowl and fowl houses while they were on the island for four days in 1909 (Eilers, 1936: 39, 40). One does not gain the impression that chickens ever played much of a role in the local economy.

Despite these numerous conformities with the Portuguese reports there are unsurmountable discrepancies in the geographical situations, so Tobi could never live up to the place selected for it by Major. It may be dismissed from any further consideration—not, however, as Eilers (1936: 35 n. 4) does, simply because it lacks high islands.

²⁰ The anthropologist, Hasebe, does say that generally the men of Tobi do not have a heavy beard and that he saw one man with a moderately heavy beard; but he observed only six Tobi males, on Palau (Hasebe, 1928: 66). Eilers' monograph on Tobi, based on the field notes of various anthropologists of the Hamburg Südsee-Expedition, does not depict bearded men in the photographs that she has selected to illustrate her work, although one of the wooden figures shows a male with a very heavy beard growth (Eilers, 1936: plate V, fig. 2).

Palau Islands

The Palau Islands, too, must be ruled out as the Sequeiras, not only because at seven to eight degrees north of the equator they are too far south and only about 165 leagues or 660 miles from the Molucca Passage but because the people who live there have consistently been reported by early observers to have gone completely naked, or usually so. John Drake, whom I judge to have visited the island group with his cousin Francis in 1579, saw the natives as "naked" (Fuller-Elliott-Drake, 1911: II, 357, 393). Josef Somera, who in 1710 piloted the first ship known indisputably to have stopped at the islands, says the islanders were "wholly nude" (Somera, 1715: 88). Additionally, he is the apparent author of a map of the western Carolines which shows on it three natives described as "completely nude" (Krämer, 1917: 71). Other early witnesses substantiate this description (Keate, 1793: 342; W. Wilson *et al.*, 1799: 308; Holden, 1836: 47).

Although these things militate so positively against Palau it must be conceded that in most other respects the island group has the requisite traits. For one thing, it is the largest insular group in all the Carolines, consisting of 243 islands having a total land area of about 185 square miles and an enclosed lagoon area of about 475 square miles. Size is relevant because Barros (1563: 260r) comments that the island (islands) was large. The silence of Urdaneta, Castanheda, Maffei, Galvão, Andrada, and Sousa on the matter is not necessarily significant.

However, despite the favorable size, all the islands, including the main islands of Babelthuap, Koror, Ururthapel, Eil Malk, and Peleliu—but not two small atolls to the north and Angaur to the southwest—are surrounded by an immense coral reef that fringes the shore but widens out on the western side, making the reef difficult to cross, even in canoes. If a vessel were to "sail between" the islands the best places to do so would not be through the Palau Islands proper but either Kossol Passage separating Kayangel Atoll in the north from the large volcanic rock island of Babelthuap south of it, or the more than six mile wide channel separating Angaur in the extreme south from the limestone island of Peleliu northeast of it. If Sequeira had sailed through either of these wide channels it would hardly seem to have been an event worth commenting on.

In olden days Palau of course had canoes (Somera, 1715: 86) and "the largest were able to contain from twenty-five to thirty" people (Keate, 1793: 316). In modern times, giant war canoes 48 to 58 feet in length, and racing canoes averaging 33 feet in length, have been described in detail (Neyret, 1969c: 13-17). It should be noted in passing that during the last century rafts were very popular among the Palauans, possibly as a poor man's substitute for the more expensive canoes (Kubary, 1895: 298).

The principal material used in adzes, axes, and knives was shell (Krämer, 1926: 107-110). Andesite basalt was also used in making tools (Kubary, 1895: 292), but the archeological evidence is that stone was decidedly below shell in frequency of employment (Osborne, 1966: 447). It should be kept in mind that iron and copper were known in early times, possibly through shipwrecked Malays or Chinese traders

(Krämer, 1926: 107–108) and this may have reduced the use of shell implements even before the arrival of the first Europeans.

The physical characteristics of the Palauan people are generally in agreement with the descriptions of the Portuguese, although less so than most other Caroline Islanders. One anthropologist has said: "So the Palau inhabitants are one shade darker than the Yap islanders, and they are half way between Micronesians and Melanesians" (Krämer, 1919: 302). Although they are among the darkest of all Carolinians, they do have a skin pigmentation intermediate between "white" and "black." Whether the descriptions are those of untrained observers (Somera, 1715: 88; Keate, 1793: 318; Holden, 1836: 48) or of trained men sometimes using relatively sophisticated techniques, as in the use of the Broca and von Luschan color scales (Miklucho-Maclay, 1878a: 106; Krämer, 1919: 298–301), the general indication is that the population varies both ways from a medium brown color.

Palauans could qualify only moderately well for straight hair, for there is much waviness and some frizziness. Thus, Somera noted in 1710 that "their hair may be short and frizzly, or long" (Krämer, 1917: 50). According to Henry Wilson of the shipwrecked *Antelope*, "Their hair is long and flowing, rather disposed to curl" (Keate, 1793: 318). Holden remarks: "The hair of both males and females is worn long; it is coarse and stiff, and of a color resembling that of the natives of North America" (Holden, 1836: 47–48). More recent and professional observers have generally found a good deal of waviness, curliness, and kinkiness (Miklucho-Maclay, 1878a: 106–107; Krämer, 1919: 302–303). Perhaps we should conclude that with respect to hair form, Palau barely meets the criterion of straightness, and then only if we suppose that the Portuguese were thinking in relative terms.

As for beards, no firm decision may be reached. Bernardo de Egui says that when he stopped at Palau in 1712 in the *Santo Domingo*, the islanders had very long hair but did not wear beards (Krämer, 1917: 99). This may have been because, as Holden observed on Tobi, the men plucked out their facial hair. In this connection the Russian anthropologist Miklucho-Maclay, who was on Palau in 1876, says: "The beard is seldom worn; usually the men pull out the hair on their faces" (Miklucho-Maclay, 1878a: 107). Beards are not mentioned by Wilson or Holden, nor depicted in their books. That the men of the islands were capable of raising long beards is attested to by the comments of a reliable German anthropologist, who says that in the early part of the century, at least, "nearly all the older men had beards, and many of them were bristly and stiff, while the others were long and flowing," and adds that the drawings labelled "F" on Somera's map of Sonsorol "shows that men wore beards [on Palau] in olden times too" (Krämer, 1919: 303).²¹ We must conclude that the men were capable of sporting long beards but that the dictates of fashion might prevent them from being grown, and that we have no way

²¹ The map was brought to light by Krämer, who was the first to publish it (Krämer, 1917: 71). The men's faces depicted on the map are not clear and in my opinion there is some doubt as to whether Somera meant them to be wearing beards. After all, Egui was there two years later and, as we have seen, said that no beards were worn.

of knowing what the fashion may have been in 1525.

