

Mariana Islands Archaeology  
A Case Study from Gognga-Gun Beach, Tumon Bay, Guam

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## ABSTRACT

Micronesian archaeology is at the crossroads. Archaeology in Micronesia, traditionally viewed as a conservative endeavor undertaken by relatively few researchers, has become a dynamic discipline in recent years involving a number of research scientists. Guam, the largest land mass in Micronesia which is adjacent to the Japanese Archipelago, is playing a key role in transforming the image of Micronesian archaeology from that of a slow-developing to a fast-growing academic undertaking in the western Pacific. Currently there are more than 100 separate archaeological projects in progress on Guam.

Since 1987 the Micronesian Area Research Center has been conducting a long-term multi-disciplinary investigation of an ancient Chamorro village site at Gognga-Gun Beach at the northern end of Tumon Bay on the leeward side of Guam in collaboration with the Bernice P. Bishop Museum in Hawaii. The multi-disciplinary research team for the project includes archaeologists with varied expertise, ranging from fishhook typology to computer-assisted database technology. The team also includes biological scientists whose specialities range from human dentition, paleo-epidemiology, and cranial morphology to various aspects of marine biology. In the course of integrating data from a variety of scientific disciplines, the project hopes to systematically describe the culture, society and population of ancient Chamorros on Guam. In addition, the possible cultural relationship between the Marianas and the southern Japanese islands is explored.

Field investigations that incorporated a high-intensity surface survey, test excavations and extensive areal excavations yielded a total of 33 prehistoric and historic sites within the 100,000 square-meter study area at Gognga-Gun Beach. One of these sites, Locality Y, which primarily represented an ancient Chamorro habitation area was extremely rich in cultural remains that included megalithic latte stones and domestic activity loci such as fishhook manufacture areas and food preparation/cooking areas. In addition, more than 100 human skeletal remains were unearthed during the field work conducted in 1988 and 1989 at Gognga-Gun Beach.

In the paper prepared by the principal investigator of the project, field methodology, radiocarbon chronology and preliminary observations concerning the material culture and settlement pattern at Gognga-Gun Beach are discussed. Preliminary results pertaining to the skeletal remains are presented by Mr. Bruce Anderson of the University of Arizona following the archaeological discussion.

## Introduction

Immediately to the south of the Izu and Ogasawara Islands lie a group of fifteen islands that constitute the Mariana Islands (Fig. 1). The Mariana Islands represent one of several major island groups in Micronesia that additionally include the Caroline Islands, the Marshall Islands, the islands that are a part of Kiribati, and Nauru. Although there are more than 2,300 islands in Micronesia, the majority of the islands are small and uninhabited (Bryan 1971). The island of Guam, which is situated at the southern end of the Marianas Archipelago, is the largest land mass in Micronesia, having an area of 214 square miles (554.2 square km). Today, Guam is inhabited by approximately 120,000 people with the most dominant ethnic

