

BETWEEN CHAOS AND CONTROL:
SPATIAL PERCEPTION OF DOMESTIC, POLITICAL, AND
RITUAL ORGANIZATION IN PREHISTORIC SAMOA

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Ethnographic studies in the Samoan Archipelago have identified traditional villages characterised by spatial patterning underpinned by the social perception of space in Samoan life (e.g., Mead 1969, Olson 1997, Shore 1982). These studies suggest that the patterning of village settlement mirrored patterns of individual and group social and political interaction, specifically identifying centre-periphery, landward-seaward and control-chaos distinctions. Archaeologically, however, similar spatial patterning has not been identified during large scale settlement pattern studies (see Clark 1989; Clark and Herdrich 1988, 1993; Clark and Michlovic 1996; Green 2002; Green and Davidson 1969, 1974; Hunt and Kirch 1987, 1988; Jennings and Holmer 1980; Jennings *et al.* 1976; Pearl 2004, 2006). This raises questions about the antiquity of such spatial patterning and the social perceptions of space that underlie them. Archaeological documentation of an interior settlement system on Olosega Island, Manu'a, American Samoa (Fig. 1) provides the first evidence of historic period spatial patterning in a prehistoric settlement. We argue that core spatial concepts, reflected by the spatial patterning of political, domestic and ceremonial activity areas, can be identified, which further suggests that the core social perceptions of space documented in the historic period were in place prior to European contact.

ENVIRONMENTAL AND ARCHAEOLOGICAL SETTING

The Samoan Archipelago is currently divided into two political units, the Independent State of Samoa (formerly Western Samoa) and the United States Territory of American Samoa. American Samoa is further divided into the Manu'a group in the east and the islands of Tutuila and Aunu'u in the west. The Manu'a group consists of the small islands of Ta'u, Ofu and Olosega. All islands in the group are close: Ofu and Olosega are connected by a small bridge while Ta'u is 11 km to the southeast. Extreme topography is present in many but not all areas, with small coastal plains seaward of typically near-

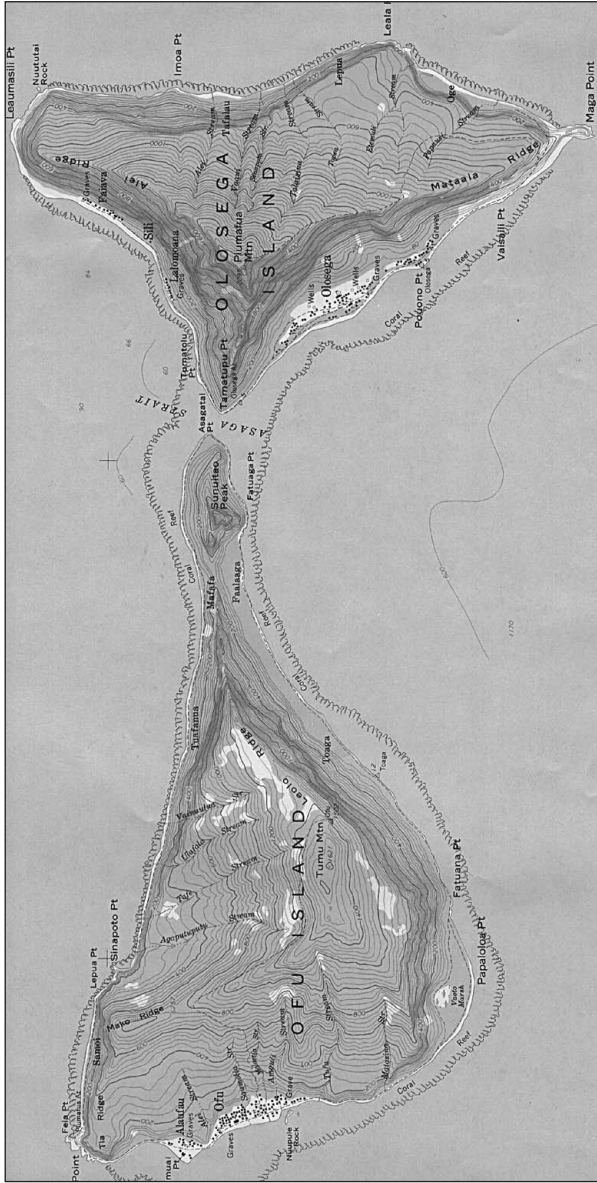


Figure 1. U.S.G.S. Quadrangle, map of Ofu and Olosega islands. The project area is the southern half of the Olosega interior above the steep cliffs and coastal plains.

vertical cliffs. Productive fringing reefs surround much of the islands, and each island has a freshwater marsh, which are still used for cultivation.

Currently, the inhabitants of Olosega Island are divided between two villages, Olosega Village on the southwest and Sili on the northwest. From Olosega Village the land rises sharply to the highest point, Piumafua Point, at 629 masl. The geology of the island is dominated by thin-bedded olivine basalts, formed by pre-caldera volcanic activity approximately 500,000 years ago (Stearns 1944: 1313). Much of the soil in the interior consists of Ofu silty-clay that is further divided by slope into a zone of 15-40 percent and a second zone of 40-70 percent (Nakamura 1984). Rainfall occurs almost daily particularly owing to orographic effects. Streams, however, are intermittent, only running after heavy downpours. Although much of the interior is steep, the southeastern side of the island features broadly sloping land leading down to the small Oge coastal plain. It is on this landscape that many of the island's few streams have formed. The island's vegetation is dense, although variable in type, with the steeper slopes covered by thick secondary growth forests and the coastal flats covered with heavily modified forests that include breadfruit (*Artocarpus altilis*), coconut (*Cocos nucifera*) and pandanus (*Pandanus tectorius*). This secondary growth zone reflects a relic forest pattern resulting from diverse agronomic practices in prehistory (Quintus 2011: 116-21, 2012).

Archaeological investigations have been sparse on Ofu and Olosega compared to Tutuila (but see Best 1992, Clark 2011, Clark, Quintus and Bonk 2012, Emory and Sinoto 1965, Kikuchi 1963, Kirch and Hunt 1993, Quintus 2011; also Addison pers. comm., 2010). Radiocarbon dates from To'aga, on the south coast of Ofu, led Kirch and Hunt (1993) to propose initial settlement of Ofu (and presumably Olosega) 3000 years ago. In the last several years, reconsiderations of the radiocarbon chronology in American Samoa have been more conservative with estimates of colonisation by perhaps 2500 BP (Addison and Asaua 2006, Rieth and Hunt 2008, Rieth, Morrison and Addison 2008), but recent dates obtained from Va'oto on the southern tip of Ofu support a date of 2700-2800 BP (Clark 2011). In Olosega and Ofu settlement was concentrated on the coast during the first several centuries or more (Clark 2011, Hunt and Kirch 1988, Kirch and Hunt 1993), eventually becoming dispersed across the landscape and spreading into the interior of the island. Late prehistoric remains are rare on both islands; only isolated features, but not distinct settlement areas in the sense identified elsewhere, have been found (Addison pers. comm. 2010, Best 1992, Kirch and Hunt 1993, Moore and Kennedy 1996, 1997, Radewagon 2006, Quintus 2011).

