Colonisation of Mariana Islands: New evidence and implications for human movements in the Western Pacific

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Introduction

Within the last five years, archaeological investigations on Saipan, Tinian and Guam has changed our understanding of the early period of human occupation in the Mariana Islands (Figure 1). This work has not only extended the antiquity of human presence in these islands, it has provided a more detailed sample of the cultural assemblage associated with this early settlement. While increasing our knowledge of the prehistory of the Marianas, these new data, at the same time, offer important implications for human movement in the western Pacific. This paper provides a brief overview of recent findings and discusses possible origins of the founding population in the Marianas and the implications this has for general movement within the western Pacific.

Early sites in the Mariana Islands

Two sites on Saipan, Chalan Piao and Achugao, are now dated to between 3000- 3600 cal BP; the calibrated age range at Unai Chulu, on Tinian, straddles 3000 BP. The assemblage recovered from these three sites include finely made pottery, much of it red-

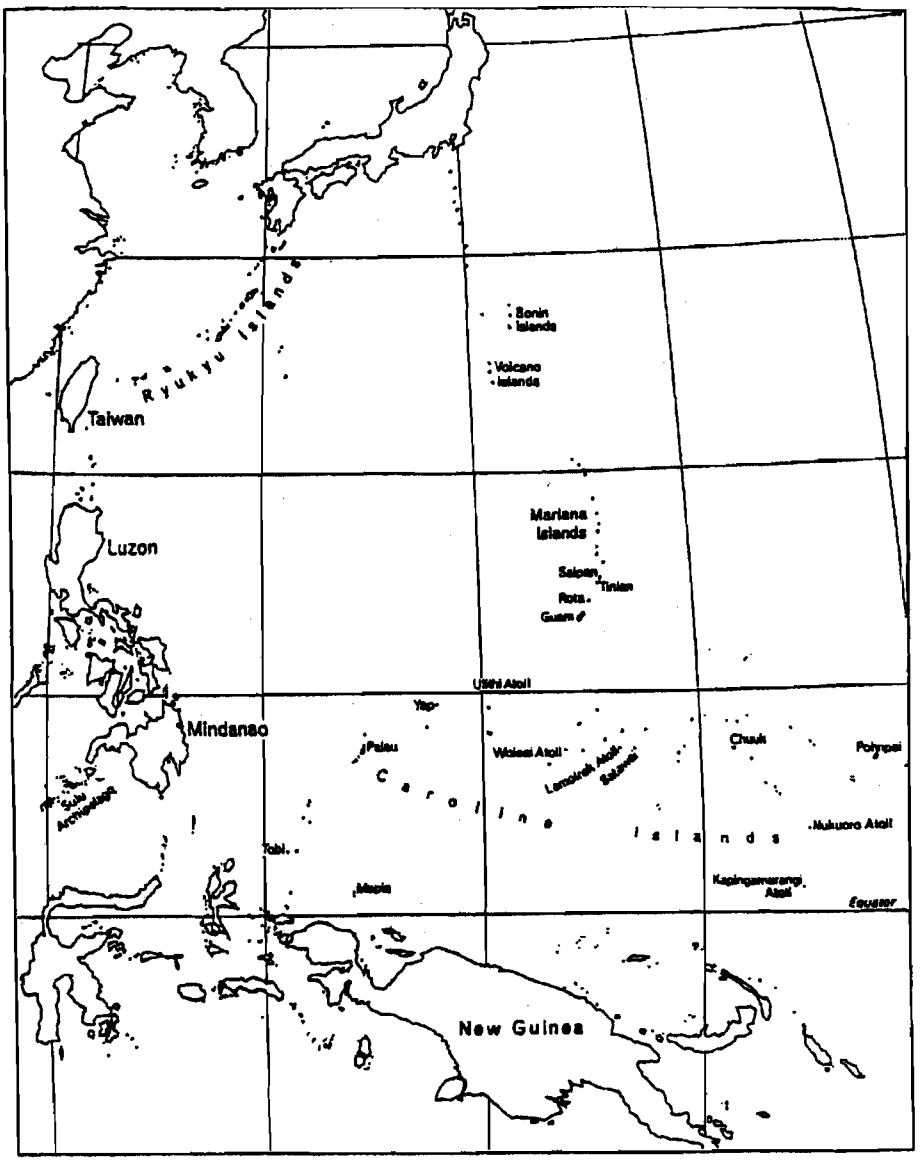

Figure 1
Mariana Islands in the Western Pacific.

slipped, with a small percentage of sherds exhibiting finely incised and stamped decorations. Also presents in these deposits are a variety of shell ornaments manufactured almost entirely from Conus spp. What makes these three sites unique in the Marianas is that, in addition to their antiquity, they are the first to demonstrate the presence of decorated pottery in the earliest levels.

