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NEW ZEALAND

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Recent Observations on Traditional Yapese Settlement Patterns

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ABSTRACT

Until the late 1970s, little systematic information on Yapese settlement patterns was available. Beginning in 1980 with funding from the Trust Territory of the Pacific Islands Office of Historic Preservation, the Pacific Studies Institute undertook a four-phase ethnoarchaeological study in Yap proper. Some of the results of that study are presented, particularly comparative architectural data from one high and one low ranking village. Correlations between archaeological observations and ethnographically known practices and beliefs are noted, and theoretical interpretations of certain aspects of the observed settlement patterning are offered. *Keywords:* YAP ISLAND, SETTLEMENT PATTERNS, ARCHITECTURE, RANKING, COMPETITION, REGIONAL PACKING.

INTRODUCTION

Until the late 1970s, little settlement pattern data of a systematic nature had been obtained in Yap, although this high island complex in the Western Carolines has been known anthropologically since the late nineteenth century (for example, see Semper 1873, Kubary 1889 and the primary ethnographic works on Yap, Mueller 1917 and Schneider 1949). Under the impetus of U.S. historic preservation laws, the Trust Territory government sponsored several archaeological surveys in Micronesia that were to provide site locational information for planning purposes (Cordy 1982). On Yap proper (distinguished from the outer islands in the Yap District; see Fig. 1), a four-phase settlement pattern study (Hunter-Anderson 1981a, 1981b, 1982a, 1982b, 1983a, 1983b) started in April 1980 and concluded in June 1982. Funded by the Trust Territory Historic Preservation Office through the Pacific Studies Institute in Guam, this research involved intensive survey and mapping of surface archaeological features in two villages in Map Island (Fig. 2), a relatively traditional municipality in the northern part of the Yap Island complex, as well as archival review, ethnographic observation, and formal and informal consultation with knowledgeable Yapese regarding traditional settlement practices and beliefs. During Phase III, a small excavation was conducted to obtain datable material from a late prehistoric domestic feature (Hunter-Anderson 1983a).

The archival and other background research on traditional Yapese settlement patterns established general trends which were subsequently confirmed or modified by fieldwork. Prominent among these trends are (1) the tendency for coastal as opposed to interior habitation; (2) the extensive use of coral and schist stone in house and sitting platforms, retaining walls, water channels and pathways; and (3) the architectural separation and marking of horticultural, domestic, ritual, and ceremonial functions. Fine partitioning of space is manifested throughout Yap in the rectilinear layout of land plots of all types—residential, ceremonial, ritual, farming, and lagoon fishing, as well as in individual architectural features such as graves, dwelling, cooking, and meeting houses, and raised stone sitting platforms.

THE SURVEY AREAS

The two villages selected for intensive archaeological observation, Toruw and Nlul, vary in size, geographic setting and traditional rank, as well as in current uses (Fig. 3).

