AN ARCHAEOLOGICAL SURVEY OF THE MANU‘A ISLANDS, AMERICAN SAMOA

T. L. HUNT and P. V. KIRCH

University of Washington

As a legacy of colonial history, the Samoan archipelago is politically divided into the independent state of Western Samoa (Sāmoa i Sisifo), comprising the large islands of ‘Upolu and Savai‘i along with Apolima and Manono, and American Samoa, comprising Tutuila, ‘Aunu‘u, the Manu‘a Group, and the diminutive outliers of Rose and Swains Islands. Extensive archaeological work in Western Samoa, beginning during the co-ordinated, multi-institutional Polynesian Culture History Programme of the 1960s, produced the outline of a three-millennium-long prehistory beginning with Early Eastern Lapita pottery and continuing through to the development of uniquely Samoan cultural traits (Green and Davidson 1969, 1974; Jennings et al. 1976; Jennings and Holmer 1980; Davidson 1979). In striking contrast, the archaeology of American Samoa is poorly known, and it has remained impossible to outline a local cultural sequence, yet there is no reason to expect that the archaeological resources of American Samoa are any less abundant or significant than those of Western Samoa, or that the eastern islands have been occupied for a shorter period. The problem is simply that of a scarcity of archaeological exploration and study.

The first modern archaeological survey in American Samoa was carried out by Kikuchi (MS 1963, 1964) on Tutuila and ‘Aunu‘u in 1961–2. Kikuchi provided an overview of the main types of surface sites, but was neither intensive nor systematic in his coverage. In 1962, Kikuchi and Sinoto extended the survey to Manu‘a, and conducted minor test excavations on Ta‘u and Tutuila (Emory and Sinoto 1965). Until recently, the only other major field project in American Samoa was that of Frost (MS 1978), who conducted minor excavations at seven sites on Tutuila. Several limited cultural resource surveys were carried out under contract to the National Park Service and the U.S. Army Corps of Engineers (Ladd MS 1970; Kikuchi, Silva, and Palama MS 1975; Silva and Palama MS 1975; McCoy MS 1977). In 1980, Clark compiled a summary of all recorded archaeological sites for the American Samoan Historic Preser-
vation Commission, based on three weeks of field checking (Clark MS 1980). Clark summed up the status of archaeological survey in American Samoa as of 1980 in these words: "the amount of land that has been intensively and systematically covered is small indeed" (MS 1980:11).

Under the auspices of the American Samoa Historic Preservation Office, opportunities for renewed archaeological work in American Samoa have dramatically improved during the past two years, and five separate teams have recently completed field studies (H. Leach, Otago University; R. Gould, Brown University; W. Ayres, University of Oregon; J. Clark, North Dakota State University; P. Kirch, University of Washington). Reports for the majority of these projects are only now being completed (e.g., Leach and Witter 1987), but preliminary accounts indicate that the results will vastly improve our understanding of the archaeology and prehistory of the eastern portion of the Samoan archipelago.

THE MANU'a ARCHAEOLOGICAL PROJECT

The 1986 Manu'a Archaeological Project was carried out under the auspices of the Burke Museum of the University of Washington, with funding provided by the Historic Preservation Section of the American Samoa Department of Parks and Recreation, and by the Coastal Zone Management Office. The focus on Manu'a was motivated by several factors. First, the larger island of Tutuila was already receiving substantial attention from several other field teams, leaving Manu'a as a continuing lacuna. Second, because a major goal of our work was to locate ceramic-bearing sites dating to the first third of Samoan prehistory, we preferred to focus on several smaller islands where surveys could be concentrated on likely areas of early occupation. Third, as the most easterly and somewhat isolated section of the Samoan archipelago, the prehistory and archaeology of Manu'a could conceivably exhibit significant differences from those of Tutuila, 'Upolu, and Savai'i; while such differences were predictable, primary field work would be necessary for their documentation.

Seven specific objectives were enumerated at the start of the Manu'a Project: (1) Through intensive surface survey, to compile a catalogue of prehistoric and protohistoric surface archaeological remains. This objective was seen as especially important for the American Samoa Government in their planning and land use considerations. (2) Through the use of systematic test excavations, to locate and delineate major areas of subsurface archaeological deposits. (3) To determine the rela-
relationship between subsurface archaeological resources and local geomorphological features and processes. As work elsewhere in the western Pacific has demonstrated (Green and Davidson 1974; Kirch and Yen 1982; Kirch 1983; Spriggs 1986), active geomorphic processes of various kinds can substantially affect the archaeological record, and, indeed, as some of these processes themselves result from human actions (e.g., active erosion and coastal deposition), they may provide important evidence on former human-land relationships. (4) To generate a predictive model of the number and extent of undiscovered subsurface deposits, on the basis of results from objectives 2 and 3. (5) To enhance the local appreciation of archaeology and historic preservation through the training of local personnel and through a range of public activities.

THE ENVIRONMENTAL SETTING

The Manu‘a Islands of Ofu, Olosega, and Ta‘u form a separate cluster at the eastern end of the Samoan archipelago. Mutually invisible, they are separated from Tutuila to the west by 100km of often turbulent ocean which reduced the frequency of voyaging contacts with the larger islands. Perhaps because of this isolation, the occupants of Manu‘a were regarded as being different and distinctive from other Samoans. In her monograph on Manu‘an social organisation, Mead (1930:9) commented on these distinctions, such as the lack of emphasis on “war, its paraphernalia, its ritual, and its gods”, in contrast with the situation in Western Samoa. Mead believed (p.9) that “the chief historical value of Manua lies in her easterly and isolated position, offering a valuable check upon cultural traits which are intrusive in western Samoa”, a point that may have special relevance to prehistory and archaeology. The easterly position of Manu‘a may also prove to be significant in the broader picture of Polynesian settlement, for these islands lie along a probable path for voyages of colonisation bound for Eastern Polynesia (Finney 1985; Kirch 1986).

