EARLY OCCUPATION AT UNAI CHULU, TINIAN, COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

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A United States military exercise, code-named Tandem Thrust, was scheduled to be conducted on Tinian in July 1993. In compliance with Section 106 of the National Historic Preservation Act, archaeologists from Ogden Environmental and Energy Services, under contract to the US Navy, Pacific Division, Naval Facilities Engineering Command, conducted archaeological surveys and subsurface testing of areas within the military lease lands towards the northern end of the island of Tinian, Commonwealth of the Northern Mariana Islands (CNMI) (Craib 1993). Archaeological survey along the northwest coast indicated the presence of six sites. Test excavations revealed that five of these were first inhabited during the last few centuries of prehistory. However, one of the sites, Unai Chulu, has provided a suite of radiocarbon dates and an archaeological assemblage which points to an occupation of this portion of Tinian by 2700-3100 BP and possibly earlier.

The early period of prehistory in the Mariana Islands is poorly understood due to the small number of documented, controlled excavations in deposits dating to before 2500 BP. Because early settlement was situated in prime coastal settings, where occupation was maintained throughout prehistory, these sites have been encountered only during excavation of later, surface sites. To date, no systematic survey directed towards the discovery of early period sites has been undertaken. However, information about the early period has increased considerably during the past few years as a result of excavations in the Chalan Piao (Moore *et al.* 1993), Achugao (Butler 1993) and San Roque (Fortini, pers. comm.) regions of Saipan and, most recently, at Unai Chulu on Tinian (Craib 1993) (Figure 1). Each excavation has provided data on the early assemblage and temporal placement of this period. This article summarises the data generated from the Unai Chulu excavations and briefly discusses the implications of these in the context of the early period of Marianas prehistory and within the prehistory of the western Pacific.

EARLY PERIOD

The period discussed here is best known as the "pre-*Latte*" phase of Marianas prehistory, a term coined by Spoehr (1957). While this term is still in common usage among

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archaeologists it has become inappropriate in that it refers to over 80% (roughly 2500 years) of Marianas prehistory and characterises this period by what it lacks, i.e. house foundations consisting of stone pillars, known as *latte*, which did not appear until a few hundred years before initial contact with the Western world. Hopefully, as more data are generated from pre-2000 BP deposits, finer temporal divisions will preclude the use of this much-too-generic term. The early period, as used here, refers to the time between about 3500 and 2500 BP; this coincides with Butler's "early pre-*latte*" (1993).

Dating initial settlement of the Mariana Islands has proven problematic. Reexaminations of the initial suite of early (pre-3000 BP) radiocarbon dates have questioned whether they accurately date the antiquity of settlement in the archipelago beyond 3000 years ago (see Athens 1986; Bonhomme and Craib 1987 for discussions on the early dates of Spoehr 1957; Reinman 1977 and Kurashina and Clayshulte 1983). While these dates have important problems and should be excluded from consideration, more recently dated samples, from more secure contexts, have, in fact, served to push the antiquity of humans in the Marianas beyond 3000 BP.

Chalan Piao is located at the southwestern corner of Saipan, adjacent to a wide (500-600 m) fringing reef. The deposits at the site are described as reworked, although the radiocarbon dates from two combined charcoal samples, collected from the upper and lower limits of the early period deposit, are in chronological order (Moore *et al.* 1993). The calibrated dates bracket a maximum period of nearly 800 years between 2856 and 3645 BP. Ironically, this is the same site that Spoehr (1957) argued dated to about 3400 BP on the basis of what has subsequently been shown to be a questionable shell date.

The Achugao and San Roque regions of Saipan are situated along the northwest coast, separated by Puntan Achugao. The offshore area is an extensive shallow lagoon formed by the presence of a barrier reef. Of the five dates associated with early deposits, the earliest two, from near the base of the Achugao deposits, are argued to be from the best contexts (Butler 1993:449). The dates of 3470±120 bp (Beta-36191) and 3120±50 bp (Beta-36190) were recovered from at or near the base of early deposits. A weighted mean of 3174±47 bp was calibrated to nearly 3400 BP. The three younger dates (all post 3000 BP) are in a more disturbed context, thus making it more difficult to determine the upper time limit. Butler argues that occupation in Achugao was established by about 3500 BP.

The early period assemblage is characterised by the presence of calcareous sand tempered ceramics. Associated exclusively with the early deposits is a distinctive impressed/incised decorated ware. Until recently, sherds exhibiting this decorative style were not found in the earliest cultural levels but rather appeared within a narrow band later in the stratigraphic sequence. Where these had been dated, decorated sherds appeared between about 2500 and 1700 BP (e.g. Tarague, Guam: Moore 1983; Mochong, Rota: Craib 1990). Craib (1990) suggested that the occurrence of these sherds may mark a distinctive cultural horizon within the early period. Subsequent excavations have refuted this pattern.

The recent excavations on Saipan have now demonstrated that decorated sherds are indeed associated with the lowest levels and that the types of decorative motifs changed

over time. Moore *et al.* (1993) found that the lowest levels within the early deposit at Chalan Piao contained pottery decorated with "fine-lined motifs" which gave way to more "bold designs" in the upper levels. Illustrations of these decorations indicate that the fine-lined decorations contain dentate-stamped designs while the bold designs resemble the decorations (e.g. circles, chevrons, straight lines) first reported by Spoehr (1957).

Butler (1993) further divided the fine-lined category into two general types - Achugao Incised and San Roque Incised. All of the dentate-stamped sherds fall into the Achugao Incised category; these include fields of dentate stamping interspersed with rectilinear and curvilinear designs. Stamped circles also form a component of this type of decoration. The San Roque Incised sherds exhibit curvilinear designs and small circles. Almost all (90%) of Butler's sample of early decorated sherds fall into the Achugao Incised.

Similar dentate-stamped sherds have been found at Ypao Beach on Guam and at the Taga site on Tinian. The sherds at Ypao were unearthered during development of public facilties at this beach park located towards the southern end of Tumon Bay. No dates from layers containing the dentate-stamped sherds were run and, although excavations were carried out nearly 15 years ago, no excavation report has been produced (although see Leidemann 1980 for a summary of this work).