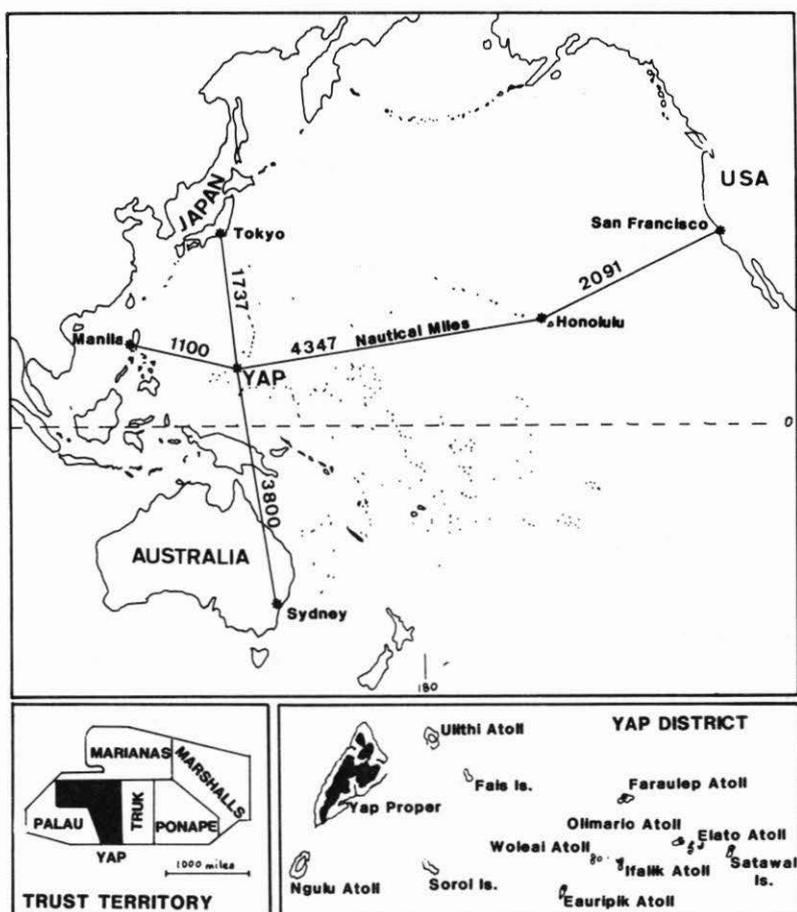


Figure 1: Location of Yap (after Hawaii Architects and Engineers 1968).

The survey and interviews revealed many similarities and differences between the two villages. While some of the contrasts are correlated with geographic setting and rank, some of the similarities are correlated with common cultural practices such as single family residence and regional integration of villages through conventional political and ceremonial forms. In this paper, some of the results of comparative analyses of domestic residential and mortuary features observed during archaeological survey in Toruw and Nlul will be reviewed, and suggestions linking these observations with traditional Yapese cultural organisation will be made. A fuller presentation of the Yap settlement pattern study, Phases I-III, has been published in the Pacific Studies Institute monograph series (Hunter-Anderson 1983a and see Hunter-Anderson 1982a). However, the 1983 monograph does not contain data from Phase IV (the Nlul survey; see Hunter-Anderson 1982b), some of which are presented here.

In many ways, Map Island is a microcosm of the Yap Island complex. Roughly oval in plan, Map's land area (ca. 10 km²) is at present partitioned into 17 contiguous villages, most of them distributed along the island's perimeter, as is the case in the

other main islands of the complex. The residential and political divisions recognised today (see Fig. 2) are basically the same as those documented by Mueller (1917) at the beginning of this century. The lowest ranking villages in Map and elsewhere on Yap tend to be located in the interior and to be very small, but exceptions exist (such as Michiew on Map, which is relatively large for such a low ranking village and still possesses a coastal portion). The small, interior villages such as Nlul are composed of land parcels belonging to high ranking estates in adjacent villages. The relationship between a high ranking estate and its associated lands in a small interior village is called *suwon* in Yapese and connotes parent-child obligations between the families involved.

