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Architectural and Mortuary Diversity in Late Prehistoric Settlements at Tumon Bay, Guam

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Abstract—Tumon Bay, Guam was a prehistoric and historic locality of considerable significance. Based on archaeological field work and archival research it is now possible to infer a number of characteristics about the traditional settlements there. Each of the three beaches on the bay—Ypao, Tumon and Gongna—had a settlement. These prehistoric villages were linked not only by geography, but by similar residential patterning, *latte* morphology and size classes, and certain aspects of mortuary treatment. Of the three settlements, Tumon Beach was the largest in area, yet had proportionately the fewest number of *latte* sets. Its location and geomorphology as well as other features of the mortuary and burial assemblage, suggest that it was the oldest or hierarchically most senior of the three settlements. Its enhanced position can be explained, in part, as the consequence of greater environmental stability, larger terrestrial and marine areas, and greater resource productivity of Tumon Beach.

Introduction

Tumon Bay (Figure 1), located along the west central coast of Guam, is today the hub of tourist-related development on the Island. Yet, the Bay has both cultural and historical significance for understanding the early history of the Mariana Islands culture, known as the Chamorros. Historically, Tumon is the location where Sanvitores, the Spanish Jesuit missionary, was martyred in 1672. This event was a major turning point in the Spanish colonization of the Mariana Islands.

Much of the pioneering archaeological work in the Mariana Islands was by Hans Hornbostel (1921–23) at Tumon Bay. Although many of Hornbostel's ideas do not currently enjoy much support, most of our contemporary conceptions regarding Chamorro origins and the cultural significance of the late prehistoric megalithic house supports in the Mariana Islands known as *latte* come from Hornbostel's research. In the Mariana Islands *latte* are represented by paired sets of stone uprights originally set into the ground in a rectangular outline. Capstones were placed on the uprights as the foundation supports of raised wooden buildings. A wide array of domestic debris and features is usually found in the vicinity

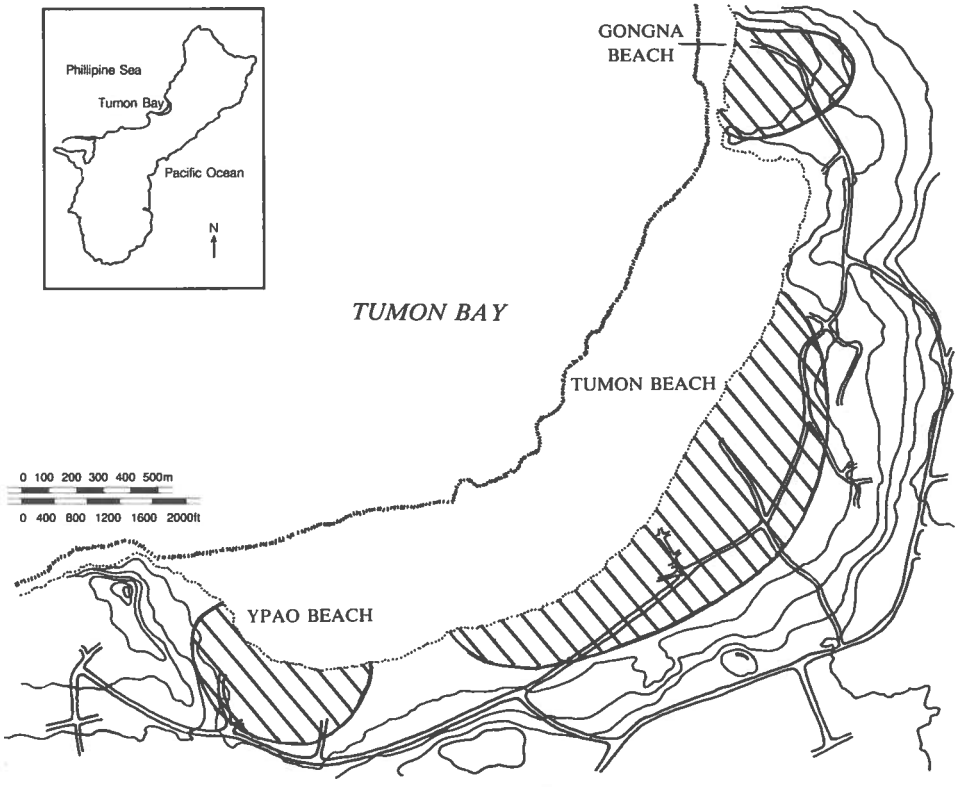

Figure 1. Map of Tumon Bay showing location of prehistoric villages along Tumon, Ypao, and Gongna Beaches.

of *latte* sets suggesting they served as residential structures. Spanish descriptions of these buildings are vague. Fortunately, the architectural historian, Morgan (1988) has sketched house forms which may have been placed on top of *latte* sets. Archaeological studies have shown that the development of *latte* architecture occurred sometime after A.D. 1000, and by convention this period is known as the *Latte* Period.

More recent investigations (Graves & Moore 1985) have disclosed that *in situ* archaeological deposits can still be found buried throughout Tumon Bay, which is a natural focus for archaeological questions regarding the dynamics and organization of late prehistoric Chamorro society. Unfortunately for archaeologists, much of the surface architectural record of the late prehistoric or *Latte* Period (ca. A.D. 1200–1700) has been destroyed in the Tumon Bay Area, and increasing portions of the subsurface deposits are being disturbed by major development projects. Nevertheless, based on recent archaeological research and on the analysis of data from archaeological and historical archives, it is possible to provide information on several dimensions of the late prehistoric population

of the area and to answer several questions regarding prehistoric society in the locality. In particular, the research reported here concerns: (1) the location, boundaries, number, and size of the prehistoric communities which existed in the area; (2) physical variation in the construction of architectural features across these communities; and (3) mortuary remains associated with these architectural remains in two of the communities. From this base, propositions regarding status differentiation within and between settlements in Tumon Bay will be evaluated. More detailed aspects of prehistoric community patterning can be inferred in Tumon Bay than from other prehistoric sites in the region.

The Archaeology of Tumon Bay

The most extensive, and potentially most valuable, archaeological investigations completed to date in Tumon Bay were those of Hans Hornbostel in the early 1920s. His work took place before the modern urbanization, while dense archaeological remains were still visible on the ground. I inspected all of the unpublished field notes compiled by Hornbostel (1921–23) and housed at the Bishop Museum. This was necessary, in part, because Laura Thompson (1932:9) published a map of Tumon Bay, drawn from Hornbostel's notes, in which the location of the two major beaches, Ypao and Tumon, of the larger bay were reversed from their designations today. A careful reading of Hornbostel's notes suggested that he had erroneously labeled Ypao and Tumon Beaches and the associated archaeological materials from these localities in his field notes (see Graves & Moore 1985 for documentation in support of this proposition). This conclusion is important, since many subsequent studies of the prehistory of Guam have drawn upon Hornbostel's notes and his work in Tumon Bay (see, Leigh 1929; Pietruskewsky 1971; Thompson 1932, 1940; Yawata 1961a, 1961b). If Hornbostel reversed the locations for Ypao and Tumon Beaches, then the provenience information for various structures, burials, and artifacts taken from the notes has been reversed as well. For the purposes of this work, then, the archaeological materials that Hornbostel derived from Tumon Beach are referred to as from Ypao Beach, and materials from Ypao Beach will be designated as from Tumon Beach (Fig. 1).

