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## Human dispersals into Micronesia

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## Human Dispersals into Micronesia

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**Abstract** Micronesia received several human dispersals in the prehistoric period. Four major movements of human dispersals into Micronesia are proposed based on the archaeological evidence. The earliest movement around 3600 B.P. to the Mariana Islands was followed by three dispersals to other island groups from west and south at different times. This provides a complicated model compared to what has been proposed by linguistic studies. The heterogeneity of Micronesia is cautiously stressed.

**Key Words:** Micronesia, peopling, human dispersal

### INTRODUCTION

Micronesia covers the northern half of the Pacific, excluding the Hawaiian islands which lie in Polynesia. The area has six volcanic high island groups and numerous low coral islands. In this paper, I grouped these islands into three, Western, Central and Eastern, for the convenience of discussing the colonization strategy of the area (see Fig. 1).

Western Micronesia is separated from the other eastern islands by the Andesite Line, and includes the Marianas, Yap and Palau. Central Micronesia includes Chuuk, Pohnpei and Kosrae as major volcanic islands. The small coral islands extending from Yap to Chuuk are also included in this area. Eastern Micronesia contains the Marshalls and the Kiribati, which consist entirely of coral atolls.

Micronesia was once described as the stepping stones to Polynesia. This view was held before the Lapita cultural complex was found in Melanesia (see Davidson, 1988). Since Lapita was accepted as the ancestral culture of the Polynesian, Micronesia seems to have been set aside in the active study of prehistoric dispersals into Oceania. With the accumulated archaeological data in Micronesia to date, we now see a complex history of the region. The area did not serve as "stepping stones" to anywhere but rather accepted several human dispersals from different directions at different times.

Before going into archaeological data, some information on the cultural background of Micronesia will be shown. Figure 2 shows the distribution of prehistoric pottery in Micronesia (Intoh, 1992). All the high islands made pottery at one time. Some of coral islands had imported pottery from the high islands nearby.

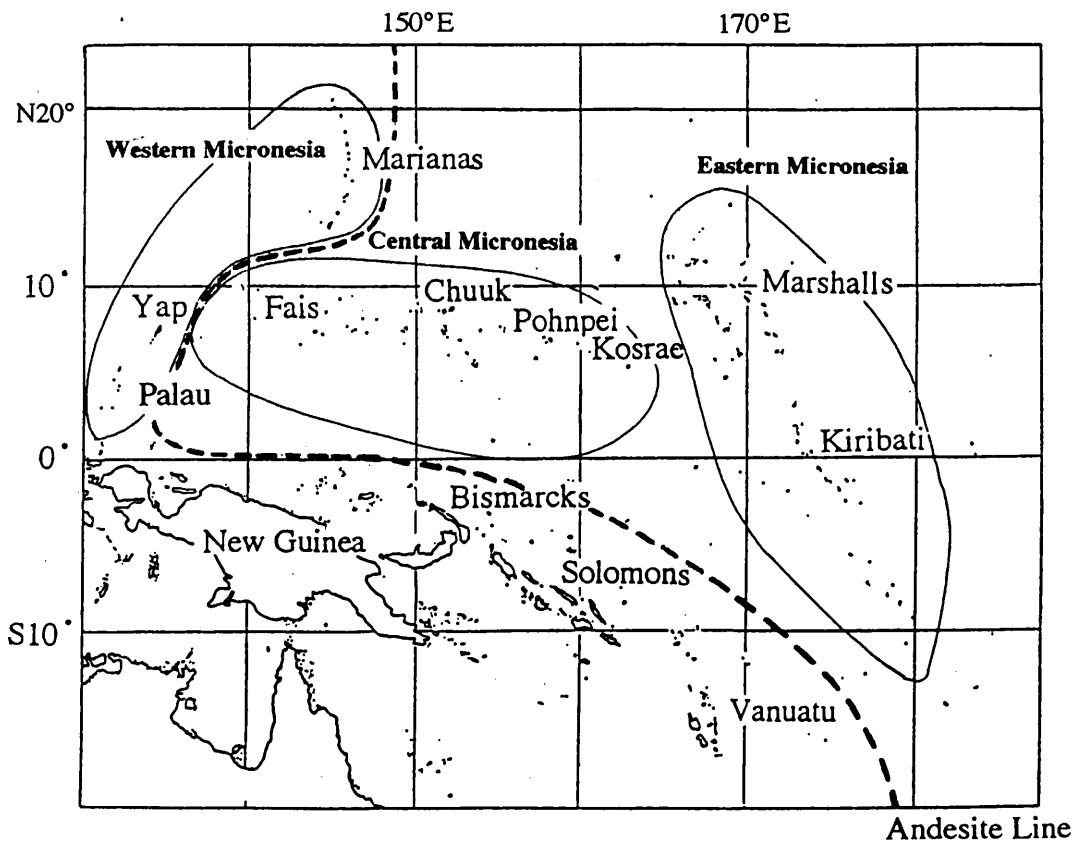


Fig. 1. Map of Micronesia, divided into three areas.