Ofu, Olosega, and Ta‘u are remarkable in their dramatic topography: steep-sided, majestic volcanic cones thrust out of the turbulent waters, with summits often shrouded in clouds (Table 1). The smallest of the principal Samoan islands, their steep topography offers little area suitable for settlements and gardens (Coulter 1941). Coastlines are rock-bound, with narrow fringing reefs only in places, restricting the possibilities for marine subsistence. None the less, the resources of land and sea are sufficient to support a modern population of 1,700 persons,
and it is certain that the late prehistoric population was several times greater than this figure.

The Manu‘a Islands consist of shield volcanoes of Pliocene and Pleistocene age which rise abruptly along a linear fissure or fracture zone in the Pacific Plate (Stice and McCoy 1968). On all three islands, the range of rocks which could have been exploited for artefacts is limited to dense flow basalt or hawaiite, or to outcropping dike stone. There is no known source of obsidian or other highly isotropic stone in the Manu‘a Group.

Because of their youthful geologic structure, the Manu‘a Islands are characterised above all else by their steep topography. Consequently, slopes are generally unstable when cleared of vegetation, and erosional fans and scree slopes are common where the narrow coastal plains meet the steep volcanic slopes. The coastal plains — the main locus of human settlement and thus an important environment for archaeological study — are constructed either of volcanic sediments (clay and larger angular clastics) eroded from the higher slopes, or of calcareous sediments (sand and larger coral cobbles and reef detritus deposited by high energy storms) of coral reef origin. Stream-cut sections through coastal terraces frequently reveal sedimentary sequences reflecting both terrestrial and marine sediment sources in alternating series of depositional events. A critical aspect of this coastal geomorphology is its instability, with coastal flats subject to burial from mass wasting of the steep slopes immediately inland, or to removal and redeposition of sediments by high-energy surf during cyclonic storms. All of these active processes have doubtless affected the archaeological record of human settlement.

The soils of Manu‘a are generally undeveloped, shallow, and rocky (U.S. Dept of Agriculture 1984; University of Hawaii Dept of Geography 1981). On Ofu and Olosega, most of the terrain, including that used for subsistence gardening, consists of deep, well-drained "Ofu silty clays". On Ta‘ū, most of the interior consists of the Olotania family
of soils developed on volcanic ash under forest cover, or of a rock outcrop-Hydrandepts-Dystrandepts association. In the vicinity of Ta'ūi and Faleasao villages, however, is a complex of silty clays and stony clay loams which are highly productive for shifting cultivation and arboriculture. Similarly, on the plateau inland of Fiti'uta Village is an extensive zone of Pavaai stony clay loam which also supports subsistence gardens.

The vegetation of Manu'a is zoned with a dominantly concentric pattern reflecting areas of intensive subsistence production and forest exploitation surrounding primary settlements. The pattern is especially marked on Ta'ū Island where “managed land” and “disturbed forest” form two extensive zones extending inland from the principal settlements at Ta'ū-Faleasao and at Fiti'uta. Inland of the disturbed forest lie zones of montane forest and cloud forest, infrequently penetrated by humans for pig or bird hunting, or gathering of wild plant resources. The zones of managed vegetation consist of a complex mosaic of shifting cultivations, secondary growth, and stands of economic trees (especially breadfruit, coconut, and other fruit trees). These zones reflect centuries of continuous land manipulation and, not surprisingly, contain most of the archaeological sites outside the immediate village areas.

Contemporary settlement patterns in Manu'a are in many respects a continuation of prehistoric patterns. In part, this land use conservatism reflects the substantial constraints imposed by the steep volcanic landscape. Modern settlements, and most archaeological indications of former occupation, are concentrated on the relatively narrow strips of flat coastal land (Coulter 1941). On Ta'ū Island, one main zone of settlement is at the north-west corner of the island, with Lumā and Si'ufaga Villages occupying a broad calcareous dune ridge (with a highly productive, hydromorphic taro ground inland), and Faleasao Village sited on a beach terrace along the inner shore of a sea-breached volcanic cone. The second major concentration of settlement is at Fiti'uta on the northeastern tip of the island, where a broad, flat bench of lava provides suitable terrain for habitation.

On Olosega Island settlement is centred on the western shore, where a calcareous sand dune ridge is bordered inland by a large marsh providing an extremely productive zone for wet taro cultivation. Adjacent to this marsh are steep cliffs of exposed basalt bedrock. A second, minor settlement of dispersed households is located along the narrow coastal flats of Olosega's north shore where the hamlets of Lalomoana and Fai'ava collectively come under the name of Sili.

Ofu Island has one major settlement on its westernmost shore. Ofu
and Ala'ufau form a near continuous zone of households positioned on a broadly sloping coastal flat where calcareous and alluvial/colluvial sediments meet. Above this settlement are numerous swidden gardens that continue to make an important contribution to local subsistence.