Hornbostel's interpretation of the archaeological record on Guam noticeably affected the manner in which he excavated *latte* in Tumon Bay (Hornbostel 1924a, 1924b). Because he felt that *latte* sets, the megalithic house supports found throughout the Mariana Islands, represented ritually or ceremonially important burial temples and zones, Hornbostel recorded information and collected archaeological materials in terms of burial lots or features. He did not fully consider the possibility that the subsurface zones beneath and surrounding *latte* might also contain evidence of other activities (Yawata 1961b). The impact of the bias toward mortuary data is clear: there is very little redundancy in the occurrence of classes of artifactual material or the features from the 12 *latte* sets excavated by Hornbostel in either the Ypao or Tumon Beach portions of Tumon Bay. Burials are the only consistently recurrent class of cultural materials found at all

12 structures. This pattern of material distribution differs from that which Graves (1986) described from eight recently excavated *latte* sets in the Mariana Islands. Most *latte* contain a variety of features and artifact types. This patterning has been confirmed by more recent surface collections and excavations in the Mariana Islands (Craib 1983, Graves & Moore 1985, 1986). Thus, for Hornbostel human materials were the recovery unit deployed within *latte* sets, which influenced the range and number of objects he recovered from these structures. It is difficult, as a result, to infer from Hornbostel's work any but the most general activity patterns from an analysis of artifactual remains associated with *latte* sets.

Because of the shortcomings of Hornbostel's excavation strategy and interpretive model the focus of retrospective analyses of his field notes must be modified somewhat; those data which he collected in a fairly systematic manner are emphasized here. The first set of data pertains to the physical dimensions of the various *latte* in the vicinity of Ypao and Tumon Beaches. *Latte* sets in Tumon and elsewhere in the Mariana Islands are characterized by paired rows of stone uprights and capstones. The number of supports in a row varies from as few as three to as many as seven. The size of the uprights and capstones, as well as the area encompassed by their spatial arrangement varies considerably as well.

Fourteen separate *latte* sets were either mapped or excavated by Hornbostel in Tumon Bay (Table 1). These include eight associated with Ypao Beach and six associated with Tumon Beach. Two of the *latte* from Ypao are part of a double set placed end-to-end, slightly offset from one another and only 4.01 m apart. These were very likely not all of the *latte* in either locality, but perhaps were the most visible or the best known to Hornbostel's informants. The relative locations of the *latte* sets to one another are uncertain, inasmuch as Hornbostel did not draw a map of either Ypao Beach or Tumon Beach. Hornbostel did list the varying distances the *latte* were placed inland from the shoreline. At Ypao Beach, *latte*

Table 1. Estimated interior and exterior areas of *latte* sets excavated by Hornbostel in Tumon Bay, 1921–23.[a]

Beach	Latte	Latte Area m²	Interior Area Excavated	Extramural Area Excavated	Total Area
Ypao	7-20-22	59.87	40.24	16.98	57.22
	8-11-22	44.39	18.54	10.34	20.88
	8-12-22	27.33	7.13	0.50	7.63
	2-12-22	23.87	15.54	12.15	27.69
Tumon	1-28-21	42.88	40.00	0.46	40.46
	6-19-22	36.89	36.89	4.18	41.07
	8-13-22	23.72	20.62	25.61	46.23
	9-09-22	37.09	18.54	17.74	36.28
				Total	285.46

[a] No data are available for Ypao *latte* sets 3-19-22, 4-22-22, or double *latte* A or B, nor for Tumon *lattes* 5-06-22 and 6-30-22, which Hornbostel excavated.

were located in two zones; (1) approximately 100 m inland, and (2) in excess of 175 m inland. This pattern of dual linear arrangements of *latte* sets has been noted elsewhere in the Mariana Islands, for example on Tinian (Moore et al. 1986), and may have existed along Tumon Beach as well.

Six other *latte* sets near Ypao Beach were mapped or excavated. *Latte* 3-19-22 and *Latte* 4-2-22 were not mapped but Hornbostel listed items excavated from these two structures. *Latte* 3-19-22 contained eight stone shafts, whereas *Latte* 4-2-22 was a ten-shaft structure. A number of burials and associated artifacts were recovered from both of these *latte* sets. The other four *latte* sets from Ypao were mapped, and the locations of both burials and excavation areas were noted on the maps. *Latte* 7-20-22 was a ten-shaft *latte*, although only five of the uprights and none of the capstones remained in place. Approximately 40 m^2 of the interior area of this set was excavated, as well as more than 15 m^2 of extramural space (see Table 1 for a listing of excavated areas associated with each *latte* set). Relatively few burials were found with this *latte*. The burials from the interior of the structure, as defined by the perimeter of the uprights, were oriented perpendicularly to the long axis of the structure; the burials from the exterior were positioned parallel to the long axis and on the side of the *latte* closest to the shore. *Latte* 8-11-22 had been a ten-shaft structure, with all of the uprights still in place. Hornbostel excavated within the center of six supports at one end of the structure, and outside on both sides of the set. Less than 30 m^2 of area were dug, nearly two-thirds of the excavation within the interior area of the *latte*. Only four burials were recovered, all from the interior of the set and oriented perpendicularly to the long axis of the *latte*. The *latte* designated 8-12-22 was an eight-shaft structure, with all of the uprights still in place. Hornbostel conducted relatively little excavation here (less than 8 m^2), virtually all of it within the uprights. Only two burials were encountered, both recovered from inside the *latte*. Again, they were oriented perpendicularly to the long axis of the structure. *Latte* 2-12-23 in Ypao was an eight stone structure with only two of the uprights still in place. Four other uprights were lying on the ground angled away from the interior of the structure. Virtually all of the interior area of the *latte* was excavated, and several test pits were dug in extramural areas on both sides of the *latte*. Although nearly 30 m^2 were excavated, only five burials were recovered from this *latte* set. All were positioned at a right angle to the long axis and were located within the perimeter of the structure.

Six *latte* sets were mapped or excavated along Tumon Beach by Hornbostel. Of these six, four were mapped. For neither *Latte* 5-6-22 nor *Latte* 6-30-22 were there estimates of the number of foundation stones associated with the structure. The information recorded by Hornbostel about each of these *latte* consisted of an inventory of burials and grave goods recovered during the excavation. *Latte* 1-28-21 is a ten-shaft *latte* set that was almost completely excavated. A small portion of the exterior area surrounding the structure was sampled. This *latte* set contained a rich and varied assemblage of burials, human skulls, mandibles, miscellaneous bones, and associated artifacts. Extended burials, oriented perpendicularly to the long axis of the uprights were recovered throughout the structure.

Of the three extramural burials, only one was oriented parallel to the length of the structure. *Latte* 6-19-22 is an eight stone structure which was completely excavated by Hornbostel. All of the uprights were in place, and eight capstones were associated with the structure. A portion of the extramural area of the *latte* was excavated, and burials and grave goods were recovered from both areas. All of the complete skeletons from the interior portion of the *latte* were oriented perpendicularly to the long axis of the structure. Five burials lying just outside the *latte* on the beach side were arranged parallel to the long axis of the uprights. Three others were positioned at a right angle to these burials. Hornbostel noted several dense concentrations of *Strombus* shells just below the ground surface at this *latte* set. *Latte* 8-13-22 was an eight-stone structure with all of the uprights still in place and seven associated capstones on the ground. Hornbostel excavated much of the interior area of the structure and placed several extramural test pits on both sides of the uprights. Only eight complete burials were found, two in the interior area and the remaining six on the outside or stretching across the interior-exterior boundary. All but one of the burials was oriented perpendicularly to the long axis of the *latte*. The one arranged parallel to the long axis of the feature was outside the structure on the side towards the beach. No burials were encountered on the inland side of the *latte*. *Latte* 9-9-22 was a ten-shaft structure with nine of the uprights still in place. A trench was placed through the center of the structure, extending outside on both ends. Two extramural test pits were also excavated on the long side of the *latte* closest to the beach. Nine relatively complete skeletons were uncovered, as well as several miscellaneous skulls, jaws and other human bones. Only four of the skeletons were found within the *latte*; the remaining five skeletons were located in the two extramural test pits. All burials were oriented perpendicularly to the long axis of the structure.

