

SAPAPALI'I ROAD SURVEY  
SAVAI'I, WESTERN SAMOA  
BY Gregory U. Jackmond  
February 1977

SAPAPALI'I PLANTATION ROAD SURVEY,

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## SAPAPALI'I PLANTATION ROAD SURVEY

by Gregory U. Jackmond

### Introduction

Interest in the Sapapali'i area (Appendix A, Map 1) was stimulated by the previous work done by Buist as part of a general reconnaissance of Savai'i (Buist 1969). Buist's superficial survey located only seven sites of archaeological interest along the Sapapali'i Plantation Road, all except one of which was located above (to the west of) the ford 2 km. northwest of the modern coastal village of Sapapali'i (Appendix A, Map 1; ~~Appendix B~~).

Not expecting the density of archaeological sites that would later be encountered, an initial 5 km. long, rough, baseline map was drawn up giving approximate locations to some of the prominent platforms observed (Jackmond, <sup>1976</sup>Ms.). As the true dense nature of archaeological remains along the entire mapped length of the Sapapali'i Plantation Road became evident, it was decided to concentrate on only a small portion of the originally mapped tract. Consequently, an area of relatively sparse, short vegetation within reasonable walking distance of Sapapali'i was finally chosen for an intensive survey.

With such a dramatic reduction in geographic extent the scope of the project was drastically shifted. Instead of simply increasing knowledge

of the spacial extent of sites, it was decided to produce data from Savai'i which could be compared with the detailed work done by Jennings, et al on Upolu (Jennings, et al 1976a & b) and thus expand knowledge of settlement patterns in Western Samoa.

The survey area, located from 1 to 1.4 km. northwest of the modern coastal village of Sapaali'i (Appendix A, Map 1), consisted of ca. 20 hectares. In this locality a large, unnamed, intermittent stream roughly parallels the southern edge of the plantation road which forms the southern extent of the survey area (Appendix A, Map 2). In general the terrain of this area is flat to gently sloping (10 - 20°) to the south and southeast but it also contains some steeper portions with slopes of up to 45° or more (Appendix A, Map 3). Vegetation within the survey area consisted primarily of an overburden of old coconut trees (20 - 30m. in height) with a dense to very dense undergrowth of ferns, mile-a-minute and brush ( $\frac{1}{2}$  -  $1\frac{1}{2}$ m. in height). Only a small portion of the survey area (ca. 0.8 hectares, between walkway SS-13-120 and SS-13-135) was covered with the dense forest like vegetation which underlies many of the coconut plantations in the general area. (Appendix C, Photos 1-4).

#### Archaeological Remains

Four fundamental classes of archaeological structural remains (i.e.: stone fences, walkways, platforms, earth ovens) were encountered during the survey, all of these have been previously recorded and described for Western Samoa (Buist 1969; Davidson 1974a; Jennings, et al 1976a & b; ...). Because of the wide range in size and form within each class of archaeological feature, each has been subjectively subdivided into several types to enable a more comprehensive interpretation of the data obtained (Appendix D and E).

Archaeological features recorded during the survey have been numbered

following the system suggested by Green and described by Jennings (1976b, 5-6) (i.e.: SS-13-120 is the 120<sup>th</sup> archaeological feature (site) located on map 13 on Savai'i in the Samoan island group).

Another class of archaeological feature, the household unit (HHU: Appendix D3), was encountered during the survey but these phenomena were not assigned SS-13 site numbers as they consisted of a conglomerate of other sites.

#### Inter-areal Analysis

The total survey area, which on the surface appears as a single continuum of fences, walkways and platforms, can be readily divided into three distinct <sup>CLUSTERS</sup> (village-areas) (Appendix A, Map 4). These village-areas have been established by comparing six communal traits which combine to distinguish each area as a separate entity. These traits (terrain, earth ovens, platform density, platform size, fence and walkway density, household unit size) are presented below in table form (Table I).

Table I : Village-area Separation

Trait	Area 'A'	Area 'B'	Area 'C'
Terrain (Appendix A, Map 3)	gentle knoll on the NW <sub>1</sub> of the survey area	gentle knoll on the NE <sub>1</sub> of the survey area and flood plain to south	flat flood plain on the SW <sub>1</sub> of the survey area
Earth Ovens (Appendix E3)	1 'umuti' on the boarder between 'A' and 'B'; 1 small oven	14 'umuti'; 1 small oven	1 'umuti' (possible historic copra drier)
Platform Density (platforms/hectare) (Appendix F1c)	9.8	4.3	3.3
Platform Size: mean area (m <sup>2</sup> ) mean volume (m <sup>3</sup> ) (Appendix E2)	132 40	245 43	282 47
Fences (m/h) Walkways (m/h) (Appendix 1, Table 8)	255 284	303 58	208 -
HHU Size mean area (1000m <sup>2</sup> ) (Appendix E4)	1.35	3.46	11.03



Inspection of the above table (Table I) plainly shows the distinctive characteristics which distinguish village-area 'A' from 'B' or 'C': 1- 'A' is topographically separate from both 'B' and 'C'; 2- 'B' contains most (if not all) the 'umuti'; 3- 'A' has a platform density ca. twice that of 'B' and ca three times that of 'C'; 4- although the mean lithic volume for 'A', 'B' and 'C' are reasonably close, the mean basal area of platforms in 'A' is ca.  $\frac{1}{2}$  that for 'B' or 'C'; 5- the density of fences and walkways within 'A' is about equal but varies markedly (5:1) for 'B' while the only walkway (roadway) for 'C' is the Sapapali'i Plantation Road; 6- HHU size for 'A' is ca.  $\frac{1}{2}$  that of 'B' while the HHU size for 'C' is much larger than either 'A' (6 times) or 'B' (3 times).

As can be seen from the above data village-area 'A' is quite distinct while the difference between 'B' and 'C' is not as clearly delineated, leading to the possibility that 'C' may be a westward extension of 'B'. From the data in Table I the only striking differences appear in the number of 'umuti' and HHU size. But, when other data (Appendix E2 and F1) are added to the generalized information in Table I (eg.: 70% of the platforms in 'C' have a large basal area as compared to 38% for 'B') a differentiation between 'B' and 'C' becomes more plausible.

The question as to whether these village-areas are separate villages or only distinguishable sections within a single village is not easily determined with the limited data available. Nonetheless, when the inter-structure of each area is closely examined certain aspects are observed which appear to distinguish them as separate villages (Table II): Although terrain aided in separating the survey area into separate village-areas the topography of 'A' and 'B' are not dissimilar enough to explain the difference which exists in the density of platforms and walkways or HHU

Table II : Village-area Inter-structure

	Area 'A'	Area 'B'	Area 'C'
1-platforms (Appendix F1)	a)all types present b)few very large, most very small to large c)dense	a)all types present b)few very large most very small to large c)moderately dense	a)no very small b)most large c)sparse
2-walkways (Appendix E1, Table 8; Appendix E3)	a)most raised (Type II & III) b)numerous. & dense	a)most low or walled (Type I & IV) b)infrequent	a)none (only Sapapali'i Plantation Road)
3-'umuti' (Appendix E3)	a)only 1 b)associated with small platforms, within small HHU	a)14 b)not ass. with any particular size platform or HHU	a)1 (possibly historic) b)ass with large platform and very large HHU
4-HHU's (Appendix E4)	most small	most medium	all very large
5-'malae' <sup>1</sup> (village-green) (Appendix A, Map 1)	a)50 x 50m. (may extend to N & W b)ass. w/ #137 (Vol. Type IV) c)intersection of 2 major walkways	a)50 x 75m. (may extend to E) b)ass. w/ #27 (Vol. Type IV) c)walkways point to #27	a)50 x 75m. (may extend to W) b)ass. w/ #106 (Vol. Type IV)
6-population <sup>2</sup>	116 (23/hectare)	132 (11/h.)	34 (11/h.)
7-age <sup>3</sup>	pre-1200AD or post 1600 AD	1200 - 1600(1900) AD	?

1-Although none of the 'malae' are as large in size as mentioned by Davidson (1969,51), considering the dense nature of the areas, the suggested 'malae's are within the range of those of small modern 'malae' (personal observation).

2-Population estimates have been made using Davidson's estimate of 3.75 people per dwelling (1974,236) assuming 90% occupancy and that only Area Type II thru IV are dwellings.

3-Determining the age of the prehistoric remains without the assistance of typological data or carbon dates is at best guess work. The dates suggested in the table have been assigned on the basis of the only 'datable' feature present, the 'umuti'. Although no carbon dates were obtained from the 'umuti' in the survey area, 'umuti' have been dated elsewhere (Buist 1969, 51; Davidson 1974; 114-115; Jennings, et al 1976a, 9; ...) and those dates have been inferred to the survey area 'umuti'.

size (Table II; 1c,2,4); 2- Not only are all the types of structures (platforms) essential to a village present within plausible proportions (Table II; 1a & b), but there exists within each area the 'village diagnostic' 'malae', (Table II; 5); 3- 'umuti', appearing in great abundance within 'B', are not associated with any specific type of platform, HHU or terrain but are absent from 'A' (except for one example which could be due to village 'B' intrusion) (Table II; 3); 4- Even though a superficial observation of the area surrounding the survey area indicated that 'A', 'B', and 'C' may only be portions of larger villages, both 'A' and 'B' have populations large enough to be considered small villages (Table II; 6); 5- There appears to be a possible, though highly speculative, difference in ages of the areas (Table II; 7).

From the above internal analysis of the survey area it can be seen that many diagnostic differences exist within the data obtained during the Sapapali'i Plantation Road Survey. The way in which this data reacts between regions is discussed below.

#### Intra-areal Analysis

A comparison of the data from the Mt. Olo Survey (Jennings, et al 1976a & b) and that obtained from the Sapapali'i Plantation Road Survey (Table III) shows many interesting differences (Table IV) as well as numerous thought provoking similarities (Table V).

Table III : Olo-Sapapali'i Comparison

	Olo <sup>4</sup>	Sapapali'i <sup>5</sup>
I-Location (km. inland)	2-3	1-1.4
II-Terrain	steepe to gently sloping delineates village-areas	gently sloping to flat; delineates village-areas
III-Area (hectares)	100	20
IV-Potable water	small seeps within survey area	intermittent stream (river) 30m south of survey area
V-Archaeological Features		
A-Fences		
1-crosssectional area (m <sup>2</sup> )	up to 6.97±2.12	up to ca. 3.0

Table III : (cont.)

V-Archaeological Features				
A-Fences				
2-Enclosure types (example)	a-large (HHU's) <sup>7</sup> b-small (SU-Mu-144) c-very small (SU-Mu-171)		a-large (HHU's) b-small (SS-13-132&133) c-very small (SS-13-75)	
3-Length (m)	2400		4887	
Density (m/hectare)	24		239	
(m/platform)	18		45	
B-Walkways				
1-Overall				
Length (m)	3800		2105	
Density (m/h)	38		106	
(m/p)	29		19	
Role	height status related		height status related	
2-Village-area	A&C	B	A	B
Length (m)	2600	1200	1411	694
Density (m/p)	41.8	17.6	29	14
3-Type	different types connect- ed commonly		only 1 example of diff. types connected	
a-Raised				
i-Width (m)	2-11 (av. 4.5)		1-4.5 (av. 1.6)	
ii-Height (m)	.2-1 (av. 0.6)		.3-1 (av. 0.6)	
iii-Total length(m)	2500		1612	
iv-Density (m/h)	25		81	
(m/p)	19		15	
b-Walled				
i-Width (m)	4-7		3-5	
ii-Ttl. length (m)	1200		493	
iii-Density (m/h)	12		19	
(m/p)	9		4.5	
c-Trenched			SS-13-115? (portion opposit platform 198; only one)	
i-Site number	SU-Mu-96 (only one)		10	
ii-Length (m)	65		.30	
iii-Depth (m)	.50			
C-Platforms				
1-Number	133 (inc. 3 star)		109	
2-Shape	elliptical to rectangular and star		elliptical to rectantular	
3-Size (not inc. star)				
a-Area type (%)	A&C	B	A	B
I	3	0	31	20
II	27	49	33	28
III	47	49	31	38
IV	23	2	6	14
b-Volume Type (%)				
(SPRS)				
I	5	2	41	24
II	26	46	35	54
III	26	42	19	14
IV	42	10	5	8
c-Mean Volume (m <sup>3</sup> )	ca. 170	ca. 90	40	43

Table III : (cont.)