THE ARCHAEOLOGICAL LANDSCAPE

The Samoan landscape is one shaped by a long history of human settlement. Evidence of settlement and land-use both past and present is distributed more-or-less continuously across this landscape. Isolated artefacts, features, sites and site complexes cover much of the Samoan Islands, varying only in relative density. For archaeologists this means a task of documenting the distributional patterns of material culture in space. This approach has proven useful elsewhere in Oceania where the vestige of entire settlement-subsistence patterns has been documented. Ideally, entire archaeological landscapes (spatial patterns) must be recorded in detail, although this ultimate objective must usually be met through the gradual accumulation of survey data over many years of effort. As the first step toward such a goal for American Samoa, our reconnaissance level survey of Manu'a aimed at discovering in a preliminary way the variety and temporal-spatial pattern of archaeological remains across the landscape of the Manu'a Islands.

The archaeological survey was accomplished using one of two field strategies: walk-through assessment and systematic reconnaissance. Walk-through assessments involved unsystematic pedestrian inspection (often of large, heavily vegetated areas) to search for isolated and/or previously known sites; to ascertain site distribution patterns over the landscape; to record the variety or kinds of sites present; and to collect information on site/feature complex densities preliminary to more intensive reconnaissance level survey (including systematic coverage). Many of the sites and features described below were discovered, mapped by tape and compass (to scale), and recorded in detail as part of this extensive walk-through level strategy. Systematic reconnaissance involved survey transects placed at regular intervals and positioned so as to cross-cut maximal variation in surface evidence, including patterns of structural remains. This strategy proved especially useful in settings where dense and complex archaeological remains could not be fully recorded given the limitations of our initial, extensive coverage of Manu'a.
Major Site Classes

Archaeological sites in Manu'a can be assigned to broad classes that include domestic or settlement site complexes, "specialised" sites (e.g., mounds, monumental constructions), wells, constructed walkways, rockshelters, earthen/stone-lined pits, petroglyphs, buried cultural deposits (middens with or without ceramics), and sites of human-related geomorphic significance. These are among the site classes that have also been recognised and described in detail from work in Western Samoa (e.g., Davidson 1974; Jennings et al. 1976, 1982; Jennings and Holmer 1980). The distribution of major site classes in the Manu'a Group is shown in Figures 1 and 2, and is enumerated in Table 2.

Domestic Site Complexes. Domestic or settlement site complexes comprise the largest continuous and most complex distributions of archaeological surface features recorded in Manu'a. These complexes are the remains of dispersed "villages" or numerous adjoining residential compounds (Wards and Household Units, "HHU", as Jennings et al. 1982 term them) distributed within a geographically delimited space. Alignments of oval plan composed of basalt and/or coral slabs, together with waterworn pebble paving stones ("ili'ili), are among the most com-

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**FIGURE 1.** Map of Ta'u Island, showing locations of major sites and areas of prehistoric settlement. Contour interval 200 feet.
FIGURE 2. Map of Ofu and Olosega Islands, showing major site locations and areas of prehistoric settlement. Contour interval 200 feet. See Figure 1 for key to symbols.

<table>
<thead>
<tr>
<th>SITE/FEATURE CLASS</th>
<th>TA'U</th>
<th>OLOSEGA</th>
<th>OFU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buried ceramic midden</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Domestic site complex</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rockshelter</td>
<td>7</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Specialised site</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Constructed pathway/trail</td>
<td>4</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Agricultural/water control</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Legendary only</td>
<td>10</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Well</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Spring/Pool</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petroglyph</td>
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<td></td>
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</tr>
<tr>
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<td>2</td>
</tr>
<tr>
<td>Historic</td>
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<td>1</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>62</td>
<td>9</td>
<td>11</td>
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</tbody>
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TABLE 2
Archaeological sites and features within site complexes recorded for the Manu’a Group

Common features recorded for domestic site complexes. Some of these features also have a stone-lined hearth situated at one end of the interior area. These oval alignments are undoubtedly foundations remaining from pole-and-thatch dwelling houses. This house form is known throughout the ethnographic period in Samoa, and persists today with the use of modern materials (Neich 1985). All complete oval alignments were measured, and total interior area calculated. Although the Manu’a sample is small (n = 19), the size distribution (Fig. 3) closely resembles
that recorded archaeologically (Davidson 1974:234) as well as ethno-
graphically at Fa‘aala Village in Western Samoa (Jennings et al.
1982:97). A mode between 20–60m² for the Manu‘a archaeological
foundations fits well within the average house range for Fa‘aala, with
two other Manu‘a structures of larger size comparable to the ethno-
graphic size class associated with high-status structures (Jennings et al.
1982:97).

Also associated with several of the complexes are graves marked by
boulder alignments or small boulder and pebble fill platforms. Some
complexes situated along gradual slopes include terraces constructed of
boulder retaining walls which would have provided a relatively level sur-
face for the placement of houses. These associated features are frequently
enclosed or partially delimited by stacked boulder walls or low linear
alignments of boulders that appear to have served as territorial markers and boundaries. This regular patterned arrangement of surface features occurs in a repetitious pattern that crosses entire coastal flats as well as broad mountain slopes. The redundant pattern of these residential complexes suggests that settlement was organised on the basis of common descent groups occupying individual, yet adjoining, domestic compounds.

Extensive domestic site complexes have been recorded on each of the three islands of Manu' a (Figs. 1, 2). On Ta'ū Island, major complexes are situated along coastal lands at Fagā (AS-11-1), Sauta (AS-11-2) and Amouli (AS-11-52). Examples of two site complexes within the extensive Fagā settlement on Ta'ū are illustrated on Figures 4 and 5. Other primary sites for prehistoric and historic settlement on Ta'ū undoubtedly include the present day locations of Ta’ū, Faleasao and Fiti'uta Villages.

