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Author(s): David J. Herdrich

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TOWARDS AN UNDERSTANDING OF SAMOAN STAR MOUNDS

DAVID J. HERDRICH

*University of Illinois at Urbana-Champaign
American Samoa Historic Preservation Office*

This paper is an adaptation and expansion of an earlier analysis of earth and rock mounds known as “star mounds” which were found on the island of Tutuila in American Samoa during the summer of 1986 (Clark and Herdrich 1988). Additional work was carried out during the summer of 1988 (Clark 1989). Systematic surveys were conducted on the ridges on the north-eastern coast of Tutuila. During those surveys 62 star mounds were located and 43 were mapped (see Figures 1-4, also, see Clark and Herdrich 1988 and Clark 1989 for full site descriptions). The paper includes a literature review, an intensive analysis of the mounds, and an exploration of likely hypotheses about their function. Given the assumptions of a cognitive paradigm, it is argued that star mounds and related “specialised sites” belong to a single category. These structures are believed to have been used for the ritual Samoan “sport” of pigeon-catching and may have had other ritual uses as well. I shall point to the symbolical associations that Samoans have made in an attempt to find a conceptual basis for the morphology of star mounds in this category. While I in no way claim to have proved what that basis is, I shall claim that the interpretations discussed below of the shape of the mounds as being connected to village spatial organisation and the shape of certain Samoan gods are consistent with Samoan concepts of those entities. I believe that further exploration of Samoan symbolical associations may lead us to evidence that will provide us with a clearer understanding of the motivation behind the mounds’ shapes and their functions.

SUMMARY OF STAR MOUND ANALYSIS

The term “star” or “cog mound” has generally been taken to designate any mound that is composed of rock or earthen fill and which usually has a stone facing of anywhere from one to about 14 courses high. In addition, these mounds or *tia* have projecting arms or rays that average about 3 m long and 3-4 m wide. The number of arms on such mounds has been found to vary from

4 to 11. Most frequently, the arms tend to be squared-off at the end or to exhibit a rather blunted roundness. This squared-off aspect of the rays seems to be purposeful in design and not merely a matter of erosion. Rarely do the arms taper to a sharp point. Of the mounds that have been described in sufficient detail, most have eight arms. The data base used here consists of 151 star mounds¹ found in Western Samoa and American Samoa, though the number is continually expanding for American Samoa.

Over the past 20 years there have been several attempts to construct a satisfactory interpretation of the meaning and function of these mounds. Previous investigations of star mounds have focused primarily on three interrelated aspects of investigation: descriptive surveys, functional analysis, structural analysis and, to a limited extent, symbolic interpretation.

Descriptive surveys constitute most of the work. The aim of such surveys is to determine the number, size, dimensions, and locations of star mounds as well as other archaeological sites, and they can be purely descriptive or driven by attempts to formulate interpretive hypotheses.

Functional analyses attempt to establish the particular function or range of functions of a given site or sites. These investigations often use analogies from the known function of contemporaneous sites that are related culturally and geographically to sites that are structurally the same as, or similar to, the archaeological sites. Along with such analyses goes the not unproblematic assumption that there is some relationship, however loose, between a site's structure and its function (Binford 1967, 1968; Munson 1969; Gould 1978, 1980). As will be shown below, structural analyses can have implications for functional studies. Ethnohistorical data are also often an integral part of the data that are considered when attempting to provide a functional interpretation for a site. Ideally, any given interpretation should be explicit enough to allow testing. In other words, unless some attempt is made to investigate and explicitly define the nature of ritual, to say simply that a site had a ritual function is an almost vacuous claim since almost any archaeological site can be interpreted in this way. Specific claims about the rituals that are supposed to have taken place are necessary if the term "ritual" is to be more than the mere label of a catch-all category into which all functionally problematic sites are thrown. In the functional analysis I shall review various hypotheses and posit that the mounds functioned as platforms for the chiefly competitive and ritualistic sport of pigeon-catching. Other specific ritual functions will also be examined.

Structural analysis consists of detailed descriptions of the sites in question and an attempt to analyse the relations between similar and contrasting sites, as well as the relationships between the sites and their environmental context.

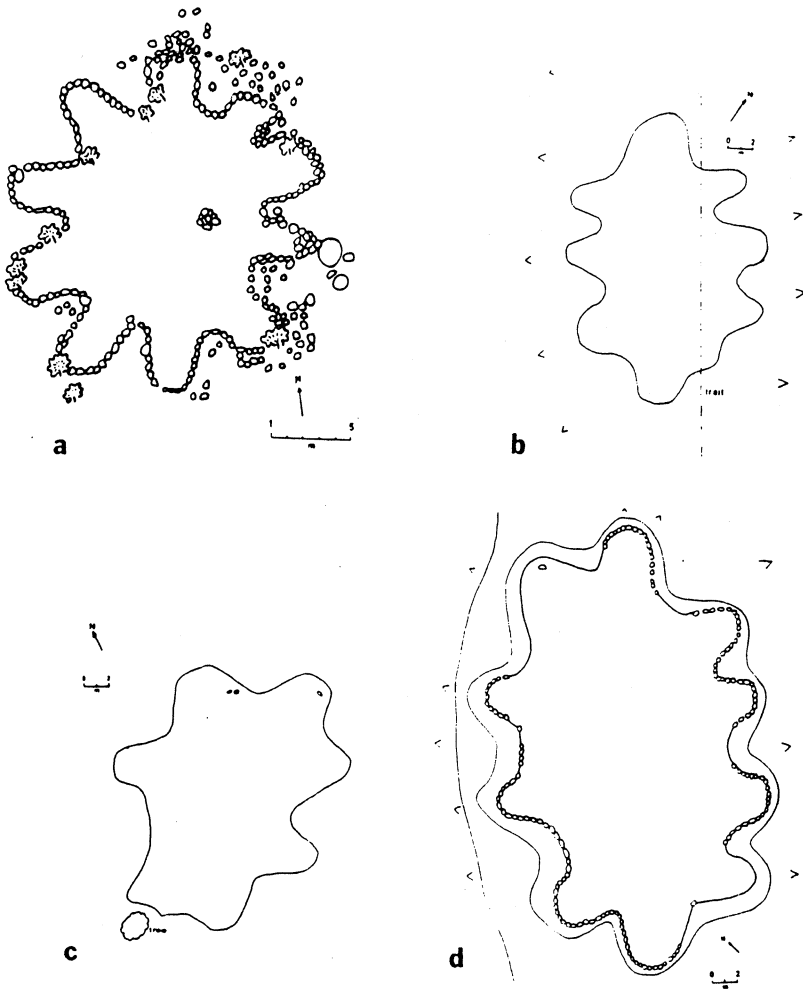


Figure 1. Star mounds: (a) AS-22-9, (b) AS-22-10, (c) AS-22-11, (d) AS-22-12.

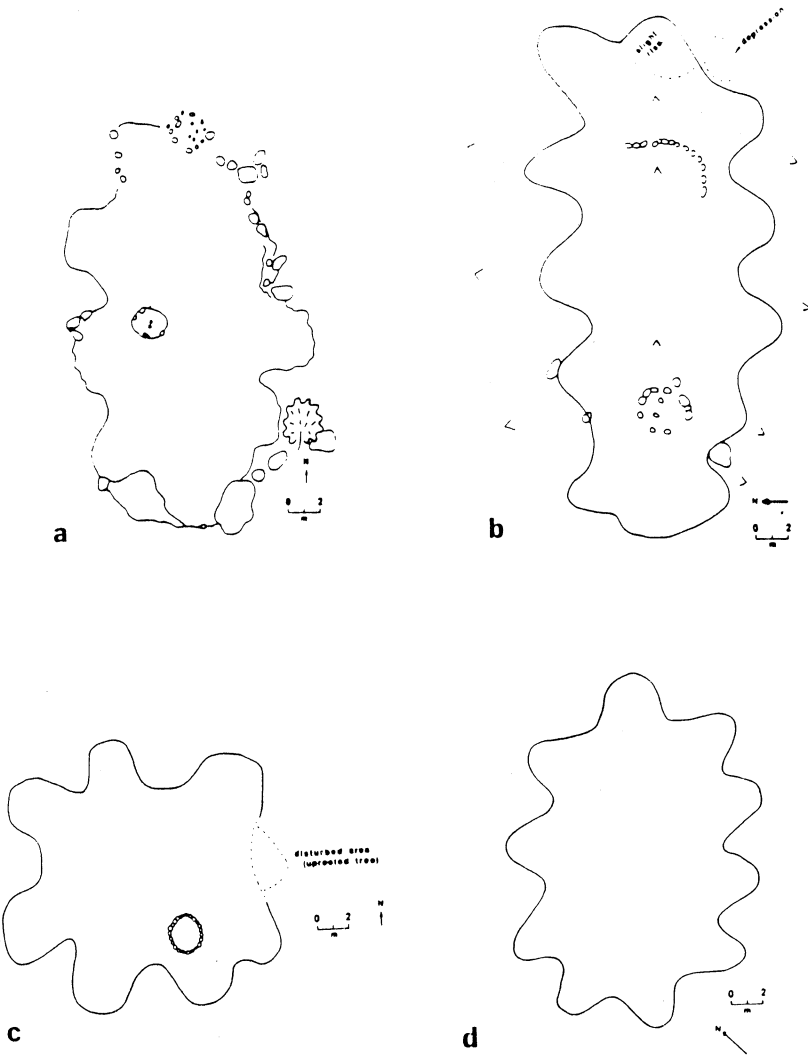


Figure 2. Star mounds (a) AS-21-12, (b) AS-21-13, (c) AS-21-14, (d) AS-21-15.

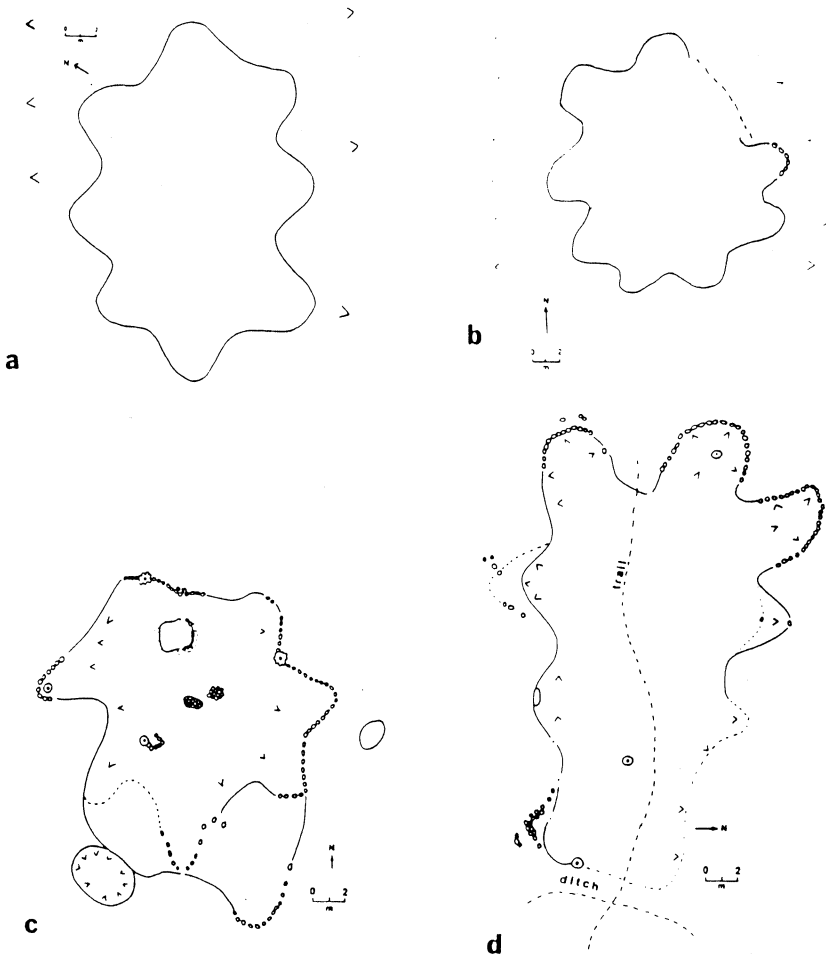


Figure 3. Star mounds: (a) AS-21-16, (b) AS-21-17, (c) AS-21-18, (d) AS-21-19.