V-Archaeological Features		
C-Platforms		
4-Height (% above .49m)	65	25
5-Density	AAC B	A B
by village-area (p/h)	1.1 1.9	9.8 4.3
total area (p/h)	1.33	5.45
(dwellings/h)	1.28	4.30
D-'umuti'		
1-Number	6	15
2-% in one area (area)	84% (AAC)	87% (B)
3-Associations	with ranked house-holds	not with any particular kind of platform, HHU or terrain
VI-HHU		
A-Adjacent path length (m)	93 11 <sup>6</sup> (mean)	40 12 (mean)
B-Size	very large <sup>7</sup>	small to medium
C-HHU population	larger than at SPRS <sup>7</sup> (more platforms/HHU)	4-6 people/HHU
VII-Population		
A-Total for survey area	450	282
B-Density (people/h)	4.5	14.1
VIII-Age		
	1500-1700AD	A B
		pre-1200AD 1200-
		or 1600(1900)
		post 1900AD AD

4-Data appearing in the chart is from the 1974 season (Jennings, et al 1976a) unless otherwise stated.

5-Because of its small sample size village-area 'G' has been excluded from the chart, except when totals are considered.

6-J.D. Jennings, personal communication (Jan. 77)

7-Suggested from the map from the 1976 season (Jennings 1976b)

Observing the differences between the Mt. Olo data and the Sapapali'i data (Table IV) several possible relationships seem to exist. The presence of star mounds or status oriented 'umuti'; fence, walkway, and platform density; HHU size; age; and distance inland all appear to be related to the overall size of archaeological features within a region. While a comparison with Davidson's findings at Falefa (1974b) shows that a relationship between distance inland and structural size (or any other parameter) is unfounded, a correlation between overall structural size and the other phenomena seems quite probable. Unfortunately, the reliability inherent in comparing such a limited range of data makes any generalized statements quite tentative, but it is nonetheless important that these possibilities exist.

Table IV : Olo-Sapapali'i Differences

- |                                    |   |
|------------------------------------|---|
| 1-Location :                       | Mt. Olo is located 2 times further inland   |
| 2-Terrain :                        | Mt. Olo slightly steeper  |
| 3-Archaeological Features :        | Mt. Olo larger (fences 2 times larger; raised walkways 3 times wider; walled walkways .5 times wider; platforms larger in volume and height)                      |
| 4-HHU :                            | Mt. Olo larger, path length longer and larger internal population (family size)   |
| 5-Archaeological Feature Density : | Sapapali'i denser in most instances (fences 10 times more m/h and 2.5 times more m/p; walkways 3 times more m/h; platforms (population) 3 times more p/h and d/h) |
| 6-Star Mounds :                    | 3 at Mt. Olo, none at Sapapali'i  |
| 7-'Umuti' :                        | at Mt. Olo seem to be related to ranked households, but not at Sapapali'i; more at Sapapali'i   |

Inspection of the similarities between the Mt. Olo data and the Sapapali'i data (Table V) also produces interesting results. The most striking of which is not derived from a single set of similarities but from a combination of them. Not only does an element within their associated territories subdivide both survey areas into village-areas but a comparison of these internal areas shows 2 striking similarities.

The graphs of the Platform Basal Area Types for Area 'A&C' of the Mt. Olo survey and Area 'B' of the Sapapali'i survey (Appendix F3a) are strikingly similar and each of these areas contains over 80% of the 'umuti' within their respective surveys. On the other hand, the graphs for similar data from Area 'B' of the Mt. Olo survey and Area 'A' of the Sapapali'i survey (Appendix F3b) are different from Mt. Olo 'A&C' or Sapapali'i 'B' but similar to each other and they contain a very small portion of the 'umuti'. Is this a generalized phenomena which shows some correlation between platform basal area and 'umuti's, or only a chance occurrence?, once again only more, detailed survey work holds the answer.

Table V : Olo-Sapapali'i Similarities

- 1-The village-areas in each survey are delineated by topography
- 2-Each survey area has examples of three types of walled enclosures.
- 3-The average raised walkway height is the same.
- 4-The height of raised walkways seems related to status.
- 5-The ratio between fences by village-area is the same for both surveys (ie.: 2:1).
- 6-The density of raised walkways in meters/platform is the same for both surveys.
- 7-Although platforms at Mt. Olo are higher (and of a larger volume) the graphs for basal area types are similar between Olo 'A&C' and Sapapali'i 'B', and between Olo 'B' and Sapapali'i 'A' (Appendix F3).
- 8-In both surveys most of the 'umuti' are located within a single village-area.
- 9-Age between Mt. Olo and at least one area at Sapapali'i ('B') may be contemporary.

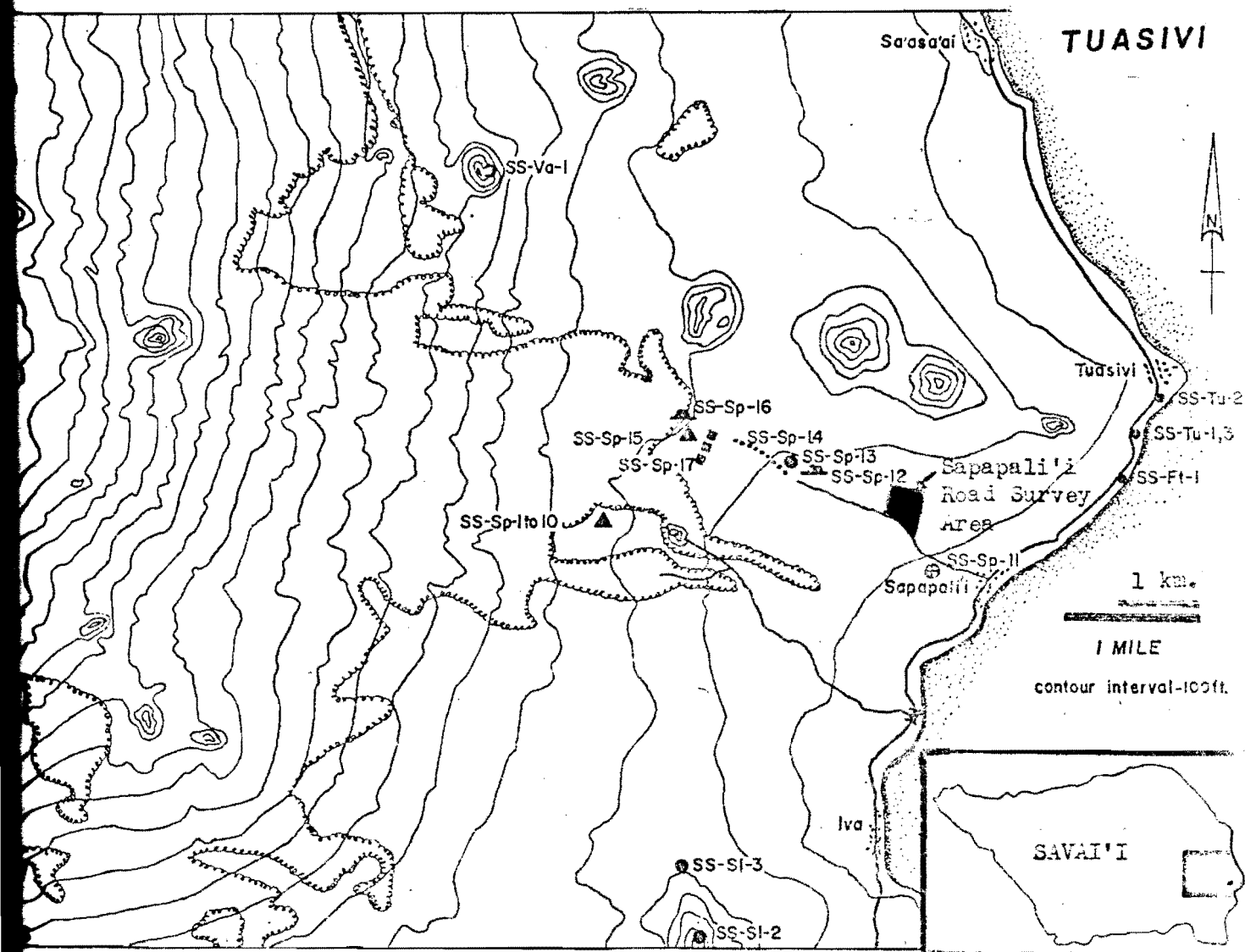
#### Comment and Conclusion

The overall goal of this report, that of providing detailed data which would be compared with that obtained at Mt. Olo (Jennings, et al 1976a & b) has been accomplished. As expected, while obtaining this simple goal the observations and conclusions of many other workers in Samoan archaeology have been substantiated (and in a few instances

questioned). But hopefully, and more importantly, the information presented in this report has gone beyond this modest goal and has generated questions related to not only the measurable phenomena associated with Samoan prehistory but, on a more significant level, the cultural relationships which these measurable phenomena represent.

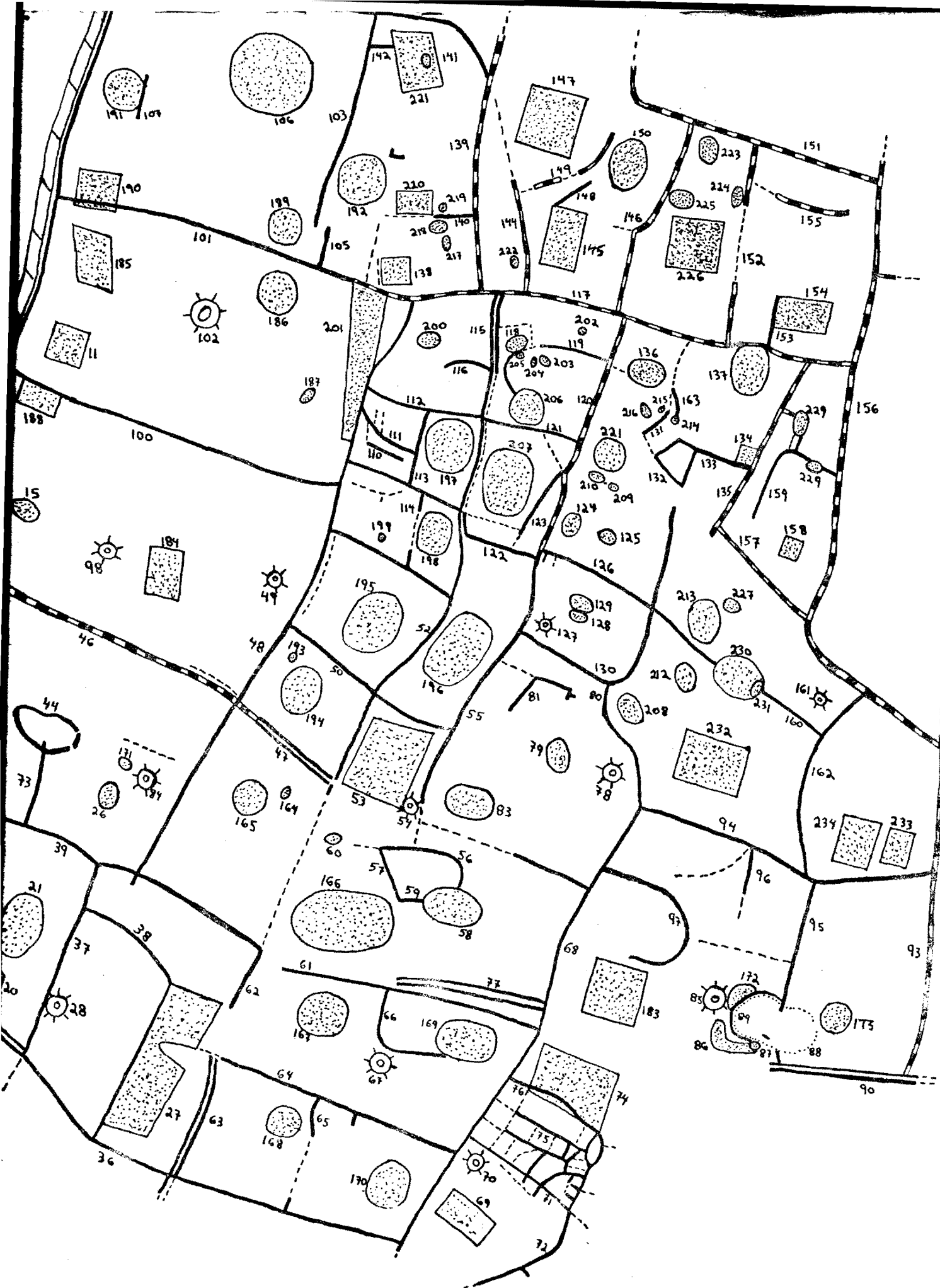


Appendix A : Map 1 ; Tuasivi Area



The above map was copied from A.G. Buist's Field Archaeology in Savai'i as it appeared in Volume 1 of Archaeology in Western Samoa (Green and Davidson, 1969).