Regarding the cultigens, Palau has the right ones, the main vegetable foods in both olden and recent times being coconut and taro, with some bananas also being raised (Keate, 1793: 299; Krämer, 1926: 42-55, 57). Holden speaks of the abundance of "yams" (Holden, 1836: 54, 67) but he probably means taro, just as Captain Henry Wilson when using the word "yam" identifies the plant as "*Arum esculentum* of Linnaeus" (Keate, 1793: 299, 299 fn.). Kubary informs us that "the Palau Islanders are totally without the yam root" (Kubary, 1892: 156-157), and that although there is "no trace of yam cultivation . . . nevertheless two wild species of *Dioscorea* occur" (Kubary, 1892: 162). In view of the fact that Barros said only that there were "roots like yams," it is not at all necessary to prove the existence of *Dioscorea* in the islands. The presence of taro, coupled with the coconut and banana, is enough to qualify Palau with respect at least to cultigens, although, as we have anticipated, this is not enough to qualify it for the Isles of Sequeira.

The fowl was probably present on Palau in the sixteenth century. Captain Henry Wilson's remarks concerning the plentiful cocks and hens he saw on Palau in 1783 are probably the most detailed by any of the earlier commentators on the western Carolines. He says that they were not domesticated but ran about the woods, yet liked to get near the houses and plantations. The natives did not eat them until shown the way by the English; but they did eat their eggs (Keate, 1793: 300-301).

Notwithstanding, the clues that support Palau are overwhelmed by the geographic facts of its low latitude and insufficient distance from the Molucca Passage, but even more by the nudity of the inhabitants of the islands. We know, too, that iron and copper were known on Palau in pre-European times, possibly because of marooned Malays or Chinese traders, but of course we cannot be sure if this was true as far back as 1525. Assuming it was true, then the islanders who told the Portuguese that they had no knowledge of iron or copper could not have been Palauans.

Ngulu Atoll

Consideration of the lightly populated atoll of Ngulu comes next. It is large, being about 22 miles long and about 14 miles across at its widest part, but only one of its islets is inhabited. Its location is against it, for at 8°18'N. it is too far south. However, it is in the right direction with respect to the Molucca Passage, being northeast of it. Located only 68 miles south-southwest of Yap it falls, moreover, within the 200-300 league range from the Moluccas, being about 227 leagues or 910 miles from the Passage. There are a number of openings though the reef to the deep lagoon, so that passing between the islets, of which there are about ten, is possible for achieving an anchorage. However, it is worth noting that the lagoon is frequently rougher than the outside sea and at times anchorage is impossible. Because of this danger, the atoll has not often been visited and is less well known than most Carolinian islands.

Culturally, economically, and politically Ngulu is closely akin to Yap, with the influence of Ulithi also strong. Early in the present century the men were wearing fine woven T-sashes, and the women a dense shaggy fiber skirt made of split pinnate coconut leaves suspended from the waist, just like the women on Yap (Eilers, 1936: 221-222, 233). This means that half the population did not conform to the Sequeiran criterion of supple, woven clothing. Moreover, there is apparently no mention in the literature of the kinds of long outer garments mentioned by the Portuguese historians. It is difficult to project back in time because there is not a good deal of ethnographic information concerning the atoll.

Although Alonso de Arellano, who discovered Ngulu in 1565, fails to say a single word about canoes they were indubitably present, the deep sea boats being large (Eilers, 1936: 227-229).

We know that the shells of tridacnas, terebras, cassis, and other mollusks were formerly utilized in adzes, knives, and scrapers (Eilers, 1936: 226-227, 236-237, and figs. 213-219).

Turning to physical features, although to my knowledge skin pigmentation is not reported in the literature it must undoubtedly correspond to that found on other Carolinian islands, especially in view of the considerable travel between Ngulu and such other islands as Yap and Ulithi. This would mean that it is a medium brown. Such pigmentation would seem to be borne out by photographs of Nguluan (see Eilers, 1936: *passim*). Straight hair is not however the rule; wavy hair is (Eilers, 1936: 223). "Older men wear whiskers of moderate length" (Eilers, 1936: 223).

Regarding the cultigens, the ubiquitous coconut palm is of course found on the atoll (Eilers, 1936: 211-212). "Yams" are present in the form of taro, though not in abundance (Eilers, 1936: 214). I have not come upon direct references to the cultivation of bananas. One cannot infer from the use of banana fiber in the weaving of men's loincloths (Eilers, 1936: 221) that bananas were grown on Ngulu, because the *Musa* that bears the banana and the *Musa* that produces the best fibers for textiles are distinct varieties, and may even be of different species.

As for fowl, the results of a visit of one day in 1909 by anthropologists of the Hamburg Südsee-Expedition are authority for the statement: "The only domestic animals are chickens which the natives raise in such quantities that they have an abundance of them. They keep the animals in special fowl-houses" (Eilers, 1936: 214). The apparent importance of chickens on Ngulu is almost unprecedented for the western Carolines and, in my opinion, may be due to a late and special development.

Population size cannot be ignored in considering Ngulu's candidacy. The native Woleaian named Kadu, who accompanied the explorer Kotzebue through some of the Pacific when the Russian was on his expedition of 1815-1818, said that there were thirty or fewer people on the atoll in the last century (Kotzebue, 1821: III, 133). Other demographic estimates, old and modern, are consistently as low. It is hard to imagine how a shipload of visitors could have stayed four months without creating serious repercussions of different kinds.

I wish, however, to raise the possibility that Ngulu was actually uninhabited in 1525 and therefore could not have been the place that sheltered the Portuguese mariners. I base my doubts on mythology and the general tendency of early missionaries and visiting voyagers to omit mention of the presence of people on the atoll.²²

We must conclude that Ngulu, whether uninhabited or not, could not have been the Isles of Sequeira because of its latitude and the characteristics of its islets. The unwoven nature of the women's garments would tend to support this conclusion.

Yap Islands

In some important respects the next locale, Yap, could have been Rocha's isles. At nine and a half degrees north of the equator it is at the right latitude. It lies about 243 Portuguese leagues or 972 miles northeast of the Molucca Passage. It is large and has a hill, Mount Matade, whose summit is 575 feet high. Its area is about 38.5 square miles.

But although Yap is made up of three principal islands and ten or so tiny ones, one would hardly think of it as an "archipelago," the term used by Urdaneta to describe the Isles of Sequeira. The islands are located on a triangular submarine platform and surrounded by a fringing reef, and they are so compact that the channels between them would not allow a vessel to pass between them. A Spanish resident of the islands wrote in the last century that "the three [islands] may be considered as only one island, for the water which separates them may be crossed at low tide with the water to the knee" (Oca, 1893: 251).²³ One would assume that if Rocha had stopped at Yap he would have been content to remain in Tomil harbor, which is reached by a break in the reef that does not require passing between islands. This harbor is the only one used by modern shipping.

