

## II. Archaeology and Samoan Prehistory

Archaeological research in Samoa has documented a rich and varied record of human occupation dating to approximately 3,000 years ago. Work in the archipelago began as early as the 1920s (e.g., Buck 1930), and has since included several large projects in both Western and American Samoa. Archaeological work has covered the full temporal sequence, a diversity of environmental settings, and a variety of sites (i.e., in structural forms and depositional environments). Archaeological field research has also focused on a range of historical, natural science, and anthropological problems. In short, for archaeology Samoa is among the better studied archipelagos in the South Pacific.

### Early Settlement.

Evidence for early human occupation in Samoa comes from the Mulifanua Site (Ferry Berth Site) about 800 meters off western `Upolu Island (Leach and Green 1989), the `Aoa Valley on eastern Tutuila (Clark and Herdrich 1989, 1993), and the To`aga Site situated on a relatively narrow coastal flat on Ofu Island in the Manu`a Group (Kirch and Hunt, eds., 1993). These sites have yielded early ceramics, including decorated Lapita pottery from Mulifanua, and Polynesian plainware. Each site dates to approximately 3,000 years ago. Excavation of the deeply stratified To`aga Site on Ofu provides a wealth of paleoenvironmental information in association with early human settlement in Samoa (Kirch and Hunt 1993). Research at `Aoa by Clark and Herdrich (1989) has produced comparable dates and Polynesian plainware pottery. Several sites on `Upolu, Manono, and Apolima islands in Western Samoa also date to this early (ca. 3,000 to 2,000 years ago) Polynesian plainware period.

Evidence from several plainware ceramic sites shows that ceramic production in Samoa ended sometime in the first few centuries A.D. This decline and disappearance is perhaps best documented from the stratified deposits of To`aga (although timing of ceramic change, or its disappearance was likely variable). The causes of ceramic decline and abandonment remain unclear. Change in material use and technology may provide part of the answer (Hunt and Erkelens 1993). Regardless of the reasons for the disappearance of pottery in Samoa, it makes aceramic (or post-ceramic) sites/deposits from the early Christian era difficult to find in archaeological field surveys. Without pottery, these sites lose much of their archaeological visibility. This is a problem that engendered the term "Dark Ages" for prehistory in Samoa and Tonga because of its poor representation in archaeological studies (Davidson 1979).

### Later Inland Settlement.

Evidence for first extensive inland settlements falls within the latter part of the Polynesian Plainware period. Several early inland settlement sites are known from `Upolu, and Savai'i in Western Samoa, and on Tutuila. Large inland settlements are found in the Mt. Olo region of `Upolu. Holmer (1980:102) documents a sequence of increasing intensity of use in the area from 1650 to 500 B.P. At this time, there was construction of platforms associated with dwelling structures and earth ovens (Holmer 1980:102). Fortifications, such as Lu-41 in the Luatuanu'u area, are present on `Upolu as early as 1,250 years ago. Substantial settlements containing residential structures and earthen mounds are present in the Vaialele, `Upolu area by 850 years ago.

The expansion of settlements across much of the habitable landscape of the Samoan Islands suggests continued population growth. Settlement pattern was dispersed, rather than nucleated, and appears to have been associated with agricultural activities. Coastal settlement continued, but was not the locus of more densely populated occupations. As in other parts of Polynesia, this dispersed pattern probably evolved with mechanisms for food sharing from inland and coastal zones.

### Late Prehistoric Period.

The archaeological record for the late prehistoric and early historic periods of Samoa is dominated by the construction of large mound and settlement complexes. Large settlements in Western Samoa, dating from 300 to 100 years ago at Ologogo and Sapapali'i, consist of house platforms, pathways, mounds and terraced hills (Buist 1969:42). Green and Davidson (1974:224) argue that there is widespread settlement in all zones of the Falefa Valley of `Upolu from 500 to 120 years ago. These settlements contain mounds serving as house platforms and more specialized mounds (star mounds) associated with the activities of higher ranking individuals (Green and Davidson 1974:224; see also Herdrich 1991; Herdrich and Clark 1993).