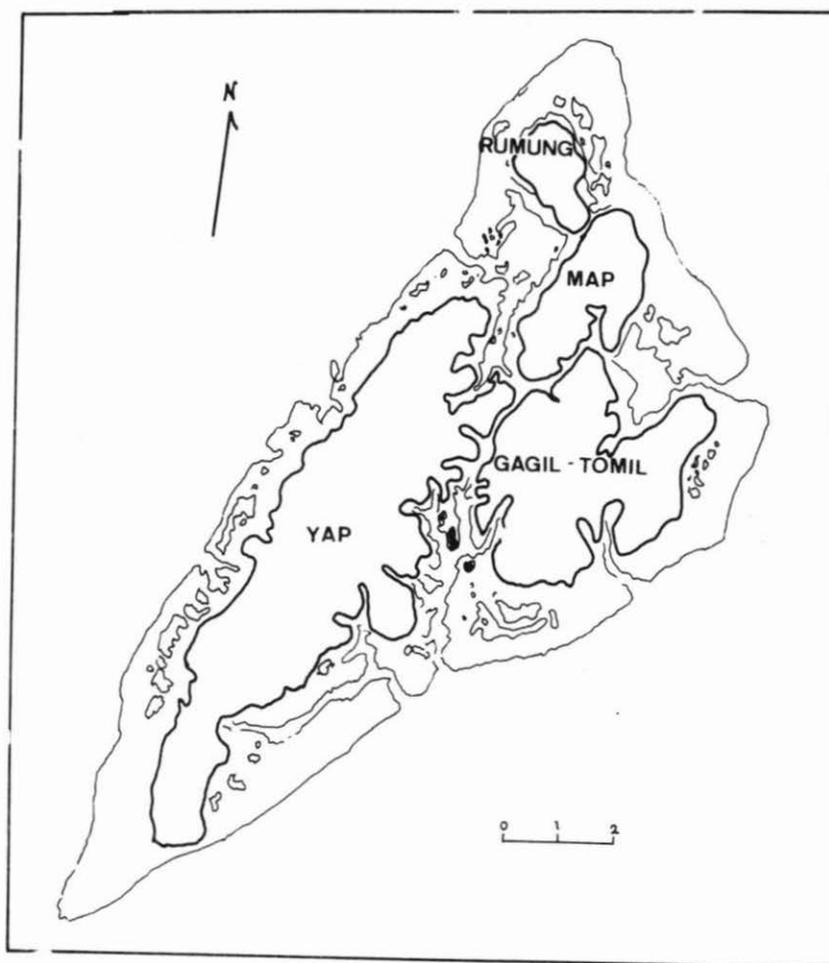


Figure 2: Yap Island Complex (after Tsuda 1978).

The issue of ranking of lands (and derivatively of individuals) on Yap is highly involved and cannot be treated in detail here; the reader is referred to Lingenfelter (1975), Hunter-Anderson (1983a), and the references therein. For our purpose it is

sufficient to realize that whole villages were assigned one rank in the overall system of village ranking in Map; at the same time, the various sections of a village were ranked within that village and within the island-wide ranking of villages, and individual estates within a village section carried their own relative rank. To add to the complexity, rank was dynamic and could be changed instantly (for example, through a favourable outcome in warfare or in a ceremonial competition between two villages, or through significant service to the chiefs having the power to decide upon ranking). In the overall scheme of village and village section ranking for Map (as expressed recently by one resident; somewhat different accounts might be obtained from others), Toruw's main section (Lan Toruw) was one of four villages represented in the highest echelon; Waref was fifth- and Nlul fourth-highest among the lowest echelon of villages. The two northern sections of Toruw, called Beluch and Yagal, were ranked within the second-highest echelon. According to the same informant, there were five such echelons or tiers of villages/village sections in the Map ranking system. Within the Yap Island complex, Map as a whole was a low ranking component of the Gagil paramouncy; within this political grouping it was higher only than Rumung (the small island to the north of Map), which was the lowest ranking island in the Gagil paramouncy within the Yap complex. The Gagil paramouncy extended to the eastern atolls of the Carolines (see Alkire 1965). It should be noted that the Yapese no longer engage in the traditional forms of reassigning village rank.



Figure 3: Northern Map Island, Yap (10 metre contours).

Most villages in Map, like those elsewhere in Yap, have a coconut grove or mangrove shoreline. Behind the beach are ceremonial "public" lands (actually privately held) where the young men's houses and the community meeting houses and dance areas were built. Behind the immediate coastal zone are the numerous residential plots which gradually become interspersed with small taro and other garden plots as the topography rises towards the interior. The staple taro (mainly *Cyrtosperma chamissonis* with lesser plantings of *Colocasia sp.*), yam (*Dioscorea spp.*), and sweet potato (*Ipomoea batatas*) garden plots (each known by a distinctive name and associated with various estates in Toruw) extend from the residential areas into the interior hills. As one proceeds inland the density of dwelling sites decreases until finally on the interior hilltops one sees only ditch-bed garden plots. Also in the interior part of the island are found scattered graves and menstrual areas, the latter traditionally used by the women of a particular village or village section. Today menstrual seclusion is still practised in only one village on Yap but in none on Map.