Figure 3 shows linguistic groupings in Micronesia. There are two major language groups: A Non Oceanic language was spoken in Western Micronesia while the languages grouped as Nuclear Micronesian were spoken in Central and Eastern Micronesia (Shutler and Marck, 1975). Nuclear Micronesian languages are usually supposed to have been dispersed from eastern Melanesian (south-east Solomons or Vanuatu) to Eastern Micronesia and then to Central Micronesia as far west as the outer islands of Palau (Blust, 1984; Pawley and Green, 1984). The existence of these two language groups have been considered to indicate that two major human dispersals were made into Micronesia. This is too simplistic a model when archaeological data are examined.

The earliest evidence of human settlement currently known from each island group are shown in Fig. 4. Human dispersal did not occur in Micronesia during the Pleistocene age, possibly due to the distance involved in crossing the sea from the southeast Asian rim area.

In the following sections, I would like to summarize and discuss the archaeological evidence of Micronesia and propose four major movements of human dispersals into Micronesia.

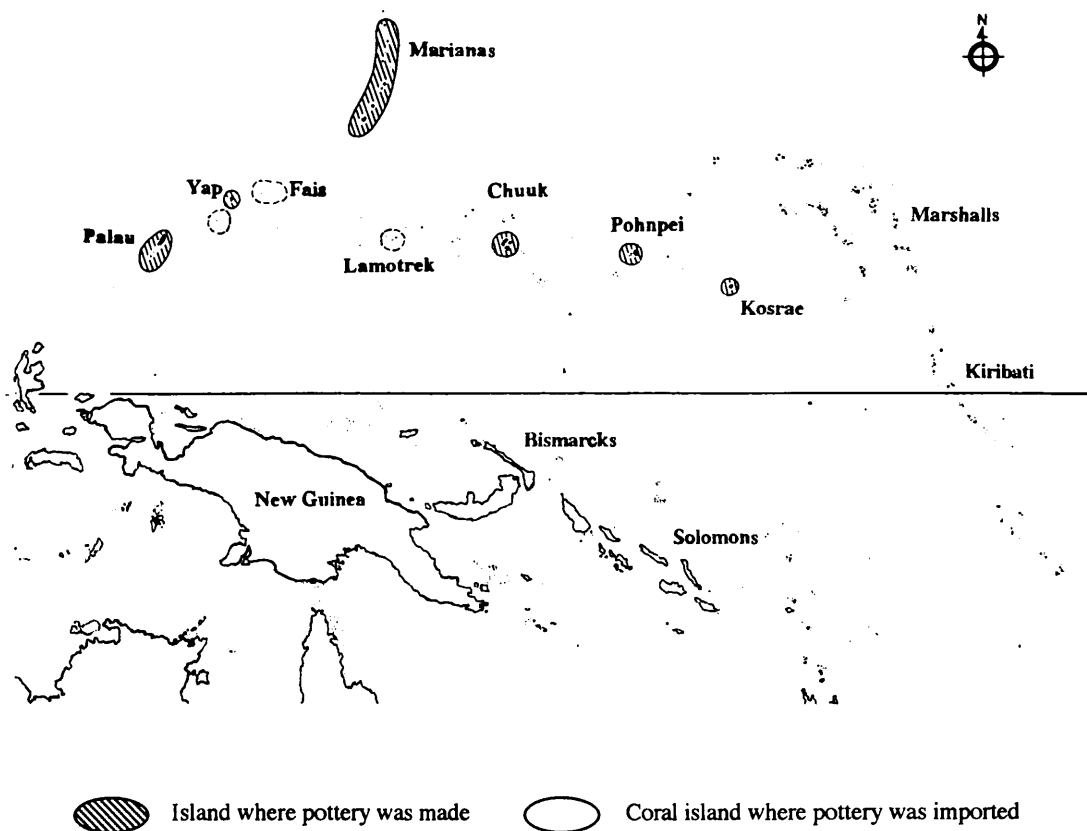


Fig. 2. The distribution of prehistoric pottery in Micronesia.

### WESTERN MICRONESIA

The earliest human dispersal into Micronesia was made around 3600 years B.P. to several islands in the southern Mariana group. There had been certain dating problems concerning the earliest evidence of the Marianas. It seems, however, fairly securely dated at Achugao site on Saipan about 3600 B.P. (Butler, 1995). This date is associated with the phase which is rich in decorated potsherds.