THE ORGANISATION OF SAMOAN VILLAGES AND POLITICAL LIFE

Previous settlement system studies in the archipelago have focused on the identification of ethnographically documented feature types, most notably the *fale tele* 'community house', *fale aitu* 'god house', and the *malae* 'communal ceremonial/political ground' (Davidson 1969, Holmer 1980). According to ethnohistorical and ethnographic evidence (see Mead 1969; Pritchard 1866; Stair 1897; Turner 1984, 1986), and largely still today, the *malae* was the central and most important feature of the Samoan village, serving as social and political meeting space. *Fale tele* were commonly the largest buildings within the village, placed in the most visible area near the *malae*, usually facing seaward and near the settlement centre (Davidson 1969: 63-65). They were used primarily as meeting places, but they also served to house guests. Little is known of *fale aitu*; they seem to have disappeared rather quickly after significant European contact (Turner 1984: 243). Stair (1897: 226) suggested that these structures were distinguished by being elevated and bounded by a fence or other barrier. Residential areas with sleeping and cooking houses were located inland from (or behind) these communal structures.

Shore's (1982) ethnographic analysis of village spatial layouts in Samoa identified two contrasting dimensions: centre:periphery and landward:seaward. The *malae* are the focal point of village life, with the rest of the settlement situated around that space (Shore 1982: 48-51). In other words, the *malae* is the core of the settlement; a place where political and social activities are conducted, a place the village inhabitants wanted visitors to see. Shore (1982: 51) argued that "a passive-aggressive stance in which boundaries separating those in center from those on the periphery are constantly challenged, tested, and reaffirmed". The inland areas, just outside the village, are associated with hard work and men's work. The bush, which is inland of villages, is seen to be the realm of the *aitu* 'ghosts' and trouble, away from the control of the chiefs and away from the human populations. Shore asserted (1982: 49): "To live in the bush was to live alone, out of reach and control of society." The bush is, then, the realm of chaos compared to the controlled world where people live.

The ethnographically documented concept of space is the end result of a number of long term processes, upon which the political structure of Samoa has had particular influence. The basic division within this system is between those men with titles (*matai*) and those without, the latter forming their own group (*'aumāga*) (see Mead 1969, Sahlins 1958). Among *matai*, a number of distinctions were drawn to highlight differences in rank and responsibilities. Talking chiefs (*tulāfale*) are differentiated from chiefs (*ali'i*) by their duties, and the rank of a given title is influenced by the degree of power and status of the holder. Differentiation of rank is readily apparent in the spatial patterning

of individuals during social events. In *fono* 'council' meetings, the highest ranked *matai* are seated closer to the central house posts while those of lesser rank are seated increasingly peripheral by their diminishing rank (Shore 1982:80). Attendants, who are part of the *'aumāga*, are positioned inland of the *matai*, who are in the seaward positions (Shore 1982: 80, Fig. 5.1).

While a full understanding of long-term political development in Samoa is lacking, complex chiefdoms were well documented at and after contact (see Goldman 1970, Hiroa 1930, Krāmer 1902-03, Mead 1969, Sahlins 1958). Oral traditions suggest that each island in Manu'a was politically autonomous to some extent, and that Ofu and Olosega were ruled as separate polities. However, the highest ranked title in Manu'a, the Tui Manu'a, was recognised as paramount over the entire Manu'a group. Our study considers how these complex social relations and ethnographically recorded settlement patterns might be represented in a prehistoric context in the Manu'a group.

THE ARCHAEOLOGY OF THE OLOSEGA ISLAND INTERIOR

Prehistoric remains were first recorded in the Olosega interior by Kikuchi (1963), who identified the site as Tamatupu Village based on informant information. A formal site number (AS-12-02) was subsequently assigned by Clark (1980: 39) to the complex. The first investigation of the Olosega interior occurred in the late 1980s, but it was only a reconnaissance survey of a very limited area (Hunt and Kirch 1988). Later, Clark and Suafo'a (Suafo'a 1999) surveyed the interior ridgeline and portions of the broad slopes recording multiple features, including a large number of star mounds on the ridge overlooking Olosega Village. Following up on this work, Quintus (2011) conducted an intensive and extensive settlement survey of the southern interior of the island as an extension of the ongoing North Dakota State University settlement system investigations on Ofu. While portions of the interior have not yet been surveyed, a large sample area (117 hectares) was examined (Fig. 2).

Within this interior sample area, all features were located and recorded using a Magellan GPS device with c. 10 m accuracy. Digital photographs and videos were taken for further analysis and for modelling the environmental context. Features were described in detail, and maximum and minimum dimensions were recorded for each of them. The survey identified and documented 200 terraces and 22 star mounds, as well as relocating all 23 star mounds that had been previously identified by Clark and Suafo'a (Suafo'a 1999) (Fig. 2). All new features were assigned a unique feature number and considered part of site complex AS-12-02, except for star mound features recorded in previous surveys. In this article, all features within site AS-12-02 will be referred to by their individual feature numbers, while star mounds will

be referred to by their individual site numbers. Spatial analysis of field data was predominantly undertaken using ArcGIS software. Different analytical techniques within the software program were used depending on the questions addressed, each of which we describe below.