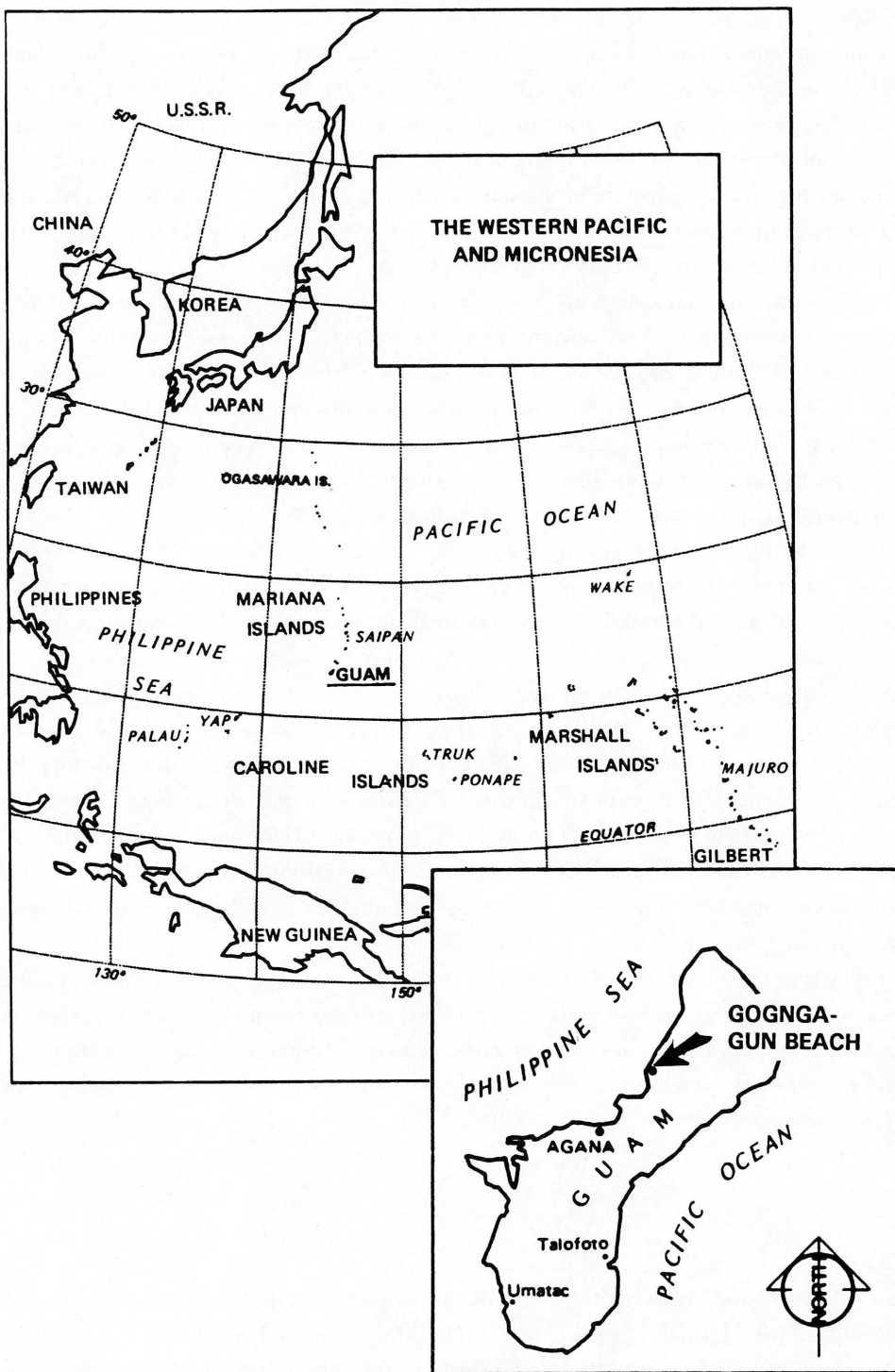


Fig. 1. Map showing the location of Gognga-Gun Beach on Guam in the geographic context of the western Pacific and Micronesia.

population as being that of the indigenous Chamorros. (To the Japanese public, Guam is perhaps best known as one of the favorite destinations for honeymooners since the 1970s. By air, flying time is less than three hours from Osaka to Guam.) In this presentation, I wish to provide preliminary observations of archaeological findings unearthed at an ancient Chamorro settlement site at Gognga-Gun Beach on the leeward side of Guam, dating back at least to the Latte Phase (9th-17th Century A. D.) in the Marianas prehistory.

### Research Design and Objectives

The initial archaeological research at Gognga was undertaken shortly after the end of WWII when U. S. military personnel led by Douglas Osborne conducted a survey and limited test excavations in the area (Osborne 1947). Osborne's survey revealed that megalithic house foundations were present in the sandy coastal plain at Gognga below the uplifted Plio-Pleistocene limestone plateau that reaches more than 60 meters above sea level. The megalithic house foundations, known in the Marianas as latte stones, were carefully mapped and photographed by Osborne's team, and attempts were made to restore the latte with the assistance of Japanese POWs. The latte stones surveyed by Osborne included four 12-shaft latte sets, four 10-shaft latte sets and one 8-shaft latte set. Test excavations conducted by Osborne showed that subsurface cultural deposits were present containing pottery, lithic artefacts and shell midden material. In addition, prehistoric human remains were uncovered in the vicinity of the latte stones.

In the summer of 1987, more than 40 years after the initial survey conducted by Osborne, the present author undertook a survey of the Gognga Cove employing a variable sampling strategy, from the coast to the cliffline between Bija Point and Gognga Point, at the request of the Department of Parks and Recreation of the Government of Guam (Kurashina et al. 1987a). Gognga Cove measures approximately 500 meters between Bija Point to the north and Gognga Point to the south. The width of the Cove from the shoreline to the base of the raised limestone terraces is 300 meters while the distance from the shoreline to the base of the steep limestone cliff is approximately 600 meters. The 1987 survey revealed that some latte stones were intact on the site despite more than four decades of neglect and extensive earth-moving activities. Traces of prehistoric human occupation could be seen at 21 localities and a total of seven historic sites were also identified. One of the historic sites was a 200mm Japanese coastal gun which is still in place at the base of Bija Point; this wartime relic gave the present geographic name, Gun Beach, to the area.

Additional survey was conducted in winter 1987 within the 100,000 square meters of land in the southern one-third of Gognga-Gun Beach, including the low limestone ridge that extends to Gognga Point. In the southern portion of Gognga Beach, some 20 additional cultural properties were identified (Kurashina et al. 1988).