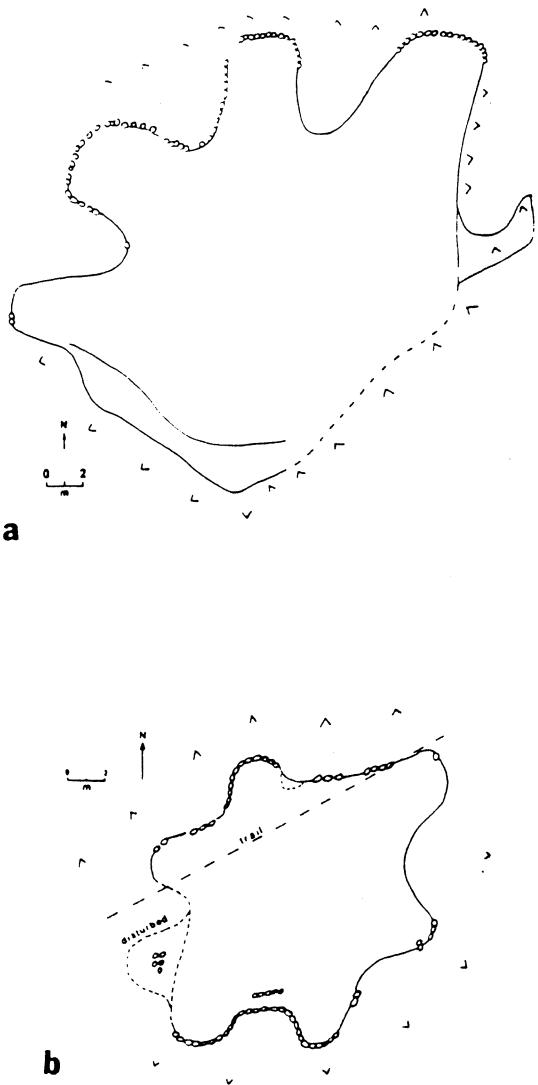


Figure 4. Star mounds: (a) AS-21-20, (b) AS-21-23.

The perspective of such studies is analytical and involves attempts to place the archaeological sites within formally defined categories. Davidson's (1974b) article on "specialised" sites is an example of such an analysis. She proposes a category that, based on her analysis of various "irregular structures" and "star mounds," places these sites together as a single structural type. The utility of any given structural categorisation is, of course, subject to modification and even complete rejection based on the analysis of additional empirical data and the presentation of a more reasonable alternative. My own structural analysis, using descriptive data, will attempt to show that star mounds and "single-rayed mounds" belong to a single category which has internal "varietal" membership.

Symbolic interpretation is an exploration of the metaphorical and symbolic associations between two distinct theoretical domains as made in, for example, mythology or proverbial expressions. Archaeological sites and structures can be the symbolic object of such myths or proverbs. There have, however, been only two symbolic analyses of star mounds. Kikuchi (MS n.d.:13) suggested that the mounds were linked to various myths, and that they may have been "community markers". Hunt and Kirch (1988:179) have made general remarks suggesting that the mounds were "monumental symbols" which were "associated with powerful political groups". To the extent that symbolic interpretations have been conducted relative to archaeological sites, they tend to have been made within the semiotic paradigm which, drawing on an information theoretic model (Sperber and Wilson 1986:3-9), posits that archaeological structures make statements analogous to verbal statements. (Hodder 1982a, 1982b; Weisler and Kirch 1985; Shanks and Tilley 1988).

The symbolic analysis presented here will explore mythological and metaphorical expressions that have *tia* (pigeon-catching mounds) and pigeon-catching as their symbolic objects. This analysis will argue that Samoan mythology and metaphorical expressions are consistent with the hypothesis that star mounds functioned as pigeon-catching mounds. Furthermore, the symbolic analysis will provide a rationale for the "star-like" (or "ray-like") shape of the mounds by suggesting that such a shape may have lent itself to multiple symbolic interpretations consistent with culturally specific Samoan concepts.

While many interpretations are possible, this paper explores two broad possibilities. Evidence will be provided to show that the mounds' shape may have been associated with the spatial structure of the Samoan village, while other interpretations may have associated the shapes of various Samoan gods with the mounds' own shape.

THEORETICAL ASSUMPTIONS

Studies in social anthropology and cognitive science have produced rich and productive theories of ritual and metaphor that can be used effectively in understanding myth, religion, and metaphor. Archaeologists confronted with relatively recent archaeological sites that are referred to in mythology and metaphor can productively use these theories to understand mythology and religion in ways that may answer structural and/or functional questions about those archaeological sites.

Within these general theories of structural and symbolic analysis are particular schools of thought. The structural analysis conducted in this paper does not limit itself to a narrowly defined structuralism that constrains categories *a priori* to be represented by a fixed-code matrix of binary oppositions (Lévi-Strauss 1963; Weisler and Kirch 1985). Instead, the term "structure" is used in a broad sense and obeys a cognitive paradigm that allows an analysis to discover rather than impose complex conceptual structures (Sperber 1974, 1981; Wierzbicka 1985; Lehman 1985, 1987; Medin *et al.* 1987; Lakoff 1987; Keller and Lehman MS 1988).

In addition, while much useful empirical work has been done within the semiotic paradigm, exception is taken with many of the assumptions of that work. Most importantly, symbolism is not believed to be semiotic. Symbolic figures are not viewed as sending "messages" to be "decoded" by a "receiver" (Sperber 1974; Skorupski 1976; Reddy 1979; Sperber and Wilson 1986). Instead, symbolic usage is taken as an invitation to explore the abstract relations within and between two or more domains of thought. Rather than representing a single "message" or even multivocality of "messages," a symbolic "figure is employed in such a way that the properties motivating the extended usage are not finitely accountable: indeed, the more imaginable connections there are, the better the figurative usage is" (Keller and Lehman MS 1988:28; see also Lehman 1978; Wessing 1978). Superficially, this may seem to go against the intuition that symbolic usage is a more constrained process; such an intuition may, in fact, be why the code model (semiotic model) has been so popular, as it provides a very strong constraint on interpretation. The alternative that Lehman (1978), Sperber (1974) and others have suggested, however, both captures the multiplicity of interpretation and provides a weak constraint that seems to guide one's interpretation. This alternative states that symbols are interpreted relative to the theories that people have about a given domain or domains. To the extent that theories and domains vary, and to the extent that an individual is willing to imaginatively pursue the associations, so the interpretations of the symbols will vary. The multiplicity of interpretation is a function of the indefinitely large number of theories and domains present in any given culture, while the intuition of

constraint can be accounted for by the constraint of interpreting symbols within a chosen theory of a domain or domains. (Furthermore, the value attached to any particular symbol is relative to the theory used to interpret it.) The most satisfying interpretations are those which make the most connections from a “source domain”, say, pigeon-catching to a “target domain”, say, social relations. The interpretation is even better if the associations connect multiple domains — for example, social relations, religion, and spatial relations — to a source domain. There is no correct or incorrect interpretation, only those that are more or less satisfying to a given individual. Of course, one important proviso is that, if one wishes to explore the symbolism of another culture, it should be done relative to the theories of domains internal to that culture.

The approach taken in this paper, motivated by such a cognitive paradigm, provides a viable alternative to earlier symbolic (read “semiotic”) interpretations of archaeological sites. Such a cognitive paradigm holds the promise of being the unifying paradigm that Weisler and Kirch (1985:151) sought; because, rather than dividing environmental, social, economic, political, and linguistic aspects of human behaviour into separate “paradigms”, a cognitive approach views these as interrelated, relatively autonomous domains of knowledge that are systematically and cognitively computable (Sloman 1978; Fodor 1981; Pylyshyn 1984; Gentner 1983; Chomsky 1985; Lehman 1985, 1987).

FUNCTIONAL INTERPRETATIONS

To “explain” the star mounds six preliminary hypotheses have been proposed in the literature (Peters 1969; Holmer 1976b; Frost 1978; Kikuchi MS n.d.). It has been suggested variously that the mounds may have functioned as burial mounds, residential structures, inland fortifications, territorial markers, pigeon-catching mounds, and sites for ritual divination (Kikuchi MS n.d.). To date, none of the above hypotheses has been adequately tested. Preliminary investigations by Peters (1969), Holmer (1976b), Frost (1978), Hewitt (1980:41), and Best *et al.* (1989) have cast doubt on the first and second hypotheses. All five authors conducted excavations in star mounds. Peters (1969:210-21), Holmer (1976a:21-32), and Hewitt (1980:38-41) conducted their test excavations on ‘Upolu, while Frost’s and Best’s work was carried out on Tutuila (Frost 1978:64-75; Best *et al.* 1989:19-35). No supporting evidence for interpreting the “star mounds” as either burial mounds or residential structures was found (Peters 1969:221; Davidson 1974c:228; Holmer 1976a:25; Best *et al.* 1989:19, 24-9). In addition, current Samoan burial practices cast further doubt on the burial interpretation in that Samoans often bury their dead next to their homes rather than out in the bush

where star mounds are most frequently located (Holmes 1974:92; Turner 1884:147). This ethnographic observation is well supported archaeologically where burials have been found next to, or under, houses (McKinlay 1974:30-1). The residential occupation hypothesis also has very little evidence to support it in that very few artefacts have been recovered from these sites and no evidence of post-moulds for structural supports has been found. Holmer's (1976a:31) and Best's excavation (Best *et al.* 1989:28) did, however, provide positive information concerning the time period in which one star mound was constructed. Jennings and Holmer (1980:7-8:Table 2) had two radiocarbon determinations place the date of mound construction between 270 ± 110 B.P. and 440 ± 100 B.P., while Best *et al.* (1989:28) dated a star mound in American Samoa as being constructed less than 250 years ago "with a corrected age somewhat later than 1710 A.D.". These dates support the view that star mounds were constructed late in Samoa's prehistory (Davidson 1974c:243; Holmer 1976a:31; Frost 1978:75).

The third hypothesis — that the mounds were somehow used as fortifications — suggests itself because a large number of the mounds are found on the tops of prominent ridges which would provide good defensive positions, and some are placed along narrow ridge spurs in ways that could be interpreted as defensive (Best *et al.* 1989:7). In addition, some have ditches near them which could be interpreted as defensive ditches (e.g. Davidson 1974a:191-3; Clark and Herdrich 1988:51; Clark 1989:143-4). However, while it is possible that some of the mounds may have been used defensively, such an assessment cannot completely account for the mounds' existence. Firstly, it is possible that, rather than being defensive, the ditches were merely the source of fill for the mounds (e.g., Peters 1969:213; Kirch 1975:393). Secondly, there are several mounds on the Tafuna plain which, although lacking the defensive advantage of the ridge mounds, were, nonetheless, constructed (Kikuchi MS n.d.:14). The same can be said of several of the star mounds in the Mt Olo area (Holmer 1976c:18) and the one at Luatuanu'u (Peters 1969). Thirdly, many of the mounds on prominent points do not appear to be in especially strategic positions. Thus, on the eastern end of Tutuila almost every ridge investigated had star mounds on the prominent points. The problem is that it is not at all clear what the mounds would be defending, besides their own positions, since in most cases there is no nearby settlement that would be protected by such positions. It could be that the mounds were last-ditch refuges, but, since they were already on the most prominent points, again it is not clear why they should have been constructed at all. In addition, many of the mounds are no more than 30 cm in height. In fact, some of them were so low to the ground that they were walked over and discovered only on a second pass through the

area. It is difficult, then, to argue that such low mounds were defensive. Lastly, it is not readily apparent what defensive function their star-like shape would have provided. So, while these considerations do not rule out the hypothesis that some of the mounds were defensive, they do show that such an assessment provides an inadequate account for all of the mounds and that additional hypotheses need to be considered.

The fourth hypothesis — that they were some type of territorial marker — is possible. However, like the third hypothesis, their shape remains a mystery in such an assessment, and it is not at all clear why the ridge itself would not have simply served as a readily visible natural boundary. Moreover, the mounds in the Mt Olo Survey certainly do not serve as boundary markers (Holmer 1980:18-9, Figures 3a and 3b). Finally, there is no ethnohistorical evidence in Samoa of any mounds ever having been used as boundary markers.

The fifth and sixth hypotheses have had little formal testing or investigation other than some very suggestive remarks made by Davidson (1974b:205) and Kikuchi (MS n.d.:12-5). The following is a review of the current literature with additional exploration of these two hypotheses. It will be seen that they are closely related and that it may actually be artificial to separate them into two distinct competing hypotheses, as suggested by Holmer (1976b:49) and Hewitt (1980:41).