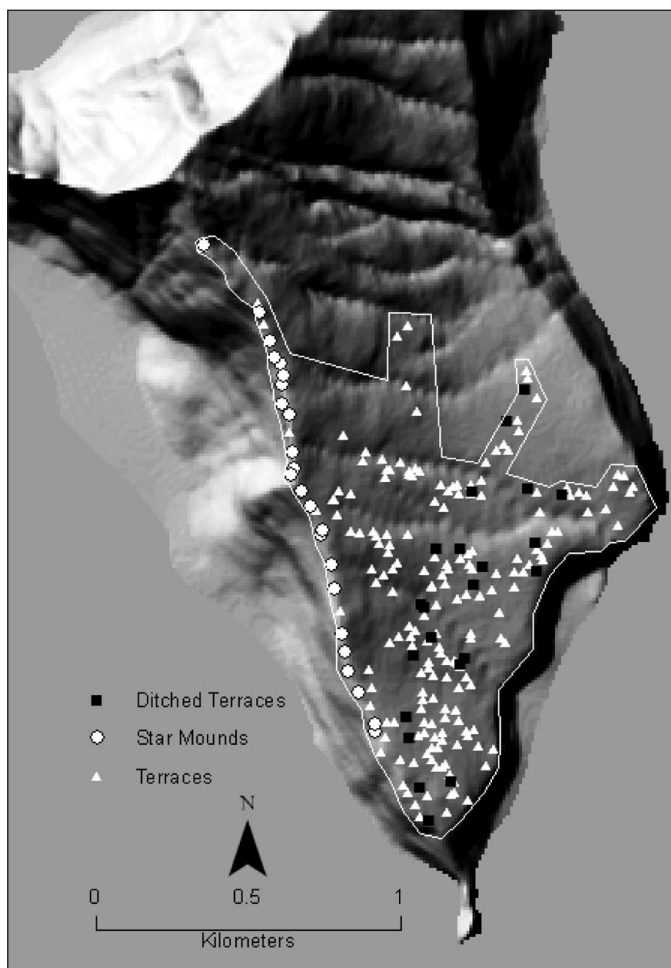


Figure 2. Extent of survey area (outlined in white) and distribution of major features.

The following discussion of archaeological remains describes only structural features (i.e., terraces, ditched terraces, star mounds, ditches, paths) still visible on the landscape. It is on these features that additional evidence of past activity (i.e., paving and alignments) was identified, which informed on the function of these architectural remains. Beyond these structures, only isolated pieces of coral or rock that appeared to have washed off structural remains were noted (see Quintus 2011 for a full discussion of land use at the site).

Star Mounds

Star mounds are characterised by the presence of a raised platform with one to eleven projections, or rays, protruding from the raised platform (Fig. 3) (Clark and Herdrich 1988, Herdrich 1991, Herdrich and Clark 1993). Platforms may be constructed entirely of stone or earth, but a combination of the two was most commonly found. If the platform is constructed of earth, the projections are typically faced with stone, occasionally with one or more pieces of coral included. The shape of the features is either elongated or round, largely dependent on the geomorphological context. The function, or functions, of star mounds remains a matter of debate and beyond the scope of this article, although a few issues are discussed below (see Clark and Herdrich 1993, Davidson 1974, Herdrich 1991).

Morphologically, the star mounds of Olosega are variable, the most recognisable differences being the number of projections, the amount of stone facing used on each projection, the overall size of features and their general shapes. These features average 25 m in length and 13 m in width, but one, AS-12-042, was 40 m long, created by cutting into the ridge and levelling off the surface. While this configuration is not common, it has been observed by Clark on Tutuila. Because of their location on the ridgetop, most of the Olosega star mounds, similar to those on Tutuila in comparable settings, are elongated in shape, constrained by the dimensions of the ridge. Two, however, are located at prominent pinnacles on the ridge, each situated between two intermittent stream banks. These are more circular in shape and exhibit projections on all sides. Again similar to the eastern Tutuila examples (Clark and Herdrich 1993), projections on the steep cliff side of the ridge top were rarely present, presumably because they have sloughed off the cliff. The number of projections ranged from three to ten, with most mounds exhibiting six or eight projections, but if projections possibly lost to cliff erosion are factored in, the mean would change slightly. Stone facing (Fig. 4) is present on the projections of all but one star mound, while some facing is present between projections in a few instances. The shape of the features along with the stacked stone facing provide distinct bounding of the structures and the area of activities with which they are associated.

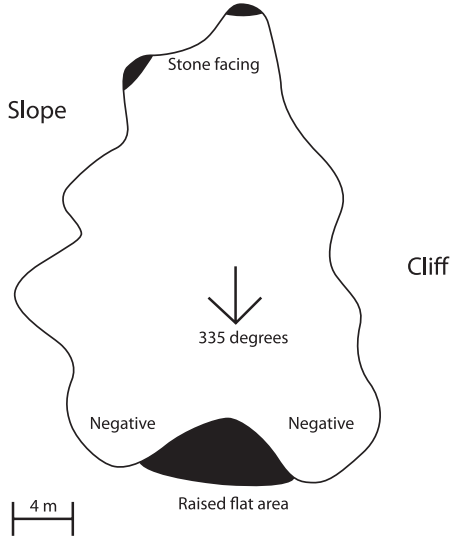


Figure 3. Plan view of a typical star mound, AS-12-30.



Figure 4. Stone facing on a projection of star mound AS-12-19.

Only a few examples of associated archaeological features were identified. The most common are terraces located upslope or downslope. All are small and exhibit little in the way of surface features, unlike terraces located within the primary settlement area, which are interpreted as residential (see below). Flat terrace-like features were sometimes found skirting or connected to the downslope ends of the mounds, which served to better define and make more visible the elevated mound area.

Ditches

Feature 38 is a ditch approximately 1.2 km long that runs across the slope (see Fig. 5), originating on the ridge between two star mounds and terminating in an intermittent stream at the northern end of the settlement area. The dimensions of the feature are variable, especially at high and low points on the landscape. At the ridge end, the ditch measures 3 m in width and 1 m in depth, while in other areas the ditch is 1 m wide and as much as 2 m deep. In some instances, the downslope bank of the ditch is lost, though the ditch is still identifiable. Where the ditch bisects streams, cuts are located in the downslope wall and measure 1-3 m in width. These would have resulted in the diversion of runoff from upslope, channelling it into the stream. In other words, the upslope bank of the ditch is present throughout its length, but cuts in the downslope bank act to drain water and sediment into streams. Often, at least in present day Samoa, these areas are highly productive cropping zones and the addition of run-off and sediment may enhance fertility. In essence, the population would have used natural streams and cuts in Feature 38 to provide irrigation (Quintus 2012).

Paths

Shallow linear depressions interpreted as paths were identified within the study area, although they were not recorded in detail because of time constraints. These well-worn, linear stretches have no paving or stone borders. Most are only a few tens of centimetres deep, but remain visible. Many of these paths appear to lead from one terrace to another, and, in some locations, seem to connect two or more terraces thereby forming a unit.

