

Archaeological Investigations in Eastern Taiwan

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INTRODUCTION

RECENT advances in the archaeology of Taiwan have taken place primarily on the west coast where prehistoric cultures are clearly related to the cultures of southern mainland China (Chang and Stuvier 1966). This paper purports to update information concerning the east coast of the island through a survey of the literature and to report unpublished surveys and excavations.

Eastern Taiwan, as defined for this report, extends from the southern portion of the Ilan Valley to the southern tip of the island at K'en Ting and O Luan Pi (see map, Fig. 1). From Hualien to Taitung, the area includes both the Pacific coast and the interior rift valley, which is separated from the coast by a range of mountains that vary in height from 1,000 m to the north of Taitung to 2,000 m in the southern portion of the island. The coastline between Taitung and Hualien in places is bordered by a strip of flat land, but it is generally precipitous, with very deep water near the shore. The interior valley varies in width from 8 to 14 km. (Hsieh 1965: 120), and its floor is covered with thick alluvium. Two islands, removed from the coast, Lü Tao (also known as Kashōtō, Green Island, Samasana, or Itanasai) and Lan Yü (known as Kōtōsho, or Botel Tobago) are also included. See Glossary, page 155.

EARLY CONTACTS AND PREVIOUS INVESTIGATIONS

Lan Yü may have been seen by Chinese as early as 1225 (Liu and Wei 1962: 1), according to an early Chinese document known as the *Chü Fan Chih* (Records of various barbarians). Apparently, neither the islands nor the east coast itself ever received the concentrated contacts in the Sung and Ming that were experienced in the Ryukyus to the north. However, Kano illustrated stoneware jars that he attributed possibly to the Ming (Kano 1946: Plate 9); the jars were used by the Ami in the new-ship ceremony. These jars are very similar to specimens from the Atanoshi and Misuku sites of the Ming period on the island of Hateruma in Yaeyama (southern Ryukyus) (Pearson n.d.). Kano believed that the jars reached the Ami by way of

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the Batan Islands (1946: Plate 9). Settlement of the area by Fukien Chinese did not begin until the nineteenth century, and in the more remote coastline and mountain areas, it can well be said that the Historic period did not begin until the twentieth century.

Archaeological and ethnographic work began soon after the Japanese received Taiwan by

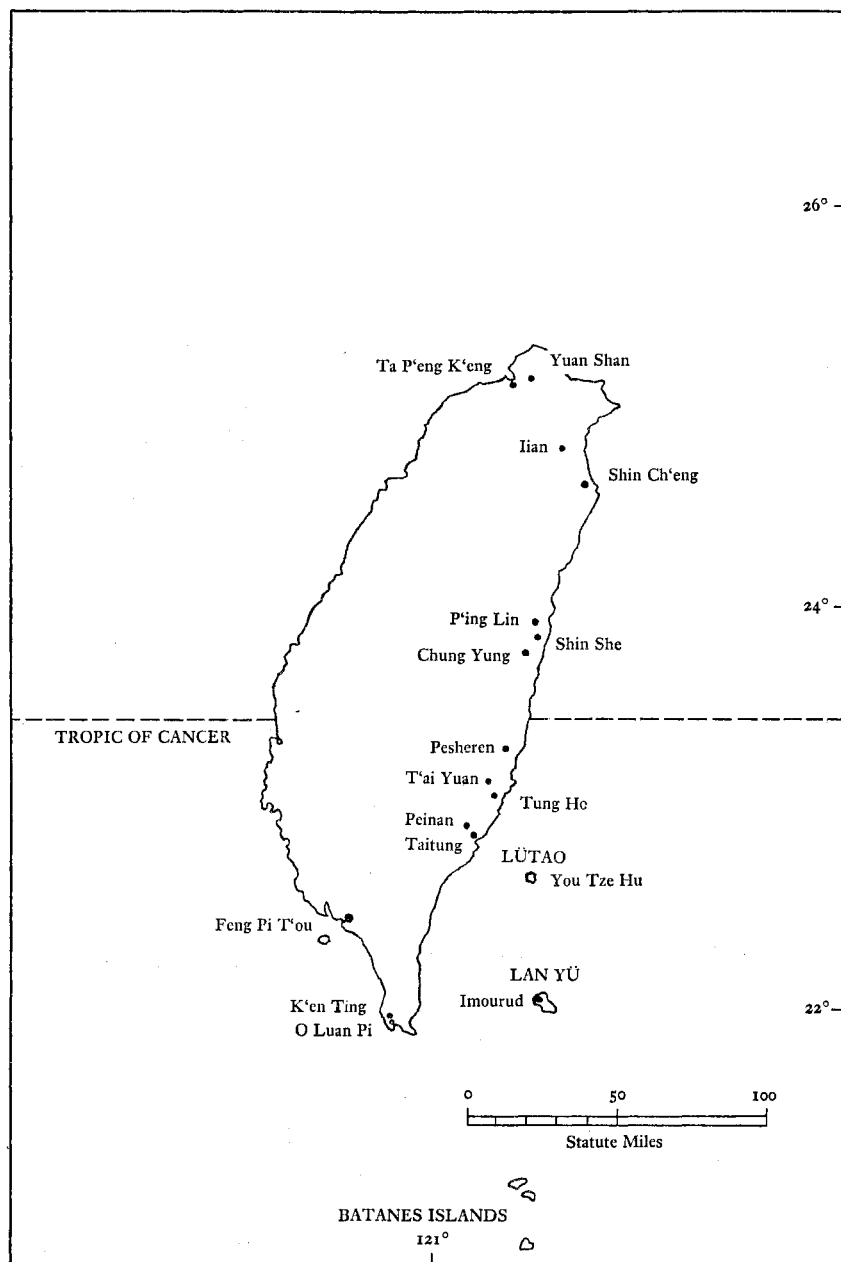


Fig. 1 Archaeological sites in Taiwan. (Map from Pearson n.d.; forthcoming, fall 1969).

the Treaty of Shimonoseki in 1895. Ryūzō Torii travelled to Lan Yü at the end of the nineteenth century (Torii 1894), and Tadao Kano made a number of excavations on the east coast during the 1920s-1930s (Kano 1930). Kano's research covered many topics and culminated in *Illustrated Ethnography of the Yami* (Kano and Segawa 1956). In Kano's *Studies in the Ethnology and Prehistory of Southeast Asia* (1946, 1952) he included a survey of the sites and artifacts from Lü Tao and Lan Yü, a jar burial found on Lan Yü, cist tombs from the east coast site of Ma Wu, and comparative data from the Babuyan Islands of Camiguin and Dalupiri. Kanaseki and Kokubu excavated a dwelling site near Peinan, near Taitung, in January 1945 (Kanaseki and Kokubu 1957). Members of Academia Sinica surveyed several east-coast sites (Sung and Shih 1953) and discovered new locations (Wu 1963). In the spring of 1963, W.H. Sung of the Department of Archaeology and Anthropology, National Taiwan University, conducted a survey both in the rift valley and along the Pacific Coast and made exploratory excavations at T'ai Yuan and Ch'ang Pin. In the summer of 1963, I conducted a month-long survey of the major sites, making surface collections and salvaging a cist tomb near Shih Shan. In July 1965, under my direction, excavations were carried out at the T'ai Yuan site for two weeks. The artifacts collected by Sung and myself are in the Department of Archaeology and Anthropology of National Taiwan University. Examples of the megaliths from several sites on the east coast are in the collections of the Institute of Ethnology, Academia Sinica, Nankang, along with some archaeological materials collected from Lan Yü after the last war. Some prewar material remains in the Institute of Anthropology, University of Tokyo.

THE MAJOR SITES INVESTIGATED

Only three sites on the east coast have undergone systematic excavation. These are the T'ai Yuan site, the Peinan site, and a site in the hills behind the village of Ch'ang Pin. The details of the 1965 survey and excavation of T'ai Yuan and a summary of Kanaseki and Kokubu's excavation of Peinan are presented in this section.