Hypothesis five originates from the fact that many of the researchers describing the star mounds report that their Samoan workers told them that the mounds were used for pigeon-catching (Davidson 1974a:19; Peters 1969:221; Buist 1969:40). Scott (1969), Davidson (1974b), and Frost (1978) took the matter further and conducted limited surveys of the ethnohistorical literature in attempts to see if pigeon-hunting was indeed practised on star mounds. Although some sources did mention *tia* 'mound' or 'cleared area' and *tia seu lupe* 'pigeon-catching mound' (Pritchard 1866:161; Buck 1930:534; Krämer 1902-3:2:333), the ethnohistoric literature was perceived as inconclusive since there was only one possible instance where pigeon-catching and star-like mounds were explicitly linked (Davidson 1974:205) (the instance is described below). These surveys did, however, add a new dimension to the problem. It was found that pigeon-hunting was a very popular "sport" which apparently had ritual or ceremonial significance (Scott 1969:89).

To begin with, pigeon-snaring is reported to have been primarily a seasonal activity. Buck (1930:534) states that the *tia* were permanent structures, but that fowling houses were built each season. Turner (1884:127) says that June was the time of year that pigeon-catching was practised. Not only was the event seasonal but, by all accounts, the sport was also highly competitive and

was monopolised by those of high rank (Buck 1930:542). Buck (p.542) points out that

Chiefs could command the organizing of labor to build the earth platforms faced with stone. They had the leisure and time to carefully train decoy birds. They could pay skilled craftsmen to make the best nets.

The event is said to have called upon “the full resources of village social organization” (Buck 1930:544). It is reported that great preparations were made, frequently involving the slaughter of all the pigs in the village with the whole population moving into the bush, often for months (Turner 1861:213; 1884:127; Pritchard 1866:161; Buck 1930:544). Krämer (1902-3:2:333) says that it usually occurred from June to October. Feasting and dancing were involved, but away from the netting platform at what Buck called the *malolonga* [*mālōloga*— rest] camp (Buck 1930:544). He states (p.539) that, “a little distance away from the *tia* seen on the ridge near Leone, we found the *malolonga* marked by the oven site and cooking stones.”

Pigeon-catching itself is described by Buck as having occurred on netting platforms called *tia seu lupe* (Buck 1930:534). Pritchard merely identifies them as *tia*, while other authors simply say that the ground was cleared (Pritchard 1866:161; Schultz 1965:31). Buck’s (1930:534) description is as follows:

A space was then cleared to form the platform (*tia*) on which the fowling houses to conceal the fowlers could be erected. Ridges that had an upward slope had to be cut down at one end and the spoil used to build up the other end. Unworked stone was used to build up the sides of the earthwork . . . Some, to be more readily seen by the wild pigeons, were built up all around with stone to make a raised platform.

The fowler’s houses were apparently on top of the platform, were said to have had a ground plan 4 feet by two 2 and to have been made of sticks called *aufale* over which were arched three lengths of line which were covered with the leaves of a bush fern called *aulauta* (Buck 1930:534). The houses were placed on the sides with a central space in the middle (Buck p.534; Turner 1884:127). Buck (p.534) states that:

A fully equipped ground *tia* had four houses set as follows: towards the descending slope end was the *fale mua* (first house) also termed *fale va-ai* (lookout house). At the up-hill end was the *fale matua* (principal house) or simply *matua*. To the left side looking downhill was the *falelele* (flying house) and on the right the *palalau*.

The fowler was said to sit in the hut on a small seat, and would wear an eyeshade, presumably so the birds would not see the glint of his eyes (Buck 1930:539). The seat was used so the fowler could stand up rapidly to catch a pigeon with a net which was attached to a long bamboo pole (Turner 1884:127; Buck 1930:535). Birds were attracted to the mounds with the use of decoy pigeons, usually birds that had been captured when young and raised for that purpose (Buck p.533). The birds were trained to sit on a perch and had a cord attached to one of their legs. Pritchard (1866:162) says that “after a drink of *ava* all round” the decoy birds would be tossed up above the *tia* and would circle around attracting wild pigeons. The wild ones would follow to be caught in the nets of the waiting chiefs (Turner 1884:127; Williamson 1967:2:235-6). Once the birds were caught, some were baked while others were distributed and tamed for later use (Turner 1884:127). Buck (1930:539) states that they “were not necessarily killed at once” but were put in “an *ola* basket or in a small covered stone enclosure (*fale lupe*) near at hand.”

One might wish to argue that, although Buck’s description of *pigeon-catching* is accurate, the idea that this hunting was done on mounds is merely a projection of pigeon-catching on to mounds by modern Samoans attempting to account for the function of mysterious structures left in the bush by their ancestors. Such an argument is weak on a number of counts. Firstly, unless independent evidence were provided to show that Buck (and others) had fallen prey to Samoan speculation, such an interpretation would be nothing more than an ad hoc attempt to discount the pigeon-catching hypothesis. Secondly, if it were a mere projection, one would not expect the uniform inclusion of *tia* in so many descriptions of pigeon-catching (Pritchard 1866:161; Krämer 1902-3:2:333; Churchill 1902:206). Oddly, while this hypothesis asks us to believe that it is plausible to project pigeon-catching on to mounds, it is at the same time asking us to believe that pigeon-catching itself on mounds is not a plausible proposition. However, a 1793 illustration by Piron in Ferdon (1987:183) of pigeon-catching blinds on a mound in Tonga, complete with a decoy station, which correlates with archaeological evidence on other mounds and with Mariner’s (Martin 1981:380-1) ethnohistorical account, lends strong plausibility, in the form of an existence proof, to the idea of pigeon-catching on mounds in Western Polynesia (McKern 1929; Ferdon 1987:182-4). This, in turn, given the well-known cultural and historical links between Samoa and Tonga (Kaeppler 1978), lends strong plausibility to the idea that this also occurred on mounds in Samoa. It will be argued here that, in Samoa, star-like mounds were used.

Davidson provides evidence that ritual was associated with pigeon-catching, and possibly a star mound, by quoting from a missionary’s journal entry of February 3, 1836. It is related that pigeon-snaring on a stone mound

was conducted to divine the outcome of a war. In addition, the bodies of the dead were also said to have been placed on the same mound, apparently temporarily. The mound on which these activities were said to have taken place was described as follows (Platt MS 1835-6: entry for February 3, 1836, quoted in Davidson 1974b:205):

It is an immense pile of stones of several hundred yards. We could not well estimate the extent on account of the thick bush in front. The side which we passed projected in several places like buttresses of three or four yards in extent each about 12 or 15 yards with niches in between.

It should be pointed out that divining the outcome of wars was not uncommon and that signs other than pigeon-snaring were seen as indicating the outcome of contemplated attacks (Turner 1884:44). Furthermore, Davidson (1974b:205), citing Krämer (1902-3:2:23), notes that the pigeon was known to be the representation of a number of Samoan mythological entities, including the war god Vave. Thus, it seems reasonable to imagine that the outcome of a competitive “sport” such as pigeon-catching could be viewed as foreshadowing the outcome of something as competitive as warfare.

Kikuchi (MS n.d.:14) feels that Platt’s description is sufficient to show that the separation of the two hypotheses is artificial. Citing Churchward (1971:139-41), he points out (p.15) that there is evidence that pigeon-catching was part of ritual feasting and that one reason why this connection is not readily apparent in the literature is because the missionaries “may have driven the indigenous religious-ceremonial aspects out of the sport.” (See relevant Churchward passage below.) To support his argument, Kikuchi points to the important place the pigeon has in Polynesian mythology.

It is at this point in the argument that previous authors have stopped. The literature provides little else in the form of explicit argument concerning the function of star mounds as pigeon-catching structures either with or without the addition of ritual. As will become apparent below, it is possible to expand upon Kikuchi’s suggestions as there is additional evidence for the idea that the mounds were used for pigeon-hunting and ritual.

First, evidence that supports the pigeon-catching hypothesis is found in Krämer (1902-3:2:84) in the form of a tattoo found on the back of a woman’s leg. The tattoo has a set of three motifs that are found in direct association with one another — a group of birds, a net, and two five-pointed stars. As shown in the illustration reproduced below (Fig. 5), the net is between the birds and the star-like objects. It should, of course, be remembered that the descriptions of pigeon-catching that we have so far considered involve the use of net. The relationship between the objects on the tattoo is the same as that in pigeon-

catching (i.e., birds above the net and the net above the mound). It should further be pointed out that, while Krämer (1902-3:2:84) identified the middle motif above the stars as a “net,” Mary Pritchard (1984:41) has explicitly identified a very similar *siapo* design as a pigeon and turtle-catching net. In Buck’s account of women’s tattooing (1930:641-60) one also finds illustrations of star-like, bird-like, and net-like motifs (see also Handy and Handy 1924, and especially Marquardt 1984). Thus, the interpretation of the design motives as representations of pigeon-catching has support.

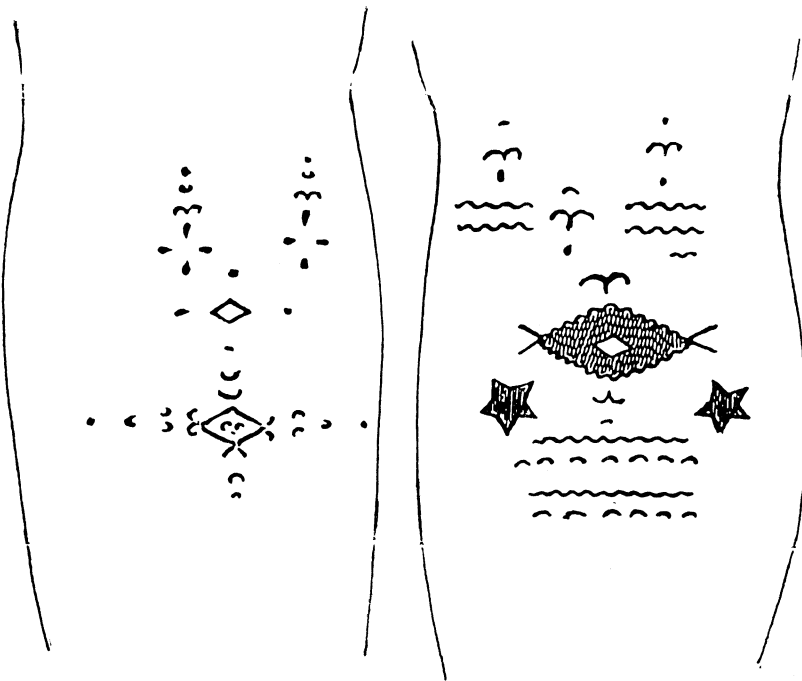


Figure 5. Tattoo on the back of a woman's legs. The tattoo on the right includes the depiction of birds, a net, and two five-pointed stars (From Krämer 1902-3:1:84, Fig. 6).

The following quotations illustrate the idea that pigeon-catching, though “amusing”, also had a sacred aspect to it.

One of the most popular of Samoan amusements is pigeon-catching. There are places in the wood expressly prepared for, and devoted to the sport from time immemorial, called Tia. Great preparations are made for the expedition, which may remain on the hills for a month or more. Pigs, yams, taro, and breadfruit are cooked in abundance; and nearly all the people of the village accompany their chiefs. Arrived at the ita [sic], the bush is cleared off, huts run up, and stones placed, to form the circle round which the chiefs sit in ambush, under green boughs, cut fresh every day from the trees. By his side each chief has his tame pigeon, perching on a stick about three feet long, and with some fifty yards of string attached to its legs; and before him lies a bamboo, thirty or forty feet in length, to the small end of which is fastened a net bag. When all is ready, and after a drink of ava all round, the tame pigeons are thrown up to fly together, while the chiefs hold the strings in their hands and with a gentle jerk make them wheel around and round the circle very prettily. The wild pigeons are attracted, and fancying they are hovering over food, flock in amongst them. One chief after another then raises his net to entangle the wild birds, and the man who catches the greatest number is the winner (Pritchard 1866:161-2).

There were matters connected with the pigeon-catching also which should be noticed. The sport was conducted under very strict regulations. All the chiefs engaged in it were for the time being sacred, and all of equal influence. . . The temporary sanctity seems to point to inherent sanctity in the pigeons, or to the sacred nature of the competition in which the chiefs were engaged, or to both (Williamson 1965:2:236-7).