Cultural deposits were found up to 3.7 m below the surface in an area about 30 m north of the monumental House of Taga *latte* (Pellett and Spoehr 1961). Excavations in 1958 by a Catholic priest, Marian Pellett, revealed a deep stratified deposit. The lower horizon began about 0.77 m below surface and sherds were found to a depth of about 3.7 m. Among the sherds recovered from the lower horizon were several which had intricate decorations consisting of fine-line incisions and dentate-stamped designs, some of which had been in-filled with lime. No dates have been run from this site and no excavation report was written.

The next most common class of artifact from the early deposits are ornaments, virtually all made from *Conus* shells. These include disc-like beads, rectilinear pendants, bracelets, rings and circlets, such artefacts being reported from Chalan Piao and Achugao. These vary significantly from later ornaments in the Marianas where *Conus* is replaced by *Spondylus* and *Tridacna*.

Nothing is known of the size or configuration of settlements during this period. Systematic sampling of the horizontal variation within early sites has not been undertaken. Butler (1993:445) states that only a small portion of the early habitation area was represented in the 1500 m^2 extent of the currently existing deposit. Nevertheless, the relatively low densities of cultural materials suggest that residences were either not numerous and/or dispersed, possibly corresponding to a hamlet-like setting.

TINIAN

Tinian lies towards the southern end of the Mariana Islands, situated between Aguigan and Saipan (Figure 1). The island, covering approximately 10,176 ha, is roughly 19 km long and about 10.5 km wide (Figure 2). Topography is characterised by five limestone

