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Latte villages in Guam and the Marianas: Monumentality or monumenterity?

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Abstract—The functions of *latte* structures in Guam and the Marianas have been treated in two significant perspectives that deserve examination relative to their monumental character. The classic ethnographic and ethnohistoric perspective interpreted *latte* structures as part of village complexes with both residential and communal functions. Materialistic interpretations have characterized *latte* structures as chiefly houses with size possibly denoting relative power or rank among villagers and villages in the Marianas. However, examination of paleoenvironmental data, recent migration models depicting dispersal of matrilineal clans from the eastern Caroline Islands westward throughout what is now Micronesia, along with data from site surveys, excavations, and linguistic and ethnographic sources demonstrate that *latte* period settlement and architecture of the second millennium A.D. shares architectural styles, material culture, and lifeways with Micronesian islands to the east in what may have been a second and diffuse migrational movement through the region. In this model latte architecture expresses shared inter-village identities and mechanisms for conflict resolution rather than competition, warfare, and socio-economic ranking.

Introduction

> "Classified according to length of ground-plan, there are three types of *latte*, namely, small, medium, and large…furthermore, increase in size is achieved in length and height only, while the width is constant, a characteristic of Oceanian house types in which the width of the building is limited by the length of the wooden cross-beams"(Thompson 1940: 448,458).

Latte architecture is unique to Guam and the Mariana Islands of the western Pacific (Figures 1 and 2). Limestone posts called *haligi* are capped with stone tops (*tasa*) made of coral heads or limestone. Sets of *haligi* and *tasa* are arrayed 3–4 m apart and in pairs of from four through as many as 12. According to Laura Thompson (1940), most probably functioned as house-sites, but some of the larger had special functions as canoe sheds or communal structures. Villages

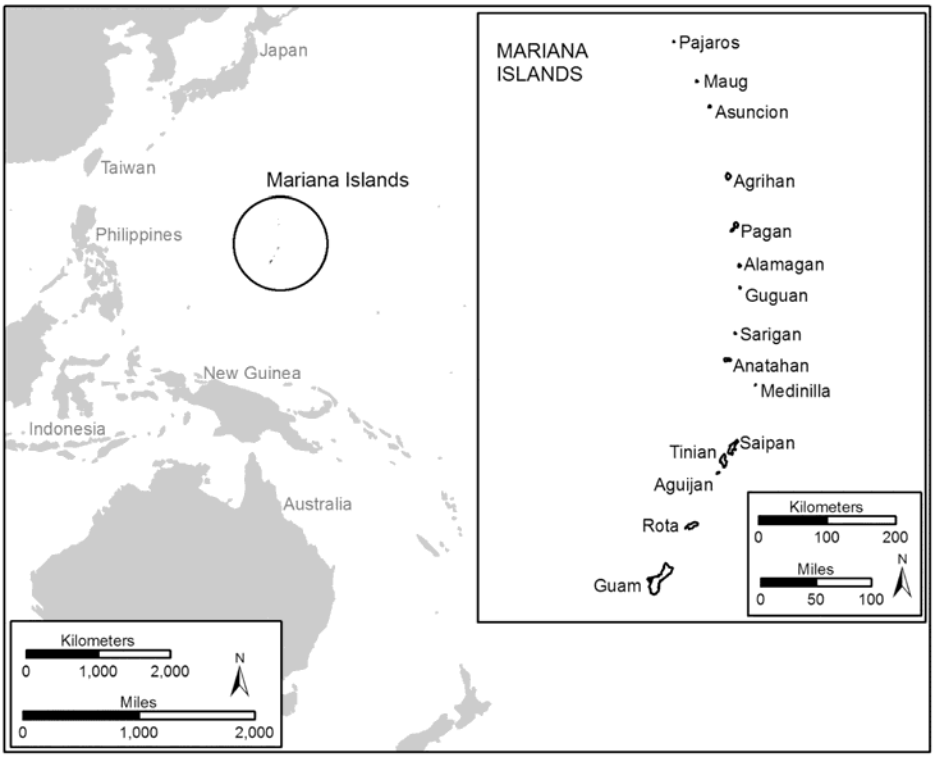

Figure 1. Area locator map for Guam and the Mariana Islands in the western Pacific Ocean, prepared by M. T. Carson.

with *latte* houses were arrayed along the coast and hamlets that were built along the rivers in the interior of Guam. San Vitores described *latte* houses in the late 17th century that were still a common housing type along with houses built on wooden posts. The larger structures, or men's houses, described by San Vitores were soon abandoned in the face of Christian edicts against the practice of *uritao*, or concubinage, and it is said that the canoe sheds disappeared "with the suppression of warfare and the spread of western influence"(Thompson 1940:461).

By 1742 when Anson (1748) visited the islands the *latte* houses were in ruins, but he and later Freycinet (1943), in 1819, commented on them based on narratives by Chamorro people. They were especially impressed by the massive pillars at House of Taga in Tinian and by the pillars and caps still embedded in their quarry matrix on Rota. These two sites have intrigued travellers and archaeologists, and have been the source of many speculations about centralized power and polities in the region. The larger *latte* structures noted by the Spanish

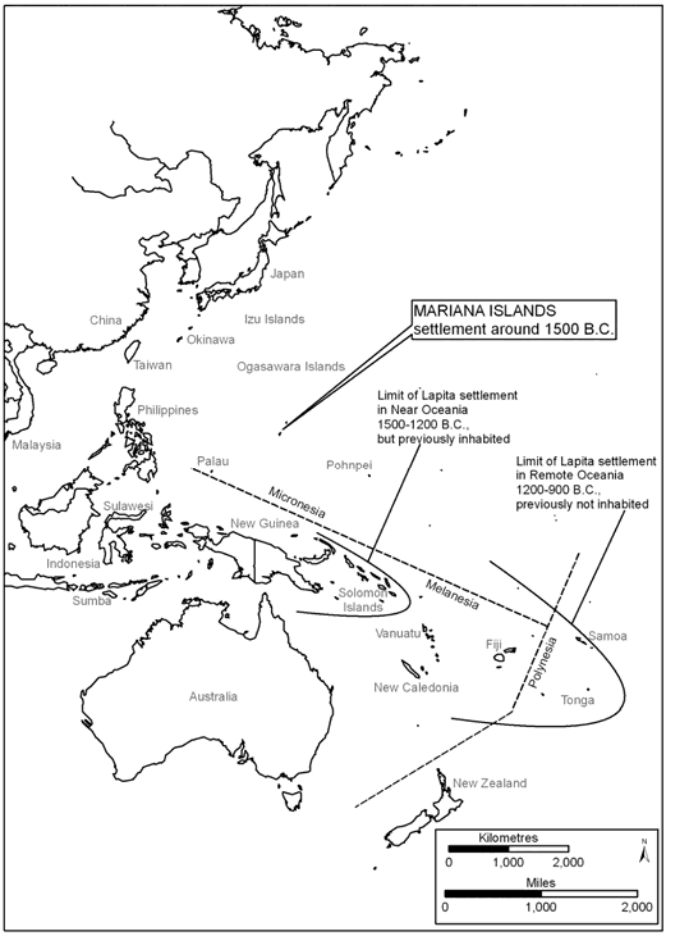

Figure 2. Austronesian migration ca. 1500 B.C. into Near Oceania, prepared by M. T. Carson.

in the 17th century have not been as commonly interpreted as men's houses since then or since Laura Thompson's typology of *latte* structures (1940). Nonetheless, she links them to their Oceanic roots in Palau and Nuclear Micronesia, and only passingly compares them to what she thought of as "ancient" Ifugao houses in the cordillera of the Philippines.