In addition to the eight *latte* sets Hornbostel recorded for Ypao Beach, several other *latte* apparently existed within this locality. Reinman (1967:3) recorded an eight shaft stone set on the west end of Ypao, inland from a small section of an exposed coral platform on the beach. It is unlikely this *latte* set corresponds to any of these previously noted. There were also several *latte* sets on the far western end of Ypao, which were destroyed during modern construction activity. No information is available about the size or exact location of these structures, although Reinman (1967:3) noted that both *latte* areas were associated with a shallow midden. Altogether then, there were at least 12 *latte* sets in the Ypao Beach locality. The maximum number of *latte* is unlikely to have been more than 15 sets.

A low limestone escarpment separates Ypao and Tumon Beaches (Fig. 1). On the eastern end of the escarpment, adjacent to Tumon Beach, one relatively intact *latte* and two disturbed *latte* sets were discovered recently (Graves & Moore 1985:86). The intact *latte* contained six limestone uprights. Artifacts associated with the *latte* included a basalt implement, a *Tridacna* shell adze, and *Latte* Period pottery. A basalt fishing net weight was located nearby. Approximately 5.0 m east of the *latte* a limestone outcropping was littered with *Strombus* shells. A fire-blackened area, nearly 3.0 m in diameter was situated 10 to 15 m east of the *latte*

set. Although situated between Ypao and Tumon Beaches, the *latte* sets here were most likely associated with Tumon Beach, based on similarities in the shape of the intact *latte* uprights. An earlier survey by the Department of Parks and Recreation noted the presence of *latte* structures at the edge of the limestone outcrop and Tumon Beach. No further information is available about these features, and they were apparently destroyed prior to 1984.

Toward the center of Tumon Beach, at Matapang Beach Park, there were remnants of a *latte* set (Graves & Moore 1985). This is most likely one of those recorded by Hornbostel. In 1984, only one upright remained in place; the others had been previously removed. *Latte* Period pottery, as well as *Tridacna, Strombus*, and *Isognomon* shell fragments were collected from the surface (Graves & Moore 1985:117–120). A slingstone, shell adze, shell bead, and pieces of basalt and chert were recovered from excavations in the upper layers of the deposit (Graves & Moore 1985:120). Subsequent but unpublished excavations in the vicinity of Matapang Beach disclosed a large cemetery area that may have been associated with other *latte* sets in the locality.

In 1984, a final *latte* set was found on the northeast end of Tumon Beach, and has been reconstructed in front of the Guam Visitors Bureau Building, not in its original location. This was either a six or eight shaft *latte*. No further information is available about its archaeological context.

From the work of Douglas Osborne (1947a, 1947b) the prehistoric site at Gongna Cove, the northernmost beach in Tumon Bay can be described. A rockshelter at this beach was excavated in 1984 (Graves & Moore, 1985), and more recently the remaining archaeological deposits have been excavated or destroyed during the construction of a hotel. Osborne, a member of the U.S. military during World War II, supervised the mapping of the site, the collection of artifacts from the surface, and limited subsurface excavations. He (Osborne 1947a:519) described Gongna as a habitation site, based on the presence of a number of *latte* sets, and the diverse and large sample of artifacts collected from the beach zone. The artifacts included basalt adzes, chisels, pestles, and mortars, coral limestone mortars, stone slingstones, and shell adzes, fishhooks, knives, and beads (Osborne 1947a:519–520). Pottery occurred in dense concentrations at the site, usually in association with midden deposits and *latte* sets. Several burials were exposed during this first excavation. Many more have been excavated as a result of the recent hotel construction at this beach.

The major goal of Osborne's work at Gongna was to reconstruct the *latte* sets and to produce a map (Fig. 2) of the location and orientation of the prehistoric structures within the cove. There were 12 groups of *latte* sets identified; three of these may have contained the remains of two distinct sets (Table 2). Thus, there were between 12 and 15 *latte* on the beach portion of Gongna Cove. Osborne (1947a, 1947b) described the general shape of *latte* uprights in Gongna as pyramidal, and the capstones were labeled hemispherical. This matches the general description of most of the *latte* sets in Tumon and Ypao Beaches, and is evidence of the common megalithic tradition across the three localities in Tumon Bay. *Latte* 1 included ten foundation stones and was located in the southeast corner

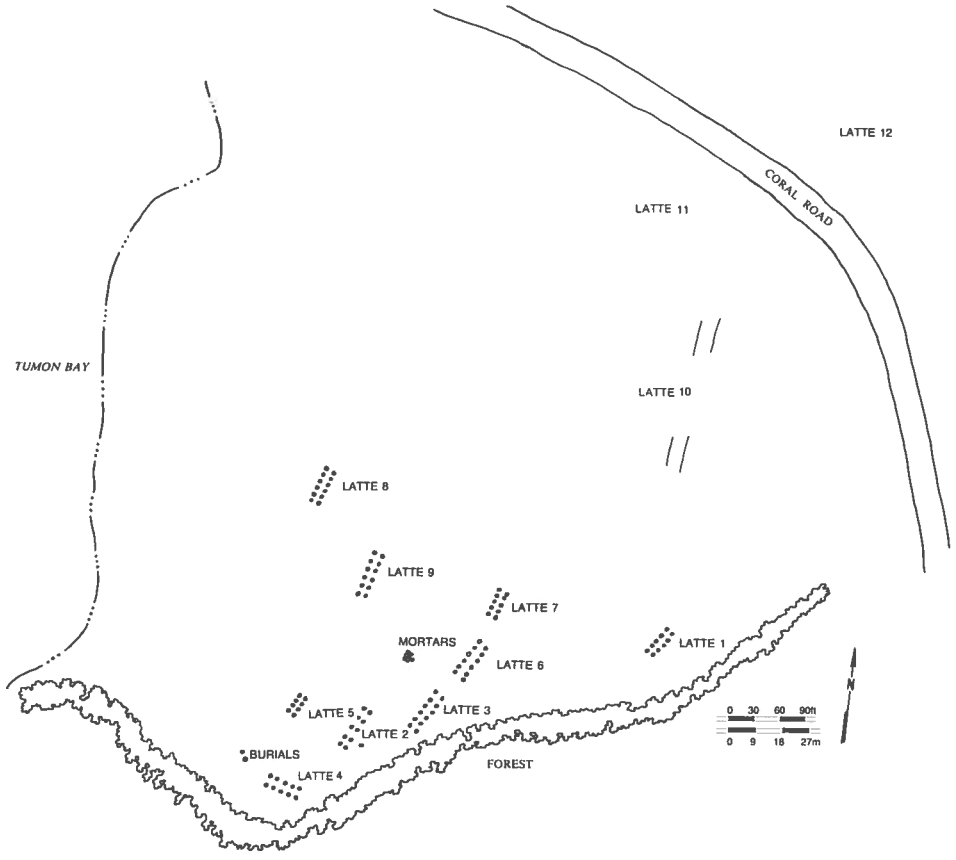

Figure 2. Map of *latte* sets recorded at Gongna Beach by Osborne.

of the site back near the cliffline. It was situated approximately 50 m away from *Latte* 7 and may have been in a separate section of the settlement, along with *Latte* 10, 11, and 12. Several burials were associated with this set. *Latte* 2 contained the remains of one ten-stone set, and the partial remains of a second set. This group of uprights was located on the southwest edge of the beach, approximately 15 m from the cliffline, and may not have been completed. *Latte* 3 was part of a double set which included *Latte* 6. Both *latte* sets contained 12 foundation stones, and they were positioned end to end and separated by a distance of 8.50 m. A relatively dark midden surrounded each set. *Latte* 3 was situated on slightly higher ground back towards the cliffline and was also slightly taller than *Latte* 6. *Latte* 4 was another ten-stone set, located in the extreme southwest corner of the cove. Approximately 22 m to the north of *Latte* 4 was *Latte* 5, the only eight-stone set observed at the site. It was associated with a dense concentration of shell debris on the north side of the uprights, an arrangement docu-

Table 2. Estimated physical dimensions of *latte* sets at Gongna Beach, Guam.