on page 66

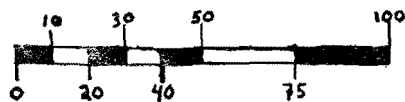


# SAPAPALI'I PLANTATION ROAD SURVEY

## LEGEND

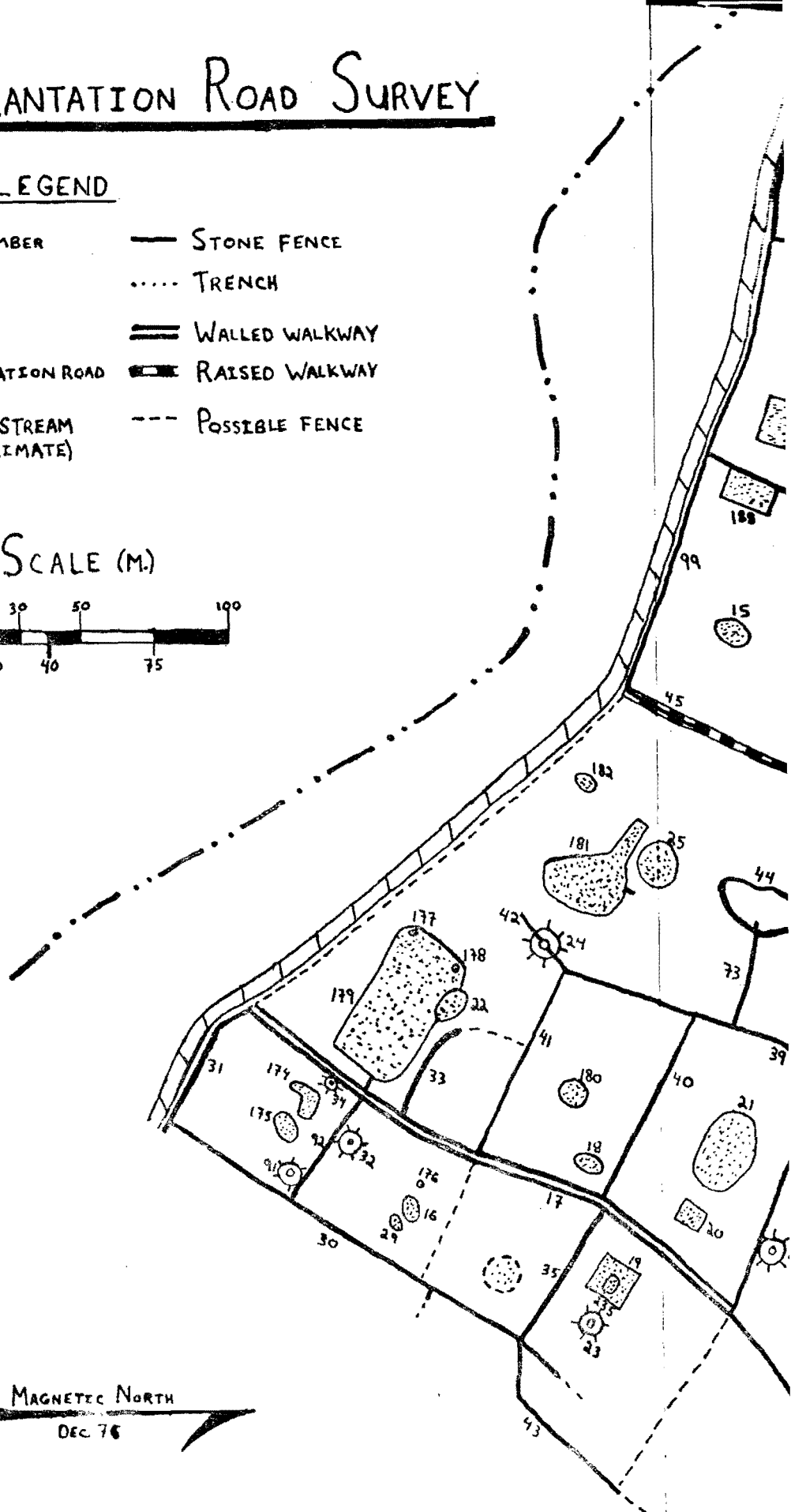
- |   |                    |
|---|--------------------|
| 25 SS-13 SITE NUMBER                                | — STONE FENCE      |
| ⊙ PLATFORM  | ..... TRENCH       |
| ⊙ EARTH OVEN  | == WALLED WALKWAY  |
| ▨ SAPAPALI'I PLANTATION ROAD                        | ▨ RAISED WALKWAY   |
| -·-·- INTERMITTENT STREAM<br>(LOCATION APPROXIMATE) | --- POSSIBLE FENCE |

SCALE (M.)



MAGNETIC NORTH

DEC 76



Appendix A : Map 3; Topographic Overlay

(location of contour  
lines approximate)

106

ca. 6 - 7m.  
above base

e of  
lope

ca. 2 - 3m.  
above base

ca. 4 - 5m.  
above base

27

Appendix A : Map 4; Village-area Overlay

106

Village-area 'C'

(ca. 3 hectares)

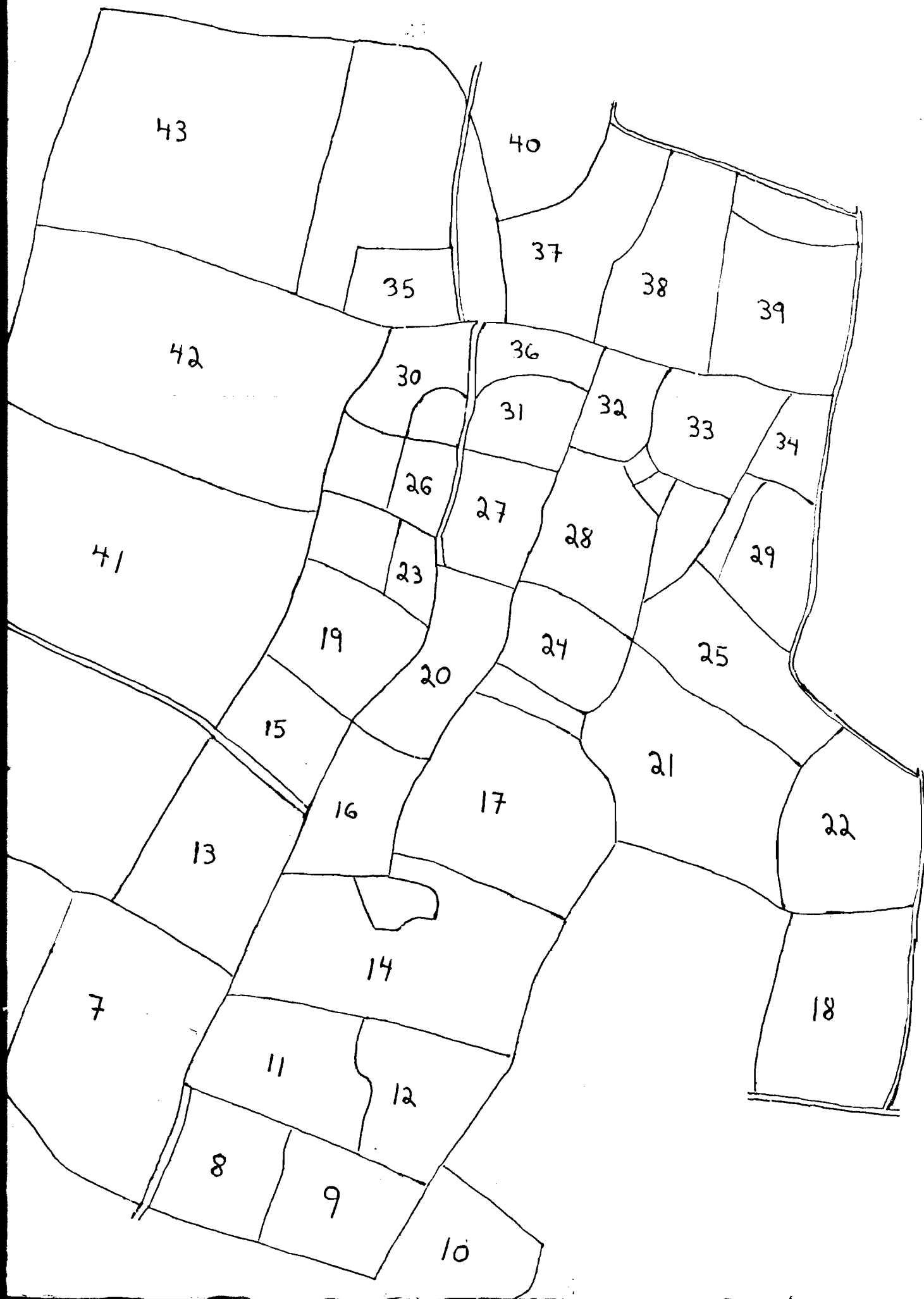
Village-area 'A'

(ca. 5 hectares)

Village-area 'B'

(ca. 12 hectares)

17



Map 1 : Map 2 : EEC Overlay



APPENDIX C : Photos

Photo 1: SS-13-15 (small platform with sloping sides); from 10m. south, looking north (south  $\frac{1}{2}$  of platform (hat) cleared of vegetation)



Photo 2: SS-13-24 ('umuti'); from 10m northwest, looking to southeast (northwest  $\frac{1}{2}$  of 'umuti' cleared of vegetation)





Photo 3: SS-13-46 (raised walkway Type Ib); west curbing 10m south of wall SS-13-48, from 5m north, looking south (1m scale right foreground)



Photo 4: SS-13-124 (small platform with vertical sides); from 10m south, looking north (southeast  $\frac{1}{4}$  hat) cleared of vegetation

## APPENDIX D1

Fences and WalkwaysFences

Mortarless, rough stone fences, historically used for subdividing land for use as pig pens, agricultural plots and household enclosures, found during the survey were constructed mainly of small to large stone (5 - 40cm. in diameter) and ranged from quickly built, unstable, meter high walls only a single stone thick to firm, massive walls the construction of which required considerable time and effort. To enable a better understanding of this broad continuum of size and form these fences have been divided into three major types by size, with each of these being subdivided into structural subtypes (Table 1).

