

The Archaeology of the Ogasawara Islands

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INTRODUCTION

THE 30-ODD ISLANDS and shoals that comprise the Ogasawara Islands lie in an area 1000–1300 km south-southeast of Tokyo, extending from 24°14' to 27°45' north latitude and 141°16' to 142°26' east longitude. From north to south the group consists of the Mukojima Islands, the Chichijima Islands, the Hahajima Islands, and the Volcano Islands. Climatically the group belongs to the oceanic subtropics; however, due to warm-water currents in the area, the climate is tropical. Geographically the Ogasawaras are located in the center of an arc formed between the Izu Islands and the Marianas, perpendicular to Japan. The group is connected to Japan through the Izu Islands and also, through the Okinawan Islands and Taiwan, to Malaysia and India in the tropics. Moreover, it is also connected geographically in the South to the tropical Pacific islands of Micronesia and distant Polynesia (Fig. 1).

From a study of documents of the Edo Period, it appears that the Ogasawara Islands were uninhabited through the eighteenth century. In European records from the same periods, the Ogasawaras are referred to as the Bonin Islands (apparently a corruption of the Japanese “munin” or “empty of men”) and are noted as being devoid of human occupation. Today, however, from the results of archaeological research carried out in the South Pacific, it appears that Stone Age man was widely dispersed through the islands of the Pacific. Thus any consideration of such questions as the polished stone adzes of Kita-Iwojima; the agate, sandstone, and coral artifacts from Chichijima; and the bone and cowry-shell artifacts from Hahajima must take into account the navigational capabilities

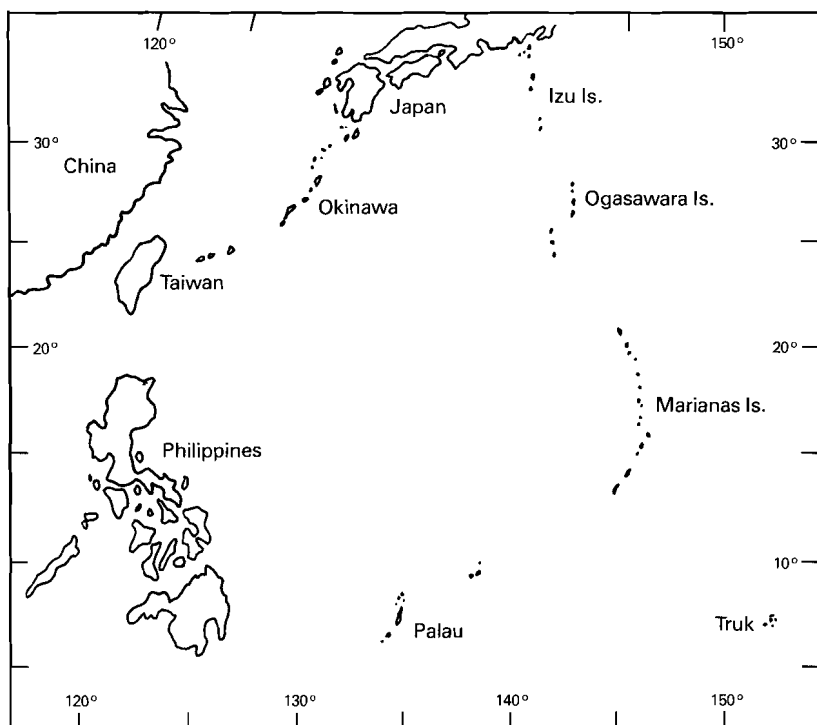


Fig. 1 Location of Ogasawara Islands.

and interisland voyages of the prehistoric peoples from areas around the Ogasawaras (Fig. 2). Thus my main purpose in this paper is to consider the data that have come to light in a broad perspective, as a means of inquiring into the history of the Ogasawara Islands.

THE DISCOVERY AND SETTLEMENT OF THE OGASAWARA ISLANDS

Historical Discovery Accounts

Although the Ogasawaras are popularly held to have been discovered by Sadayori Ogasawara, the lord of Fukushima (presently Matsumoto) in the province of Shinshu, in 1593, the first genuine written account of the islands' discovery dates to 1670, when a party of six seamen under the command of Choemon, a ship captain from Fujishiro in the province of Kishu, en route to Edo with a cargo of tangerines, explored the Ogasawaras after being shipwrecked there in the aftermath of a typhoon.

With word of Choemon's report, the Edo Shogunate in 1675 dispatched a Nagasaki ship captain named Ichiemon Shimaya on an exploration voyage to the Ogasawaras. The mission spent about a month conducting measurements and mapping the islands, and, in addition to naming the Chichijima and Hahajima island subgroups, erected a shrine in the islands. Upon receipt of the expedition's report, the shogunate decreed that the Ogasawaras be called the "Munin Islands," and, in the years that followed, planned and executed several voyages to the Ogasawaras, all of which were unsuccessful. For approxi-

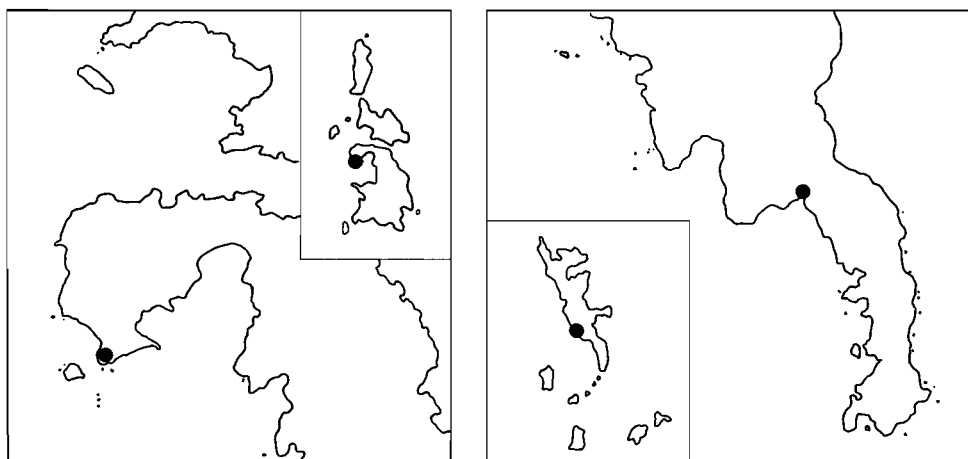


Fig. 2 Locations of artifact discovery in the Ogasawara Islands: *left*, Chichijima; *right*, Hahajima.

mately the next 150 years there were no further planned voyages to the islands, the only recorded contact being some ten shipwrecks in the islands during this period.

THE FIRST SETTLERS

The Ogasawaras' history of development begins with the rediscovery of the islands by Europeans during the period they lay forgotten by the Edo Shogunate. In 1823 the American whaler *Transit* was shipwrecked on Hahajima, which the sailors named Coffin Island. In 1825 the British whaler *Supply* entered Chichijima's Futami harbor, leaving the earliest traces of European occupation in the Ogasawaras. The British surveying ship *Blossom* visited Futami harbor in 1827, and left a bronze plaque at Suzaki claiming the islands for the British Crown. A Russian warship visited the islands in 1828, so that the islands came to play a role in the ambitions of the great powers.

In 1830 the first group of settlers reached the islands. The group consisted of two Americans, two Englishmen, and one Dane at the head of a contingent of around 20 Micronesians and Polynesians. En route from Hawaii to Sharurin Island (?) the group was shipwrecked on Chichijima, where they went ashore and settled. Later, when whaling ships visited the port, Caucasians and Negroes left ship to live there, so that the islands came to be a complex mixture of many races.

In 1860, learning that the long-forgotten Ogasawaras were already occupied by Europeans, the Edo Shogunate began efforts to gain recognition of the islands as Japanese territory. In 1861 a group of some 90 samurai, technicians, scholars, and doctors, under the Shogunate's foreign minister Tadanori Mizuno, was dispatched to the Ogasawaras, where they held discussions with the European settlers which resulted in the islands coming under shogunate jurisdiction. In 1862 the first Japanese settlement was undertaken, but in the following year the government officials and islanders from Hachijojima, who had settled there, were recalled, so that within 10 months or so the Ogasawaras were again solely the domain of European settlers.

In 1875 the Meiji government decided to develop the Ogasawaras, and dispatched investigators to the islands to conduct a survey of the populace. At the time, there were 14

houses and 71 residents. The population consisted of ten Hawaiians, nine Englishmen, seven Spaniards, two Dutchmen, one Frenchman, one Portuguese, two persons of unspecified nationality, and two Japanese women, in addition to 37 children who had been born on the island. With this group as the original islanders, 30 Japanese settlers were brought in the following year and the Ogasawaras formally became Japanese territory (Tokyo Parks Department, Natural Parks Division, 1970; Satoshi Yamauchi 1979).

ARCHAEOLOGICAL DATA FROM THE OGASAWARA ISLANDS

From a survey of the old documents pertaining to the discovery and development of the Ogasawaras, it appears that the islands had no indigenous inhabitants. However, three polished stone adzes, said to have been discovered on Kita-Iwojima in the Ogasawaras, have long been a topic of discussion among scholars (Kono 1942, Oda 1978). The archaeological site survey group, organized by the City of Tokyo in 1971, also discovered artifacts on Chichijima and Hahajima (Nagamine, Oda, and Miyazaki 1973; Miyazaki, Nagamine, and Oda 1973). These two discoveries raise the possibility that man may have settled or passed through the Ogasawaras long before the islands' existence was recorded (Fig. 2). Following is an examination of these artifacts.

The Kita-Iwojima Polished Stone Adzes

In the late 1920s three polished stone adzes were presented to the Tokyo University Anthropology Department by Takenoshin Nakai, a professor of botany at the same university. The adzes are labeled "donated by Ishino Heinojo of Kita-Iwojima Island," so presumably the adzes were given to Professor Nakai by a villager named Heinojo Ishino during a botanical survey conducted on the island.