While the majority of villages in Yap (and Map) give onto the sea directly, a few are landlocked. Geographically these are the smallest and traditionally the lowest ranking settlements, appearing as little enclaves within the interior lands of adjacent larger villages whose lands stretch from the coast to the centre of the island. Most such enclaves are now abandoned for residential purposes. In Map Island, Toruw is a relatively large (ca. 70 ha.), high ranking village with a considerable stretch of sandy and rocky coastline facing northeast. Its interior (non-residential) lands reach back to the middle of the island. Archaeological survey and mapping was carried out in approximately one-third of Toruw's land area, mostly along the coast and adjacent lands and in small portions of the extreme interior where graves and menstrual areas were observed (see Hunter-Anderson 1983a). Although at present only a handful of families resides in Toruw, prehistorically (i.e., ca. A.D. 1800, prior to the radical population decline caused by the introduction of epidemic diseases by Western traders) it may have had over 400 occupants, on the basis of house platform counts and assuming a family size of four persons.

In contrast to Toruw, Nlul is a small, interior, low ranking village (ca. 8 ha.). Seen from above, it is set in a V-shaped, forested upper valley system amidst grass-covered, rolling hills whose surface is a complex grid of unused ditch-bed garden plots. Intensive survey and mapping was carried out along the east fork, some 300 m long and 50-75 m wide. One side of Nlul borders on Toruw's extensive ditch-bed gardens. No one resides in Nlul today but a few yam gardens are maintained there by families living in nearby Bechiyal, a coastal village. Prehistorically Nlul may have had around 80 occupants, extrapolated archaeologically as was done for Toruw.

Near Nlul is another small, interior, low ranking, abandoned village called Waref. Time did not permit systematic survey in Waref but reconnaissance was undertaken, and some ethnographic and ethnohistoric information about it was obtained. In certain contexts Waref and Nlul are considered as a unit in their political relationship with Toruw. High ranking estates in the large adjacent villages (Waned, Toruw, Bechiyal) controlled all the lands in Nlul and Waref. Nlul appears to have been more densely occupied and internally partitioned for domestic and ceremonial activities than Waref. Much of Waref's land area is taken up in garden and forest lands, and by a large cemetery for the hereditary magicians of Toruw. The latter zone is thickly overgrown with poisonous trees.

Aside from size and geographic setting, perhaps the most striking contrast between Toruw and Nlul is the abundance of graves dispersed throughout Nlul and their near absence in Toruw. I estimate there are about 45 graves in Nlul of which 38 were mapped.

Five graves were recorded within the residential part of Toruw, and three more were observed on interior garden lands. All were of the rectangular, tiered type (see de Beauclair 1967 and Pacific Studies Institute 1980 for detailed descriptions of traditional Yapese graves).

The abundance of graves in Nlul and the scarcity of graves in Toruw is a pattern generated in the context of traditional Yapese attitudes and customs. The dead are regarded as contaminating to high ranking persons. Serfs (those in *suwon* relationship with a particular estate in a high ranking village) had the obligation of handling the corpses of their overlords and of burying them in traditional cemeteries geographically far removed from the dwelling sites of the overlord estate (such as in a cemetery located in the interior otherwise used for yam gardens and menstrual areas) or within the residential areas in serf villages (again, often located in the interior). The exceptions were high ranking warriors killed in battle defending their village and distinguished, well-respected chiefs whose memory would be maintained through the building of prominent graves located within the residential part of their own village. According to local informants, the few graves archaeologically documented in Toruw (on both interior garden land and in residential areas) were of individuals of these sorts, and the many graves in Nlul were of high ranking overlords (mainly from Toruw estates) and had been built on the residential sites of their serfs.

The overall layout of residential sites in Toruw and Nlul is grid-like, with some variations according to topography. Toruw has a fairly wide, level strand with gradually rising hills behind. Ceremonial and residential plots are laid out in a regular grid, with stone-lined pathways at approximate right angles running the length and width of this area. Plantings within and between residential plots include coconut palms (*Cocos nucifera*) especially closer to the shore, breadfruit (*Artocarpus spp.*), bananas (*Musa spp.*), betel nut palms (*Areca catechu*) and pepper leaf (*Piper betle*) especially in alluvium near streams, yams (*Dioscorea spp.*), sweet potatoes (*Ipomoea batatas*), tapioca (*Manihot spp.*) papayas (*Carica papaya*), turmeric (*Curcuma longa*), eggplant (introduced by the Japanese), and many ornamentals such as *Hibiscus* and *Plumeria*. As the terrain rises, the land plots become less regularly laid out, and many small taro (*Cyrtosperma chamissonis*) gardens have been cut into the hillsides and at the base of the hills in between residential sites. Numerous rock-lined channels conduct runoff from higher elevations through the taro gardens and finally out to sea. A large natural swamp that has been completely converted to intensive *Cyrtosperma* gardens used by residents of Toruw and Waned lies on the south side of the village. It is said that long ago this swamp area was a salt water inlet which became blocked from the sea as a result of a supernatural occurrence.