Table 1 : Fence Types

type	cross-sectional area (m <sup>2</sup> )	sub-type	size(m)		sides	comment	example (SS-13)
			width	height			
I (small)	less than 0.3	Ia	less than 1.5	less than 0.25	sloping		89
		Ib	less than 0.6	less than 0.5	vertical	2 or more stones thick	42
		Ic	less than 0.3	less than 1	vertical	single stone thick	40
II (medium)	0.3 to 1.0	IIa	1.5 to 3.0	0.3 to 0.5	sloping		116
		IIb	0.5 x 0.5 to 1.0 x 1.0		vertical		122
III (large)	more than 1.5	IIIa	more than 3.5	more than 0.5	sloping		(135?)
		IIIb	-	-	-	constructed of large to very large stone (more than 0.5 m. in diameter)	111

Special consideration should be taken when interpreting relationships with at least two fence subtypes: 1- Type Ic, probably an example of modern construction, usually appears built over an older eroded Type Ia or IIa fence adding more antiquity to the combined structure than could be expected from a Type Ic fence itself; 2- Because of their trapezoidal crosssections most structures which could have been Type IIIa fences have been designated Type III walkways (Table 2).

### Walkways

Walkways encountered during the survey ranged in form from simple parallel fences to earth and stone filled, elevated structures. These structures, assumed to function much as modern roadways and trails, have the added role of serving the same purpose as fences as well as acting as a possible status indicator (Davidson 1974, 240).

Once again a division into structural types has been made to aid interpretation (Table 2).

The tendency for larger platforms to be higher than adjacent walkways, previously noted by Homer (Jennings, et al 1976a, 50), was observed in relationship to several major raised walkways (SS-13-146, 151, 156) which were above all but a few of the major platforms (SS-13-137). This phenomena was also evident with some secondary walkways (ie: SS-13-144 was above all platforms except SS-13-145 and 147).

Table 2 : Walkway Types

type	size (m)		description	example (SS-13)
	width	height		
I (broad, low, raised)	less than 4	less than 0.3	Ia-constructed of small to large stone (5-40cm. in diameter)	(73?)
			Ib- vertical curbing of medium to large stone (20-40cm.), earth filled	46
II (small raised)	1.0 to 2.5	0.3 to 0.8	trapezoidal in crosssection, sides constructed of medium to large stone, top paved with small stone (less than 0.5cm.)	120
III (large raised)	more than 2.5	more than 0.5	trapezoidal in crosssection, const. of medium to large stone, top paved with small stone	151
IV (walled)	3.0 to 5.0	-	2 parallel stone fences with a pathway between	17

i-Path widths for raised walkways were measured across the flattest top surface while those for walled walkways were measured from the centers of the parallel walls.

ii-Type Ia is only a postulated type of which only two possible examples were observed: SS-13-73 and 123.

## APPENDIX 12

Platforms

Platforms (dense, culturally derived, concentrations of stone) observed during the survey ranged in size from small, low, homogeneous stone piles to large, meter high, heterogeneous stone mounds. Variation in platform shape was also considerable ranging from square or circular to rectangular or elliptical. To help unravel this tangle of data and enable it to be compared with other work, two distinct but related size typologies have been developed.

Basal Area Types

The first, size-functional, typology divides the platforms observed into four different basal area size categories (Table 3) along functional lines which roughly parallels those discussed by Homer (Jennings, et al 1976a, 41-49). Because of the low nature of most of the platforms encountered on the Sapapali'i survey these area types are readily, functionally comparable with Homer's volume types (ibid). An additional category of very small platforms (Type I) has been included to aid in distinguishing smaller traditional structures, such as the 'paito' (co<sup>ARCHAIC FORM</sup>khouses), homogeneous stone piles, etc, from larger, possibly residential structures.

As can be seen by the examples listed under 'function' in Table 3, two supplementary functions for platforms (co<sup>ARCHAIC FORM</sup>khouses, paved areas) have been added to those discussed by Homer (ibid). Therefore a detailed description is warranted.

Cookhouses

Cookhouses ('umu kuka') observed in a modern village range from a small (2.5 x 5m), rough, elliptical outline of stones, containing dark ('oven') soil with a pile of small stone at one end (which is

used in the 'umu' (stone oven)) and covered with a quickly woven coconut leaf, thatched roof, supported by only four poles, to a <sup>LARGER,</sup> more substantial, paved platform with eight or more posts. The ancient 'paito' was probably more akin to a 'lower class' modern 'umu kuka'.

Although many very small platforms observed during the survey fell within the size range for a 'paito' only one (SS-13-193) contained the dark, 'oven soil' distinctive of such a structure (From this it should not be inferred that none of the other very small platforms observed were possible 'paito' but only that no dark, oven soil was observed. The absence of this distinctive soil type could be due to numerous conditions from erosion, dense vegetation, <sup>or</sup> recent soil build up.).

With this in mind any number of other very small platforms could be considered possible 'paito' (ie.: SS-13-29, 171, 204, 209, 217).

#### Paved Areas

The second category, which consists of large, low paved areas (eg: SS-13-166, 179, 181, 183, 196, 226), is reminiscent of the large low paved areas observed in modern villages associated (in front of) some dwellings. These modern examples seem to be mainly cosmetic (status oriented) but they do function as drying areas for, among other things, cloths, mats and mat making materials, and copra. This analogy with similar modern structures appears to fit at least two of the examples located during the survey (ie.: SS-13-179 and 181) and may apply to other platforms on which (due to vegetation, etc.) no associated smaller platform <sup>OR HOUSE OUTLINE</sup> (dwelling) was observed.

Table 3 : Platform Area Types

type	size (m <sup>2</sup> )	function (examples: SS-13)
I (very small)	less than 26	stone pile(177); cookhouse(193); small god house ('fale aitu'); very small dwelling(141)
II (small)	27-100	small dwellings ('faleo'o')(124)
III (medium)	101 to 500	larger dwellings or chief's house (58 or 185); small meeting house ('fale tele'); god house
IV (large)	more than 500	large meeting house (106); large god house; large, low paved area (179)

Areas for square and rectangular platforms were calculated using the standard equation for a rectangle ( $A=lw$ ) while those for circular, uniform, oblong, and elliptical platforms (Appendix E2, footnote iv) were obtained using the standard equation for the area of an ellipse ( $A=\pi/4 lw$ ).

#### Lithic Volume Types

The second typology, by lithic volume (Table 4), which is simply a reworking of that proposed by Homer for the Mt. Olo area (Jennings, et al 1976a, 42), has been developed so that coporal, as well as man hour construction time, computations and correlations can be made.

Table 4 : Platform Volume Type

type	size (m <sup>3</sup> )	Homer's Area B platform type (ibid)	construction time (man-hours)
I (very small)	less than 11	small (I)	less than 11
II (small)	11-50		11-50
III (medium)	51-150	large (II)	51-150
IV (large)	more than 150		more than 150

Lithic volumes have been calculated taking terrain into account. Volumes for platforms with vertical sides were calculated using the standard equation for the volume of a rectangular prism ( $V=hA_B$ ; where  $A_B$  is the basal area). The lithic volumes for platforms with sloping sides were calculated using a modified form of the formula for a pyramid frustrum

( $V = h/2 (A_B + A_S)$ ; where  $A_B$  is the area of the base, and  $A_S$  is the area of the top surface).

Construction times were calculated using the correlation of  $1m^3$  equals 1 man-hour obtained by Homer at Mt. Olo (Jennings, et al 1976a, 55).



## APPENDIX D3

Earth Ovens

The raised rim, earthen ovens observed during the survey can be divided into two categories (Table 5). The most prominent type, in both structure and number, was the larger earth oven (Type I) which strongly resembles those previously described as 'umuti' by Davidson (1974, 236-237), Janetski (Jennings, et al 1976a, 32-36), and Hewit (Jennings, et al 1976b, 13-14). The second type (Type II) is much smaller than the classic 'umuti' but seems to have a similar external structure.

Table 5 : Earth Oven Types

type	size (m)		example (SS-13)
	diameter	height	
I ( <i>'umuti'</i> )	7-13	more than 0.2	24
II (small oven)	less than 5	less than 0.2	34

## APPENDIX D4

Household Units (HHU's)

Household Units, a concept suggested by Jennings (1976b, 12-13) to explain the platform containing walled enclosures encountered at Mt. Olo assumed to reflect family ownership complexes related to the 'fua i ala' (distance along a path) mentioned by Davidson (1969), were encountered in various sizes and forms.

Of the many possible measurements which could be examined for HHU's, only three with the broadest ranging inferences (enclosure area, adjacent pathway length, HHU population) have been delineated in more detail in hopes that they will prove an aid in interpreting relationships associated with these 'family' plots. (ie.: Can relative inter-village status or family size be determined from the parameters recorded for an HHU?).

Size

The HHU's observed (Appendix A, Map 5; E4) have been subjectively divided into four exclusive size types (Table 6).

Table 6 : HHU Types

type	size (1000m <sup>2</sup> )	example (HHU #)
I (small)	less than 2.00	31
II (medium)	2.00 to 6.00	6
III (large)	6.01 to 10.00	14
IV (very large)	more than 10.00	42

Because of the irregular perimeters of many of the HHU's encountered during the survey only a rough approximation was made of the enclosed area, hence the 1000m<sup>2</sup> increments in size.

Adjacent Path Length

The assumption that adjacent pathway length may reflect some distinctive

relationship is inferred directly from the Samoan used by Davidson (ibid) in describing these family ownership units. Due to the fact that in several instances more than one pathway lies adjacent to a single HHU it has been decided to consider only the length of the major (largest) adjacent pathway relevant. This approach not only reduces the confusion which might result when considering all adjacent pathway lengths, but also follows the concept of a single relevant measurement along the most prevalent pathway inferred by Davidson (ibid).

#### HHU Population

The last parameter under consideration had been estimated (Appendix E4, footnote iv) because of another inferred relationship, that between the number of individuals inhabiting an HHU and 'family' size (i.e.: If each HHU does equate to some 'family unit' then the population within each enclosure should equal that of the 'basic' family unit important at that time.).

Although each of the above measurements is easily obtained the accuracy (and relevance) of this data to a meaningful interpretation of village inter-structure hinges on a single differentiation, that of distinguishing between a true 'family' enclosure and one of <sup>an</sup> agricultural, ritual, or communal nature.

With the above problem in mind, a more concise definition of an HHU is paramount. Such an exacting definition should be possible if cookhouses can be discerned within each suspected HHU. The importance of observing a 'paito' (cookhouse) within an HHU can be easily understood when one observes the relationships within a modern village of their modern counterpart ('umu kuka').

An 'umu kuka' is a subtle yet important indicator within any Samoan village: There is usually only one 'umu kuka' per 'nuclear' family unit (HHU?) which may consist of one or more dwellings ('faleo'o'), a meeting house ('fale tele') and, in modern times, a store, toilet, chicken house, or copra drier. An 'umu kuka' is 'always' located behind its associated dwelling(s) (ie.: away from any major roadway, important structure or the village green ('malae'))).

Although only one probable cookhouse (SS-13-193) was located during the survey (probably due to the obscure nature of such a structure (Appendix D2, Cookhouses) and the dense vegetation covering the survey area) its location does follow the expected norm (association with a dwelling; only one within an HHU; behind its dwelling) showing that not only are these structures archaeological observable (and probably even more so with better survey conditions and refined field technique) but that they (at least this one) seem to perform as predicted and does strengthen the HHU concept.

## APPENDIX D5

Anomalous

Along with the typical archaeological features mentioned above several anomalous archaeological features were encountered (Table 7).