This paper is an outgrowth of a model for western Pacific migration that was developed in "the Austronesian Moment" about maritime migration in the region ca. 3500 years ago (Peterson 2009b, 2009c). Here I examine the paleo-environmental context for successful seafaring, enabling mechanisms and circumstances including matrilineal clan structure and breadfruit hybridization,

and a second "swarm" of migration from the eastern Caroline Islands around Ponape and Kosrae ca. A.D. 900 and the spread of Micronesian cultural practice including stonework architecture. The implications for the emergence of the *latte* style and heterarchical and cooperative modes of social and cultural identity are considered.

Micronesian Context

Guam and the Mariana Islands lie in the center of the western Pacific Ocean hundreds of miles from their nearest neighbors. To the south within 500 miles are the islands of Yap and Chuuk. Pohnpei lies almost 1000 miles to the east, and the Philippine Islands are over 1500 miles to the west. Despite these great distances among islands, there is evidence that Guam and the Marianas were settled as early as 3500 years ago (Carson 2008). Pottery styles and techniques connect Guam with the Philippines and the movement of Austronesian peoples from there that apparently spread to Guam as well as through Indonesia, New Guinea, and the Solomon Islands to Polynesia. By 2000 years ago new pottery styles appeared in the Philippines as well as in Guam, with mat-impressed bases, and thick, heavy pan forms with low walls (Carson and Peterson 2010). In the latter years of the first millennium A.D. new forms appear again in Guam, with Volcanic Sand Temper and thick walled jars. Around A.D. 1000 the earliest Latte stone villages in Guam and the Marianas along with pottery styles more similar to the Micronesian Islands of Yap, Chuuk, and the Eastern Caroline Islands of Pohnpei and Kosrae. It seems that the migration patterns of Micronesia were not unilinear or wave-like; the material culture of the region through time reflects influences from varying directions. Guam may have derived from the Austronesian migration by way of the Philippines, but by the late first millennium A.D. Guam was looking east toward the Carolines. The character of Chamoru settlement, the adoption of *latte* architecture, and social and political organization after A.D. 1000 reflect this Carolinian connection (Figure 2).

This is not a novel interpretation of Oceanic settlement. Bellwood (1978) proposed two migratory pulses in the region, the first from the Philippines, and the second from the Solomon Islands and New Guinea northward into the eastern Caroline Islands of Kosrae and Pohnpei, and linguistic analysis supports this general model (Blust 1989). Most recently, Glenn Petersen (2009) has proposed a model of migration from the Eastern Carolines ca. A.D. 1000 that transmitted genes, language, and matriliny throughout Micronesia fueled by hybrid breadfruit that could withstand brackish conditions on low-lying atolls as well as varieties that ripen throughout the year. Matrilineal clans enabled voyaging by reducing competition among male voyagers and maintained stable home bases. They also provided the mechanism for networking of lineages throughout a dispersive oceanic terrain. Mutual support during periods of stress was facilitated by this

system, as well as extensive exchange systems such as the *sawei* in the outer islands of Yap. It appears that the Marianas participated in this matrilineal network and it is not surprising therefore that the idea for *latte* architecture appeared in Guam and the Marianas at the same time as this network was spreading westward. The matrilineal clan structure of Chamorro social organization was widely reported by European visitors to the region.

Paleoenvironmental Proxies and the Asian Monsoon

Guam and the Marianas are in an area of the western Pacific that is dominated by northeast trade winds from January to July, and by Asian monsoon conditions from, roughly, July to December. Spanish navigators learned very early the difficulties of sailing east in the Pacific April and May; Magellan's survivors gave up trying to sail north and east and eventually returned to Spain by way of Sumatra and the Indian Ocean. The Manila Galeons returned to Acapulco during the summer monsoon periods. During some periods the Asian monsoons were especially beneficent for the region, and promoted long periods of climatic stability with adequate rainfall and long periods of steady southwesterly winds. The period of the Little Climatic Optimum (LCO), or Medieval Warm Period, ca. A.D. 900–1300 is widely accepted as an optimal climatic period for many parts of the world (Nunn 2003). In the Philippines a paleosol is found dating from this period that supports the equable climatic conditions (Peterson 2005). Another earlier period of equable climate was around 1200–1500 B.C. when Austronesian voyagers appeared in near Oceania and in Micronesia. The earliest settlement known in Guam and the Marianas is from this period (Carson 2008), and the earliest Lapita sites date from this same general period (Kirch 2000).

I digress to consider long-term paleoenvironmental trends in the region that are relevant to periods supportive of sustained long distance maritime travel. These periods, as we shall see below, are coeval with periods of settlement expansion and social and cultural change. The efflorescence of *latte* architecture and settlement ca A.D. 900–1300 is congruent with a long-lasting equable period in the region that also is marked globally as the Little Climatic Optimum. For several years the general outlines of this climate modeling have been known, but accumulating data from regional proxy sources provide compelling support for the model presented here.

Recent paleoenvironmental proxies for climatic trends in the western Pacific have been reported from Lake Huguang Maar in coastal southeast China as well as modern and fossil coral records from Mentawai Island, western Sumatra, and the Muschu/Koil Islands of Papua New Guinea show remarkably congruent trends in the strength of the Asian Monsoons (Liu et al. 2000; Yancheva et al. 2007; Abram et al. in press)(Figure 3). Core data from Huguang Maar sediments

are nearly annual in scale for the past 16,000 years. Data from coral from Mentawai range from around 7000 years ago to modern while the New Guinea data are from 7500–2000 years ago.

Conditions at Lake Huguang Maar are an anti-correlation to the Asian Monsoon periods. In other words, loess deposition from western China in the lake sediments reflects drier colder winters in northeastern Asia. The periods of wet and equable summer Asian monsoon coincide with periods of dry and cold northern Asian winter conditions as the Inter-tropical Convergence Zone is displaced northward. Higher surface sea temperatures (SST) recorded in the Mentawai and Muschu/Koil Islands during periods of strong Asian monsoons are reflected in Strontium/Calcium ratios of modern and fossil coral.

The correlation of periods of equable winter Asian monsoons between the Huguang Maar Lake and the Indonesian and New Guinea data is striking. Four periods of relatively wet and warm monsoon conditions emerge from the data that correspond to periods of migration and social change in the region. The years 3300–3600 bp are striking in the data from Huguang Maar, showing high levels of Titanium in the sediments which indicate warmer and wetter winter monsoons. This was approximately the period during which Lapita peoples were emergent in New Guinea and the Solomon Islands, and also during which the earliest settlement has been found in Guam and the Marianas. The years 1800– 2200 bp appeared to have been a long and relatively stable climatic period. In the Christian era, the years A.D. 200–1300 showed periodic oscillations from wet to dry. The period A.D. 900–1300 shows up as an extreme period as measured by magnetic susceptibility.

Cultural Correlates to Paleoenvironmental Trends

These proxies are very useful to climate change studies in our era, but also represent a long term record to which we can correlate archaeological and historical data. Yancheva et al. (2007) for example, have compared the data to Chinese dynastic history and find a robust correlation between reduced rainfall during weak winter monsoons and displacement of summer monsoon winds further to the south, with dynastic collapses following famines linked to drought. The collapse of the Tang Dynasty during the period A.D. 750 –907 coincides with periods of multi-year rainfall minima, as did, during the same period, the Classic Maya civilization in Mesoamerica. However, the anti-correlation of conditions in mainland East Asia is reflected by beneficent climate in the region of the Indo-Pacific Warm Pool.

The significance of this for Oceania is that these periods of relatively warm and wet summer and winter monsoons were characterized by stable conditions, productive marine fisheries, southwesterly winds during much of the year, and soil-building that would have promoted agricultural and arboricultural productivity.