Holmer (1980) present evidence for the development of complex "residential wards" in the Mt. Olo settlement of northwestern `Upolu. Most radiocarbon dates for Mt. Olo fall between 600 and 350 years ago. The settlement consists of a concentration of house platforms, raised pathways, star mounds, large earth-ovens and possible cook house structures. From about 500 years ago an increase in use occurred with the construction of complete residential wards and religious structures (Holmer 1980:102). At approximately 350 -200 years ago, the Mt. Olo area was abandoned and reverted to bush vegetation (Holmer 1980:102).

Clark and Herdrich (1993) suggest that a similar sequence occurs in the 'Aoa Valley on Tutuila. The evidence shows that numerous star mounds were built on prominent points along ridges surrounding the valley in the latter centuries of the prehistoric period (Clark 1989:173; Herdrich and Clark 1993). These mounds are associated with terraces, platforms and residential sites on the lower slopes of the valley. As in the Mt. Olo case, star mound use was abandoned sometime in the early historic period (Clark 1989:173; Herdrich and Clark 1993). Abandonment of many large settlements seems to be a common theme in many parts of the Samoan archipelago.

### **European Contact and the Historical Period.**

Dramatic shifts in Samoan population distributions and settlement appear to have taken place in the early historic period, between 1791 and 1830 (Davidson 1969:48). The available historical, traditional, and archaeological evidence suggests a period of rapid population decline and shift in settlement from inland to coastal locations prior to 1830. The settlement change can also be described as shifting from dispersed to nucleated. Davidson (1969:55) suggests that given the amount of unoccupied land after 1840, evidence for the abandonment of two inland areas (Vaigafa and Afolau, `Upolu) between 1800 and 1830, and the traditional evidence for relatively recent occupancy of several others, all suggest that the missionaries saw only the end of a substantial movement from inland to coastal locations. This striking change in settlement pattern may well have been induced by dramatic population loss in epidemics of European-introduced disease. While several accounts refer to warfare in Samoa, its effectiveness in reducing population size can be questioned (Davidson 1969:76).

The introduction of European diseases with contact is the likely cause of population decline and related settlement shifts in Samoa. Pirie (1964:26) noted that depopulation may have resulted from European disease before the missionary period. Although, Pirie (1964) believes that compared to populations on other islands after 1830, Samoans were little affected by European disease. He speculates that early exposure to European diseases, through limited contact, may have allowed a portion of the Samoan population to develop a certain level of immunity (Pirie 1964:26). This argument does not seem plausible given the facts of epidemiology in virgin soil (non-immune) populations.

### **Archaeology in the National Park Units.**

A review of archaeological field studies and the outlines of Samoan prehistory suggests the kinds of archaeology one should expect in the National Park lands of American Samoa. To our knowledge, no archaeology has been undertaken in the Park lands

on Tutuila. Work by Clark and Herdrich (1989, 1993) at `Aoa on the northeastern coast of Tutuila should prove useful in deriving expectations for Park lands. On Ofu, extensive archaeological work has been done at To`aga, but almost entirely on the inland side of the road outside of the park boundaries (Kirch and Hunt, eds. 1993). However, the information reported in Kirch and Hunt's (1993) monograph provides a natural history of shoreline evolution, and a cultural history of near off-shore resource use. For Ta`u Island, Hunt and Kirch (1987, 1988) report an archaeological survey, including lands within the Park.

1. Tutuila Unit. As mentioned, we know of no archaeological work reported for the Tutuila Unit of the National Park. Clark and Herdrich's (1993) `Aoa Valley work, and to a lesser extent the many studies in Western Samoa, allow us to generalize about the kind of archaeological site distributions one might anticipate. Clark and Herdrich focused on "how prehistoric were distributed over the landscape, how that pattern of distribution changed over time, and the systemic relationships between different human populations, and between those populations and their environmental surroundings" (Clark and Herdrich 1993:147).