Something of mixed value for the Yapese candidacy is clothing. To be sure, the men's garment has always been the typical Carolinian T-sash loincloth made of fine banana or mixed banana-hibiscus fibers woven on a true loom, and therefore fairly supple; but the garment of the women apparently has always been the voluminous coconut leaf skirt of the kind described above for Ngulu. One would expect that if the place where they had stayed for four months had been Yap the Portuguese would not have failed to mention the unusual dress of half the population.

There seems to be no direct evidence that waist-like or ankle-length garments were ever worn on Yap, but I am inclined to think they were. To support my belief

²² A detailed explanation of my reasoning is to be found in my book, *Drake's Island of Thieves* (1975: 76-78).

²³ The narrow Tageran Canal bisecting the largest island was not built until 1901 by the Germans, and in any event is no more than a shallow ditch intended to facilitate the carrying of copra in canoes from the west part of Yap to the harbor in the east. If a small vessel were to have started as the Gofenu Entrance through the reef it might have been able to reach almost to Map Island, but there it would have found the passage too shallow, narrow, and crooked to proceed any further.

I must make a digression into the nature of west central and east central Carolinian clothing in general. It will be well worth the while to do this, as clothing is one of the most specific clues afforded us.

To begin with, I must refer the reader back to my comments above regarding the culturally homogeneous string of islands known as The Woleai. Recall, too, my statements regarding the Yap "empire," which is a more extensive and only slightly less homogeneous entity embracing not only The Woleai and Ulithi but of course Yap, too. If it can be shown that in olden times torso-length upper garments and long cloaks were used in some of the islands of the Yap sphere, they can be thought of as being present elsewhere, too.

It is easy to show that in the seventeenth century the garments in question were being worn by people of The Woleai. The evidence comes from the distinguished Jesuit, Pablo Clain (Klein). In describing the west central Carolinians wrecked on the island of Samar in the Philippines on December 28, 1696, he says that the men wore no other clothing than a waistband that covered their loins and thighs, except that on their shoulders was more than an ell and a half of coarse cloth with which they made themselves a kind of hood that they tied by the forepart and let hang carelessly behind. The women were dressed in the same manner as the men, except that they had a somewhat longer cloth that descended from the waist down to the knees (Clain, 1700: 404). Elsewhere, Clain indicates that the upper garment of the men was poncho-like, saying that it had an opening down the center and was worn around the head in such a way that it hung down in front and back, like a monk's scapular or a short cloak which is tied in front (Krämer, 1917: 20).

There is additional comparative evidence about old-time clothing. The male Carolinians from The Woleai who were wrecked on Guam on June 19, 1721, were described by Father Cantova as wearing only loincloths passed between their legs, except for the chiefs, who had a kind of cloak, open at the sides, that covered their shoulders and chests and fell to their knees. The women, besides a piece of cloth with which they girded themselves just like the men, also had a sort of skirt which descended from the waist to the knees (Cantova, 1728: 198).²⁴ These Carolinians had left Faraulep Atoll for Woleai Atoll, and although there is no direct evidence that any of them were Ulithians they came from the same general cultural subarea. It is not likely that any Yapese men were in the two wrecked canoes, to judge from the behavior of the marooned parties.

There is one further comparative note. It will be recalled that the islands of Sonsorol, which have cultural connections with Yap, were known to have had capes when discovered in 1710 by the Spaniards.

The use of long garments by Carolinian (essentially "Woleaian") *tamol* or

²⁴ If there seems to be an ambiguity, I can clarify it. Beneath the wraparound skirts worn by Carolinian women there was usually a narrow loincloth that passed between the legs; but this undergarment is usually not reported in the literature, perhaps because of its intimate nature. However, Clain was probably merely referring to the superficially similar men's T-sash and the women's short outer skirt. As for the hooded shoulder garments, I do not think that Clain meant to imply that they were worn also by the women, but he may have.

chiefs during the early part of the last century was reported by the French explorer, Freycinet, who compared them to a priest's chasuble (Freycinet, 1827-1839: II, 99; plates 53 and 55). I must point out parenthetically that in the Carolines *tamol* are of all kinds and ranks and are numerous, so that any Portuguese stopping at one of the islands would not necessarily have seen only a few of these poncho-like garments.

Shoulder and long length outer garments persisted into the present century in the east central Carolines, closely related culturally to The Woleai. A member of the Hamburg Südsee-Expedition reports that in the Truk area the men were wearing, in addition to the usual mat loincloth, a head-hole *marop* resembling a Chilean poncho and a shoulder blanket called a *lukuman*, these often being very long like a coat when worn by chiefs and old men (Krämer, 1932: 91; fig. 25b; plates 1, 2, 4, 6, 8). The poncho had been seen previously by others on Truk (Dumont d'Urville, 1841-1846: V, 312; Finsch, 1893: [354]; Tetens, 1958: 91). Our knowledge of Trukese poncho-like capes and poncho-like cloaks has been summarized by LeBar (1964: 155-156). Elsewhere, the woven fiber poncho has also been reported for this century in Namuluk (Girschner, 1912: 131), and for the last century in Nomoi (Kubary, 1880: 232-237), both of them in the east central Carolines, as well as in other places in the same general area.

So, all in all, Sequeiran-like garments seem to have been widespread at one time throughout at least the west central and east central Carolines, and persisted longest towards the east, having disappeared earliest in such westerly islands as Ngulu, Yap, and Ulithi. Whether or not such garments were ever worn on Tobi is not specifically known, but they were being worn in 1710 on nearby Sonsorol.

Turning to Yapese canoes, the earliest sure reference to them was made by the unknown chronicler of the Nassau fleet, which under the command of Gheen Hugo Schapenham positively discovered Yap on February 15, 1625 (*Journ. Nass. Vloot* 1631: 104). The literature on the outriggers of Yap is voluminous and includes descriptions of very large types (see Tetens and Kubary, 1873: 19-20; Müller, 1917-1918: I, 170-187; Neyret, 1969a: 19-24, 1969b: 1-3).

As for "fish bone" tools, the Giffords, who excavated on Yap in 1956, have indicated the great importance there of shells when they say: "The preponderance of shell tools in an archipelago where hard stone tools are present would seem to suggest that the Yapese ancestors arrived with a tradition of shell implements" (E. W. and D. S. Gifford, 1959: 185). Among the shell tools that they found were adzes, taro peelers, paring knives, and scrapers. Their conclusion that "stone artifacts are rare on Yap" (p. 193) implies conversely that the shells of mollusks were conspicuous.