The T'ai Yuan Site

The T'ai Yuan site is situated in a rugged interior valley of the eastern coastal range. From the Pacific Coast, the land rises gently for more than a kilometer to the base of some low but rugged mountains, which form the eastern wall of the T'ai Yuan Valley. Until several decades ago, the only entrance to the valley was along the bed of the Pei Ch'i (North River). Since this route was very uncertain and dangerous during many times of the year owing to land slides and flooding, a tunnel was cut through the mountains by the Japanese. The valley, which is several kilometers long, is composed of terraces of varying heights along the river and is surrounded by mountains from 500 to 1,000 m high. Above the area of alluvium and boulders deposited by the river, the top soil is black clay loam, which has proved ideal for agricultural development undertaken by the Chinese and local aborigines. Below the black topsoil, which is of varying depth, there is hard, yellow, rocky clay.

The site of T'ai Yuan extends over three terraces, east of the river, and east of the road to Mei Lan, about fifteen minutes' walk from the village of T'ai Yuan. From the river bottom, the site is elevated about 100 m and separated from the river by almost 1 km. The excavation locus on each terrace has been given a number, and each area in which we placed trenches has been given an alphabetic designation; thus, 2a is an area that we excavated on the second terrace, the lowest terrace being number 1 (see map, Fig. 2).

is coarse basalt. On the south face of the stone is a depression, and on the north surface there is a horizontal groove on the head (Plate 1c,d). At the base of this stone and each stone at T'ai Yuan believed to be in its original position, a trench was made to determine the shape below ground level. The front or back was only partially excavated in an effort to prevent the stone from falling out of its apparently original position. For the dimensions of some of the uprights from T'ai Yuan, consult Table 1.

TABLE 1
DIMENSIONS OF SELECTED STONE UPRIGHTS FROM T'AI YUAN*

NO.	HEIGHT	WIDTH	MAXIMUM THICKNESS
2	130		40
3	159	58	30
4	154	65	37
5	148	152	29
11	351		33
12	103		40

* Measurements in cm.

To the north of stone No. 2 is a piece of coral limestone conglomerate with a roughly rectangular shaft and a bulbous tip, designated No. 1. On the south surface, where the shaft is enlarged to form the upper portion, there are three shallow holes. The third stone of brown sandstone has now fallen and is fragmented, and there is no way to reconstruct its original shape. A trench 2 m by 1 m between the stones failed to reveal any cultural material other than a few coarse, orange, gritty sherds from immediately below the surface.

Removed by 71 m, 44° south of east, is a large shouldered upright of fine brown sandstone, designated No. 4. The southern, lower surface has been beveled. The two large shouldered stones, Nos. 2 and 4, face in the same general direction—to the north. It should be noted that none of the stones protrudes beyond the black topsoil into the yellow clay; therefore, there is no stratigraphic means of ascertaining when or how the stones were erected.

In a banana field slightly above and to the east of the stones mentioned above, there are 2 more examples, both of white coralline limestone. One is a large column, rectangular in cross section, but with a hooked tip, suggesting that at one time it may have been perforated or grooved as are the uprights at Peinan and Wu He (see below). The other end of the stone has been broken, and two small pieces lie together. The large stone was designated No. 11, and the small, phallus-shaped stone next to it, No. 12.

No white limestone example of the shouldered stones was found. There may have been a purposeful selection of white limestone for the smaller uprights, which are somewhat phallic in shape. In this lowest area of the site (Locus 1), potsherds, stone adzes, and hoes were collected from the surface.

In a slightly higher field, separated from the above remains by a small stream and a gulley, but still included in Locus 1, there were more stone remains and artifacts. Sherds, basalt adzes, and other artifacts were abundant. Beneath several piles of stones set aside by the farmers in the clearing of the field for cultivation, there were 3 large stones, Nos. 5, 6, and 7, which seemed to have been undisturbed. The largest is a flat white limestone slab that has been broken *in situ* (Plate 1a). It gives no clues as to its original function. The slab shape is similar

to examples from Tolan, one of which has a pair of round bumps, suggestive of breasts, on the upper portion above ground.

A few sherds and 1 basalt adze were found to the east side of the T'ai Yuan example, which was designated No. 5. A short distance to the west was a mortar of sandstone (not numbered), and further to the west was a broken basalt shouldered stone (No. 6).

Locus 2

Locus 2 is situated in the fields above Locus 1, approximately 15 m higher in elevation, and closer to the east wall of the valley. The most interesting finds and the bulk of the cultural materials came from Locus 2. In two locations, irrigation ponds have recently been dug (since the 1963 survey), and from the fill and exposed banks of these ponds, pottery is abundant. Immediately to the west, below the water ponds, stands a single Ami house; the front yard of the house was the site of another test excavation. On the basis of the surface collections, one area, the pond to the northeast of the house, contained more wheel-made and slipped pottery than any other area that was tested.

On the edge of the northern water pond (Locus 2a), a portion of a slate coffin (Burial 1) was visible in the bank. This was excavated by our working down from the top, rather than removing it from the exposed bank. Covering the top of the coffin were 40 to 50 cm of black soil. The coffin was constructed around several boulders and some of the slate slabs had been removed in cultivation. Fragments of a stone needle (or pin) and potsherds, mostly coarse, orange, gritty, with a few coarse gray, were found. Under the slate at the north end of the coffin were the remains of a pot of orange gritty paste with a horizontal handle below the lip (Plate IIj). On the handle there are two parallel rows of elongated punctates or incisions. No bones were found.

Some 20 m to the east of this slate tomb, slightly higher on the slope, a test trench 2 m by 1 m was opened and excavated to a depth of about 20 cm. It had to be abandoned because the landowner feared that the cutting of the roots of the orange trees would lower their productivity. About 3 m to the north, in a vacant area, where the landowner had previously encountered several pieces of slate, another trench, 2 m by 1 m, was opened. At the north end of this trench (designated 2c), a few fragments of slate were located, and the excavation was extended to a group of slabs, which were uncovered and left *in situ*. The first group of slabs appeared to be in no symmetrical arrangement, and we concluded that a corpse had merely been covered with small rectangular slabs (Burial 2). On top of the slabs were found fragments of a thin, greenish, stone knife and a stone needle. Further clearing revealed the remains of at least 1 more coffin, projecting to the east of the first-discovered slabs. The orientation was approximately east-west. The poorly metamorphosed rock, which breaks into thin sheets, was an iridescent pale green schist. A few fragments of gray slate were also found. Kano (1952: 237) states that clay shale was used in the coffins at Ma Wu. The north side of the almost complete coffin was made of one rectangular slab of slate, carefully trimmed, while the east end, notched at the top, was of crumbly schist. The tomb seems to have been dislocated in the middle, since the west side is considerably lower than the east. Fragments of a knife, 2 serpentine adzes, and a rectangular serpentine bar 9 cm long, transversely perforated at both ends, were found, all on top of the slabs, as if they had been placed on top of the coffin. Outside the coffin, about the middle of the south side, near the top of the coffin, a roughly flaked fragment of quartz was found; perhaps it was part of a fire-making kit. Abundant coarse, orange, gritty sherds were found around the coffins, and in their interior,

but none was large enough to permit the reconstruction of the original shape of the vessels. No bones were found. The southern portion of the coffin was full of brownish clay that may have gradually seeped in during the torrential rains common to the area.

The final area of Locus 2, 2*d*, was the front yard of the Ami house, between the two water ponds and southwest of the coffins. Although the cultural deposit was only 20 to 30 cm deep, a test trench 1 m square produced more material than any other area in the entire site, including large sherds that were unbroken because the area had not been cultivated. At first it was thought that the remains in this excavation were left by the Ami only a few generations ago, but the pottery forms, including the *tou* pedestal foot, are not found in Ami material culture in museum collections. There were 4 fragments of shouldered stones found in Locus 2. None is in its original position. These stones, numbered 7, 8, 9, and 10, are distinguished from the shouldered stones of other loci by having a "nose"—a vertical ridge on the constricted portion (Plate 1*b*). All of these fragments were scattered.