Recent work on Tutuila (Clark and Herdrich 1993) and on Ofu (Kirch and Hunt 1993) document dramatic shoreline and sea level changes in Samoa. As a consequence, today's coastal lands are young (often less than 2,000 to 3,000 years old), and reflect coastal progradation in balance with island subsidence. These prograding coastal zones often hold buried deposits of cultural material that date to as much as 3,000 years old. There is, also, the potential for offshore marine archaeology comparable to the underwater finds at Mulifanua, `Upolu. These early cultural deposits might be found on Tutuila if island subsidence has been as rapid as that known for `Upolu. Such a possibility remains to be fully investigated.

Clark and Herdrich (1993:172) show that for eastern Tutuila, "prehistoric settlement was restricted largely to the lowlands in the many small valleys and coastal plains, or in the uplands on a few broad ridge tops." They suggest that settlements began on the coast, then later spread inland as populations grew. Thus, interior occupations should be relatively later than coastal ones. The upper valley areas have probably always been an area of very sparse population; instead these zones were under agricultural production. Dispersed settlement of prehistoric times changed to nucleated, coastal settlement in the historic period, as Davidson (1969) has documented. Thus, a dispersed distribution of domestic sites can be anticipated for the interior slopes of the Park lands of Tutuila.

Clark and Herdrich's (1993) work shows that the most common site in the uplands is the star mound (tia `ave). They suggest

that these specialized mounds were used for the chiefly sport of pigeon-snaring, and other ritual activities (see Herdrich 1991). Many of these sites are situated along ridge lines, and may well occur in Park lands.

Defensive features and fortifications have been well documented for Western Samoa. On Tutuila fortified complexes are known for Tataga-matau, near Leone, and on the eastern mountains of Le`aeno and Olomoana. Not surprisingly, these sites are most often situated on steep, high ridges or mountain peaks.

In the early 1830s, Williams (1984), for example, wrote that Samoan villages had forts, or `olo, which were generally on high mountains: "to this they remove their property, wives and children erecting temporary huts of cocoa nutt (sic.) leaves inside." Wilkes (1845:151) later described `olo as "usually on the top of some high rock, or almost inaccessible mountain, where a small force could protect itself from a larger one" (Clark and Herdrich 1993:175).

Fortified complexes or smaller defensive features (e.g., star mounds surrounded by a defensive ditch) may exist on the Maugaloa Ridge or on `Alava Mountain in Park lands.

Finally, recent work has documented basalt quarry activities and adze making at Tataga-matau, near Leone on western Tutuila (Leach and Witter 1987, 1990). While quarries of comparable size, age, and complexity are unlikely to be found in the Park, Tataga-matau's discovery should alert us the potential for basalt quarry sites in Samoa.

Intensive archaeological survey of Park lands on Tutuila is needed to document the presence of sites in the coastal zone, on the interior slopes, and on ridge and mountain top areas. Archaeological field survey is the first step to understanding prehistoric and historic settlement and land use patterns. Excavations, a second step in field research, may reveal buried deposits and provide evidence of material culture (artifact change), paleoenvironmental change, and chronology.

2. Ta'u Unit. Survey of lands now within the Park on Ta`u have been by reported by Hunt and Kirch (1987, 1988). The highest density of archaeological remains in the Ta`u Unit is at Saua, along the coastal lands of the east coast. These coastal lands, from just south of Fitiuta Village to Tufu Point and Si`u (southeastern corner of Ta`u), contain a extensive complex of archaeological remains found in clusters, and as individual features. Structural forms and features include free standing stone walls, earthen terraces, stone alignments (round-ended house foundations), stone wall enclosures, pebble (`ili`ili)

paved areas, shell midden (ancient food refuse), and hearths and earth ovens (umu). Of special interest are the elaborate constructed wells (Vai O Saua, Tatatoto, Vai O Tufu, and Vai Sa`asa`a) cared for today by Fitiuta Villagers. Also of note is the raised stone constructed footpath that runs north-south, or parallel to the shoreline in Saua. It is preserved in sections near the present road (on the seaward side), and is similar to the footpath that runs through Fitiuta Village. Human bones, accidentally uncovered in the area (usually with road maintenance), have also been reported (Hunt and Kirch 1987).