Kita-Iwojima has a circumference of approximately nine km and is characterized by its steep topography; the island's highest peak, Sakakigamine, has an elevation of 804 m above sea level. With the exception of part of the eastern coastline, the cone-shaped island is surrounded by quite steep cliffs. Land has been cleared on the east coast (at Ishino village) and on the west coast (at Nishimura village), on slopes with a width of 50 m and 100 m respectively. Pebble beaches occur at both locations; here the first Japanese settlements were established. The three stone adzes were very likely discovered at one of these settlements. Since Ishino village has more flat land, and has the same name as the donor of the artifacts, they were probably unearthed during the clearing or cultivation of the area (Oda 1978).

Figure 3 is the stone circular-gouge type adze introduced by Isamu Kono. It is a complete artifact with a length of 18.2 cm and a maximum diameter of 5.0 cm; its weight is 635 g. Its cylindrical shape was formed by pecking, following which the whole shaft was meticulously polished so as to eliminate virtually all peck marks. The edge is rounded and a moderate concave curve has been hollowed out in the back by polishing, with the artifact being finally worked into a gouge. The material used is basalt.

Figure 4 shows another gouge of the same type. It is a complete artifact 19.0 cm in length, with a maximum diameter of 5.3 cm; its weight is 625 g. It also was formed into a cylinder by pecking, then polished all over its surface; the back side of the edge has been worked into a concave curve. It closely resembles the shape of Figure 3, the only difference being that it is somewhat flatter, is polished on the butt surface, and the concave shaping does not extend the full length of the artifact. It is also made of basalt.



Fig. 3 Polished stone circular-gouge type adze from Kita-Iwojima.

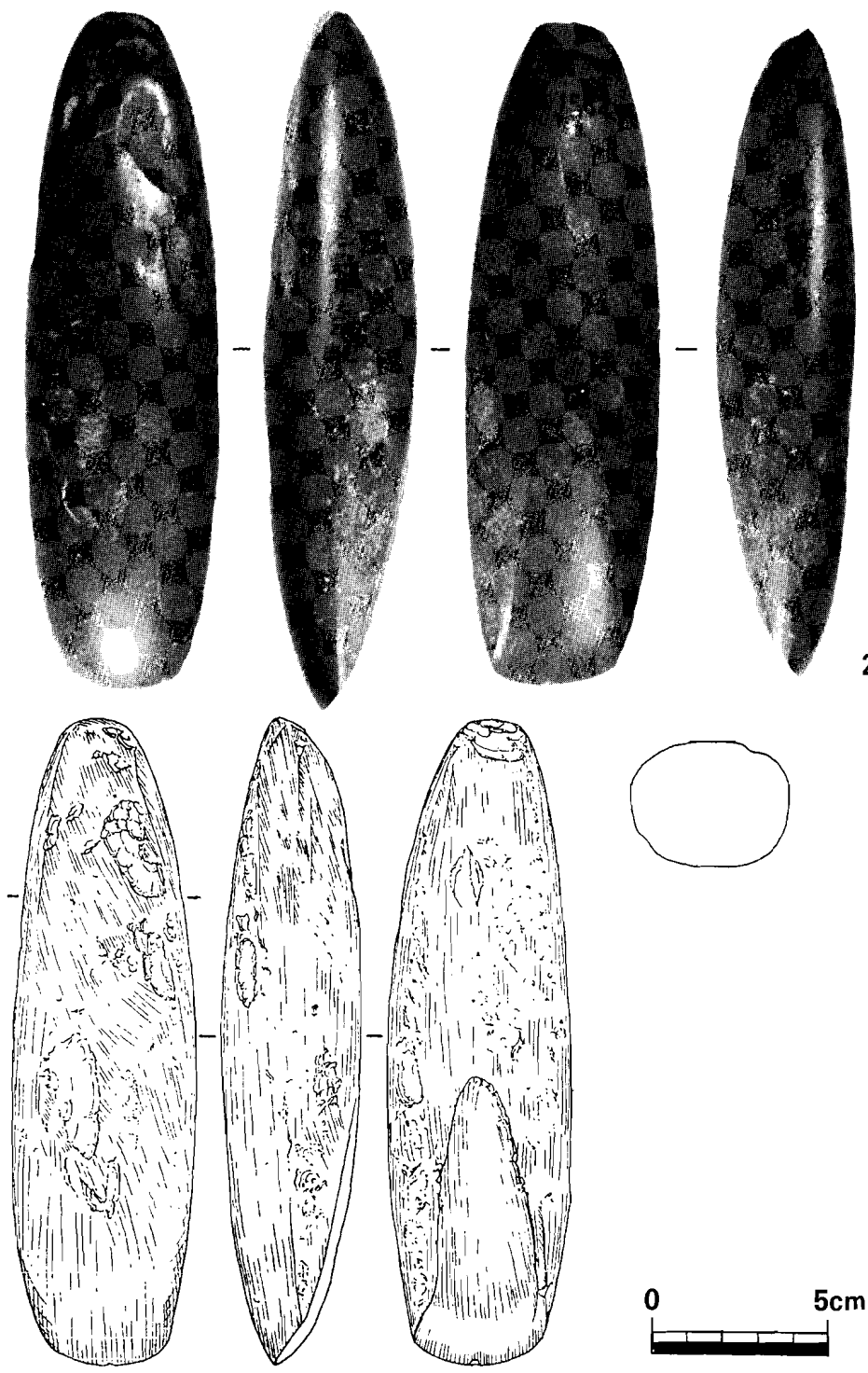


Fig. 4 Polished stone circular-gouge type adze from Kita-Iwojima.

Figure 5 differs in form from the preceding two adzes, and is not a gouge-type stone artifact. It is 14.0 cm in length, with a maximum diameter of 5.0 cm and a weight of 121 g. It was also given its overall spatulate form by pecking, the lower half then being polished on both sides to form a polished stone adze. Edge polishing occurs on the sides as well as the front and back; closely examined, the rear edge appears even, as though an attempt had been made to form a bevel. On the grip section at the top, pecking traces remain, and the cross-section is close to elliptical. It is also made of basalt.

Artifacts Discovered by the Tokyo Metropolitan Site Survey Group

In August of 1972 a metropolitan site survey group under Koichi Nagamine of Kokugakuin Daigaku carried out investigations in the islands for 20 days. This was the first academic survey of the islands for archaeological purposes, either before or after the war. However, the difficulty of interisland travel, the presence of equipment and fortifications left over from the war, and the groves of koa haole [*Leucocephala* (Lam) de Wit] which had turned into jungle made it difficult to survey the ground surface or road cross-sections and make surface collections. In the course of the survey the party went ashore on Chichijima,

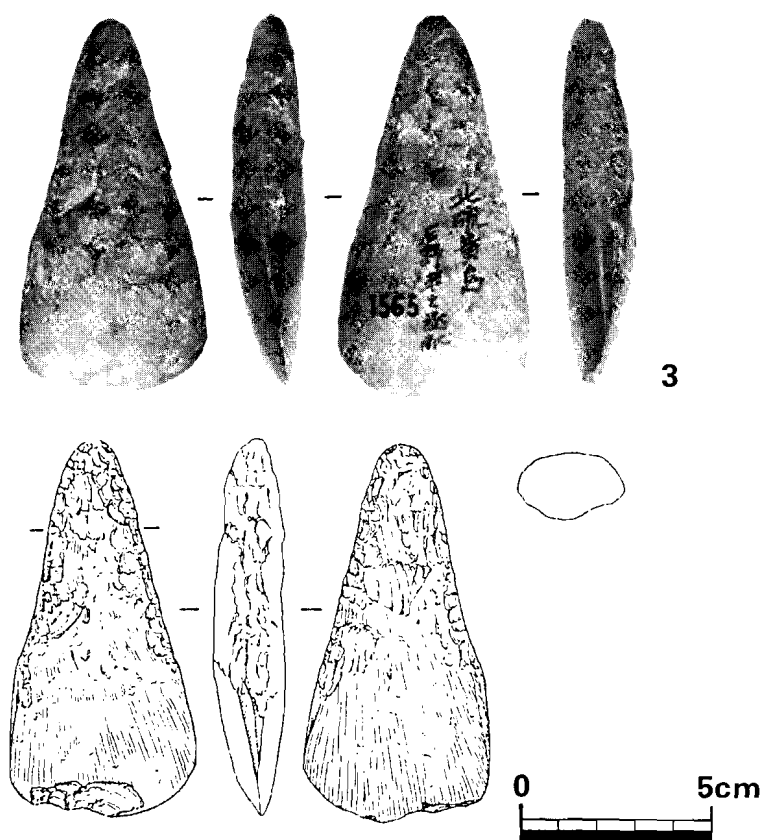


Fig. 5 Polished stone adze from Kita-Iwojima.

Hahajima, Anijima, and Minamijima and combed each island for artifacts, but the only finds were a number of artifacts from a land-clearing site at Oneyama on Chichijima and a village housing construction site at Okimura on Hahajima. In the absence of dates and accompanying artifacts, a more precise assessment of the assemblage must await the discovery of additional data.

Stone Artifacts Discovered at Daikonyama (Fig. 6)

Stone gouge (1). This artifact is made of tuff sandstone, with fine flaking on the surface. The grip part has been given a sharp slope from the back around to the sides. The back is flat, and the curved edge was formed by a diagonal blow across the tip.

Pebble artifacts (2,3). Artifact 2, which is made of coral, is beveled. Artifact 3 is also beveled, but is made of tuff breccia.

Scraper (4). This is of agate, with the back unworked. The left side has been struck off at a sharp angle to form the edge.