Early settlements in the southern Marianas have been found mainly along the sandy beach. This dispersing group is considered to have been maritime-horticulturists, as the Lapita people were in Melanesia. The technological complex possessed by the early settlers includes decorated pottery, stone and shell adzes, various shell ornaments, shell fishhooks and others (Spoehr, 1975; Ray, 1981). A number of technological attributes of the pottery share similarities with those of the Lapita tradition, such as carinated pot shape, thin and fine finished surface, tempered with well-sorted, fine calcareous sand and lime-in-filled decorative motives (Intoh, 1992). This does not, however, indicate that either of these pottery traditions derived from the other. Rather, it is possible to say that these pottery traditions share the same origin with those which existed

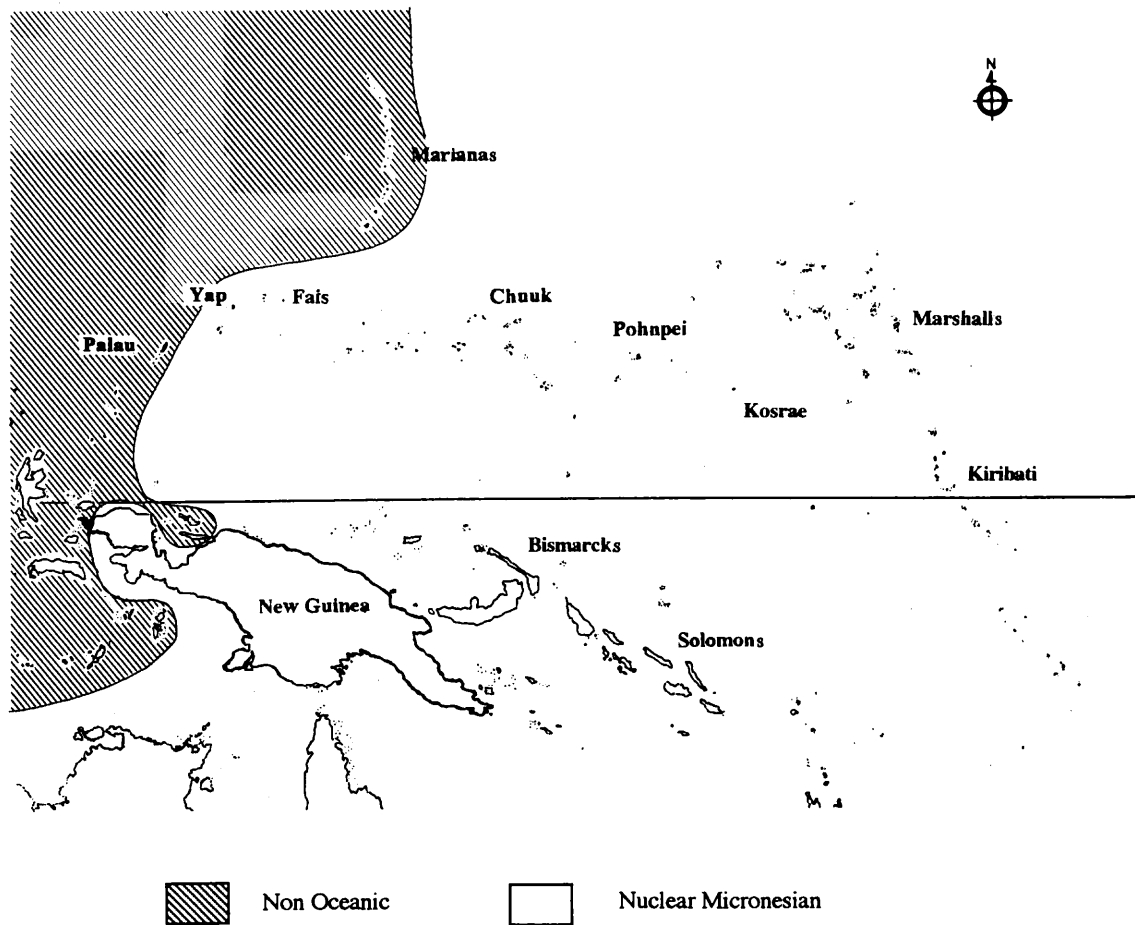


Fig. 3. Linguistic groupings of Micronesia.

somewhere in the west, as has been suggested by linguistic studies.

In this regard, the decorated potsherds excavated from Magapit shell midden in northern Luzon in the Philippines, are significant (Aoyagi *et al.*, 1991; 1993). These share very similar technological attributes with the above-mentioned two traditions such as the use of finely sorted sand temper, red-slipped surface and lime-in-filled dentate stamped decorations. Although the date associated with this Philippine pottery is not old enough to indicate the homeland of these pottery traditions, they must have shared the same technological base.

A dispersal from the north (i.e. Japan) cannot be suggested from the archaeological evidence currently available. The material culture is significantly different between these areas. However, some kind of contact between the Marianas and the Bonin islands has been indicated based on the stone adzes collected from the surface of Kita-Iwo island (Oda, 1984). Considering the absence of archaeological evidence on the major islands of Bonin islands, however, these stone adzes could have resulted from drifted voyages (Intoh, 1991).