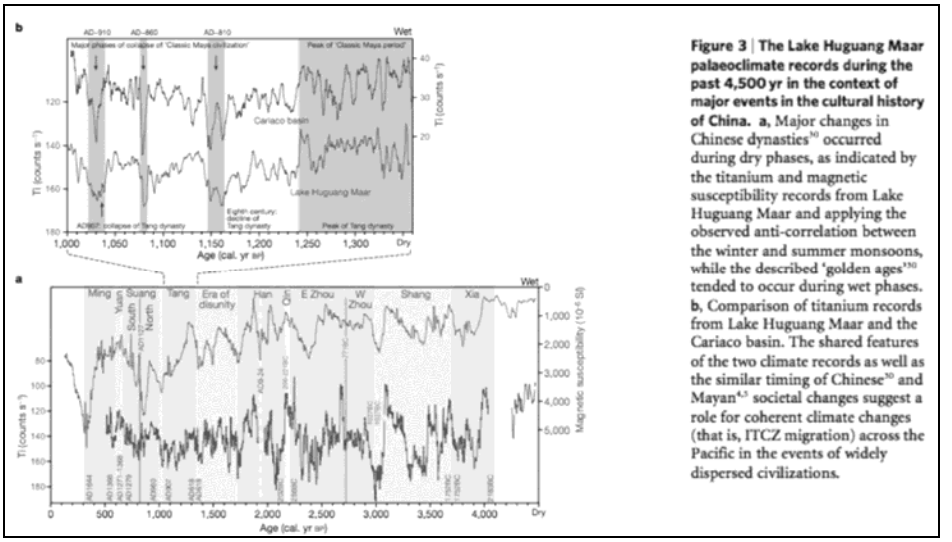

Figure 3 | The Lake Huguang Maar palaeoclimate records during the past 4,500 yr in the context of major events in the cultural history of China. a, Major changes in Chinese dynasties[30] occurred during dry phases, as indicated by the titanium and magnetic susceptibility records from Lake Huguang Maar and applying the observed anti-correlation between the winter and summer monsoons, while the described 'golden ages'[30] tended to occur during wet phases. **b,** Comparison of titanium records from Lake Huguang Maar and the Cariaco basin. The shared features of the two climate records as well as the similar timing of Chinese[30] and Mayan[4,5] societal changes suggest a role for coherent climate changes (that is, ITCZ migration) across the Pacific in the events of widely dispersed civilizations.

Figure 3. Lake Huguang Maar paleoclimate records (copy of original color graphic from Yancheva et al. 2007:76).

These paleoenvironmental datasets confirm some general patterns and interpretations, and correlate with periodic sea level fluctuation such as the 1.8 meter high sea stand around 4700–5000 ybp and its successive withdrawal until about 1800 ybp, and possibly another fluctuation 80–100 cm in the period A.D. 900–1300 coeval with the LCO.

The four generally equable periods noted above correspond to periods of shared cultural styles and adaptive practices and technologies in the region. In the earliest, ca. 3200–3500 ybp, there is a shared ceramic technology of thin-walled, calcareous-tempered, red-slipped pottery with similar design techniques and some common styles in both the northern Philippines and also in Guam and the Marianas. Lime-impressed and circle stamped motifs along with punctate and incised design styles are found in assemblages from both areas during similar periods. Similarly, there are other material culture attributes in what Roger Green identified as "cultural complexes" that are shared such as shell beads, bracelets, fishhooks, tridacna as well as basalt adzes (1970). In the early settlement of Guam and the Marianas pig, dog, chicken, rice, and other domesticates have not been found, but there is evidence of breadfruit and taro along with banana starch residues.

During the period 2500–2000 ybp a different kind of pottery is found in both the northern Philippines as well as in Guam and the Marianas. Pan-shaped flat-bottomed, thick pottery with straight rims and often with mat-impressed bases appears in the ceramic assemblages. This has been recently reported from

Nagsabaran Site in the Cagayan Valley probably from this period, and has been commonly found in Guam (Hung 2008). We recently excavated the Baba Site in Tumon Bay in Guam where this pottery was found associated with numerous rock ovens in the backdune of what would have the 2000 ybp era shoreline (Carson and Peterson 2010)(Figures 4 and 5). Also found in these assemblages are shell fishhooks, ornaments, and tridacna and basalt adzes, very similar to the earliest Marianas assemblages. Of note also, however, were 19 intrusive postholes that dated to the later *latte* period, from A.D. 900 and later.

In the periods A.D. 600–800 and 900–1300 very different materials are found on Guam and Marianas sites. In the earlier period pottery technology is different, and volcanic sherd temper as well as mixed volcanic and calcareous tempers appear, as well as thicker pottery types. By A.D. 900 both A-rim and B-rim pottery are found in the assemblages, and by A.D. 900–1000 the earliest *latte* post structures are found. These last two periods of equable climate do not appear to be linked to the Philippines. If they were connected to the Philippine Islands they might be expected to share in the dynamic changes that occurred there such as the development of gold-working and an adoption of the distinctive iron-age pottery styles such as the Kalanay style emergent as early as the early first millennium A.D. The absence of cultural markers and complexes is as indicative as their presence. Rather, Guam and the Marianas appear to have been looking eastward in the first millennium A.D., and changes in social organization and material culture in the Eastern Carolines appear to have been transported throughout the region as far west as Guam and the Marianas.

Hybrid Breadfruit and the Florescence of Micronesia

Kirch (2000) and others have proposed movement into the eastern Carolines as early as 2000 ybp from Melanesia, and Glenn Petersen (2009) proposed specifically that this migration was through the high islands of Micronesia rather than through Kiribati. His reasons for this lie in the native and then later hybridized character of breadfruit. Botanists have recently determined that breadfruit most likely originated in Melanesia (Yancheva et al. 2007). *Artocarpus altilis* is ancestral to *Artocarpus camansi* that migrated into eastern Polynesia and into southeastern Micronesia. Since many varieties of breadfruit are seedless or have diminished seeds, most likely they were propagated vegetatively. Polynesian varieties appear to have the least diversity, suggesting that they were mostly propagated vegetatively, but the center of biodiversity for breadfruit increases dramatically in Pohnpei. Diploid and triploid varieties not only were apparently selected for appealing traits such as diverse ripening periods, but *Artocarpus camansi* was hybridized in Micronesia with native breadfruit from the Marianas, *Artocarpus mariannensis*. The offspring of this hybrid cross were resistant to brackish water conditions, and were therefore

Figure 4. Baba Commercial Center kite aerial showing postholes from *latte* period occupation (800–1000 ybp)(lower right corner of excavation area).

Figure 5. Baba Commercial Center kite aerial showing cooking hearths in Layer C, dated 1800–2000 ybp.

transplantable in the low-lying atoll habitat of central Micronesia. Breadfruit could not have dispersed naturally, as the fruit quickly rotted and many varieties were seedless, so its spread throughout Micronesia was undoubtedly facilitated by human voyaging. Coincidentally with the proposed period of migration into Micronesia from Melanesia of about 2000 ybp, the region was subjected to falling sea level at the end of the mid-Holocene warm period. Although progradation began as early as 3000 ybp, many shorelines were still unstable as late as 1800 ybp, as in our Tumon Bay Charterhouse project where we documented a prograding beach relict at that period (Figure 6).

Most of the Micronesian atolls would not have emerged sufficiently to have supported settlement until after that date, so 1800–2000 ybp would the earliest constraining date for settlement and spread of breadfruit hybrids (Dickinson 2003). The earliest radiocarbon dates of archaeological deposits in Yap and Belau are from 2000 ybp, while in the Marianas dates as early as 3500 ybp have been reported. For nuclear Micronesia Fais, Chuuk, and Pohnpei are in the period 2200–2300 ybp (Rehg 1995:318), dates from Fais in the outer islands of Yap, and quite nearby to Guam, are in the range of A.D. 400–800 and A.D. 1000–1500. Blust (1984) describes nuclear Micronesian languages as most closely related to the islands of Vanuatu and the Solomons.