Latte	Foundation Stones	Width m	Length m	Area[a] m²	Height m
1	10	4.02	11.52	46.31	1.07
2a	10	3.84	16.91	64.93	—
3	12	4.57	16.64	76.04	1.17
4	10	4.57	12.80	58.50	—
5	8	3.66	8.23	30.12	0.75
6	12	4.75	15.73	74.72	1.31
7	10	3.84	12.34	47.39	—
8	12	4.11	13.72	56.39	1.68
9	12–14	4.11	17.37	71.39	1.00

[a] Area:

Eight-foundation stone *latte* — mean = 30.12, sample size = 1.
Ten-foundation stone *latte* — mean = 54.28 ± 8.99; $n = 4$.
Twelve and fourteen-stone *latte* — mean = 69.05 ± 10.98; $n = 4$.
T-test for the difference between the mean area of ten and twelve or fourteen foundation stone *latte*:
$t = 2.33$, 6 df., $p < .05$ (1 tailed test)

mented elsewhere in the Bay. *Latte* 7 was located to the east of *Latte* 6, and consisted of ten shafts. *Latte* 8 was situated north of *Latte* 9 and was approximately 80 m from the shoreline. Of the *latte* sets mapped by Osborne, this one was the closest to the beach. It consisted of 12 shafts, arranged in two rows parallel to the shoreline. At 1.68 m, it had the tallest uprights at Gongna. Between *Latte* 8 and *Latte* 2 was *Latte* 9, a 12-stone or 14-stone structure. A dark-colored midden area was associated with the north or beachward end of this structure. *Latte* sets 10 and 12 were located on the eastern side of the cove, and both probably contained two distinct *latte* structures. *Latte* 11 was situated between these two groups and contained a single structure. Due to prior disturbance of the structures, Osborne was unable to estimate the number of foundation stones associated with these last three groups of *latte*.

Despite the limited excavation undertaken at Gongna and the rapid mapping and restoration of the *latte* structures at the site, several observations about the arrangement of *latte* sets can be made. First, the distribution of structures is not uniform across the beach area of the site. Virtually all of the stone structures were located in the central and western portion of the cove, close to the cliffline. The eastern side of the cove, which contains land suitable for building *latte*, is nearly devoid of such structures. If residential debris had been scattered across the entire beach zone at Gongna, as a survey of the area suggests (Graves & Moore 1985:100, Osborne 1947a, Reinman 1967), then this arrangement would suggest a division of the settlement into at least two sections. Second, there may be secondary division of the *latte* structures into two units. Groups 1, 10, 11, and 12 are physically separated from the closest of the remaining *latte* sets by more than 50 m. Moreover, the other *latte* sets appear to be arranged around an

open area that contained a number of large mortars. The spatial pattern of *latte* distribution within Gongna suggests there may have been two groupings of stone structures. Finally, the largest *latte* sets, those with 12 or 14 shafts, are situated in the approximate center of the site. This type of arrangement has been noted elsewhere in the Mariana Islands (Spoehr 1957, Thompson 1932).

During a survey of Gongna Cove (Graves & Moore 1985), a small rockshelter was discovered south of *Latte* 2. The fire-blackened surface near the rockshelter extends along the cliffline for several meters and was probably associated with this structure. On the east side of the cove, the cliffline rises to a small, narrow plateau approximately 12 to 15 m above sea level. Series of small mounds occur in various places from the seaward edge of the plateau back to the cliffline. The middens vary in size and are not associated with *latte* sets. The sediment within the middens consists of a brown humus mixed with bioclastic sands from the beach. Cultural material associated with the middens included *Isognomon* knives, well-fired *Latte* Period pottery, chunks of scoria, shell adzes, branch coral, fish jaws, and the remains of bivalves and gastropods.

Based on the study of archival documents and the existing archaeological materials, a minimum of three communities existed in the Tumon Bay Area at the time of Spanish contact. These communities were focused on the three major beaches of the Bay: Ypao, Tumon, and Gongna. Each community contained several *latte* structures. Ypao and Gongna Beaches are estimated to have contained approximately 15 sets each. Too few of the *latte* from Tumon Beach remained for an independent count of their numbers to be made.

The Physical Dimensions of Tumon Bay *Latte* Sets

For most of the *latte* sets Hornbostel recorded in Tumon Bay it was possible to reconstruct the number of stone foundations and associated capstones, and to estimate the average width between foundation posts, the total length between end foundation posts, and the total area enclosed by the foundation posts (Table 3). To this sample may be added the six-stone *latte* discovered during a recent survey (Graves & Moore 1985), the eight-stone latte mentioned by Reinman (1967) in Ypao, and the reconstructed eight-stone *latte* from the northeast end of Tumon Beach. Many of these measures are also estimated for the *latte* recorded by Osborne (1947a) in Gongna (Table 2).

There are 23 *latte* for which we have estimates of the number of shafts (Table 4); of these, the majority have eight (35%) or ten shafts (43%). The next most common *latte* are those with 12 or 14 shafts (17%). This may approximate the size distribution of all the *latte* sets that once existed in the Bay. Although the proportion of ten- and twelve-stone *latte* sets is somewhat greater than expected, it is congruent with Reinman's (1967) survey data which indicates that the sites in the central portion of Guam—where Tumon Bay is located—have a higher percentage of ten- and twelve-shaft *latte* sets than sites to the north and south. The occurrence of *latte* with different numbers of foundation supports also varies by beach location. Tumon and Ypao Beaches have similar proportions of eight-

Table 3. Physical dimensions and numbers of foundation stones for Tumon Bay *latte* sets mapped or excavated by Hornbostel, 1921–23.

Beach	Latte	Estimated Width m	Estimated Length	Area[a] m^2	Number of Uprights
Ypao	3-19-22	—	—	—	8
	4-02-22	—	—	—	10
	7-20-22	4.27	14.02	59.87	10
	8-11-22	3.56	12.47	44.39	10
	8-12-22	3.12	8.76	27.33	8
	2-12-23	2.90	8.23	23.87	8
	double *latte* A	3.38	12.28	41.47	10
	double *latte* B	3.35	12.27	41.10	10
Tumon[b]	1-28-21	3.43	12.50	42.88	10
	6-19-22	3.66	10.08	36.89	8
	8-13-22	2.29	10.36	23.72	8
	9-09-22	3.58	10.67	39.20	10

[a] Area:
Eight Stone Foundation
mean = 27.95 ± 6.19; $n = 4$.
Ten Stone Foundation
mean = 44.65 ± 7.94; $n = 6$.
T-test for mean area between eight and ten stone foundations
$t = 4.02$, 8 d.f., $p < .005$ (1 tailed test)

[b] No data for *latte* sets 5-06-22 and 6-30-22

Table 4. Frequency Distribution of *Latte* Uprights for Three Beach Localities in Tumon Bay.

	Number of Uprights					
Beach	Six	Eight	Ten	Twelve	Fourteen	Total
Ypao	—	4	3	—	—	7
Tumon	1	3	3	—	—	7
Gongna	—	1	4	3	1	9
Total	1	8	10	3	1	23

and ten-shaft *latte*, whereas the *latte* sets from Gongna Beach are primarily ten- and twelve-stone sets.

Comparison of the mean interior area for the eight-shaft and ten-shaft *latte* sets from Ypao and Tumon Beaches (Table 3) shows that ten shaft *latte*, on average, are nearly 60% greater in area than the eight-shaft *latte*. Although the low number of eight-shaft *latte* from Gongna prevents a similar comparison, areal values for eight- and ten-shaft sets at Gongna are similar to those from Ypao and Tumon Beaches. These differences in size are comparable with an earlier

study (Graves 1986) of 61 *latte* sets from sites on Guam, Rota, Tinian, and Saipan. The mean area for twelve-shaft *latte* is significantly larger than the mean area of ten-shaft *latte*, whether the comparison is made within Gongna or between Gongna and Tumon Bay. The more uprights, the greater the average area as defined by the perimeter of the structure.