Table 7 : Anomalous

Site No.	Description
(SS-13)	
75	small, walled areas with a total area of ca. 40m x 50m, average walled area less than 10 x 10m
86	'L-shaped' platform, 11m x 17m, .20m high
88	small elliptical trench with a trapezoidal crosssection, fence 89 forms its south edge, the area enclosed by the trench is 20 x 35m., the trench itself is ca. 100m in length and 2.20m wide at the top (.80m wide at the bottom) with a depth ranging from .10m to .60m
174	'L-shaped' platform, 6.5m x 8m, .20m high (similar to 86 with 87)
181	'Q-shaped' paved area (platform), 27m x 36m, .10m in height
186	small curbed, paved area on the SW of platform 186, 2.60m x 3.00m, .10m high

# APPENDIX E1

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## FENCES AND WALKWAYS

SITE NO. (SS-13)	TYPE		MEASUREMENTS (m)				VILLAGE- AREA	COMMENT
	FENCE	WALKWAY	WIDTH	HEIGHT	LENGTH	PATH WIDTH		
17		<u>IV</u>	1.20	.30	178	3.0	B	
30	Ic/Ia		.25/.80	.80/.40	140/50		B	MODERN/OLD
31	Ib		.40	.25	45+		B	EXTENDS OUTSIDE SURVEY AREA
33	Ia		1.80	.30	30		B	
35	Ib		.45	.50	50		B	
36	Ib		.40	1.00	186		B	
37	Ic/Ia		.30/.30	.70/.20	75		B	
38	Ia		.60	.30	30		B	LARGE STONES
39	Ic/Ia		.25/.40	1.00/.10	95/172		B	
40	Ic/Ia		.25/.50	.70/.30	75		B	
41	Ic/Ia		.25/.50	.60/.30	75		B	
42	Ib		.50	.40	14		B	
43	Ic		.25	.70	50+		B	EXTENDS OUTSIDE SURVEY AREA
44	Ia		1.00	.30	90		B	
45	Ic		.30	.70	40		B	
46		<u>Ib</u>	—	.30	153	4.5	B	
47		<u>IV</u>	1.20	.30	43	3.0	B	
48	IIb		.40	.70	265		A, B, C	WIDER IN PLACES
50	IIa		1.50	.40	78		B	
51	Ia	(Ib?)	1.80	.20	5(70?) (40?)		B	
52	Ia		.90	.40	115		A, B	
55	IIa/IIb		1.20/.40	.50/.80	35/83		A, B	
56	IIa	(II?)	1.70	.40	50		B	
57	IIa		1.90	.30	26		B	
59	IIa		2.80	.30	10		B	
61	Ia/Ic		1.30/.30	.30/.70	20/82		B	
62	IIa		3.00	.20	29		B	EXTENDS OUTSIDE

37	Ic		1.50	1.00	30		B	LARGE STUNTS
38	Ia		.60	.30			B	
39	Ic/Ia		.25/.40	1.00/.10	95/172		B	
40	Ic/Ia		.25/.50	.70/.30	75		B	
41	Ic/Ia		.25/.50	.60/.30	75		B	
42	Ib		.50	.40	14		B	
43	Ic		.25	.70	50+		B	EXTENDS OUTSIDE SURVEY AREA
44	Ia		1.00	.30	90		B	
45	Ic		.30	.70	40		B	
46		Ib	—	.30	153	4.5	B	
47		IV	1.20	.30	43	3.0	B	
48	IIb		.40	.70	265		A, B, C	WIDER IN PLACES
50	IIa		1.50	.40	78		B	
51	Ia	(Ib?)	1.80	.20	5(70?) (4.0?)		B	
52	Ia		.90	.40	115		A, B	
55	IIb		1.20/.40	.50/.80	35/83		A, B	
56	IIa	(II?)	1.70	.40	50		B	
57	IIa		1.90	.30	26		B	
59	IIa		2.80	.30	10		B	
61	Ia/Ic		1.30/.30	.30/.70	20/82		B	
62	IIa		3.00	.20	29		B	
63		IV	1.70	.30	55+	4.0	B	EXTENDS OUTSIDE SURVEY AREA
64	IIa	(II?)	2.60	.30	110		B	
65	IIa		1.80	.40	22+		B	MAY EXTEND FURTHER
66	IIa	(II?)	2.30	.20	52		B	
68	IIb		.40	1.10	265+		B	EXTENDS OUTSIDE SURVEY AREA
71	Ic/Ia		.30/.200	1.00/.20	56+		B	EXTENDS OUTSIDE SURVEY AREA
72	IIa		2.50	.70	90+		B	EXTENDS OUTSIDE
73	IIa	(Ia?)	4.50	.20	40		B	
75	IIb(?)		1.00	.50	100+		B	(SEE APPENDIX D)
76	IIa		2.00	.70	40		B	BUILT ACROSS #74 SMALL BASALT COAT FOUND ON NORTH WALL
77		IV	1.60	.20	65	4.0	B	UNLIKE #68 SEVERAL VERY LARGE STUNTS
80	IIb		.60	.90	20		B	
81	IIb(?)		.60	.60	40		B	
82	IIb	(Ib?)	1.50	.70	34(?) (4.0)		B	
88	—	—	—	—	100	—	B	TRENCH (SEE APPENDIX D)
89	Ia		1.20	.20	25		B	
90		IV	.90/1.90	.50	50(150)	5.0	B	EAST/WEST WALLS, EXTENDS OUTSIDE
92	Ia		2.50	.10	42		B	
93	(IIa?)	II	2.80	.50	150+	1.00	B	EXTENDS OUTSIDE

# APPENDIX E1 (CONT.)

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94	IIa		2.00	.40	132		B	
95	IIa		2.20	.30	52		B	
96	IIa		2.50	.15	23+		B	MAY EXTEND FURTHER
97	IIa		2.20	.25	70		B	
99	Ib		.50	.40	262		B, C	MAY BE EXTENSION OF #31
100	Ic		.25	.70	150		B, C	
103	Ic/IIa		2.5/2.30	.60/.40	36/59		A, C	OLDER WALL MAY HAVE CONNECTED W/ #105
104	Ic		.30	.80	110		C	
105	IIa		.20	.20	20		A, C	
107	IIa		2.10	.35	18		C	
108	IIa		2.20	.30	60		A, B	
109	IIa		1.00+	.60	56+		B	MAY EXTEND TO N, LEAD TO V. LG. STONE
110	IIIb		2.50+	1.10	20		A	AREA BETWEEN #110 & III LITTLE TO W/ LG. TO V. LG. STONE
111	IIIb		2.00+	.40	32		A	
112	IIa		2.70	.50	52		A	CONTAINS BASAL LOW AREA (2m sq) - STONE #111
113	IIa		1.60	.40	32		A	
114	IIa		1.50	.20	32		A	
115		IV	1.20	.60	102	3.00	A	FIRST EAST 20m SURVEY (30cm) CONT. OF LEAD TO V. LG. STONE
116	IIa		1.90	.30	22		A	
117	(II?)	II	2.20	.35	220	1.20	A	
119	IIa		1.70	.30	60		A	
120		II	2.00	.80	107	1.00	A	
121	Ia	(II?)	1.20	.40	37		A	
122	IIb		1.00	.80	31		A, B	CONTAINS SOME V. LG. STONE
123	Ia(?)	(Ia?)	4.80	.10	40		A	SIMILAR TO #73
126	IIa	(II?)	1.30	.45	87		A, B	
130	IIa	(II?)	1.50	.40	150		A, B	
131	IIa	(II?)	1.20	.60	13+	(.55)	A	
132	Ia		.80	.40	40+		A	MAY CONNECT W/ #131
133	Ia		.90	.40	47		A	
135	(IIIa?)	III	4.00	.90	81	1.40	A	
139		III	2.70	.40	86+	2.50	A	EXTENDS OUTSIDE SURVEY AREA
140	Ib		.80	.30	14+		A	
142	Ia	(II?)	1.60	.20	8		A	
143	Ia	(II?)	1.80	.20	50		A	
144	(IIa?)	II	2.30	.20	49+	-	A	TYPE Ic FENCE (MOD) ON EAST ±
146	(IIa?)	III	2.50	.70	87	-	A	TYPE Ic FENCE (MOD) ON 1st ZONE OF EAST END
148	Ia		1.10	.30	19		A	
149		III	4.50	.60	55	1.20	A	
151		III	5.50	1.00	125+	1.80	A	EXTENDS OUTSIDE SURVEY AREA
152	(IIIa?)	III	3.60	.40	83	1.20	A	EAST ± TYPE Ib STONE FENCE (REBUILT)
153	IIb		.60	.80	23		A	FORMS SOUTH FENCE OF #154; LG TO V. LG. STONE
155	(IIa?)	III	3.00	.40	25+	1.00	A	
156		III	3.10	.80	275+	1.60	A	EXTENDS OUTSIDE; WEIGH HEAVY IN PLACES (5.00/.80)
157		III	2.70	.60	53	1.20	A	LOW TYPE Ib FENCE ON SOME PARTS



109	IIa		1.00+	.60	36		A	AREA BETWEEN 100 & 111 LITTLE W/ LG. TO V. LG. STONE
110	IIIb		2.50+	1.10	20		A	
111	IIIb		2.00+	.40	32		A	
112	IIa		2.70	.50	52		A	CONTAINS BATH LOW
113	IIa		1.60	.40	32		A	AAA (2m sq) - STAZIA
114	IIa		1.50	.20	32		A	
115		IV	1.20	.60	102	3.00	A	FIRST EAST 20m
116	IIa		1.90	.30	22		A	SUNNY (30cm)
117	(II?)	II	2.20	.35	220	1.20	A	CONT. OF LARGE TO V. LG STONE
119	IIa		1.70	.30	60		A	
120		II	2.00	.80	107	1.00	A	
121	Ia	(II?)	1.20	.40	37		A	
122	IIb		1.00	.80	31		A, B	CONTAINS SOME V. LG. STONE
123	Ia(?)	(Ia?)	4.80	.10	40		A	SIMILAR TO #73
126	IIa	(II?)	1.30	.45	87		A, B	
130	IIa	(II?)	1.50	.40	150		A, B	
131	IIa	(II?)	1.20	.60	13+	(.55)	A	
132	Ia		.80	.40	40+		A	MAY CONTACT W/ #131
133	Ia		.90	.40	47		A	
135	(IIIa?)	III	4.00	.90	81	1.40	A	EXTENDS OUTSIDE SURVEY AREA
139		III	2.70	.40	86+	2.50	A	
140	Ib		.30	.30	14+		A	
142	Ia	(II?)	1.60	.20	8		A	
143	Ia	(II?)	1.80	.20	50		A	
144	(IIa)	II	2.30	.20	49+	-	A	TYPE Ie FENCE (MOD) ON EAST &
146	(IIa)	III	2.50	.70	87	-	A	TYPE Ie FENCE (MOD) ON 1st 20m OF EAST END
148	Ia		1.10	.30	19		A	
149		III	4.50	.60	55	1.20	A	
151		III	5.50	1.00	125+	1.80	A	EXTENDS OUTSIDE SURVEY AREA
152	(IIIa?)	III	3.60	.40	83	1.20	A	EAST & TYPE Ib STONE FENCE (RESULT)
153	IIb		.60	.80	23		A	FORMS SOUTH EDGE OF #154; LG TO V. LG. STONE
155	(IIa?)	III	3.00	.40	25+	1.00	A	
156		III	3.10	.80	275+	1.60	A	EXTENDS OUTSIDE SURVEY AREA
157		III	2.70	.60	53	1.20	A	WEIGHT HEAVY IN PLACES (5.00/.80)
159	IIa	(III?)	2.70	.40	58		A	LOW TYPE Ib FENCE ON SOME PARTS
160	Ia		1.00	.30	36		A, B	
162	Ia		1.50	.20	83		A, B	
163	IIa	(II?)	1.90	.40	13+	1.00	A	

TABLE 8:

## FENCE AND WALKWAY LENGTH AND DENSITY

	LENGTH (m)				DENSITY (m/HECTARE)			
	TOTAL AREA	'A'	'B'	'C'	TOTAL AREA	'A'	'B'	'C'
I a	846	347	529	20	42	70	42	7
I b	571	14	375	262	29	3	31	87
I c	911	36	885	186	45	7	74	62
TOTAL	2328	397	1759	468	116	80	147	156
II a	1478	638	1107	77	74	128	98	26
II b	929	181	697	80	46	37	58	27
TOTAL	2407	822	1803	157	120	165	156	52
III a	(81?)	(81?)	-	-	-	-	-	-
III b	52	52	-	-	3	10	-	-
TOTAL	52	52	0	0	3	10	0	0
FENCE TOTAL	4887	1261	3592	625	239	255	303	208
FENCE (m/PLATFORM)	45	26	72	63				
I a	153	-	153	-	8	-	13	-
I b	-	(40?)	(40?)	-	-	-	-	-
TOTAL	153	0	153	0	8	0	13	0
II	589	439	150	-	29	88	12	-
III	870	870	-	-	44	176	-	-
IV	493	120	391	-	25	20	33	-
WALKWAY TOTAL	2105	1411	694	0	106	284	58	0
WALKWAY (m/PLATFORM)	19	29	14	0				
COMBINED TOTAL	6992	2672	4286	625	335	539	361	208
FENCES & WALKWAYS (m/PLATFORM)	64	55	86	63				

\* TOTAL FOR TOTAL AREA NOT EQUAL TO SUM OF SEPARATE VILLAGE-AREAS AS BOUNDARY FENCES BETWEEN AREAS COUNTED FOR BOTH AREAS.