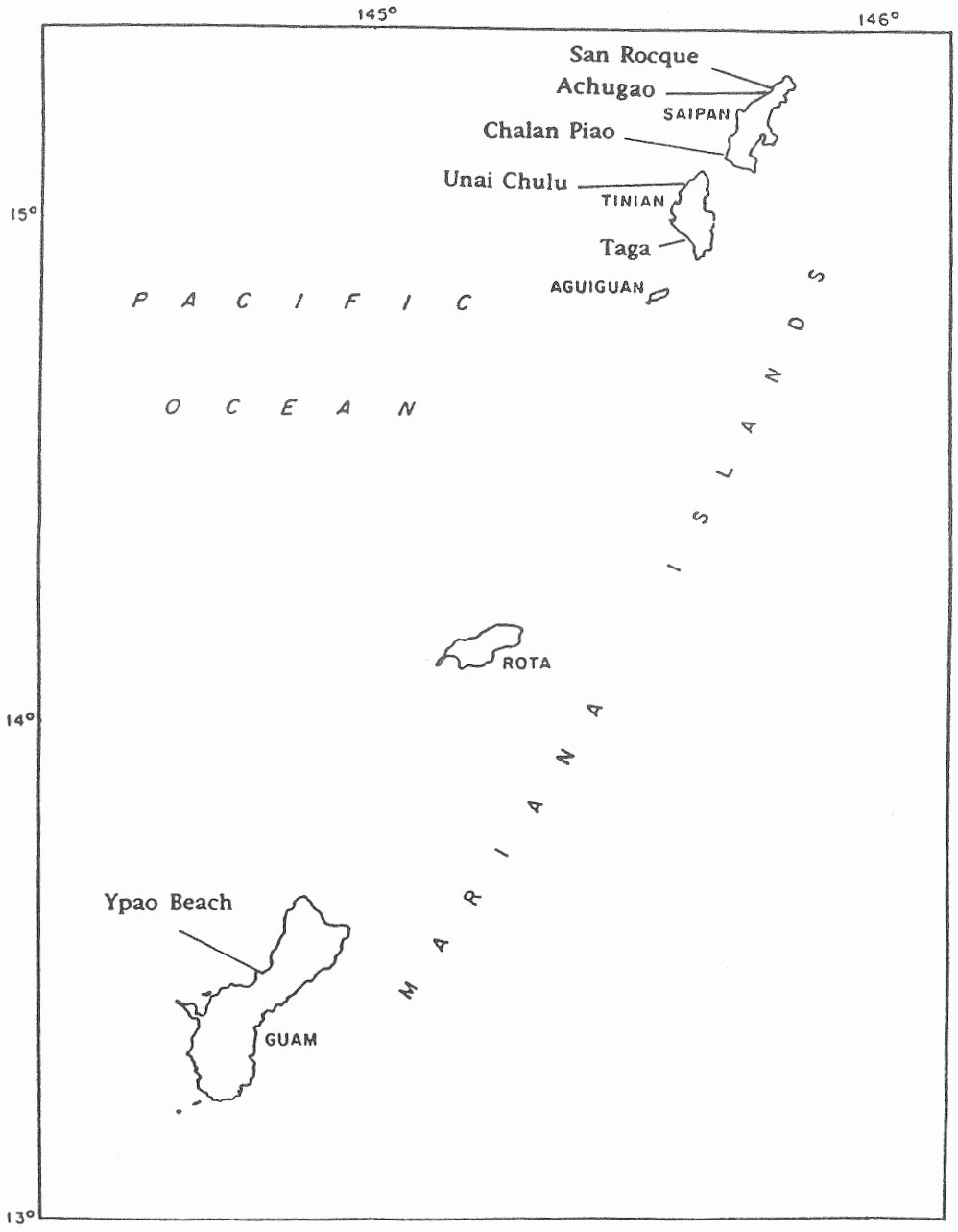

FIGURE 1: THE SOUTHERN MARIANA ISLANDS WITH SITES MENTIONED IN THE TEXT

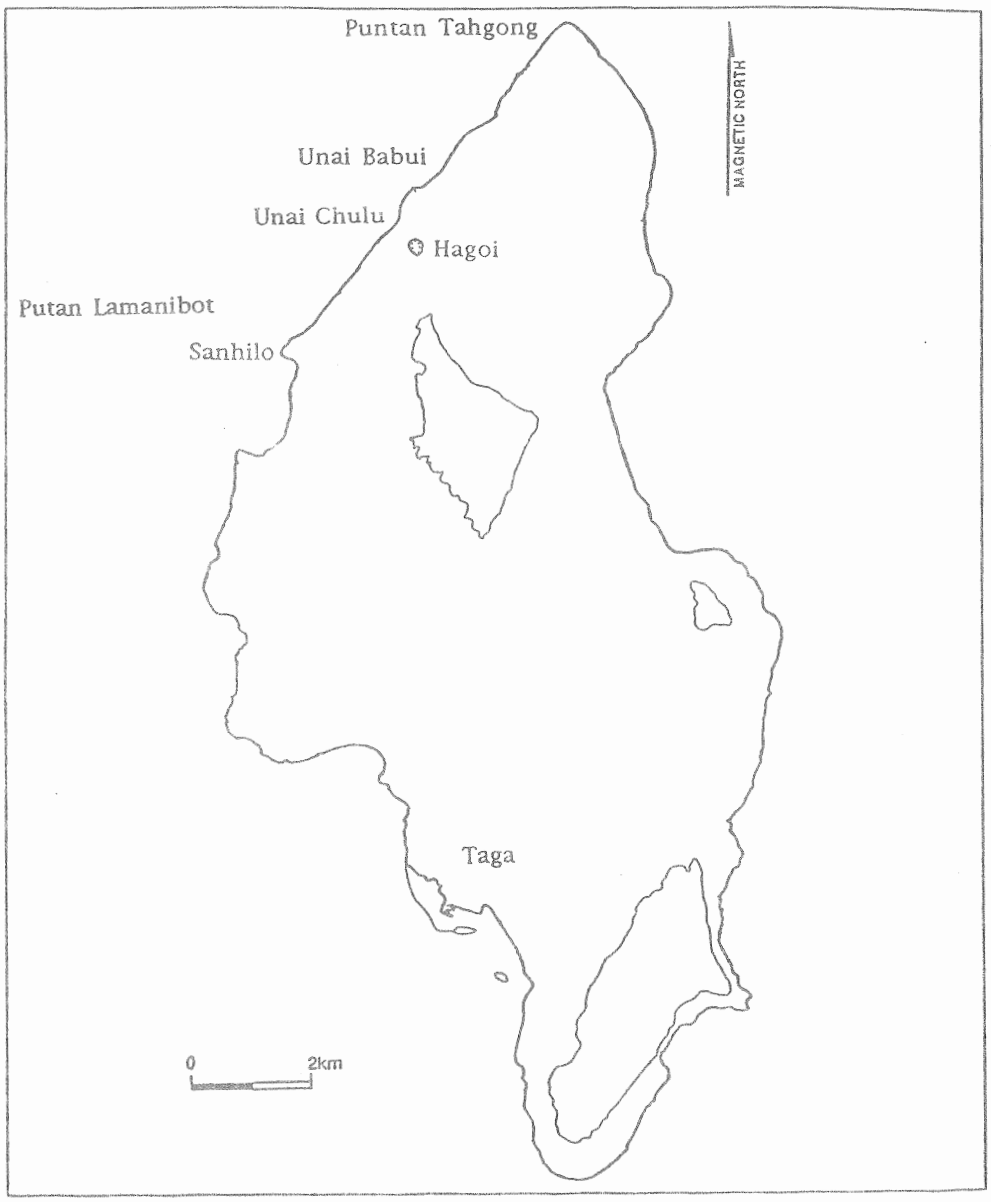

FIGURE 2: THE ISLAND OF TINIAN

terraces which overlie a volcanic core. The highest point on this low-lying island is only about 187 m above sea level.

The topography of the northwest coast, from Puntan Lamanibot Sanhilo to the northernmost point on the island, Puntan Tahgong, is relatively uniform; the coast is primarily a rocky shoreline with benches cut into the low-lying limestone. Beach and reef formations are rare, small and intermittent. Soil, when present, is shallow, discontinuous and sits atop white, porous coralline limestone. Immediately adjacent to this complex is the Shioya loamy sand, a deep, excessively drained soil, common on the coastal strands where it formed in water-deposited coral sand (Young 1989:49).

Freshwater sources along the northwest coast appear to be limited, although no detailed investigation has been undertaken. A small brackish lake, known as Hagoi, and surrounding wetlands, is likely to have been the major source of water for this area although it would have been more suited for agricultural purposes than providing potable water.

Portions of the northwest coastal of Tinian have sustained significant impacts this century. In the 1920s and 1930s, the Japanese-built narrow gauge railroad tracks crossed this area and Unai Babui, a small beach about 400 m north of Unai Chulu, was used as a loading area for shipping cows and pigs to Saipan. In 1944, the area from Unai Chulu to Unai Babui formed the invasion corridor (White Beaches 1 and 2) for the US Marines. In addition to the shelling of the area, movement of troops and equipment as well as subsequent bulldozing occurred.

UNAI CHULU

Unai Chulu is the largest beach along the northwest coast, although it extends only about 150 m. A narrow fringing reef extends about 150 m from the shore. This is also the closest point along the northwest coast to the brackish Hagoi lake situated inland, about 700 m to the southeast.

Impacts to the archaeological features and deposits at Unai Chulu have been substantial. As White Beach 2 it sustained disturbance during the US invasion of Tinian, followed shortly by the establishment of a cemetery by the US Military immediately south of Unai Chulu. In 1985, an area of roughly 3000 m^2 immediately inland of the beach sustained severe impact from bulldozing activities (Ward and Pickering 1985). Subsurface testing at this site was performed in 1985 and confirmed the presence of buried cultural deposits (Moore *et al.* 1986). Observations of stratigraphic sections made following the unauthorized bulldozing indicated the presence of deposits at least 1.5 m deep and revealed artifactual evidence to suggest a long period of occupation.

The 1993 subsurface testing at Unai Chulu was conducted in order to ascertain site boundaries and to obtain detailed information on the nature of the cultural deposit. Shovel Test Pits (STPs) were placed beyond the main body of the site, along suspected boundaries based upon on the observed surface distribution of cultural materials. This sampling design was chosen because of the massive disturbances within the site mentioned above. A north-south baseline was established along a paved road (8th Avenue), extending from its intersection with a dirt track leading into Unai Chulu, southwards for 100 m. At four points along the baseline, east-west transects were created;

STPs were then placed along these transects; twenty-eight STPs were dug; a total of 1.55 m^3 of soil was excavated.