The earliest positive reference to the hair of the Yapese comes in the account of the voyage of the Nassau Fleet, in which it is simply mentioned that it was long and black, and that the people resembled the natives of Guam in size and appearance (*Journ. Nass. Vloot* 1631: 104). If the Yapese resembled the Chamorros and had long hair, it was undoubtedly "straight" to wavy, and the people must have had a

light to medium brown skin color. But it is not necessary to rely on such meager information. Miklucho-Maclay (1878b: 40) found the hair to show "considerable variation," being seldom found smooth but rather almost always curly and even kinky (see also Miklucho-Maclay, 1878a: 103-104). Another observer says that the women "have black, straight hair" and "some of the men also have straight hair," while other men "have frizzly hair" (Volkens, 1901: 70). Still another observer attributes the difference to one racial element with kinky hair and another element with wavy or straight hair (Sapper *et al.*, 1920a: 125). What these men are saying is that Yapese hair is seldom really straight and shows great variation in form. My own informal observations would agree with their assessments. I think that Yap meets the Portuguese criterion of straightness if we do not use as guides the straightness of Mongoloid and some northern European hair.

Yapese men have sufficient beard growth to meet the historians' description. Thus, Miklucho-Maclay says: "Many of the men have a good beard and even the body (including the breasts, the lower body parts, and legs) is occasionally covered with thick hair" (1878b: 40-41). Despite the practice of many men of pulling out the hairs of the upper lip and face, photographs of Yapese men found scattered throughout the literature show many of them with fairly full beards (see for example Müller, 1917-1918; Price, 1966).

The skin pigmentation of the Yapese likewise satisfies the historians' criterion. In late 1875 or early 1876 one researcher observed that the color of males varied among numbers 21, 30, 28, and 43 of Broca's table, with females showing lighter colors, 36 and 46 (Miklucho-Maclay, 1878b: 40). (See also Miklucho-Maclay, 1878a: 103.) These esoteric numbers simply mean a range from light to dark brown with an element of reddishness. Another observer says merely that the skin color "ranges from a yellow to a dark chocolate brown" (Volkens, 1901: 70), and still another writes of "a well-built light brown race of men" (Müller, 1917-1918: II, 9).

Among the food sources of the Yapese are the domesticated fowl (Tetens and Kubary, 1873: 90; Oca, 1893: 255; Senfft, 1903: 56; Müller, 1917-1918: I, 57-58). The chicken is not, however, of much importance; indeed, one observer on Yap wrote that "the natives never eat chicken" (Volkens, 1901: 73). There are no early accounts that might inform us of the situation in 1525, so it is only from comparative data that we can feel some assurance in saying the fowl was present then, even though it was probably as neglected as in modern times.

As for Yapese cultigens, the presence there of coconuts, arums, and bananas, as well as true yams has been so well documented that we may pick out at random three references only, one by Tetens and Kubary (1873: 90), one by Oca (1893: 253-254), and another by Müller (1917-1918: I, 53-57). There are no truly early mentions in the literature, but that is not significant.

Much has been made of the fact that Yap has high hills or mountains. If it was indeed on Yap that the Portuguese heard of gold in a mountain to the west, would they have been content merely to have listened to the report without investigating for themselves? If they did not search, it was not because of lack of time.

If they did look and found nothing, one would expect the historical account to have had something to say about the failure. Not to belabor the point, it is interesting that if the Portuguese spent four months on Yap and the "gold" was there, the natives would have presented them with some samples. On the other hand there was a strong language barrier between the visitors and the indigenes,²⁵ and it is probable that the Sequeiran natives, whoever they were, were merely acquiescing about gold out of eagerness to please, without really knowing anything about it. The gold-cum-mountain idea has been overexploited by those favoring Yap as the Sequeiras, but in my opinion it is an idea that is easily turned against their selection.

To sum up the objections to Yap: It is not an archipelago and it would not have been possible for a fusta to have been rowed between its islands. Half the population was attired in "grass" skirts that do not match the descriptions of the clothing given by the historians. The mountain where the gold was said to be found could not have been on Yap, otherwise the Portuguese would have lost little time investigating the allegation during the four months they were there, and they would have reported their findings. Finally, recall that the rudder of the fusta had been damaged and could not be repaired until morning, at which time the Portuguese, who presumably had been immobile all night, saw an island before their eyes. This would indicate that if they had been in the vicinity of a hilly or mountainous island such as Yap, or of course Palau too, they would have sighted it before darkness had set in, whereas if they had been in the vicinity of an atoll they could easily have missed it.

Ulithi Atoll

The easternmost and last place remaining to be considered as the Isles of Sequeira is Ulithi, the most spacious atoll in the western Carolines. Its northernmost latitude is 10°05'N. It is about 22 miles long from north to south and 14 miles wide at its northern extremity, being composed of about 30 islets, all reef fringed and arranged in something of the shape of a mushroom whose cap has been partly detached from its stem. Not included in the atoll proper are a long bank, submerged except for two islets, that is located about 15 miles eastward of Ulithi, and a detached reef with several small islets on it that lies between Ulithi and the bank. Not only is Ulithi oriented in a northeast direction from the Molucca Passage, it is at the right latitude and distance, being about 270 leagues or 1080 miles away. Thus, the atoll has vital geographic features conforming to those mentioned by the Portuguese historians.

The huge lagoon provides excellent anchorages and there are many deep pas-

²⁵ Maffei (1588: 168) says that there was some communication not only through signs but also with the help of the Moluccan language. Castanheda and Barros say only that signs had to be used, while other historians are silent on the subject. Undoubtedly, after a stay of four months the visitors must have picked up some of the language of the natives, and vice versa. There is nothing that really tells us that the people of the Isles of Sequeira understood Indonesian, much less of course, Portuguese.

sages into it, particularly such navigable channels as Mugai, Dowarugui, Rowaruerii, Towachi, and Dao.²⁶ Certainly the islets invite "passing between them," in contrast to Yap where there are no navigable channels of any consequence.

Turning to ethnographic matters, earliest to mention Ulithian clothing was Bernardo de Egui y Zabalaga, who reported the first firm discovery of Ulithi Atoll in 1712, where he arrived in the *Santo Domingo*. In his "Diario" he says that the natives gave the Spaniards some loincloths woven of *abaca* (banana fiber) (Krämer, 1917: 90, 92).

Father Cantova, who arrived fortuitously on Ulithi in 1731 together with Father Victor Walter and a good-sized party of soldiers and attendants, says in a letter written from there on May 12 of that year to his Provincial Superior that the men of the atoll used no other garment than a *bajaque* (loincloth), which was worn like a towel and woven from banana fiber; and that the women wore "a tapestry that reaches from the waist to the knees" (Carrasco, 1881: 267). Three members of his party—a native of the Marianas and two soldiers who had left for Guam with Father Walter to seek aid for the mission but instead had drifted to the Philippines—gave sworn statements regarding the mission to officials in Manila, and in them they said the same sort of thing about Ulithian clothes, with two of them adding that the women did not wear *chininas* (blouses) (Carrasco, 1881: 272, 277, 278).

The failure to mention upper garments or other clothing should not be regarded as final, because Cantova's letter was brief. He was in the midst of preparations to sail away to Guam but changed his mind and sent Father Walter instead when he became apprehensive over some signs of hostility that began to develop after some canoes from nearby Caroline islands arrived at the atoll and seemed to have created agitation among the Ulithians.