Terraces

Terraces were the most commonly recorded feature type in the survey area. We plotted 196 terraces and recorded them on the GPS, while four others were recorded but could not be plotted because of the dense vegetation cover. All are earthen and presumed to have been constructed by cutting in and flattening the slope, using natural topography when possible to reduce labour demands. Though the definition of this feature class can be a fairly broad, these were

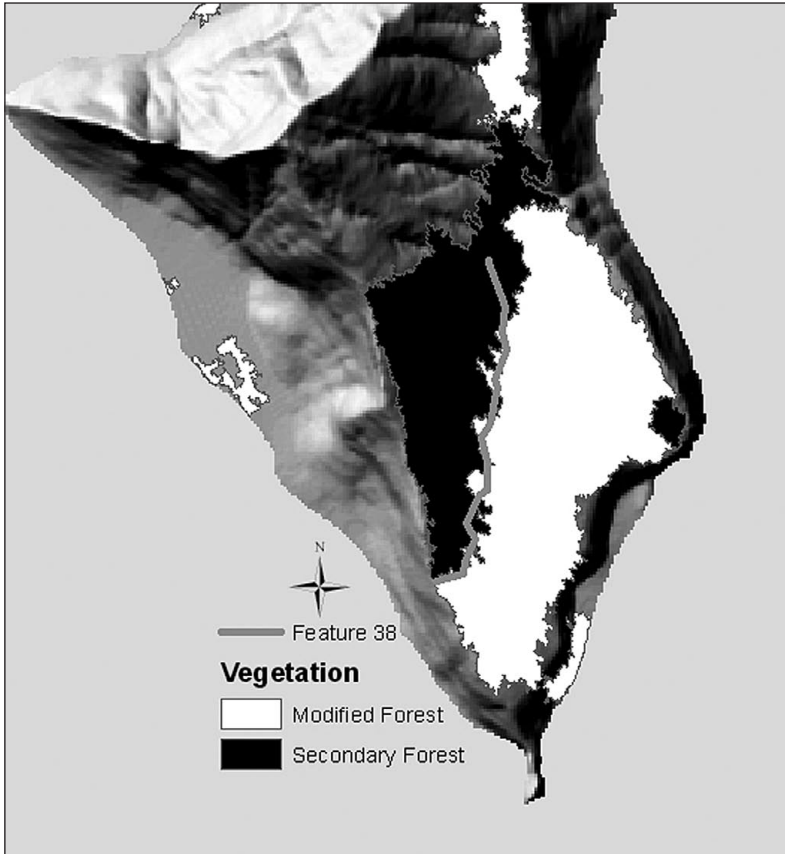


Figure 5. Feature 38, the long ditch, and associated vegetation (the latter based on Liu and Fischer 2007).

distinguished by characteristics such as flat surfaces in otherwise sloping ground, three free-standing sides, coral or stone paving on the feature, stone retaining walls and/or clear earthen borders that differentiate the feature from the surrounding slope (Fig. 6). While other feature classes, such as ditched terraces, may possess one or more of these traits they are differentiated into a distinct category on the basis of additional attributes (see below). Only two terraces, Features 86 and 138, have visible remains of retaining walls,

while erosion presumably has covered the downslope edge of other terraces. In those cases where the downslope edge has eroded away, a large earthen bank on the upslope side, along with earthen-banked sides, define the boundaries of the features. The presence of paving and stone alignments is often the basis of interpreting features as residential (i.e., *fale* or house) versus non-residential. On most terraces, at least some evidence of past habitation is present. Paving is the most common evidence, either in the form of coral rubble or rock pebbles, but stone alignments or a combination of paving and stone alignments were also observed.

Terraces varied in size, ranging in area from c. 27 m² to c. 2860 m², but most ranged between c. 200 m²- 500 m². Features 93 and 188 are morphologically similar, both measure close to 200 m in length, with earthen banks on the downslope side (Fig. 6). Feature 93 ranges in width from 8.1 m to 14.3 m. Where the width is greatest, the downslope bank disappears and 'ili'ili 'stone and coral pebble rubble' are abundant on the feature, forming a floor paving. A third large terrace, Feature 86, measures 74 m long by 24 m wide. A narrow and shallow sunken path leads upslope to two smaller platforms, thereby connecting them to the main terrace. Coral and stone paving is scattered on the main terrace but is absent on the two platforms, while a curbing alignment was also identified on the main terrace suggesting residential use.

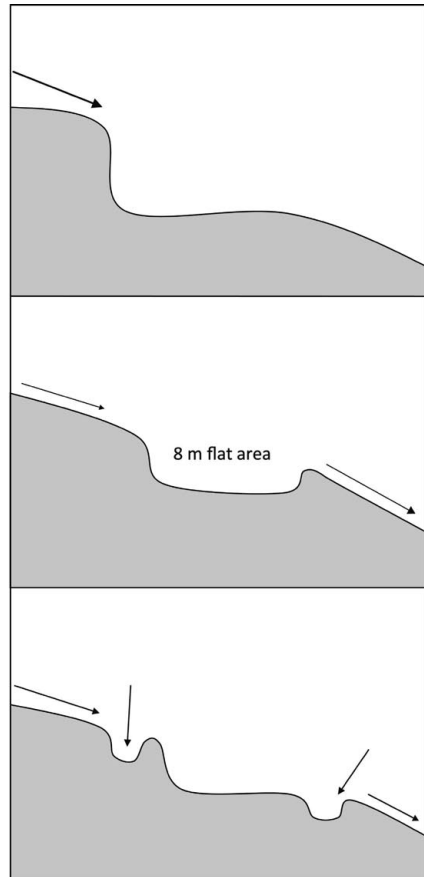


Figure 6. Profile view of a typical terrace (top), Feature 93 (middle), and a typical ditched terrace (bottom); exaggerated for clarity and not to scale (illustration by Briar Sefton).

According to Mead (1969: 210), “formerly Olosega people are said to have lived inland, where the house of Tui Olosega [had] seven *paepae* (foundation terraces)”. While Mead’s description is difficult to translate directly into the archaeology, Feature 86, with its surrounding complex, is the only feature that might approximate it. We surmise that Feature 86 may very well have been the housing complex of the Tui Olosega.

Ditched Terraces

A new feature type has been defined for the Olosega settlement; it is termed “ditched terrace” (Quintus 2011: 84-85) and represented by 22 examples. Although variation exists, all features within this class are characterised by an oval-shaped earthen terrace circumscribed by a shallow ditch (two examples lacked complete circumscription, possibly because of infilling) (Fig. 6). The widths of the ditches vary, but average 1 m on features near the centre of the settlement and 2-3 m on terraces near the peripheries. Causeways crossing the ditch were identified in a couple of instances, but the ditches were too small to warrant such structures in most cases. The areas enclosed by the ditch were split into two parts of fairly equal proportions: a flat and a sloped area. These enclosed areas ranged in size from 12 to 35 m in length and 8 to 26 m in width, yielding an average size of about 23 m by 17 m. In many cases the sloped portion is upslope of the flat portion, but the inverse was identified in one instance. Two ditched terraces, both on the periphery of the settlement, had no sloped portion, the surrounding ditches were deeper, and they exhibited four free-standing sides, illustrating a morphology better described as ditched platforms. Nevertheless, they are still similar to and grouped with the other ditched terraces as a result of presumed shared function.