All the eight-shaft *latte* in Tumon Bay, however, are considerably smaller in area than the average area of eight-shaft *latte* that were used in Graves' (1986) study of all of the Mariana Islands. Similarly, the average interior area of eight-shaft *latte* sets (38.01 m^2) from the Tachogna (or Blue) Site on Tinian (Spoehr 1957), is greater than the mean area of all the measured eight-shaft *latte* in Tumon Bay (28.29 m^2). There is no difference in mean area between the ten-shaft *latte* from Tumon Bay compared to either the larger sample from the Mariana Islands or from the combined Tachogna Site and House of Taga Site sample (Hornbostel 1921–23) from Tinian. Furthermore, there is no difference in area among the twelve-shaft *latte* in Gongna and the larger sample of twelve-shaft *latte* from the Mariana Islands.

The more shafts a *latte* set has and the taller the foundation posts, the greater will be the amount of labor required to quarry, transport, and set them upright. Wooden structures were apparently positioned on top of *latte* foundations (Morgan 1988:140–148), requiring further labor and materials. In general, the larger the area of the *latte* structure, the greater the amount of wood that would be necessary to complete the elevated building. In addition, as the height of uprights and capstones increased, and as the width between uprights increased, the logs which formed the framework of the building would have been correspondingly longer. Locating and transporting logs of sufficient length and tensile strength would have added to the labor requirements for building larger *latte*. One computation of the relative labor involved in constructing *latte* of different size is the product of estimated interior area (the minimum size of the elevated wooden structure), the height of the uprights (the minimum size of the stone foundations), and the number of uprights (Table 5). The height of capstones was not factored into this measure, because capstones have not been systematically recorded. Nonetheless, the difference between *latte* of different size and location is apparent. There is an approximate doubling of the average labor estimate with the addition of every pair of shafts. This reflects not only the contribution of *latte* area to the measure, but also the impact of foundation stones of different heights and numbers on this measure of labor output.

The difference between the largest and smallest labor measure varies across the settlements, with the difference being smallest for the Tumon Beach *latte*. In both Ypao and Gongna Beaches, the difference between the maximum and minimum labor measures for *latte* is roughly twice as large as the difference for Tumon. This suggests that the construction of *latte* in these two settlements was somewhat more variable than the construction of *latte* in Tumon Beach.

Assuming that *latte* sets were constructed by distinct kin- or residentially-based corporate groups (see Graves 1986 for a detailed justification of this assumption) with varying numbers of participating households, then cooperating

Table 5. *Latte* area, height of uprights, number of uprights and measure of labor for Tumon Bay beach localities.

Beach	Latte	Area m²	Height m	Number of Uprights	Labor Measure[a]
Ypao	7-20-22	59.87	1.43	10	856.70
	8-11-22	44.39	0.90	10	399.80
	8-12-22	44.39	0.71	8	156.16
	2-12-23	27.33	0.93	8	177.04
Tumon	1-28-21	42.88	1.19	10	511.90
	6-19-22	36.89	0.92	8	339.70
	8-13-22	23.72	0.91	8	172.32
	9-09-22	38.22	0.91	10	349.30
Gongna	1	46.31	1.07	10	495.52
	3	76.04	1.17	12	1067.60
	5	30.12	0.75	8	180.72
	6	74.72	1.31	12	1174.60
	8	56.39	1.68	12	1136.82
	9	71.38	1.00	12	856.56

[a] Labor Measure: area × ht × no of uprights.
Eight stone foundation, mean = 211.31
Ten stone foundation, mean = 529.43
Twelve stone foundation, mean = 1,020.33

groups of widely different size are likely to have been responsible for the construction of different-sized *latte*. This relationship, however, was not simple. There is evidence for geographic variation within the three former settlements of Tumon Bay, and between these settlements and other settlements in the Mariana Islands. Variation here refers not to the difference in area or labor estimates for *latte* sets with different numbers of foundations, but to the differences in area for *latte* with the same number of shafts, and to the total range of variation in the labor measures across all *latte* from a community. The source of this variation may be linked to inter-community differences in the number of persons associated with particular sets of corporate groups, i.e., those responsible for eight-stone *latte*, etc. The corporate groups residing in Tumon Beach, under this interpretation were more uniform in size than those resident in either Ypao or Gongna Beaches. More generally, there was some heterogeneity within the groups responsible for building *latte* sets of approximately the same size in different settlements. These differences may have been a function of local demographic and competitive pressures on the formation of corporate groups.

Tumon Bay Mortuary Analysis and Associated *Latte*

As mentioned previously, in addition to information about the dimensions of *latte* sets and uprights, Hornbostel conducted excavations at most of the Tumon Bay *latte* that he recorded. From these excavations and the associated inventories, a list of burials (including complete skeletons, skulls, mandibles and

miscellaneous bones) has been compiled from all of the *latte* at either Ypao or Tumon Beaches. Aspects of mortuary treatment that were consistently recorded by Hornbostel included: (1) location of the burial with respect to the *latte* set, (2) associated objects and miscellaneous bones, (3) the position of hands on the body, (4) the position of the head, and (5) the body parts represented in the burial. While many of the skeletons from these burials were not collected because of extreme decay, a relatively large sample of the Tumon Beach skeletons and skulls were aged and sexed by Leigh (1929). Although the methods for aging and sexing skeletal materials have since improved substantially, Leigh's work remains one of the most comprehensive analyses of a late prehistoric Chamorro mortuary assemblage from a single community on Guam. Unfortunately, the Bishop Museum skeleton identification numbers do not match the numbers provided by Hornbostel, and thus it is not possible to identify which individuals were associated with specific *latte* sets.

The individuals identified by Leigh can be grouped into death cohort classes (Table 6) and cross-classified by sex. Altogether there were 77 relatively complete skeletons from Tumon Beach in this sample. There are nearly equivalent total numbers of males and females, an indication that *latte* sets were not used exclusively for the burial of one sex or the other. This is the type of sex distribution expected if *latte* sets were used as mortuary areas for the adult population at large. The low proportion of individuals aged 13 to 19 is unexpected, as is the total absence of subadults (less than 12 years of age at the time of death). The subadults apparently were excluded from the analysis by Leigh, inasmuch as Hornbostel identified approximately 15% of the burials in the field as subadults. While it is difficult to place much confidence in Hornbostel's identifications, his is probably a maximum estimate for the proportion of subadults buried in association with *latte* sets at Tumon Beach. Nonetheless, it is still surprising to find

Table 6. Estimated age at death cohort frequency distribution for individuals associated with Tumon Beach *latte* sets (from Leight 1929: 262–265).

Age-at-Death-Cohort	Males	Females	Total[a]	Total[b]
0–12	—	—	—	15.0%
13–19	0 (0.0%)	7 (18.0%)	7 (9.0%)	8.0%
20–29	2 (5.0%)	6 (16.0%)	8 (10.0%)	9.0%
30–39	2 (5.0%)	8 (21.0%)	10 (13.0%)	11.0%
40–49	17 (44.0%)	6 (16.0%)	23 (30.0%)	25.0%
50–59	9 (23.0%)	5 (13.0%)	14 (18.0%)	15.0%
60–+	9 (23.0%)	6 (16.0%)	15 (19.0%)	16.0%
Totals	39 (51.0%)	38 (49.0%)	77 (100.0%)	

[a] Totals refer only to those specimens analyzed by Leigh (1929).

[b] This column totals include an estimated 15.0% subadult burial population. The other column totals were proportionately altered to reflect the impact of this cohort group on the burial assemblage.

as few as 15% subadults among the burial population, because in most prehistoric mortuary assemblages the percentage of subadults is typically the highest value for all age-at-death cohorts (see Cordell et al. 1987; Kirch 1984:112–115; Whalen 1983:28). The reason for this is relatively simple: subadults experience high mortality in most non-industrial horticultural or agricultural populations (Kirch 1984:115).