Breadfruit from nuclear Micronesia appears to have been derived from *A. mariannensis* x *camansi* crosses, and these diverse and salt-tolerant varieties may have been the *sine qua non* for effective and sustainable settlement in Micronesia. Petersen (2009) argues that they were also the basis for the spread of matrilineal clans and the source of power for eastern Carolinian polities as well. It is interesting that other plants significant in the region appear to have followed the same route of transmission from Melanesia as did breadfruit. *Piper methysticum* or kava as well as *Dioscorea nummularia* appear in the region as relatively recent introductions (Cox and Banack 2003) that may have been related to migration into the region from Melanesia. Kava, of course, is central to ritual use in Micronesia, and *Dioscorea nummularia* has been found in *latte* period agricultural fields in Guam (Moore 2005; Peterson 2009a).

Artocarpus mariannensis x camansi are found throughout Micronesia today, as determined by principal component analysis of cultivars in the region, supporting the evolutionary distribution of hybrids and varietals; interestingly none are shared with Philippines Islands breadfruit, *A. blancoi*, which appears to have also hybridized with *A. camansi* from Melanesia and to have been derived from the "wild breadfruit" of southern Philippines and Sulawesi. The hybridization of *A. mariannensis* from Micronesia and *A. camansi* from Melanesia appears to have been the result of multiple reciprocal introductions between the regions (Zerega et al. 2004; Zerega et al. 2006) that would have post-dated the period 1800–2000 ybp.

Figure 6. Profile of Charterhouse project, Tumon Bay, Guam, showing foreshore ramp with organic drape, ca. 1800 ybp.

Linguistic Context

The Chamorro word for breadfruit, *lemmai,* is a cognate of *mai/mei*, the nuclear Micronesian term (Petersen 2009:60). Guam and the Marianas are thought to be included in Western Malayo-Polynesian rather than Oceanic language grouping, though there is much in common and they both derive from Austronesian roots. Chamorro language also includes peripheral terms from Spanish, reflecting its 400-year colonial history, and may also include Tagalog terms that were introduced along with the Spanish, especially for terms that had no prior association in the region.

Linguistic connections had other implications as well, including a different spatial perception that facilitated voyaging. Micronesian sailors moved as points in a field that moved around them. This is illustrated by our current knowledge of Micronesian navigation. Through oral histories the master navigators learned the directions of distant islands, and then, as they entered their vessels, the oceanic space moved around them. They pointed the prow toward astral targets at night and by ascertaining three directions of swells that replicated that point during the day. Their knowledge of currents, winds, flotsam on the sea, bird life and the behavior of swells around landforms in the ocean provided them with a superlative directional skill in the open ocean. These navigators perceived the world as point-fields, in the view of the linguist F. K. Lehman (Lehman and Herdrich 2002). In contrast to western perception, space is a "relation on points" rather than an external and abstract grid. In Euclidean geometry, "a straight line is the shortest distance between two points", and this creates a view of space as a

"container". However, in a point-field perception "space is defined as the topological neighborhood of a given point." (Lehman and Herdrich 2002). Lehman and David Herdrich propose that this is intrinsic to Austronesian languages, and expand on this view with an analysis of field systems, field boundaries, and spatial perception represented in Samoan language.

Austronesian voyagers traveled through these fields within vast networks of points, traveling for example 100 miles in a 24-hour period, to a fishing locality in the lee of an island, from there 100 miles another point to exchange fish for produce, then another 100 miles in another direction for another activity or to return home (Rehg 1995:308–309). This activity performed by dozens or hundreds of voyaging parties covers an immense expanse of ocean and island terrain within only a few or dozens of years. From one scale the activity appears stochastic, like a "swarm" of parties sailing purposefully throughout the region (Peterson 2009b, 2009c). In a matrilineal system they also connected with welcoming kin groups throughout the area or perhaps contacted clients for exchange. This concept of swarming migration alleviates many of the heuristic challenges of linear or wave models of migration, such as positing a unilinear route from Taiwan through Luzon to the rest of Southeast Asia and Oceania. The swarm of Austronesian sea nomads could easily have been migrating throughout the region within a few generations, sharing lifeways, cultures, transported landscapes, language, and kin networks.

Stone Structures of Micronesia

Stone architecture is common throughout Nuclear Micronesia, ranging from the elaborate stone structures made from gigantic prismatic columns of basalt at Nan Madol to house platforms and stone posts found throughout the Carolines. Stone posts are even found in Kiribati today (Figure 7)(Thomas 2009:588). Chamorro for stone post is *haligi* which may be derived from Tagalog *haligi*, or alternatively from Proto-Oceanic *ariri*, *alili* (North New Guinea), or *lili* (Southeast Solomonic)(Green and Pawley 1999:62). They are found throughout Micronesia as Petersen (2009:193) relates:

> The Chamorros erect many of their buildings on rows of massive, carved stone piers, called latte. It appears that competitive aspects are entailed in determining just how large to make the *latte*, which were still increasing in size at the time that Spanish occupation of the Marianas destroyed much of indigenous society there. *Latte* have sometimes been characterized as being without precedent in the region, but stone bases for the wooden uprights of large communal buildings are common throughout much of Micronesia, and *latte* may in fact be nor more than a local efflorescence of a technique that diffused into the Marianas along with other Carolinian cultural forms and themes.

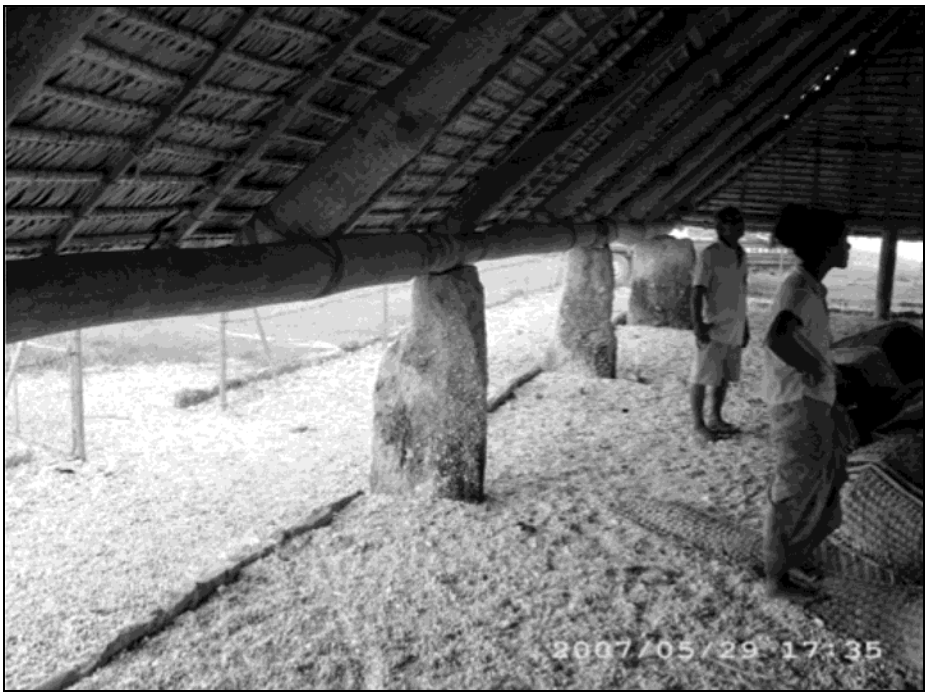

Figure 7. Stone posts of Kiribati on *maneaba* (Thomas 2009:588).

On the island of Ifaluk in the southern outer islands of Yap, Edwin Burrows describes stone posts for the men's house made of *perou*, or beach sandstone. "The corner posts…are of *perou*. Slabs long enough for this use are hard to find, still harder to haul into place. Their only advantage over wooden posts is that they do not rot in the ground….the stone posts of the men's house, which itself symbolizes the authority of the chiefs are symbols of strength and permanence. This is brought out in the name of one of the men's religious dances, *sur perou* (stone house posts). The idea seems to be that everything rests on that firm base (Burrows 1953:42 from HRAF, document id or21-042).