Physical and cultural stratigraphic evidence indicated the presence of two distinct cultural horizons. The upper soil layer (Stratum I), a disturbed deposit of dark humic sandy loam, often containing high densities of pottery and shell, varied between 15-25 cm in depth across an area of roughly 9000 m^2. The lower cultural layer (Stratum II) consisted of a tan sand layer which extended to a depth of up to 1 m in the STPs. Distribution of the early deposit is restricted in area, extending perhaps as much as 3000 m^2. More precise calculation is not possible because the 1985 bulldozer activity has disturbed most of the seaward portion of this deposit.

The early deposit at Unai Chulu is located behind the southern end of the current strand line, extending inland for about 150 m. The north and western boundaries are more clearly defined on the basis of the lack of tan sand deposit along with the lack of early sherds. The southern and western boundaries are less clear due to the cemetery and bulldozer activity, respectively. This deposit was about as wide as the current strand area and extended inland for approximately 180 m from the current shoreline. In areas where it was found, this deposit appears to be relatively intact and quite rich in cultural materials. A dentate-stamped sherd, identical to Butler's Achugao Incised category, was recovered from Stratum II in STP T4-5 located towards the southern end of the site.

The presence of historic materials in the upper layer supports the expectation that at least the upper portions of the deposits had been disturbed. However, disturbance was not restricted to the upper layer. The presence of cow bones (*Bos taurus*) between 45-90 cm below surface in T5-1 reflects the extremely disturbed nature of at least that portion of the site, immediately behind the current strand. This animal was clearly introduced during historic times, perhaps not until the eighteenth century.

Following the digging of the STPs, two controlled units (TU1 and TU2) were excavated at Unai Chulu. One unit, TU1, proved to be highly disturbed and was abandoned. A third unit, TU3, was then placed about 5 m south of TU1, in an undisturbed area. TU1 and TU3 were located towards the southern extent of the early deposit. Each test unit was 1.0 x 1.5 m.

Test Unit TU2 was placed near the eastern (i.e. inland) extent of the early deposit. The unit was dug to a depth of 60 cm below surface, yielding nearly one cubic metre (0.8 m^3) of soil. The stratigraphic profile of TU2 is shown in Figure 3. Four layers were identified. These are described as follows:

Layer I: a dark brown, coarse sand-silt; a disturbed deposit about 20 cm thick.

Layer II: a mottled brown-grey silty sand; the uneven boundary with Layer I is evident in the pockets of the upper layer intruding into this lower layer.

Layer III: a tan, mottled silty sand; a diffuse boundary separates it from layer II. There is a noticeable reduction in the presence of cultural materials in this layer.

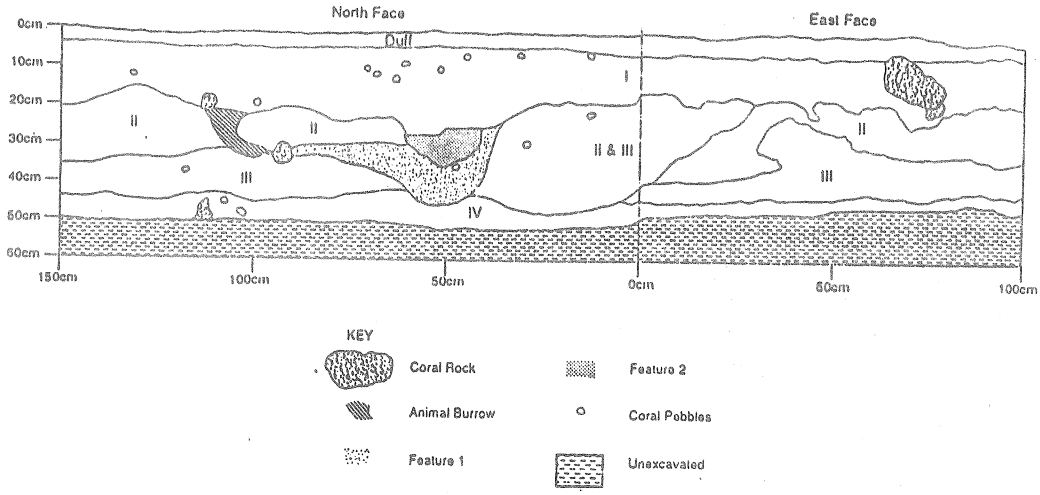

FIGURE 3: STRATIGRAPHIC PROFILE OF TEST UNIT 2

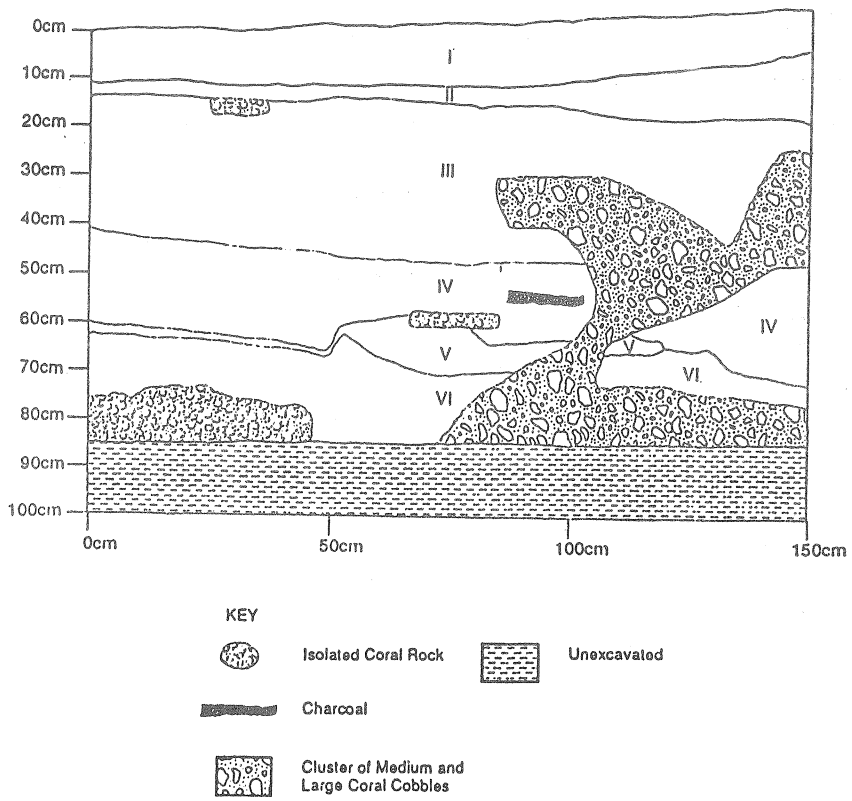

FIGURE 4: STRATIGRAPHIC PROFILE OF TEST UNIT 3 (NORTH FACE)

Layer IV: a yellow-red compact silty clay; virtually no cultural materials.