At the request of the developer of the Nikko Hotel, an intensive and systematic data recovery program incorporating test trenching and controlled areal excavations was conducted in the spring of 1988 and the spring of 1989 by a team of researchers from the University of Guam and the Bernice P. Bishop Museum of Hawaii. The intensive data recovery program was designed to seek scientific data concerning the prehistoric culture and population of

Guam at the northern end of Tumon Bay. At Gognga-Gun Beach, latte stones that have been identified are of great significance, as they represent structural remains from the late prehistoric period on Guam. Latte stones incorporate information with regard to design, engineering, construction and possibly social ranking of the late prehistoric Chamorro people. Burials found in the vicinity of the latte stones are also significant since skeletal remains can provide valuable information concerning the mortuary practices, demographic profile, health, nutrition, physique, disease, injuries and other aspects of cultural practices associated with the prehistoric inhabitants. In view of the presence of latte stones and associated prehistoric human remains, the research has focused on the settlement clusters around the latte stones, in order to ascertain prehistoric cultural activities taking place within the house foundations.

### Stratigraphic Succession

A detailed stratigraphic profile was drawn at the west face of the test trench which was placed immediately to the west of the partially preserved latte set (Osborne's Group 4) at Locality Y. The profile exhibited an unusually deep deposition of several strata reaching to a depth of 2.5 meters from the ground surface. Cultural remains were uncovered mostly in the top three strata that extended to a depth of two meters, underlain by very pale brown calcareous sand deposits. The top-most deposits (Layers I and Ia) were characterized by very dark brown (10YR 2/2) to black (10YR 2/1) sandy loam and black (7.5YR 2/0) silty loam. These deposits contained historic and prehistoric cultural remains, including pottery, charcoal and coral limestone fragments.

A relatively thin layer of loose light brownish grey (10YR 6/2) sand (Layer II) was found overlying abruptly on the dark greyish brown (10YR 4/2) silty sand (Layer IIa). A high frequency of prehistoric cultural remains was noted especially in Layer IIa. Layer III was variable from a dark grey (10YR 4/1) sandy silt deposit to a light grey (10YR 7/2) fine to coarse sand that contained small-grain charcoal, pottery, shell, bone, coral and other cultural remains. The morphology of pottery, particularly the rim profile and exterior and exterior surface design executions, indicated that Layers I through III represented depositions made during the late prehistoric period, also known as the Latte Phase, in Guam's culture history. The lowest stratum, Layer IV, was characterized by very pale brown (10YR 8/3) medium to coarse structureless, loose marine sand.

### Radiocarbon Chronology

A total of four radiocarbon dates has been obtained for the cultural deposits identified in the vicinity of the partially preserved latte set at Locality Y in the present study. The radiocarbon dating of the samples from Gognga-Gun Beach was performed at Beta Analytic, Inc. of Coral Gables, Florida. Beta Analytic, Inc. produced C14 dates, C13/C12 ratios and C13 adjusted dates for all the samples from Gognga-Gun Beach.

Carbonized coconut shells obtained from Layer Ia in Quad 1 (40-50cm below surface) at the southern end of the test trench at Locality Y yielded a C14 age of 290 +/- 50 B.P.

(1660 A.D.  $\pm$  50). This layer dates to the time when Spain began a serious effort to colonize Guam and the Marianas. The Spanish missionaries arrived on Guam via the Manila galleon route at about this time. Father Sanvitores stopped at Guam in 1662 aboard the galleon *San Damian* en route to the Philippines (Carano and Sanchez 1964). Several years later upon returning to Guam, Sanvitores established the first Catholic church on Guam, in the year 1669.

Another sample comprised of carbonized coconut shells found at Gognga-Gun Beach excavated from Layer IIa in Quad 2 (70-80cm below surface) yielded a C14 age of 560  $\pm$  50 B.P. (1390  $\pm$  50 A.D.). Layer IIa was furthermore dated in Grid Square K4 in front of the partially preserved latte set at Locality Y using carbonized coconut shells collected from a depth of 48-75cm below surface. The sample produced a C14 date of 400  $\pm$  60 B.P. (1550  $\pm$  60 A.D.). In addition, a C14 date of 1070  $\pm$  70 B.P. (880  $\pm$  70 A.D.) was obtained for a shell midden, Layer IV at CU 4, banked against the talus of the raised limestone terrace 20 meters northeast of the partially preserved latte at Locality Y. The *Strombus* sp. shell weighing 343.8 grams comprised the shell sample dated. These C14 dates are consistent with the generally accepted range of radiocarbon dates for the Latte Phase in Guam's prehistoric cultural sequence.

A few years before the present study was undertaken, a rockshelter at the base of the raised terrace at the eastern end of Gognga Cove was examined by Graves and Moore (1985). They obtained a radiocarbon date of 80  $\pm$  70 A.D. for one of the lowest deposits under the overhang of the rockshelter. This date indicates the presence of human occupation in the inland portion of Gognga Cove during the Pre-Latte Phase.