Locus 3

Locus 3, a much higher plateau about 75 m above Locus 2, is reached by a path going straight up the hill between fields of fragrant grass, an important local crop. By the side of this path, there is a small sandstone slab with the shouldered portion broken off, designated No. 13. This terrace is the last flat area before the mountains (that separate the valley from the coast) rise sharply. Pottery, adzes, and fragments of slate are abundant in the fields, and shouldered stones, without the vertical ridge on the constricted portion, have been found here also. At least 2 of these shouldered stones have been cemented into the front wall of the farmer's house near the site. In the farmer's wall there is also a stone disc with a hole in it, designated No. 16. The most distinctive item in Locus 3 is a large stone bowl or tank of coarse sandstone. It is 50 cm high and 70 cm in interior diameter. The thickness of the lip is 12 cm. The bottom is missing and the sides are broken into three pieces (Plate II*i*). It is designated No. 15. On the north side of this bowl, almost under the bottom, is a large rectangular stone, 60 cm long, No. 14, which was not completely excavated. To one side of the bowl, apparently uprooted from another location, was a broken shouldered stone (Plate II*i*).

Artifacts from the T'ai Yuan Site

The most abundant material from the T'ai Yuan site is pottery, the various kinds of which are described below.

Corded Pottery

From the surface collections along the upper edge of Locus 1 and Locus 2 were found 7 sherds of sandy, corded pottery (Plate II*b*). None of these corded sherds occurred in the coffins or test pits. The characteristic form is a flaring rim that also appears in the corded samples from the bottom levels of Feng Pi T'ou and Ta P'eng K'eng, sites on the west coast of Taiwan excavated in 1964 and 1965 (Chang and Stuiver 1966). From these excavations, the corded pottery is regarded as the oldest pottery in Taiwan, having arrived from South China before 2500 B. C. (Chang and Stuiver 1966). In the large sites of the west coast, the corded pottery occurs below the Lung Shan or Yuan Shan strata in scattered locations. This may indicate a more scattered settlement pattern within the village or hamlet. There were no stone artifacts in association with the corded pottery at T'ai Yuan.

The outstanding features of east-coast corded pottery are the sandy textures and faint cord

markings on the exterior surface below the characteristic overhanging lip. Judging from the small sample, I would say there are no ring feet, although ring feet were found on pottery recovered from the west-coast sites mentioned above. Small perforations were often noted in the ring feet of west-coast corded ware.

Orange Pottery: Surface Collection

The most abundant pottery is coarse in texture and bright orange in color, occasionally with a reduced inner gray layer. The clay seems to have been previously mixed with sand, since the grit seems overly abundant, and of varying size. It is quite possible that the finished vessels were originally slipped with fine clay, but were fired at such a low temperature that the slip has weathered off. The grit appears to be composed of schist fragments. A general surface collection, which includes most of the sherds found in Locus 1, yielded a variety of forms that are outlined below. Following the outline there is a description of the pottery found at each locus.

TABLE 2
T'AI YUAN SURFACE COLLECTION: FORMS

FORMS	NUMBER FOUND
Spindle whorls	6
Flat perforated disc	1
Flaring mouth of jar	62
High ring feet	35
Low ring feet	2
Handles: Decorated	5
Plain, perforated	5
Plain	81

The term "high" is used to distinguish the usual form from two unusual low examples. The height of most of the ring feet cannot be measured, since they are incomplete, but a few selected complete ones ranged from 3.3 cm to 3.7 cm from the bottom of the foot to the point where the foot meets the bottom of the vessel on the interior of the ring.

Jars. One of the most common forms is a jar with flaring mouth. The total height of such a vessel might be 20 or 30 cm. In height and form these sherds coincide with those from the Lungshanoid strata of Feng Pi T'ou, in spite of the differences in paste. The shape shows little evidence of how the rim is attached; whereas, in Feng Pi T'ou, a tell-tale bulge of clay beneath the sharp bend where the body of the pot begins shows that the rim was appliqued.

Handles. Handles are of the same gritty paste described above. Handles are found plain, decorated, or perforated and decorated (Plate IIa,e); they appear to have been applied to the vessels both horizontally and vertically. Vertical rim handles extend from the lip to the shoulder, and in some cases bear a vertical perforation near the lip. One would imagine this to be a weak point if the vessel were suspended; however, if the body were encased in a twine bag, the pot could easily be suspended from the roof of the house. Several of these perforated rims have incised designs extending from the length of the handle in a single row down the middle, or in two rows down the outside of the handle. Further decorations include two rows



a



b



c



d

Plate I Stone remains from T'ai Yuan, Taiwan: *a*, large white limestone, shaped slab (scale on the top is approximately 6 in. long); *b*, broken top of a shouldered stone with ridge on one side; *c*, *d*, shouldered stone (obverse and reverse): scale is 1 m long, total height is 140 cm, or about 4 ft. 6 in.

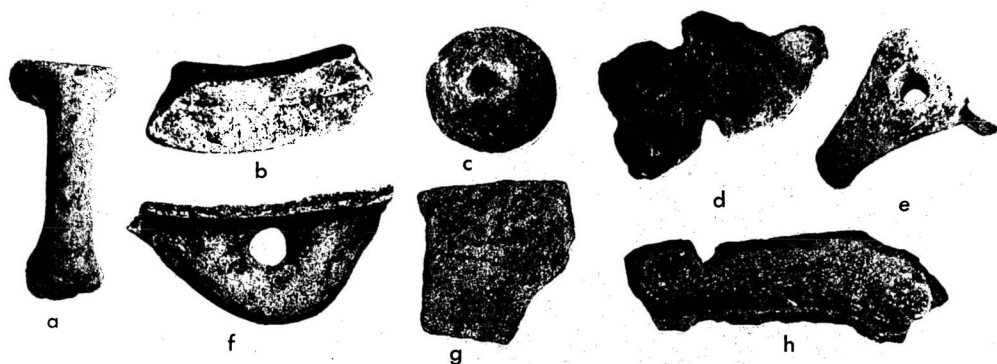


Plate II Artifacts and stone remains from the T'ai Yuan site, Taiwan: *a, e, f*, pottery handles of T'ai Yuan ware; *b*, sandy, corded pottery sherd; *c*, clay spindle whorl; *d*, perforated sherd; *g*, punctated sherd; *h*, perforated ring foot sherd; *i*, stone tank and shouldered stone; width of the narrow shoulder portion is 45 cm; *j*, fragmentary vessel of T'ai Yuan ware in a cist tomb; T'ai Yuan Site, Taiwan. With the exception of *i*, artifacts a-j are in the collections of the Department of Archaeology and Anthropology, National Taiwan University.