Pigeon netting by providing a cause for such gatherings must therefore rank high as a social institution and its purely economic status occupies a secondary place (Buck 1930:544).

In Pritchard’s quotation, an ‘ava ceremony is alluded to as part of pigeon-hunting. This is not surprising, since the major participants of the hunt were described as village *matat*. If such an event took place on star mounds one might expect to find artefacts associated with ‘ava ceremonies on or near star mounds. In fact, Peters (1969:218) reports that a “third grindstone, G17/530, has a large deep linear hollow on one side, and was immediately identified by the workman as a stone used for preparing kava. It had been discarded, for it was recovered from the rock build up of the star mound” (p.218).

Furthermore, as pointed out above, pigeon-catching was said to involve

the use of seats by those hidden in the blinds to assist them in standing up quickly to catch the birds. Mound SS-Vt-1 on Savai'i has eight stone "cairns" on each arm of the mound (Scott 1969:86). Scott (p.86) notes that similar cairns have been interpreted as seats. In addition, a "central rectangular depression floored with a fine gravel" (Scott p.86) found on this mound is similar to those found on known pigeon-catching mounds in Tonga (McKern 1929; Ferdon 1987:183).

This next point further relates to the notion of pigeon-catching mounds being associated with ritual. Moyle (1974:165), in a discussion of Samoan ritual curing, quotes the following incantation as part of a cure for a distinct class of headaches and paralysis called *mo'omo'o vāivi*. At one point in the cure the native doctor or shaman chants the following:

Mo'omo'o, mo'omo'o
Jump on to the pigeon-snaring mound,
Jump into the gap;
I'm going to transfix you.

This quote is interesting in two ways. Firstly, a "gap" is associated with the pigeon-snaring mound; this suggests that the mound being called to mind is one with gaps between the arms or rays of the mound, as with star mounds. Secondly, this quotation again clearly associates a pigeon-snaring mound with certain magical rituals: in this case a ritual in the domain of illness and healing. (One further note: there is another related class of illness called *fe'e*, or octopus; it may be no small coincidence that the majority of "star mounds" have eight "arms" just like *fe'e* [Moyle 1974:169]. I shall return to this suggestion later.)

STRUCTURAL ANALYSIS

The above functional analysis provides evidence that supports the interpretation of star mounds as pigeon-catching mounds with related ritual functions. However, at this point in the analysis, one cannot effectively examine additional evidence without first turning to the results of the only structural analysis involving "star mounds" attempted to date, conducted by Davidson (1974b). It has important implications for the pigeon-snaring hypothesis, but makes few claims about functionality. Instead, it argues that certain structural similarities between what have sometimes been called "irregular structures" (see also Davidson 1974a:193) and star mounds can be seen as the basis for grouping together these apparently different sites. "Irregular" sites include mound-like structures which can be described as having between one and five rays or arms. In addition, they are found in bush

locations and usually have stone facing. Unlike star mounds, these sites rarely exhibit circular or even oval closure, and in many cases they have what could be considered to be only one ray or arm. Considered alone, these do not readily call to mind a star-like image. Davidson (1974b:209), however, argues that

The important formal characteristics which place a site in this category beyond doubt include a tendency to slope toward the end facing down the ridge, and the presence of protruding arms and recessed bays. Any structures exhibiting these features, where they are not merely a result of careless or erratic constructions, must be considered specialised sites. The same characteristics relate these sites to the even more distinct star-shaped mounds.

As noted above, irregular structures are found in isolated locations in the bush and on ridges; these are also characteristics of star mounds (see, e.g., Holmer 1976a:21-32). In addition, two structures, sites AS-21-12 and AS-21-19 (Figs. 2 and 3), which are clearly what have been called star mounds, exhibit only complete closure by the method of shallow ditches dug across the ridge of which they are a part. Further, the star mound of site AS-21-20 (Fig. 4) clearly does not exhibit closure, but, given its location in the context of so many other star mounds, it is hard to argue that it is not a star mound. I therefore follow Davidson in placing all structures that meet the characteristics of having ray-like structures and being in isolated areas in the bush as belonging to a single over-arching category which Davidson calls “specialised sites” (1974b). This category would include all of the types of sites exhibited in Figure 6. Mounds with one ray are slightly problematic in that in some cases they do not exhibit anything that could be considered a “recessed bay”. Davidson, however, argues that their relatively isolated location and “their resemblance to *tia seu lupe* as described by Buck” is enough to place them in the specialised-site category (Davidson 1974b:209). I agree, but argue that, to be consistent, it is necessary to revise the structural category of “specialised sites” accordingly. Davidson’s criteria of recessed bays should be seen as a derivative and not a defining feature of these structures. A linear mound is the limiting instance of a mound with a ray. A recessed bay or bays will be a natural consequence of any mound that just happens to have more than one ray and therefore cannot be considered a defining characteristic. Additionally, to call these sites “specialised” has functional overtones, so it is proposed instead that the Samoan term *tia ‘ave* or ‘ray mound’ be used for the above category and also for any mounds which meet the criteria.² The term’s defining features are, ray(s) (from 1 to 11), mound or levelled and built-up terrace, stone facing, and location in the bush.

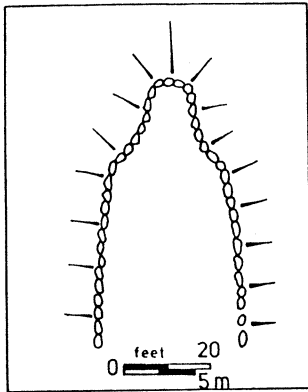


Fig. 84. Sketch plan of specialised structure, Lata-1.

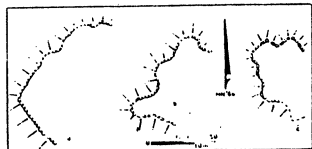


Fig. 86. Specialised structures at Niule'a. a. Niule'a-99; b. Niule'a-68; c. Niule'a-60.

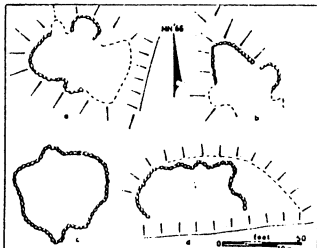


Fig. 85. Specialised structures at Sina. a. Sina-26; b. Sina-12; c. Sina-17; d. Sina-14.

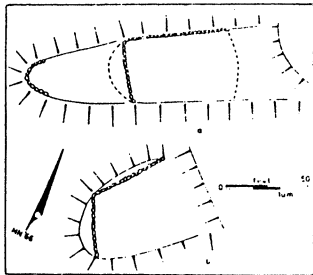


Fig. 88. Specialised structures on the ridge between Folasa and Vaimaga.

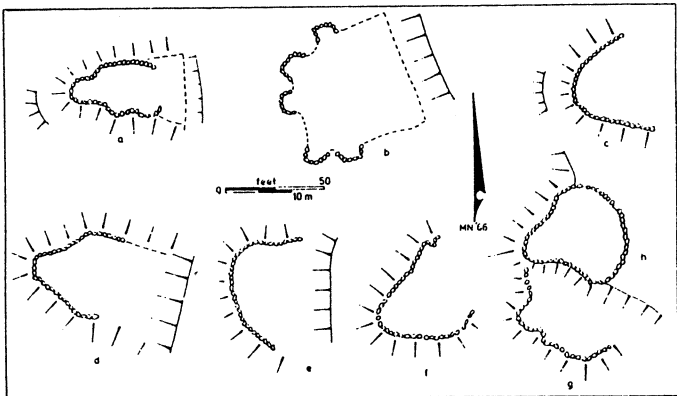


Fig. 87. Specialised structures at Polua. a, surveyed by tape only; b-h, compass and tape. a. Polua-1; b. Polua-5; c. Polua-12; d. Polua-23; e. Polua-24; f. Polua-25; g. Polua-26; h. Polua-27.

Figure 6. Specialised structures reported by Davidson (1974b:207-9). Figure and captions of illustrations are from Davidson.

SURFACE VARIATION

Given the large amount of variation among these structures, it is important to offer a tentative explanation that will account for the variation and not force us to abandon the above category. For instance, one might point out that there is a counter-example to the last defining feature in the Mt Olo track survey data (Jennings *et al.* 1976; Jennings and Holmer 1980:15 and Figures 2-3b), which mapped four star mounds (SU17-95, SU17-157, SU17-165, SU17-552) and noted a fifth in association with a large inland village. Jennings and Holmer (1980:3) argued that they had established the presence of “districts or Wards” which included “the presence of one or more very large platforms, associated with a star or pigeon-trapping mound and at least one earth oven (*umu ti*)”.

However, if one closely examines the distributional and chronological data, their “association” with residential structures appears dubious. To begin with, all of the *tia’ave* appear to be on the periphery of the occupied portions of the site (Holmer 1980:Figure 2). In reference to the “Ten Points” (SU17-552) mound, Hewitt (1980:41) states that it may be “significant that this complex is located a considerable distance from any residential features”. This would also apply to mound SU17-95, which is nearby “Ten Points”. In addition, the unmapped *tia’ave* is said to be 100 metres north-west of the nearest residential structure (SU17-35) (Holmer 1980:15).

Hewitt, however, suggests that two other mounds are found in association with residential platforms (Hewitt 1980:41). For instance, *tia’ave* SU17-157 could be associated with house platform SU17-159 and possibly SU17-15 (Holmer 1980: 19 and Figure 3b). However, since there are no C-14 dates for these structures, this instance is unconvincing, as mere spatial proximity does not ensure contemporaneity between structures.

We are thus left with the “Cog Mound” site (SU17-165) along with several surrounding structures and platforms which make up the “Cog Mound Complex” (Holmer 1976; Hewitt 1980). The Cog Mound is on the periphery of one of the densest areas of the site, and has the largest number of residential features — including house platforms, ovens, and fire basins — spatially associated with it of any known *tia’ave* (Holmer 1976; Hewitt 1980; Holmer 1980:Figure 2). This site and two of the nearby features were excavated and charcoal samples were radiometrically dated. The Cog Mound had two dates from its interior, 270 ± 110 B.P. and 440 ± 100 B.P., the “associated” earth oven (SU17-193) dated to 565 ± 60 B.P., and the “associated” fire basin dated to 1150 ± 110 B.P. (Jennings and Holmer 1980:7-8; Table 2).

So, if we assume that the figure of 440 ± 100 B.P. dates the mound’s construction and is not fill material from an earlier period, it is possible that the earth oven was contemporary with the Cog Mound. On the other hand, it

is equally possible, given either the range of statistical error or the possibility that the above assumption is incorrect, that they were not contemporary. Furthermore, it is clear that the fire basin with its 1150 B.P. date was not contemporary with the Cog Mound.

It should also be noted that no dates for the “associated” house platforms were obtained. Holmer (1976:29), in discussing the test excavation of house platform SU17-164 and its relation to the nearby Cog Mound, states that “it seems likely that they were contemporary”, but admits that “The construction of the platform in relation to the Cog Mound cannot be fixed in time”. In fact, he later states, while still holding to the contemporaneity thesis, that “there is the possibility” that the house platform could be as “early” as the 1150 B.P. fire basin (Holmer 1976:31). Hewitt (1980:61) also admits to some ambiguity when discussing these dates, so that, while she regards the Cog Mound Complex structures as “essentially contemporary”, she feels that the contemporaneity of the earth oven “with other features in the complex is uncertain”.

If one pursues the issue one could point out that there are other late C-14 dates, as well as ethnohistorical data from the 19th century missionary J. B. Stair that would indicate that the Mt Olo track settlement was occupied into late prehistoric times (Holmer 1976:11). However, if one examines the locations of these dates, they are all well removed from the *tia 'ave* locations (Jennings and Holmer 1980:7-8, Table 2; Holmer 1980:14, Figure 2). Furthermore, Stair's (1897:57) mention of an inland settlement places it between the Faleatai area and Fasito'otai village, which would place it east of Mt Olo.

Not surprisingly, Jennings *et al.* (1982:85) later revised the initial assessment of the relationship between the village and the mounds:

Their location does not form a pattern within the village; they may even be younger than the village itself. If, as locally believed, the star mounds were used for snaring wild pigeons in the forest, they may not have been functional until the village was abandoned and returned to the bush.