Like most Yapese villages, Toruw is subdivided into named sections running roughly perpendicular to the coastline (Fig. 4). A major section (*balay i binaw*) in a very large village resembles a small whole village (on Fig. 4, Lan Toruw and Beluch are examples). It might contain as many as a hundred separate residential sites as well as a community meeting house, young men's houses, dance surfaces, young women's living and menstrual seclusion areas (*terugod*, and *dapal*, respectively) in addition to a variety of garden lands and lagoon fishing plots. A minor section (*bap' i binaw*) has less such differentiated space, perhaps only residential land or garden land (on Fig. 4, Chumur is entirely horticultural and Fanangali residential).

An interior village, Nlul has no shoreline, although some fishing area in Map's northern lagoon was allocated to its residents to use in limited ways (Hunter-Anderson 1983b). Nlul's residential plots and taro gardens follow the contour of the stream banks along which it is built. Because the slope is pronounced in some places, a considerable

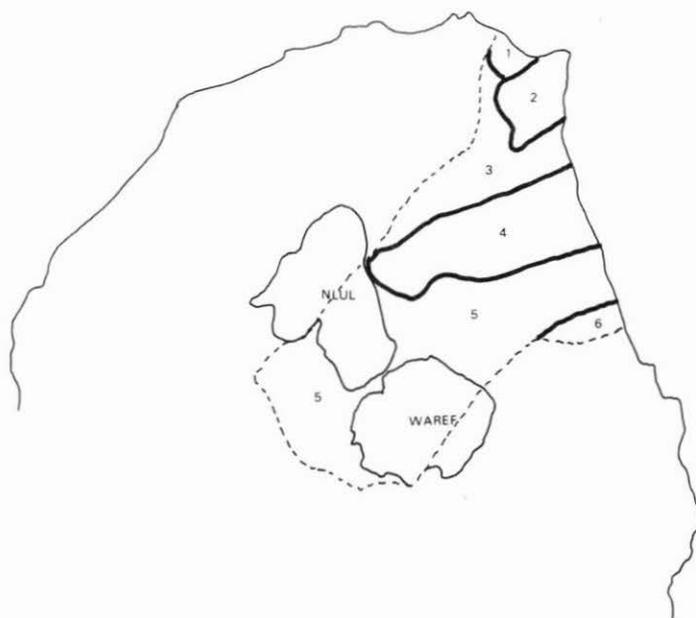


Figure 4: The Sections of Toruw. (1) Chumur, (2) Thu'muth, (3) Yagal, (4) Beluch, (5) Lan Toruw, (6) Fanangali.

amount of cutting and filling and constructing stone retaining walls had to be done in order to create level surfaces on which to build structures. Also, many stone-lined and partially stone-covered channels draining higher elevation gardens outside the village have been integrated into the residential architecture and taro garden systems of Nlul. The end result has been a linear series of contiguous residential and garden sites on various levels, spread along both sides of the stream. There is only one paved pathway in Nlul, running for most of its length several metres above the east side of the stream; other paths cross at oblique angles. An open forest of coconut (*Cocos nucifera*), betel nut (*Areca spp.*), breadfruit (*Artocarpus sp.*) and Polynesian chestnut (*Inocarpus edulis*) trees shades the village; just outside its boundaries are the mostly fallow ditch-bed gardens belonging to adjacent large coastal villages. Two menstrual seclusion sites formerly used by the women of neighbouring high ranking villages are located close to Nlul's borders. Traditionally, serf women from Nlul served their female overlords while they were confined in the *dapal*.