Flake (5). This is a fairly thick, obsidian flake. The striking platform was not found, and slight flaking is evident on the surface. The original surface remains on the right side of the artifact.

Core (6). This core was formed by one strike on the side of the striking platform. It has been flaked from many directions.

Bone and Shell Artifacts Discovered at the Village Housing Site at Okimura (Fig. 7)

Bone artifact (1). This artifact is 7 cm in length, has a maximum width of 1.2 cm and a maximum thickness of 0.5 cm, and has a hole in the top 2 mm in diameter. The tip has been broken off, but the curve is discernable. It has a flat cross-section on one side and a curved cross-section on the other. There are traces of iron rust in the hole. The bone may be that of a land mammal (deer, Japanese deer, cow). It was used as a lure for fishing.

Shell artifacts (2,3). Both artifacts are of cowry shell, and both have a hole chipped into the tip of the vertical axis. Artifact 2 has a length of 6.5 cm, a maximum width of 4.8 cm, a maximum thickness of 3.0 cm, and has a hole 3 × 3 mm. Artifact 3 has a length of 8.2 cm, a maximum width of 6.4 cm, a maximum thickness of 4.2 cm, and a hole 6 × 6 mm. The cowry's form and coloring show it to be *Peribolus mauritana calxequina*; at present, this species remains common in the Ogasawaras. The shells had at one time been embedded in a layer of red latelite and are brownish-white in coloring; much of the coloring has flaked away from around the top of the shell. From this, it would appear that the shells are quite old. Possibly they were used as pendants.

In addition, some other objects were collected from a sandy beach on Minamijima, which lies around 700 m off Minamisaki, on the southwest coast of Chichijima. Sea turtle, green turtle (*Chelonia mydas*), and the bones of a bird belonging to the Mizunagi family were found with semifossilized *Hirobeso Katamaimai*. The rib section on the inside of the turtle carapace shows cooking traces.

RESULTS OF ARCHAEOLOGICAL RESEARCH IN THE MARIANAS ISLANDS

The Marianas Islands lie south of the Ogasawaras at 144°30' to 146° east longitude and 13°21' north latitude. The archipelago consists of some 20 islands and atolls stretching in a north-south arc with its center at 145° east longitude. The archipelago is frequently

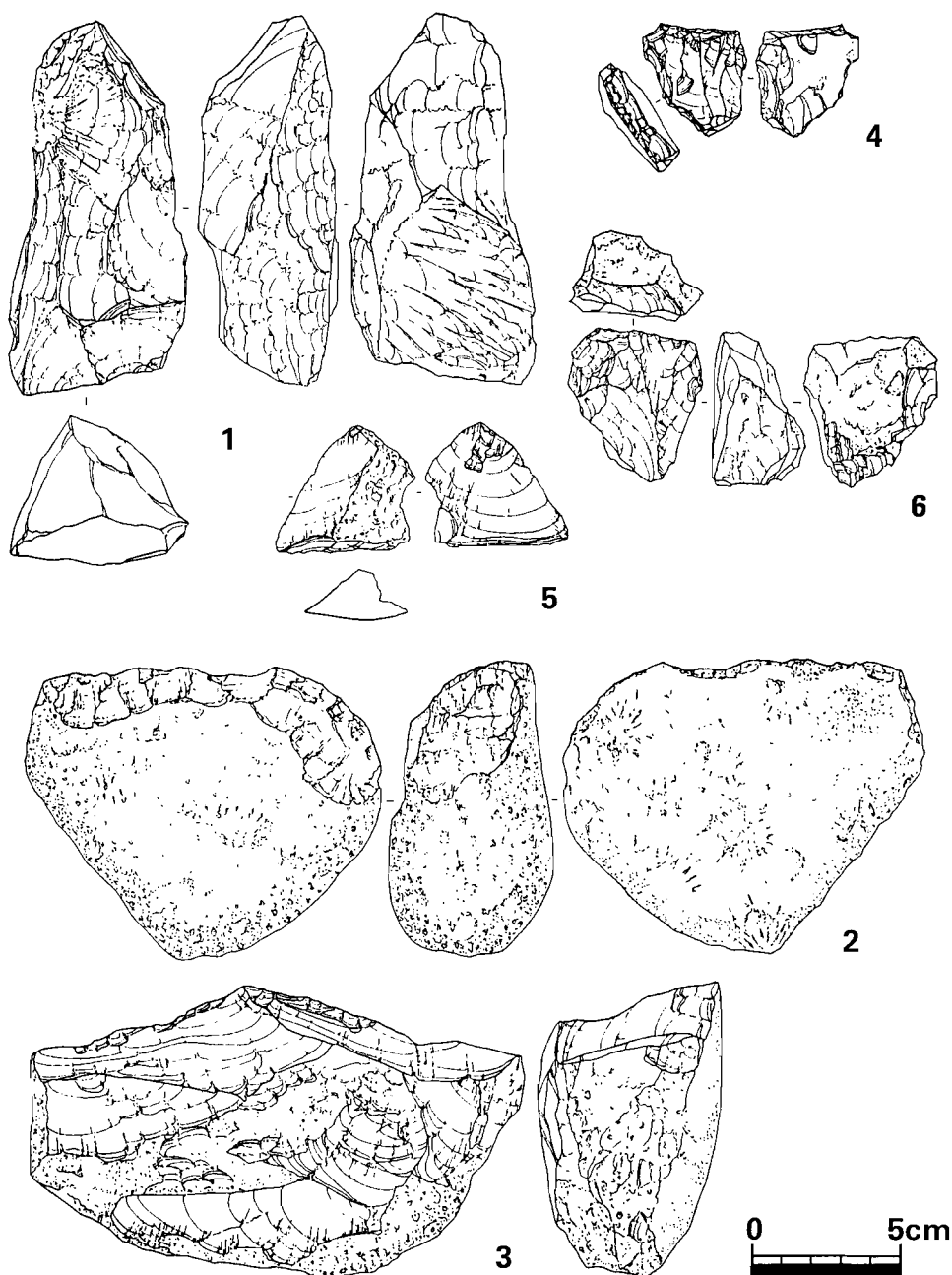


Fig. 6 Stone artifacts found at Oneyama on Chichijima. 1, stone circular-gouge type adze; 2, 3, pebble artifacts; 4, scraper; 5, flake; 6, core.

divided into the Northern Marianas (Uracas, Maug, Asuncion, Arihan, Pagan, Alamagan, Guguan, Sarigan, and Anatahan) and the Southern Marianas (Saipan, Tinian, Aguican, Rota, and Guam). The Northern Marianas are mature, volcanic islands, with their summits rising steeply above the sea, while the southern part of the archipelago consists of coral reefs, which are for the most part flat or gently sloped.

History of European Exploration

It was the famed navigator Ferdinand Magellan who first discovered the Marianas Islands. Magellan set sail from a Spanish port in 1519, and heading west across the Atlantic Ocean, reached the tip of South America. He arrived at the Straits of Magellan a year and two months after setting sail from Europe. Following this, Magellan continued his great journey into the Pacific, where, after discovering two inhabited islands, he dropped anchor at Guam in March of 1521. This is our first written account of the Marianas. Magellan's boat was stolen by the natives (at the time of the island's discovery, it was inhabited by the Chamorro people), so he named the Marianas "The Islands of Thieves." In 1564 Legaspi went ashore on Saipan, and claimed the surrounding islands as Spanish territory.

The Spanish used the Marianas as an important supply base for water and provisions for the galleons which sailed the Philippines-Mexico trade route. In 1668 a Catholic priest, who came to the islands to promulgate the faith, renamed the islands the Marianas in honor of the Spanish queen ruling at that time. In the beginning the missionaries' activities proceeded smoothly, but in time the new religion came into conflict with native traditions; in 1670 a priest was butchered, and in 1672 the chief missionary on Guam, San Vitres, was assassinated. Using this as a pretext, the Spanish government in 1695 evacuated the islanders from Tinian and Rota to Guam, and resettled the islanders living north of Saipan onto Saipan. Then in 1698 everyone on Saipan was sent to Guam. Consequently, for a time, the entire population of the Marianas was situated on Guam (Hasebe 1932, Ueki 1948).

Surveys in the Northern Marianas

For many years the only archaeological survey done in this area, the closest island group to the Ogasawaras, was the 1940 excavation undertaken by Ichiro Yawata of Tokyo University. Recently, however, Tomoko Egami and others have conducted excavations on Pagan. Due partly to the fact that the islands of the Northern Marianas are barren and steep, development has been delayed and transportation to the islands is poor. This difficult access likely also discouraged archaeological investigations. Yawata's survey lasted around two weeks. He visited Alamagan, Pagan, Agrihan, and Asuncion, where he examined latte stones and collected various artifacts. In his 1943 report, Yawata published the following results of his survey (Yawata 1943).

1. Latte stones are especially prevalent in Alamagan, Pagan, and Asuncion. According to the islanders, they are also present on Sarigan and Maug, far at the northern end of the archipelago. Thus the latte stones are present virtually throughout the Marianas, from Maug in the north to Guam in the south.