# APPENDIX E2

## PLATFORMS

SITE No. (SS-13)	TYPE		MEASUREMENTS (m)			SHAPE <sup>(iii)</sup>	AREA (m <sup>2</sup> )		LITRE VOLUME (m <sup>3</sup> )
	AREA	VOLUME	WIDTH	LENGTH	HEIGHT		TOP SURFACE	BASEAL	
11	III	II	15	16	.20	R	—	240	48
15	II	II	9	12	.50	E	54	85	35
16	II	II	7	10	.50	E	31	55	22
18	II	II	8	10	1.00	E	19	63	41
19	III	IV	16	17	1.00	R	225	272	258
20	II	II	8	10	.50	R	63	80	36
21	III	II	18	26	.10	O	—	366	18
22	II	II	8	9	.40	E	—	57	23
25	II	II	10	10	.20	C	—	77	15
26	II	II	7	9	.50	E	28	48	19
27	IV	IV	24	62	.20	R	—	1380	276
29	IV	IV	28	33	2.00	R	612	825	188
58	III	III	14	27	.20	O	—	300	60
60	II	II	5.5	7.5	.40	E	—	32	13
69	II	III	12	20	.30	R	—	240	72
74	IV	IV	23	33	.20	R	—	776	155
79	II	II	8	12	.20	E	—	75	15
83	III	II	12	16	.10	E	—	180	15
86	III	II	11	17	.40	L	—	138	28
87	I	I	4	6	.80	E	—	20	9
106	IV	IV	35	35	.20	C	—	961	193
118	II	II	5.5	8	.60	E	—	34	20
124	II	II	8	10	.60	E	—	63	38
125	II	II	6.5	8	.80	E	12	29	16
128	II	II	5	7.5	.90	E	12	29	12
129	II	II	5.5	10	1.00	E	22	39	22
134	II	II	7	7	.80	S	—	49	26
136	III	II	10	14.5	.40	E	—	114	46
137	III	IV	17	21	1.20	E	165	270	174
138	III	II	12.5	13	.40	S	—	163	43
141	I	I	4	6	.35	E	—	19	6.6
145	III	IV	19	26	.80	R	408	494	240
147	IV	IV	24	27	.70	R	598	658	290
150	III	III	14	21	.40	E	208	232	58
154	III	III	12.5	22.5	.80	R	—	271	150
158	II	II	7	9.5	.60	R	39	66	21
164	I	I	4	5	.30	O	1.6	16	3
165	III	II	15	15	.10	U	—	177	18
166	IV	III	26	36	.10	O	—	734	73
167	III	II	20	20	.15	U	—	314	47
168	III	II	15	15	.10	U	—	177	18
169	IV	II	17	23	.10	O	—	306	30

21	II	II	8	9	.40	E		57	23
22	II	II	10	10	.20	C		77	15
25	II	II	7	9	.50	E	28	48	19
26	IV	IV	24	62	.20	R		1380	276
27	IV	IV	28	33	2.00	R	17 612	825	188
58	III	III	14	27	.20	O		300	60
60	II	II	5.5	7.5	.40	E		32	13
69	II	III	12	20	.30	R		240	72
74	IV	IV	23	33	.20	R		776	155
79	II	II	8	12	.20	E		75	15
83	III	II	12	16	.10	E		180	15
86	III	II	11	17	.40	L		138	28
87	I	I	4	6	.80	E		20	9
106	IV	IV	35	35	.20	C		961	193
118	II	II	5.5	8	.60	E		34	20
124	II	II	8	10	.60	E		63	38
125	II	II	6.5	8	.80	E	12	29	16
128	II	II	5	7.5	.90	E	12	29	12
129	II	II	5.5	10	1.00	E	22	39	22
134	II	II	7	7	.80	S		49	26
136	III	II	10	14.5	.90	E		114	46
137	III	IV	17	21	1.20	E	165	270	174
138	III	II	12.5	13	.40	S	165	163	43
141	I	I	4	6	.35	E		19	6.6
145	III	IV	19	26	.80	R	408	494	240
147	IV	IV	24	27	.70	R	598	658	290
150	III	III	14	21	.40	E	208	232	58
154	III	III	12.5	22.5	.80	R		271	150
158	II	II	7	9.5	.60	R	39	66	21
164	I	I	4	5	.30	O	1.6	16	3
165	III	II	15	15	.10	U		177	18
166	IV	III	26	36	.10	O		734	73
167	III	II	20	20	.15	U		214	47
168	III	II	15	15	.10	U		177	18
169	III	II	17	23	.10	O		306	30
170	III	II	17	17	.10	U		228	23
171	I	I	4.5	6	.30	O	10	21	5
172	II	II	6	14	.20	O		66	13
173	III	II	13	13	.30	U		133	70

PREC LUMEN (m³)	VILLAGE- AREA	HHU	COMMENT
48	C	42	
35	B	41	
22	B	2	
41	B	5	
258	B	4	
36	B	6	
18	B	6	EDGES VERY DISTURBED
23	B	—	VERTICAL SLOPS
15	C	—	DOUBLE CURBING
19	B	—	
276	B	7	MAY BE 2 PLATFORMS; <sup>STONE PILE (2m DIA, 1/4m HEIGHT)</sup> ON SW CORNER
188	B	76	MODIFIED HILL (STONE PAVING .20m THICK)
60	B	14	VERTICAL SLOPS (CURBING)
13	B	16(14?)	POST HOLE (MIDDLE); VERTICAL SLOPS
72	B	10	EAST - SIDE (18 X 24 X .80)
155	B	—	
15	B	17	VERTICAL SLOPS
15	B	17	
28	B	—	SEE APPENDIX DE
9	B	—	MAY BE PART OF 230
193	C	43	VERTICAL SLOPS
20	A	37	VERTICAL SLOPS
38	A	28	VERTICAL SLOPS
16	A	28	LOOKING FACING SOUTH; POSSIBLE LAMP CURBING; RAMPA(?) ON SOUTH SIDE
12	A	24	LOOKING FACING SOUTH; TOP FLAT; WEST EDGE .20m ABOUT SOUTH SIDE
22	A	24	NW EDGE ONLY .10m SLOPE SLEEPING TRAILER
26	A	33	VERTICAL FACING
46	A	32	VERTICAL FACING
174	A	33	INITIAL SOUTH FACING OF 10m; NORTH EDGE 10-12m ABOUT SOUTH SIDE
43	A	35	30m FACING ON S & W SLOPS; BUT SLOPS LOW (.10m); START ON 2m. SIDE
6.6	A	—	POST HOLE (MIDDLE); VERTICAL SLOPS
240	A	37	INITIAL 30m FACING ON S & W SLOPS
290	A	40	INITIAL 30m FACING ON S & E SLOPS
58	A	37	
150	A	39	
21	A	29	TOP PART OF 'MIDDLE' FACING; NORTH END .20m ABOUT SOUTH SIDE
3	B	13	
18	B	13	
73	B	14	
47	B	11	
18	B	8	
	B	12	

B	6	EDGES VERY DISTURBED
B	-	VERTICAL SIDES
C	-	DOUBLE CURBING
B	-	
B	7	MAY BE 2 PLATFORMS, <sup>STONE PILE (2m DIA, 3/4m HEIGHT)</sup> ON SW CORNER
B	16	MODIFIED HILL (STONE PAVING .20m THICK)
B	14	VERTICAL SIDES (CURBING)
B	16(14?)	POST HOLS (MODERN); VERTICAL SIDES
B	10	EARTH BASE (18 X 24 X .80)
B	-	
B	17	VERTICAL SIDES
B	17	
B	-	SEE APPENDIX D5
B	-	MAY BE PART OF #86
C	43	VERTICAL SIDES
A	37	VERTICAL SIDES
A	28	VERTICAL SIDES
A	28	LOWER FACING (.25m); POSSIBLY LOWER CURBING; RAISED(?) ON SOUTH END
A	24	LOWER FACING (.40m); TOP FLAT; WEST EDGE .20m ABOUT SLOPING TERRAIN
A	24	NW EDGE ONLY .10m ABOUT SLOPING TERRAIN
A	33	VERTICAL FACING
A	32	VERTICAL FACING
A	33	INITIAL SOUTH FACING OF .60m; NORTH EDGE .10-.20m ABOUT SLOPING TERRAIN
A	35	30m FACING ON S & W SIDES; N & E SIDES LOW (.50m); BUILT ON 2m. RISE
A	-	POST HOLS (MODERN); VERTICAL SIDES
A	37	INITIAL 30m FACING ON S & W SIDES
A	40	INITIAL .40m FACING ON S & E SIDES
A	37	
A	39	
A	29	TOP PARTS W/ 'MAHIA' PAVING; NORTH END .20m ABOUT SLOPING TERRAIN
B	13	
B	13	
B	14	
B	11	
B	8	
B	12	
B	9	
B	-	
B	-	
B	-	

# APPENDIX E2 (CONT.)

174	II	II	9	12	.20	L		62	15	B
175	II	II	6.5	8	.40	O	21	41	12	B
176	I	I	3.5	3.5	.20	U		9.6	1.9	B
177	I	I	3.5	3.5	.15	U		9.6	1.4	B
178	I	I	3	3	.15	U		7.2	1.1	B
179	IV	III	21	55	.10	O		910	91	B
180	II	I	10	10	.10	U		78	7.8	B
181	III	II	27	36	.10	U		425	43	B
182	I	I	3.5	6	.20	O	9.8	16	2.6	B
183	IV	III	36	36	.10	U		1015	102	B
184	III	II	15	22	.10	O		258	26	B
185	III	II	15	23	.15	O		288	43	C
186	III	II	18	18	.15	U		254	38	C
187	II	II	5.5	7.5	.40	O		32	13	C
188	III	II	10	17	.20	O		134	27	C
189	II	II	10.5	10.5	.15	U		87	13	C
190	III	II	15	17	.15	R		255	38	
191	III	II	17	17	.20	U		226	45	
192	III	III	21	21	.20	U		346	69	
193	I	I	2	4	.10	O		6.3	0.6	
194	III	II	17	19	.10	O		254	25	
195	III	II	19	26	.10	O		387	39	
196	III	II	20	28	.10	O		439	44	
197	III	II	17	18	.15	O		240	34	
198	III	III	13	16	.80	O		163	65	
199	I	I	2(?)	2(?)	.30	U		3.1	9.4	
200	II	II	6	10	.40	O		47	19	
201	IV	III	10	65	(2.50)	O		650	70	A
202	I	I	3	3	.30	U		7.1	2.1	A
203	I	I	4	5	.140	O		16	6.3	A
204	I	I	2.8	3.8	.20	O		8.3	1.6	A
205	I	I	3.5	5	.35	O		14	4.8	A
206	III	II	15	15	.25	U		177	22	A
207	III	III	21	26	.30	O		428	126	A
208	II	I	8	14	.10	O		88	8.8	A
209	I	I	3.5	5	.170	O		14	4	A
210	I	I	4.5	6	.30	O		21	6.3	A
211	III	III	13	13	.60	U	91	133	67	A
212	II	II	9	14	.70	O		98	45	A
213	III	II	14.5	18.5	.15	O		210	32	A
214	I	I	3	4.5	.70	O		10.5	7.4	A
215	I	I	2	3.5	.30	O		5.5	1.1	A
216	I	I	3.5	7	.40	O	7.9	19	5.4	A
217	I	I	2.5	5	.40	O	2.4	9.8	5.0	A
218	II	I	6	8	.10	O		38	3.8	A