Since the weight of the distributional evidence points to “bush locations” for *tia 'ave*, and since there are neither ethnohistorical data nor any C-14 dates that unambiguously tie village residential structures to *tia 'ave*, it would be incorrect to consider Mt Olo as providing an example of *tia 'ave* within the context of a village. Therefore, while it is possible that the proposed category may have to be modified, I see no compelling need for such a modification and argue that the feature “bush location” should not be abandoned until more conclusive evidence is available.³

Even if one accepts the argument for the above site, there is still a fair

amount of surface variation among these structures. Two factors can account for the variation without forcing us to abandon the above category — environmental constraints and the notion of varieties within a category. The most noticeable features of variation are the following: some mounds are circular while others are oval; some mounds do not exhibit bordered closure; some mounds do not have stone facing; and the number of rays varies from 1 to 11.

Environmental constraints can explain the first two variations. Considering the first: during our survey we observed that, if a ridge-top area on which a mound was built was wide and flat, then the mound would tend to be very close to a perfect circle. If, on the other hand, the ridge-top area was very narrow, the mound would be constructed in a way that would conform to the narrow ridge, thus making the mound oval or linear in shape. (For example, compare sites AS-21-12, AS-21-13, and AS-22-12 with AS-21-14, and AS-22-9 (Figs. 1 and 2)). It appears that the builders had a minimum size criterion in mind such that no small circular mounds are found on the narrow ridges. Thus, when the builders were faced with the task of building a mound at least, say, 20 metres in diameter and were also confronted with a narrow ridge, the compromise was the construction of an oval to linear mound which used all of the available space. The reality of this criterion is falsifiable: except for single-rayed mounds, the discovery of oval mounds on broad flat areas would imply that oval star mounds were built by design.

A similar argument can be made for the closure deviation. We found one mound (site AS-21-20 (Fig. 10)) faced with rays in a single direction with no closure on the opposite side. Interestingly, the area of the mound that did not exhibit closure was backed up against the steep vertical incline of the ridge. In other words, it was not possible to complete the *tia 'ave* because of the local topography. In addition, two other examples; sites AS-21-12 and AS-21-19 (Figs. 2 and 3) both had a back area defined only by a very shallow ditch. It may be that other structures as well as site AS-21-20 (Fig. 4) were, in fact, defined in a similar way, but the eroding slope filled in the defining ditch. If one examines Davidson's examples (see Figure 6) of "specialised sites" not exhibiting closure, one finds that most are heavily constrained by local topography such as a steep inclining and declining slope directly behind without visible signs of closure. It may be that either the slope itself was considered to be defining enough or the defining shallow ditch was buried by erosional deposits. Only future excavations of these sites can resolve the issue.

The lack of stone facing can be accounted for in a number of ways. Firstly, it is important to note that very few known mounds do not have stone facing. Of the 62 we described, only five sites did not clearly exhibit rock-facing

around the arms (Clark 1989:140-1, table 9). There are a number of reasonable explanations for why we find such examples. Natural forces such as root activity, soil erosion or deposition could account for the fact that the stones were either missing or buried. It could also be the case that the mound was not completed or that the stones were removed. It should be recalled that sites such as AS-21-14 and AS-22-11 (Figs. 1 and 2) were very small mounds ranging from only 0.3-0.75 m high and were, therefore, possibly incomplete. In addition, local availability of rock may have been a factor.

The argument advanced is that, in addition to the other features already mentioned (rays, etc.), there may have been something like an “ideal” plan for *tia 'ave* which included closure and size, but that, given the environmental constraints of the Samoan mountain ridges and slopes, the actual instantiation (realisation) of any given mound may “deviate” to some extent from that ideal model. Thus, the category *tia 'ave* was probably composed of the following features: ray(s) from 1 to 11, mound or levelled built-up terrace, location inland, usually in the bush, stone-facing, at least 50 square metres, and complete closure by a boundary. Circular shape may also have been an aim in the construction of most mounds, but, given the linear single-ray mounds, circular shape cannot be taken as a defining characteristic of *tia 'ave*.

It is proposed that point 4 — variation in the number of rays — cannot be accounted for in terms of environmental constraints alone. Instead, the variation is seen to have had significance for the builders and it is proposed that mounds with different numbers of rays are varieties of the category *tia 'ave*. (At this point, the term “variety” is used advisedly since insufficient evidence is available to know whether subcategorisation in the taxonomic sense is involved. See Wierzbicka 1985 for an important discussion of this issue.)

Given this, an interesting functional implication follows from the category *tia 'ave*. The reader will recall that *tia 'ave*, as defined, includes mounds that have from 1 to 11 rays, and recall also that Davidson remarked that the single-rayed structures show a “resemblance to *tia seu lupe* as described by Buck” (Davidson 1974b:209). Since publication of Davidson’s article, the *tia* at the Tataga-Matau Fortified Quarry Complex near Leone on Tutuila has been mapped and positively identified as the *tia* described by Buck (Leach and Witter 1987:39). The structure they described was a single-rayed structure with a “masonry wall consisting of 1-4 courses of stone” (Leach and Witter 1987:39). Figure 7 is an adaptation of their Figure 2. It is clear that this site fits quite neatly into the category of *tia 'ave* of the single-rayed variety.

Now, if we accept that the *tia 'ave* category is correctly defined, and that what has been identified ethnohistorically by Buck as a pigeon-catching mound is a member of that category, then this can be taken as positive

evidence for the idea that other members of the category — namely, what have previously been called “star mounds” — may also have the same or a very closely related function. In other words, all varieties of *tia ‘ave* are deemed to have been used to catch pigeons.

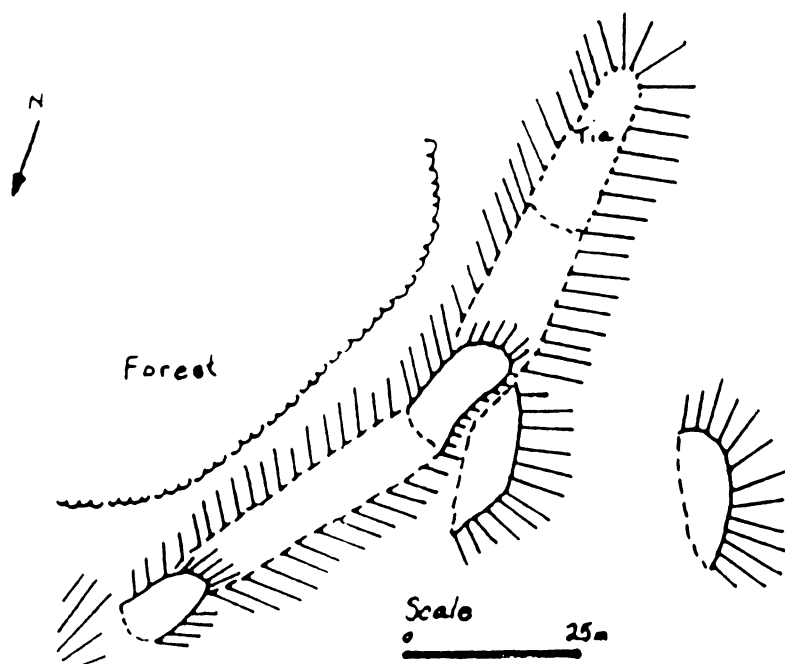


Figure 7. *Tia ‘ave* from Tataga-Matau basalt quarry, Tutuila. Initially reported by Buck (1930), it was mapped in 1985 by Leach and Witter (1987). (Adapted from Best, Leach and Witter 1989 Fig. 3).

I shall first examine the eight-livered god. Fraser records two versions that tell of a group of giants from earth who do battle with the Sā Tagaloa gods in the first heaven of the Samoan universe. One of the gods that did battle was named *Le-ate-valu* or “the-eight-livered” (Fraser 1892b:276). There is one possible connection between this god and the acquisition of women. According to Moyle (1988:158), the liver is said to be the organ that generates sexual desire. Presumably, then, this god had a voracious sexual appetite and would be interested in women (assuming, until shown otherwise, a heterosexual outlook for him). There may be a loose connection with pigeon-catching and this entity, given the metaphor of women as pigeon.

The second mythological creature involved was said to be called Talingamaivalu (Abercromby 1892:158). The name is more correctly spelt Taligamaivalu and means ‘eight eared’; *taliga* is ‘ear’, and *valu* is ‘eight’ (Abercromby 1892:165; Moyle 1981:300). There are two complete versions of the myth that we know of (Abercromby 1892:158-65; Moyle 1981:56-89). These versions are similar to the Tigilau and Sina myth outlined above (Muse and Muse 1984:12). In Abercromby’s version and an abridged version in Reed (1974), the eight ears appear to be an actual characteristic: “The men came, and Sina welcomed them with surprise, [exclaiming] ‘O Talingamaivalu, listen with your eight ears, while I explain to you’” (Abercromby 1892:164).

Although Reed “gives the name as ‘the demon giant with eight ears’” (Reed 1974:129 quoted in Moyle 1981:330), in the version by Moyle (1981:65) we find that their status as a real characteristic is not clear: “Now this man — listen again to his name: Taligamaivalu — did he have eight ears, what was their condition, was there something wrong with his ears?” But whatever their ontological status, they seem to be a salient part of the character as the narrator appears to be drawing his audience’s attention to them. In addition, it is not just that he has eight ears but that they have a distinct ray-like quality — Moyle’s narrator describes them variously as “ulcerous ears”, “bushy ears”, “dragging ears”, “shining ears”, and “luminous ears” (pp.71-9).

The primary characters in these myths are Sina, Tigilau, and Taligamaivalu. In Abercromby’s version, Sina’s parents are Tafitofou and ‘Ogafau, while in Moyle’s, Sina is referred to as Sina or Sinālemalama and her mother is Sinasegi. Sinasegi also appears in the Abercromby version, but in a different role, as we shall see below. The basic plot in these myths is that Sina is married to Tigilau, but is then abducted by Taligamaivalu, who takes her to an underground supernatural location (Moyle 1981:81). Tigilau then goes on a journey to find her and eventually succeeds in stealing her away from Taligamaivalu, who ends up being blinded by a kingfisher strategically left behind in Sina’s place.

For our purposes, it is suggestive that, in three of the myths examined up to this point, we find Tigilau (identified as a decoy pigeon in one myth), who steals Sina away from another individual. In the two myths we are now considering, Tigilau steals Sina from Talingamaivalu, a creature who can be described as having eight rays. Again we have the association of a rayed entity in a myth that can be viewed as being metaphorically associated with pigeon-catching.

Finally, in the examination of gods with what could be described as eight rays, we turn to 'O Le Fe'e or the octopus with his eight tentacles. To begin with, Fe'e was considered to be one of the most powerful and important of the gods in the Samoan pantheon. Williamson, for instance, points out that Fe'e "was a most important Samoan god of the dead, and was, I suspect, one of the oldest of the Samoan deities;" (1967:2:221; see also Freeman 1944:133).

Turner (1884:29) says that Fe'e was a war god and was, "present in the white shell of the *Cypraea ovula*; hence a string of these was suspended in the house of the priest and were supposed to murmur or 'cry' when a war was determined on."

The colour white was supposed to be associated with Fe'e. Turner (1884:30) states that one district had a three-month festival devoted to Fe'e, during which white turbans were forbidden as they were to be used only at time of war. Although Fe'e was symbolically represented by white shell and white turbans, his radiating tentacles were still one of his most salient aspects. Turner (p.30) states that, during the above-mentioned festival, "all unsightly projecting burdens —such as logs of firewood on the shoulder —were forbidden, lest it should be considered by the god as a mockery of his tentacula".

In an article on Samoan medical incantations, Moyle (1974) discusses a set of ailments associated with the octopus in which representations and incantations associated with the octopus are important to the cure. In one instance (p.171), "the crown of the patient's head is gently stroked with the fingers, whose actions represent those of the octopus' tentacles".

It may seem odd to consider the octopus as possibly being represented by inland structures, since they are creatures of the sea, but apparently the Samoan conception of the god did not limit him to an aquatic environment. He was, in fact, said to live on land, and there is a myth that states that this was his primary location and that he even set up nets inland to catch men, or possibly *aitu* (Fraser 1891:71-3). He is also said to have had a house on the island of 'Upolu, inland from Apia, which has been visited by various authors (Stair 1894, 1896:45; Freeman 1944; Moyle 1974:169). It was at this house that Fe'e is said to have kept his many wives (Pritchard 1866:117).