FIGURE 4. Plan of Fagā (Ta’ū) Complex B. Note round-ended house alignments.
On Olosega Island, evidence of two dispersed settlement zones (Sili‘uta and Tamatupu Complexes, Sites AS-12-1 and -2) are situated on the broad slopes of the island’s eastern side (see Fig. 2). The present-day settlements of Olosega and Sili Villages were no doubt also locales for substantial settlement in the historic and prehistoric past. On Ofu Island, Site AS-13-1 stretching along the coastal lands of the south coast (Tō‘aga, Muli‘ulu, Fa‘ala‘aga) represents the vestige of a dense, continuous, and large settlement zone (see Fig. 2). The archaeological remains of the Ofu south coast are comparable in their scale and complexity to those of Fagā on Taʻū Island.

Associated with these areas of settlement are features that do not fit within the redundant pattern of domestic complexes identified. Such features are less common and include wells, constructed walkways, and specialised sites.

*Specialised Sites.* Stone and earthen mounds, platforms, and monuments that vary greatly in form, size and degree of invested construction labour have been described under this broad designation (e.g., Davidson 1974). With the field evidence recorded so far, specialised sites in Manuʻa include stacked and heaped stone mound constructions and

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**FIGURE 5.** Plan of Fagā (Taʻū) Complex F; remains of individual house structures are shown by 1–4.
stone-filled platforms. These forms are attributed, both ethnographically and archaeologically, with functions such as burial and pigeon-snaring activities (e.g., Buck 1930:321). Other specialised sites of varying forms are explained (in emic terms) as having legendary origins, but many sites remain unaccounted for in local Samoan ethnography or folklore. For archaeologists, this broad class of sites represents a period of Samoan prehistory during which substantial labour was invested in monumental constructions. The effort expended in construction must have been rationalised in terms of the symbolic significance these forms held to prehistoric Samoans.

On Taʻuf Island, specialised sites include the Wall of Vaovasa (AS-11–20), Tia Seu Lupe Faʻatali Pigeon Mound (AS-11–53), and Palapala Mound (AS-11–58). The location of these sites is shown in Figure 1. The Wall of Vaovasa site comprises a retaining wall of stacked angular basalt boulders that reaches nearly 4m in height and is over 38m in length. The wall’s local significance is legendary. Tia Seu Lupe Faʻatali, located on the precipice above Fitiʻuta Village, is known traditionally as a pigeon-snaring mound (as the name connotes). Its form simply consists of two adjacent mounds of stacked angular basalt boulders and compares with some of the simple constructed forms known in Western Samoa (Davidson 1974). This is the only pigeon-snaring mound recorded thus far in Manuʻa. Palapala Mound, located on Tūnoa Ridge well above Taʻuf Village, is a massive (17.5 by 13.5m in plan, 5m in height) heaped arrangement of rough basalt boulders. This monumental site is not accounted for in local history or folklore.

One specialised site, the Tui Ofu Tia (tomb) has been recorded on Ofu Island. This site, included in the Ofu South Coast Complex (AS-13–1), comprises a crudely terraced mound of basalt boulders (14 by 9m, 3.55m high). Local tradition associates this site as the sepulchre of high-ranking chiefs of the Tui Ofu title. No specialised sites have yet been recorded for Olosega Island.

**Wells.** Several wells, made by excavation into the Ghyben-Herzberg aquifer on low coastal lands, have been recorded in Manuʻa. Some of these wells are elaborately constructed of slab boulders that form lined shafts with adjoining paved court areas. Four wells along the coastal lands of Sua on the east coast of Taʻuf are constructed with coral slab boulders in varying design (Fig. 6). Other wells of comparatively simple constructed form are those of Olosega (three wells) and Sili Villages (one well). The Tui Ofu well on Ofu’s south coast is of elaborate construction and remains in good condition. Nearly all of the wells have associated legendary accounts concerning origin, naming, or importance.
Walkways. Raised walkways, constructed in the form of retaining or free-standing walls with rubble or cobble fill, are common features throughout much of Samoa (e.g., Davidson 1974; Jennings et al. 1976, 1982; Jennings and Holmer 1980). In the Manu‘a Group well-preserved examples remain along the west coast of Ta‘ū (a trail linking Ta‘ū and Amo‘ūli), a raised walkway running the length of present-day Fiti‘uta Village, and in sections along the east coast of Ta‘ū (Saua). Simple trails (earthen paths and some stone alignments) are found on all three islands and are still in use, linking villages with swidden gardens and hunting zones. On all three islands modern roads appear to have replaced much of the original trails that once encircled each island.

Other Structural Site Classes. Some significant site classes that have been well documented in Western Samoa appear to be absent from the archaeological record in the Manu‘a Islands. The striking differences include: (1) the absence of the elaborately constructed and somewhat
enigmatic star-mounds known from the islands of Western Samoa (Davidson 1974) and from Tutuila (Kikuchi, MS n.d.; J. Clark, personal communication 1986); and (2) the total absence of any form of constructed fortifications such as the numerous inland examples from Western Samoa (Davidson 1974). These site classes appear to be truly absent from Manu‘a based on three observations: (1) local informants who know their island’s terrain intimately were not aware of any sites that fit the descriptions of star mounds or constructed fortifications; (2) archaeological survey over substantial areas did not reveal such sites which, if present, should be relatively visible; and (3) the rich local traditions make no reference to elaborate mounds, while mention of warfare and refuge refers to caves and dispersal of people into upland (forested) areas. The absence of star mounds and fortifications, so prevalent in the archaeological landscapes of Western Samoa and Tutuila, sets Manu‘a apart.