184	III	II	15	22	.10	O	258	26
185	III	II	15	23	.15	O	288	43
186	III	II	18	18	.15	U	254	38
187	II	II	5.5	7.5	.40	C	32	13
188	III	II	10	17	.20	O	134	27
189	II	II	10.5	10.5	.15	U	87	13
190	III	II	15	17	.15	R	255	38
191	III	II	17	17	.20	U	226	45
192	III	III	21	21	.20	U	346	69
193	I	I	2	4	.10	O	6.3	0.6
194	III	II	17	19	.10	O	254	25
195	III	II	19	26	.10	O	387	39
196	III	II	20	28	.10	O	439	44
197	III	II	17	18	.15	O	240	34
198	III	III	13	16	.80	O	163	65
199	I	I	2(?)	2(?)	.30	U	3.1	9.4
200	II	II	6	10	.40	O	47	19
201	IV	III	10	65	(2.50)	O	650	70
202	I	I	3	3	.30	U	7.1	2.1
203	I	I	4	5	.40	O	16	6.3
204	I	I	2.8	3.8	.20	O	8.3	1.6
205	I	I	3.5	5	.35	O	14	4.8
206	III	II	15	15	.25	U	177	22
207	III	III	21	26	.30	O	428	126
208	II	I	8	14	.10	O	88	8.8
209	I	I	3.5	5	.40	O	14	4
210	I	I	4.5	6	.30	O	21	6.3
211	III	III	13	13	.60	U	91	133
212	II	II	9	14	.70	O	98	45
213	III	II	14.5	18.5	.15	O	210	32
214	I	I	3	4.5	.70	O	10.5	7.4
215	I	I	2	3.5	.30	O	5.5	1.1
216	I	I	3.5	7	.40	O	7.9	19
217	I	I	2.5	5	.40	O	2.4	9.8
218	II	I	6	8	.10	O	38	3.8
219	I	I	2.4	3.3	.20	O	6.2	1.2
220	III	II	10	17	.10	R	170	17
221	III	III	18	20	.20	R	360	72
222	I	I	3.5	5	.70	O	14	5



15	B	1	SEE APPENDIX D5
12	B	1	
1.9	B	2	STONE PILE
1.4	B	-	STONE PILE
1.1	B	-	STONE PILE
91	B	-	
7.8	B	5	EXTREMELY DISTURBED
43	B	-	SEE APPENDIX D5
2.6	B	-	
102	B	-	
26	B	41	
43	C	42	
38	C	42	
13	C	42	NO FLAT TOP (SURFACE).
27	C	41	
13	C	43	
38	C	43	
45	C	43	
69	C	-	
0.6	B	15	EXTREMELY DISTURBED EARTH FILLED RING OF STONE; SOIL FILL DARK SLATE; POSSIBLE 'PAITO' (COOKHOUSE)
5	B	15	PIECE OF CRIST CLAM FOUND ON SW EDGE
39	B	19	ON CENTRAL SLOPING TERRACE
44	B	20	
34	A	26	
5	A	23	ATTACHED (40m AIR TREE); ON SLOPING TERRACE
9.4	A	-	STONE PILE (?)
7	A	30	
10	A	42	ROCK COVERS SLOPE OF HILL (30-45°); STONE PAVING .10 TO .15m THICK
2.1	A	36	
6.3	A	31	
1.6	A	31	
4.8	A	31	VERTICAL STONE (?)
22	A	31	
26	A	27	
8.8	B	21	ON SLOPING TERRACE
4	A	28	
6.3	A	28	HOLE (52cm X 63cm) on SW ¼ WIDTH DEPTH
7	A	28	3 HOLES (75cm X 55cm) on NE ¼
5	A	21	ON SLOPING TERRACE
2	A	25	ON SLOPING TERRACE
7.4	A	33	VERTICAL STONE
1.1	A	32	STONE PILE (?)
4	A	32	POSSIBLE FENCE (?)
5.0	A	35	
2	A	35	VERY DISTURBED

26	B	41	
43	C	42	
38	C	42	
13	C	42	NO FLAT TOP (SURFACE).
27	C	41	
13	C	43	
38	C	43	
45	C	43	
69	C	—	
0.6	B	15	EXTREMELY DISTURBED EARTH FILLED RING OF STONE; SOIL FILL DARK BROWN; POSSIBLE 'PAITO' (COOKHOUSE) PIECE OF GIANT CLAM FOUND ON SW EDGE
25	B	15	
39	B	19	ON GENTLY SLOPING TERRACE
44	B	20	
34	A	26	
65	A	23	TIERED (40m PER TIER); ON SLOPING TERRACE
9.4	A	—	STONE PILE (?)
17	A	30	
70	A	42	ROCK COVERS SLOPE OF HILL (30-45°); STONE PAVING 10 TO 15m THICK
2.1	A	36	
6.3	A	31	
1.6	A	31	
4.8	A	31	VERTICAL SLOPE (?)
22	A	31	
26	A	27	
8.8	B	21	ON SLOPING TERRACE
4	A	28	
6.3	A	28	HOLE (52cm X 63cm) ON SW ¼ WIDTH DEPTH
7	A	28	3 HOLES (75cm X 55cm) ON NE ¼
25	A	21	ON SLOPING TERRACE
32	A	25	ON SLOPING TERRACE
7.4	A	33	VERTICAL SLOPE
1.1	A	32	STONE PILE (?)
5.4	A	32	POSSIBLE FENCE (?)
5.0	A	35	
3.8	A	35	VERY DISTURBED
1.2	A	—	
7	A	—	
72	A	—	ON SLOPING TERRACE; SMALL GIANT CLAM SHELL FOUND ON SW ¼
5	A	—	NO FLAT TOP (SURFACE)

# APPENDIX E2

(CONT.)

223	II	I	8	12	.10	O		76	76	A
224	II	I	5	9.5	.15	O		37	5.6	A
225	II	I	7	12	.15	O		66	9.9	A
226	IV	III	23	24	.15	R(S)		552	83	A
227	II	II	6	8	.40	O	23	38	12	A
228	I	I	5	6	.60	O	6.9	24	7	A
229	II	II	5.5	7	.80	O	7.9	30	15	A
230	III	III	17	23	.25	O		307	51	A
231	I	I	4.5	6	.80	O	2.0	21	9.6	A
232	IV	III	20.5	28	.20	R		573	115	B
233	III	II	12	12	.20	S		144	29	B
234	III	III	16	20	.40	R		320	128	B
235	I	I	4	8	.20	E		26	5	B

iii - SHAPE OF PLATFORM:

C = CIRCULAR

S = SQUARE

U = UNIFORM (SHAPE UNCERTAIN)

E = ELLIPTICAL

R = RECTANGULAR

O = OBLONG (SHAPE UNCERTAIN)

TABLE 9: MEAN AREA BY VILLAGE-AREA (m<sup>2</sup>)

AREA TYPE	VILLAGE - AREA		
	A	B	C
I	12.6 ± 5.6	13.4 ± 6.8	—
II	48 ± 20	65 ± 16	60 ± 27
III	242 ± 102	265 ± 94	250 ± 19
IV	620 ± 48	888 ± 173	961

TABLE 10: MEAN VOLUME BY VILLAGE-AREA (m<sup>3</sup>)

VOLUME TYPE	VILLAGE - AREA		
	A	B	C
I	5.5 ± 4.4	4.2 ± 2.9	—
II	25 ± 12	26 ± 15	33 ± 13
III	80 ± 30	92 ± 23	69
IV	235 ± 47	219 ± 50	193

VOLU

TYPE

I

II

III

IV

TOTA

MH/H

MH/PLA

76	7.6	A	38	
37	5.6	A	38	
66	9.9	A	38	
552	83	A	38	
38	12	A	25	
24	7	A	29	
30	15	A	39	CONNECTED TO WALKWAY #135 BY RIDGES INTERLUV SIMILAR TO BUT LOWER THAN #135
307	51	A	25(21?)	SLOPING TERRAIN
21	9.6	A	25(21?)	
573	115	B	21	HELMET SHELL FOUND 1/2 M SE OF NE CORNER
44	29	B	22	
320	128	B	22	MAY BE PART OF #233
26	5	B	4	POST HELMS (MADRU); POSSIBLE COOK HOUSE 3 M WEST

ELLIPTICAL

TANGULAR

BLOND (SHAPE UNCERTAIN)

L = 'L-SHAPED'

Q = 'Q-SHAPED'

TABLE 11: PLATFORM CONSTRUCTION TIME  
IN MAN HOURS (MH).

VOLUME TYPE	VILLAGE - AREA		
	A	B	C
I	110	50	—
II	420	705	265
III	720	539	69
IV	704	877	193
TOTAL	1956	2171	527
MH/HECTARE	391	182	176
MH/PLATFORM	40	43	53

# APPENDIX E3

37

## EARTH OVENS

SITE NO. (SS-13)	TYPE	MEASUREMENTS (m.)				PROXIMAL PLATFORM	VILLAGE-AREA	HHU	COMMENT
		EXTERNAL		STONE CENTER					
		DIAMETER	HEIGHT	DIAMETER	DEPTH				
23	I	9	.50	3.5	.80	19	B	4	
24	I	12.5	1.50	4.5	1.80	181	B	-	
28	I	8	.50	4.0	.15	20(27)	B	7	
32	I	8	.30	2.5	.20	175	B	2	
34	II	4.5	.10	2.0	.20	174	B	1	
49	I	7	.40	4.0	-	-	B(C?)	41	PARTLY DISTURBED
54	I	7	.25	3.0	.30	53	B	16	
67	I	9	.40	2.5	.10	169(167)	B	11	
70	I	8	.50	2.5	.15	69	B	10	
78	I	9	1.00	4.0	.30	79	B	17	
84	I	9	.20	3.0	.20	26/171	B	-	
85	I	10	.50	4.0	.20	172	B	-	
91	I	8.5	.30	4.0	.80	175	B	1	
98	I	8.5	.40	3.5	.20	185	B(C?)	41	
102	I	13	1.10	4.0	.80	186	C	42	POSSIBLE MODERN "COPRA OVEN" IN ENTHAMITTUO STREAM BED
127	I	7	.60	2.5	.30	128	A(B?)	24	
161	II	4	.15	2.0	.70	230	A	25	

## HOUSE HOLD UNINS

HHU No.	TYPE	AREA (1000m <sup>2</sup> )	LENGTH OF MAJOR ADJACENT WALKWAY (m.)	PLATFORMS W/IN HHU (STINK POTS)	OVENS W/IN [MUMBI (OTHER)]	VILLAGE AREA	PLANTATION ESTIMATE %
1	II	2.25	50	2	1 (1)	B	7.5
2	II	2.00	45	2 (1)	-	B	3.7
3	II	2.00	45	[1?]	-	B	(3.7?)
4	II	3.04	55	2	1	B	3.7
5	II	3.15	45	2	-	B	7.5
6	II	4.00	60	2	-	B	7.5
7	III	7.00	-	1	1	B	3.7
8	II	2.47	55	1	-	B	3.7
9	II	3.04	-	1	-	B	3.7
10	II	2.50	-	1	1	B	3.7
11	II	3.75	-	1	1	B	3.7
12	II	3.04	-	1	-	B	3.7
13	II	3.75	50	2	-	B	3.7
14	III	7.20	-	2 [3?]	-	B	7.5
15	II	2.00	50	2	-	B	3.7
16	II	2.20	-	2 [1?]	1	B	7.5
17	II	4.67	-	2	1	B	7.5
18	II	4.40	55	1	-	B	3.7
19	II	2.50	-	1 [2?]	-	B	3.7
20	II	2.40	-	1	-	B	3.7
21	II	5.20	-	3 [5?]	-	A/B	15.0
22	II	3.25	40	2	-	B	7.5
23	I	0.70	(10?)	1	-	A	3.7
24	I	1.75	-	2	1	A	7.5
25	II	3.60	40	4 [2?]	- (1)	A	7.5
26	I	0.88	40	1	-	A	3.7
27	I	1.70	50	1	-	A	3.7
28	II	3.04	60	5	-	A	(2.7)