Cultural materials are found throughout the deposits at TU2 (Table 1). It is unclear whether the high concentration indices found in Layer I reflect the cultural distribution of materials during the late period occupation of Unai Chulu or are a product of bulldozing (a artificial bulldozer berm was located about 10 m further east). All cultural materials in Layer I are associated with the late period; cultural materials associated with the early period deposits were first encountered in the disturbed deposit of Layer II, extending into the relatively intact Layer III. The presence of cultural materials in Layer IV is most likely due to taphonomic processes and Layer IV does not represent a cultural horizon. Certainly, there is a significant decrease in the presence of cultural materials in the lower layers.

TU3 was excavated to a depth of 80 cm and involved the screening of 1.06 m^3 of soil and rubble. The stratigraphic profile is presented in Figure 4. Six layers were identified:

Layer I (0-17 cm): a mottled dark grey-brown (10YR 4/2) silty loam containing loose organic matter. This layer is a root zone with many hair to thumb-sized rootlets. The boundary with Layer II is smooth and abrupt.

Layer II (17-25 cm): a yellowish-brown (10YR 5/4) silty-gravelly sand. Rootlets are few and very fine. The boundary with Layer III is smooth and abrupt.

Layer III (25-57 cm): a tan-beige (10YR 7/4) silty sand, fine to medium grained with some gravel. A large cluster of medium to large coral cobbles begins to emerge in this layer. The transition to Layer IV is abrupt and smooth.

Layer IV (57-70 cm): a pale brown (10YR 6/3) silty sand, fine to medium grained. The boundary with Layer V and VI is abrupt and smooth.

Layer V (70-80 cm): a pale brown (10YR 8/4) coarse-grained sand. This layer appears as a lens of variable thickness, expanding to about 10 cm towards the center and the eastern portions of the profile and narrowing to only a few centimetres in the western third of the profile. The boundary with Layer VI is abrupt but discontinuous.

Layer VI (80-100 cm): a yellow (10YR 7/8) silty sand sitting upon a compact sand layer which may represent the top of the limestone bedrock.

There was no evidence in the profiles of the test unit that the cultural deposit in TU3, below about 20 cm, was disturbed. Interfaces between layers were smooth; no mottling or intermixing of deposits was observed. A small, discrete pocket of charcoal was found in the north wall of the unit at a depth of between 55-67 cm below surface. The only obvious intrusion was a small fragment of metal, weighing 3.6 g, recovered at the top of the early deposit (Layer III/1).

Five samples from layers III and IV in TU3 were submitted for dating; four were shell, the fifth was a bulk soil sample taken from a charcoal concentration in the north wall in Layer III between 46-67 cm. These are discussed below.

The relative densities of cultural materials, indicated through concentration indices, are listed in Table 1. These figures indicate a lack of cultural materials in the top two layers of TU3 which, most likely, is a function of the location of this unit within a general area of mounds and troughs, the result of bulldozing. It appears that the late period deposits have been all but scraped away, leaving only the small, highly disturbed remnants exhibited in Layer II. The early period horizon appears more intact, confined to Layers III and IV beginning about 25 cm below the current surface.

Pottery and shell are abundant, though mostly confined to the upper level of Layer III. From there, a steady decrease in cultural materials is noted; no cultural materials were found below Layer IV/2. In addition to pottery and shell, a variety of cultural materials was present in Layers III and IV of TU3. Shell ornaments (beads, a pendant circlet) cut from *Conus* shell were found, in addition to a retouched quartz scraper.

Test Unit	Layer/ Level	Vol. (m^3)	Pottery g/m^3	Shell g/m^3	
TU2	I/1	0.12	8,098	1108	Disturbed Late Period
	I/2	0.12	5,223	3234	Deposit
	II/1	0.12	1,076	3044	
	II/2	0.12	622	2083	Intact Early Deposit
	III/1	0.10	193	621	
	IV/1	0.10	35	195	Below Cultural Deposit?
TU3	I/1	0.19	---	----	Truncated/Disturbed
	II/1	0.13	2,177	1154	Late Period Deposit
	III/1	0.08	13,939	4125	
	III/2	0.15	4,200	3267	Intact Early Deposit
	III/3	0.15	1,200	1213	
	III/4	0.15	433	667	
	III/5	0.15	32	342	
	III/6	0.07	44	97	
	IV/1	0.16	---	136	Below Cultural Deposit
	IV/2	0.05	---	111	

TABLE 1: COMPARISON OF THE CONCENTRATION INDICES OF MOST COMMON CULTURAL MATERIALS PER STRATUM IN CONTROLLED TEST UNITS AT UNAI CHULU

The dating of Unai Chulu was not done without difficulty. Charcoal was present in negligible amounts; even the charcoal sample from the lens found in TU3 was so small that it needed to be AMS dated (Table 2). Therefore, shell was used to provide four of the five dates from the site. The problems of using shell for dating purposes in the Marianas are that a definite marine reservoir correction value or a Delta-r value is lacking

and that some Marianas shell dates have proved problematic. Prior to our study only a single shell, of known age, had been dated (Athens 1986) and no stratigraphically paired shell-charcoal dates had yet been run.