In Pangaral Island of Faraulap atoll in the central Carolines, "…the visible evidence of the former presence of the men's house was found in four coral stone houseposts that stand in their approximate original locations" (Fujimura and Alkire 1984:71). The men's house was thought to have been further inland than usual, but locals reported that storm surge had built up the area, and in fact the men's house had been destroyed by a typhoon and never rebuilt.

On the outer island of Fais in Yap Don Rubinstein and John Jensen photographed slotted cavities in the beachrock that they suggest could have been quarry sites for stone posts (personal communication 2009). Petersen's

conclusion that stone posts for houses and communal structures were common in the region has not been well-documented (2009), but perhaps no one has been looking for them among the few archaeological projects that have been undertaken in the region. In any case, the common tradition in Guam and Marianas and Nuclear Micronesia is compelling, and the local "efflorescence" arrived in Guam in the same era as the earliest construction of stoneworks at Nan Madol, and the emergence of an extensive voyaging network in the region. That Guam was facing Micronesia from the late first millennium onward may have been occasioned by inclusion in the Nuclear Micronesian voyaging network and participation in social and kin systems that brought along new domesticates such as breadfruit, spiny yam, among others, and that also shared a tradition of rock or stonework for housing and communal structures. It is unlikely that these influences came from the cordillera of Luzon: Acabado (2009) has shown the recent historical origins of settlement among the Ifugao, and mountain *balay* among the mountain tribes such as Bontoc and Kalinga have only superficial resemblance to those in Guam (Bodner 1997). It has been proposed that the term for stone post, *haligi*, derived from Western Malayo-Polynesian, but this could have been an introduction from Luzon by way of the Spanish, who are often credited with the loan-word as well as the accompanying term *tasa* for the "cap" of the *latte* post. The capstone or *tasa* is a unique aspect of *latte* architecture, but may have its roots in a common Malayo-Polynesian adaptation to earthquakes and tremors common to the Pacific Rim "Arc of Fire" (see Laguana et al., this volume).

The Early Micronesian Village

The forms of the early Micronesian Village were diverse ca. A.D. 900–1600 and in various parts of Micronesia, village proxemics were quite different. They shared some common elements however. Small houses on platforms, stone posts, or stilts were arrayed in clusters, as in Ulithi "where the households are nearly side by side"(Petersen 2009:88). They might be arrayed in linear fashion, widely dispersed, along the beach, as in Bikini, or as in Chuuk where the houses were "scattered about the island on the high ground after the manner of a loose neighborhood, each house with its extended family forming a hamlet" (Goodenough 1951:132-135, from Petersen 2009:87). In Guam the *latte* villages were linear, typically with their face to the sea or outward, "*mata na guma*", just as they were arranged in Yap, "*matao way*" facing outward. Common to most of these village arrays were communal structures including men's houses and menstrual houses. In Yap all structures are parallel to the sea except the menstrual house which is perpendicular to the sea. In Yap menstrual houses were on the highest landform well separated room from the rest of the village, and the men's houses were closer to the lagoon (Cordy 1986). Men's houses in Guam

were sites for *uritao* practices in which young women were placed by their families as concubinage to the young men. This practice too is common throughout Micronesia (Petersen 2009:91). The placement of menstrual houses perpendicular to the sea is an ethnographic warning not to assume too quickly that form follows function, as these were not canoe houses as might be assumed if found archaeologically.

Following the island-wide surveys of Reinman (1977) and later, more local surveys along the coast and in interior Guam, *latte* villages appear to have been similarly arrayed in their orientation toward the water, as they were facing the sea or facing the river if in the interior. However, they were not regimented. Morgan's map of *latte* sites (1988), derived from Hornbostel's (Thompson 1940) and Reinman's (1977) surveys, show very little uniformity in spacing or aspect (Figure 8). Similarly, Olmo's map of *latte* sets at Haputo Bay illustrates relative disarray of *latte* sets (1997), except for their general orientation. Some villages have larger structures near the center of a linear array, others don't. The remarkable similarity of the village plans suggests common identity rather than competition or different status among villages.

The largest *latte* sets and stones in Guam are found in the Almogosa area in the southern interior highlands, and other *latte* stones removed from the Fena Reservoir area such as those in Guam's *latte* park near the Government House, are quite large. These *latte* are as high as 2.0 to 2.5 meters in height while coastal *latte* are often only 1.0 meter or less. Most *latte* sets are located in the interior, contrary to most interpretations. In southern Guam, 43 were on the coastal plain while 47 were interior. Eighteen of these latter were in the river valleys and 29 on the upland plateau. Dye and Cleghorn (1987) conducted intensive surveys in the Talafofo and Ylig drainage and concluded that interior *latte* sites were abundant, associated with agricultural resources, and that there is evidence from landscape analysis that sites as early as 2,000 ybp are extant in the interior. In northern Guam almost all the sites were in protected bays on narrow strands beneath the escarpment of the northern plateau. However, there is very little surface water on the high plateau. Even so, Hornbostel shows dense latte in the areas of Sinajana, Mateguic, and Mt. Santa Rosa. In other words settlement choices appear to be constrained by environmental opportunities and terrain limitations, not ideology. Much better data from intensive survey and critical use of radiocarbon chronologies are needed before we can make assumptions about late or limited use of the uplands.

Recent data from Pago Bay demonstrate that latte village landscapes often combined access to agricultural and marine resources (Figure 9). Ten hectares of spiny yam fields were found at the base of a steep slope a few hundred meters from the village that was arrayed along a ridge parallel to the shoreline. There was no remnant of any settlement above the shoreline, but storm surges from the Pacific Ocean to the east likely swept the shoreline clean fairly regularly. Results

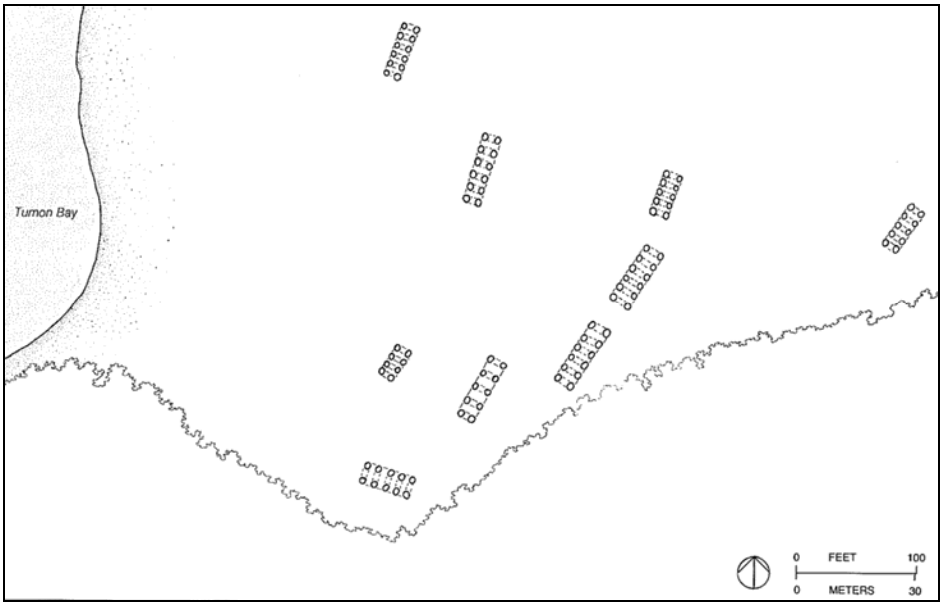

Figure 8. *Latte* village proxemics, Gogna Cove (Morgan 1988:122).

from pollen, phytolith, and starch residue analyses of soil from the Pago River floodplain were revealing of a mangrove-estuarine environment from the period A.D. 1000–1200 in samples from 120, 150, 200, and 250 cm depth. Breadfruit, taro (pollen, raphides, and tissue), mangrove, coconut, lycopodium, pandanus, sedges, and grass pollen were found in most of the samples. All samples had abundant charcoal particles (Peterson 2009a). The catchment for the *latte* village included dry fields for spiny yam, riverine terrain for taro, and estuarine and littoral zone resources inside the reef. The village also supported breadfruit trees, perhaps shading the houses as well as providing abundant sustenance throughout the year from the hybrid varieties crossed with the local breadfruit, *A. mariannensis*.