Given the above discussion, it is not hard to imagine that Samoans would

consider Fe'e a desirable symbolic presence while catching pigeons, since he is powerful, has many wives, and makes use of a net in an inland context. In addition, his rays are a salient characteristic, so it would make sense to represent him as an eight-rayed mound.

There is, however, additional evidence. Two suggestive versions of a myth concern the capture of a turtle by a character called Saumani 'Afa'ese who is identified in one version as a "devilfish" (i.e., octopus). These stories are suggestive in several ways. Firstly, one of the characters is referred to as an octopus. Secondly, an additional entity, the turtle, is introduced as also having a mysterious ray-like quality. Finally, and most interestingly, the pigeon metaphor for woman, and the acquisition thereof, is part of the final section of the two tales.

The legend is essentially as follows. Saumani 'Afa'ese, son of the Saumani family, captures a huge turtle and brings it on land. He then attempts to get the turtle to his village, but it ends up dying on the top of a hill. The turtle is cooked and its shell is said to have magical power — in particular, healing power. Because of this power, many people are interested in the shell and take away pieces of it. Nelson (1925:136) relates that: "Saumani Afa'ese saw the shell dwindling away, so he took a piece and planted it in a cave, but the gloss was such that it threw a reflection on the sky, which from 'Upolu looked like a rainbow hanging over Savai'i every afternoon."

In the legend recorded by Schultz (1965:131), we are told that the turtle that was caught was "a wonderous turtle whose shell sent forth a luminous red glow". In addition, Schultz (p.132) tells us that, as above, the

remaining piece of shell was buried in the mountains of Savai'i. On a fine afternoon Savai'i could be seen distinctly and, as the buried shell glowed even through the covering earth, the island with its broad back resembled a huge turtle sleeping on the waters.

In the Nelson version, a generation passed and the shell was covered with soil, and the "shell ceased to make the rainbow reflection" (1925:136). Saumani had a son, Matila, who in turn had a son named Pule. In the Schultz version there is no time passage, and Sa'umani 'Afa'ese and Pulele'i'ite are the same person. In both versions Mālietua comes into the story. In the Nelson version he wants the shell uncovered so it can shine again, while in the Schultz version Mālietua wants to possess the shell. In return, in both versions, Pule or Pulele'i'ite asks for a *tula* or a perch for a decoy pigeon. But, after Mālietua has given Pule pigeon-perches, he finds that Pule's request had been a riddle, the answer to which the reader should now be able to guess: "What he really wanted, was a girl" (Schultz 1965:132).

These two versions serve as further examples of where rayed entities, the turtle or at least the turtleshell (and in Nelson's version the octopus as well) were associated with pigeon-hunting and the acquisition of women. Also, the turtle in Nelson's version was said to have died on a hilltop, and both versions have the shell being placed in an inland location.

Finally, it is said that So'oala, another son of Fe'e (Freeman 1944:129), was a notorious cannibal chief "who nets men and women from his stone *tia*, or stone hunting platform . . . just as a century ago he netted *lupe*" (Churchill 1902:206).

Further examples from oral tradition include two myths telling the story of Lady Tapuitea: "she became wild, horns grew out of her head, she ate human flesh, and ten to fifteen Fijians were used up on her cannibal appetite" (Turner 1884:260). She eventually has a confrontation with her son and falls into a pool of water, where her horns break off. Her son is displeased with her behaviour and tells her she must leave the earth and go to heaven. According to Turner (1884:262), she agreed, "But before going up she promised to shine down as an evening star and give him light for his evening meal. She also promised to give him light in the morning, when he went into the bush at the season of pigeon-catching."

In Steubel's (1976:56) version she says, "I shall reappear of an evening while you eat your supper. When you go pigeon-snaring in the early morning, I shall also be there to light you on the way."

Thus, once again we have a mythological creature who has ray-like structures (in two instances; first as a cannibal with horns and then as the morning star) and who is directly associated with pigeon-catching. In the Steubel version there is a drawing of the morning star by a Samoan artist who gives the star five rays (Steubel 1976:56).

To summarise: a preliminary survey of traditional Samoan oral lore shows that entities such as the sun (ten rays?); the octopus, *Le-ate-valu*, and *Taligamaivalu* (eight rays); the turtle (six rays?); the morning star (five rays), and the eel/snake (one ray) are all important members of the Samoan pantheon. In addition, these entities are either directly associated with pigeon-catching or are indirectly associated with it, in that they are depicted in oral narratives where the acquisition of a wife is a major theme and the acquisition of wives is related to pigeon-catching via Samoan proverbs. I consider this to be supporting evidence for the idea that variations in the *tia 'ave* are based on the mounds being representations of these various mythological entities. In addition, I see the above examples from the oral literature and the ethnohistorical literature as providing evidence for the idea that pigeon-snaring mounds served a ritual function as well as the function of providing a competitive forum for the chiefs. Rituals are often the re-

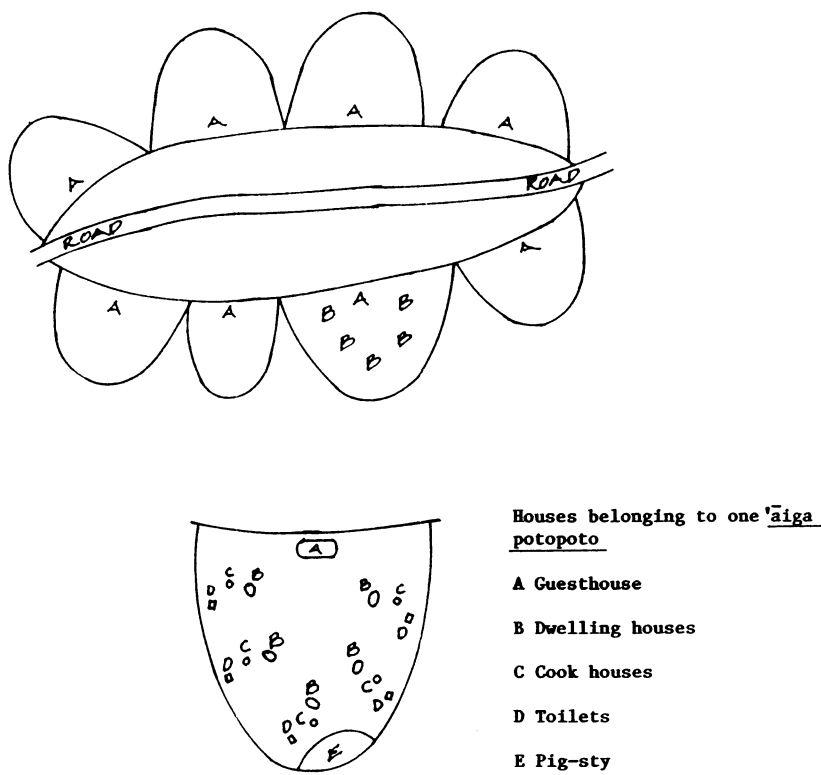


Figure 8. Ideal conceptualisation of the Samoan village (from Neich 1984).

enactment of myth. It may be that pigeon-catching was seen as a re-enactment of one or other or all of the above oral historical traditions.

FUTURE RESEARCH

Some evidence exists that the metaphoric analysis of pigeon-catching provided so far may be incomplete. A more comprehensive analysis would build on the metaphor of women as pigeons 'snared' for marriage; this will not be developed here, however, as it detracts from our central task.

Although an interpretation incorporating the metaphorical use of pigeon-catching in proverbs, folktales and myth seems quite productive, another line may also be worth pursuing. If one considers recent research on the concept of the ideal structure of a Samoan village (Shore 1982: 50; Neich 1984), the structural similarity of the ideal village to star mounds is striking (See Fig. 8). Note that each ray on the village plan represents or contains an *'āiga potopoto* (extended family). Each *'āiga potopoto* has an individual who is a *matai* or head of the family. It may be the case that each ray on a given *tia 'ave* (except the long linear single-rayed type, which had four individuals on it in one case) represented a *matai* in the village, perhaps in much the same way as each *matai* has a particular house-post associated with him in the village *fono*. Such an interpretation is consistent with the metaphorical language of pigeon-catching as outlined above. More importantly, it provides an additional account of the varietal structure of the *tia 'ave*. Thus, if *tia 'ave* are representations of Samoan villages, it could be that the variation in the number of rays on *tia 'ave* is due to the relative size of various villages. The more *matai* one has in the village, the more rays one would expect on the mound representing that village. It is probably the case that there were only a few excessively large villages, hence there are so few mounds with more than 10 rays.

Moreover, this interpretation could be correct and in no way conflict with the earlier interpretation of the mounds' structure as representing various Samoan gods. Hjørnø, for instance, points out (1979-80:112) that "The highest ranked title holders were considered the nearest descendents of the gods and were thus the nearest contact society had with the supernatural". If *tia 'ave* were symbolic representations of Samoan gods (like, say, the octopus or sun) then *ali'i*, being their nearest descendants, could also be associated with *tia 'ave* via the gods. In this way, both the gods and *ali'i* may be associated with each other and the *tia 'ave*. In addition, Turner (1884:23) and Firth (1931:390) say that Samoan villages had their own particular associated god. Thus, it would only be natural for the gods of a particular village to also be associated with its *tia 'ave*. And, since the gods, like the *ali'i*, were involved in catching women, there is no real contradiction between the interpretations.

Finally, one may ask how this interpretation could be compatible with the fact that the war-god Vave had the pigeon as his incarnation, or that divination predicting the outcomes of war was carried out by pigeon-catching on a star-like mound. Consider the following legend from Krämer (1930:1:362-3).

The reason why Fa'alulumaga, the daughter of Tuiaana Uotele, married Letufuga, was the war, which her father waged against Savaii. The cohorts of the Tuiaana came along; war raged, whilst Letufuga caught pigeons inland in the bush. The Fa'asaleleaga people were chased into the bush. Then Letufuga broke his snares to pieces and ran down with the head of the stick of his net. He went down and appeared now here, now there in the bush. And the Aana people were driven into the sea by Letufuga.

Then the Tuiaana said: Who is that man, who comes out of the bush now here, now there? That man, who has put our people to flight?

Then one of the people said: It is the chief Letufuga, who has defeated our *faleupolu*!

Then the ruler said: Take to that chief the name Tufugama'alomaivao.

Then Letufuga summoned his people more than once (to give over fighting), he struck them (the Fa'asaleleaga) and said to them: Do not chase the Aana people into the sea!

Then the ruler said: Take the girl to him as our ransom, that Letufuga may make her his wife.

Hence he is called Tufuga the Commanding and Tufuga the Rancorous.

Here we see that it is the pigeon-catching Letufuga who is successful at warfare. Furthermore, he is still in so powerful a position that the chief of the 'Ā'ana people feels compelled to deliver his daughter as ransom to be Letufuga's wife, in order to form a (no doubt uneasy) alliance.

Only future research can determine the accuracy of these hypotheses. Such research might include a survey of archival materials, analysis of Samoan oral traditions and modern literature, a detailed analysis of Samoan proverbial expressions from both historical sources and from present-day usage, as well as archaeological excavation of *tia 'ave*.

FUTURE TESTING

Before concluding this analysis, the question of future testing of the ritual/pigeon-catching hypothesis should be addressed. Part of the problem with earlier research dealing with these and similar structures is a tendency to group them into categories such as "ritual" and leave the matter there, but "ritual" is never defined explicitly and hence there is no possible way to test the hypothesis. In this paper, ritual is defined, at the very least, as a re-enactment of a myth, legend, or some aspect of a traditional belief system,

usually with some outcome in mind, be it changing someone's social status (as in a marriage ritual), healing someone with a ritual incantation, or ensuring that the sun will rise in the morning. This definition of ritual compels one to treat traditional beliefs as preserved in the oral tradition as genuine empirical data, though not to limit its treatment to a literal understanding. By treating these materials as data and by considering the pigeon-catching and ritual hypotheses cautiously and seriously, it is possible to provide detailed and explicit support for these hypotheses. In addition, explicating claims makes it easier to devise tests for these hypotheses.

A careful reading of both the traditional ethnohistorical descriptions of pigeon-hunting and the related oral narrative materials brings to light ample material evidence (and potential evidence) that pigeon-hunting once took place at these mounds.