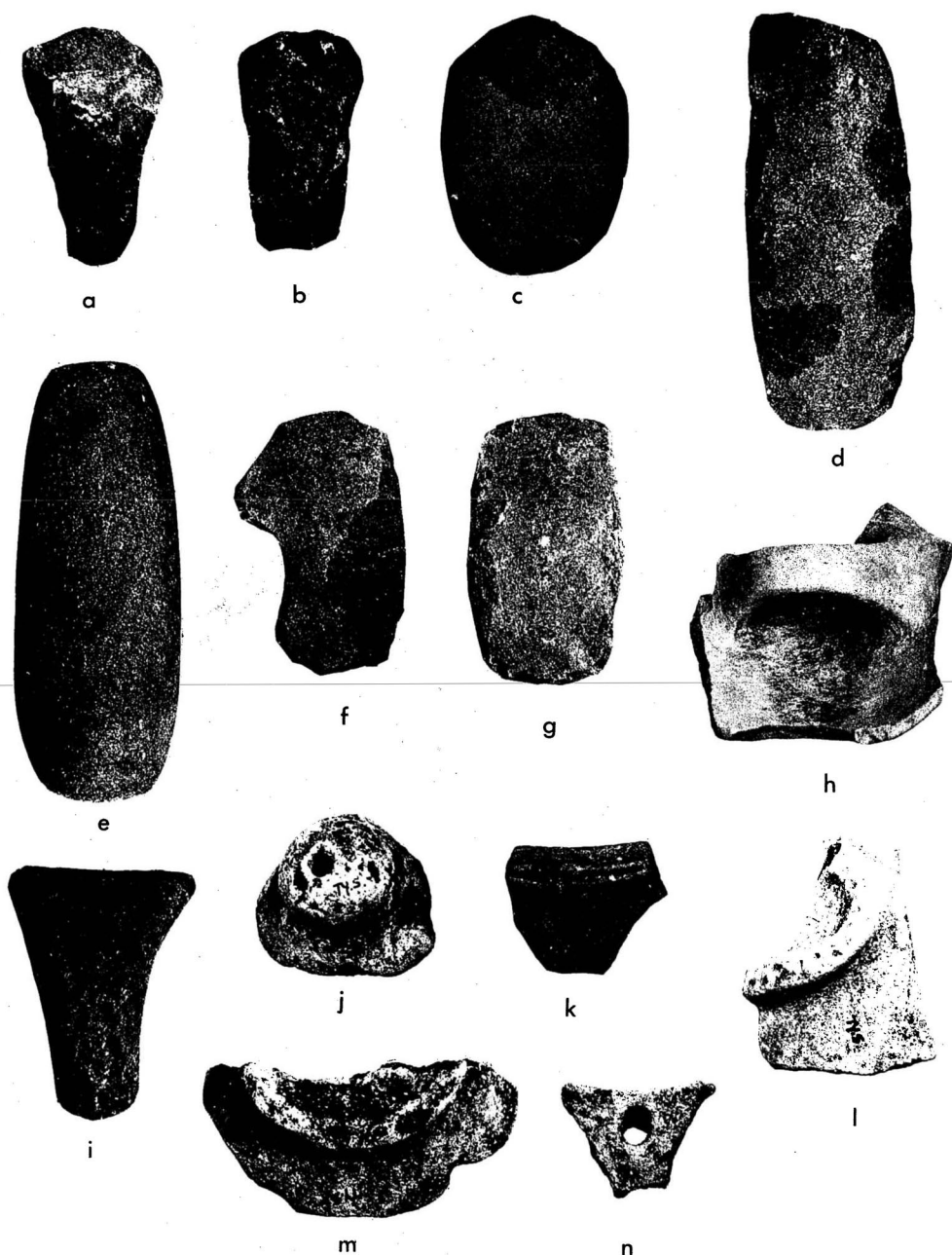


Plate III Artifacts from the T'ai Yuan site, Taiwan: *a, b, d, f, g*, chipped stone hoes of basalt; *c*, rough pebble chopper of green quartzite, *e*, basalt hammer stone; *h*, lid with handle; *i, n*, handles of T'ai Yuan ware; *j*, perforated lug of T'ai Yuan ware; *k*, sherd of corded ware; *l, m*, low ring feet of T'ai Yuan ware; all artifacts are in the collections of the Department of Archaeology and Anthropology, National Taiwan University.

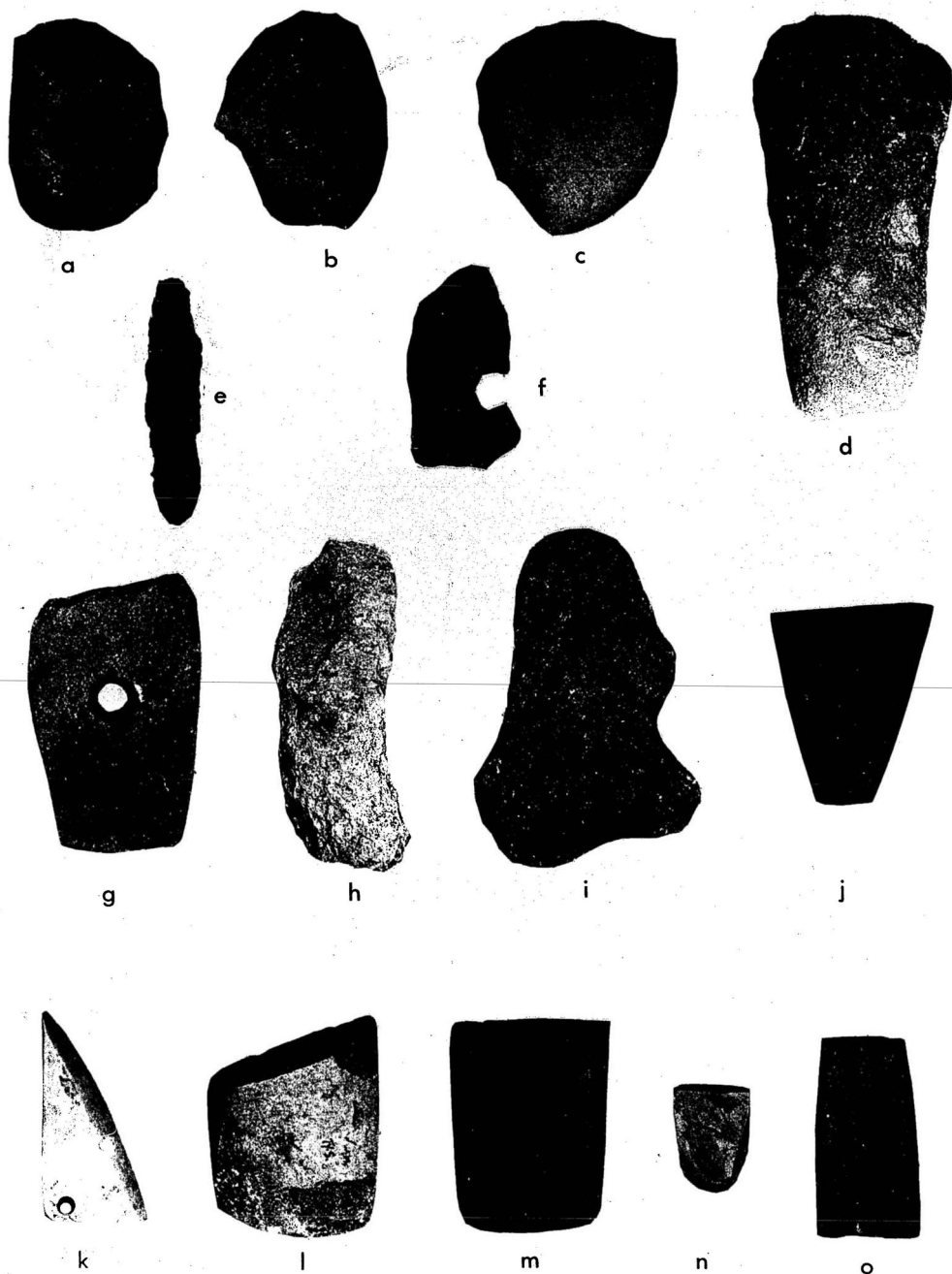


Plate IV Artifacts from K'en Ting and T'ai Yuan, Taiwan: *a, b, c*, quartzite pebble choppers, collected from the surface, K'en Ting site; *d*, basalt hoe, T'ai Yuan site; *e, f*, chipped slate artifacts, T'ai Yuan site; *g, k*, perforated knives, T'ai Yuan site; *h*, chipped knife of schistose stone from the T'ai Yuan site; *i*, chipped maul, possibly of Ami origin. T'ai Yuan; Department of Archaeology and Anthropology, National Taiwan University; *j*, fragment of thin serpentine knife from a cist tomb, T'ai Yuan site; *l, m*, polished rectangular adzes of green quartzite from the T'ai Yuan site; *n, o*, adzes of green serpentine from cist tombs at the T'ai Yuan site. All artifacts are in the collection of the Department of Archaeology and Anthropology, National Taiwan University.