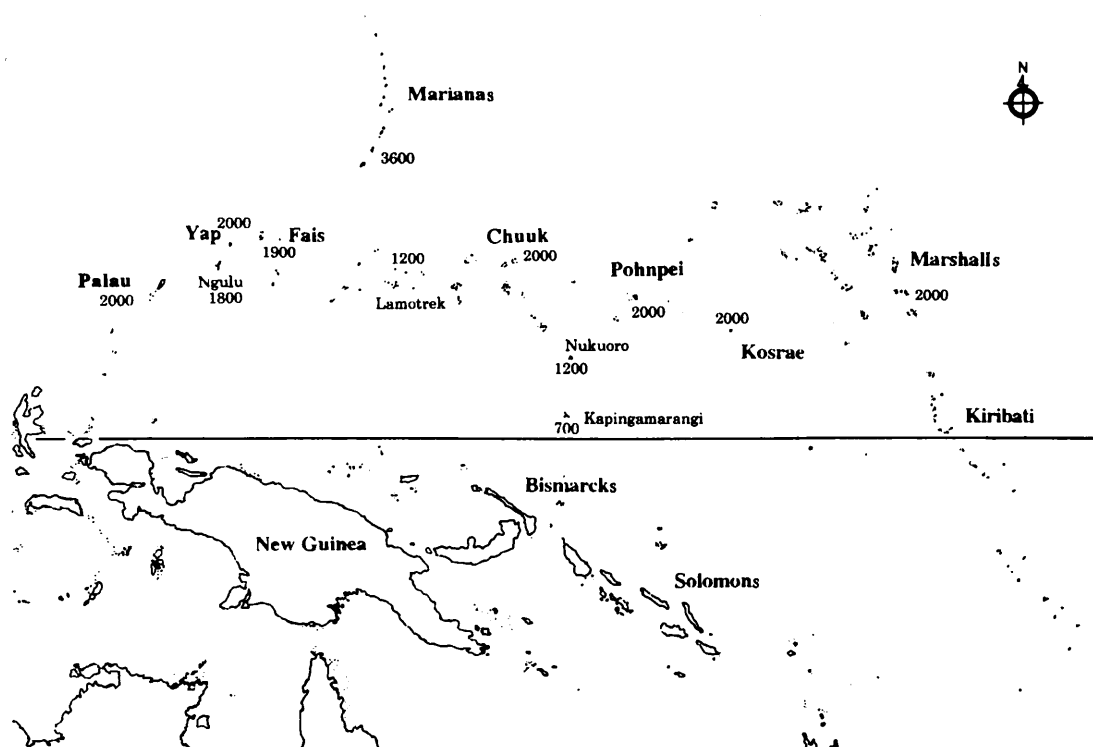


Fig. 4. The earliest dates indicating human habitation currently known from each island group in Micronesia (years B.P.).

About 2000 years ago, all the high islands in Micronesia show good evidence of human habitation. In Western Micronesia, while the Marianas have been continuously inhabited, Yap and Palau were also settled by pottery making populations. Although the linguistic studies indicate that these islands could have been settled as long as 3600 years ago, archaeological evidence does not support such an antiquity. The early dates securely associated with cultural activities range after 2000 B.P. The relationship with the Marianas is not clear but I don't think there were much contacts between these areas. This is because, the material culture other than the pottery of Yap and Palau is significantly different from that of the Marianas. For example, neither stone tools such as adzes, chisels and slingstones nor a variety of shell ornaments were made in early Yap and Palau (Gifford and Gifford, 1959; Intoh and Leach, 1985; Osborn, 1979). There is always a possibility that the earlier evidence of settling these islands has not been found (see Davidson, 1988; Irwin, 1992). However, unless a large culture change is shown to have taken place after initial colonization in Yap and Palau, cultural affinity to the Marianas is questionable.

Despite the poor archaeological evidence from early sites of Palau, I would like to indicate, tentatively, that Palau was settled from further west, such as the Philippines or the island Indonesia based on the linguistic evidence. On the other hand, it is not

yet clear as to how Yap was settled. Linguistic studies has not been able to classify the Yapese language either into Non Oceanic or Oceanic (Pawley and Green, 1984). I may have to leave this important question open until more linguistic as well as archaeological evidence is obtained<sup>1</sup>.

### CENTRAL MICRONESIA

Three high islands in the east, Chuuk, Pohnpei and Kosrae, were settled around 2000 B.P. by groups of people who made pottery. The three pottery traditions share similar technological attributes, particularly the use of the minute calcareous sand temper. No decorated potsherds are found except for some notched rim sherds excavated from Chuuk (Shutler *et al.*, 1984) and Pohnpei (Ayres and Bryson, 1989; Athens, 1990a). Pottery making soon ceased on Chuuk and Kosrae (Athens, 1990b) but continued on Pohnpei until about 800 B.P.

Where were these pottery making population dispersed from? Three possibilities of dispersal direction are considered here. One is that the early settlement of these high islands was made from the east, the second was from the south, and the third was from the west.

The first possibility has been indicated by linguistic studies. Nuclear Micronesian language spoken in Micronesia shows greater homogeneity in the western part while sharing greater diversity to the east (Bender, 1971, p. 457). It was thus suggested that the Marshalls and the Kiribati were settled from eastern Melanesia first, about 3000 years ago (Shutler and Marck, 1975). A further dispersals were then taken from these islands to the west. This possibility cannot be accepted when archaeological data, particularly the art of pottery making, is considered. This is because pottery was not made in Eastern Micronesia where the islands are entirely of coral.