Table 1. Radiocarbon Dates from Gognga-Gun Beach

Provenience	Layer Depth Below Surface	Beta Lab No.	Material	Weight	C14 Dates B.P. C13 Dates B.P.
Quad 1	Layer Ia 40-50cm	Beta 35195	Carbonized cocnut shell	51.7g	290 $\pm$ 50 290 $\pm$ 50
Grid Sq K4	Layer IIa 48-75cm	Beta 35197	Carbonized coconut shell	52.1g	400 $\pm$ 60 380 $\pm$ 60
Quad 2	Layer IIa 70-80cm	Beta 35196	Carbonized coconut shell	22.1g	560 $\pm$ 50 550 $\pm$ 50
CU4	Layer IV 50-60cm	Beta 35194	<i>Strombus</i> shell	343.8g	1070 $\pm$ 70 1520 $\pm$ 70

The radiocarbon chronology derived from carefully collected organic samples at Gognga-Gun Beach is culturally important in several respects. The main settlement at Gognga-Gun Beach is securely dated to the latter part of Guam's prehistory, notably the Latte Phase, which witnessed the use of stone for constructing house foundations. The features found in the vicinity of the partially preserved latte set at Locality Y can be confidently dated to the Latte Phase. These features include burials in between and in front of the latte uprights at Locality Y. Although the arrival of Magellan in 1521 A.D. marked the beginning of the historic era for Guam, the Latte Phase appears to have lasted until at least the mid 17th Century. The Latte Phase came to an end when Spanish missionaries began their serious Christianization of the native population of Guam in the 1660's, an activity which coincided with the

colonization of the Marianas by Spanish colonial administrators.

### Settlement Pattern

The study of the settlement pattern at Gognga-Gun Beach provides a productive framework for understanding the behavioral patterns of social activities in a given spatial context. In the present study area at Gognga-Gun Beach, the prehistoric use of space is reflected within a number of archaeological manifestations ranging from a rockshelter to megalithic house foundations (latte stones). While some of the archaeological manifestations are readily perceivable, others such as those in the subsurface context may not be directly perceivable until they are exposed by excavations.

Directly and readily perceivable features such as megalithic structural remains (i.e. latte stones), small gardening areas and a freshwater well at Gognga-Gun Beach exhibit definite spatial patterning in relationship to the given physiographic environment. The latte stones were situated in the flat sandy coastal plain, arranged in five parallel rows. Multiple rows of latte sets arranged in a parallel pattern with respect to the shoreline have been reported from other sites in the Marianas (Craib 1988, 1990; Morgan 1988; Spoehr 1957; Takayama and Intoh 1976). Therefore, the general layout of the latte sets observed at Gognga-Gun Beach may be seen as a characteristic spatial arrangement of lattes. With the exception of the southern-most latte set at Gognga-Gun Beach (Osborne's Group 4 and Kurashina's Locality Y), the long axis of the latte sets is oriented parallel to the shoreline. The southern-most latte set in the present study area has its long axis oriented perpendicular to the shoreline.

At Gognga-Gun Beach, the latte set closest to the shoreline, (Osborne's Latte Group 8 and Kurashina's Locality Z), was situated at an elevation of approximately 3.5m above sea level, and 80 meters from the shoreline. The farthest latte set from the shoreline (Osborne's Latte Group 1 and Kurashina's Locality V), was situated at an elevation of approximately 6m above sea level and 220 meters from the shoreline. The southern-most latte set at Gognga-Gun Beach was situated at an elevation of approximately 3.5m above sea level and 100 meters from the shoreline. No latte dwelling units were discovered in the raised limestone terraces or above the cliffines at Gognga during the intensive survey.

Ethnohistoric accounts (Driver 1989; Fritz 1989) of the Chamorro people at the time of European contact imply that the houses built close to the shoreline were occupied by ranking individuals. It appears that each cluster of latte houses represents a major kin group, having the latte as the symbolic socio-political foci in the community. The ethnohistoric accounts describe that individuals with kinship ties to high-ranked persons were buried near the principal residence (Driver 1989).

Possible remnants of small gardens were recorded at the outer margins of the sandy coastal plain near the base of raised limestone terraces, particularly at the eastern and northern portions of Gognga Cove. In these areas the soils contained clay and silt derived from the raised limestone terraces. Because clay and silt contribute to the retention of water and moisture in the ground, plants such as taro could have been cultivated; taro was observed growing wild in the area in the course of this study.

A partially filled freshwater well was observed near the beach berm approximately 30



meters from the high tide mark. The conical depression measured 19.7 meters in diameter at ground level. The partially filled well extended in depth to 3.1 meters below ground level. Similar freshwater wells have been observed at a number of latte sites elsewhere, including such sites as Tarague (Kurashina et al. 1987), Jinapsan (Kurashina, personal observation), Haputo (Kurashina, personal observation), and Mochom (Stephenson and Moore 1980; Kurashina, personal observation). Studies of ground geology show that freshwater occurs in the Gyben-Herzberg ground water lens just above sea level.