Plate V The T'ai Yuan site, Locus 2, showing the general area and the topography of the T'ai Yuan valley.

of punctates separated by an incised line and successive rows of punctates (Plate IIII).

Another method of suspension was by attaching the cord to vertically perforated lugs made by applying a lump of clay to the rim. There were 4 such lugs in the surface collection, and 1 body sherd was found with a round perforation. Of the plain handles, most are incomplete; therefore, it is difficult to distinguish handles attached to pots vertically from those applied horizontally. However, since the handles are not the same at both ends, they appear to have been joined to the lip and shoulder vertically. Most are round in cross section.

Ring feet. Ring feet were probably attached to the base of the jar or *kuan* forms, though no complete examples have been found. Plate II*h* shows 1 ring-foot fragment that was found; it has a perforation about 1 cm from the base of the vessel.

There were also 2 very low ring feet found that were less than 1 cm high. One had a double row of dots along the bottom of the foot (Plate IIII, *m*). Perhaps the decoration was meant to be seen from below when the vessels were suspended.

Spindle whorls. There were 6 baked clay spindle whorls of coarse, orange, gritty paste found at T'ai Yuan (Plate II*c*). The diameter of the smallest is 2.7 cm, and of the largest, 5 cm. They are all roughly conical in shape, and the bottom of one specimen has been decorated with radiating rows of punctates. The other specimens are completely plain but are also heavily weathered. They may have been originally decorated. The general form is similar to those from the western plain of Taiwan but dissimilar to the broad, flat, disc-shaped form that I collected as an ethnographic specimen from Lan Yü. From T'ai Yuan there is a single, flat, perforated disc of pottery, 4 cm in diameter and 0.7 cm thick that does not seem to have any counterpart from western Taiwan. Also, several aberrant sherds seem to be sections of flat dishes and beakers. One of these sherds has two triangular raised portions, with punctate decorations; a similar piece from Tolan was believed by Kano to bear representations of human faces (1952: 132). A few of the flaring rims of the jars have a harder paste, lighter in color than the majority, rather similar to the buff sherds from Feng Pi T'ou.

Ami Pottery

From the surface collection, 25 sherds were isolated on the basis of their pastes, which is finer than the pastes mentioned above—sandy, rather than gritty. The sherds, which are not highly weathered, show a gray buff surface that has been smoothed over with wet clay. The handles are large, round lugs, two per pot, with vertical perforations. In some cases the handles appear to have been made of a tubular strip of clay, rather than from a perforated lump. Four fragments of the bottom of a perforated pot were also found on the surface. These pieces could be from a double-bottomed steamer or a burial urn with perforated bottom (Plate II*d*); neither of these two possible forms is found on the west coast.

Pottery from Locus 2

Locus 2*a* has the general environs of a small pond. In the pond's east bank we found the outline of a cist coffin, designated Burial 1. From the immediate area around and above the cist coffin were found handle fragments, flaring rims of jars (one of which was decorated with widely spaced shallow punctates), ring feet, including 1 with a perforation, 1 spindle whorl, and 2 sherds from shallow, hemispherical bowls. The average height of the 7 complete ring feet was 2.4 cm. In this same area, 2 rim sherds and several body sherds of a harder, buff-colored, wheel-made, slipped pottery were found.

The largest object found inside Burial 1 is a coarse, gritty, orange sherd whose rim and hori-

zontal handle are decorated with zigzag incisions. There are also the bottom fragments of a large pot of coarse, orange ware that may have been fired while it sat on the ground, since the bottom is coarse gray, while the sides are coarse orange. One corded rim sherd, believed to have been mixed up in the fill, was found in the disturbed area above the tomb.

Locus 2*b*, which was excavated to approximately 20 cm, yielded 4 handles, 9 ring feet, 2 mouths of jars, and 1 cylindrical lug that may be the foot of a *ting* tripod (cf. Kanaseki and Kokubu 1957: 56).

Locus 2*c* comprises the area around Burials 2 and 3. The sherds were scarce, small, and friable.

Locus 2*d* consisted of a cultural layer of black soil extending from the surface to a depth of 20 or 30 cm. One of the rims was decorated with punctates. The collars averaged 3.7 cm in height.

Vertical and horizontal handles are present, and a single concave lid with a horizontal handle extending from the two rims was found. One rim of a shallow, flat-bottomed bowl with a vertically perforated lug on one side was also found. Perhaps it was used for storing seeds or roots, suspended from the rafters of the house. One can see similar utensils made of basketry among some Taiwan aboriginal groups today.

Thin, flat sherds were recovered from the surface of 2*d*. Whether they belong to bowls or jars cannot be ascertained from the specimens at hand.

Locus 2*e* is the second, southern pond. This area contains the predominantly harder, buff-colored, wheel-marked and often slipped pottery, although coarse, orange, gritty sherds also occur. Among the harder, wheel-marked pottery, there are ring feet and rims of jars and bowls. There is one hard gray sherd bearing very fine impressed lines, made by a roller or twined cord. Another aberrant sherd of coarse, orange, gritty paste has incised straight lines.

Stone Artifacts

Stone artifacts from the cist coffins. The most abundant stone artifacts are thin, greenish slate knives, with perforations or notches for attachment (Plate IV*j*). The fact that the knives are usually only 1 or 2 mm thick compels one to question whether they ever had practical functions. In the dislocated section of Burial 2, a fragment of a dark gray slate knife was found that has polished and beveled edges; it may have been used for cutting rice. Kanaseki and Kokubu argue that the harvesting of millet involves the plucking of the entire stock, since the stem has no use, while the harvesting of rice involves cutting the ear from the stem to save the stem for further use (1957: 61, 62). Thus, they say the small knife indicates rice agriculture.

Another knife fragment, of green slate, had a serrated edge. Near the bottom of Burial 3, a roughly chipped lump of quartz was found; it may have been used as an ornament or as part of a kit for starting fires. On the lid of Burial 2, 2 small adzes of pale green serpentine, with rectangular cross section 3.7 cm and 7 cm long were discovered (Plate IV*n,o*). Another small green adze of similar form was found to the east of megalith No. 5, at a depth of 45 cm.

A finely polished, rectangular-sectioned, serpentine bar 9 cm long and 0.4 cm wide, with a perforation in each end, was found in Burial 3. At the time of excavation, we concluded that it was part of a necklace, but if such were the case, it seems strange that only one link would be interred with the body. A large, crude, leaf-shaped slate fragment, in very friable condition, was found near Burial 2. There is the possibility that it was intended as a rough halberd, to be placed on top or near the tomb as an offering.

Recovered from the coffins and their surroundings were 12 slate needles that showed

scratches on the sides from use or working. They may have been used as hairpins or fasteners for clothing. With the variety of materials available, including bamboo or bone, it seems unlikely that brittle stone would be used for awls.

Stone artifacts from the test trenches. Locus 2d yielded two interesting chipped basalt adzes that show slight evidence of a tang. They are completely chipped, with oval cross section. Perhaps they were used as specialized hoes, since completely polished rectangular adzes, presumably used for woodworking, were also found.

Rough slate artifacts were first recognized from 2d. Roughly shaped knives are the predominant form (Plate IVe,f). The T'ai Yuan site abounds in slate fragments that weather and disintegrate easily. Since other Formosan aborigines use slate for architectural features other than tombs, I imagine that this was the case in the prehistoric east-coast sites. This conjecture is borne out by the Peinan site (see below). A single polished slate arrowhead collected from the surface has a central perforation like the Yuan Shan arrowheads (cf. Sung 1955: Fig. VI, VII). A rough, rectangular fragment of a limestone whetstone was also removed from the surface.