A large portion of the coastal land has a ground surface covered with massive coral slab boulders and underlying beach sand, deriving from a high energy deposit that likely occurred with a hurricane or tropical storm. This is a zone where surface archaeological features are not found on the surface (Hunt and Kirch 1987).

An interview conducted by Epi Suafo`a (in Samoan) with Chief Tupuola (aged 70) revealed that the coral slab boulder rubble that covers so much of the eastern coastal flats of Ta`u may be of relatively recent origin. Tupuola described the devastating hurricane of 1916 as depositing the beachrock over large areas of the coastal flat (reaching all the way inland to the steep cliffs) that were once sandy and occupied by a substantial settlement with numerous people (Hunt and Kirch 1987:16).

This catastrophic event would have altered or destroyed surface archaeology, but probably left buried deposits largely undisturbed. No test excavations have been conducted on the coastal lands at Saua, but they may yield evidence for a long prehistory similar to that documented for Ofu.

Other lands on the coastal flat are presently under cultivation by Fitiuta Villagers. These lands, according to Tupuola, were not ravaged by the 1916 storm (Hunt and Kirch 1987:16).

The interior lands of the Li`u Bench, above Ta`u's south coast was surveyed by Hunt and Kirch (1987). They report a domestic habitation complex along the flanks of the broad flats of Li`u Bench. The sites in this complex included round-end stone alignments and pebble paving (suggesting house foundations), graves, and grindstones (for production of ground stone tools such as basalt adzes). Above the habitation remains on the Li`u Bench, Hunt and Kirch (1987) located a small cave with evidence of a buried cultural deposit--potentially dating to early periods of Samoan prehistory. Other interior lands, especially those of higher elevations were not systematically surveyed. These interior zones, like Tutuila, probably never saw

high density settlement, but could have fortifications, star mounds or other mound sites of special function (e.g., Palapala Mound, above Ta`u Village, see Hunt and Kirch 1987:27), dispersed habitation sites, agricultural features, graves, or trails. Additional survey and excavations are needed to learn more about ancient settlement and use of these interior lands of Ta`u.

3. Ofu Unit. The Ofu Park Unit is almost entirely reef and the adjacent coastal lands at To`aga. Intensive archaeological research (Hunt and Kirch 1987; Kirch and Hunt 1993) has been done over three field seasons at To`aga. The archaeology shows that the area has been occupied by people for about 3,000 years. The first use of the To`aga area occurred when the coastal flat was much narrower, and close to the imposing cliff of Le`olo Ridge. Coastal progradation over the past 2,000 to 3,000 years (as an approximate meter higher stand of the sea level fell to present levels) extended the flat coastal lands to their present position (see Kirch, Chapter 4 in Kirch and Hunt 1993). This research also shows that lands at the seaward extent of the coastal flat are youngest, and contain little, if any, buried deposits of any significant age. Indeed, it is likely that no prehistoric remains will be found in coastal deposits on the seaward side of the Ofu road in the Park lands.

Archaeological research on human use of the marine resources of the To`aga reef over the past 3,000 years suggests remarkable stability (see Nagaoka 1993). Fish and shellfish remains show that the composition of what was taken in fishing and collecting, and presumably what the reef had to offer, remained unchanged. Hunt and Kirch (in press) suggest that this marine resource stability can be explained by the high productivity of continuous coral reef growth stimulated by, but held in equilibrium with, island subsidence. A healthy reef is the foundation of a rich (high biomass) marine ecosystem, and one that could support continued human exploitation.

No marine archaeology has been undertaken in the Ofu Park unit. Given our understanding of the coastal changes and the presence of buried archaeological deposits on land (dating to about 3,000 years ago), it is unlikely that sunken archaeological materials, comparable to those at Mulifanua, will be found. Artifacts relating to fishing, however, might be found in a marine archaeological survey. This kind of marine archaeology has been largely neglected in the Pacific, yet would likely yield valuable information on fishing strategies.