Chalan Piao is located at the southwest corner of Saipan. Archaeological deposits uncovered during recent excavations are described as reworked, although the 14C dates from two combined charcoal samples, collected from the upper and lower limits of the early period deposit are in chronological order (Moore *et al.* 1992). The calibrated dates bracket a maximum period of nearly 800 years between roughly 2900 - 3600 cal B.P. (All dates presented here are calibrated unless otherwise noted.) Ironically, this is the same site that Spoehr (1957) reported to be dated to about 3400 B. P. on the basis of what has subsequently turned out to be a dubious shell date.

An important aspect of the analysis of the early assemblage recovered from Chalan Piao was the documentation of the changes in decorative motifs over time. Moore *et al.* (1992) found that the lowest levels within the early deposit contained pottery decorated with «fine-lined motifs» containing fields of stamped designs. This decorative technique gives way in the upper levels to more bold, incised designs that lack the stamping and more closely resemble the range of decorations, e.g., circles, chevrons, straight lines, first reported by Spoehr (1957).

Achugao is situated along the northwest coast of Saipan. Of five dates, all from charcoal, associated with early deposits, the oldest two, near the base of the deposits, produced uncalibrated dates of 3470±120 B.P. (Beta-36191) and 3120±50 B.P. (Beta-36190). A weighted mean of 3174±47 B.P.was calculated and subsequently calibrated to nearly 3400 cal B. P. The three younger dates, all post-3000 B. P., are in a more disturbed context making it more difficult to determine the upper age limit of the early period.

From his relatively large sample of 143 decorated sherds, Butler (1993) identifies two types of early fine-lined decoration - Achugao Incised, similar to the dentate-stamped ware described by Moore *et al.* and San Roque Incised, distinguished by the presence of curvilinear designs and small circles. Almost all (90%) of Butler's sample of early decorated sherds fall into the Achugao Incised variety with most (90%) of these exhibiting rectilinear designs. However, early decorated sherds form only a very small percentage of his sherd sample; most are plain though many contain a red-slip.

Limited subsurface testing at Unai Chulu, a small open beach along the northwest coast of Tinian has recently yielded three decorated sherds from a stratigraphic context dated between 2800 - 3200 B.P. (Craib 1993). One of the sherds exhibited a stamped, lime-filled design of the Achugao Incised variety (Figure 2). Although this is not a true "dentate" stamp in that the small punctations are circular rather than rectangular, rectilinear punctations have been documented at other sites in the Marianas.

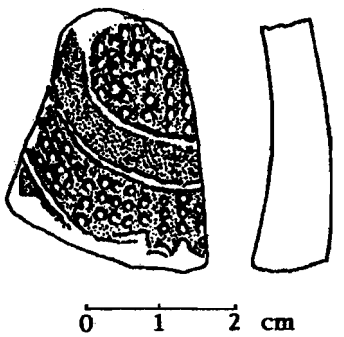

Figure 2
Stamped sherd
from Unai Chulu,
Tinian

The other two decorated sherds from Unai Chulu contained lime-filled circles. These sherds are virtually identical to decorated sheds reported from the undated Taga site located on the southwest coast of Tinian. Further excavation at this site has produced a much larger sample of these early decorated sherds (Hunter-Anderson pers. comm.)

Fine-line incised sherds have also been found at other, undated, sites on Saipan and Guam. The distribution of these early sites is skewed towards Saipan and Tinian. The reasons are unclear but it cannot be attributed to differential sampling since Guam has received the bulk of archaeological attention. The absence of early sites on Rota is intriguing and may not be simply a product of differential sampling; indeed, much of the north coast has now been sampled. The lack of pre-2500 B.P. sites appears real and may relate to the local geomorphological processes, i.e. strand creation and stabilisation, than to a function of sampling.