1. Buck (1930:539) states that, in some instances, small stone enclosures (*fale lupe*) near the pigeon hunter were sometimes used to temporarily store the pigeons while hunting. Small circles of stone were found on a number of mounds at Aoa (e.g. AS-21-12, AS-21-13, and AS-21-14 (Fig. 2)).

2. Buck (1930:534) describes the structures that the hunters sat in to conceal themselves from the wild pigeons. They were said to have a basic floor plan that was 4 feet by 2 feet with posts that were placed in the ground. Such a structure could have fitted on the arms of a star mound. Careful excavation on a relatively undisturbed mound might provide evidence of these small structures in the form of shallow post moulds. Their absence from earlier excavations could be due to any number of factors. Firstly, two of the mounds excavated earlier were made of stone, hence one would not expect to find evidence of post moulds. Secondly, the mounds were only partially excavated, so it is possible that no structures had been built on the excavated locations. Thirdly, shallow post moulds are very difficult to detect, especially if root activity is extensive, as it is in tropical forests. Fourthly, there appears to have been variation in the types of blinds made to conceal the hunter. Williams (1984:249) describes a portable blind which may not have actually been secured in the ground. It may be the case that only a subset of earthen mounds has the possibility of exhibiting post moulds. Clearly, further testing is necessary.

3. If blinds as described by Buck were actually built on the mounds, one would expect to find few if any discarded adzes and adze flakes from the construction process. In fact, in his test excavation of a mound on 'Upolu, Peters (1974:216) reports that most of the adzes and flakes were from a terrace

habitation site below the mound. This excavation clearly illustrates the difference between a residential site and a star mound. Recent excavations on Tutuila show a similar pattern (Best *et al.* 1989:24-9).

4. As noted above, Pritchard (1866:162) reports that a kava ceremony was held before the start of a pigeon competition. Such a ceremony would entail the use of a kava-grinding stone, an artefact previously reported by Peters (1969:218).

5. Krämer (1902-3:2:331) reports that tortoiseshell rings (*Schildpattring*) were attached to the string tethering decoy pigeons used in pigeon-catching. These rings in turn were attached to the pigeon perch or *tula*. If such rings could be found on a pigeon-catching mound it would provide the *tia 'ave* with a relatively unambiguous connection to pigeon-catching. While Roger Green (personal communication) has pointed out that the acid soils of Samoa make finding such rings unlikely, it is believed that knowledge of their possible existence is important for two reasons. Firstly, "unlikely" does not necessarily mean "impossible". Secondly, Helen Leach (personal communication) has pointed out that the Maori, who used decoy parrots to catch parrots, also had a similar ring attachment. In this case the ring was made of a variety of materials including nephrite or jade, human bone, whalebone, birdbone, and the epidermis of the midrib of the leaf of *Cordyline indivisa* (Best 1977:202; Beck 1984:105). If a variety of materials was also used in Samoa, the archaeological survivability of such rings may be more likely than Green supposes for tortoiseshell alone.

6. It is reported that the decoy pigeons that were especially wild and difficult to tame were blinded so they would be easier to handle. The blinding of the bird was said to have been done using either a shark's tooth or the claw of a pigeon (1903:334; Buck 1930:533). The recovery of either of these artefacts on a *tia 'ave* would provide supporting evidence for the pigeon-catching hypothesis.

7. Krämer (1902-3:2:334) reports that, when the first pigeon of the day was caught, a conch trumpet was blown to announce this fact. While not as unambiguous as the tortoiseshell ring, (since conches were used in other events) the presence of a whole conch or broken pieces of one would provide additional supporting evidence for pigeon-catching. Although clearly not a star mound, the Pulemelei mound on Savai'i in Western Samoa is interesting in this regard. A Samoan informant said that "cairns" arranged in a circle on top of the mound once held conch shells (Clark 1969:82). Although none was

found in the cairns, one was found on top of the mound (p.82). These cairns, interpreted as seats, are said to be “identical” with those found on a Savai’i star mound (p.86), thus providing an indirect connection, via the cairns, between a star mound and a conch shell. Although space does not allow a full discussion, one possible interpretation of the Pulemelei mound is as follows: Possible post moulds on the mound appear to be unrelated to the circle of cairns which are situated off-centre on the mound’s upper surface (Scott p.880, Fig. 39). It may be, then, that the mound initially functioned as a temple or house platform, but later served as an ad hoc pigeon-catching mound. Further investigation is warranted.

8. Buck (1930:544) says that *mālōloga* camps were set up near the *tia* during the pigeon-hunting festivals. More intensive field surveys need to be undertaken to see whether these sites can be located and whether a relation between them and *tia ‘ave* can be established. Supporting evidence for this association between inland *mālōloga* camps and *tia* comes from Tonga in the form of the following proverb recorded by Collocott and Havea (1922:146):

Ala i jia ala i kolona: Skillfull in *jia*, skillful in *kolonga*.

This expression originates in the sport of pigeon snaring. The mound where the snaring was actually carried out is called the *jia* and the place where the work (largely culinary) necessary for the comfort of the sportmen was done is called the *kolonga*. This expression means literally a man whose energy and ability are equally conspicuous in either place, and is freely used of a good all-round man.

Churchward (1959:270) agrees, defining *kolonga* as the “camping place of [the] pigeon-catching (*heu lupe*) party”. Pigeon-catching on mounds *jia* or *sia* (though without rays) is reported in the ethnohistorical/archaeological literature of Tonga (Gifford 1929, McKern 1929, Martin 1981:380-1; Ferdon 1987:181-4).

9. Davidson describes a shift from un-nucleated inland settlements to nucleated coastal settlements at the time of European contact. She attributes this shift to Samoans’ desire for European trade goods, and discounts the Samoan explanation that they moved “when the Gospel came” (Davidson 1974d:53-5). It may, however, turn out that some of the smaller, more remote inland settlements described by Davidson and others, are *mālōloga* camps. Thus, if inland settlements had some connection with star mounds, and if star mounds and pigeon-catching were part of the indigenous Samoan religion, then the Samoans’ adoption of Christianity may have entailed the permanent

abandonment of those inland sites. There is some supporting evidence for this hypothesis. For example, in the one instance where the missionary John Williams writes about inland settlements, he mentions “sacred” “wood pigeons” being nearby one on ‘Upolu (1984:230). Furthermore, Turner (1861:214) tells us that, “Of all the Samoan sports, none, perhaps, is a greater hindrance to missionary work than pigeon-catching. Schools are deserted, and whole villages scattered by it on a career of dissipation for many weeks at a time.”

Adding to this, William B. Churchward (1971:139-141), who was British Consul in Samoa, wrote the following concerning pigeon-catching in 1887:

Pigeon catching is the oldest and most cherished sport in all Samoa, and until lately, partook much more of the nature of a fixed ceremony than a mere amusement. It was made the occasion for feasting and junketing in a high degree, and whilst it lasted all sorts of irregularities could be indulged in without comment.

In days of old these yearly pigeon festivals were attended by the entire population of the village, to the sad neglect of all domestic affairs. Old and young, schoolmaster and pupil, fisherman, pig-hunter, carpenter or agriculturalist, no matter — all went to offer at St Hurlingham’s shrine in the bush, carrying with them all the provisions they could lay their hands upon, so as to ensure a good time of it in their sylvan quarters. In fact, for the time they returned to their original state of barbarism, making their picnic the excuse for undesirable orgies of a most damaging nature to the progress of the civilization they were so satisfactorily acquiring.

Thanks to their kind friends the missionaries, this is not so nowadays. The natives, at all times conscious of their sincere efforts to socially improve the race, listened attentively to their protests, and with the strong common-sense that the Samoans in general possess, were soon able to realise the damage that was being done to the cause of their own advancement by keeping up this dangerous old custom, and consequently abandoned all the objectionable parts thereof.

The Vaigafa site with the nearby Mauga Ali’i crater site which includes *tia ‘ave* (Davidson 1974a:184-8), and the Lefutu Ridge site (Frost 1978), which is now known to have *tia ‘ave* on and near it (Clark 1989), may be possible instances.

On the other hand, one of our Samoan workers told us that the term “*mālōloga*” referred to the terraces that we had found on the slopes around the village of Aoa. He said they are used today as resting places when one is doing plantation work. A large number of terraces are found in the general area of some of the star mounds near Aoa (Clark and Herdrich 1988:32). Thus, there are *three* possible candidates for the *mālōloga* sites associated

with *tia 'ave*: the terrace sites alone, or the relatively large inland sites with *fale* foundations alone, or both. In any event, the cause of their abandonment needs further research.

10. A number of oral narratives give relatively specific locations for pigeon-snaring mounds. If these locations are accurate, a description of these mounds would provide further evidence either for or against the idea that pigeon-catching mounds included "star mounds". Two examples follow:

a) In a narrative recorded by the Muses and Schultz, the location of a mound called Tiapepe is given. It is said to have been located on 'Upolu on a narrow strip of coastal land near the village of Poutasi. An examination of a map of 'Upolu shows a Tiapepe cape on the north side of the island near this village. No surveys have been conducted there to date so no information is available whether there is a *tia* there and what its shape might be. This would be relatively easy to investigate.

b) In a fable discussed above, there is supposed to be a pigeon-catching mound located on the island of Ta'ū, inland from the section called Si'ufaga, which is part of the village of Ta'ū. The *tia* was said to belong to an individual by the name of Sālevao, who was identified earlier as being incarnated in the eel and turtle, among other things. If his *tia* could be identified, one would thus expect that it would have either one or six rays. This, too, should be relatively easy to investigate.

11. If any of the above-mentioned gods were represented by the *tia 'ave*, it may be that other associated material objects would be found at these locations, for instance, a turtleshell at a six- or single-rayed mound. If at least some of the eight-rayed mounds represented the octopus, one might expect to find *Cypraea ovula* shells which Turner says represented Fe'e.

CONCLUSIONS

It seems that, as soon as one asks the question, "Why have so many Samoans been reported to say that 'star mounds' were used for pigeon-catching?", one is required to view the question from the Samoans' perspective. In other words, one needs to look into their art, social structure, traditional belief systems and even their way of organising space. Clearly, sufficient evidence has been presented to argue plausibly for five points:

1. There is a single category, here called *tia 'ave*, that includes structures earlier referred to as "star mounds" and "specialised structures". This category has, as its members, varietal structures which are distinguished from one another by their number of rays.
2. All *tia 'ave* functioned, at least in part, as pigeon-snaring mounds.

3. The varietal members mentioned above are based on mythological creatures found in the Samoan pantheon and hence the *tia 'ave* can be viewed as symbolic representations of those entities.
4. The above symbolic representation and several Samoan proverbs tie the *tia 'ave* to a set of traditional belief systems preserved in oral lore. Pigeon-catching is claimed to have been viewed by Samoans as a ritual re-enactment of those ancient stories that relate to the procurement of wives and to warfare.
5. At the same time, the *tia 'ave* may have represented village social structure and spatial organisation.

At this stage in the research all of the data considered have converged on the above interpretation. Other interpretations, such as burial mounds or residential structures, appear to have no supporting evidence. Finally, further testing of this interpretation and related hypotheses is still necessary.

NOTES

1. A data base of 151 "star mounds" recorded in the Samoan Archipelago as of 1989 is used; this number includes what will be called here single-rayed mounds and rayed mounds that do not exhibit circular shapes referred to in earlier literature as "specialised sites" (Davidson 1974b). "Star" or "cog mounds" have been identified in Western and American Samoa (Green and Davidson 1968, 1974; Jennings 1976, Jennings and Holmer 1980; Frost 1978; Clark 1980; Kikuchi MS n.d.; Best *et al.*; Clark 1989). An appendix provides a list of the structures examined. (It should be pointed out that the number on Tutuila is much higher, as Frost (1978:67) and Kikuchi (n.d.) note that there were many more mounds in the Tafuna area which have not been described.)
2. The term *tia 'ave* is a constructed term and is not used by Samoans to refer to these structures. It is composed of two Samoan words *tia* (mound) and *'ave* (ray). "*Tia 'ave*" is introduced here because earlier terms such as "star mound" and "cog mound" designated only a subset of the larger proposed category. Those terms implied that only circular or oval multi-rayed structures belonged to the category and, in my view, artificially excluded single-ray *tia* and those *tia* that did not exhibit an obvious circular or oval shape. "*Tia 'ave*" does not have this descriptive disadvantage, and (while I follow Davidson's analytical lead) avoids any functional implications that a term like "specialised site" might carry.
3. The anonymous reviewer for this article suggested that the feature "bush location" be changed to "inland (usually in the bush)". This certainly is a most reasonable suggestion, but, in my view, requires more evidence before it can be adopted.
4. Another possible interpretation for the journey to the pigeon mound is brought to mind by Kikuchi's argument that the pigeons in various New Zealand,

Marquesan and Tuamotuan myths function as demigods who search the underworld for the spirits of the dead to bring back to a priest who has called for them. Thus, Sālevao could have been calling upon the pigeon to bring back Tulelepuia'ilama's spirit so he could restore him to life. This need not contradict my interpretation; rather my interpretation may show *how* Sālevao did the "calling" (i.e. what symbolic associations are relevant to this case).