Other less directly perceivable subsurface archaeological features such as cooking areas, special activity loci for fishhook manufacturing, and burials provide patterning that appears to be strongly determined by the cultural rules of those who once inhabited the area. During the course of intensive survey and excavation, attempts were made to carefully examine and record the internal patterning of human settlement during the latte phase.

Intensive surveys and excavations revealed that deposits containing charcoal and fire-fractured coral linestines were present most predominantly behind and to the west of the partially preserved latte set at the southern portion of the study area. Thick deposition of charcoal and fire-fractured coral limestone is indicative of cooking activities utilizing earth ovens immediately around the residential areas. As noted previously, charcoal samples obtained from Layers Ia and IIa produced C14 dates ranging from  $560 \pm$  B.P. to  $290 \pm 50$  B.P. Similar to the small hearths found in association with latte as reported by Hans Hornbostel at other latte sites in Tumon Bay (Yawata 1961), small isolated hearths were also excavated in the vicinity of the partially preserved latte at Gognga-Gun Beach.

The archaeological occurrence of fishhooks and gorges at various unfinished stages of manufacture associated with *Isognomon* shell debitage indicates that fishing implements were produced locally in the vicinity of latte houses. It appears that such activities also took place in habitation areas without latte stone house foundations, as evidenced in an area 15 meters northwest of the partially preserved latte at Locality Y. An appreciable quantity of *Isognomon* shell debitage and unfinished fishing implements was obtained in the deposit above multiple human burials. In the same general area, the presence of a considerable amount of unfired clay indicated that pottery vessels were also most likely to have been made and the unused clay was either stored or discarded in this location.

### Mortuary Practices

Archaeological excavations conducted at Gognga-Gun Beach confirm the early historical observations made by Spanish priests almost 400 years ago that the dead were buried in front of or beneath the houses (Driver 1977 and 1989). If the dead were indeed buried in the vicinity of the most prestigious relative's house, as related by Juan Pobre (Driver 1989: 24), the skeletal remains found at latte house sites suggest important genetic and kinship ties among those particular individuals. At Gognga-Gun Beach, particularly at Locality Y, multiple burials were found in between the latte uprights as well as in front of the latte. More than 100 ancient Chamorro skeletal remains were encountered in sandy subsoil in the vicinity of the latte at Locality Y during the intensive archaeological excavation in 1988-89. The burial field records have been systematically organized, coded and entered into the computer database

developed by Eric Komori of the Bernice P. Bishop Museum.

Certain recurrent patterns were observed in the burials of ancient Chamorros at Gognga-Gun Beach. The majority of the complete skeletons were almost fully extended. Slight flexing of legs was observed on several individuals. The skeletal placement was most commonly on the left side, and less frequently on the right side or on the back. There was at least one individual who was placed on the front side of the body with its face down. The skulls were most frequently placed on their left side and less frequently on the back or the right side. The majority of articulated skeletal remains had their hands along side of or on top of the pelvis. Certain skeletal parts were absent in some individuals. For example, the skull and certain long bones such as tibia, humerus and radius were missing in a few individuals. Early historical accounts indicate that skulls of ancestors were stored in a high place inside the houses and worshiped by Chamorros of that time (Driver 1989: 22). Human long bones were used for making the tips of spears or lances (Garcia 1937). As described in particular historical accounts (Thompson 1945; Driver 1989), the dead were buried with some artefacts such as adzes, shell knives, shell scrapers and fishhooks. Shell beads made of *Spondylus* as well as fish bones were also associated with several burials. Although there are minor variations in the mortuary practice as observed at Gognga-Gun Beach, the general pattern of skeletal placement is mostly consistent with the ancient Chamorro burial customs described by Thompson (1932; 1945) and Yawata (1961).

#### Material Culture

The archaeological excavation conducted at Gognga-Gun Beach yielded a wide range of portable artefacts ranging from prehistoric earthen ware to basalt adzes. The material culture represented at Gognga generally reflects various types of domestic activity that took place in the vicinity of the latte structures.

Cooking and storage of food are indicated by numerous pottery sherds. The pottery sherds originate from stylistically globular vessels with thickened rims. The rim diameter is on the order of 30-40cm. The exterior of the pottery is generally plain and smooth owing to the application of a slip and burnishing. Pottery sherds with decoration are present; decorative marks are often brushed, cordmarked, combed or lime-coated. Deposits of charred substance material and lime were observed on the interior surface of a number of sherds. It is plausible that while some of the pottery vessels were utilized for the purpose of cooking, others were used as storage jars for water, food and other substances such as lime. Relatively small finger impressions were occasionally present on the exterior ceramic surface of vessels. As previously described by Laura Thompson (1945: 28), it appears that there was a certain division of labor in ancient Chamorro society and that pottery making was within the domain of women's activities.