**Legendary Sites.** Local Samoan folklore is replete with mythical and supernatural accounts for the origins or history of various places. The primary focus of Kikuchi’s survey (MS 1963) was recording sites that held traditional significance, often in legendary terms alone. Most of these sites designate natural features of the landscape, as confirmed by field checks. While a record of such folklore is culturally valuable, these sites do not have archaeological significance *per se*.

**MANU‘A TEST EXCAVATIONS**

Since no sites containing Polynesian Plainware ceramics had previously been reported from American Samoa, we were especially concerned with the problem of ascertaining whether the early, ceramic phase of Samoan prehistory (ca. 1000 B.C. to A.D. 300) was represented in the Manu‘a Group. Three localities were chosen on the basis of geomorphic considerations for test excavations, one on each island.

**Ta‘ū Village Excavations**

Ta‘ū Village is situated along a narrow coastal plain predominantly composed of calcareous sediment, which separates a low-lying hydromorphic marsh used for intensive taro cultivation. The geomorphic structure of this plain includes sand ridges typical of a prograding sequence (Reineck and Singh 1980), with the potential of incorporating stratified deposits likely to include evidence of early coastal occupation. Test excavations were placed along a transect designed to cross-cut stratigraphic variation and thus the depositional history of the sandy
subsurface deposits of present-day Ta'ū Village. The location, in the Siʻufaga sector of Ta'ū, was chosen for three reasons: (1) this part of the coastal shelf is relatively narrow and we expected evidence of the depositional sequence to be contained within a manageable area. (2) A surface find of a single, thick coarse-tempered Polynesian Plain Ware rim sherd made this area promising in terms of producing a long cultural sequence that would aid in developing a model of sedimentological history for the broader area. (3) Excavations were likely to yield evidence of the time of geomorphic transformation of the intensively cultivated taro ground from a former shallow marine embayment.

Three 1-m² test units were excavated along a seaward-inland transect. Unit 2, positioned at the base of the inland cliffs, revealed only a high-energy deposit of boulders indicative of storm or cyclone activity. Unit 1, on the inland slope of the calcareous dune ridge, revealed a pottery-bearing occupation deposit dated by C14 to 2,330 ± 50 BP (shell, uncorrected). Unit 3, located on the highest point of the beach ridge, revealed a deeply stratified sequence (to 2.25m) lacking ceramics.

While further excavations will be necessary to work out the detailed depositional sequence in the Ta'ū coastal plain, these preliminary tests are sufficient to indicate: (1) that ceramic deposits dating to greater than 2,000 years are present on the inner slope of the beach ridge; and (2) that more recent deposits are present in the seaward portions of the ridge. Significantly, the Ta'ū tests indicate that further excavations in this area have the potential to reveal a lengthy and detailed stratigraphic sequence encapsulating at least two millennia of Manu‘an prehistory.

Ta'ū Marsh Coring.

As research elsewhere in Oceania has demonstrated, dramatic landscape change is a frequent indirect result of prehistoric human activities (e.g., Kirch and Yen 1982; Kirch 1983; Sprengs 1986). Three marshes, one on each island in Manu‘a, appear to reflect the in-filling of former embayments during the course of human occupation. A 0.5 km transect extending from the interior edge of the Ta'ū Marsh to the present shoreline was cored at systematic intervals (50m) in order to reconstruct the geomorphic history of this intensively cultivated landform. The cores revealed a thick (1.2-1.6m) deposit of mucky sandy loam and mucky clay loam overlying coarse calcareous marine sands. Our preliminary interpretation is a sequence that began with the in-filling of a shallow embayment primarily as a consequence of vegetation clearance and erosion associated with shifting cultivation on slopes adjacent to the embayment. Following in-filling with terrigenous sediments, the coastal dune
ridge migrated northward along the seaward edge of the marsh (a "pro-graded barrier", Reineck and Singh 1980:343) where today the Lumā sector of Taʻu Village is situated. Further coring to obtain organic sediment samples from the base of the terrigenous deposits, enabling radiocarbon dating and plant macrofossil analyses, is planned.

Olosega Village Excavations

A single test unit was excavated in conjunction with a transect of subsurface cores to test for the presence of buried cultural deposits. The unit yielded little in the way of cultural remains, and we conclude that much of the sand dune ridge presently occupied by Olosega Village is a landform of relatively recent origin.

Ofu Dump Excavations

On Ofu Island, earthwork activities associated with a sanitary landfill public works project exposed an early cultural layer at the locality of the recently constructed Ofu Dump. A single test pit was placed adjacent to the dump area where the stratigraphic sequence had not undergone bulldozer disturbance. The excavated unit revealed a complex stratigraphic sequence that included the layer previously identified in the bulldozed area. A small quantity of artefactual material was recovered from this pit (most of the Ofu Dump artefacts were collected from one layer unearthed by bulldozer action). Shell was obtained from the test excavation for radiocarbon analysis, yielding an uncorrected C14 age of 2,350 ± 50 BP for the ceramic-bearing midden.