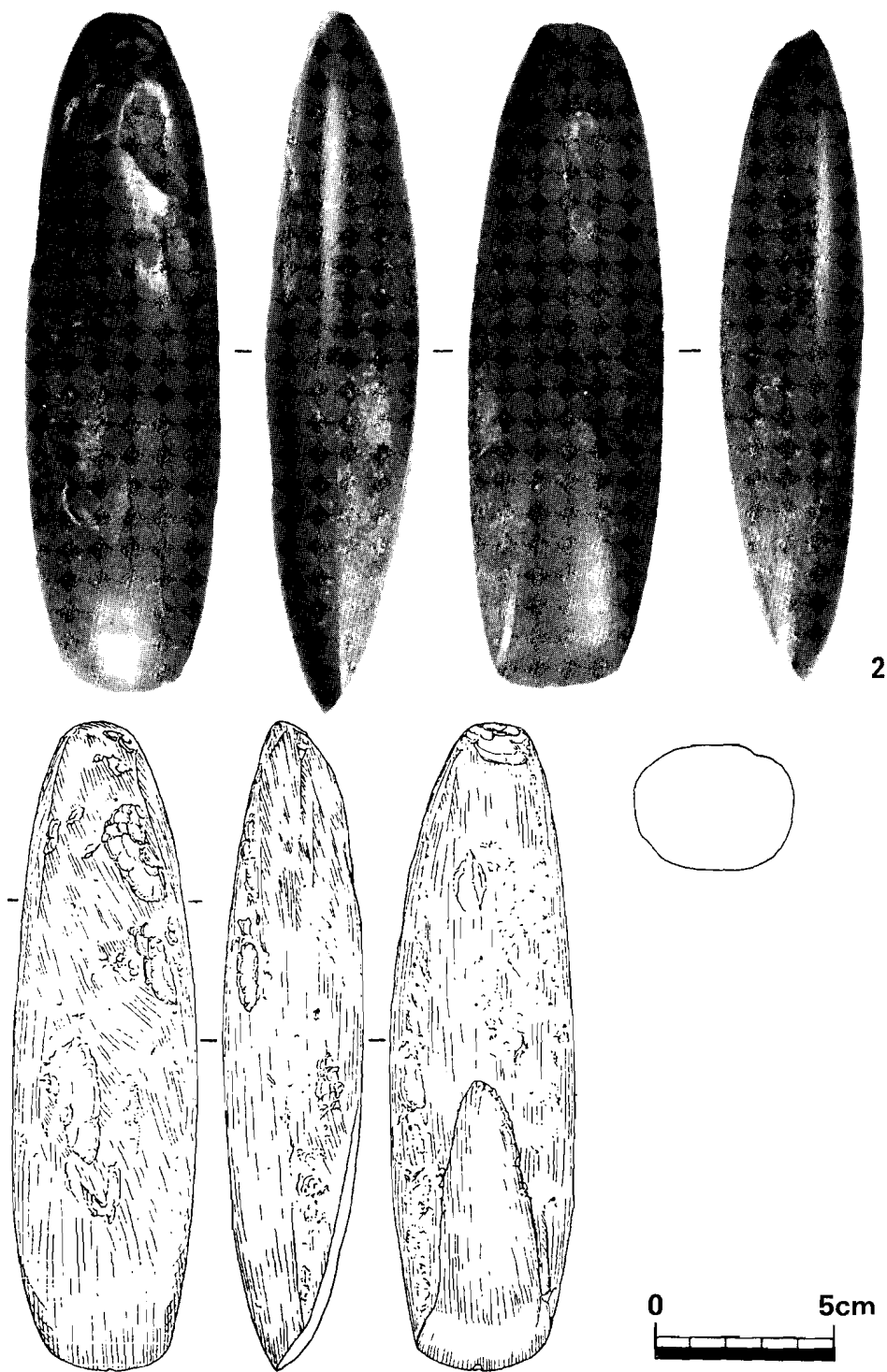


Fig. 4 Polished stone circular-gouge type adze from Kita-Iwojima.

2. The latte stones of the Northern Marianas differ slightly in size and material from those in the south. However, the northern latte stones are more clearly elements used in the construction of buildings of some type.

3. As in the south, the use of caves is highly noticeable. On Asuncion, in particular, there are clear traces of caves having been used for burials.

4. There are few types of artifacts, but those discovered are of exactly the same type as Southern Marianas artifacts. Pottery appears to become less prevalent as one progresses northward. If a meticulous survey were undertaken, probably a large number of artifacts made from volcanic stone would be discovered. Stone missiles were made of limestone from the Southern Marianas, and were presumably brought up from the south. The same may hold true for the shell artifacts.

5. New artifacts collected include a javelin head of human bone, a chrysanthemum-shaped bronze artifact, and conch shells. The chrysanthemum-shaped bronze artifact is quite large, and like similar examples from the Southern Marianas should be regarded as dating after the arrival of European ships in the islands.

6. We can take the fact that rice husks covered a deposit of human bones discovered on Asuncion Island as definitive evidence that the ancient Marianas islanders grew rice, although no cultivation site was found on the island.

In 1972, after a lengthy period of inactivity, Tomoko Egami excavated a latte-post site at Regusa on the island of Pagan. In their report Egami and Saito (1973) published the following conclusions.

1. As indicated by Yawata, the form of the latte stones and the material used differs somewhat from the Southern Marianas, but the artifacts excavated around the stones are identical to those in the south.

2. Two stratigraphic layers, on either side of a middle layer devoid of artifacts, were verified. The latte stones are from the lower layer (III). Radiocarbon datings of 1325 ± 90 , 1494 ± 115 , and 1665 ± 95 A.D. were obtained from this layer.

3. No graves were located either within or outside the latte rows.

4. No Marianas Red pottery was excavated.

5. A sherd of Chinese porcelain from the late Ming was excavated.

6. Prior to the arrival of Europeans, it is possible that the Chamorro natives possessed metal artifacts.

7. The excavation of a bone from a bird in the pheasant family strongly suggests that the ancient Chamorro kept poultry.

8. A single jade bead was excavated, so that there is little doubt that the Marianas bear a close relationship to the Philippines. The investigations of both Egami and Saito show that the connection between the culture of the Chamorro people living in the Marianas and Philippine culture is quite strong.

Very recently it was reported that a "Northern Marianas Archaeological Association" had been formed (Takayama 1977). Compared to the Southern Marianas, research here lags conspicuously far behind, and there is a good likelihood that in the near future many researchers will organize surveys on these islands. At that time we will probably be able to speak more precisely on the relationship between the Northern Marianas and the Ogasawaras.

Surveys in the Southern Marianas

The discovery of Guam and Rota islands by Magellan in 1521 is a famous event in world history. A great number of native canoes drew in close to Magellan's ship; these were the Chamorro who had inhabited the islands from early times. At the time of European contact, they supported themselves primarily through fishing and agriculture. They fished from dugout canoes with raised sides, used nets, spears, and fish hooks to catch fish, and gathered shellfish from the reefs. From their fields they harvested yam, taro, banana, breadfruit, and sugarcane, and they also gathered coconuts. Apparently there were no domestic animals. For tools they used stone, shell, bone, and wooden implements; apparently iron was unknown (Spoehr 1957). One objective in undertaking archaeological research in the Marianas is to provide input for a comprehensive study of old Chamorro culture, and data obtained from excavations at a number of sites are being shared with those engaged in the study (Takayama 1970).

Archaeological data on the Marianas was compiled by L. M. Thompson in 1932. This consists of the artifacts collected by Mr. and Mrs. Hornbostels, collectors for the Bishop Museum in Hawaii, who stayed in the Marianas from 1922 to 1925, and also provided a written survey record (Thompson 1932). Around the same time Kotondo Hasebe of Tokyo University and Ichiro Yawata of the same university began their investigations. From 1929 on Yawata visited the Marianas eight times, resulting in the publication of many survey reports (Yawata 1943).

Alex Spoehr carried out excavations in 1949 for one year on Saipan, Tinian, and Rota. Spoehr placed his emphasis on stratigraphic site excavations and on determining dates employing the ^{14}C method. As a result, he was able to verify that human beings had lived in the Marianas prior to the first millennium, and was also able to clarify the dating of the latte stones, which had been a riddle before this. Another important contribution made by Spoehr was his suggestion that the cultural lineage of the Marianas might derive from the Philippines.

F. M. Reinman conducted investigations on Guam for one year in 1965. He surveyed 136 sites (79 coastal and 57 inland) on the island, and carried out excavations mainly around the southern part of the island (Reinman 1968). Among his accomplishments was the establishment of a chronology of Marianas pottery. From his work on Saipan, Spoehr had established a chronology that progressed from Marianas Red pottery to Marianas Plain pottery, and Reinman's work on Guam supported this stratigraphically (Takayama 1970, Ueki 1978).

In 1970, 1971, and 1974, a survey of the latte stones on Rota Island was undertaken by Jun Takayama. He excavated four latte stones (M-1-M-4) from the Mochon site. Many human bones, either from extended burials or apparent secondary burials, were excavated from M-1. Marianas Red pottery was discovered at the lowest level of M-2. From M-4 many fish hooks, both completed and incomplete, were unearthed, as well as another type of pottery. The following ^{14}C datings were given. For M-1: 1780 ± 80 , 1640 ± 100 , 1525 ± 100 , 1335 ± 100 . At M-3 a dating of 1620 ± 75 was obtained from the third layer. The second layer at M-4 was dated at 1205 ± 85 , and the third layer was calculated to be 1590 ± 115 (Takayama and Egami 1971, Takayama 1973a, 1973b). Dates of 640 ± 85 B.C. and 690 ± 80 A.D. have also been obtained from Rota (Takayama 1977).

Starting in 1977, Hawaii's Bishop Museum is playing a leading role in investigations of the Eastern Carolines, and in Western Micronesia, the Northern Marianas Archaeology

Association has been established. Moreover, at Guam University excavations are set to begin in March on Rota Island, and the archaeology program for the U.S. Trust Territories of Micronesia will be established in July (Takayama 1977). All of these activities serve to enlarge the scope of archaeological research in the Southern Marianas.

RESULTS OF ARCHAEOLOGICAL RESEARCH IN THE IZU ISLANDS

The Izu Islands lie southeast of Izu Peninsula, stretching roughly north to south along the Fuji Volcanic Belt. This volcanic island group includes Oshima, Toshima, Niijima, Shikinejima, Kozujima, Miyakejima, Mikurajima, Hachijojima, Hachijokojima, Aogashima, Sumisujima, and Torishima. The archipelago is frequently divided into the Northern Izu Islands, from Oshima to Mikurajima, and the Southern Izu Islands, from Hachijojima to Torishima. The main flow of the Kuroshio Current moves from east to west in the waters separating the northern and southern island groups. The current (sometimes called the Kurose River in these islands) attains a speed of seven knots per hour, and into historical times must have discouraged contact between islanders in the two groups.