Indeed, there are two good reasons for assuming that at least some Ulithian men were wearing long garments in Cantova's time and before. The first we have already discussed in connection with the evidence provided by Father Clain concerning the "Woleai" natives stranded on Samar. Ulithi is almost a part of The Woleai, Yap and Ngulu are not, and is closer to it geographically than they are. If some of those marooned people were wearing long garments in 1696, their kindred in Ulithi were likewise doing so. Secondly, there is an engraving in Lütke's *Voyage* in which a Ulithian named "Pigène," drawn from the waist up, is seen wearing around his shoulders and down one side an ample garment not known to have been used in more recent times (Lütke, 1835-1836: Atlas, plate 25). Ulithi had been shunned for a long time after the Cantova disaster and there is no likelihood that the cloth was anything but one of native weave.

Canoes have long been the pride of Ulithians, who have served their overlords on Yap by building seagoing canoes for them there and using them to navigate be-

²⁶ These are Japonicized versions of native names for these channels and are still used by the U. S. Naval Oceanographic Office. Ulithians have names for eight additional channels that are navigable for at least their canoes. During World War II as many as a thousand American vessels were anchored at one time in the lagoon, testifying to its size and depth.

tween the many islands under Yapese domination. Egui states that their canoes were much like those of the Marianas (Krämer, 1917: 91, 92). Cantova makes frequent reference to Ulithian canoes, without however attempting to describe them (Carrasco, 1881: 256, 266). Of course there are good descriptions in the modern literature of both small and large canoes (Damm, 1938: 328-329).

Of shell tools there is an abundance in Ulithi, these having been used to the exclusion of stone in times past. Early in the present century tridacna, terebra, and cassis rufus tools were collected for the Thilenius Südsee-Expedition (Damm, 1938: 319; figs. 423, 424, 426-428). In 1960, Father William Walter, a Jesuit who frequently serves on Ulithi, presented me with a batch of shell adze blades collected as surface finds on the atoll, and in that same year I commissioned some older men to manufacture shell adzes to be added to a museum collection. Again, if we are looking for time depth in the use of shell tools I think we can legitimately claim it through the interviews by Father Clain of the western Carolinians marooned on Samar in the Philippines in 1696. He says that the islanders had among their articles some saws, made of a large tridacna shell, which they sharpened by rubbing against certain "stones" (Clain, 1700: 407).

The anthropomorphic features meet the requirements. My observations on 59 males taken in 1947 show that skin color, as seen on the inner side of the upper arm, is predominantly light brown in terms of the von Luschan chart (color nos. 15, 17, 18), with 50.9 percent of the subjects falling in this category. Reddish brown skins (nos. 12, 13, 14, 16) are found in 28.8 percent of the subjects. Medium brown skin colors (nos. 21, 22, 23, 24, 25) occur in the remainder of the cases, or 20.3 percent. None of the subjects showed dark brown or black skin color, although cheek colors are noticeably darker than arm colors, and in many cases display a yellow brown range (nos. 6, 19, 20) not found on the arm.

As for beards and straight hair, Egui reports that the men in the six canoes that came out to meet the *Santo Domingo* were long-bearded (Krämer, 1917: 90). In a letter reporting on Egui's voyage, Governor Lizarraga of the Philippines has several things to say about the men of Ulithi: "The Indians are well-built, most of them of tall stature and considerable girth. Some of them have hair like those of mulattoes, others have long, straight hair like Jews, and all of them wear their hair in an attractive knot in the back and have long, thick beards" (Krämer, 1917: 78). My own observations on 59 males (one an adolescent) shows hair form to be mostly wavy, with a small amount of frizziness. Straight hair was found in 11.9 percent of the cases. I found face hair to be generally small in amount and rarely heavy.

Coming to the nutriments, references to the domestic fowl on Ulithi are few and fleeting (Senfft, 1901: 824; Elbert, 1947: 61; Lessa, 1966: 17), and are altogether lacking for the earlier time periods, notably in the letter sent out by Cantova from the atoll itself. From personal observation I can state that chickens are neglected and seem as much feral as domesticated, flying up into trees when approached. Their eggs are small and not eaten.

All the vegetable foods mentioned by Barros would appear to be found on Ulithi.

Three aroids—*Colocasia esculenta*, *Cyrtosperma chamissonis*, and *Alocasia macrorrhiza*—are cultivated on Ulithi and rank next in importance to the coconut, with bananas a relatively unimportant source of food (Damm, 1938: 308–309; Lessa, 1966: 13–14). True yams are not grown, and although sweet potatoes are cultivated they are undoubtedly a late introduction. Father Cantova devoted only three short sentences to Ulithian foodstuffs in the letter he despatched in 1731 from his mission on the atoll, mentioning coconuts, “two kinds of roots that are little affairs and hardly rewarding,” and a fruit he called *alfuch* (Carrasco, 1881: 22), which I take to be the banana, or *uch*. There is no evidence that true yams were ever cultivated on Ulithi, but it must be recalled that Barros had merely referred to roots that were “like” yams. The only other historians to mention yams is Castanheda and although he does so without using the adjective “like,” he undoubtedly was not trying to be precise. I think that there is no question but that the aroids fit the requirements.

Were it not for the “high mountain to the west of the island” most writers would readily qualify Ulithi as the Sequeiras. At 10° the atoll is at the right latitude. It is at the right distance from the Molucca Passage. With its numerous islets it can be thought of as an “archipelago,” having none of the extreme compactness of Yap. Certainly its islets invite “passing between” them.

But is the problem of the mountain insurmountable? Not at all. The matter is easily resolved if by “to the west” is understood not the western part of the island(s) but an island to the west of wherever it was that the Portuguese were sojourning. The language of none of the historians is such as to say that the mountain was right there. Yap is about 98 miles WSW of Ulithi and the two places have long been joined by political, economic, and cultural ties, which for centuries were maintained by frequent travel between them. Ulithians therefore know Yap well and they would not have said that there was gold there, because it would have been so obviously untrue.²⁷ If we accept Ulithi as the Isles of Sequeira, it would not offend credibility for us to say that the mountain to the west was in the Philippines, where we know from the historical records that Ulithians have been stranded time and again by the elements, often to return to their homeland after a long stay there. Although others may exist, I do not recall seeing any more than one document indicating the same stranding of Yapese in the Philippines, possibly because far back in time they had already delegated much of their deep sea traveling to satellite islanders.