Surface features were identified on all but four ditched terraces. Although the surface features were similar to those found on many residential terraces, a number of differences were noted. Coral pavements on residential terraces typically consist of water-worn coral rubble, while the pavements on ditched terraces are largely composed of larger flat coral slabs. Volcanic rock, on the latter, also is generally larger and flatter than the water-worn pebbles found on residential terraces. Curbing alignments, free-standing rows of single stones, were discovered on seven examples, one of which was the only rectangular alignment identified in the project area. Upright coral (c. 20 cm above surface) and stone were noted in three cases, one of which was a semi-circular alignment of coral with an upright basalt boulder lodged in the ground at the centre of the alignment (Fig. 7). Upright coral was not found on any terrace. Additionally, a single large *fo’aga* ‘grinding stone’ was discovered in the middle of another ditched terrace. Although these artefacts were traditionally used in stone tool manufacturing, they are also generally

referred to as kava ('ava) bowls by Samoans today. It may well be that in some instances, adze-grinding stones whose facets had become too deep for effective grinding were subsequently used as kava bowls.

These ditched features are different from normal residential terraces in both morphology and surface remains. No comparable ethnographic features have been identified in the literature and few recorded archaeological remains are similar (but see Ishisuki 1974 for a possible parallel). Characteristics of these features do suggest that they had a ritual or ceremonial function. This interpretation is suggested by the upright coral alignments and large flat coral slabs on the surface, which are only found on ditched terraces. Coral is commonly found on ceremonial features throughout Polynesia and considered ceremonial itself (Weisler *et al.* 2006: 274), even more so when they are upright (see Kahn and Kirch 2011, Kirch 1994, Wallin and Solsvik 2010). Furthermore, a number of the surface remains found on ditched terraces are also potentially ceremonial. For example, the *fo'aga*, if used as a kava bowls, coral alignments and the rectangular alignment that faces the central feature in the settlement all have potential ceremonial significance. Kava is traditionally associated with ceremony, grave markers are highly revered in Samoa and the rectangular alignment is unique in the project area. Finally, the



Figure 7. Upright coral and basalt column on ditched terrace Feature 85.

ditch serves to create a distinctly bounded and thereby differentiated space, which is not only significant in and of itself but also has been identified ethnographically in relation to *fale aitu* 'spirit houses', which traditionally were built with some sort of boundary device, usually a fence in Samoa's western islands (Stair 1897: 226).

Spatial Layout

The long ditch that is Feature 38 forms a conspicuous boundary in the landscape, dividing modified forest (common economic plants) from secondary growth (non-economic plants), and residential terracing from non-residential terracing. Erosional infilling and channels suggest that water management was at least one function of the feature, although not necessarily the primary one. Beyond practical uses, the ditch as a boundary has particular importance when placed within an ethnographically identified social context. In essence, the ditch divided the residential village from the plantations and the bush (Quintus 2011). Ethnographically, Samoans viewed the bush as "trouble" (Shore 1982: 50) and unsuitable for living. Feature 38 thus potentially created a barrier between residential and unlivable.

All but three star mounds, which are arranged linearly on a ridge overlooking Olosega village, are located upslope of Feature 38. It is notable that star mounds were not constructed in the village area or on the eastern cliff edge, near the residential terraces. Herdrich (1991) has argued that star mounds are commonly found in the bush away from settlements, because of their ceremonial significance and supernatural associations. The results of our survey support that conclusion.

Terrace distribution was analysed by Inverse Weighted Distance in ArcGIS. Inverse Weighted Distance is a multivariate interpolation method used to predict values in unknown territory with multiple attributes, in this case distance and size. Though this method was not used for predictions, it was employed to identify patterns. Because the method interpolates using values from surrounding features, it illustrates the patterns created by those features. It is, therefore, possible to identify spatial patterns within existing spatial data. Two settlement units of terraces were identified; a third may be distinguished to the south, although it is not clear whether this is a true cluster or an artefact of the analysis (Fig. 8). This is because any time you have a uniquely large feature this particular technique will identify that location as distinct or a "cluster". In this particular instance, this is the only large terrace in the area with few other signs of this being a distinct unit. In the other two areas, both this analysis and field observation suggests differentiation of settlement units. According to the analysis, larger terraces are located nearer to the centre of these units, while towards the edges there is a decrease in

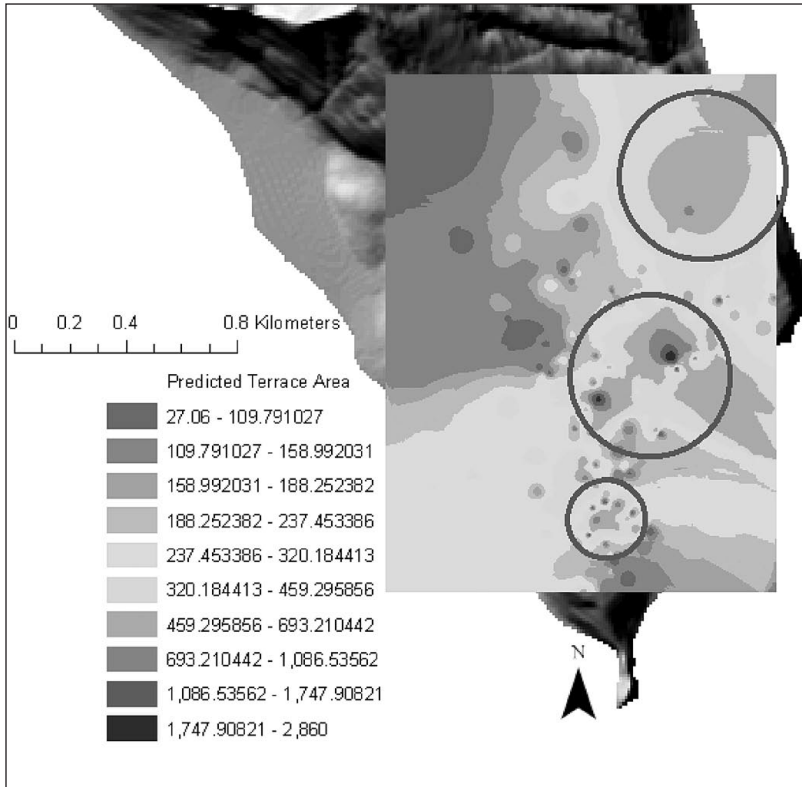


Figure 8. Results of the Inverse Geostatistical Analysis based on terrace area. Proposed clusters are indicated by circles. The northernmost cluster may be an artefact of analysis.

terrace size. The two identified settlement units cluster around Features 93 and 188, the two largest terraces. Additionally, ArcGIS Central Feature Analysis indicates that the central feature in the settlement area, regardless of clustering, is Feature 86, the large central habitation terrace that may have been the housing complex of the Tui Olosega described above.