The diminished number of subadults in the burial assemblage from the Tumon Bay *latte* sets suggest that members of this age group were differentially excluded from interment close to *latte* structures. If true, this would imply that the mortuary areas established in close proximity to *latte* sets were largely the domain of adults. This pattern of mortuary variation is predictable among populations which split funerary arrangements into adult and non-adult categories. Only after achieving adult status would normal funeral activities, including burial close to *latte* sets, routinely have been available to members of the local population. Such differentiation of population members at death suggests that there were cultural distinctions between adults and non-adults in life. The inclusion of some subadults in the mortuary assemblage from Tumon Beach *latte* may reflect ascribed status in the community.

The proportion of males and females in the six age-at-death cohorts (Table 6) varies considerably. More females between 13 and 39 years of age died and were buried in association with *latte* sets, than males among the corresponding age groups. Males, on the other hand, showed higher rates of mortality and burial at *latte* sets among the older age cohorts. There are two possible explanations for this pattern: (1) females may have had higher mortality rates during their primary child bearing years, or (2) younger males may have been less consistently buried in association with *latte* sets compared to younger females. Neither of these hypotheses is mutually exclusive, and as a result, the distribution of males and females across the age-at-death cohorts may reflect both biological (i.e., higher mortality for younger females) and cultural (i.e., less consistent mortuary treatment for younger males) processes.

Given the number of *latte* sets excavated in Tumon Beach and Ypao Beach localities, it is possible to analyze variation in the number of burials with respect to differences in location and sizes of *latte* (Table 7). In order to compare the number of burials recovered from *latte*, however, it is first necessary to control for the different areas excavated in the various *latte* in Tumon Bay. There are four *latte* from each beach locality for which it was possible to estimate both excavation area and number of burials from Hornbostel's notes. The number of burials is those specimens to which he gave separate burial numbers plus the minimum number of individuals represented in each grave lot. The mean area excavated per burial varies considerably across the eight *latte* sets, from a low of one burial per 5.72 m^2, to one burial per 1.06 m^2. There is a greater difference in the density of burials between settlements than there is between eight- and ten-shaft *latte*. The *latte* in Tumon Beach contained over twice as many burials per unit of excavated area as the *latte* of Ypao Beach. On average, larger *latte* at both beaches (i.e., those with ten foundation stones) did not contain proportion-

Table 7. Number of burials, area excavated, and mean area per burial for Ypao and Tumo *latte* sets.

Beach	Latte	Number of Uprights	Total Area Excavated m²	Number of Burials	Mean Area Per Burial
Ypao	3-19-22	8	?	19	—
	4-02-22	10	?	16	—
	7-20-22	10	57.22	10	5.72
	8-11-22	10	28.88	5	5.76
	8-12-22	8	7.63	3	2.54
	2-12-23	8	27.69	7	3.96
	A	10	?	2	
	B	10	?	2	
Tumon	1-28-21	10	40.46	38	1.06
	5-06-22	?	?	21	
	6-19-22	8	41.07	34	1.11
	6-30-22	?	?	22	
	8-13-22	8	46.23	15	3.08
	9-09-22	10	36.28	16	2.27

For eight stone foundations:
Total area excavated = 122.62 m², total burials = 62, 1 burial per 1.98 m²
For ten stone foundations:
Total area excavated = 162.84 m², total burials = 69, 1 burial per 2.36 m²
For Ypao Latte:
Total area excavated = 121.42 m², total burials = 25; 1 burial per 4.86 m²
For Tumon Latte:
Total area excavated = 164.04 m², total burials = 106; 1 burial per 1.55 m²

ately more burials than smaller *latte*. This pattern of variation in burial density was unexpected, inasmuch as larger *latte* might be expected to attract more burials, especially since their construction would have entailed more labor, and presumably more people. The failure to find such a relationship suggests that other factors impinged on burials at *latte* of varying size. In particular, it appears that locality (e.g., Tumon or Ypao Beaches) affected the density of burials associated with *latte* sets. Two hypotheses are suggested by this pattern: (1) that the tradition of *latte* construction began earlier in Tumon Beach than at Ypao Beach resulting in higher concentrations of burials, or (2) that the ratio of population to *latte* sets was greater at Tumon Beach than at Ypao Beach. The first hypothesis implies that the number of burials associated with a *latte* set is a function of the time the structure was occupied. If *latte* sets were built first in Tumon Beach, then the opportunity to use the associated land as a burial zone would have been greater in Tumon, and the potential burial population would have been correspondingly larger. Alternatively, the second hypothesis suggests that the number of adults within corporate groups associated with *latte* sets may have been greater for the Tumon Beach community. This would have been translated in mortuary terms to a relatively larger burial population per structure for the Tumon Beach *latte*.

Although there is no positive relationship between the density of burials and the number shafts in a *latte* set or the measure of labor among the Ypao Beach *latte*, such a relationship does appear to exist for the Tumon Beach *latte*, especially for the labor measure. The more effort that went into building the *latte*, the more densely were burials placed beneath the structure. Thus, if the development of *latte* construction in the two settlements was separated in time, with Tumon Beach earlier than Ypao Beach, then the occurrence of a positive relationship between burial density and *latte* labor effort within Tumon (but not Ypao) may be understandable. Given a longer tradition of building house foundations from stone in Tumon Beach, and assuming the larger *latte* were built somewhat later than smaller *latte*, then even the biggest structures could have been fully exploited for burial purposes.

Additional support for the hypothesis that the difference between the density of burials in Ypao and Tumon Beaches is a function of population—either the total population at one time or the cumulative population over successive generations—can be adduced from the distribution of burial materials from within interior and exterior zones of *latte* sets associated with the two former settlements (Table 8). From Hornbostel's (1921–23) notes and drawings and the data on burials (Table 7), it was possible to categorize the burials with respect to body parts represented (i.e., whole skeleton, mandible, skull, and miscellaneous bones) and their location relative to the foundations of the latte (i.e., interior or exterior),

Table 8. Density of Tumon Bay burials by settlement and location relative to *latte* set.

Column Head?	Number	Mean Area per Burial, m²
Interior Burials Ypao *latte* Sets[a]		
Skeletons	14 (70.0%)	5.82
Skulls	6 (30.0%)	13.58
Other	0	—
Exterior Burials Ypao *latte* Sets[b]		
Skeletons	3 (60.0%)	13.09
Skull/mandible	1 (20.0%)	39.27
Other	1 (20.0%)	39.27
Interior Burials Tumon *latte* Sets[c]		
Skeletons	26 (47.0%)	4.46
Skulls	28 (51.0%)	4.14
Other	1 (2.0%)	116.05
Exterior Burials Tumon *latte* Sets[d]		
Skeletons	30 (59.0%)	1.60
Skulls	21 (41.0%)	2.29
Other	0	—

[a] Excavated area = 81.45 m², total mean area per burial = 4.07 m².
[b] Excavated area = 39.27 m², total mean area per burial = 7.85 m².
[c] Excavated area = 116.05 m², total mean area per burial = 2.11 m².
[d] Excavated area = 47.79 m², total mean area per burial = 0.94 m².

and to calculate the average area allocated per type of burial. The density of skeletons continues to vary across settlements, even when mandibles, skulls, and miscellaneous bones are eliminated from the calculations. At Ypao Beach there is one full skeleton burial for every 7.10 m^2 of excavated area, whereas at Tumon Beach there is one full skeleton for every 2.93 m^2 of area. Thus, the density of primary burials at Tumon Beach is more than twice that of Ypao. This difference in skeletal burial density is largely a function of differential use of exterior *latte* areas for mortuary purposes. At Tumon Beach, the density of full-skeletal burials in exterior areas is one per 1.60 sq m, compared to a density of one per 13.09 sq m in the Ypao locality. The density of full-skeletal burials in the interior of *latte* sets is much less divergent between the two settlements. This pattern of variation is consistent with a hypothesis of density or cultural constraints on the placement of burials in the interior areas of *latte* sets. If Tumon Beach were occupied for a longer period of time by *latte*-building populations and if cooperating groups were, on average, larger in size, exterior areas of *latte* there might well have been required for mortuary purposes at a greater rate or for a longer duration than the exterior zones at Ypao Beach.