From Locus 2d was found an oblong bar, 7.6 cm long and 1.2 cm wide, of green serpentine, with a slightly tapered hole running the entire length through the center. It is identical to examples excavated by Kano from Lü Tao (1952: Fig. 88).

Stone artifacts from the surface collections. The following groups of artifacts were classified in the surface collection:

- a) roughly chipped basalt adzes or hoes (123 specimens) (Plate III a,b,d,g). They are spalls removed from pebbles and retouched. The cortex is visible on the back of every specimen; the blade flares slightly from butt to bit; the cross section is lenticular or roughly oval; there is no polishing or finishing on the sides;
- b) 24 additional specimens that appear to constitute a subcategory of "concave undersides"; manufacture was the same as for other hoes, but the curvature and a slightly more flaring bit may indicate use for a more specialized task;
- c) andesite or basalt oval hammerstones; show pitting from use on the ends and both sides (3 specimens);
- d) large oblong hammerstone of basalt or andesite; show signs of use on ends only; size varies from 9 cm long and 5 cm wide to 19 cm long and 8 cm wide (Plate IIIe);
- e) 1 small, very round stone, 6 cm in diameter; shows no traces of percussion; may have been used as a boiling stone for heating liquids in a manner similar to that used by the Ami tribe today;
- f) 1 retouched basalt spall about 5 cm thick and 10 cm long; may have been rejected as too thin for a hoe, or may have had a special function for clearing vegetation or cutting rough material (Plate IVf);
- g) 1 whitish schist curved knife, roughly chipped (13 cm long, 4.5 cm wide) (Plate IVh);
- h) sandstone oblong picks or mauls with rounded cross sections and blunted edges;
- i) perforated stone knives. One is rectangular with two edges polished flat so that they are blunt (Plate IVg). The second, found in Locus 3, is of fine, hard, polished white stone, triangular in shape. It appears to have been originally rectangular, and was subsequently broken and redrilled for use, since one of the perforations cuts through the bevel insecurely close to the edge (Plate IVk);
- j) 1 basalt shouldered stone which looks like a hoe; the only feature which separates it from the first group is the presence of "shoulders" at one end;

- k) 2 large quartzite choppers, both of which are irregular spalls, with a crude retouch on one edge. They were probably held in the hand, rather than hafted (Plate IVa);
- l) 1 dense, hard, greenstone chopper, of the same material and form as examples from surface collections made at the cist coffin sites of K'en Ting and O Luan Pi—made from a rough spall, with the cortex still on one side of the stone; chipping is rough;
- m) a chisel or adze of the same kind of hard greenstone material; consists of a smooth, water-washed pebble with one edge ground for use;
- n) polished, rectangular greenstone adzes (Plate IVl,m); 3 were found on the surface and 1, in Locus 2a; they are extremely well-finished tools. The 3 found on the surface seem to have been made to some relatively rigid standard, since their width and thickness are closely similar. The short cross section varies from 1.4 to 1.7 cm, the long cross section from 1.5 to 2 cm, and the width from 5 to 5.5 cm. A second group of rectangular adzes made of green serpentine resembles the specimens from Burial 3. These adzes have proportionately longer cross sections than those made of hard greenstone. Serpentine was generally used only for ornaments; therefore, the adzes may have been intended for nonutilitarian functions. While their distribution is not limited solely to burials, they are the only forms that appear in graves in which adzes are included; perhaps they appear on the surface only when the coffins have been disturbed. The P'ing Lin site, on the eastern slope of the central range in the interior valley, was apparently a workshop for serpentine ornaments;
- o) a quartzite or sandstone hafted axe with very dull edges, rather like a maul, may have been made by the Ami; the form is very similar to Ami examples in the Institute of Ethnology of Academia Sinica and is unknown from the other archaeological sites of the east coast (Plate IVi).

Associated Remains

Recovered from the T'ai Yuan site were 3 cist coffins. None was in a perfect state of preservation. I excavated a more complete example in 1963 on the slope of Shih Shan, north of Taitung, on the west side of the road, about 1 km north of the village. The 1963 find was a cist tomb 1.8 m long. The usual form seems to have been to use slabs of slate or shale that formed a stone box. It is a standard feature of the Taiwan east-coast examples to have the two end slabs protrude a considerable distance below the bottom slab. This seems to give the coffin stability. The grave goods include stone ornaments, knives, pottery, stone needles, and serpentine adzes. In another tomb described by Wu (1963: 73-77), stone rings, beads, and potsherds were found; whereas, in the one at Shih Shan, two long serpentine adzes were the only contents. The slabs of the Shih Shan coffin bore perforations near the ends of the slabs as if they had first been bound or lashed together, but this feature was not noted in the T'ai Yuan coffin. The holes may have been used for carrying the slabs from their place of origin to the burial site.

The Peinan Site

The Peinan site is situated 4 km northwest of Taitung, about 500 m northwest of the small village of Peinan, in a residential and agricultural area known as Nan Wang. The site was excavated by Kanaseki and Kokubu in 1945 and was reported in 1957. It had first been reported in 1914, and also was worked for a few months in 1928 and 1929 (Kanaseki and Kokubu 1957: 48). A prehistoric house 15 m long and 4.3 m wide, with walls, uprights, and

subterranean floor of slate slabs was discovered. About 1500 m to the west, a cist coffin was found near Mount Hinashiki when the land was being cleared.

Pottery

The pottery is described as being brownish-red, and reddish-gritty. From my own surface collections from Peinan, I can say that it is the same as the pottery from T'ai Yuan. One fragment of black pottery, part of a bracelet, was recovered by Kanaseki and Kokubu from the west wall of the house. Jars with outward flaring mouths and ringed feet (some of which have perforations), a straight bottle form (1 example), *hachi*, or wide, flat-bottomed containers, and vertical and horizontal containers were found. One lid, identical to the example from T'ai Yuan and a lid with a short, upright handle similar to those from Feng Pi T'ou and Ta P'eng K'eng were found. Small reddish-brown cups and bowls with conical or flat bases also occurred. Evidence for the presence of *ting* tripods consisted mostly of broken legs (sometimes considered to be handles). Two sherds showed the joint of these to the body.

A few polished gray sherds were also found, as well as spindle whorls identical to those from T'ai Yuan.

Chipped hoes and pestles, as well as finely polished rectangular adzes and perforated stone knives were also found. As at T'ai Yuan, no fishing equipment was recovered. Large stone troughs with multiple rectangular depressions, perhaps used for feeding pigs or dyeing textiles, were found on the surface.

One piece of iron, heavily corroded, occurred in the silt covering the site, and is believed to be intrusive. The shape is not suggestive of any particular kind of tool (Kanaseki and Kokubu 1957: 61).

In checking a stone wall at the Peinan site in 1963, we found a large stone bowl of the same shape as the one from the uppermost terrace (Locus 3) of T'ai Yuan. (It is also illustrated by Kano, 1930: 278). A further upright of material other than slate, perhaps similar to the limestone examples from T'ai Yuan, was reported by I. de Beauclair after a trip to the site in early 1965 (personal communication).

OTHER SITES ON THE EAST COAST AND IN SOUTHERN TAIWAN

T'ai Ma Li

Wu (1963) reported cist coffins from two locations, Pin Mao and Hsin Chi, near T'ai Ma Li Village, south of Taitung. A pile of stones, possibly used as a house foundation, was found near the Pin Mao coffin site, and a stone pile and house poles were found on a slope to the west of T'ai Ma Li village. Wu provides a summary bibliography of works investigating the previous existence of aborigines on the east coast and concludes that the east-coast megaliths may have been the work of Negritos who died out with the advent of other groups. However, since no modern pygmy groups have a material culture as elaborate as that inferred from the T'ai Yuan remains, it seems unlikely that Negritoid groups were responsible for the east-coast remains.