Six samples were submitted from Unai Chulu, five from TU3 and one from TU2. Table 2 lists the dates, and their calibrations from CALIB Program 3.0.3 (Stuiver and Reimer 1993). Based on a formula provided by Stuiver and Reimer (1986), a Delta-r value of 320±80 was calculated for this study. The data used in this determination were obtained by dating a cowrie (*Cypraea*) shell collected live on Tinian in April 1945 (Masse, pers. comm.). As a comparison, the C^{13} adjusted dates from three dates within Layers III and IV (two from shell and one from charcoal) in TU3 showed that the mean date from the two *Anadara* samples were 710±70 years older than the single charcoal sample. Stuiver *et al.* (1986:982) have suggested that, when dealing with shell-charcoal pairs, a Delta-r value can be obtained by subtracting the mean world surface ocean reservoir age of 373 years. When this figure is subtracted from the mean date of the two shells a Delta-r value of 337 is created, only 17 years greater than the other value calculated from the modern cowrie. While our sample is admittedly small, the results are virtually identical.

Lab No.	Provenance	Depth (cm)	Material	C^{14} Age b.p.	C^{13}/C^{12}	C_{13} Adjusted Age	Calibrated Age Ranges[1] B.P.	Cal.
Test Unit 2								
Beta-62603	Unai Chulu III/1[2]	40-50	*Anadara*	3300±90	-0.9	3690±100	3490-2865	1540-915 BC
Test Unit 3								
Beta-62604	Unai Chulu III/3	45-55	*Anadara*	2820±50	-2.6	3190±50	2780-2350	830-400 BC
Beta-62607	Unai Chulu III/4-5	55-67	Bulk Soil[3]			2530±60[4]	2760-2360	810-410 BC
Beta-62605	Unai Chulu III/4	55-65	*Anadara*	2890±50	-0.5	3290±50	2945-2455	995-505 BC
Beta-62606	Unai Chulu III/5-6[2]	70-80	*Anadara*	2990±50	-0.2	3400±70	3160-2640	1210-685 BC
Beta-62608	Unai Chulu IV/2[5]	90-100	*Turbo*	3610±50	+2.7	4060±50	3880-3425	1930-1475 BC

[1] shell dates calibrated using Delta-r value of 320±80 and rounded to nearest 5 years; [2] at, or immediately below, base of cultural deposit; [3] charcoal pocket; [4] AMS date automatically adjusted to C^{13}; [5] below cultural deposit.

TABLE 2: RADIOCARBON AGES AND CALIBRATIONS FROM UNAI CHULU, TINIAN

Once calibrated, all five of the calibrated age ranges dates from TU3 are in appropriate chronological order. Four dates from Layers III-V, ranging between 2350-3160 BP, are directly associated with the early deposit. The oldest date from this unit ranges between 3425 and 3880 BP but comes from a shell recovered from the culturally-sterile Layer IV, 10-20 cm below the base of the early deposit. The single date from TU2 came from the bottom of the early deposit. This is the earliest date in the suite from Unai Chulu and whether it is directly associated with the cultural deposit is uncertain. However, the calibrated age range of 2865-3490 BP is certainly now within the range established by the early sites on Saipan.

The physical stratigraphy recorded in the two controlled excavation units suggested that a relatively intact cultural deposit existed from about 30 cm below the current surface to the limestone bedrock. Nevertheless, the integrity of the early deposits was further

investigated by examining the presence and degree of intermixing of temporally diagnostic cultural materials, especially the ceramic assemblage.

The forms of vessel rims vary considerably in the Marianas, ranging from strongly everted to incurved and from flat-topped to rounded or bevelled. However, within this range, two basic types have long recognised. Type A rims, found throughout Marianas prehistory, exhibit parallel or converging sides at the top. Type B rims are characterised by a thickening of the lip. While the specific timing of the appearance of Type B rims has not yet been established, they appear not to have been present in the Marianas prior to about 1200 years ago. Type B rims were common in the later deposit, now sitting at, and immediately below, the current surface of Unai Chulu. Their presence in the early deposits would be unquestionable evidence of disturbance. However, a clear break in the vertical distribution of Type B rims is found in both TU2 and TU3 (Table 3). As expected, Type B rims were completely absent in the early deposits; the presence of a small number of them in Layer II in TU3 is most likely the result of disturbance.

Unit	Layer	Type A	Type B
TU2	I	87	13
	II	100	0
TU3	II	88	12
	III	100	0
	IV	100	0

TABLE 3: UNAI CHULU: RELATIVE FREQUENCIES (%) OF RIM FORMS

Another attribute which provides useful temporal information, on a gross scale, is temper type. Two general types of tempering materials were used, calcareous sand and volcanic sand; the presence and relative amounts of these account for the four different tempering types. CST is characterised by a predominance of calcareous sand temper; VST contains only volcanic sand; MXT is a mixed temper where sherds exhibit both CST and VST; NT contains no purposeful inclusions of temper, relying instead on natural inclusions in the clay.

Unit	Layer	VST	CST	MXT	NT
TU2	I	14	52	11	23
	II	0	70	30	0
TU3	II	0	83	17	0
	III	0	68	32	0
	IV	0	67	33	0

TABLE 4: UNAI CHULU: RELATIVE FREQUENCIES (%) OF TEMPER TYPE

Although variations have been shown to exist among the islands, in general CST predominates in the early period, gradually becoming MXT over time, then VST appears in the late period, becoming the predominate temper type on Guam and Rota. NT sherds are also found late in prehistory. Tinian and Saipan deviate slightly from this pattern in that CST remains common throughout the sequence. Nevertheless, VST sherds do not appear anywhere until late in prehistory. Table 4 shows the relative frequencies of temper types from the Unai Chulu sample. It conforms to the general observation in that VST is found mainly in the late period deposits and is virtually absent from the deeper deposits.

Five decorated sherds were recovered from the entire site at Unai Chulu. Despite the placement of STPs across the site and the horizontal separation of the two excavation units, all decorated sherds were found clustered within an area of only 40 m², towards the southern end of the site. One sherd each came from the controlled excavation units TU1 and TU3, the others (all conjoining) were recovered from STP T4-5 located a few meters away from TU3.