Radiocarbon Dating

As noted above, samples of human-modified marine shell (middlen remains) in direct association with Polynesian Plainware ceramics were obtained from excavations in Taʻu Village and at the Ofu Dump site. These samples were submitted to Beta Analytic for C14 analysis, which included pretreatment of the shell with dilute acid to remove the outer shell layer, and measurement of the C13/C12 ratio, as well as C14 activity. The C13 adjusted ages ("conventional radiocarbon age" after Stuiver and Polach 1977) for these samples are: (1) Taʻu site, Beta-19741, 2,330 ± 50; (2) Ofu site, Beta-19742, 2,350 ± 50. Applying the correction factors for both ocean reservoir effect and for secular C14 variation, following the methods of Stuiver, Pearson, and Brazian (1986), yields calibrated age ranges at one standard deviation as follows: (1) Taʻu site, A.D. 0–128; (2) Ofu site, 28 B.C. – A.D. 108.
These results indicate that by the start of the first millennium A.D. both Ta‘u and Ofu Islands were already occupied by makers of Polynesian Plain Ware. The C14 ages from the Manu‘a excavations correspond very closely with radiocarbon ages obtained for similar ceramic assemblages in Western Samoa (Green and Davidson 1974; Jennings and Holmer 1980; Hunt and Kirch 1987).

**ARTEFACTS AND OTHER CULTURAL MATERIALS**

Artefacts were collected from the surface of many sites, or were brought to us from private collections, or were excavated from one of four transect loci.

*Prehistoric Ceramics*

Pottery was recovered through excavation at two localities: the transect through Ta‘u Village (AS-11-51) and from the Ofu Dump test pit at Tō‘aga (AS-13-1). A total of 115 sherds was recovered from Unit 1 in Ta‘u, while 32 sherds came from the test pit excavation and from our collection of artefacts unearthed from a single stratigraphic layer with sanitary fill operations at the Ofu Dump. These are the first prehistoric ceramics from excavated contexts in American Samoa.

All of the sherds recovered are plain (undecorated); no dentate-stamped or other decorative techniques are represented in the two assemblages. Such pottery, usually termed Polynesian Plain Ware, falls within the Lapitoid series of Western Polynesia (Kirch 1982).

The Manu‘a ceramics are tempered with angular sand grains that are highly variable in size. These grains appear to be ferromagnesian basaltic in origin and are probably comparable in geologic material with those described from ‘Upolu Island in Western Samoa (Dickinson 1969; 1974). A subordinate amount of rounded calcareous grains and tiny shell fragments suggest that sand grains used as temper in pottery manufacture were obtained from a stream mouth. The temper of these sherds imparts a quality of substantial hardness. Before analysis of the source of temper grains, or an analysis of the clay composition, a local Manu‘a origin for these materials appears most likely.

Colours recorded for the uneroded surfaces of all sherds fall within a range of Munsell 5 YR 4/2 to 7.5 YR 7/2. Vessel wall thickness ranges from 7.5 to 14.6 mm. Thickness was calculated as an average of three measures from each rim or body sherd (n = 49). Sherds with one or both surfaces eroded were not included in the thickness analysis. Mean sherd thickness for the entire collection is 10.62 mm, 3.46 mm variance with a
FIGURE 7. Frequency distributions of ceramic sherd mean thickness (mm) and variance. See text for discussion.
standard deviation of 1.86 mm. The distribution of mean sherd thickness is shown in Figure 7a. Variance in thickness measurements was also recorded (mean variance = 0.336 mm, s.d. = 0.329 mm), as shown in Figure 7, b. These Manu'a sherd thickness data are comparable with "thick ware" ceramics described by Green (1969:112;1974) from several sites in Western Samoa, especially the Vailele mounds. Paste hardness, recorded on a Mohs hardness scale, ranges from 2 to 4. Temper grains are consistently harder.

The rims and vessel parts present indicate a simple assemblage of large open bowls (Fig. 8). There are no necks or complex rim forms or carinations indicative of other vessel forms.

FIGURE 8. Artefacts from Manu’a sites: a, shell adze; b, c, d, Turbo shell fishhooks; e, bone bead; f, g, h, pottery rim sections.
Stone Adzes

A total of 24 classifiable adzes was obtained during the survey from surface contexts (Fig. 10). Following the Green and Davidson (1969) classification of Samoan adzes, the types and their frequencies in the Manu‘a collection are: Type I, 1; Type III, 13; Type V, 2; Type VI, 2; Type VIII, 1; Type IX, 4; Type X, 1. Green (1974) has analysed both surface collections and excavated assemblages of stone adzes from Upolu and Savai‘i, and his data provide some interesting contrasts with the Manu‘a sample. Most striking is the low frequency of Type I and absence, thus far, of Type II in the Manu‘a collection. In Western Samoa, Types I and II are dominant in general surface and museum collections. Whether this difference simply reflects the small size of our Manu‘a sample, or a culturally significant difference in the prehistoric adze kits of Western Samoa and Manu‘a, can be determined only through enlargement of the Manu‘a sample with further field work. Type III is also common in Western Samoan collections, and thus its high frequency in Manu‘a is not wholly unexpected. The representation in Manu‘a of Types VI, VIII, IX, and X — all of them forms developed in the later phases of Samoan prehistory — is also expected based on the larger Western collections. Of particular note is the presence of two examples of Type V, adzes with distinctive plano-convex cross-sections (Fig. 9, b). Type V is known to be associated with Lapitoid ceramic assemblages not only in Samoa, but elsewhere in Western Polynesia (Kirch 1981), although it may have persisted in Samoa as late as A.D. 1100–1200 (Green 1974:261). In our view, however, the presence of Type V adzes in Manu‘a is a further indication of the presence of ceramic period occupations in these islands.