Procurement of sea food, especially fish that can be readily harvested in the shallow reef area, is implied by the great abundance of fishhooks and gorges. Single-piece J-shaped *Isognomon* shell fishhooks recovered at Gognga-Gun Beach are generally small and range in size from about 1.5cm to 4.0cm. The J-shaped fishhooks excavated at Locality Y invariably incorporate two notches near the top of the shank. However, at Locality U, apparently an ear-

lier occupation site further inland from Locality Y, fishhooks bear several notches instead. Fish gorges are well made of *Isognomon* and average in size about 3.0cm across between the two sharp points. Local production of these fishing implements is suggested by the abundance of fishhooks and gorges at various stages of manufacture within the study area as well as a great quantity of debitage in habitation areas.

Exploitation of deep sea water fish is inferred by the presence of composite fishhooks made of bone and shell, similar in general morphology to some of those described by Takayama (1989) for the Marianas, and Kubary (1889, 1892), Yawata (1930) and Someki (1935) for the Caroline Islands. Composite fishhooks and octopus points are relatively rare in the Marianas and exhibit remarkably fine workmanship. While some pieces have no perforation, others have one or even two perforations. From Faifai Beach immediately to the north of Gognga-Gun Beach, Reinman (1977) reported a bone hook point with one perforation and a distal projection. Reinman also described an octopus lure hook point unearthed at one of the latte sites at Nomna Bay. An exceptionally rare barbed bone fishhook was recovered at Gognga-Gun Beach from the controlled excavation at Locality Y. The specimen appears to be comparable to the example from Caroline Islands, at least in its stylistic appearance, described by Someki (1935) and Yawata (1930). Another rare find at Gognga-Gun Beach was a fragment of a fishhook shank with two knobs that is also comparable to some of the shanks from the Caroline Islands reported by Yawata (1930). The fishhooks uncovered at Gognga-Gun Beach are being carefully examined by Dr. Yosi Sinoto of the Bernice P. Bishop Museum in Honolulu. This is the first time in the history of Marianas archaeology that fishhooks from the western Pacific area are being studied in detail by the world's leading expert on fishhook manufacture in the Pacific region.

At Gognga-Gun Beach, wood working associated with the construction of canoes and dwelling structures is attested to by shell and stone adzes. Most common among the shell adzes are those made of *Tridacna maxima* which normally possess a slightly convex and broad cutting edge, smoothed lateral edges and U or V shaped poll sections. A rare shell adze made of *Terebra* was recovered at Locality Y. A limited quantity of chisel-end adzes made of *Tridacna maxima* and chisels made of *Terebra* shell were also excavated from the main habitation area at Locality Y. Basalt adzes are relatively limited in quantity compared with shell adzes. The majority of the basalt adzes found at Gognga-Gun Beach originate from securely dated contexts within the Latte Phase. The cylindrical ground basalt adzes excavated at Gognga range in maximum length from approximately 7.0 to 12.0cm. Similar cylindrical ground stone adzes have been reported by Shizuo Oda (1990) from the islands north of the Marianas, including Kita Iwojima, Chichijima and Hachijo-jima. The morphological resemblance between the Marianas and southern Japanese ground stone adzes is eminently remarkable. Further study of these distinctive cylindrical ground stone adzes may shed new light on understanding the prehistoric cultural relationship between the Marianas and the Ogasawara Islands.

The presence of shell beads at various stages of manufacture indicates that shell beads, mostly made of *Spondylus*, were locally produced in the vicinity of the latte houses at Gognga-Gun Beach. According to Garcia (1973), small beads made from pink shells (*Spondylus*) were worn by Chamorro women on ceremonial occasions at the time of Sanvitores in the late 1600's.

Other ornamental artefacts uncovered at Gognga-Gun Beach include exceedingly rare canoe-shaped shell pendants made of *Tridacna maxima*. Historical accounts indicate that they were of highest value and worn by men as chest ornaments (Thompson 1945). Shell pendants similar to those found at Gognga-Gun Beach have been reported from Nomna Bay on Guam (Reinman 1977) and other islands in the Marianas, including Rota, Tinian, Saipan and Alamagan (Fritz 1904; Thompson 1932; Yawata 1940; Spoehr 1957).

Bone needles, often with silica gloss, provide proof that weaving was practiced in the main habitation area in the vicinity of the latte houses. It appears that large fish bone was used as raw material for the manufacture of bone needles.

Inter-village conflict or warfare involving the people who lived at Gognga-Gun Beach is assumed in view of the presence of a barbed bone spearhead point fragment and slingstones made of basalt and limestone. Relatively small slingstones made of unbaked clay were also recovered. According to a noteworthy early historical account by Juan Pobre (Driver 1989), the "mud" (clay) slingstones were used by male children for play in the form of competitive sportsmanship. In addition, shark's teeth which may have been used as part of weapons were recovered from the main latte habitation area at Locality Y. Some of these pieces have perforations near the base of the teeth. In the Caroline Islands, shark's teeth were used as part of a weapon worn around the knuckle according to Kubary (1892). It is important to point out that shark's teeth with perforations have been also reported from the islands north of the Marianas. Three such specimens appear among the illustrated artefacts found at the Kurawa site on Hachijo-jima in a recent publication by Shizuo Oda (1990).