Historical Account of the Izu Islands

The first mention of the Izu Islands in ancient documents occurs in Book XXIX of the *Nihon Shoki*, which relates the events of the fourth year in the reign of Emperor Tenmu (675). Scholars generally agree that the island referred to in the book is Oshima. Oshima is also referred to as "the island of castaways" in Book I of the *Syoku Nihongi*, which relates the events of the third year in the reign of Emperor Mommu (699), and also in the book's section on events in the first year of Emperor Shomu (724). Miyakejima purportedly came by its name when Miyakemaro of Tajihinomahito was cast ashore on the island.

In 832 (Tencho 9) Kozujima experienced a volcanic eruption. Another major eruption followed on the same island in 838 (Showa 5), and the Imperial Court's astonishment at the event is recorded in an 840 A.D. entry in the *Syoku Nihonkoki*. The eruption of Mt. Tenjo on Kozujima in 838 deposited a clearly-dated layer of ash which aided subsequent archaeological investigations.

An entry in the *Fusoryakki* notes an eruption on Mukoyama on Niijima in 887. Deposits from this eruption have also proven useful for archaeological dating.

In the *Enkishiki* submitted to the Emperor in 927 there is a reference to a shrine where the founding fathers of Hachijojima were worshipped, indicating the possibility that the islands were inhabited by then.

The *Hachijojima, Kojima, Aogashima Nendaiki* (1474) gives an account of a ship which lost its way returning from Hachijojima, and makes the first specific reference to Aogashima.

As a survey of the preceding historical documents shows, the Izu Islands have been known to mainland Japan from comparatively early times, and due to the islands' isolated position, they have been used historically as islands of exile (Dangi 1976, compiled by Izu Shoto Tokyo Ikan Hyakunenshi Hensan Iinkai 1981).

Archaeological Surveys in the Northern Izu Islands

The first island in the Izu Chain to be surveyed was Oshima. Pottery, stone implements, and obsidian flakes were discovered beneath a lava layer at Tatsunokuchi, a beach

area near Nomashi village. The excavation occurred in 1901 and 1902. The data from this excavation were sent to Shogoro Tsuboi at Tokyo University, who immediately published a paper (Tsuboi 1901) and dispatched Ryuzo Torii to the site (Torii 1902). However, reaching the island posed major problems, and the island was covered by thick lava, so that due to the difficulty of making surface artifact collections, no additional surveys were made for over 30 years.

In 1934 Sosuke Sugihara of Meiji University excavated the Kokomanokoshi site on Miyakejima (Sugihara 1934). Later, in 1950, Kazuchita Komai of Tokyo University carried out a site distribution survey (Sono, Nakagawa 1959). In 1952 the Okubo site on Oshima was excavated by Kiyoshi Okawa of Waseda University (Okawa 1952).

In 1956 and 1957 the Tokyo Metropolitan Board of Education carried out a comprehensive survey of the Izu Chain. The archaeological survey was conducted by Meiji University's Archaeology Department, headed by Morikazu Goto. The results of this survey remain the basic resource document for research in the Izu Islands. (Goto et al. 1958, 1959). Following this, Itaru Yoshida of the Musashino Folklore Museum conducted excavations at the Tomochi site on Miyakejima in 1961 (Yoshida and Okada 1963).

In 1972 the Tokyo Metropolitan Board of Education formed the Tokyo Artifacts Distribution Survey Association to conduct a thorough survey of archaeological sites in the Tokyo Metropolitan District, under whose jurisdiction the Izu Islands fall. The survey group was headed by Koichi Nagamine of Kokugakuin University. Since this survey placed special emphasis on island areas, all of the Izu Islands, with the exception of Aogashima, as well as the Ogasawara Islands were surveyed. As a result of this survey island sites were entered in the city register (Miyazaki, Nagamine, and Oda 1973). In the same year excavations at the Kaminoyama site on Kozushima and the Nishihara site on Miyakejima were undertaken by the Archaeology Department of Musashino Art University (Imamura and Yoshida 1980). In the following year (1973) the Ozato and Bota sites on Miyakejima were the object of a hurried excavation (Hashiguchi 1975).

In 1979 the Tokyo Islands Site Distribution Survey Group was set up by the Tokyo Metropolitan Board of Education, and was active for three years. The group was led by Koichi Nagamine of Kokugakuin University, and was limited to the Izu Islands. The final annual report is presently under preparation (Tokyo Islands Site Distribution Survey 1980, 1981, 1982).

From the above it can be seen that from 1901, when Jomon Period artifacts were first discovered on Oshima Island, up to the present all of the islands of the Northern Izu Chain have come under archaeological investigation. The fact that sites and artifacts belonging to prehistoric inhabitants have been found on each island, along with many materials from the historic era, indicates that islanders have resided here throughout the various eras.

Archaeological Research in the Southern Izu Islands

During the 1956–1957 general survey of cultural properties in the Izu Islands, the group's archaeology section dispatched two researchers to Hachijojima. They searched for sites, but their only find was two polished stone adzes of unknown provenance.

However, in the summer of 1962, in the course of earth-moving work for the construction of a hothouse at the Hachijo Onsen Hotel at Kashidate, a large polished stone adze and a pecked stone adze were discovered. Upon notification of this find by an amateur archaeologist on the island, the Tokyo Metropolitan Board of Education relayed the infor-

mation to Sosuke Sugihara of Meiji University, who began excavations in March of the same year. The Yuhama site in Kashidate yielded an unusually shaped stone adze and thick, undecorated pottery; the site was given a ^{14}C dating of 3850 ± 100 B.C. Sugihara discusses the Yuhama site on Hachijojima as follows.

1. Judging from the presence of polished stone adzes, obsidian flakes, and stone dishes, the site shows a strong connection with the Jomon culture of Japan. In addition, tranchet-shaped, pecked stone adzes appeared for a time. These were developed by the inhabitants out of direct necessity, and the distinctive pottery is also characterized as having developed internally as a local island industry.

2. The quite different appearance, in a number of respects, of the Yuhama stone artifacts from Jomon artifacts might possibly be explained by a later influx from other, already-settled islands in the Izu Chain, rather than a direct influx from the main Japanese Islands.

3. On the other hand, the Stone Age culture of the Yuhama site may not necessarily be related directly to Jomon culture, and there is also a strong possibility that the industry arrived from islands further to the south or from areas through which the Kuroshio Current flows.

In 1973 the second Yuhama site excavation survey was conducted by the Tokyo Metropolitan Board of Education (Nagamine, Miyazaki, and Oda 1976). This survey verified the existence of a pit dwelling site. While this survey was going on, the Tokyo Artifact Distribution Survey Team's Hachijojima investigation was carried out in the years 1972-1973. In 1974 another group went to Hachijojima to record and sketch stone adzes for the National History and Ethnology Museum (Miyazaki, Nagamine, and Oda 1973). During the team's site distribution survey and in the course of the museum's work, the existence of certain polished stone adzes of a type peculiar to Hachijojima came to light. Some of these could well be from a stratigraphic layer more recent than the one at Yuhama (Oda 1977).

In September of 1977 the municipal authorities were informed that pottery and stone artifacts had been unearthed during construction at a plateau immediately next to the Yuhama site. With other observers, I immediately flew to the site, and confirmed at a glance that the pottery was Jomon Period pottery. The pottery from this Kurawa site is from the end of the Early Period to the beginning of the Middle Period. With the discovery of this site we have established that the people of the Jomon culture moved south across the Kuroshio Current to Hachijojima, which had previously been thought to lie outside the Jomon cultural sphere. The Kurawa site has been identified with the upper layer of the Yuhama site, thus establishing a Yuhama-Kurawa chronology. Analysis of obsidian flakes from the Kurawa site shows that they are from Kozujima; they have been dated at 3350 B.C. by fission-track based, obsidian-hydration dating (Oda 1981 and Matsuura's private correspondence with the author, 1981).

In 1978 the third Yuhama site excavation was carried out by the Tokyo Metropolitan Government and the Hachijo Board of Education, and at this time test excavations were made at the Kurawa site (Serizawa 1978). This excavation produced Group II Takajima pottery derived from the Kansai area, as well as Jusanbodai, Goryogadai, and Harugamine pottery. Six polished stone adzes, a pumice grindstone, stone arrowheads, ring-shaped earrings, and the remains of a piled-stone structure were also present. As in addi-

tion wild pigs' molars were also discovered, the site may also have been used for religious and ceremonial purposes (Nagamine 1979, 1981).

Here I would like to mention a stone gouge from Aogashima. Teruya Esaka, in his discussion of Isamu Kono's paper on the gouges of Kita-Iwojima (1942), wrote, "In 1949 or 1950 a writer for the Asahi Publishing Company's publication *Asahi Kagaku* named Mitsutoshi Kondo acquired a stone gouge and human bones from a collapsed section of field wall on Aogashima" (Esaka 1971). In searching for these artifacts, the Tokyo Island Site Survey Group recently made inquiries to Kondo, only to learn that this stone gouge had been collected on Shiretoko Peninsula off Hokkaido and then taken to the peninsula, thus leading to Esaka's misunderstanding. The human bones are from fairly recent times. In any event, no artifacts whatsoever from the prehistoric period have been discovered on Aogashima, which lies to the south of Hachijojima.

Artifacts in the Southern Izu Islands are thus found only on Hachijojima and Hachijokojima, where pottery sherds of an unknown period have been unearthed, and islands to the south, such as Aogashima and Torishima, bear witness only to the immigrant history of recent times (Fig. 8).