The next most common class of artifact from the early deposits are shell ornaments, virtually all have been shaped from Conus (Figure 3). These include disc-like beads, rectilinear pendants, bracelets, rings and circlets reported from Chalan Piao and Achugao and Unai Chulu.

Interestingly, no adzes have been found in the early deposits and, indeed, as Butler (1993) has pointed out, virtually no Tridacna has been reported from any of the early sites. However, it must be emphasised that the volume of early deposits excavated to date is extremely small.

Additional, though indirect data suggesting human presence in the Marianas by 3500 B.P. comes from swamp core samples reported by Athens and Ward (1993). These were taken from Tipalao Marsh on the central west coast of Guam, immediately north of Agat Bay. Dates from the core indicate a time span of 7000 years. A marked increase in the rate of charcoal deposition occurs in the core at about 3500 B.P., which they interpret as indicating the appearance of humans.

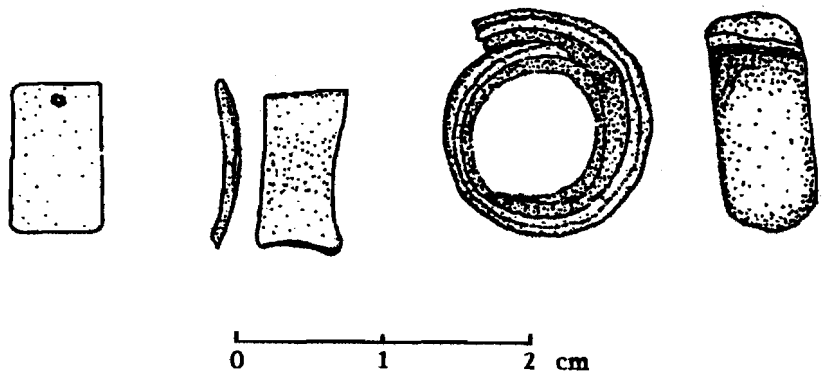

Figure 3
Conus ornaments

It is becoming apparent that among the earliest dated cultural deposits in the Marianas, the most intricately decorated, that is, dentate-stamped, pottery occurs only in the lowest levels. Associated with these ceramics is an array of Conus shell valuables. Thus it is most likely that this assemblage was not an indigenous development, but rather arrived with the first settlers.

Origins

The question of origins always proves to be intriguing and brings a variety of specialists into play. Physical Anthropologists have yet to provide us with any help on origins though this has not been for their lack of trying. Depending upon the researcher, the portion of the skeleton being examined, and the statistical package utilised, people came to the Marianas from somewhere between Borneo and Japan. It is hoped that DNA analysis may prove more enlightening regarding regional genetic relationships.

The linguists have been of only slightly more help. No linguistic homeland of Chamorro has been identified, though most opt for the Philippines (e.g. Bender 1973; Witucki 1974). However, more recent studies (i.e. Starosta and Pagotto 1990; Starosta 1992) have argued that the linguistic features of Chamorro, could equally be taken to argue for a closer relationship with the aboriginal languages of southwest Taiwan thus seeing

Chamorro as an early offshoot of the Proto-Formosan language from which languages in the Philippines also developed.

It is the archaeological material that offers the most direct evidence though this too does not provide any specific information. General parallels with the early decorated ware in the Marianas, can be found within several areas of southeast Asia. Virtually anywhere between Taiwan and southern Indonesia will exhibit similar pottery designs.

The sites usually compared with the early Marianas material include the Sanga Sanga rockshelter (Spoehr 1973) located at the southern end of the Sulu archipelago, Batungan Caves, central Philippines (Solheim 1968) and, more recently, Lal-lo, in northern Luzon (Thiel 1989; Aoyagi *et al.* 1993). Archaeologists such as Solheim and Thiel argue that the general similarities in pottery and other artefact types coupled with their widespread distribution suggests various independent trade networks operating in the Philippines, extending also into Indonesia by at least 5000 B.P.

Given the linguistic possibility of a Taiwanese connection it is intriguing that some Yuan Shan pottery designs from Taiwan are also similar to the Marianas. However, decorated pottery here may post date its occurrence in the Marianas (Spriggs 1989) and it does not appear to be associated with any shell technology. At present, Taiwan seems a less likely option, but one requiring further investigation.