#### Faunal Remains

The faunal remains at Gognga-Gun Beach recovered at the main habitation area at Locality Y consist of a considerable quantity of marine shells, fish bones, and a relatively small quantity of bones originating from fruitbats, birds, rodents and turtle. A wide variety of gastropods and bivalves readily obtainable in the reef is well represented. Parrotfish is by far the most frequently occurring fish, in the form of dental plates and pharyngeal mills in the fish bone assemblage. The taxonomic analyses of fish and shell remains are currently being carried out by Steven Amesbury and Barry Smith of the University of Guam Marine Laboratory. Mammalian and avifaunal remains will be examined in the near future by David Steadman of the New York State Museum.

#### Conclusions

The archaeological survey and excavation conducted jointly by the University of Guam and the Bernice P. Bishop Museum at Gognga-Gun Beach on Guam in 1988-89 has yielded new information concerning various aspects of the ancient Chamorro culture of the Mariana Islands. In terms of settlement pattern, chronologically earlier sites were situated towards the inland end of Gognga Cove below the limestone terraces. Owing to changes in sea level, a large sandy coastal plain as can be seen today was created within the last two millennia and

chronologically more recent or late prehistoric Latte Phase settlements were established along the existing coastline. Four radiocarbon dates ranging from 290 to 1070 B.P. were obtained from the deposits in the main habitation area at Gognga-Gun Beach. During the Latte Phase, houses were built on latte stone foundations comprised of two parallel rows of pillars and capstones. Systematic archaeological excavation of the deposits in the vicinity of latte houses revealed that various domestic activities were evidently carried out by ancient inhabitants. The activities that can be inferred from the archaeological remains include food preparation (cooking), food consumption, fish hook manufacture, shell bead production, pottery making, weaving of mats, baskets, and fishnets, and the mending of fishnets. In view of the wide range of marine faunal remains, it is clear that the inhabitants at Goguga-Gun Beach effectively exploited the resources available in the shallow reef as well as in the deep open sea. Many artefacts recovered were utilitarian in nature, though some artefacts were obviously of high socio-economic value. Shell pendants and shell beads were among those that could be considered rare and attributed symbolically to high ranking individuals. Cylindrical ground stone adzes, similar to those found in the Ogasawara Islands, were found in the securely dated Latte Phase deposits. A barbed bone fishhook point and other fishhooks that promise to shed new lights on the origins, migrations, and cultural contacts of prehistoric populations of the Marianas, await detailed examinations. Multiple burials were found beneath, in between and in front of the latte stones. Generally, the spatial pattern as observed in the burials was comparable to the previously recorded mortuary pattern primarily recorded by Hornbostel in the 1920s. Detailed osteological analyses are being carried out that also promise to provide new insights into the understanding of the prehistoric cultures and populations of the Mariana Islands.

#### BIBLIOGRAPHY

Bryan, E. H. Jr.

- 1971 Guide to Place Names in the Territory of the Pacific Islands. Honolulu: Pacific Scientific Information Center, Bernice P. Bishop Museum.

Craib, John

- 1988 Preliminary Report on Archaeological Fieldwork at Alaguan, Rota, CMNI. Saipan: Office of Historic Preservation.

Craib, John, Ed.

- 1990 Archaeological Investigations at Mochong, Rota, Mariana Islands. Saipan: Office of Historic Preservation.

Driver, Marjorie

- 1977 The Account of a Discalced Friar's Stay in the Islands of the Ladrões. Guam Recorder, Vol. 7. Mangilao: Micronesia Area Research Center, University of Guam.

- 1989 Fray Juan Pobre in the Marianas, 1602. Mangilao: Micronesia Area Research Center, University of Guam.

Fritz, Georg

- 1989 The Chamorro: A History and Ethnography of the Marianas. Translated by Elfriede Craddock. Edited by Scott Russell. Saipan: Division of Historic Preservation.