INTERPRETING THE DATA

The Prehistoric Culture of Hachijojima

Surmising from the fact that obsidian from Kozujima was used in Japan before the advent of pottery, it is possible that the oldest culture in the Izu Islands dates back to the late Palaeolithic (Suzuki 1973, Oda 1981). Unfortunately, no artifacts from this period have been discovered in the islands. At the Shimotakabora cave site on Oshima Island, Early Jomon pottery with string-wrapped dowel impressions (*yorito mon*), an undecorated pottery assemblage parallel to pottery from the Hiratsaka Period, and pottery with net impressions (*amime mon*) have been unearthed (Isshiki and Matsumura 1976; Tokyo Municipal Site Distribution Survey Group 1980). These are the oldest pottery samples to appear in the islands, but late Jomon streaked pottery from the end of the Late Period appears on Oshima, Niijima, Shikinejima, Miyakejima, and Mikurajima. Jomon ware from the latter part of the Early Period through the beginning of the Middle Period occurs at sites on all of the islands, and this is the period during which human settlement occurred with the greatest frequency (Goto et al. 1958, 1959; Nagamine, Oda, and Miyazaki 1973; Tokyo Municipal Site Distribution Survey Group 1982, 1983).

At Hachijojima, which is situated across the main flow of the Kuroshio Current from Mikurajima, the oldest sites discovered so far are from this Early to early Middle Jomon period. The Yuhama site has yielded dates of 3890 ± 100 B.C. and 3850 B.C. (Sugihara and Tozawa 1967; Tsurumaru et al. 1973). Furthermore, at the Kurawa site, which is stratigraphically more recent than Yuhama, obsidian fission-track dating has established a date of 3350 B.C. (Matsuura's private correspondence with the author, 1981). The relationship between the Yuhama site and Jomon culture is uncertain, but pottery from the Kurawa site is Jomon-style pottery. Its dissemination proceeded from the Kansai and Chubu areas of Japan.

No sites from the subsequent Late Jomon and Latest Jomon periods have been discovered on Hachijojima, but a number of stone adzes of a distinctive style and provenance have been unearthed. At present we have four from Kuyobashi, one from Magobe, one

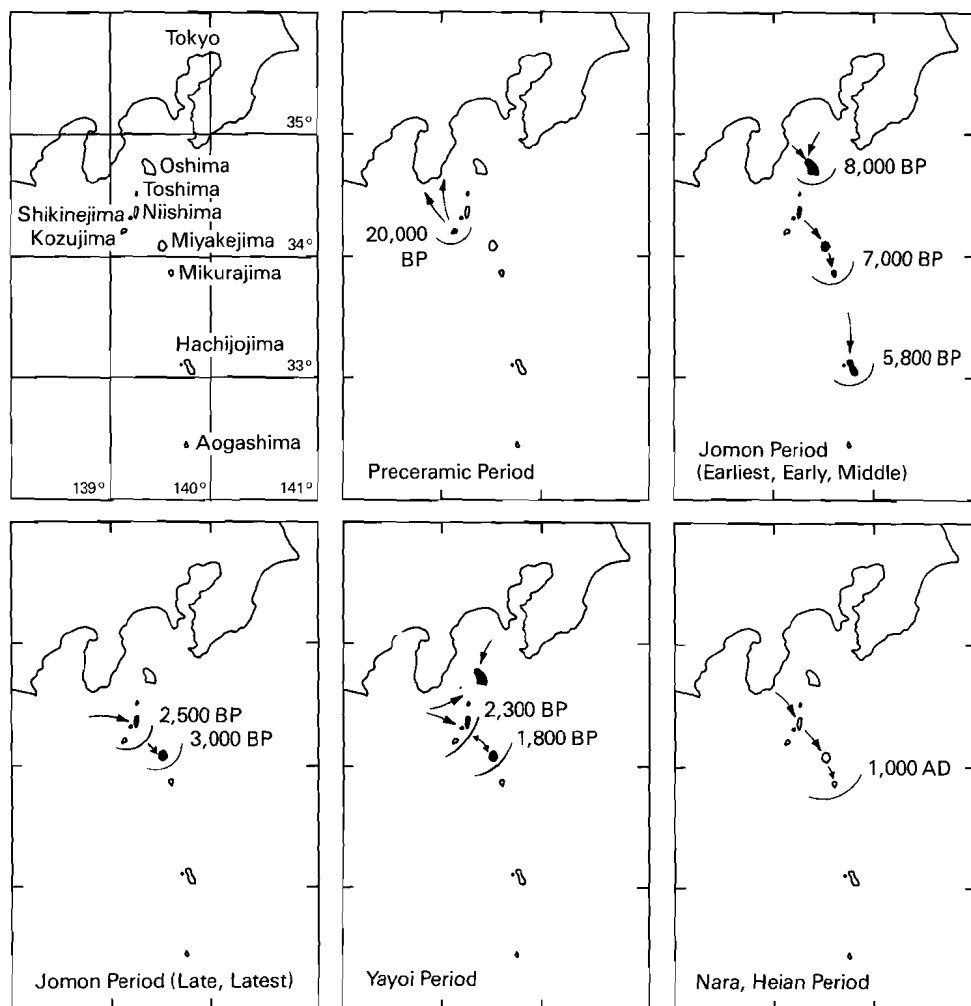


Fig. 8 Southern limits of cultural diffusion in the Izu Islands.

from Yagisawa, one from Mitsune, one from Kashidate Mukaizato, one from Kashidate, one each from construction sites at the agricultural experiment station and the Ogago elementary school, and recently there have been two more additions. All of these adzes have been discovered in isolation, and the stratigraphic layer to which they belong is unknown. Of these artifacts, the Magobe and Kashidate adzes are important because we can get a fair idea of when they were deposited. The former was unearthed from the Mitsune lowlands, where the uppermost layer is lava laid down by an eruption of Nishiyama. The latter is reported to have been from the upper level of the Yuhama site (Nagamine, Miyazaki, and Oda 1976, Oda 1977). From these results we can presume that the Magobe artifact belongs to an older period than the volcanic debris of Nishiyama—the period of corresponding volcanic activity is from the Yayoi (?) to the Heian Periods. As the pecked adze which accompanies the Kashidate adze closely resembles the Yuhama adzes, it is possibly from the Jomon period. In establishing the lineage of the Magobe adzes and many of the

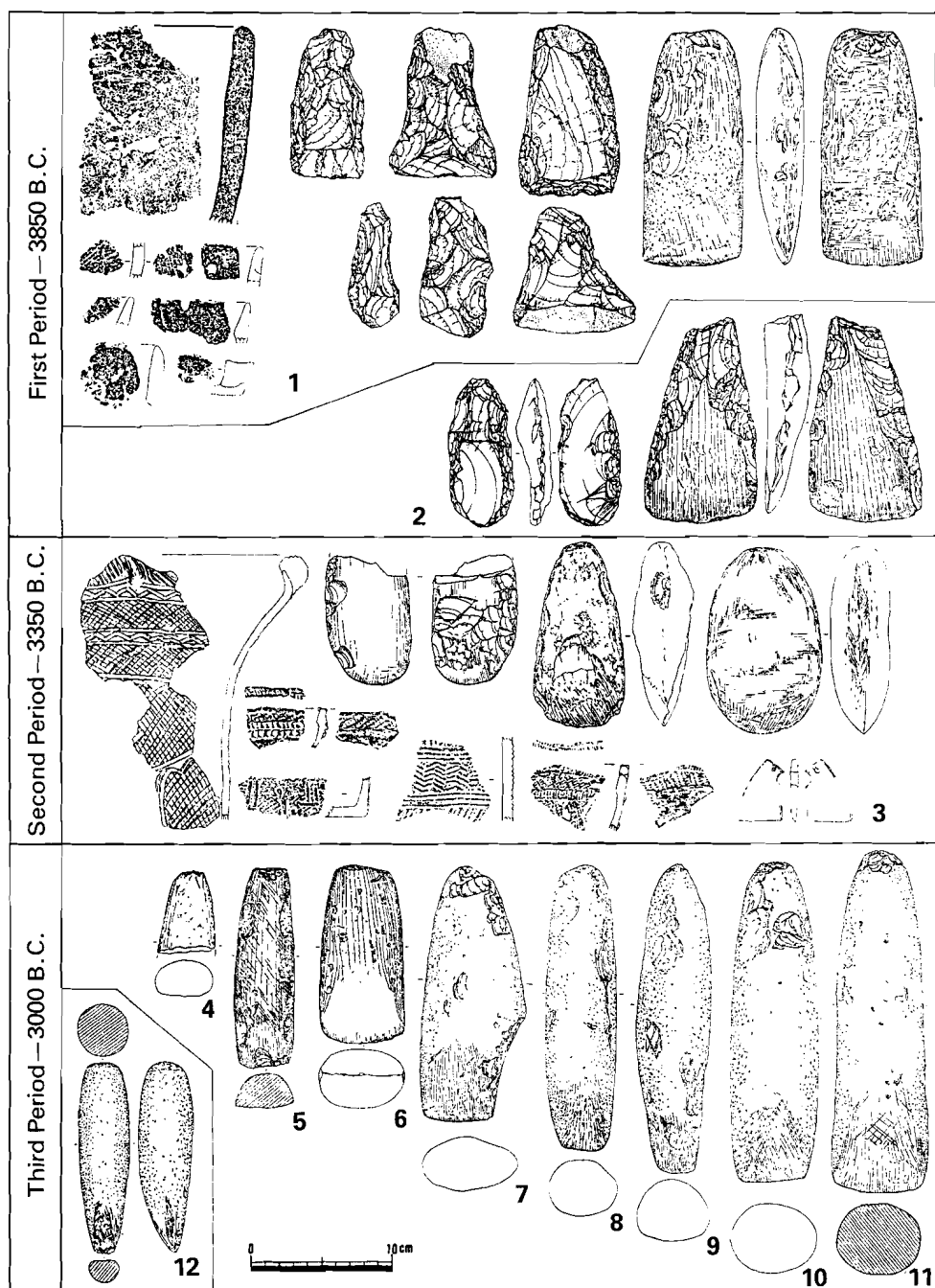


Fig. 9 Prehistoric culture of Hachijojima. 1, Yuhama; 2, Kashidate; 3, Kurawa; 4, unknown; 5, Yagisawa; 6, Kashidate Mukaizato; 7-10, Kuyobashi; 11, Mitsune; 12, Magobei.

other adzes, I consider these stone artifacts to correspond to the period spanning the late part of the Jomon and the Yayoi periods. However, the Yayoi culture from Japan proper reached only as far south as Miyakejima, and we must postulate that some other lineage of stone artifact culture reached the islands.