The second possibility is favored by the excavators in Central Micronesia based on the globular pot shape and notched rim which exhibits some correlation to Lapita plain tradition in Melanesia (Ayres, 1990, Ayres and Bryson, 1989; Athens, 1990b). This dispersal route is currently popular among archaeologists (for example, Spriggs, 1984; Craib, 1983; etc.). However, notched rims seem to appear later in the pottery assemblage from Pohnpei (Ayres, pers. comm.). If the initial dispersal to Pohnpei is suggested to be earlier than 2000 B.P. (Ayres, 1990, p. 190), more evidence is necessary to indicate the southern origin. There is thus not enough evidence to conclude that the dispersal was made only from the south.

The third possibility is that the dispersal was made from the west. This view was suggested based on the use of similar technology in pottery makings: admixing minute calcareous sand as a temper (Takayama, 1984). Certainly, this basic technique was shared by all the early pottery traditions in Micronesia except in Palau. Considering the fact that the technology was transformed eventually into different forms in the history of various pottery makings in Micronesia (Moore, 1983; Intoh, 1990; Ayres and

Bryson, 1989), the shared pottery making technique at the early stage could reflect a common cultural tradition. There is, therefore, no archaeological reason to reject the possible dispersal from west to east, despite the linguistic evidence suggesting the east to west movement. The recent archaeological excavation on Fais island has provided supportive data for this supposition.

Fais is a raised coral island in Central Micronesia, lying about 180km east of Yap. People on Fais speak Nuclear Micronesian language. The deep stratified coastal sites have provided significant information on the question here of whether the dispersal was made from west or from east in Central Micronesia.

Fais has been settled during the last 1900 years. This is as long an occupation history as those on the high islands nearby. The earliest settlers brought in pottery, stones, domesticated animals, rats, etc. (Intoh, 1994; Intoh, in press). Two places of archaeological evidence clearly suggest the early contact between Fais and Yap. One of these is pottery. A small number of Yapese potsherds have been excavated from the earliest cultural deposit. The other is a small Greenschist stone which was also excavated from the earliest sequence (Kawachi, n.d.). Greenschist is the major geological component of Yap island and does not exist in any of the other Micronesian islands.

The cultural contact between Fais and Yap was not confined to the earliest phase. A continuous cultural contact is shown by the Yapese potsherds excavated throughout the cultural sequence. This is intriguing indeed because the linguistic relationship of Fais is clearly towards the east.

The next unexpected finding from Fais is the evidence of a set of domesticated animals. It is known that dogs, pigs and chickens were brought into Oceania from Southeast Asia as domesticates by the Austronesian-speaking people. However, none of Micronesian islands have evidence of possessing all of these. Only dogs have been known in all the high islands such as Chuuk, Pohnpei and Kosrae since 2000 B.P. (Shutler *et al.*, 1984; Athens, 1990a, p. 29; Athens, 1995). Prehistoric pigs were known from Palau but dated later (1100 B.P.) (Intoh, 1986).

The distribution pattern of excavated bones indicates that the whole set of domesticated animals were kept on Fais from the earliest period. The source for the domesticated animals of Fais is open to question, but the possibility of these being derived from the west is high. This supposition is made based on the Asian rats also excavated from Fais. Abundant rat bones were excavated throughout the occupation history. The identification of the rat bones revealed that these are *Rattus tanezumi* which is indigenous to Southeast Asia and has not been reported from Melanesia (White and Flannery, n.d.). This is a good indication that the other domesticated animals were also brought in from the west.

There is now a problem as to the source of these domesticated animals and rats that were brought into Fais. Considering the continual cultural relationship seen in the imported pottery, Yap is the most plausible island for the animals. However, archaeo-



logical data from Yap are not rich and sufficient at present. Confirmation of the assumption has to be kept open until more data are reported from Yap.

The Fais data presents us with an early movement from west to east beyond Western Micronesia. Although the geographical position of Fais is close to Yap, this could be good evidence to support the western origin of the early settlements in Central Micronesia.

In sum, I would like to indicate a possibility of double dispersal routes into Central Micronesia: from west as well as from south. Of these, the cultural and linguistic influence from the south have been stronger and exceeded over the western input in the subsequent history.

More than a century later, there was other dispersal into Central Micronesia. This was made by a group of Polynesian speaking people to two small atolls, Nukuoro and Kapingamarangi. According to the linguistic studies, the dispersals were made at different times from Samoa via Tuvalu (Bayard, 1976). Nukuoro had been inhabited before the Polynesian arrival (Davidson, 1971) while Kapingamarangi was not (Leach and Ward, 1981). This Polynesian movement did not continue to the islands further north.