All terraces with curbing alignments and the vast majority with coral paving are located downslope of Feature 38, while the majority of terraces with limited or no surface remains were identified upslope of Feature 38 and close to stream banks. Additionally, terraces larger than 500 m² are only found

downslope of Feature 38. While paving may be absent from some features because of taphonomic processes, the high degree of differentiation between those upslope and those downslope suggests that the difference is significant. The area upslope of Feature 38, in which a number of terraces with few modifications were identified, was likely under swidden cultivation based on relic forest in the area (Quintus 2011, 2012). Thus, these non-residential

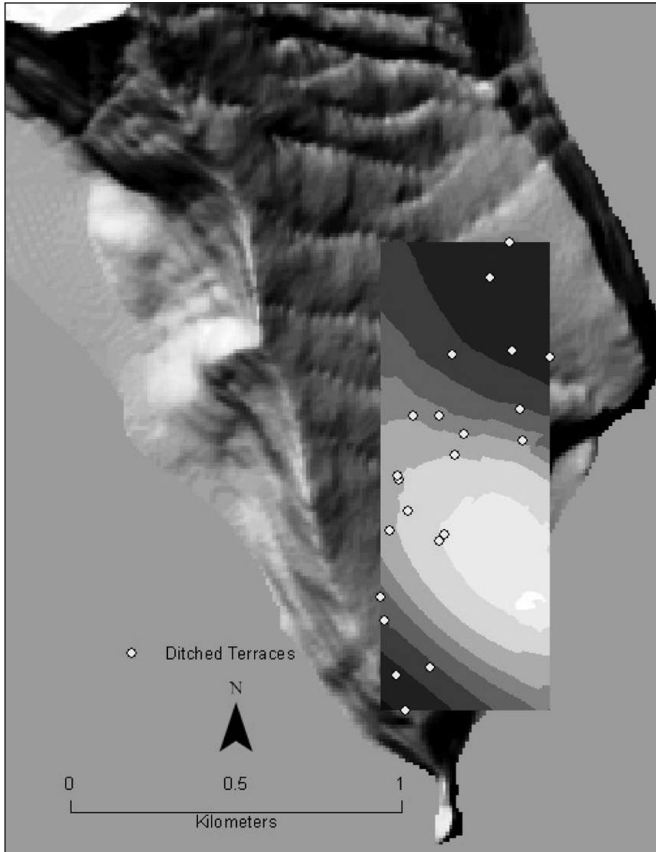


Figure 9. Distribution of ditched terraces and results of the Kriging analysis. Lighter areas (centre) indicate areas of smaller features while darker areas indicate areas of larger features (periphery). The results suggest a pattern of increasing feature size from centre to periphery.

terraces, which were smaller (less than 500 m²) than those downslope of Feature 38 (Fig. 8) may have served as workshop areas or foundations of temporary huts for individuals cultivating the surrounding slopes, similar to the situation suggested by Clark and Herdrich (1988) for eastern Tutuila. However, given the location of these terraces close to and within stream banks, they also could have functioned as cultivation areas.

All ditched terraces were found downslope of Feature 38 and interspersed among the presumed residential terraces. The distribution of these features does not correlate with any other feature class and the only spatial pattern identified was discovered using the Kriging method, an interpolation GIS technique used to predict values from known features onto unknown features. While similar to Inverse Weighted Distance, Kriging utilizes a single attribute to interpolate, instead of the two used by Inverse Weighted Distance. The analysis identified patterns in size distribution for given areas, suggesting that one is more likely to find smaller ditched terraces, which are the majority of ditched terraces, near the centre and larger ones near the peripheries of the settlement (Fig. 9).

Chronology

Since this project was survey based, a precise chronology for features or the site as a whole cannot be determined. While it is possible that not all portions of the settlement are contemporaneous, the general layout and the degree of spatial patterning suggest that most features were in use at the same time. Importantly, Feature 38 (ditch) cuts across the landscape, but does not bisect or disturb any other feature. In fact, Feature 38 avoids nearby terraces, suggesting that the ditch feature was built after many of the residential structures were in place, but still in use.

Oral history from island residents suggests occupation of the settlement in the late prehistoric period, though the exact timing of inland expansion and subsequent abandonment is not known. No pottery was found on the surface and the lithics identified were late prehistoric in style. Based on this evidence, we suggest that the last residential use of most, if not all, structures dates to late prehistory, that is, immediately before European contact, which would be in keeping with Davidson's (1969) Samoan settlement model.

DISCUSSION

When the survey was conducted and the analysis completed, the settlement system represented by the archaeological evidence at inland Olosega appeared unique in the Manu'a group. In 2011, however, the authors conducted a reconnaissance survey of inland Ofu Island and found remains of a second settlement represented by numerous residential terraces (Clark *et al.* 2012).

The precise nature of the Ofu settlement, however, is still sketchy and the site is in need of more intensive examination before meaningful comparisons can be made with the Tamatupu settlement of Olosega. A more productive comparison is with the dispersed settlements found in the larger islands of the archipelago, where large areas of flat or slightly sloping land are found. We focus our comparative analysis on evidence bearing on political, domestic and ritual life after first describing the social perception of space as evidenced by the layout of the entire settlement. Finally, we place Tamatupu in context of Samoan prehistory and discuss its uniqueness. Our aim is to understand the continuity of practice between prehistoric and historic periods while also documenting variability across the archipelago.

Social Perception of Space

Taken as a whole, the spatial layout of the settlement is evidence of social perception of space. The patterns identified are similar to distinctions Shore (1982) has argued for historic Samoan villages, namely that of seaward-landward and centre-periphery. The agricultural-residential distinction at inland Olosega seems consistent with the seaward-landward distinction, although it may simply be a function of terrain slope and can equally be described as village-bush or front-back. Feature 38, the large ditch, divides the residential from the non-residential, and presumably, following Shore (1982: especially 48-51), the bush from the village, wild from cultured, chaos from control. At this site, the bush was primarily used for cultivation while multiple activities within the domestic, political and ceremonial realms occurred within the village. Star mounds, too, were spatially differentiated from the village, as is the pattern across the entire archipelago, even though they could have been constructed on ridges seaward of the village. This pattern is proposed to be the result of their association with the supernatural and *aitu*.