Currently, no data exist which clearly indicate the direction from which the Marianas were settled. What is apparent, however, is that a stepping stone model of settlement is unlikely. Such a model predicts that people would move across the shortest possible sea routes. This would involve people coming to the Marianas from either the north, via the Bonin and Volcano Islands or from the south, through Palau, Ngulu Atoll, Yap, and Ulithi Atoll. A crucial assumption of such a model has been argued by Irwin (1992:126) who states that "earlier sites can be expected in Belau and/or Yap; the earliest of them perhaps even slightly older than the Marianas." That is, such a model requires human presence in Palau and Yap between 4000-3500 B.P.

Yap and Palau, while yet to yield dates as old as the Marianas, nevertheless, have been argued to have a similar antiquity based on the unfounded assumption that all of the western islands would have been settled at about the same time in this stepping stone fashion (e.g., Osborne 1958, 1966, 1979; Takayama 1979; Irwin 1992). Currently, no data exist to suggest that the Marianas were settled from either the north or south. Not only do dates from Palau and Yap indicate that human occupation of these island groups begins no more than about 2000 years ago, the assemblages associated with the earliest levels in these islands bear no similarities to assemblages from any time period in the Marianas nor are there any similarities in the reported assemblages from the islands north of the Marianas.

While an argument could be made that sampling has been far greater in the Marianas than these other areas, I would point out that pre-2000 BP deposits in the Marianas were

found very quickly and are a common feature of the archaeological landscape though, admittedly, it has taken four decades to locate the pre-3000 BP deposits. Nevertheless, given the lack of any similarities within the earliest assemblages from Palau, Yap and the Marianas, and the linguistic distance between each, it is unlikely that they share similar settlement histories.

The Philippines are often proposed as the area from which the Mariana Islands were most likely settled (e.g., Bellwood 1985), a proposition not inconsistent with linguistic and archaeological data. However, no one has explicitly explored the implication this has for human movement in the Pacific around 3500 years ago. Even if the shortest route was crossed, the settlement of the Marianas from the Philippines would have involved an open ocean crossing of about 2,600 kilometres. This is about three times the distance of 950 km comprising the "water gap" present in eastern Melanesia, between Vanuatu and Fiji which Green (1979:47) has argued "presented a significant barrier to two-way voyaging and constitutes a significant break in the Lapita exchange network across which few, if any, goods flowed". This Melanesian gap may not have been crossed until about 3000 B.P., leading Keegan and Diamond (1987:57) to state that the widest gap breached anywhere in the world by 3000 B.P. was the 900 km "long gap" in Melanesia. I argue here that, based on present evidence, the Mariana Islands were settled by at least 3500 B.P. and the initial settlers navigated across more than 2500 kilometers of open ocean.

Implications for human movement in the Western Pacific

There is little doubt that the assemblage associated with the early dates represents a movement of people into the Marianas between 3500-4000 years ago. No evidence exists of an earlier occupation, preceramic or otherwise.This may hold an important implication for a current debate among Melanesianists which focuses on whether Lapita is a single assemblage representing a distinct group moving into western Melanesia or a product of accumulation of assemblages from various groups both within, and external to, Melanesia and thus represents an assemblage having no specific ethnic identity. While data from the Marianas will not directly resolve this controversy, it does, at least, demonstrate that by 3500 years ago, people having an assemblage virtually identical to that found at Lapita sites were moving eastwards into the Pacific.

To more properly understand the role of the Mariana Islands in the prehistory of the western Pacific requires a shift in geographical perspective. Rather than viewing this

island group as sitting at the northwest corner of "Micronesia", a geographical area with which the inhabitants of the Marianas appeared to have had minimal contact in prehistory, we must, instead recognise its place within the context of insular Asia (Figure 4).

To be sure, the settlement of the Marianas was an event quite distinct from what was occurring in Melanesia. However, data now suggest that movement into the Pacific perhaps as early as 4000 years ago may have involved a larger scale process than originally considered and that it was not channelled solely through Melanesia. This supports the suggestion of Theil's, and others, of a widespread distribution of this assemblage in insular southeast Asia since it is unlikely that western Melanesia and the Marianas were reached by people emanating from the same local region.

The new data from the Marianas has, of course, provided us with many more questions than answers. However, the northwestern Pacific has now been brought much closer into the Big Picture of western Pacific prehistory.

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