With regard to the polished stone adzes of Hachijojima, a number of scholars have issued statements. Tomoko Egami, in his conclusions to a discussion of stone tools from Saipan, states that the Yagisawa adze resembles adzes from Indonesia and the Philippines, adding that such beaked adzes are distributed through Southeast Asia and Oceania, occurring also on Iriomote Island in Okinawa (Egami 1973). Hiroaki Takasugi, in his conclusions on the stone tools of the Marianas, Izu Islands, and Ogasawara Islands, says that in a macrocosmic perspective, stonework of the sort that appears on Hachijojima occurs all over the world, due to inevitable correspondences in form brought about by functional similarities; he claims that migrations and the transmission of cultural elements in Southeast Asia and Oceania are unrelated to Hachijojima (Takasugi 1980a). In his remarks on islands during the Jomon period, Koichi Nagamine concludes that these adzes were introduced via the Kuroshio Current, probably by castaways, rather than as a result of migrations (Nagamine, Miyazaki, and Oda 1976). In any event, the polished stone adzes of Hachijojima are the only stone artifacts for which a connection with the Kuroshio Current area has been recognized, and the adzes which they most resemble are from sites in the Ogasawaras.

Marianas Polished Stone Adzes

During their residency on Guam from 1922 to 1925, Mr. and Mrs. Hornbostels of Hawaii's Bishop Museum collected a large number of artifacts from the Marianas. In her report on these artifacts, Dr. Thompson records 1422 adzes, 46 axes, 97 gouges, and 69 chisels (Thompson 1932). In addition, Kotondo Hasebe also collected 15 polished stone adzes from Saipan and Tinian (1928). From 1936-1939, some 19 polished stone adzes were found by Japanese residents on Saipan (Egami 1973).

After the war, with the arrival of the archaeologists Spoehr and Reinman, research in the Southern Marianas began in earnest, and the results of their work have been published (Spoehr 1957, Reinman 1968). In addition, new excavations by Japanese researchers were initiated (Takayama and Egami 1971, Takayama 1973, Egami and Saito 1973, Takayama and Intoh 1976). As a result of this work, a stratigraphic chronology for sites in the Marianas was worked out, with the various periods established through ^{14}C dating. From this it has been possible to achieve a rough interpretation of the polished adzes discovered in each cultural layer, and to make some inferences about the large number of polished stone adzes collected before the war.

It is not certain when man first settled in the Marianas, but in the light of our present knowledge, human habitation appears to predate 1500 B.C. (Reinman 1972). In the ninth layer at the Chalan Piao site on Saipan, which has produced the oldest ^{14}C dating of 1527 ± 200 B.C., a Type-1 adze (Thompson 1932) appears, together with Marianas Red pottery (Spoehr 1957, Takasugi 1979). As noted earlier, Marianas Red is the oldest pottery to occur in Micronesia, and examples of this pottery were recently excavated by Jun Takayama on Ngulu Atoll in Yap at a depth of three m below the surface. Takayama states that the pottery probably dates back to around 1000 B.C. (Takayama 1980) and proposes a Philippines-Yap-Marianas transmission route for Marianas Red pottery.

Marianas polished stone adzes already appear at the earliest state (Pre-Latte period), and in the later Latte period (which produces Marianas Plain pottery) they are much in use. A Type-1 adze was excavated at the Ogjan site on Saipan in Layer 2, and it has been placed within the historic period (Spoehr 1957). From this fact, it is evident that polished stone adzes were in use in the Marianas over a very long period of time. In the records of the first Europeans to come into contact with the Chamorro natives in the sixteenth century, we are told that the natives used tools made of stone, shell, bone, and wood (Spoehr 1957).

Here I would like to discuss the different types of Marianas polished stone adzes. Thompson divides her 1634 artifacts into adzes, axes, gouges, and chisels, and subdivides the adzes into Types 1-3 (Thompson 1932). Spoehr has somewhat revised the way the adzes are subdivided, but uses the same three classifications (Spoehr 1957). These are the basic adze types encountered in any research on the polished stone adzes which occur widely throughout the Pacific region, and the same classification can be applied to the Izu Islands, Hachijojima, Ogasawara, and Kita-Iwojima stone adzes.

Thompson's Type 1 is a cylindrical- or spindle-shaped hand adze with a round cross-section. Type 2 is a triangular or rectangular hand adze with an elliptical cross-section. Type 3 is a rectangular hand adze with angular edges and a flat, smooth surface (Egami 1973). From the stratigraphy of the excavations where they were found, we know that Type 1 is an old adze type, while Types 2 and 3 are recent (Spoehr 1957). Type-2 adzes are said to show traces of having been worked with *Tridacna* shell.

No axes are reported to have been discovered from stratigraphic excavations in the Marianas (Egami 1973).

A gouge from the second layer of the Muchon site on Rota Island has been given ^{14}C datings of 1335 ± 100 and 1525 ± 100 A.D. (Takayama and Egami 1971).

No chisels have been discovered from stratigraphic excavations (Egami 1973).

From the above survey of the polished stone adzes of the Marianas, it is evident that these stone artifacts have been in long use, spanning the Pre-Latte period, the Latte period, and the period of European contact. Moreover, the Marianas fall within the cultural sphere of the cylinder adze (Walzenbeil) which is widely distributed throughout Oceania and East Asia, including Japan. A number of authors (Heine-Geldern 1932, Beyer 1948, Loewenstein 1957, Duff 1970) have discussed the route of diffusion for this cylindrical stone adze. The four routes proposed are: (1) Indonesia-Philippines-Taiwan-Japan and China; (2) the same route, but in the opposite direction; (3) Japan, Ogasawara Islands, Marianas, Carolines, Melanesia; and (4) Philippines-Marianas. Esaka has proposed a route the reverse of (3) as far as Igusa-type pottery is concerned, but this has been disputed by Jun Takayama (1970). These various theories on the dissemination of cylindrical adzes have all been criticized, and it is impossible to unconditionally state that any of them is correct. However, from a comparative study of the stone adzes of Kita-Iwojima we can say at the present time that the Marianas and the Ogasawara Islands belong to the same cultural sphere (Kono 1942, Yawata 1948, Egami 1973, Oda 1978). It is an indisputable fact that there was human traffic between the two island groups (Fig. 10).

Artifacts Discovered in the Ogasawara Islands

As artifacts from the Ogasawaras available for archaeological study, we have the three polished stone adzes said to have been discovered on Kita-Iwojima. As discussed in the