In the center of upland terrain in Rota, below Mount Sabana, *latte* sets are dispersed throughout a gently sloping *bajada*, not in orderly rows, but apparently distributed evenly throughout agricultural terrain fed by springs that seep from beneath the escarpment (Figure 10). This landscape is only a few km from As Nieves quarry site with its giant latte still set in their matrix, yet doesn't show corporate structure or differential sizes of *latte* or clustered villages. At Ritidian, where the University of Hawaii and the University of Guam are conducting archaeological field schools, villages are scattered along the base of an escarpment, but sites also are found on the present backdune, consisting of rock ovens and scattered lenses of hearths dating throughout the *latte* period (Bayman

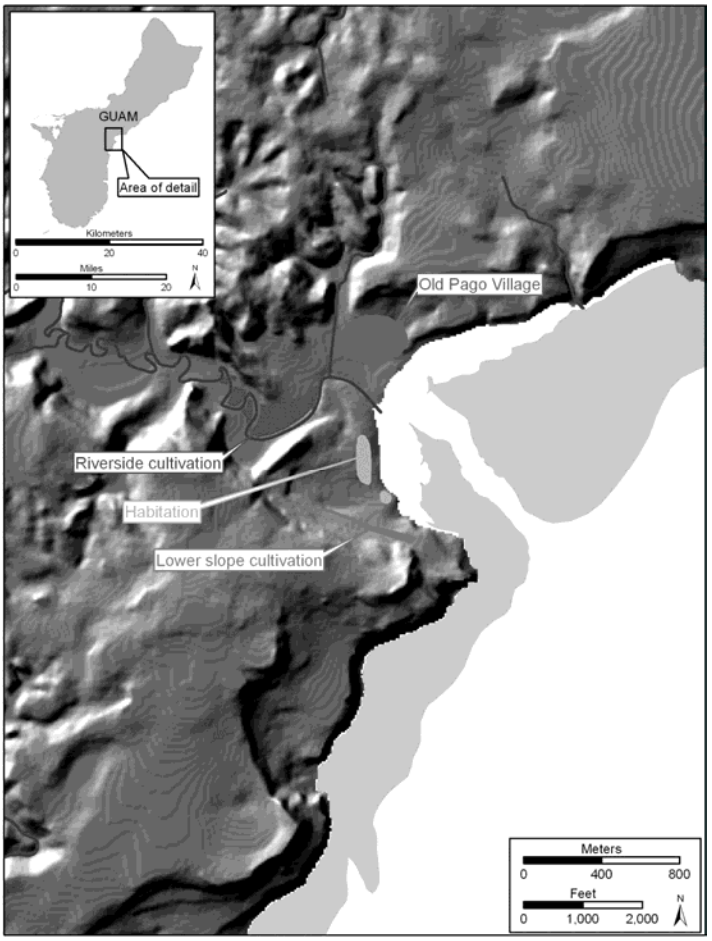

Figure 9. Pago Bay showing dispersed agricultural catchment area for *latte* period settlement (original color figure prepared by M. T. Carson).

et al., this volume). Excavation at a small *latte* set near the base of the escarpment demonstrates that *latte* housing did not disappear with the advent of the Spanish, as is often depicted. Instead, forged iron and late Ming porcelain pottery found in the feature suggest that it was occupied after Spanish contact. The beach oven features appear to have been built on by Jesuit missionaries for their mission and casa real in the late 1680s, and some of the *latte* B-rim pottery on the site may be coeval with Spanish settlement. In any case much of this dispersed village settlement was burned in revolts during the 1690s that may have effectively ended its history as a *latte* village. These accounts reflect the diversity of features and sites during the *latte* period and suggest that settlement,

structural styles, and village proxemics may have been far more diverse and irregular than assumed from earlier, limited survey and excavation data. Accruing data from burial excavations, for example, suggest that with larger excavation areas the whole population is found evenly distributed without any notable distinctions by class, gender, age, or status (Rainbird 2004:122).

Matriliny and the Micronesian Chief

Equable climate, knowledge of navigation, appropriate technologies for voyaging, and transported landscapes with hybrid breadfruit are key elements for the peopling of Micronesia. The final element in the mix that facilitated voyaging and long-term settlement in the region was the evolution of a matrilineal clan structure. Lineage and rights to land passed through the matriliny. This had a profound effect on social organization, as it enabled voyaging as a way of life in the islands. At the same time that Micronesian communities were matrilineal, they were also hierarchical. "…the presence of chiefs and chiefly lineages (are) critical to maintaining order within their communities and to creating and maintaining linkages between communities" (Petersen 2009:49).

The Micronesian chief is a figure of authority. However, that power is constrained through modesty and respect. Chiefs do not dictate, they must listen quietly, they must be generous, they must work through the chief's council, and they must make wise decisions (Petersen 2009:161–164). Rank is not equivalent to social stratification or wealth. In this regard the Micronesian community is egalitarian, and though there is significant difference in status, there "…are no significant economic class differences and certainly no mutually exclusive classes of landlords and landless workers"(2009:167).

Males were prominent as heads of households as well as serving as chiefs, and Micronesian communities are known to have been and continue to be very hierarchical, but their power was and is constrained by the matriliny – before western penetration into Micronesian society the chiefs could not accumulate material wealth or power outside their own clan, and even much of that authority was based on reciprocity and charisma, as well as probably age as much as prowess. The matriliny hedged against aggrandizement of personal wealth, and also reduced conflict by protecting property rights for absent voyagers. Interboundary conflict was also lessened, and Fray Juan Pobre commented on the emplotment of games between villages that served as a mechanism for conflict resolution (Driver 2004). The practice of *inafa'mao'lek*, or cooperative mediation, reflects this ancient Chamorro tradition and promotes mutual problem-solving in modern Guam.

San Vitores (Garcia 2004) and Fray Juan Pobre (Driver 2004) described social Chamorro social organization as matrilineal, and also depicted what have been interpreted as chiefs. The *principales* in Fray Juan Pobre's accounts were

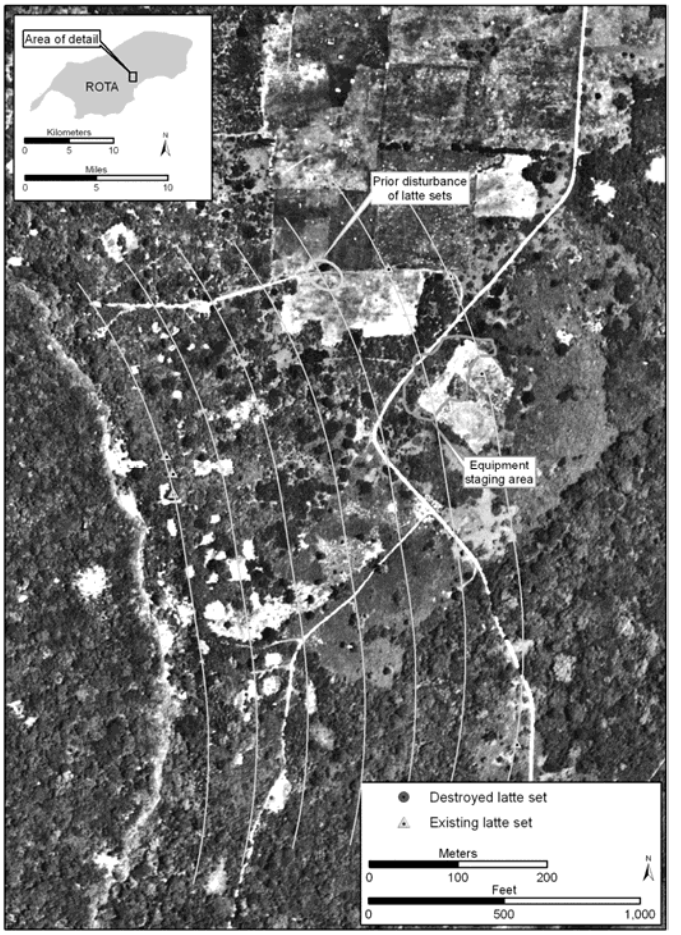

Figure 10. Aerial photograph of Rota showing topographic contours and site distribution along hillslope, dispersed throughout agricultural terrain (original color figure prepared by M. T. Carson).

the leading citizens, among whom two or three in each village might be the leaders. There is a vagueness about this authority and it appears to be diffuse, especially as any decisions were made in the chiefs counsel and not individually. One statement, however, has been used to interpret chiefly power and social stratification for the Chamoru (Driver 2004:21):

> They do not use slaves to farm the land, instead they have criados whom they treat very well. They consider the people who live in the jungles and hills to be of lower status, and they call them *mangachanes*. These, in turn, have great respect for the *principales* who live on the

> beaches, so much so that, without permission, they will not go near the houses, nor their funeas, nor their boats.