If tractability could be used as a criterion, Ulithi would readily qualify, despite the fact that the Cantova mission was wiped out in 1731 after having been received initially with much success. Almost without exception, foreigners visiting the islands over the years have commented on the amiability and hospitality of its

²⁷ Perhaps the matter of gold should be discounted. If the Sequeirans recognized only gold when they were shown it along with iron, copper, and tin, it may be that given the language barrier they were thinking of something else, such as yellow ocher. But whatever it was, the “mountain” did not have to be on one of their own islands.

inhabitants. It would also qualify easily in terms of traits mentioned by various of the historians: simplicity of life-style, agreeable appearance, happy countenances, good physiques, freedom from physical infirmities, and longevity. But for the most part all of these are imponderables that cannot be accepted in an objective study such as this purports to be.

Conclusion

Fortunately, however, other kinds of evidence immensely favor Ulithi as being the islands marked down on his map by Gomes de Sequeira, at the same time insuring its selection by the elimination of each of all the other possible candidates sponsored by interested historians, geographers, and anthropologists. The one thing that had served for so long as a deterrent—the mountain to the west of the island—proves to have been a needless obstacle that is easily removed when the records are examined from all possible facets.

This, then, is the solution to a vexing problem surrounding an obscure discovery by the Portuguese, who had entered the open Pacific from the west five years after Magellan had entered it from the east by way of the Strait. It has strong implications for the identification of other Carolinian islands whose locations have long been steeped in controversy.

ACKNOWLEDGEMENTS

I am deeply grateful to Dr. S. H. Riesenberg as well as to Prof. Bailey W. Diffie and Prof. Armando Cortesão for reading the manuscript, and to Prof. Marion A. Zeitlin and Mr. Richard German for assistance with the translation of Portuguese materials. Prof. Bengt T. M. Löfstedt kindly checked my translation of some passages in Latin, and Prof. C. R. Boxer and Prof. W. M. Krogman graciously replied to sundry queries. Library help was given by The Joseph Regenstein Library of the University of Chicago, The John Carter Brown Library of Brown University, and especially the Research Library of the University of California, Los Angeles. Funds for student assistance, photoduplication, and cartography were granted by the Research Committee of the University of California, Los Angeles.

References Cited

- Alkire, W. H. 1965. Lamotrek Atoll and inter-island socioeconomic ties. Univ. Illinois Press, Urbana.
- Andrada, Francisco de. 1613. *Cronica do mvyto alto e mvyto poderoso rey destes reynes de Portugal dom João o III. deste nome.* Rodriguez, Lisbon.
- Barbié du Bocage, J. D. 1807. Extrait de la notice d'un manuscrit géographique de S. A. S. Mgr. le Prince de Bénévont. *Magasin Encyclopédique* 4: 148-162.
- Barros, J. de. 1563. *Terceira decada da Asia.* Barreira, Lisbon.
- . 1615. *Quarta decada da Asia.* Impresão real, Madrid.
- Boxer, C. R. 1969. *The Portuguese seaborne empire 1415-1825.* Hutchison, London.

- Brand, D. D.** 1967. Geographical exploration by the Spaniards. In H. R. Friis (ed.), *The Pacific basin: A history of its geographical exploration*. Am. Geog. Soc., Spec. Publ. 38. American Geographical Society, New York.
- Burney, J.** 1803-1817. A chronological history of the discoveries in the South Sea or Pacific Ocean. 5 vols. Hansard, London.
- Calvert, A. F.** 1902. *The discovery of Australia*. 2nd ed. Dean, London.
- Cantova, J. A.** 1728. Lettre . . . au R. P. Guillaume, Mar. 20, 1722. *Lettres édifiantes . . . de la Compagnie de Jesus*, vol. 18. Le Clerc, Paris.
- Carrasco, F.** 1881. Carolinas. *Bol. Soc. Geograf. Madrid* 10: 263-279.
- Castanheda, F. Lopes de.** 1551-1561. *História do descobrimento & conquista da Índia pelos Portugueses*. 8 vols. Barreira [etc.], Coimbra.
- Clain, P.** 1700. Lettre écrite de Manille le 10. de Juin 1697. In Charles Le Gobien, *Histoire des Iles Marianes*. Pepie, Paris.
- Coello, F.** 1848-1868. *Atlas de España y sus posesiones de ultramar*. N.p., Madrid.
- . 1885. Conflicto Hispano-Alemán. *Bol. Soc. Geograf. Madrid* 19: 220-268, 273-335.
- Colección de documentos inéditos . . . Indias*, Ser. I. 1864-1884. 42 vols. Quiros, Madrid.
- Collingridge, G.** 1895. *The discovery of Australia*. Hayes, Sydney.
- Cortêsão, A.** 1939. O descobrimento da Ilha de Gomes de Sequeira em 1525. In A. Baião, H. Cidade, and M. Murias (eds.), *História da expansão Portuguesa no mundo*, 3 vols. Atica, Lisbon. II, 159-162.
- Cortêsão, A., and A. Teixeira da Mota.** 1960. *Portvgaliae monvmenta cartographica*. 6 vols. N.p., Lisbon.
- Coutinho, C. V. Gago.** 1939. Portugueses no descobrimento da Austrália. *Bol. Soc. Geograf. Lisboa* 57: 3-43, 1939.
- . 1940. Onde teria invernado Gomes de Sequeira em 1525? *Bol. Soc. Geograf. Lisboa* 58: 3-16, 111.
- Couto, D. do.** 1602. *Decada qvarta da Asia*. Crasbeek, Lisbon.
- Damm, H., ed.** 1938. *Zentralkarolinen*, 2. Halbband: Ifaluk, Aurepik, Faraulip, Sorol, Mogemog. In G. Thilenius (ed.), *Ergebnisse der Südsee-Expedition 1908-1910*. II, B, X, part 2. Friederichsen, De Gruyter, Hamburg.
- Danvers, F. C.** 1898. *The Portuguese in India*. 2 vols. Allen, London.
- Dumont d'Urville, J. S. C.** 1841-1846. *Voyage au Pole Sud et dans l'Océanie . . . 1837-1838-1839-1840*. Histoire du voyage. 10 vols. Gide, Paris.
- Eilers, A.** 1935. *Westkarolinen*, 1. Halbband: Songosor, Pur, Merir. In G. Thilenius (ed.), *Ergebnisse der Südsee-Expedition 1908-1910*. II, B, IX, part 1. Friederichsen, De Gruyter, Hamburg.
- . 1936. *Westkarolinen*, 2. Halbband: Tobi, Ngulu. In G. Thilenius (ed.), *Ergebnisse der Südsee-Expedition 1908-1910*. II, B, IX, part 2. Friederichsen, De Gruyter, Hamburg.
- Elbert, S. H.** 1947. *Ulithi-English and English-Ulithi word lists*. U. S. Naval Military Government, n. p. [mimeographed].
- Faria y Sousa, M. de.** 1666-1675. *Asia Portvgvesa*. 3 vols. Valenta de Oliuera, Lisbon.
- Finsch, O.** 1893. *Ethnologische Erfahrungen und Belegstücke aus der Südsee*. Holder, Vienna.
- Freycinet, L. C. D. de.** 1827-1839. *Voyage autour du monde . . . 1817, 1818, 1819 et 1820*. Section 1, Historique. 2 vols. in 5 pts. + atlas. Pillet aine, Paris.
- Fritz, G.** 1907. Eine Reise nach Palau, Sonsol und Tobi. *Deutsches Kolonialblatt* 18: 659-668.
- Fuller-Elliott-Drake, Elizabeth.** 1911. *The family and heirs of Sir Francis Drake*. 2 vols. Smith, Elder, London.
- Galvão, A.** 1563. *Tratado*. Barreira, Lisbon?
- Gifford, E. W. and D. S.** 1959. *Archaeological excavations in Yap*. Univ. Calif. Anthro. Records, Vol. 18, No. 2.