5. I am unaware of any Samoan oral tradition that gives the exact number of rays for the sun. One Tahitian myth (Makemson 1941) states that the sun had 10 rays and I tentatively adopt that number here.
6. There is no mention of starfish (*aveau*) in any of the recorded oral material examined. They are mentioned here because various descriptions of Samoan tattooing show four-rayed stars that have been identified as "starfish" (see Buck 1930:657).

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APPENDIX

SITE	NO. RAYS	SOURCE	DESIGNATION
1.	Manono	11	(Davidson 1974c:227)
2.	AS-21-109	11	(Clark 1989:140, Table 9)
3.	AS-21-84	11	(Clark 1989:140, Table 9)
4.	AS-21-13	10*-11	(Clark 1989:140, Table 9)
5.	AS-22-12	10	(Clark 1989:141, Table 9)
6.	AS-21-15	10	(Clark 1989:140, Table 9)
7.	SU-MA-7	10	(Davidson 1974a:187-8)
8.	AS-22-9	10	(Clark 1989:141, Table 9)
9.	AS-21-64	10	(Clark 1989:140, Table 9)
10.	AS-21-89	10	(Clark 1989:140, Table 9)
11.	AS-22-33	10	(Clark 1989:141, Table 9)
12.	AS-22-36	10	(Clark 1989:141, Table 9)
13.	SU 17-552	10	(Hewitt 1980:38)
14.	AS-23-18	8-10*	(Clark 1989:141, Table 9)
15.	AS-21-91	9	(Clark 1989:140, Table 9)
16.	SUMu-157	9	(Holmer 1976:18)
17.	SUMu-165	9	(Holmer 1976:18)
18.	Lal-15	8-9	(Davidson 1974a:193)
19.	SS-Pu-4	8	(Buist 1969:56)
20.	SS-SI-11	8	(Buist 1969:56)
21.	SS-Sp-7	8	(Buist 1969:56)
22.	SS-Sp-9	8	(Buist 1969:57)
23.	Lal-2	8	(Davidson 1974a:191-2, Fig. 78)
24.	Lal-3	8	(Davidson 1974a:191-2, Fig. 78)
25.	Lal-5	8	(Davidson 1974a:192-3, Fig. 78)
26.	Lal-7	8	(Davidson 1974a:192-3, Fig. 78)
27.	SU-Lu-53	8	(Peters 1969:210)
28.	SS-Vt-1	8	(Scott 1969:72, Fig.36)
29.	SS-Sp-11	8	(Scott 1969:72, Fig.36)
30.	AS-22-10	8	(Clark 1989:141, Table 9)
31.	AS-21-16	8	(Clark 1989:140, Table 9)
32.	AS-21-17	8	(Clark 1989:140, Table 9)
33.	AS-21-21	8	(Clark 1989:140, Table 9)
34.	AS-21-22	8	(Clark 1989:140, Table 9)
35.	AS-21-93	8	(Clark 1989:140, Table 9)
36.	AS-21-73	8	(Clark 1989:140, Table 9)
37.	AS-22-20	8	(Clark 1989:141, Table 9)

38.	AS-22-23	8	(Clark 1989:141, Table 9)
39.	AS-21-66	7-8*	(Clark 1989:140, Table 9)
40.	AS-21-72	7-8*	(Clark 1989:140, Table 9)
41.	AS-22-35	6-8*	(Clark 1989:141, Table 9)
42.	AS-23-9	6-8*	(Clark 1989:141, Table 9)
43.	Lana 994672	7-8	(Davidson 1974a:203)
44.	St. No. 1/AS-31-4	7-8	(Frost 1978:69; Clark 1980:66-7)
45.	AS-21-14	7-8	(Clark 1989:140, Table 9)
46.	AS-21-19	7-8	(Clark 1989:140, Table 9)
47.	AS-21-88	7-8	(Clark 1989:140, Table 9)
48.	AS-22-17	7-8	(Clark 1989:141, Table 9)
49.	AS-22-16	7	(Clark 1989:141, Table 9)
50.	AS-21-65	7	(Clark 1989:140, Table 9)
51.	SU-Sau-1	7	(Davidson 1974a:183)
52.	Lal-1	7	(Davidson 1974a:191-2, Fig. 78)
53.	Lal-6	7	(Davidson 1974a:192-3, Fig. 78)
54.	Lal-9	7	(Davidson 1974a:192-3, Fig. 78)
55.	Lal-10	7	(Davidson 1974a:192-3, Fig. 78)
56.	Lana 993675	7	(Davidson 1974a:203)
57.	AS-31-12	7	(Clark 1980:70)
58.	AS-22-11	7	(Clark 1989:141, Table 9)
59.	AS-21-18	7	(Clark 1989:140, Table 9)
60.	AS-21-108	7	(Clark 1989:140, Table 9)
61.	AS-21-80	7	(Clark 1989:140, Table 9)
62.	AS-22-38	7	(Clark 1989:141, Table 9)
63.	AS-34-10[a]	6-7	(Best <i>et al.</i> 1989:6, Fig. 2.1)
64.	AS-21-12	6-8	(Clark 1989:140, Table 9)
65.	AS-21-23	6-7	(Clark 1989:140, Table 9)
66.	SS-SI-10	6	(Buist 1969:56)
67.	Lal-4	6	(Davidson 1974a:192-3, Fig. 78)
68.	Lal-11	6	(Davidson 1974a:192-3, Fig. 78)
69.	Lal-12	6	(Davidson 1974a:193-4, Fig. 79)
70.	Lafulemu	6	(Davidson 1974c:227)
71.	St. No. 4/AS-31-7	6	(Frost 1978:71-2; Clark 1980:68)
72.	AS-31-11	6	(Clark 1980:70)
73.	AS-21-67	6	(Clark 1989:140, Table 9)
74.	AS-21-79	6	(Clark 1989:140, Table 9)
75.	AS-21-81	6	(Clark 1989:140, Table 9)
76.	AS-22-34	6	(Clark 1989:141, Table 9)
77.	AS-22-41	6	(Clark 1989:141, Table 9)
78.	AS-34-10[b]	6	(Best <i>et al.</i> 1989:6, Fig. 2.1)

79.	St. No. 2/AS-31-5	5-7	(Frost 1978:70; Clark 1980:67)
80.	AS-22-13	5-7	(Clark 1989:141, Table 9)
81.	Sina-17	5-6	(Davidson 1974b:207, Fig. 85)
82.	AS-21-68	5*-6	(Clark 1989:140, Table 9)
83.	SS-01-C-2	5	(Buist 1969:56)
84.	Lal-8	5	(Davidson 1974a:193-4, Fig. 79)
85.	Polua-5	5	(Davidson 1974b:208, Fig. 87)
86.	St. No. 6/AS-31-8	5	(Frost 1978:72-3; Clark 1980:68-9)
87.	AS-21-82	5	(Clark 1989:140, Table 9)
88.	AS-21-83	5	(Clark 1989:140, Table 9)
89.	AS-22-25	5	(Clark 1989:141, Table 9)
90.	AS-22-15	5	(Clark 1989:141, Table 9)
91.	AS-23-11	5	(Clark 1989:141, Table 9)
92.	AS-23-13	5	(Clark 1989:141, Table 9)
93.	AS-23-15	5	(Clark 1989:141, Table 9)
94.	Lal-13	5?	(Davidson 1974a:192-3, Fig. 78)
95.	AS-21-92	5?	(Clark 1989:140, Table 9)
96.	St. No.7/AS-31-9	4-5	(Frost 1978:73-4; Clark 1980:69)
97.	St. No.8/AS-31-10	4-5	(Frost 1978:74; Clark 1980:69)
98.	Sina-14	4-5	(Davidson 1974b:207, Fig. 85)
99.	SU-Lu-50	4	(Davidson 1969:204)
100.	AS-21-20	4	(Clark 1989:140, Table 9)
101.	AS-21-85	4	(Clark 1989:140, Table 9)
102.	AS-34-10[c]	4	(Best <i>et al.</i> 1989:6, Fig. 2.1)
103.	AS-22-30	4	(Clark 1989:141, Table 9)
104.	AS-23-19	4	(Clark 1989:141, Table 9)
105.	SU Mu-95	4	(Holmer 1976:18)
106.	Mata'itoa-2	4?	(Davidson 1974b:206-7, Fig. 83)
107.	Sina-26	4?	(Davidson 1974b:207, Fig. 85)
108.	Niule'a-60	3-4	(Davidson 1974b:207-8, Fig. 86)
109.	SU-So-1	3	(Davidson 1974a:181)
110.	Block 1	3	(Davidson 1974a:196-7)
111.	Block 8	3	(Davidson 1974a:198)
112.	Maugatia-3	3	(Davidson 1974b:206-7, Fig. 82)
113.	Maugatia-7	3	(Davidson 1974b:206-7, Fig. 82)
114.	Niule'a-68	3	(Davidson 1974b:207-8, Fig. 86)
115.	AS-21-77[a]	3	(Clark 1989:140, Table 9)
116.	AS-21-90	3?	(Clark 1989:140, Table 9)
117.	St. No. 3/AS-31-6	3?	(Frost 1978:71; Clark 1980:67-8)
118.	Sina-12	3?	(Davidson 1974b:207, Fig. 85)
119.	Niule'a-99	2-3	(Davidson 1974b:207-8, Fig. 86) 1
120.	SU-MA-5	2	(Davidson 1974a:187, Fig. 76)
121.	Fogatia	2	(Scott 1969:86)
122.	AS-21-106	2	(Clark 1989:140, Table 9)
123.	AS-21-107	2	(Clark 1989:140, Table 9)

124.	Polua-1	1-3	(Davidson 1974b:208, Fig. 87)
125.	Polua-26	1-3	(Davidson 1974b:208, Fig. 87)
126.	Polua-27	1-2	(Davidson 1974b:208, Fig. 87)
127.	Maugatia-1	1	(Davidson 1974b:206, Fig. 82)
128.	Maugatia-2	1	(Davidson 1974b:206, Fig. 82)
129.	Lata-1	1	(Davidson 1974b:207, Fig. 84)
130.	Polua-12	1	(Davidson 1974b:208, Fig. 87)
131.	Polua-23	1	(Davidson 1974b:208, Fig. 87)
132.	Polua-24	1	(Davidson 1974b:208, Fig. 87)
133.	Polua-25	1	(Davidson 1974b:208, Fig. 87)
134.	Folasa-Vaimaga[a]	1	(Davidson 1974b:209, Fig. 88)
135.	Folasa-Vaimaga[b]	1	(Davidson 1974b:209, Fig. 88)
136.	AS-21-77[b]	1	(Clark 1989:140, Table 9)
137.	AS-22-28	1	(Clark 1989:141, Table 9)
138.	AS-34-10[d]	1	(Best <i>et al.</i> 1989: , Fig. 3.1)
139.	AS-34-10[e]	1	(Best <i>et al.</i> 1989:6, Fig. 2.1)
140.	Mt Olo	?	(Holmer 1980:15)
141.	SS-SI-8[a]	?	(Buist 1969:56)
142.	SS-SI-8[b]	?	(Buist 1969:56)
143.	Lal-16	?	(Davidson 1974a:193, Fig. 79)
144.	Block 3	?	(Davidson 1974a:196-7)
145.	Block 4	?	(Davidson 1974a:197)
146.	Block 5	?	(Davidson 1974a:197)
147.	Block 6	?	(Davidson 1974a:197)
148.	Folasa-a-luga	?	(Davidson 1974c:227)
149.	Apia-Siumu	?	(Davidson 1974c:227)
150.	Vaie'e	?	(Davidson 1974c:227)
151.	AS-11-53	?	(Hunt and Kirch 1988:164)

*"Most likely number" (Clark 1989:140-1, Table 9).

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