Hoes with constricted middle portions that look like violins were found on the surface near T'ai Ma Li; they are the predominant type on Lan Yü.

K'en Ting and O Luan Pi

Cist coffins occur in the very south of Taiwan, within the boundaries of K'en Ting Botanical Park, at the northern boundary of the village of O Luan Pi, and south of the village of K'en Ting in a small, flat, sandy plain. The latter site was excavated by a party from the Taihoku Imperial University in 1934. It yielded about 20 coffins, in which the well-preserved skeletons reposed with their heads to the southwest. The grave goods included the following: a necklace of jade beads and perforated oblong pieces; a bracelet made of a cone shell, a semilunar shaped shell pendant, clay bracelets, and complete pottery vessels. A great number of shell species were used to make various artifacts. The account of Utsurikawa (1936) gives no mention of the K'ang Hsi coin which was found in one of the tombs, but it is mentioned by Kano (1952: 187) and, if it is not intrusive, indicates that the K'en Ting coffins are only about 250 years old.

The K'en Ting site is rather specialized, when compared to the east-coast sites. It is important to remember that it is separated from the sites in the vicinity of Taitung by more than 80 km; the populations which produced these sites may have also occupied the intervening southeast coast, which is still archaeologically unexplored. The bottle forms from the K'en Ting tombs (Kano 1952: 126) are particularly close to some of the forms from Feng Pi T'ou. The better state of preservation of the bones might indicate that the site is much more recent, were it not for the dry conditions of the K'en Ting region. Although the matter cannot be fully settled without some independent means of dating, it would seem logical to discount the presence of the single K'ang Hsi coin as a later intrusion.

A small square cist grave in the park at K'en Ting, which contains preserved fragments of wood, indicates that the cist grave burial practice was carried on by the Paiwan living in the area until quite recent times. The K'en Ting and O Luan Pi sites yielded choppers, mentioned above, which show relationships with sites such as T'ai Yuan.

Tolan

The Tolan site contains megaliths, coarse, orange, gritty pottery and roughly chipped basalt hoes. It is situated several km from the seashore on the cultivated slopes of the coastal range. Much of it has been disturbed in the construction of rice paddies. In addition to shouldered stones, 2 new forms of megaliths occur. Several stones (including 1 from the site preserved in the museum of National Taiwan University) have a rectangular indentation in one end, instead of the constricted protuberance of the shouldered stones. It has been suggested that the stones with protuberances are male stones, while the ones with the indentation are female stones. A huge stone, mentioned above, displays two large bumps on the portion above ground. It is unique on the west coast. A stone tank, hollowed from a larger boulder, remains *in situ*.

Tung Ho

North of the village of Tung Ho, the Pei Ch'i (North River) empties into the Pacific after winding through the T'ai Yuan Valley and the mountain gorge that takes it to the sea. On the higher slopes on both sides of the river, about 1 km from the sea, are shouldered and grooved stones, with many potsherds on the surface. The stones have all been removed from their original positions, and the entire site is under cultivation.

Peshern and Shin She

The chief feature of the Pesheren (Pai-shou-lien in Chinese, but Pesheren in Ami) site,

a large, carefully finished stone tank or coffin, has been illustrated by Chang (1957: Fig. 4, No. 12) from Kano (1930: 284). At the same site, on the edge of a deep stream valley, in the foothills of the coastal range, there is another large tank or coffin, similar to the one illustrated. According to Kano (1930: 285), the Pesheren example is 7 ft. long (feet being a translation of the Japanese *shaku*), 4 ft. wide, 5 ft. high (outside measurements), and 5 ft. deep. Another large tank or coffin has been found at Shin She, further north along the coast, high on a slope above the sea. In the environs of the Shin She example, chipped hoes were found.

Ch'ang Pin

On the lower slopes of the mountains behind the hamlet of Chung Yung, known also as Katsawan, behind the town of Ch'ang Pin, a megalithic site was investigated by Sung in 1963. No megaliths remained in their original position at that time; all have been rolled down the hill from their original plateau site to the village below and incorporated in walls and house foundations. Shouldered stones are the most abundant. An important feature of the site is the presence of large round stones, usually basalt, of doughnut shape with a hole in the center. They are reminiscent of the stone money of the island of Yap in Micronesia, but are somewhat smaller in scale. The only other site with stones of this shape thus far encountered is T'ai Yuan. Coarse, orange, gritty pottery is common, and a few sherds of cord-marked pottery were also found. A small coarse, orange effigy of a dog or pig was found by Sung, and a similar specimen was illustrated by Kanaseki and Kokubu from Peinan (Kanaseki and Kokubu 1957: 55). One wonders whether or not these animal effigies have any relationship to the famous ones from Lan Yü.

On a slight promontory north of Ch'ang Pin, a depression in the shape of a man, about natural size, was pointed out to me in 1965. No pottery occurs in the area around it, and the shape is rough enough to arouse suspicions that it is natural or recent. Nevertheless, it is mentioned here for the record.

Shui Lien

Further up the coast, at Shui Lien, coarse, orange, gritty sherds were found on the slopes behind the present village. No megaliths or hoes were found.

Hualien Park

At Hualien, coarse, orange, sherds were found on the seaward slope of Hualien Park. Local inhabitants reported that burials had been found in the area, and upon checking the literature, I believe that they were referring to the jars excavated by Kokubu and Kanaseki in 1945 (Solheim 1960: 137-141) from the same location. The jars, with artificial perforations in their bottoms and low ring feet, contained no bones, but were assumed to be burial urns.

Shih Ch'eng

To the north of Hualien, cist tombs have been found at Shin Ch'eng near Suao, and on the grounds of the Ilan Agricultural School. The site near the roadside at the village of Shin Ch'eng 4 km north of Suao, was probably one of the largest cemeteries; it yielded 80 coffins. The cemetery was excavated in the spring of 1933 by Taihoku Imperial University (Miyamoto and Utsurikawa 1933). The orientation of most of the graves was northwest to southeast. No bones or grave goods were found. Artifacts, surface-collected from the vicinity, included stone adzes, spindle whorls, one centrally perforated stone point of the Yuan Shan

type, perforated stone discs, and a stone, ridged object which looks like a tapa beater. Sung and Shih (1953: 16) report two more possible bark cloth beaters from Peinan and K'en Ting. From a sample of 100 sherds collected by Miyamoto, there are a few cord-marked and incised sherds, ring feet (some with perforation), flaring rims, spindle whorls, and handles with round cross sections.

P'ing Lin, Hong Yueh, Jui Shui

In the interior rift valley, four major sites were noted in the survey of 1963. These were located through notes given to me by W.H. Sung. The first of these is P'ing Lin, which appears to have been a prehistoric workshop for serpentine, since the site is littered with fragments of serpentine in various stages of production. Coarse, orange, gritty pottery is also present. At Hong Yueh cist coffins have also been reported, and at the Ami village adjacent to Jui Hsui, pieces of stone cist coffins have been used for the construction of a long flight of stairs to the small hotel.

Wu Hê

At Wu Hê, a huge upright, more than 5 m high, with evidence of a perforation at the top, like that of Peinan, can still be seen. Beside it, another upright of equal size lies fallen. In the area around the uprights are many coarse, orange, gritty sherds, and in the stone piles composed of rocks cleared from the site are the remains of many cist coffins and perhaps other architectural features. Local people said that at the bottom of a small ravine below the large upright, stone cist coffins were occasionally encountered in cultivation. The site at Wu Hê (Maizuru in Japanese) seems close to the Peinan site.