#### EASTERN MICRONESIA

Several dates are now available from the Marshall islands. A series of early dates, ranging from a little before 2000 B.P. are reported from Bikini atoll (Streck, 1990), Majuro atoll (Riley, 1987, p. 242) and Kwajalein atoll (Shun and Athens, 1990) in the Marshalls. Although the earliest date of  $3450 \pm 60$  B.P. (Beta #15043) from Bikini atoll remains questionable, it is almost certain that Eastern Micronesia has been settled for over 2000 years. The possible dispersal route to the Marshalls is from the south as has been indicated by linguistic studies as was mentioned earlier.

#### DISCUSSION

We have a variety of data at hand now to discuss how human dispersals were made into Micronesia. I would like to propose four major routes by which human populations dispersed into Micronesia.

The earliest movement was made to the Marianas around 3600 B.P. (Fig. 5). This is about the same time when the Lapita culture appeared in island Melanesia. It is possible but unlikely that a branch of Lapita population dispersed north to the Marianas from the island Melanesia. If such a dispersal was taken place, the islands between these islands could show some indication, but which is not the case. Wherever the homeland of the Lapita culture was, that could have been the homeland of the earliest population of the Marianas, too.

The second dispersal occurred from the west to Palau about 2000 B.P. or a little earlier (Fig. 6). Yap was also occupied about the same time from unknown area. A cultural

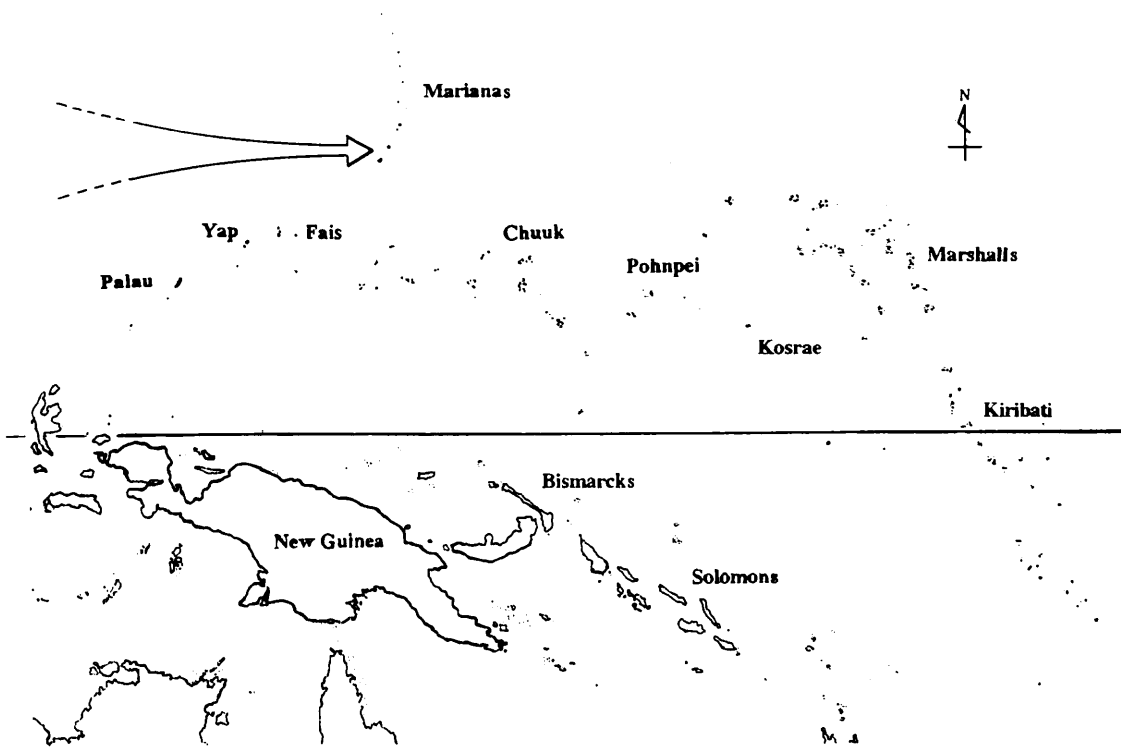


Fig. 5. The first human dispersal to Micronesia was made to the Mariana islands around 3600 B.P.