The three conjoining sherds, recovered from Layer II in STP T4-5, formed a dentate-stamped neck (Figure 5A). The decoration includes a pair of curved lines located within a field of dentate-stamped designs. This sherd is identical to the paired curve lines (PC) category established by Butler (1993) for his Achugao sample.

Another decorated sherd was found in Layer II/1 of TU1. That this sherd was recovered from the top 10 cm indicates the disturbed nature of the soil. The sherd is dark brown in colour with two nearly parallel incised lines separating two lines of stamped circles (Figure 5B). Each circle contains a small, centrally-placed dot.

The third decorated sherd was recovered from Layer III/4, 55-65 cm below the surface, in TU3. It is a thin (3-4 mm) body sherd, light brown on the interior and pale red on the exterior. This sherd is unique in that decoration is found on both sides (Figure 5C). The decoration is the same on both sides - a single line of impressed circles in-filled with lime. On the exterior of the sherd the circles are aligned parallel to the rim top and are located immediately above the shoulder of the vessel. The line of circles on the interior is placed immediately below the rim.

Typical of early Marianas sites, the other major component of the assemblage from Unai Chulu consisted of shell ornaments. Five beads were recovered from TU3. These are small pieces of ground *Conus* round in outline and rectangular in section (Figure 6A-E). A flat, rectangular piece of shell, most likely *Conus*, was recovered from Layer III/5 in TP 3 (Figure 6F). This is a finely-made ornament, only 2 mm thick. There is no curvature to this piece indicating that it came from a large *Conus* shell. Its rectangular outline is slightly narrower at the top, where the single perforation is placed, measuring 13 mm, and widens slightly towards the base where it is 14 mm. The single perforation is conically drilled and has a diameter opening of only 1.5 mm.

Ring and/or bracelet fragments were also recovered at Unai Chulu. TU3 III (35-55 cm) yielded a portion of a cut *Conus* shell (Figure 6G). The sides are squared and ground; the slight curvature of this specimen suggests that it was a portion of a bracelet rather than a pendant blank. It measures 3 mm thick, 12 mm wide and 25 mm long. One piece of

cut *Conus*, from TU3 IV (55-65 cm), appears as a thick cross section (Figure 6H). The curvature of the shell makes it too small to be a bracelet, yet too bulky to be a ring. This may represent a piece in the process of being manufactured rather than a completed artifact. The specimen is ground flat on opposite sides; the outer diameter is 36 mm, inner diameter is 21 mm and it is 14 mm thick. Artefacts of similar size and configuration, identified as circlets, were recovered from Chalan Piao (Moore *et al.* 1993: 79-81; Plate 27) and Achugao (Butler 1993: Plate 13-3 g-i).

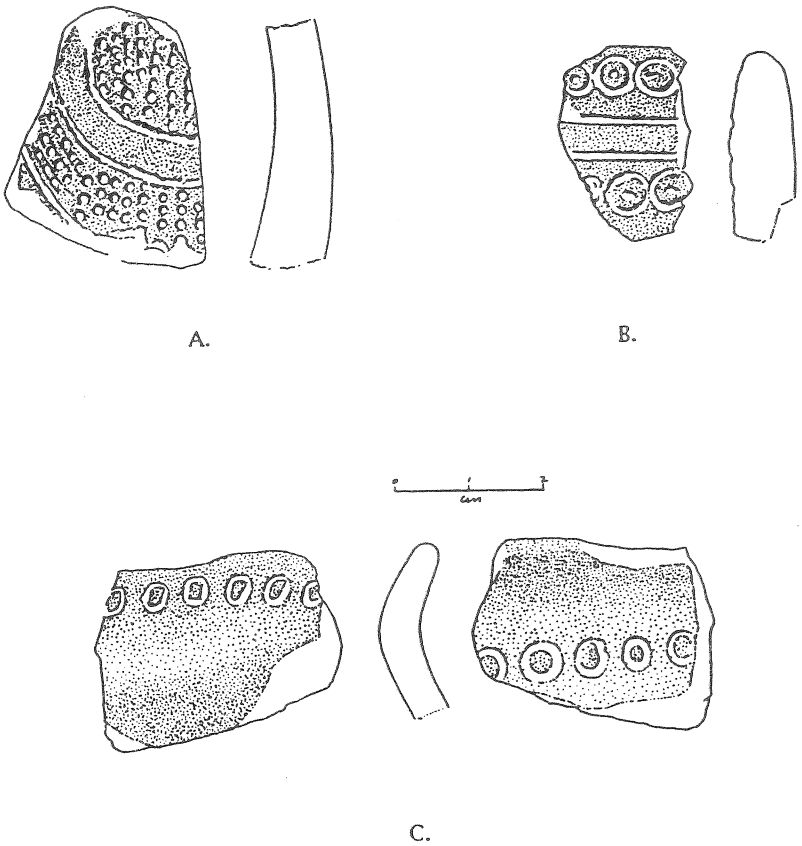

FIGURE 5: DECORATED SHERDS FROM UNAI CHULU
A, STP T4-5 Stratum II; B, Layer III/4; C, TU1 II/1.

Stone flakes were rare in the early deposits at Unai Chulu; only four, two from each test unit, were recovered during the controlled excavations. These were struck from chert cores which could have been found in the local limestone environs of the site. Figure 6I shows a chipped stone tool, found in TU3 Layer III (Level 2/3). The artefact, made from locally available vein quartz, retains cortex over about 50% of its body. Flakes have been

struck from one side of a small, rounded cobble, producing a tool roughly rectangular in outline with a slightly convex cutting edge.