Sites on Lü Tao and Lan Yü

The two islands to the east of Taitung in the Pacific, Lü Tao and Lan Yü, have both undergone archaeological and ethnographic investigation. Lü Tao can be seen from Taitung or Tolan. Kano found sites scattered all over the island, but the bulk of his data comes from a small, rich site on the southeast coastal flat, known as You Tze Hu (Kano 1952: 407). Chipped basalt hoes, slate knives, polished, rectangular greenstone adzes, bracelets, and tubular beads of serpentine were found. The hoes were said by Kano to have been made of sandstone, but there is no sandstone on the island, according to the geological map in the *National Atlas of China*, Vol. 1 (Chang 1963: Map B2); therefore, the stone must have been brought from the east coast. Stone cist coffins were found in two other localities, and one tomb was reported by Kano to have a bronze knife in it; and from another place on the island, Kano excavated two small fragments of bronze (1952: 420). From You Tze Hu, round cores of serpentine were found; they are the remains after serpentine bracelets were cut out with a section of bamboo rubbed on sand. These show that stone bracelets were being made there as well as in sites such as P'ing Lin.

Lan Yü has so far yielded no cist coffins. Kano found 1 jar burial there. The Yami, in the recent past, left the dead in wooden boxes in isolated places such as the large rock in front of Yeh Yu. The stone hoes that have been collected on the island have a constricted middle portion that gives them a figure-eight or violin shape (Kanaseki and Kokubu 1957: Plate 1). From Lang Tao, at the northern end of Lan Yü, I collected a rectangular adze that is identical to those from Feng Pi T'ou and T'ai Yuan. The Yami culture appears to be an extension of the culture of the Batan Islands, and the Yami language, a member of the Ivatan dialect group.

We still have no idea, however, of how many groups may have crossed Lan Yü in times past, leaving remains yet to be recognized.

THE CULTURE OF THE T'AI YUAN PHASE

A *phase*, as the term is often used in American archaeology, is "an archaeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same or other cultures or civilizations, spatially limited to a brief period of time" (Willey and Phillips 1958: 22). It is an abstraction from the data, found and inferred, from each site (more truly, components, when sites have more than one occupation), comprising "arbitrary implements, weapons, ornaments, houses, burial rites, and ritual objects (that) are assumed to be the concrete expression of the common social traditions that bound together the people" (Childe 1950: 2). The formulation of the T'ai Yuan phase is possible from the data presented in this section. One should exclude, however, the "Ami" and "corded" pottery because they are not in conclusive association with the remainder of the assemblages found. On the basis of recent materials from the west coast (Chang and Stuiver 1966: 541) the corded pottery appears to be a ware used exclusively in a culture distinct from the Lungshanoid of Yuan Shan. The Ami pottery, which is close to the ethnographic specimens from the Ami tribe in Taiwan museums, is surely related to the present Ami inhabitants of the T'ai Yuan Valley, but, lacking ethnohistorical information, we have no way of ascertaining the data of the arrival of the Ami into eastern Taiwan.

The T'ai Yuan phase is an east-coast phenomenon, extending from the Ilan Valley to southern Taiwan. Its distinguishing features are coarse, orange, gritty pottery jars with ringed feet, and round loop handles, stone cist tombs, and the use of slate for house construction. Influence from northwest Taiwan may be seen in the limited use of incising, and the position of the incising on the handles or lips of the vessels. It follows closely examples from the Yuan Shan culture, which flourished in the Taipei area during the first two millennia B.C. (Sung and Chang 1965; Chang and Stuiver 1966). The centrally perforated points also show connections with Yuan Shan. As remarked above, certain adze forms, pottery forms and paste, especially from the T'ai Yuan site show connections with the Lungshanoid layers of Feng Pi T'ou, which dated by radiocarbon from 1360 B.C. to 490 B.C. (Chang and Stuiver 1966: 540). T'ai Yuan, Peinan, Tolan, Wu He, Ch'ang Pin—these sites at least—I believe to have been dwelling sites, on account of the amount of pottery and the large number of chipped stone hoes found. With the exception of Peinan, the technique of excavation did not lend itself to settlement archaeology. However, it is debatable how much might have been found had the most elaborate techniques been used, since the sites occur in such a warm, damp, climate.

The presence of perforated knives indicates the cultivation of rice or millet or both, and the use of hoes strongly suggests that root crops, such as taro, may have been important. Textiles may have been woven of banana fibres, or, as suggested by Kanaseki and Kokubu, hemp (Kanaseki and Kokubu 1957: 62). The use of stone for construction suggests that the houses may have looked like those of the present-day Paiwan. Fishing was not important according to the archaeological record, although much of the gear may have been made of perishable materials. Today one sees few fishermen on the rocky Pacific coast, and the aborigines in the area do not have canoes, but use bamboo rafts.

No plausible use other than a religious one can be assigned to the shouldered stones, the

slotted stones, or the stone rings. Actually, their distribution is restricted to a part of the coast no more than 60 km in length. Perhaps they represent a localized religious cult. Even today, with relatively efficient communications, aboriginal groups with different languages and customs occupy contiguous areas, maintaining complete ideological independence.

The provenience of the T'ai Yuan phase remains a difficult question, even though the choices are few. The spiny ridge of Taiwan has peaks which are consistently 3000 m high from Ta Pa Chian Shan in the north to Pei Ta Wu Shan in the south. The easiest routes to the east coast are either from the south or from the northeast, traversing the mountains which drop into the sea between Suao and Hualien. Since the corded pottery is identical in eastern and western Taiwan, it seems certain that early settlers of the east coast arrived from western Taiwan. From the similarities between the east coast remains and the assemblages which followed the cord-marked pottery, it seems safe to assume that the east coast was settled at later times, also from the west, but that the mountain barriers acted as an effective filter in creating major differences between the two areas. In the Shin Ch'eng site the presence of perforated arrowheads of slate, ringed feet and incised decorations on the pottery, as well as a similar paste, and the presence of cist coffins seems to show a mixture of ideas from the Yuan Shan of the Taipei Basin and the east coast T'ai Yuan phase. The custom of making cist tombs may have been derived, with other religious ideas, from the south. Square cist tombs are used at present or were used in the recent past by both the Kalinga of Luzon and the Paiwan of southern Taiwan.

Allowing for the fact that all cultures on the east coast may have changed at a slow rate because of isolation, one could conclude that the T'ai Yuan phase began sometime during the existence of the Yuan Shan Culture and may have persisted long after the Yuan Shan died out in the Taipei Basin. The T'ai Yuan people were probably replaced by the Ami, although much more research on this point is required before our conclusion will be definite.*

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GLOSSARY OF ANGLICIZED PROPER NOUNS

Wade-Giles Chinese
Romanization Character

Ch'ang Pin 長濱
Chü Fan Chih 諸番志
Chung Yung 忠勇
Feng Pi T'ou 鳳鼻頭
Hong Yueh 紅葉
Hateruma 波照間
Hinashiki ヒナシキ
Hsin Chi 新吉
Hualien 花蓮
Ilan 宜蘭
Jui Shui 瑞穗
K'ang Hsi 康熙
Kashōtō 火燒島
K'en Ting 墾丁
Kōtōsho 紅頭嶼
Lan Yü 蘭嶼
Lang Tao 朗島
Lü Tao 綠島
Luung Shan 龍山
Ma Wu 馬武
Mei Lan 美蘭
Nan Wang 南王
O Luan Pi 鵝鑾鼻
Pai-shou-lien 白手蓮
Pei Ch'i 北溪

Wade-Giles Chinese
Romanization Character

Peinan 卑南
Pei Ta Wu Shan 北大武山
Pin Mao 賓茂
P'ing Lin 平林
Shih Shan 石山
Shin She 神社
Shin Ch'eng 新城
Shui Lien 水璉
Suao 蘇澳
Ta Pa Chian Shan 大霸尖山
Ta P'eng K'eng 大岔坑
T'ai Ma Li 大麻里
T'ai Yuan 泰源
Taitung 台東
Tolan 都蘭
Tung Ho 東河
Wu Hê 舞鶴
Yaeyama 八重山
Yeh Yu 椰油
You Tze Hu 油子湖
Yu Li 玉里
Yuan Shan 圓山

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