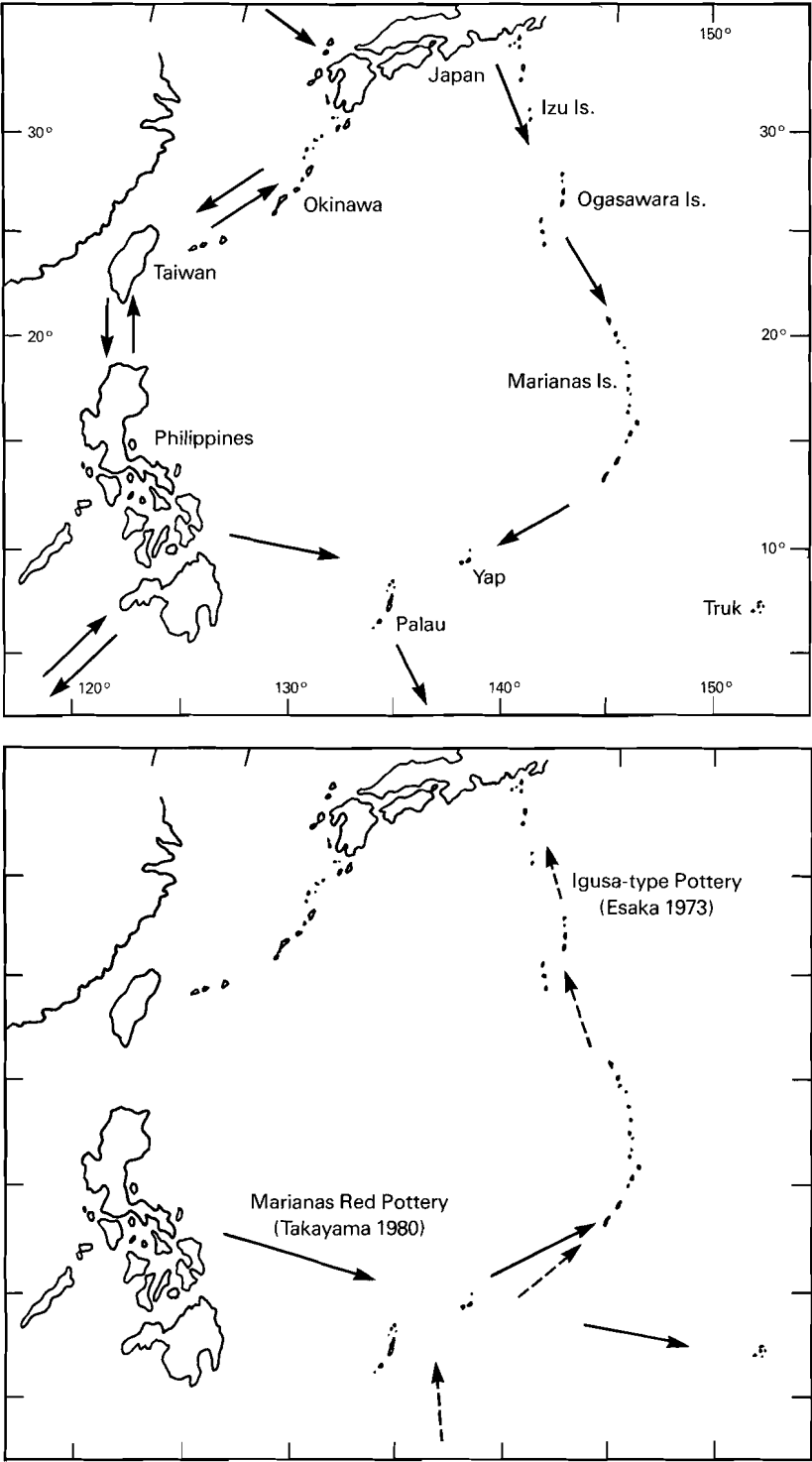


Fig. 10 Diffusion routes for cylinder adzes (top) and pottery (bottom).

foregoing, a number of researchers have commented on these artifacts, and they are accepted as belonging to the same group as the Marianas cylinder adzes. We can thus assume that there was some sort of contact between the Marianas and the Ogasawaras. The dating of these artifacts is unknown, because none of the gouges discovered in the Marianas has been unearthed from stratigraphic excavations. However, one of the three Kita-Iwojima adzes resembles an adze from Hachijojima in the Izu Chain, which is thought to date to the period from the Final Jomon to the Yayoi.

A number of unresolved problems surround the stone artifacts collected at Oneyama on Chichijima, and I would like to consider them at a later date.

The bone and shell artifacts discovered at the construction site of the Okimura municipal housing project on Hahajima are surface artifacts and as such cannot be dated. The bone artifact is a lure hook; when Ichiro Yawata stopped on Chichijima upon returning to Japan from his work in Micronesia, he observed many hooks on display at an exhibition of local products (Yawata 1930). He learned that fish-shaped fish hooks were used in the Ogasawaras, and included the Ogasawaras among other regions such as Polynesia, Melanesia, and Micronesia where they are distributed. The hook from Okimura is a different type from that referred to by Yawata, but we can assume some sort of regional connection between the Ogasawaras and the other areas as far as their use of fishing gear is concerned.

The cowry-shell artifact with a hole in the tip may have been used as a pendant. The cowry is used widely in China, Southeast Asia, Africa, Europe, and Oceania, and was prized as a valuable, as money, and as an ornament (Yawata 1938). Shell artifacts have been unearthed at many sites in the Marianas. Two *Tridacna* pendants (12 cm and 12.5 cm in length) were collected by Yawata on Alamagan Island in the Northern Marianas, and he states that he found eight other artifacts on the island (Yawata 1940). From the soil adhering to its surface and from the degree of wind erosion, the cowry pendant discovered at Okimura on Hahajima does not appear to be of recent manufacture, and probably dates to before the appearance of the Ogasawaras in written documents. Thus more research is called for on the similarities between these artifacts and shell artifacts from the Marianas.

SUMMARY

The following summarizes the archaeological work done in the Ogasawaras discussed at length in the preceding pages.

1. As far as we can discern from the old documents, the Ogasawara Islands were uninhabited up until 1830.
2. In the late 1920s Takenoshin Nakai of Tokyo University described three stone adzes said to have come from Kita-Iwojima. These remain the only archaeological material we have from the island.
3. In 1972 the Tokyo Municipal Site Survey Group (group leader Koichi Nagamine of Kokugakuin University) surveyed various sites for 20 days. During this survey the group collected archaeological artifacts at Oneyama on Chichijima and Okimura at Hahajima. This was the first survey to be carried out using archaeological methodology.
4. Traces of prehistoric human habitation predating the first written accounts of the islands have been found in the Marianas Islands and the Izu Islands which lie on either side of the Ogasawaras. We can infer from this that it is not unlikely that people crossed over to the Ogasawaras and lived there.

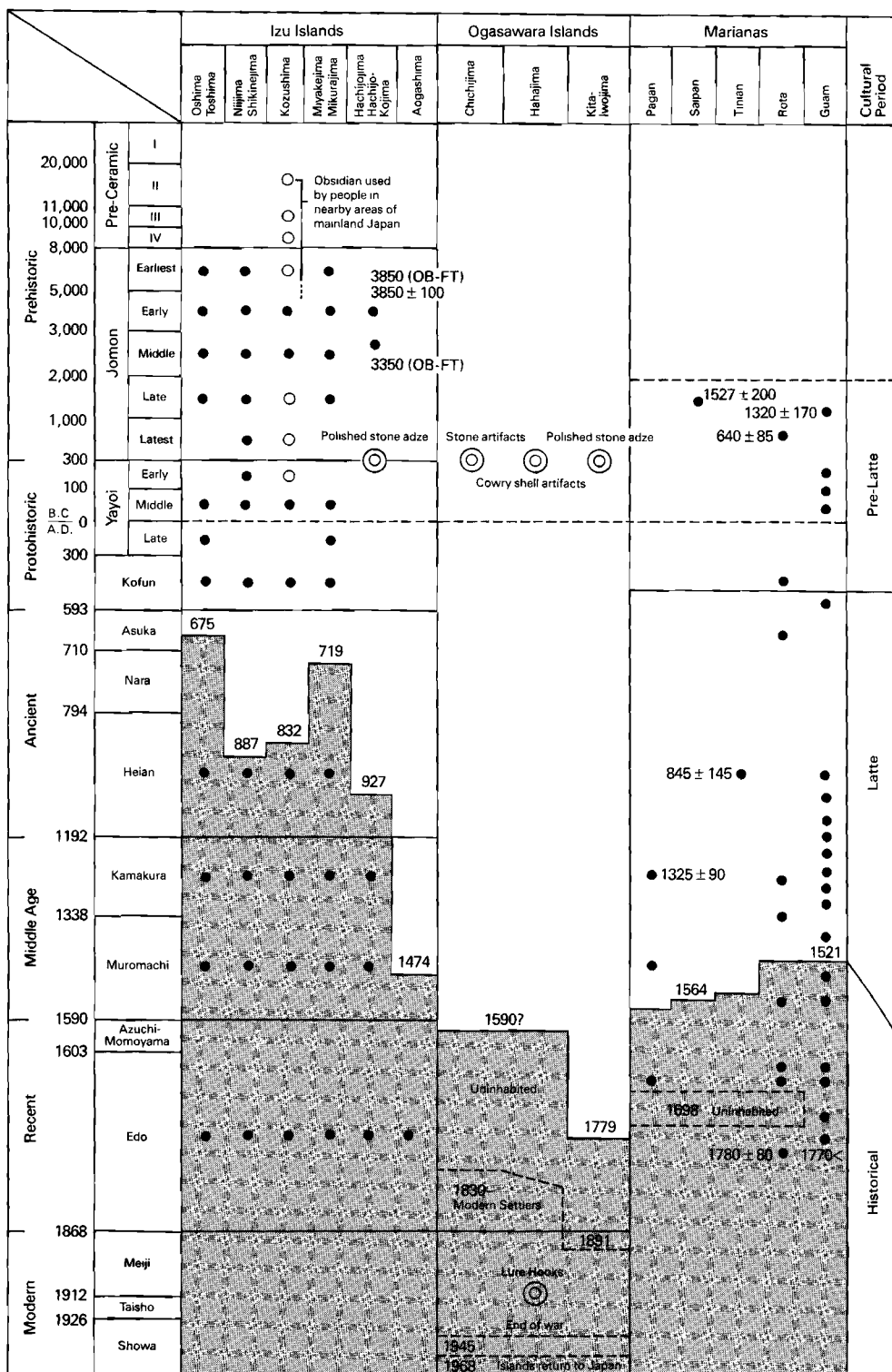


Fig. 11 Chronology for Ogasawara Islands and related areas. ● = clearly dated sites and artifacts; ○ = undated artifacts. Shaded section shows period from first historical mention of islands to present. ± dates are for ¹⁴C dating. OB-FT = fission-track obsidian dating.

5. The polished stone adzes discovered in Kita-Iwojima closely resemble the gouges from the Marianas and the stone adzes from Hachijojima in the Izu Chain; the islands thus fall within the cultural sphere of cylinder adzes which are widely distributed in the Pacific area.

6. The bone artifacts (lure hooks) and the shell artifacts (cowry pendants) from Okimura on Hahajima suggest a relationship with the Marianas Islands.

The archaeological artifacts from the Ogasawaras listed above consist entirely of surface finds. A more precise analysis must await the discovery of more clearly identifiable artifacts and sites, such as is possible only through methodical excavation surveys (Fig. 11).

CONCLUSIONS

Archaeological surveys of Tokyo's island areas have been carried out with comparative frequency on Hachijojima in the Izu Islands. However, in the case of the Ogasawaras, the difficulty in getting to the islands, the presence of leftover wreckage from the war, and the thick undergrowth of koa haole all make it hard to plan a survey. Consequently not a single archaeological survey has been carried out since 1972. In the meantime the islands have no doubt experienced a higher degree of growth and development. Perhaps well-preserved stone, bone, and shell artifacts are being unearthed in the course of leveling and cutting away the land. This makes it all the more urgent that a second academic survey team be dispatched to the islands as soon as possible.

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