The centre-periphery distinction is, however, more visible and we argue of more importance in regards to political and ceremonial space. Small ditched terraces, which were the majority of ditched terraces, are generally found near the centre of the settlement, though exceptions exist. Feature 86, the large and imposing residential feature, is the central structure in the village. A rectangular alignment found on Feature 100 (ditched terrace) is pointed towards Feature 86 (central terrace), unlike other alignments that are commonly positioned to face seaward. Terrace size generally decreases towards the periphery of the identified units, while larger structures, potentially related to status differentiation, are located near the centre.

Political Life

Kirch (1990) has argued that monumental structures in Tonga and Hawai'i served symbolic functions as physical manifestations of growing chiefly hegemony and dominance. In Samoa, the same could be claimed of the large rock and/or earthen mounds found on 'Upolu and Savai'i, but such features are absent in American Samoa. Herdrich and Clark (1993) have made the case that star mounds, found throughout the archipelago, constitute a form of monumental architecture and represent arenas for chiefly competition (Herdrich and Clark 1993). The status of individual chiefs was linked to their *mana*, which was expressed in actions and outcomes (e.g., Shore 1989). As places for competitive pigeon catching by chiefly title holders, and therefore the demonstration of personal *mana*, star mounds reinforced the social hierarchy. They also provided an arena for enhancing or diminishing the prestige and status of individual chiefs. If the construction of monumental architecture, in this case star mounds, mirrors the development of social complexity on Olosega in a similar way to that argued by Kirch for Tonga and Hawai'i, then the density of star mounds has important implications. The number of star mounds identified on Olosega implies a degree of status rivalry, and possibly social complexity comparable to, or perhaps greater than, in the larger islands of the archipelago.

Further evidence of social differentiation is provided by the spatial patterning of the village. Feature 86, the large, imposing residential terrace, is centrally located in the settlement. Additionally, two, perhaps three, units of terraces, marked by large terrace structures, indicate a pattern of intra-village group differentiation. We suggest that this pattern is representative of a tiered leadership system. The central feature, Feature 86, suggests that an individual, group or family ('*āiga*) held at least some authority over the entire settlement. The distribution of other terraces, on the other hand, suggests that each unit consisted of multiple individual households and was an individually recognised sub-unit. Within the traditional chiefly system then, each sub-unit may have been controlled by separate title holders, while the highest ranked title would hold influence over the entire settlement. These power holdings were likely continuously negotiated through chiefly competition.

Domestic Life

The Tamatupu settlement is large and naturally bounded by topographic features, but elements of this complex are dispersed across the interior landscape. The settlement is bordered on the south, east and west sides by steep cliffs and slopes, while deep stream systems serve as the northern boundary. The location of the settlement would have allowed for seclusion and independence, and defence would have been relatively simple with little

necessity for modification to the natural landscape. Though the distance to the coast is short, the journey there and back would have been difficult, especially when carrying food or construction resources. Those journeys, however, did occur as evidenced by marine shells and abundant coral on the terraces.

Late prehistoric settlements on all islands in the archipelago are dispersed in nature (Clark and Herdrich 1993; Green 2002; Green and Davidson 1969, 1974; Holmer 1980; Jennings and Holmer 1980; Jennings *et al.* 1976; Pearl 2004) and Olosega is no different. At Mt Olo in 'Upolu (Holmer 1980) and Sapapali'i in Savai'i (Jackmond and Holmer 1980), units are clearly delineated by stone walls and paths. However, such physical delineations defining household units and wards have not been reported for other prehistoric settlements in Samoa, nor are they evident in modern coastal villages, where boundaries may be well known and based on natural features and marked trees and bushes. On Olosega, loose boulders are not common in the interior, so the rarity of wall borders is not surprising. While the lack of wall boundaries makes divisions within the landscape harder to document, we propose that a concept of a household unit is reflected in the settlement remains of inland Olosega by the shallow, well worn paths, which, at times, connect multiple features. These may, when mapped in detail, aid in the further identification of household units. Further, as identified in spatial-statistical analysis, at least two settlement units consisting of multiple household groups were identified around large features suggesting intra-village settlement differentiation. While at this point it is not clear whether these differentiations are similar to residential wards identified in 'Upolu and Savai'i (Holmer 1980), there is a degree of similarity and these may represent sub-settlement distinctions (*pitonu'u*).

Ceremonial and Ritual Life

Ritual features are uncommon in the Samoan archipelago and the rare archaeological discussions of these components of Samoan life and settlement rely heavily on the role of star mounds (but see Wallin and Martinsson-Wallin 2007). While alternative ritual spaces are described ethnohistorically, such as *fale aitu* (Hiroa 1930; Stair 1897; Turner 1984, 1986), their identification in the archaeological record has been ambiguous (see Davidson 1969, 1974; Holmer 1980). This is even more of a conundrum given the close cultural ties between West Polynesia and East Polynesia, where ritualised landscapes are common (e.g., Kahn and Kirch 2011, McCoy *et al.* 2011, Wallin and Solsvik 2010). In Olosega, however, two probable ritual features were identified: star mounds and the newly identified ditched terraces.

Even though there is marked variation among star mounds as a type of structure, a certain degree of standardisation in morphology is apparent. Such standardisation is a result of a presumed shared function as pigeon snaring

mounds, though multiple activities are argued to have occurred on the features throughout their use-life (Herdrich 1991, Herdrich and Clark 1993). We suggest that differences within the feature class, as a whole in the Samoan archipelago and not just in Tamatupu, can be ascribed to stylistic variation as part of a simple function/style dichotomy in which the general form is required while characteristics can change with individual preference (see Allen 1996a, Dunnell 1978). Style may be apparent in a number of features on star mounds, but the number of projections is one of the most likely stylistic characteristics. Though many star mounds on Olosega exhibit six or eight projections, a range from three projections to ten were identified. Given Herdrich's (1991) suggestion that each feature is associated with an *'āiga* (family group), it is not surprising to see such stylistic variation. The large number of star mounds on Olosega implies a large number of *'āiga* groups, though a single *'āiga* may have constructed multiple structures over time. Alternatively, the structures may reflect some other socio-political groupings.