The term *mangachanes*, sometimes represented as *man'achang*, does not refer to "lower class" or lower caste persons, but rather means "shy, withdrawn", or perhaps "outcast" (personal communication, Robert Underwood 2009). Nonetheless, a succession of histories of Guam have reified this term and this account into evidence for chiefly organization and social stratification among Chamorro. The matrilineal clan structure with hierarchies of respect reflect a deep engagement with Micronesian social organization and values; the attribution of social class was the mirror of the Spanish who promoted class and inequality in all their colonies. Just as there was no social class among Chamorro, there was no differential wealth or even material status. Larger houses among recent and contact period Chamorro and Micronesian communities were probably communal structures rather than super-residences. The egalitarian–chiefly structure of authority was reciprocal with wealth as well as respect (Petersen 2009:167). Guam and the Marianas were facing Micronesia with their adaptation of matriliny and chiefly organization during at least the last significant period of migration in the region, from A.D. 900–1300, coeval with the LCO, when it appears that the idea of the *latte* accompanied a model for social organization, hybrid breadfruit, other crops such as *Dioscorea nummularia* and *Piper methysticum,* kava, presumably a recent introduction, as well as voyaging lifeways.

Latte as Landscape Trope

This interpretation of Chamorro culture is based on recent contributions in ethnography, biogeography, paleoclimatology, archaeology, and history, and unpacks Guam history and especially latte period history from the perspective that the latest period of substantial engagement with external entities was within Micronesia and was not from the Philippine Islands to the west. By A.D. 900 or 1000 Philippine cultures were on a very different trajectory, more in tune with the trading nations of East and Southeast Asia, and already conversant with trading for Asian porcelain ceramics and iron tools. The Philippines may not have made any more incursions toward Micronesia during this period, though Carolinian voyagers were regularly reported in the Philippines. Spanish priests noted their landings in Leyte and Samar, and even as late as 1900 Faye Cooper-Cole writes of a Ulithi canoe that landed in Surigao on Mindanao. Even so, the main frame of Micronesian culture and lifeways seems shared even by Chamorro throughout the second millennium A.D. *Latte* architecture appears to have been community architecture with households and communal structures as well as other house features such as those built on stilts and mounds. They do not appear

to have been built as chiefly houses and the Chamorro communities do not appear to have established social stratification and differential systems of wealth.

The emergence of social stratification in Guam and the Marianas appeared not in the *latte* period but in 1986 with the publication of Michael Graves' article "Organization and differentiation within late prehistoric ranked social units, Mariana Islands, western Pacific." Graves proposed that *latte* villages were components of complex social groups much like the stone structures of Nan Madol, Easter Island, or the stonework forts of Palau and Fiji. He argued that "megalithic architecture provides a material basis for monitoring prehistoric societal organization and differentiation"(Graves 1986:140). On the basis of Fray Juan Pobre's (Driver 2004) single account of "low cast" highlanders, which is more appropriately translated as "outcasts," at worst the social misfits or misbehaving rather than the low class; the accumulation of household debris under the structures, and the appearance of adult burials under the structures, Graves concludes that the larger of the *latte* structures were chiefly residences and that village proxemics were motivated by hierarchical organization around the central and larger structures. In other words, the physical layout of the Chamorro village was structured around a corporate organization from an elite power source; non-elite, low class people were resigned to stilt houses or to the hinterland to trade yams for fish. From the earlier review, we've seen that Fray Juan Pobre may have mistranslated a key term, *man'achang*, and misrepresented, from his Spanish lens, a critical term of relation with other social groups in Guam. The Chamorro appear to have been more in tune with the Micronesian matrilineal clan and egalitarian social order, resonant with chiefly hierarchy, but without the accoutrements of class and distinctions of wealth. This may have been a case of "monumenterity" rather than monumentality. In other words, it may have been a condition of meaning and identity rather than merely symbolic or status or wealth, belonging and inclusiveness rather than competitiveness and class.

As we have seen, burial practices were more diffuse than Graves reported (1986), as subsequent excavations have shown more diversity in burial patches under and outside of latte structures than the record revealed in the 1980s. Infants and youth were buried alongside males and females and there does not appear to be any distinguishing pattern reflecting wealth of status. *Latte* villages are rarely uniform or regular arrays, the largest *latte* sets are not on the coast but in the uplands, and differences of size in latte sets may reflect use as communal men's or women's houses or special purpose structures such as cookhouses or canoe sheds, much as Laura Thompson proposed in her 1930s review (1940). John Craib critiqued social ranking models in his dissertation (1986) that reported his work at *latte* village sites in Guam and Rota. He compared latte sizes and numbers of latte sets, as well as testing for burial and artifact arrays, and he concluded that similarity was far significant than difference, suggesting that *latte*

Figure 11. Mochong site on Rota.

Figure 12. House of Taga on Tinian (Photograph by M. T. Carson).

villages were expressions of common identity rather than competition or rank. Graves (1986) was right to suggest that the stone *latte* structures were tropes for social organization, but it appears what they represent is the Nuclear Micronesian pattern of social organization with an egalitarian, matrilineal clan system and diffused hierarchical authority vested in respect and reciprocity rather than authoritarian power or differential wealth. The *latte* villages in their rather

uneven and rambling arrays reflect this system very well, and emerge as a unique Chamorro village habitus sympathetic with other variants throughout Micronesia (Figure 11).

Something remains to be said about the giant latte at Taga and the unfinished stones at As Nieves quarry on Rota (Figure 12). Chamorro legends say that a 10 foot tall chief built these latte, and he needed them for his size. In the vicinity of these giant *latte* are villages of typical *latte* houses, most no more than a meter or so tall. In Rota the dispersed *latte* farmhouses spread across the gentle hillslope below Mt. Sabana; in Tinian the early site of Unai Chulu or Tachogna contrast with the massiveness of the *latte* at As Nieves and Taga. Are these, as Rainbird (2004) suggests, inter-community or inter-island competitive displays, or are they disembedded sites for regional integration? When Graves (1986) was contemplating the social and economic models of latte, and compared them to the massive structures at Nan Madol, the latter was interpreted by some as the defensive center of a powerful polity, but by others as "a center for ritual activities" and as a burial site (Petersen 2009:196). Nan Madol represented a regional efflorescence of culture based on a participatory egalitarian core, with lineage and property dispersed throughout a matrilineal clan structure, fueled by new caloric input from hybrid breadfruit varieties, and occasioned by a long period of stable and equable climate. The monumental forms that emerged from that efflorescence throughout Micronesia expressed those values at the core of Micronesian culture rather than princely or kingly coercion or *latte* monuments to petty chiefs.

References

Abram, N. J., H. V. McGregor, M. K. Gagan, W. S. Hantoro & B. W. Suwargadi. In press. Oscillations in the southern extent of the Indo-Pacific Warm Pool during the mid-Holocene. Quaternary Science Reviews: in press.