Nlul is subdivided into one major and two minor sections; the largest has some twenty residential sites. As in Toruw, one section is considered the highest ranking within the village. In Nlul, the only community meeting house (*pebaey*) site is located in this section; also here lived the village chief (immediately next to the *pebaey*) and an important magician. The only young women's living area is in a lower ranking section. There is no young men's house (*faluw*) in Nlul, which is not unexpected, as serf villages had limited access to the sea. Traditionally the primary subsistence obligation and time-consuming occupation of *faluw* residents (young unmarried males) in the coastal villages was to fish for their village.

In Nlul the graves of overlords are distributed throughout the village, built on the hillsides in between residential structures. Some of them have been made from parts of

abandoned house and sitting platforms. Through interviews it was learned that many of these graves are relatively recent, i.e., dating to within the last hundred years. Some of them may have been located inside Nlul rather than in cemeteries elsewhere on Map and other islands in the complex because of the Japanese period injunction against travel. For example, a traditional cemetery on Rumung Island, where persons from Map traditionally had been buried, was no longer available after 1914, when the Japanese administration began.

COMPARATIVE ANALYSES

In a direct comparison between the two villages' stone house foundations, sitting platforms, and cooking house mounds, feature size as measured by area tends to correlate with rank. For example, the average house foundation in Nlul is about two-thirds the area of the average house foundation in Toruw; similarly, Nlul's sitting platforms average around three-fourths, and cooking houses a little over half, the average area of these features in Toruw. Table 1 presents these data on architectural features in Toruw and Nlul.

TABLE 1
ARCHITECTURAL FEATURE AREA (m²)

	n	mean	s.d.
Toruw			
house foundation	58	54.8	24.3
sitting platform	47	216.0	131.5
cooking house	44	9.7	4.5
Nlul			
house foundation	21	35.4	15.8
sitting platform	16	168.7	92.2
cooking house	10	5.2	2.0

Another architectural detail in which Nlul contrasts with Toruw is the relative simplicity of the stonework and a lack of ornamentation of structures. Generally smaller blocks of stone were used, and some Japanese period Yapese house foundations consist of glass beer bottles and dirt, a construction technique not observed in Toruw, although the Japanese maintained a police garrison there. In Nlul most building stones came from local soils (poorly drained clays underlain by schist and breccia). In Toruw more coral (from the adjacent lagoon) was used for house and sitting platforms than in Nlul, in addition to local blocks of schist and some very large slabs of schist brought from Rumung Island to the north. Upright stone backrests (*magrey*), inserted along the periphery of sitting platforms and leaning against house foundations, are rare in Nlul and plentiful in Toruw. Monumental schist slabs and blocks are found only within Toruw.

The circular calcite valuables (*rai*), mined prehistorically and during the early contact period in Palau and brought to Yap by canoe and raft and later in ships (Gilliland 1975), are fairly common in Nlul as well as in Toruw but their spatial distributions differ. *Rai* in Toruw and Nlul were placed against house platforms and on the surface of sitting platforms but the double row of *rai*, typically lining both sides of unpaved dance surfaces (*malal*) in many Yapese villages was only observed in Toruw. Another difference is that *rai* were more often seen on or near graves in Nlul than in Toruw.

The architectural contrasts noted here are apparently referable to the differential ranking of villages in Yap. Similar analyses to the above, comparing the architectural features of the differently ranked sections of each village (Hunter-Anderson 1982b)

produced similar results and possibly for the same reasons. Low ranking persons had, by virtue of where they lived and by explicit cultural proscriptions, extremely limited access to the natural resources in Yap, including building materials and garden and residential land. If built for the use of a lesser ranking individual, a sitting platform could not be as large or as high as those of higher ranking persons. Given that access to building materials was directly related to rank, it would not have been difficult to comply with such a proscription. The Yapese insist that there never was a one-to-one relationship between a person's rank and the size of his house or sitting platform, and specific examples were cited. Nonetheless, the trend is clear. As an alternative interpretation, differential family size (causing size differences among house platforms) is unlikely because children were housed separately from their parents after approximately age 8 or 9, and births were deliberately widely spaced to reduce the burden of childcare, which conflicted with a heavy labour schedule. Chronological differences among dwelling sites, which conceivably might be correlated with size differences of house platforms, could not be established using the survey data, but this remains a possibility. It should be noted, however, that the house and sitting platforms of a given estate would be rebuilt each time a male successor took over and eventually was able to build his own house on it, when he had access to the necessary resources, which sometimes took several years (and which might have varied from one generation to the next).