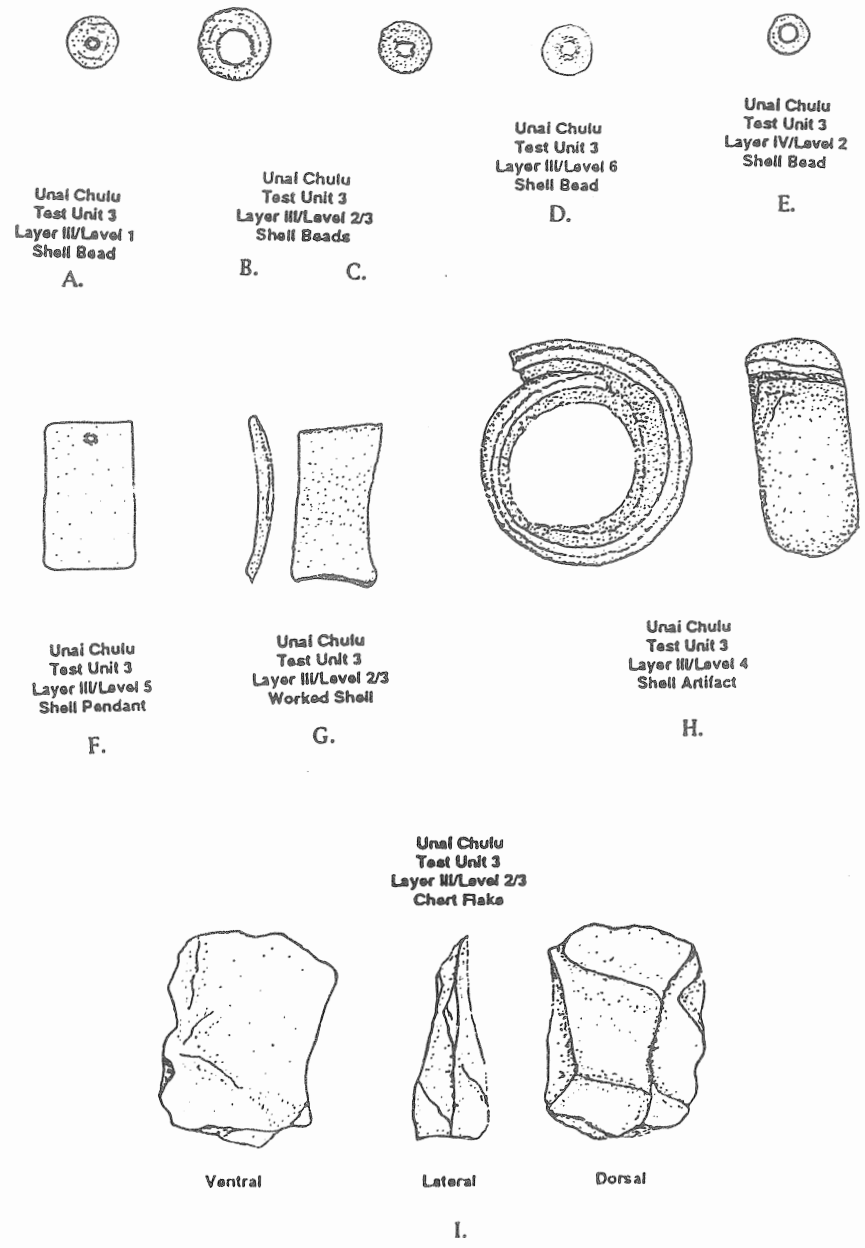

FIGURE 6: NON-CERAMIC ARTEFACTS FROM UNAI CHULU
(90% actual size)

Faunal remains were relatively rare in the early deposits. Shell was the most common, found in both test units in roughly equal densities (Table 1). The range of identified species is commonly found on fringing reefs like the one fronting Unai Chulu. Of the 18 species identified from the early deposits, gastropods comprise about two-thirds; by weight the most common gastropod is *Turbo*. Seven species of bivalves were identified with the small clam, *Tellina*, the most common by weight. Bone was rare throughout the site; only 18 pieces were collected from all the STPs and test units. Only two small fragments were recovered from the early deposits in TU 2: one could be identified only as fish, the other cannot be identified. No bone came from TU3.

DISCUSSION

Where intact subsurface cultural deposits were found at Unai Chulu they were rich in cultural materials. Although a central portion of the site had been bulldozed, destroying a significant portion of the early deposit, this site has been shown to contain valuable deposits which require further, more detailed investigation.

An important implication of the data from Unai Chulu is that very early in the prehistory of the Mariana Islands, settlements were occurring on each of the southern islands. These early sites were not only restricted to beaches fronted by extensive reef systems as found at Achugao on Saipan and Tumon on Guam. Smaller beaches with narrower fringing reefs, such as Unai Chulu, were also being occupied.

It is now becoming apparent that among the earliest dated cultural deposits in the Marianas (c.3500 BP), the most intricately decorated (i.e. dentate-stamped) pottery occurs only in the earliest levels. This strongly supports the proposition that this was not an indigenous development; rather, the makers of this type of pottery were the first inhabitants of the Mariana Islands. However, these sherds are rare, never more than 1-2% of the sample from each site.

An intriguing aspect of this emerging pattern in Marianas prehistory is that it parallels developments in Melanesia which were occurring at virtually the same time. But while the decorative techniques on the pottery are similar to those found in contemporary Lapita sites, the designs themselves bear only superficial resemblances and the Lapita designs are more intricate. Nevertheless, the similarities are not limited to the pottery but extend to other components of the assemblage, in particular the shell ornaments. Shell rings, bracelets and beads made from *Conus* are a common component of Lapita assemblages (Kirch 1988). Other items such as exotic lithics, specifically obsidian, have not yet been found in the Marianas.

It has been argued (Bellwood 1985; Kirch 1988) that the appearance of Lapita pottery is not the result of local development, but rather the product of an Austronesian-speaking population entering this area from Southeast Asia where decorative techniques, and the designs they produced, have close parallels. Sites with similar pottery have been shown to extend from Sulawesi (Kalumpang: Heekeren 1972) into Masbate (Batungan: Solheim 1968) and reaching the northern end of Luzon (Aoyagi *et al.* 1993). Unfortunately, neither

Lapita not the Marianas decorated pottery can be specifically linked with any of these western areas.

The new data from the Marianas reveal that movement out of Southeast Asia around 3500 years ago was a much more widespread phenomenon involving peoples from the same cultural milieu. How the Marianas, perhaps western Micronesia as a whole, fit into the movements of peoples and ideas within the western Pacific is one of the more intriguing research avenues to be explored by archaeologists working on Guam and in the Commonwealth of the Northern Mariana Islands.

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