Anson, G. 1742. A Voyage Round the World in the Years 1740–1744. Compiled by R. Walter. London.

Bodner, C. C. 1997. On architecture and social power: Some possible Philippine-Oceanic links. Bulletin of the Indo-Pacific Prehistory Association 16: 89–102.

Burrows, E. G. 1953. An Atoll Culture: Ethnography of Ifaluk in the Central Carolines. Human Relations Area Files, New Haven.

Carson, M. T. & J. A. Peterson. 2010. Archaeological investigations at the Baba Commercial Center, Tumon, Guam. Report prepared for Laguana and Cristobal Architects. Micronesian Area Research Center, University of Guam, Mangilao.

Carson, M. T. 2008. Refining earliest settlement in Remote Oceania: Renewed archaeological investigation at Unai Bapot, Saipan. Journal of Island and Coastal Archaeology 3: 115–139.

Cox, P. A. & S. A. Banack, eds. 2003. Islands, plants and Polynesians: An introduction to Polynesian ethnobotany. Dioscorides Press.

Craib, J. L. 1986. Casas de los antiguos: Social differentiation in protohistoric Chamorro society, Mariana Islands. Unpublished PhD Dissertation, University of Sydney, Sydney.

Dickinson, W. R. 2003. Impact of mid-Holocene hydro-isostatic highstand in regional sea level habitability of islands in Pacific Oceania. Journal of Coastal Research 19:489–502.

Driver, M. G. 2004. The account of Fray Juan Pobre's residence in the Marianas 1602. MARC Miscellaneous Series No. 8, Fourth Printing, Micronesian Area Research Center, University of Guam, Guam.

Dye, T. and P. L. Cleghorn. 1987. Prehistoric use of the interior of southern Guam. Micronesica Supplement 2: 247–260.

Freycinet, L. 1943. Voyage des monde execute sur lost corvettes de S.M. l'Uranie et al Physicienne, pendant les annees 1817-20. Volume II (unedited translation of pages 285-515) Yale University Human Relations Area Files MS 1410.

Fujimara, K., and W. H. Alkire. 1984. Archaeologcal Test Excavations on Faraulep, Woleai, and lamotrek in the Caroline Islands of Micronesia, in Caroline Islands Archaeology: Investigations on Fefan, Faraulep, Woleai, and Lamotrek. Pacific Anthropological Records No. 35. Department of Anthropology, Bernice P. Bishop Museum, Honolulu.

Garcia, F. 2004. The Life and Martyrdom of the Venerable Father Diego Luis de San Vitores of the Society of Jesus, First Apostle of the Mariana Islands and Events of These Islands from the Year Sixteen Hundred and Sixty-Eight Through the Year Sixteen Hundred and Eighty-One. Translated from Spanish by M. M. Higgins, F. Plaza, & J. M. H. Ledesma. Edited by J. A. McDonough. Micronesian Area Research Center, University of Guam Mangilao.

Graves, M. W. 1986. Organization and differentiation within late prehistoric ranked social units, Mariana Islands, western Pacific. Journal of Field Archaeology 13: 139–154.

Green, R. C. & M. M. Kelly, eds. 1970. Studies in Oceanic Culture History, Volume I. Pacific Anthropological Records 11. Bishop Museum Press, Honolulu.

Green, R., and A. Pawley. 1999 . Early Oceanic architectural forms and settlement patterns: Linguistic, archaeological and ethnological perspectives. In R. Blench & M. Sprigg (eds.) Archaeology and Language II: Artefacts, Languages and Texts, pp. 31–89. Routledge, London.

Hung, H. C. 2008. Migration and cultural interaction in southern coastal China, Taiwan and the northern Philippines, 3000 BC to AD 100: The early history of the Austronesian-speaking populations. Unpublished PhD dissertation, the

Australian National University, Canberra.
Kirch, P. V. 2000. On the Road of the Winds: An archaeological history of the Pacific Islands before European Contact. University of California Press, Berkeley.
Lehman, F. K. & D. J. Herdrich. 2002. On the relevance of point fields for spatiality in Oceania. In B. Giovanni (ed.) Representing Space in Oceania: Culture in Language and Mind, pp. in press. Pacific Research School of Pacific and Asian Studies, the Australian National University, Canberra.
Liu, J., H. Lu, J. Negendank, J. Mingram, L. Xiangjun, W. Wang & G. Chu. 2000. Periodicity of Holocene climatic variations in the Huguangyan Maar Lake. Chinese Science Bulletin 45: 1712–1717.
Moore, D. R. 2005. Archaeological evidence of a prehistoric farming technique on Guam. Micronesica 38:93–120.
Morgan, W. N. 1988. Prehistoric Architecture in Micronesia. University of Texas Press, Austin.
Nunn, P. 2003. Revising ideas about environmental determinism. Asia Pacific Viewpoint 44: 63–72.
Petersen, G. 2009. Traditional Micronesian Societies: Adaptation, Integration, and Political Organization. University of Hawaii Press, Honolulu.
Peterson, J. A. 2005. Visayan settlement by the river: Archaeological investigations at the late 16th and 17th Century site of Salug, in Carcar, Cebu, with Amalia de la Torre, Nida Cuevas, Angel Bautista, and Mark D. Willis. Philippine Quarterly of Culture and Society 33: 155–217.
Peterson, J. A. 2009a. Paleoenvironmental studies. In M. T. Carson & J. A.Peterson (eds.) Archaeological Research at the Laguna Pago Bay Resort, Lots 155 NEW, 164 NEW, and 164-4, Yona Municipality, Guam, pp. 126–137. Report prepared for Pago Bay Resort, LLC. Micronesian Area Research Center, University of Guam, Mangilao.
Peterson, J. A. 2009b. The Austronesian Moment. Philippine Quarterly of Culture and Society in press.
Peterson, J. A. 2009c. The Austronesian Moment. Taiwan Journal of Indigenous Studies in press.
Rainbird, P. 2004. The Archaeology of Micronesia. Cambridge World Archaeology. Cambridge University Press, Cambridge.
Rehg, K. L. 1995. The significance of linguistic interaction spheres in reconstructing Micronesian prehistory. Oceanic Linguistics 34: 305–326.
Reinman, F. R. 1977. An Archaeological Survey and Preliminary Test Excavations on the Island of Guam, Mariana Islands, 1965-1966. Micronesian Area Research Center, University of Guam, Mangilao.
Russell, S. 1998. Tiempon I Manmofo'na: Ancient Chamorro Culture and History of the Northern Mariana Islands. Micronesian Archaeological Survey Report No. 32. Commonwealth of the Northern Mariana Islands Division of

Historic Preservation, Saipan.
Thomas, F. R. 2009. Historical ecology in Kiribati: Linking past with present. Pacific Science 63:567–600.
Thompson, L. 1940. The Function of Latte in the Marianas. Journal of the Polynesian Society 49: 447–465.
Underwood, R. A. 2009. Personal communication. University of Guam, Mangilao.
Yancheva, G., N. R. Nowaczyk, J. Mingram, P. Dulski, G. Schettler, J. F. W. Negendank, J. Liu, D. M. Sigman, L. C. Peterson & Gerald H. Haug. 2007. Influence of the Intertropical Convergence Zone on the East Asian Monsoon. Nature 445: 74–77.
Zerega, N. J. C., D. Ragone & T. J. Motley. 2004. Complex origins of breadfruit (Artocarpus altilis, Moraceae): Implications for human migrations in Oceania. American Journal of Botany 91: 760–766.
Zerega, N. J. C., D. Ragone & T. J. Motley. 2006. Breadfruit origins, diversity, and human-facilitated distribution. In T. J. H. Motley & N. Zerega (eds.) Darwin's Harvest: Origins, Evolution, and Conservation of Crop Plants, pp. 213–238. Columbia University Press, New York.

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