Most of the architectural similarities observed would appear to relate to the pervasive (regardless of rank) cultural practices of (1) single family residence with concepts of purity (*tagul*) and contamination (*ta'ay*) dictating spatial separation of persons within the household and (2) estate and village participation in regional political organisations which required a common set of conventions, such as the presentation of *rai* and other valuables. For example, spatial separation of persons and activities within a single family residence (*tabinaw*), prescribed by the cultural concepts of ritual purity and contamination, is manifested in the association each dwelling house had with its own paved sitting platform and separate cooking houses, one for each adult (children's food was prepared and eaten in the mother's cookhouse). Sitting platforms were physically subdivided by raised stone dividers and changes in the pavement into conventionally ascribed areas of greater and less purity. Dwelling houses also were subdivided into *tagul* and *ta'ay* sides and ends.

Previous active participation in regional political organisations is manifested by the presence of *rai* in both villages surveyed; these valuables were traditionally given as payment to individuals and groups for services rendered as well as in competitive exchanges between rival villages. In Nlul the distribution of *rai* suggests payments for services rendered; most were displayed at individual house sites. These *rai* may have been given to Nlul families by their overlords in Toruw and other nearby villages. In Toruw the *rai* distribution suggests between-household giving as well as inter-village competitive exchanges (*mit-mit*), as a large number of *rai* have been displayed in the ceremonial areas where *mit-mit* traditionally took place. In contrast, Nlul's ceremonial area had only a few *rai*, indicating the relatively impoverished condition of this village, which participated in intervillage exchanges but on a much reduced scale when compared to Toruw and its rivals. It might be added that the participation of such a low ranking village as Nlul in competitive exchanges heretofore has not been recorded by Western observers.

THEORETICAL INTERPRETATIONS

One intriguing aspect of the settlement pattern record in Yap is rectilinear spatial partitioning. It was observed in individual structures such as houses and sitting platforms, up through landed estates, to village sections and whole villages. I have argued elsewhere (Hunter-Anderson 1977) that rectilinearity in facilities is expected when bounded, subdivided spaces are accessed at different rates. While originally formulated to account for round versus rectangular storage and dwelling houses, this principle seems to apply to all settlement levels in Yap. Regional packing of the human population eventually resulted in a kind of nested series of spatial units, from the individual estate's residential land plot to the whole village with its component sections. We know that there were complex rules governing access to each piece of land within a village, including its lagoon lands, involving public and private pathways and prescribing appropriate movements for various categories of persons according to notions of ritual purity and contamination. These constraints are analogous to the necessity to gain access to differentiated storage or dwelling space at different rates, which also results in rectilinear partitioning.

Another intriguing aspect of traditional Yapese settlement patterns revealed in this study is the tendency for large villages to be partitioned into sections resembling small whole villages. Lewis Binford (personal communication, 1983) has suggested that the major village sections may reflect the boundaries of networks of persons who formed social and economic ties that were attempts to compete successfully with other such entities. J. S. Athens (personal communication, 1982) has coined the term "primary social units" for such closely cooperating groups. Perhaps there was an "obligation-load threshold" for participation in such networks, such that the number of persons so integrated could not be exceeded without members perceiving that demands on their time or energy were unacceptably high. At that point fission processes would begin, resulting in new socio-political alignments and, ultimately, in new village section boundaries and possibly new village boundaries. Under such dynamic conditions, rigidly marked boundaries should not be manifested archaeologically, and this is indeed the case in Yap.

The settlement pattern implications of ever-changing relationships between numbers of persons and competitive adaptive strategies are not immediately clear, but it is my feeling that understanding these relationships eventually will enable archaeologists to explain much of the variability in physical layout of village structures and land use patterns that is beginning to be documented in Micronesia. Yap offers an outstanding opportunity for pursuing this problem, as there is a large body of ethnographic and ethnohistoric observations that can serve as a stimulus in hypothesis formation and as a testing ground as well.

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