A single, small adze of fine-grained basalt was also recovered from the ceramic-bearing deposit at the Ofu Dump site (Fig. 9, a). The adze has a triangular cross-section, and would thus be classified as Type VI in the Green and Davidson (1969) system. However, it has been well ground on the front, removing the original flaked ridge, and thus in some respects resembles a plano-convex sectioned Type V form.

Shell Adze

Also found in association with Polynesian Plainware at the Ofu Dump site was a small adze of heavy shell, possibly Cassis sp. (Fig. 8, a). Shell adzes are rare in Samoan archaeological assemblages, and may be restricted to the earlier ceramic periods (cf. Jennings and Holmer 1980).
FIGURE 9. Early type adzes from Manu'a: a, well-ground, triangular sectioned adze from pottery-bearing context; b, plano-convex Type V adze.
FIGURE 10. Later prehistoric basalt adzes from Manu’a.
**Basalt Scraper**

The Taʻu excavations yielded a scraper made by unifacially retouching a large basalt flake (Fig. 11, a). The thick portion of the flake was “backed” forming a convenient hand grip.

**Fishing Gear**

Three one-piece fishhooks (two fragments, one incomplete but whole) made of shell were recovered (Fig. 8). Two fragmented pieces (bend and points) came from the ceramic-bearing midden layer at the Ofu Dump, and date to about 2,000 years BP based on their stratigraphic association with pottery. The third, nearly complete hook was recovered from excavation of Unit 3 on the crest of the Taʻu sand dune ridge. This specimen (from 1.85 m below surface) is of some antiquity, but presumably postdates pottery. These finds are significant given the paucity of fishing gear recovered from archaeological contexts in Samoa, particularly associated with the earliest periods of prehistory.

Two waterworn tabular-shaped pebbles (one of basalt and one of coral) with perforations ground through the centre probably represent net weights (Fig. 11). These were collected by Chief Tupoua on his coastal property at Siʻu (AS-11-2). Their age and precise archaeological context remain unknown.

Two waterworn tabular-shaped coral pebbles with roughly parallel grooves cut into the surface were recovered (Fig. 11, b). One was found within the ceramic-bearing stratum of the Taʻu I test pit. A nearly identical form was collected from the stream bank erosional materials at Amoʻūli (AS-11-52). This may well be an early form of net weight, providing evidence for netting as a component of early Samoan marine exploitation. A second form of possible net weight is represented by a tabular, coral pebble with roughly parallel grooves worked into both surfaces. This artefact was recovered from the Taʻu excavations.

**Bead**

A polished, drilled bone bead of distinctive “barrel” shape was discovered in the erosional deposits of the Amoʻūli (AS-11-52) stream bed (Fig. 8, e). The bead was associated with a Type V plano-convex adze, suggestive of a possible early first millennium A.D. age. The bead is similar to what are often called “reel” ornaments from early eastern Polynesian contexts (Leach et al. 1979). This ornament form is also known from the Polynesian Outliers of Tikopia (Kirch and Yen 1982, fig. 100, f, g) and Taumako (Leach et al. 1979). This is the first archaeological documentation of bone “reels” from Samoa.
FIGURE 11. Artefacts from Manu'a sites: a, basalt scraper; b, coral net weight; c, basalt net weight.
Faunal Materials

Bone and shell midden was recovered from all test excavations. The predominant shell constituents include *Turbinidae* (especially *Turbo crassus*), *Cypraeidae*, *Trochidae*, and *Tridacna* sp. These taxa inhabit the intertidal reef platform and reef edge and were readily available in marine environments adjacent to the sites. Vertebrate faunal remains were recovered at both ceramic-bearing sites, and were dominated by fish bone. Faunal remains that can be securely associated with Polynesian Plainware ceramics included sea turtle, pig, medium mammal (dog?), a lutjanid fish and other unidentified fish. Bone from post-ceramic stratigraphic contexts includes abundant pig, rat (probably *Rattus exulans*), medium bird (possibly *Gallus gallus*), medium mammal (dog?), and a single human molar. Fish remains from postceramic contexts include large acanthurids (cf. *Naso* sp.), balistids, *Pseudobalistes* sp., *Diodon hystrix*, scarids (cf. *Calotomus* sp.), *Monotaxis grandoculis*, holocentrids, lutjanids, and elasmobranchs (definitely shark and possibly also rays). This range of fish taxa suggests exploitation of both inshore and benthic marine environments.

Although the faunal assemblages are small, they none the less are significant in several respects. First, pig is securely associated with ceramic occupations that presently mark the earliest known settlement of Manu'a. Second, the dominance of pig bones in postceramic deposits suggests a temporal trend towards development of terrestrial resources, a pattern which should be tested with further excavations. Third, the fish bones display a more diverse taxonomic suite than from other Samoan sites previously excavated, and thus indicate the potential for expanded excavations at these sites to yield important data on Samoan marine exploitation.