As ditched terraces have only been formally identified on Olosega, little is known about their use. However, the evidence suggests that they were used, at least in part, as ritual or ceremonial spaces. Specifically, these features are circumscribed by ditches, have evidence of paved platforms, and exhibit coral and basalt uprights. Although ditched terraces may have been independent innovations in Samoa, they are in many ways reminiscent of the simpler ritual spaces in East Polynesia and Futuna.

Relevant in this regard is other evidence for inter-archipelago contact between Samoa and islands of East Polynesia, largely relating to the Samoan basalt export industry (e.g., Allen 1996b, Best *et al.* 1992, Kirch *et al.* 1995). As Terrell, Gosden and Hunt (1997) argued, two-way voyaging was likely to occur between Polynesian archipelagos, but evidence of such contact is sometimes difficult to identify since much of what was transmitted may not be preserved in the archaeological record, even though such contact may have had significant implications. Such contact may have resulted in the introduction of concepts relating to ritual space and reflected in the development of ditched terraces, either from Samoa into East Polynesia or the reverse. Certainly the ditched terraces are only similar to East Polynesian ritual architecture in very general terms relating to ideas of bounded and differentiated ritual space, but the suggestion of a connection between the two areas, however limited, invites some consideration. Equally plausible is contact and influence from Futuna, where Kirch (1994: 234-35) has documented large ceremonial spaces.

By combining interpretations of star mounds and ditched terraces, a better understanding of the use of and reasons for ritualised space on Olosega can be gained. Both feature classes are bounded, the star mounds by their elevated

form and distinctive shape and the ditched terraces by their surrounding ditches. Both suggest the separation of ritual from domestic life. Furthermore, the number of star mounds (23) and the number of ditched terraces (22) present an intriguing similarity. Building on the idea that star mounds were built by separate *āiga*, it may be possible to extend that interpretation to the ditched terraces as well. However, the distribution of ditched terraces does not support such reasoning as there appears to be a differentiation within the feature class between large ditched terraces located on the periphery and smaller ones located nearer to the centre of the settlement. An alternative possibility is that the smaller ditched terraces represent individual domestic group ritual spaces, while the larger ditched terraces, especially the two unique features on the periphery, represent community ritual spaces.

One final consideration regarding the ditched terraces relates to the two unique examples, Features 1 and 193, whose distinctive form gives a perception of greater height than the other features in this class. While these may have functioned in similar ways to other ditched terraces, their morphology suggests an added distinction. Though Holmer (1980) has suggested that large size correlates with high status, these features, given their spatial position near the periphery of the settlement, do not represent such spaces in a traditional sense of being exclusively owned or used by high status individuals. Instead, these features may have served as the boundaries of the settlement, thereby functioning as high status and recognisable features in that sense.

TAMATUPU (AS-12-02) IN SAMOAN PREHISTORY

Tamatupu is a late prehistoric settlement in the Manu‘a group. The complex consists of a range of feature types, many related to residential activities. While the settlement exhibits many similarities with late prehistoric settlements elsewhere in the Samoan archipelago, unique features are apparent. Such uniqueness is expected in a cultural area, Manu‘a, whose inhabitants considered themselves different from the rest of the Samoan archipelago (Mead 1969:51).

We have identified a number of unique features in the Olosega Tamatupu complex. First, ditched terraces have only been formally recognised on Olosega, though descriptions of features on ‘Upolu seem to bear similarities (Ishisuki 1974). The star mound density in Olosega is unmatched elsewhere in the archipelago in such a small area. Nevertheless, contrary to what has been proposed for some interior settlements on the larger islands of the group (Wallin and Martinsson-Wallin 2007), interior settlement on Olosega was not used *primarily* for ceremonial activities. This settlement represents the full range of activities including ceremonial life and domestic life. Finally, nowhere else in Samoa have the concepts of space documented during the

historic period been so clearly visible within the archaeological landscape.

Though historically documented spatial concepts are readily apparent, one important aspect, the *malae*, is missing. *Malae* are difficult features to identify archaeologically as their identification relies upon an absence of surface modifications. What would distinguish a *malae* from natural landscape is a question which is yet to be answered in an archaeological context. Within that context, a *malae* may be present within the settlement, as areas on the landscape that were left unmodified, but positive identification was not possible at this time.

The crucial questions remain: why did people move into the interior of Olosega and why was the settlement different from others in the archipelago? Few late prehistoric settlements have been found on the coast of either Olosega or Ofu Island. Such a situation suggests the possibility of a substantial population movement into the interior in prehistory. The cause of such a movement, however, is difficult to address at this time, although we present four propositions for future evaluation.

- Population movement was caused by population pressure and/or resource depression that stimulated the movement inland owing to increased competition and need for terrestrial resource production and the protection of those resources.
- A large-scale migration of new populations into the area, as proposed by Addison and Matisoo-Smith (2010), resulted in increased competition and the need for more defensible settlement locations.
- Increasing political complexity in the islands led to increasing conflicts, both within Manu‘a and with other islands, resulting in the need for more defensive settlement locations.
- The interior settlement was part of a larger network of settlements that are yet to be identified on the coast.

* * *

The settlement of Olosega displays critically important similarities with ethnographically documented spatial patterning, taking the establishment of those patterns well into prehistory. The inland Olosega settlement was imbued with meaning by divisions (particularly in terms of centre: periphery) and bounded spaces (bounded ritual space and bounded settlement space) created by both topographic and man-made features. On Olosega, primary residential areas were divided from the main food producing regions, the village was divided from the bush, and areas reflecting social control divided from chaos. Presumed status and ceremonial features are distributed in positions easily

identifiable as socially important by people within the settlement. Prehistoric settlement in interior Olosega further suggests a ritualised landscape in which both everyday ritual spaces (ditched terraces) and special purpose ritual spaces (star mounds) were distinctly bounded and geographically distinguished. All of these social, economic, political and ritual spaces were incorporated into an overall settlement system. While many elements and patterns apparent within the settlement system are similar to those identified elsewhere, other elements and patterns are, given present knowledge, unique. We would not find it surprising, however, if future research were to reveal comparable elements and patterns on other islands of Manu'a and the Samoan Archipelago.

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ABSTRACT

The spatial layout of a late prehistoric settlement is examined using comparative analysis, ethnohistorical documents and GIS analysis. The spatial organisation of the settlement is similar to the spatial layout of ethnographically documented Samoan villages, which has been posited to mirror social and political interaction. Spatial concepts developed from analysis of those historic villages are argued to be apparent within this prehistoric settlement, suggesting their origin within prehistory and not after European contact.

Keywords: social perception, ritual landscapes, socio-political systems, Samoa, Polynesia