- Kubary, J. S.  
 1889 Ethnographische Beitrage zur Kenntnis Des Karolinen Archipels. Leiden: P. W. M. Trap.  
 1892 Ethnographische Beitrage zur Kenntnis Des Karolinen Archipels. Leiden: P. W. M. Trap.
- Kurashina, H., , E. Wells, L. Loft-Williams, and T. McGrath, S. J.  
 1987a Archaeological Survey of Gognga-Gun Beach, Tumon Bay, Territory of Guam. Report prepared for the Department of Parks and Recreation, Government of Guam. Mangilao: Micronesian Area Research Center, University of Guam.
- Kurashina, H., Col. Erwin Ray, Russell N. Clayshulte, Steven Amesbury, Richard Randall, Barry Smith, and Rebecca A. Stephenson  
 1987b Understanding the Origins of Human Settlement in Micronesia: Interdisciplinary Investigations at Tarague, Guam, Mariana Islands. Washington D. C.: National Geographic Society.
- Kurashina, H., J. Toenjes, J. Simons, E. Wells, L. Souder-Jaffery, and R. Randall  
 1988 Archaeological Investigations at the Proposed Nikko Hotel at Gognga-Gun Beach, Tumon Bay, Territory of Guam. Report prepared for TNN Guam, Inc. Mangilao: Micronesian Area Research Center, University of Guam.
- Morgan, William  
 1988 Prehistoric Architecture in Micronesia. Austin: Univ. of Texas Press.
- Oda, Shizuo  
 1990 A Review of Archaeological Research in the Izu and Ogasawara Islands. Man and Culture in Oceania, Vol. 6: 53-79.
- Reinman, Fred R.  
 1977 An Archaeological Survey and Preliminary Test Excavations on the Island of Guam, Mariana Islands, 1965-66. Mangilao: Micronesian Area Research Center, University of Guam.
- Someki, Atsushi  
 1935 Fishing in Our South Sea Islands. Kagaku Chishiki, Vol. 15, No. 1.
- Spoehrer, Alexander  
 1957 Marianas Prehistory: Archaeological Survey and Excavation on Saipan, Tinian and Rota. Fieldiana, Anthropology, Vol. 48. Chicago: Natural History Museum.
- Stephenson, Rebecca A. and Darlene Moore  
 1980 Freshwater Use Customs on Rota: An Exploratory Study. Technical Report 17. Mangilao: Water Resources Research Center, University of Guam.
- Takayama, Jun  
 1989 The Origins of Two-Piece Hooks in the Marianas. In Variations and Transformations in Oceanian Societies. Edited by Iwao Ushijima and Kazuyoshi Nakayama. Bulletin of the National Museum of Ethnology, Special Issue, No. 6, Osaka.
- Takayama, Jun and Michiko Intoh  
 1976 Archaeological Excavation of Latte Site (M-13), Rota, in the Marianas. Reports of Pacific Archaeological Survey 4. Hiratsuka City: Tokai University.
- Thompson, Laura  
 1932 Archaeology of the Marianas Islands. Bulletin 100. Honolulu: Bernice P. Bishop

Museum.

- 1945 The Native Culture of the Marianas Islands. Bulletin 185. Honolulu: Bernice P. Bishop Museum.

Yawata, Ichiro

- 1930 The Fish-Shaped Fishhooks in Micronesia. Jinruigaku Zasshi, Vol. 45, No. 4.  
1940 Archaeological Relics Unearthed from the Island of Alamagan in the Mariana Islands. Jinruigaku Zasshi, Vol. 55, No. 8.  
1961 On the Burial Methods of the Ancient Mariana Islanders. Kodaigaku, Vol. 3, No. 9.

マリアナ諸島の考古学—グアム島ゴンガ=ガン・ビーチ遺跡における研究  
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ミクロネシアの考古学は今や分岐点に立っている。この分野は従来少数の研究者の努力によって進められてきたが、最近は多くの研究者の注目を集め、活発化してきた。日本列島に隣接し、ミクロネシア中最大の島であるグアムは、ミクロネシア考古学の転換の主役を演ずるものである。つまり、進歩の遅かった西太平洋地域の研究は急速な発展を見せ始め、現在グアムで進められている考古学関係のプロジェクトは100件を超えるに至っている。

1987年以来、グアム大学のミクロネシア地域研究センター (MARC) はハワイのビショップ博物館と共同で長期的・学際的研究を行ってきた。すなわち、グアム島の風下側に当たるタモン湾 (Tumon Bay) 北端に位置するゴンガ=ガン・ビーチ (Gognga-Gun Beach) の古代チャモロ族村落遺跡の発掘調査である。この学際的研究班には釣り針の形式からコンピューター・データベースに基づく研究をてがける各種の考古学者、ヒトの歯、古疫学、頭骨の研究から海洋生物学にいたる生物学者など、多分野の研究者が属している。この研究計画は、種々の分野のデータを総合することによってグアム島チャモロ族の文化、社会ならびにヒト集団を組織的に記述することを目的とする。さらにこの研究によって、マリアナと日本列島南部との文化交流も解明されると期待される。

ゴンガ=ガン・ビーチ遺跡における表面採集、試掘および10万平方メートルにおよぶ大規模な本発掘によって33個の先史・歴史時代遺跡が発見された。とくに古代チャモロ族の住居が確認されたY発掘地区では巨大なラッテ・ストーン (latte stones)、屋内で釣り針や料理を作った場所などを含む多数の文化遺物が発見された。さらに1988-89年の調査では100体以上の人骨も発掘された。

今回、私は調査団長の立場から本遺跡の発掘方法、放射性炭素年代測定、物質文化ならびに生活形態について報告し、そのあとでアリゾナ大学のB. Anderson氏が人骨の予備研究の結果について報告する。

(Translated by K. Hanihara)