The presence of skulls or mandibles within the burial zones of *latte* sets may represent the outcome of body-part curation or prior burial disturbance. Historic sources (Driver 1983) refer to the Chamorro practice of keeping and caring for portions of the dead, especially skulls. Obviously, the longer a *latte* set was utilized for mortuary practices and the larger the participating population, the greater the likelihood that curated body parts would eventually be buried or that later burials would disturb earlier bodies. The density of skulls and mandibles at Tumon Beach *latte* sets is at least three times greater than skulls and mandibles at Ypao Beach for both interior and exterior areas. Moreover, although the density of skulls and mandibles within *latte* sets at Tumon approaches the density of whole skeletons, there is no corresponding pattern at Ypao Beach. These figures suggest that the prehistoric population of Ypao Beach had not reached density constraints on the interment of bodies as apparently happened at Tumon Beach. The density, relative placement, and body-part representations of burials in Tumon Bay reflect aspects of population demography in the two prehistoric settlements, with Tumon Beach characterized by a larger population, and an earlier, more intensive tradition of mortuary ritual associated with *latte* sets.

The final stage of the mortuary analysis involved studying variation in the treatment of whole or relatively complete skeletons. Hornbostel's (1921–23) notes show that when burials were recovered from within the perimeter of *latte*, the skeletons were almost all positioned perpendicular to the long axis of the structure. Burials along the exterior of a *latte* were sometimes parallel to the long axis, while burials located farther away from a *latte* were perpendicular or parallel to the long axis of the structure. The distinctions between interior and exterior and between relative assemblage uniformity and diversity, are recurrent structural patterns in the mortuary assemblage of Tumon Bay.

Hornbostel's (1921–23) notes were sufficiently detailed to categorize 60 burials in terms of body position and associated burial goods (Table 9) at eight *latte*

Table 9. Burial treatment by settlement, size of *latte*, and placement of burial relative to *latte*.

Beach	Number of Uprights	Location of Burial	Burial Treatment[a]															Total
			0	1A	1B	1C	1D	2A	2B	2C	2D	2E	2F	3A	3B	3C	4	
Ypao	eight	interior	2				1						1		1		2	7
		exterior																0
	ten	interior	1			1		1						1	1		2	7
		exterior	1					1					1			1		4
Tumon	eight	interior	1				1	4	2	1			1	6			1	17
		exterior	3	2	1			2					1	1	2		4	16
	ten	interior													1		1	2
		exterior	1									1			5			7
	Category total		9	2	1	1	2	8	1	1	0	1	4	8	10	1	10	
	Class total		9		6				16					19			10	

[a] 0 = additional mortuary treatment, 1A = head positioned to left, 1B = hands positioned over pelvis, 1C = additional bones associated with body, 1D = cultural material associated with body, 2A = head positioned to left and hands placed over pelvis, 2B = additional bones and goods associated with body; 2C = head positioned to left and additional goods associated with body, 2D = head positioned to the left and additional bones associated with body, 2E = head positioned to left, hands placed over pelvis and additional bones associated with body, 2F = hands placed over the pelvis and additional goods associated with body, 3A = head positioned to left, hands placed over pelvis and additional goods associated with body, 3B = head left, hands over pelvis, and additional bones associated with body, 3C = head left, hands over pelvis, and additional bones associated with body, 4 = head left, hands over pelvis, additional goods and bones associated with body.

sets in Tumon Beach and Ypao Beach localities. Of the 51 individuals interred in an extended position and on their backs, 40 (78%) had their heads turned left (see Yawata [1961b] for similar observations on the Tumon Bay burials), and 42 (82%) had their hands placed over the pelvis. This was the standard mortuary position for complete bodies buried beneath *latte* sets. Of the 46 separate skeletons that had either their hands or heads positioned in the standard fashion, 37 (80%) were associated (based on Hornbostel's [1921–23] notes) with mortuary goods, either artifacts, shellfish, or additional human bones. Ten individuals had both hands and head positioned and were buried with both artifacts and additional human bones. Only nine of the burials lacked both a standard body position and associated goods; over half of these were labeled as subadults by Hornbostel in the field. This represents 56% of all the well-documented subadult burials at the *latte* sets, and suggests there was a tendency for subadults to receive little additional mortuary treatment beyond primary burial, in those infrequent instances when they were interred beneath the *latte* sets.

While it is not possible to examine age- or sex-specific variation in burial treatment, there is variation in these dimensions between the settlements at Ypao and Tumon Beaches (see Table 10). The 15 categories of burial treatment were collapsed into five classes, differentiated in terms of the number of distinct burial treatments received. Burial treatment class 0 represents those individuals who exhibited none of the standard body positions or associated mortuary items. Burial treatment class 4, on the other hand, includes individuals who exhibit all four treatment possibilities. The remaining classes of burial treatment represent those individuals who received one, two, and three separate treatments. Over 60% of the burials from Tumon were concentrated into two treatment classes, and nearly 80% are found within the three most elaborated classes. At Ypao, the frequency distribution of burial treatment classes is relatively uniform, compared to the diverse array of burial treatments at Tumon. This suggests relatively little differentiation of burial treatment at Ypao, compared to Tumon.

Placement of hands and position of the head were the most consistently observed burial treatments. These two aspects were lumped together for burials from Ypao and Tumon and cross-classified by interior and exterior burial areas of *latte* sets (Table 11). The relative proportion of alternative forms of burial

Table 10. Burial treatment class by beach in Tumon Bay.

	Burial Treatment Class[a]					
Beach	0	1	2	3	4	Total
Ypao	4	2	4	4	4	18
Tumon	5	4	12	15	6	42
Total	9	6	16	19	10	60

$\chi^2 = 2.33$, 4 d.f., $p > .25$

[a] 0 = no standard body positions or mortuary items; 1–4 = 1–4 of the possible positions of mortuary items.

Table 11. Occurrence of standard burial treatment by beach locality and location of burial in relation to *latte*.

Beach	Burial Location	Burial Position: Hands on Pelvis Head to Left	Burial Position: Neither	Total
Ypao	Interior	8	6	14
	Exterior	2	2	4
Tumon	Interior	13	6	19
	Exterior	15	8	23
	Total	38	22	60

Table 12. Occurrence of burial treatment by location of burial relative to *latte* for Tumon Beach burials.

Burial Location	Burial Treatment Class 0	1	2	3	4	Total
Interior	1	1	8	7	2	19
Exterior	4	3	4	8	4	23
Total	5	4	12	15	6	42

treatment for Ypao showed little difference between exterior and interior areas of *latte* sets, suggesting that burial location is unrelated to burial position. Tumon burials, on the other hand, are much more differentiated, with approximately twice as many receiving the standard burial treatment than not, in both interior and exterior areas of *latte* sets. Exterior areas of Tumon Beach *latte* sets are more uniformly distributed than interior areas when the five burial classes are considered (Table 12). Interior areas at these structures are more differentiated, with 80% of the cases concentrated into two of the more elaborated treatment classes.

The mortuary data from Tumon provide an opportunity to both characterize the normative aspects of burial treatment, and to isolate variable aspects of interment activities associated with *latte* sets in the Bay. Collectively, the excavations by Hornbostel reveal a preference for the burial of adults within and near *latte* foundations. Adults of both sexes were placed underground in the interior portion of a structure, with bodies oriented perpendicular to the long axis of the *latte*. Burials in exterior areas occurred primarily on the beach side of *latte* and were variable in their orientation, with both perpendicular and parallel alignments occurring. Most full bodies were fully extended, with hands placed over the pelvis and the head leaning towards the left.