- Girschner, M.** 1912. Die Karolineninsel Namoluk und ihre Bewohner. *Baessler-Archiv* 2: 123–215.
- Hasebe, K.** 1928. On the islanders of Togobei (Nevil's Island). *Jinruigaku Zasshi* (J. Anthro. Soc. Nippon) 43: 63–69. [In Japanese]
- Hockin, J. P.** 1803. A supplement to the account of the Pelew-Islands. Wilson, London.
- Holden, H.** 1836. A narrative of the shipwreck, captivity and sufferings of Horace Holden and Benj. H. Nute. Russell, Shattuck, Boston.
- Journal vande Nassausche Vloot.** 1631. Gerritsz and Wachter, Amsterdam.
- Keate, G.** 1793. An account of the Pelew Islands . . . from the journals of Captain Henry Wilson. White, Dublin.
- Kotzebue, O. von.** 1821. A voyage of discovery into the South Sea and Beering's Straits . . . 1815–1818. Trans. by H. E. Lloyd. 3 vols. Longman, Hurst, Rees, Orme, and Brown, London.
- Krämer, A.** 1917. Palau, I. Teilband. In G. Thilenius (ed.), *Ergebnisse der Südsee-Expedition 1908–1910*, II, B, III, part 1. Friederichsen, Hamburg.
- . 1919. Palau, II. Teilband. In G. Thilenius (ed.), *Ergebnisse der Südsee-Expedition 1908–1910*, II, B, III, part 2. Friederichsen, Hamburg.
- . 1926. Palau, III. Teilband. In G. Thilenius (ed.), *Ergebnisse der Südsee-Expedition 1908–1910*, II, B, III, part 3. Friederichsen, Hamburg.
- . 1932. Truk. In G. Thilenius (ed.), *Ergebnisse der Südsee-Expedition 1908–1910*, II, B, V. Friederichsen, De Gruyter, Hamburg.
- Kubary, J. S.** 1880. Die Bewohner der Mortlock-Inseln. *Mitt. Geograph. Gesell. Hamburg* 1878–1879: 224–299.
- . 1889. Ethnographische Beiträge zur Kenntnis Karolinen Archipels, Part 1. Trap, Leiden.
- . 1892. Ethnographische Beiträge zur Kenntnis Karolinen Archipels, Part 2. Trap, Leiden.
- . 1895. Ethnographische Beiträge zur Kenntnis Karolinen Archipels, Part 3. Trap, Leiden.
- Landström, Björn.** 1961. *The Ship*. Doubleday, Garden City.
- Larousse, Librarie.** 1950. *Atlas international Larousse politique et économique*. Larousse, Paris.
- LeBar, F. M.** 1964. The material culture of Truk. *Yale Univ. Pub. Anthro.*, No. 68. Yale, New Haven.
- Lessa, W. A.** 1950. Ulithi and the outer native world. *Am. Anthro.* 52: 27–52.
- . 1966. Ulithi: A Micronesian design for living. Holt, Rinehart and Winston, New York.
- . 1975. Drake's Island of Thieves: Ethnological Sleuthing. Univ. Press Hawaii, Honolulu.
- Lütke, F. P.** 1835–1836. *Voyage autour du monde*. 4 vols. + atlas. Didot, Paris.
- Maffei, G. P.** 1588. *Historiarvm Indicarvm. Ivinctam*, Florence.
- Major, R. H.** 1859. *Early voyages to Terra Australis*. Hakluyt Society, London.
- Meinicke, C. E.** 1869. Zur Hydrographie des Stillen Oceans. *Petermanns Mitteilungen* 15: 374–378.
- . 1875–1876. Die Inseln des Stillen Oceans. 2 vols. Froberg, Leipzig.
- Miklucho-Maclay, N. von.** 1878a. Anthropologische Notizen, gesammelt auf einer Reise in West-Mikronesien und Nord-Melanesien in Jahre 1876. *Verhand. Berl. Gesell. Anthro. Ethnol. Urgesch.* Jahr 1878: 99–117.
- . 1878b. Die Insel Wuap. *Globus* 33: 40–45.
- Müller, W.** 1917–1918. Yap. In G. Thilenius (ed.), *Ergebnisse der Südsee-Expedition 1908–1910*, II, B, II, parts 1 and 2. 2 vols. Friederichsen, Hamburg.
- Muller, F., publ.** 1894–1899. Remarkable maps of the XVth, XVIth, and XVIIth centuries.