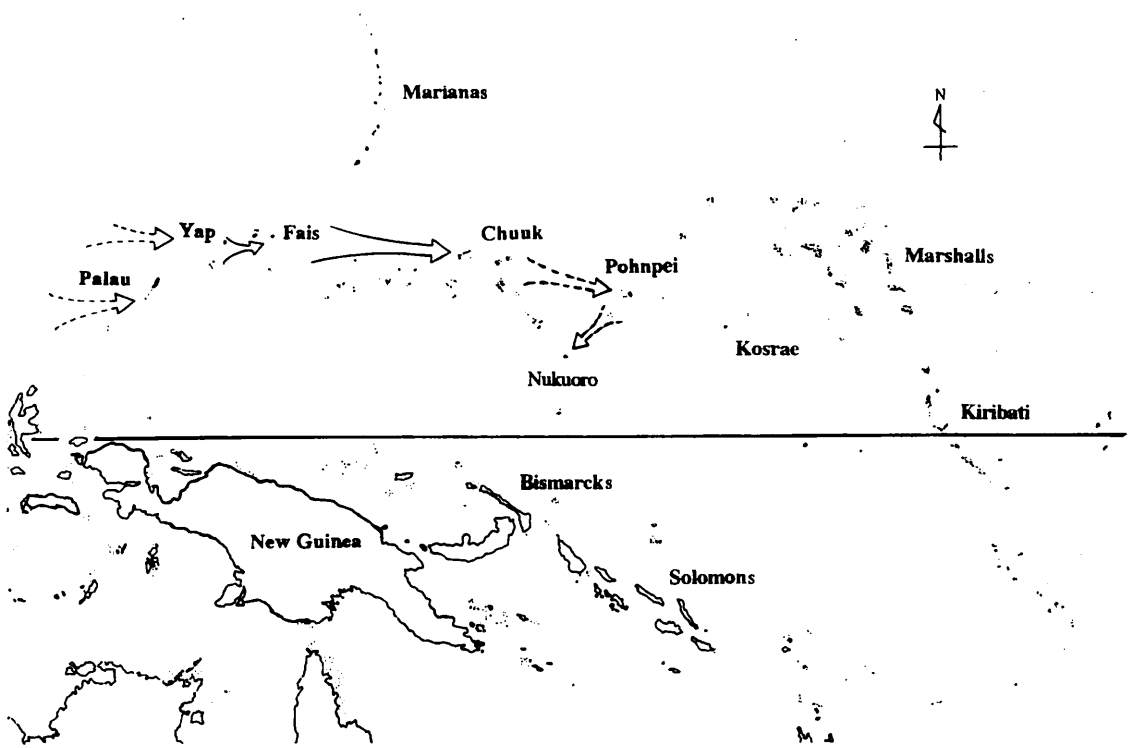


Fig. 6. A dispersal from west was made to Palau and Yap around 2000 B.P.

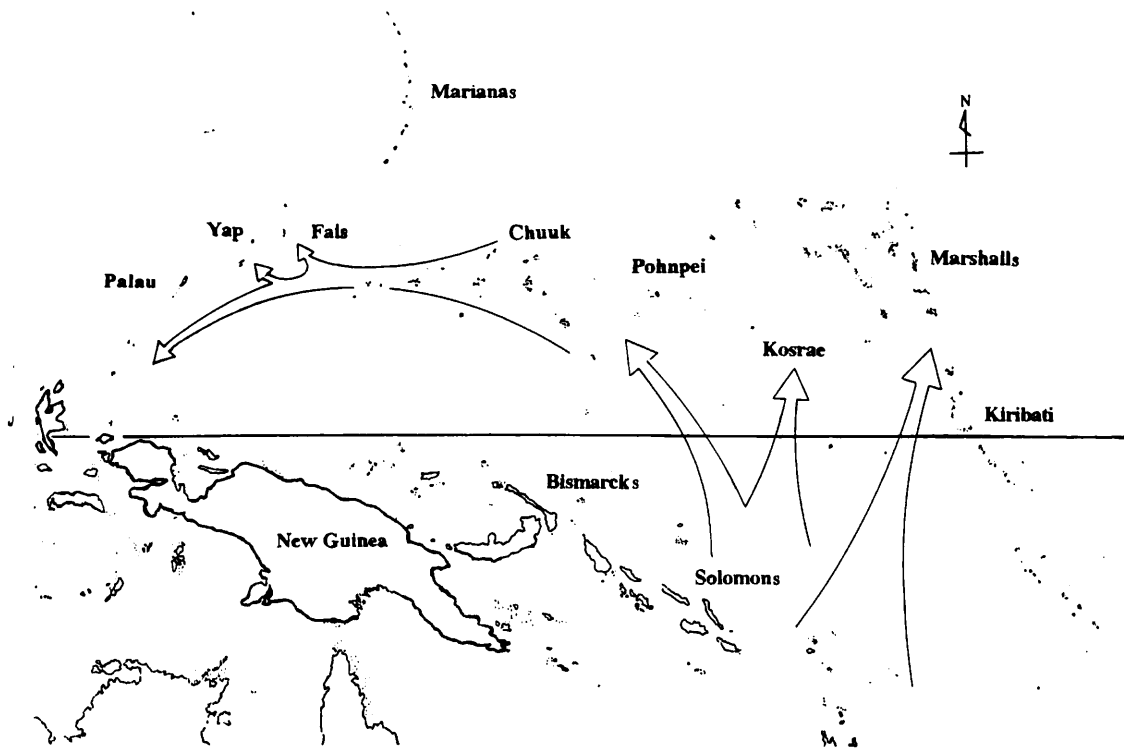


Fig. 7. Several dispersals from south were made to the Marshalls and to the Caroline islands around 2000 B.P.