The variability within the mortuary assemblage distinguishes the settlement located at Tumon Beach from that at Ypao Beach. A greater density of burials, both primary and secondary interments, in areas within and outside of *latte* sets was found at Tumon Beach. Variation in burial treatment also separates the two

settlements, with Ypao exhibiting a more uniform distribution of burial treatments compared to Tumon Beach. Within Tumon Beach, burials from interior areas of a *latte* show more variation in treatment than those from exterior areas. This recurrent spatial patterning of the opposition between assemblage uniformity and variability in the burial population suggests that operation of comparable structural principles in prehistoric Chamorro society. Ypao burials are more uniform than Tumon burials, and the orientation and mortuary treatments of burials correlate with the location of graves relative to *latte*.

Conclusions

The analyses presented here highlight some of the patterns of variability that can be detected in archaeological assemblages and features in Micronesia, on a single island, even within a relatively small locality such as Tumon Bay. All three prehistoric settlements in Tumon Bay share a similar generalized style of *latte* uprights and capstones. The proportion of larger *latte* sets was relatively high across all three localities, and this is probably not a function of sampling error or survey bias. The *latte* in Tumon Bay share the same underlying relationship between the number of foundation stones and *latte* area. The arrangement of *latte* within each beach area was not random, and there is some evidence to suggest that there were residential areas in each cove where *latte* structures were not built. A common burial pattern also links the two settlements at Tumon and Ypao Beaches. Burials occur in association with *latte*, and similar mortuary activities were conducted for members of the two communities. These similarities link all three settlements and may reflect the political districting of Guam that was described by Thompson (1945:12), in which a senior or high-ranking village was allied with several subsidiary villages. The centrality of Tumon Beach makes the settlement there the likely candidate for this senior village.

How prevalent or widespread were these characteristics in the Mariana Islands? The Spanish tended to minimize in their writings the cultural diversity of the indigenous population of the seventeenth century. Hence, there has been a tendency to assimilate the late prehistoric archaeological record from all of the Islands to the dominant pattern recorded by the Spanish from Guam. The detection of inter-settlement and intra-settlement variability within Tumon Bay suggests that such assumptions may no longer be warranted.

Considerable archaeological diversity was documented in the analyses of *latte* sets and mortuary remains from Tumon Bay. This suggests that within the Chamorro cultural tradition, there were varied relationships between certain organizational behaviors and the cultural remains produced as a result of these behaviors. First, there were subtle differences in the shaping of *latte* stones between settlements that were most likely undetectable except by those well-acquainted with the manufacture of these structures. Variation at this level is likely to represent the outcome of settlement endogamy or other historical practices that led to the transmission of information only within the confines of a community, and in which fairly strong conformity to existing practices existed. Anal-

yses of late prehistoric pottery production in the Mariana Islands (Graves et al. 1990) show sub-regional geographic patterning that is consistent with this inference. Late prehistoric Chamorro society was characterized by competitiveness (Thompson 1945:13); this would have promoted geographical variation through district or settlement conformity in the production of crafts and architecture.

Second, the proportion of different-sized *latte* varied between the settlements located at Gongna Beach and those at either Ypao or Tumon Beaches. Gongna contained fewer eight-shaft *latte* and more twelve- and fourteen-shaft *latte* than the other two settlements. At the same time there is some evidence that the overall height of *latte*—including capstones—at Gongna may have been less than the height of comparable *latte* on Tumon and Ypao Beaches. And finally, inspection of the photographs of the reconstructed *latte* sets of Gongna indicates substantially more variation in the shaping of uprights and capstones at this settlement than has been observed at Ypao and Tumon. These data are consistent with the proposition that construction of *latte* at Gongna Beach postdated the structures at Tumon and Ypao. Thus, the emphasis on larger *latte* at Gongna might be seen as an attempt to emulate the residential corporate groups that had formed in the other two localities. Competitive interaction is implied because emulation took the form of increasing the number of uprights and the area of *latte* construction, without increasing the height of these structures. As Graves (1986) has argued elsewhere, it is the height of *latte* that has most symbolic value, since this attribute is associated with relations of authority and rank.

Third, the findings that burial density was highest at the *latte* of Tumon Beach and that patterning of body parts and burial treatment in Tumon suggest that the system of organizational differentiation was more clearly defined at this settlement. This may partly be due to temporal priority of *latte* construction at Tumon. Yet, even for contemporaneously built and occupied *latte* in Tumon and Ypao, there may have been greater deference shown to the highest ranked members of corporate groups responsible for building these structures in the former village. Similarly, the larger *latte* appear to have been the locus for more intensive burial activity in Tumon Beach. Again, this suggests that the system of differentiation was more strongly developed in Tumon than either Ypao or Gongna.

These differences pose a final question: of the three settlements why is Tumon Beach the locus of greatest elaboration and differentiation in *latte* construction and mortuary activity? First, it is the largest beach area in Tumon Bay, with approximately 400,000 m^2 of land, compared to 90,000 m^2 in Ypao and 80,000 m^2 in Gongna. The productive and residential potential of the land associated with Tumon Beach would thus be several times greater than either Ypao or Gongna. In Micronesia, residential groups are often associated with named estates or holdings, tied to particular land and sea resources (see Goodenough 1966; Labby 1976; Lingenfelter 1975). The significance of the lands in and adjacent to Tumon Beach thus becomes apparent: there is more of it and it has the most productive potential. Second, by several biological measures Tumon Beach represents a more stable terrestrial and marine environment than either Gongna or

Ypao (Graves & Moore 1985:33). There are also more sources of potable water and less chance of flooding in Tumon during major storms.

Despite its size, productivity, and stability, Tumon Beach does not appear to have contained as dense a concentration of *latte* as either Gongna or Ypao. For Ypao, between 12 and 15 *latte* are estimated, for an average of one *latte* per 6,000 to 7,500 m^2. Gongna, where the same number of *latte* are estimated, would have had an average of one *latte* per 5,300–6,700 m^2. If the same density occurred at Tumon Beach, there would have been between 50 and 75 *latte* structures. There is little evidence to support this range of values for the number of *latte* in Tumon Beach, and a more realistic estimate of the maximum number of *latte* within Tumon is 30–35 sets. This is approximately one-half the density observed in either Ypao Beach or Gongna Beach. This observation, coupled with the mortuary analysis indicating a significantly greater burial density at *latte* in Tumon Beach, suggests again that Tumon Beach prehistoric populations were more strongly differentiated and perhaps organized into larger corporate groups than those residing at Ypao or Gongna. This would accord with the inference that Tumon held a central and prominent position during the late prehistoric period on Guam.

Settlement patterning in Tumon Bay during the late prehistoric period was characterized by diversity that reflects aspects of political organization in Chamorro society in which competitive interaction was widespread. Certain settlements maintained an ideological and material advantage and position of authority, and this is reflected in aspects of mortuary ritual and the locational positioning of villages with respect to one another. Components of social structure are also represented, in the opposition of uniformity and differentiation, and in the opposition of centrality and periphery. The redundancy of these oppositions throughout the analyses presented here supports the inference that they were used to organize social relations within corporate groups and between villages.

There are several inferences to draw from this paper. First, data collected by early researchers in Micronesia can still be used for modern archaeological purposes, although not without some understanding of the biases or errors that seem to have affected their structure and content. The work carried out by Hans Hornbostel continues to have significance for understanding the late prehistory of the Tumon Bay Area. Second, in any analysis it is useful to isolate similarities and differences at different levels of contrast, for they can signal the operation of a variety of processes, some of which may be contradictory or in opposition. For the Tumon Bay Area, this approach has revealed some of the underlying structure of settlement patterning that is attributable to environmental parameters and socio-cultural dynamics. Third, Micronesian societies were not the same everywhere, even within the same island or geographic area. This statement bears repeating, since too often archaeologists homogenize the prehistory of an area by failing to note significant sources of assemblage and site structural variation. The three settlements in Tumon were not all alike, and by investigating their differences it has been possible to describe variability in anthropological terms which future researchers may wish to pursue.

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