- 6 vols. in 4. Muller, Amsterdam.
- Neyret, J.-M.** 1969a. Pirogues Polynésiennes: III. Micronésie, IIIB. Iles Marshall, IIIC. Iles Carolines. *Neptunia*, No. 93 (Supp. 17-24).
- . 1969b. Pirogues océaniques: III. Micronésie, IIIC. Iles Carolines (suite), IIID. Iles Carolines: Région orientale. *Neptunia*, No. 94 (Supp. 1-8).
- . 1969c. Pirogues océaniques. Troisième partie: Micronésie (suite), IIIF. Iles Palau et dépendances. *Neptunia*, No. 96 (Supp. 13-20).
- Nordenskiöld, N. A. E.** 1897. *Periplus: An essay on the early history of charts and sailing directions.* Transl. by F. A. Bather. Norstedt, Stockholm.
- Oca, J. M. de.** 1893. Carolinas occidentales: La Isla de Yap. *Bol. Soc. Geograf. Madrid* 34: 251-279.
- Osborne, D.** 1966. The archaeology of the Palau Islands. *Bernice P. Bishop Mus. Bull.* 230. Honolulu.
- Price, W.** 1966. *America's paradise lost.* Day, New York.
- Sapper, K. et al.** 1920a. Jap. *In Deutsches Kolonial-Lexicon*, 20: 125-127. Quelle and Meyer, Leipzig.
- . 1920b. Palauinseln. *In Deutsches Kolonial-Lexicon*, 3: 3-7. Quelle and Meyer, Leipzig.
- Senfft, A.** 1901. Über einen Besuch des Uliti-Atolls. *Deutsches Kolonialblatt* 12: 824-825.
- . 1903. Ethnographische Beiträge über die Karolineninsel Yap. *Petermanns Mitteilungen* 49: 49-60, 83-87.
- Sharp, A.** 1960. *The discovery of the Pacific Islands.* Clarendon, Oxford.
- Smith, A. G.** 1951. *Gamwoelhaelhi Ishilh Weleeya (Guide to Woleai spelling).* Trust Territory of the Pacific Islands, Honolulu.
- Somera, J.** 1715. *Relation en forme de journal, de la decouverte des Iles de Palaos, ou Nouvelles Philippines.* Lettres édifiantes . . . de la Compagnie de Jesus, vol. 11. Le Clerc, Paris.
- Sousa, L. de.** 1844. *Annaes de elrei Dom João Terceiro.* Sociedade propagadores dos Conhecimentos uteis, Lisbon.
- Tetens, A.** 1958. Among the savages of the South Seas; *Memoirs of Micronesia, 1862-1868.* Trans. by F. M. Spoehr. Stanford Univ. Press, Stanford.
- Tetens, A. and J. Kubary.** 1873. Die Carolineninsel Yap oder Guap nebst den Matelotas-, Makenzie-, Fais- und Wolea-Inseln. *J. Mus. Godeffroy* 1: 84-130.
- Thiele, P. A.** 1877. De Europëers in den Maleischen Archipel. *Bij. Taal-, Land- en Volkenkunde Nederlandsch-Indië* 25: 321-420.
- Volkens, G.** 1901. Über die Karolinen-Insel Yap. *Verh. Gesell. Erdkunde* 36: 62-76.
- Wichmann, A.** 1909. *Nova Guinea.* Vol. 1, Entdeckungsgeschichte von Neu-Guinea (bis 1828). Brill, Leiden.
- Wilson, W. et al.** 1799. *A missionary voyage to the Southern Pacific Ocean performed in the years 1796, 1797, 1798, in the Ship Duff, commanded by Captain James Wilson.* Chapman, London.

one wonders what their sources may have been. Possibly there was borrowing from one another, or even some independent inquiry, but it seems likely that there was access by some to an undisclosed original document, now lost. If such a document did once exist it was not always followed to the letter. Some accounts suggest condensation while others suggest accretions, although the latter are few and seem to argue for a fairly faithful adherence to an original source.

Geographic Clues

Any effort to identify the Isles of Sequeira must rely heavily although not exclusively on the geographic clues provided by the historians' statements. Most obvious of these is the latitude of nine or ten degrees north at which, according to Barros (second account), Galvão, and Couto, the islands were said to be located. We can place some confidence in the ability of the Portuguese to be fairly accurate in determining latitude, for at that time the cross-staff and the astrolabe had been in use for some time. Longitude, on the other hand, was another matter, the chronometer not having been devised as yet, and the Portuguese do not even provide a crude estimate of it.

Castanheda, Barros, Maffei, and Sousa do say, however, that the fusta was blown about 300 leagues from what must have been the Molucca Passage. Urdaneta says 200. The old Portuguese league was just under four land or statute miles (Sharp, 1960: 3), so the distance involved was approximately 1200 miles maximum and 800 minimum. Given the crude methods for determining the distance traversed in an hour or a day, and the conditions of enormous stress to which the men and their vessel were subjected, these distances can only be very approximate.

It is important to note that the accounts say that the fusta was carried to an open sea, in what Urdaneta says was a northeast direction. True, Barros and Sousa imply the direction was eastward, but they use the more literary terms, *nascimento do sol* and *contra o nascente*, respectively, to indicate this direction. In this instance, northeast is more credible than due east, as the latter would take one into empty space until one reached distant Kapingamarangi Atoll or the Gilberts. Moreover, the winds in August and September, when the Portuguese were attempting to return to Ternate from Celebes, come predominantly from the south and southwest in the Molucca Passage, and southeast and east, with a slight increase in southerly winds, in the ocean area as far as 10°N. of the Passage. Because of the southerly element in the wind during the two months in question, a northeast rather than a direct east direction is all the more plausible as being the path into which the fusta was forced. As an aside, it should be remarked that it was not a typhoon that drove the Portuguese so far away from their destination. A typhoon is a cyclonic wind, which in the southwest Pacific moves slowly from east to west, not the other way around. In any event, typhoons are virtually unknown in the equatorial latitudes (see Gago Coutinho, 1940: 4).

As for the return voyage home from the Sequeiras, four of the historians say the Portuguese waited until January, or four months, for a favorable wind. Barros,

Andrada, and Sousa specifically mention the monsoon, which would be consistent with our knowledge of wind change and direction. Systematic hydrographic observations made over a period of years by modern hydrographers show that in the general area between the West Carolines and the Molucca Passage the winds in January are predominantly from the northeast. They represent the Asian winter monsoon and although they slow up as they reach the equator, they are stronger, on the average, from December to March than any other seasons. North of 5° the mean wind speeds are 10 to 15 knots; south of 5° to the equator they average mainly 5 to 10 knots. All this is very favorable for a return journey. In short, wind conditions as we know them fit in with the information provided us by most of the chroniclers.

Two remaining geographical clues are at our disposal, the first being that the island group was large and the second that the fusta sailed between the islands. The latter, especially, has more significance than might appear at first glance, as we shall see later.

An ambiguous geographical feature is whether the locale of the Portuguese's sojourn was a single island or a group. Even though it is referred to as "a large island" by Barros or simply as "an island" by Castanheda, Maffei, Andrada, and Sousa, this would appear to be a loose use of the word. The terms "archipelago of islands" (Urdaneta), "some islands" (Galvão), and "many islands" (Couto) seem to be a correct description and will be here accepted as indicating what the historians had in mind, particularly in view of their use of such terms as "close together", "went between", and so on.

Notwithstanding mention of plentiful fresh water on the Isles of Sequeira by Castanheda and even "rivers of water" by Andrada, we cannot include this as one of the clues because we do not really know what these two historians had in mind. "Rivers of water" is probably a figure of speech denoting an abundance of water. Rainfall in the western Carolines is heavy, averaging for instance 147 inches annually on Palau (at Koror) and 121 inches at Yap, with some seasonal variations. Even atolls, despite the porosity of their coral rock islets and the almost instantaneous drainage that it provides, have a good supply of water due to the Ghyben-Herzberg lens underlying such islets. The underground water there has varying degrees of brackishness, which is not true of the water obtained by catchment. Conditions are of course different on the high islands of Palau and Yap. Palau has numerous small streams and rivers, as well as ponds and even a lake. Yap has no rivers but does have small streams; yet in former times these were not much relied upon for drinking, cooking, and bathing because coconuts supplied most of the drinking water, while catchment of rainwater from tree trunks supplied cooking water, and the sea provided means for personal washing. Nowhere in the islands would the Portuguese have encountered anything but a sufficiency, even during a drought.

Anthropological Clues

The cultural, anthropomorphic, and botanical traits mentioned in some of