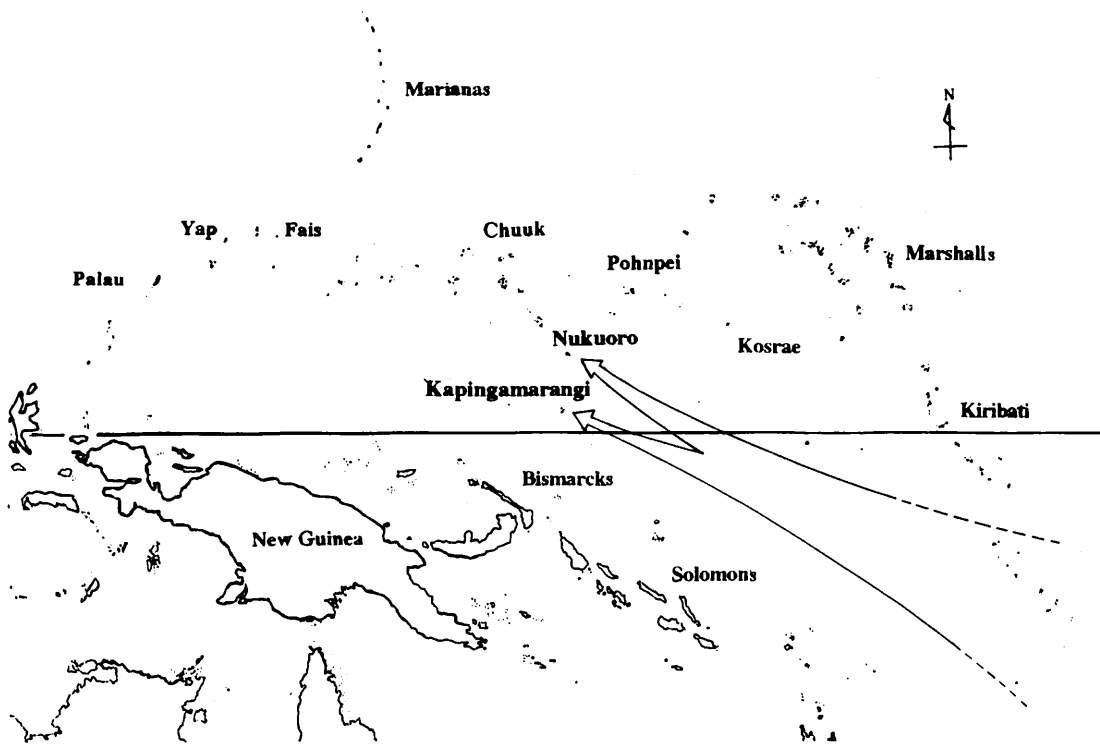


Fig. 8. Polynesian dispersals were made to Nukuoro and to Kapingamarangi.

movement from Yap to east can be suggested based on the shared technology of pottery making and Asian rats. This dispersals could have been made as far east to Pohnpei.

The third dispersal was made to Eastern and Central Micronesia around 2000 years ago (Fig. 7). This was about the same time when Yap and Palau were settled, but the homeland was different. Separate direct dispersals were also made from southeast Solomons/Central Vanuatu region to Eastern and Central Micronesia. There was then an effective dispersal within Micronesian from east to west (high islands to coral islands in Central Micronesia and southern Western Micronesia) which formed the current distribution pattern of Nuclear Micronesian language. The date associated with this movement is uncertain.

We must, however, remember the biological evidence here. The close affinity of the Micronesians to the Polynesians indicates that the population movements from Melanesia to Micronesia did not have much genetic influence.

The fourth movement was made from Polynesia to the southern Central Micronesia, Nukuoro and Kapingamarangi (Fig. 8). These Polynesian outliers did not seem to go further north in Micronesia.

Was there no influence from Micronesia to anywhere? There are some suggestions that Melanesia received certain influences from Micronesia around 1000 B.P. This is indicated by the sudden appearance of certain shell adzes made of *Terebra/Mitra* sp. in some Melanesian cultures. *Terebra/Mitra* sp. shell adzes were certainly popular in Micronesia during the ethnographic time. However, the antiquity of this shell tool in Micronesia is questionable. None have been found from the early pottery bearing site in Chuuk (Shutler *et al.*, 1984) or from the early cultural phase of Nukuoro atoll (Davidson, 1992). It is thus more possible that this kind of shell tool was also brought into Micronesia from Melanesia and not vice versa. I have discussed this problem in a separate paper and would not go into any further here (Intoh, 1996).

The cultures of Micronesia were formed by complex movements of human populations. This complex history of the region should be kept in mind when one refers to the culture or people of Micronesia. The term "Micronesian" means nothing more than the people who lived or are living in the region called Micronesia. Therefore, it is advisable that one should not use data from one area of Micronesia as a representative of the whole Micronesian culture or people.

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**NOTE**

1. A recent palaeoecological research on Yap has demonstrated that forest destruction, accompanied by fire, took place about 3300 B.P. (Dodson and Intoh n.d.). This evidence will not, however, contradict to the possibility that Yap was settled separately from the Marianas for the reasons mentioned in the text.