CONCLUSIONS

Although extremely limited in scope, the 1986 test excavations on Ta'ū and Ofu Islands succeeded in extending the prehistory of the Manu'a Islands back to the first millennium A.D., with a cultural assemblage characterised by Polynesian Plainware ceramics. The question remains, however, whether this horizon marks the initial Polynesian settlement of the group, or whether the Manu'an sequence will ultimately be extended back another millennium. Given the close proximity of Manu'a to the larger Samoan Islands (Tutuila and Manu'a are intervisible under optimum conditions), it is reasonable to expect that early Lapita colonists reached Manu'a. However, the archaeological
manifestation of such an early Lapita occupation has not yet been found. For the present, three competing hypotheses are evident: (1) the absence of early Lapita deposits is a problem of archaeological sampling error; (2) small islands such as these with narrow coastal lowlands have undergone repeated exposure to dynamic shoreline processes (including island subsidence) and catastrophic events such as cyclones that have obliterated traces of early settlement; or (3) Manu'a was indeed not colonised until the beginning of the first millennium A.D. The first hypothesis must be tested by extending the archaeological sample of excavations, a task planned for the near future. Discriminating between the second two hypotheses may prove more challenging. None the less, the issue of whether the easternmost islands of Samoa were indeed colonised by early Lapita populations is important to resolve, for it bears on yet larger problems in Polynesian prehistory, such as that of a Western Polynesian “pause” versus continuous settlement (Irwin 1981; Kirch 1986; Terrell 1986). As islands situated in the path of a probable voyaging route to eastern Polynesia (Finney 1985), the Manu'a Group may provide critical evidence bearing on these broader issues of Polynesian settlement.

Most of the data collected during the Manu'a survey bear on the nature of late prehistoric settlement patterns and land use practices, and now permit detailed comparisons with evidence from the Western Samoa islands of 'Upolu and Savai'i (Green and Davidson 1969, 1974; Jennings et al. 1976; Jennings and Holmer 1980). In Manu'a, virtually all coastal flatlands and the broad upland slopes (those with less than 30% slopes) are intensively covered in archaeological sites and features. It is clear that all areas on these precipitous islands that could be used for occupation were at some time. However, the Manu'a evidence differs from that of 'Upolu and Savai'i where continuous distributions of habitation remains extend from the coast well inland up broad slopes (Davidson 1974). The pattern identified in Western Samoa would be impossible to replicate in Manu'a given geographic constraints alone. Thus, in Manu'a, settlement and intensive land use of the limited coastal lowlands were of primary importance through most, if not all, of the prehistoric sequence.

The preliminary geomorphic study of the Ta'u Marsh also suggests that the intensively cultivated hydromorphic taro swamps found on all three Manu'a islands may prove to be, at least in part, artificial components of the settlement landscape. Certainly the dynamic nature of the lowland landforms must be taken into account in any attempts to construct a prehistory of the Manu'a Islands.
The classes of prehistoric settlement pattern components identified in Manu‘a are generally typical of those known from other Samoan islands. In particular, these include oval or round-ended house foundations, house terraces, low walls, stone pavements, stone-constructed walkways, and simple stacked-stone mounds, including those identified ethnographically as pigeon-snaring mounds. Manu‘a may be unique, however, in the presence of elaborate stone-lined wells. On the other hand, two otherwise important Samoan site types are evidently absent in the Manu‘a Group: star mounds and constructed fortifications. The absence of these settlement pattern components was both unexpected and significant, particularly in the implications for the late prehistoric Manu‘an sociopolitical system. Although their exact function remains unknown, star mounds as monumental and specialised constructions are assumed to be associated with powerful political groups or leaders able to mobilise the labour required for their construction. Fortifications are regarded as archaeological manifestations of intergroup conflict, especially between competing chiefdoms. The Tui Manu‘a paramountcy was reputedly recognised as a very-high ranking title throughout Samoa, and beyond to Tonga (Mead 1930:191). Curiously, such a high-ranking title appears to have been maintained without monumental symbols such as star mounds, and in a settlement system that apparently did not include fortifications such as those common in Western Samoa (Davidson 1974). Accounts from the 19th century suggest that warfare was a frequent and significant factor in Manu‘a society and politics (Freeman 1983:159–60, 165–70; cf. Mead 1930:168). The absence of fortifications might be explained as a problem of archaeological sampling, especially given the likelihood of forts having been positioned in locations with difficult access. A second possibility is that warfare emerged as a common occurrence only in the 19th century and was not frequent or persistent enough to make fortifications an important alternative.

The ethnographic record contains other references to distinctive features setting Manu‘a apart from the more westerly variant of Samoan culture. These include divergence in kinship usage, religion, and dialect differences recognised by native speakers (Mead 1930:144 passim). The archaeological record now adds to this list of minor differences. Distinctive stone-lined wells have already been noted. If it does not prove to be an artefact of small sample size, the unusually high frequency of Type III adzes in the Manu‘a surface collection may also signal local differentiation. This is perhaps a thin straw on which to construct an argument for Manu‘an cultural distinctiveness, but it is at least suggestive that the presence of minor traits distinguishing Manu‘an populations from those
of the more westerly Samoan Islands may have a long antiquity.

The 1986 Manu‘a Project has provided a foundation on which more intensive investigations of local prehistory may build. Some problems requiring immediate attention include: (1) the extension of subsurface testing of the coastal lowlands for evidence of early settlement, including the possibility of Lapita sites; (2) the location and testing of stratified deposits representing the postceramic phases of Manu‘a prehistory; (3) detailed mapping of the habitation pattern of household units extant in late prehistoric settlement complexes such as at Fagā and Saua on Ta‘u Island, for comparison with patterns already documented for Western Samoa; and (4) further geomorphic study of localised landforms, such as the hydromorphic taro marshes, to determine the role of human land use in landscape transformation. It is our aim to address these and other problems as the Manu‘a Project continues in 1987 and beyond.

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