9	I	3.04	—	1	—	B	3.7
10	II	2.50	—	1	1	B	3.7
11	II	3.75	—	1	1	B	3.7
12	II	3.04	—	1	—	B	3.7
13	II	3.75	50	2	—	B	3.7
14	III	7.20	—	2[3?]	—	B	7.5
15	II	2.00	50	2	—	B	3.7
16	II	2.20	—	2[1?]	1	B	7.5
17	II	4.67	—	2	1	B	7.5
18	II	4.40	55	1	—	B	3.7
19	II	2.50	—	1[2?]	—	B	3.7
20	II	2.40	—	1	—	B	3.7
21	II	5.20	—	3[5?]	—	A/B	15.0
22	II	3.25	40	2	—	B	7.5
23	I	0.70	(10?)	1	—	A	3.7
24	I	1.75	—	2	1	A	7.5
25	II	3.60	40	4[2?]	— (1)	A	7.5
26	I	0.88	40	1	—	A	3.7
27	I	1.70	50	1	—	A	3.7
28	II	3.04	60	5	—	A	12.2
29	I	1.50	60	2	—	A	4.7
30	I	1.02	30	1	—	A	3.7
31	I	1.20	20	4	—	A	5.7
32	I	1.20	40	2(1)	—	A	4.7
33	I	1.80	50	3	—	A	7.5
34	I	1.00	45	1	—	A	3.7
35	I	1.20	30	3	—	A	7.5
36	II	1.00	30	2	—	A	4.7
37	II	3.18	25	2	—	A	7.5
38	II	3.40	25	4	—	A	15.0
39	II	3.30	55	1	—	A	3.7
40	II	1.8+	20	1	—	A	3.7
41	IV	12.83	80	3[2]	2	B/c	11.2
42	IV	11.60	75	5[4]	1	C	12.2
43	IV	10.45	90	4	—	C	15.0

iv - POPULATION HAS BEEN ESTIMATED USING THE 3.75 PEOPLE PER DWELLING SUGGESTED BY MASON (1974, 236) AND ALSO ALLOWING FOR 1 PERSON FOR EVERY VERY SMALL PLATFORM (AREA TYPE I) WHICH COULD BE A SMALL DWELLING.

TABLE 12: HHU SIZE (1000m<sup>2</sup>)

HHU TYPE	VILLAGE - AREA		
	A	B	C
I	1.28 ± 0.36	—	—
II	3.30 ± 0.12	3.05 ± 0.72	—
III	—	7.10 ± 0.10	—
IV	—	—	11.03 ± 0.57

TABLE 13: MAJOR ADJACENT  
WALKWAY LENGTH (m.)

HHU TYPE	VILLAGE - AREA		
	A	B	C
I	38 ± 12	—	—
II	41 ± 15	50 ± 6	—
III	—	(NOT MEASURABLE)	—
IV	—	—	82 ± 6*

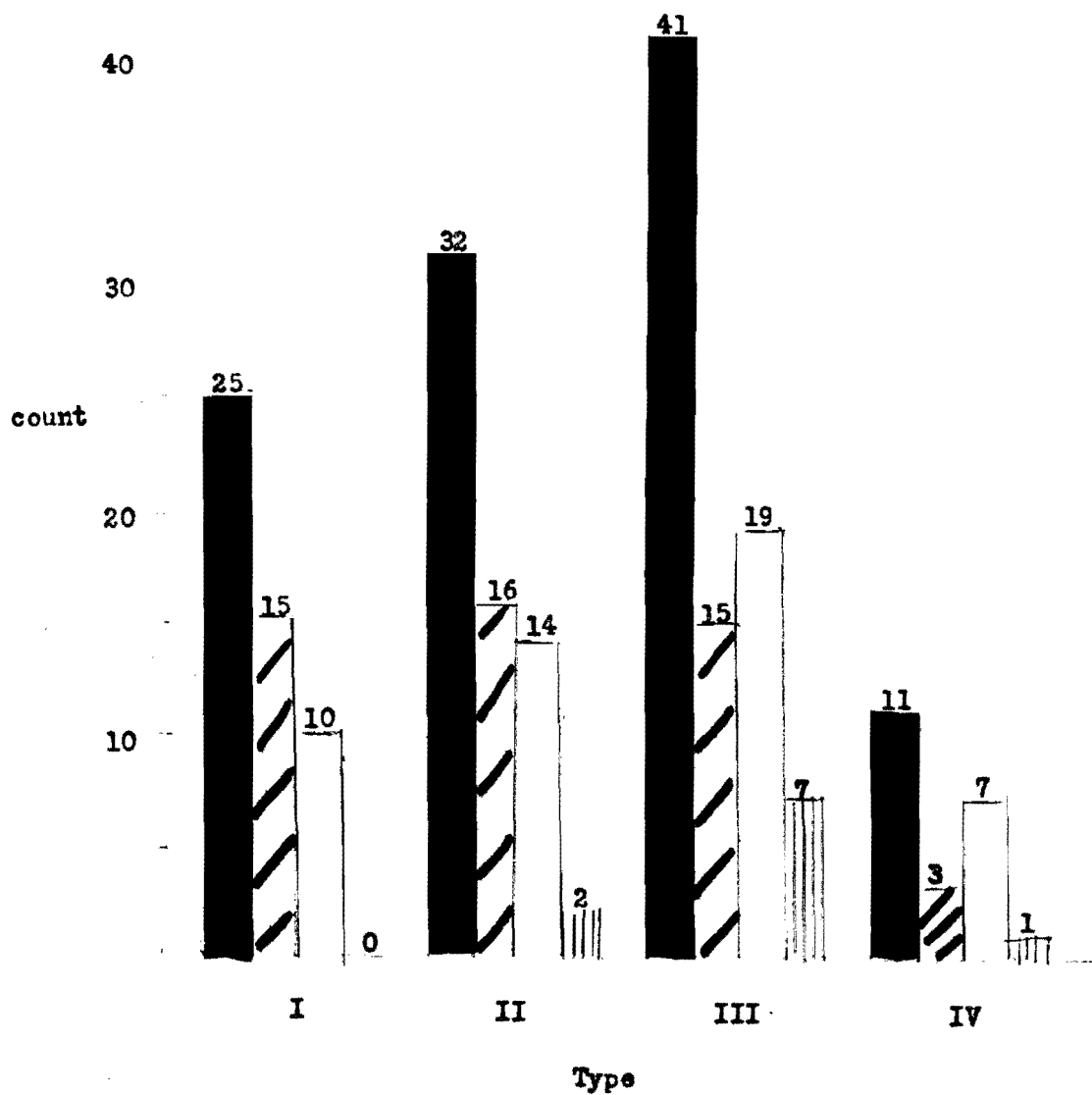
\* - SAPAPALEI PLANTATION ROAD

TABLE 14: PEOPLE PER HHU (FAMILY SIZE?)

VILLAGE-AREA	MEAN PEOPLE/HHU
A	6.1 ± 3.1
B	4.5 ± 1.9
C	13.6 ± 1.4



## APPENDIX Fla

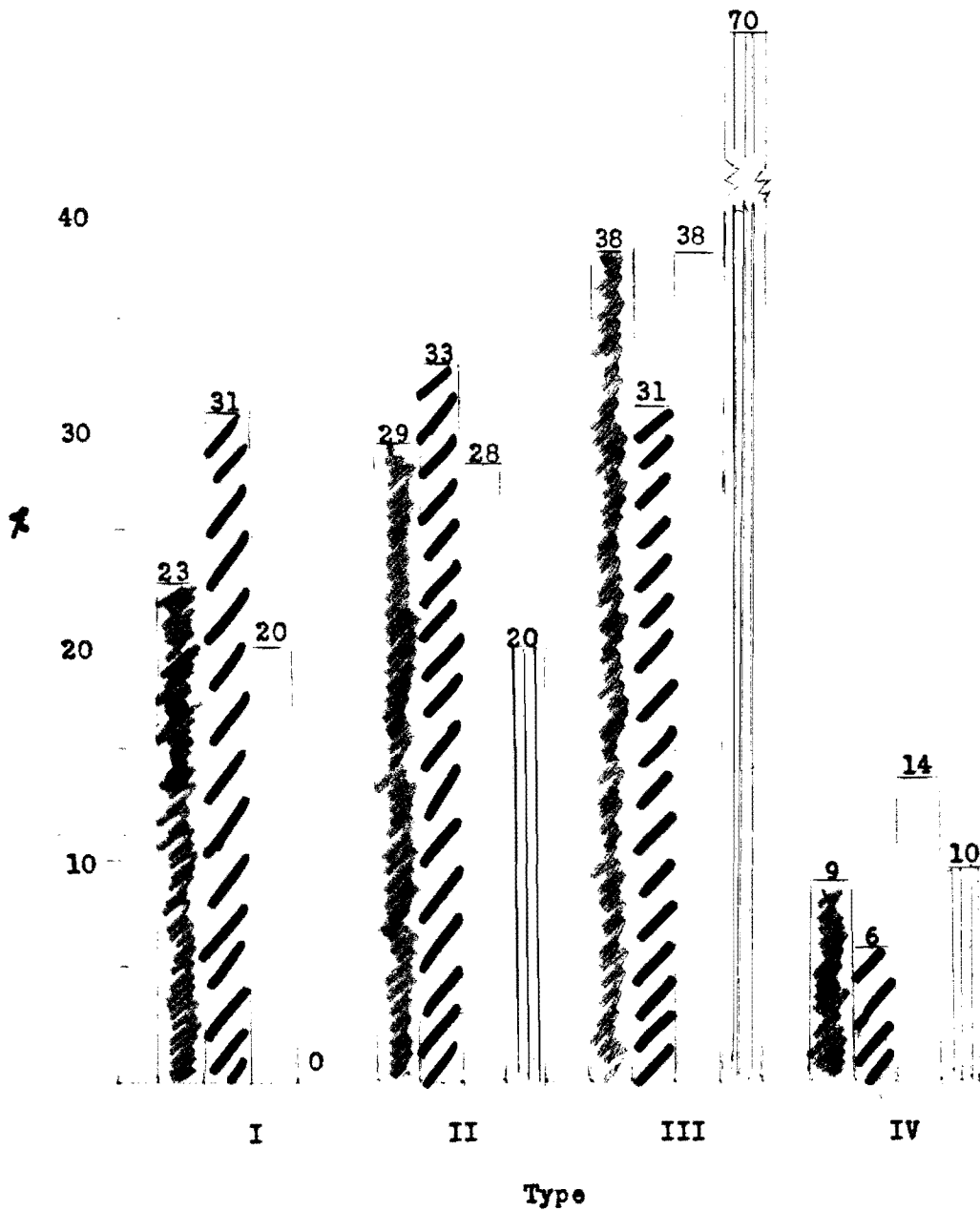
Platform Area Types: Frequency by count

- Total Area (109 platforms)
- ▨ Village-area 'A' (49 platforms)
- Village-area 'B' (50 platforms)
- ▤ Village-area 'C' (10 platforms)

8'06

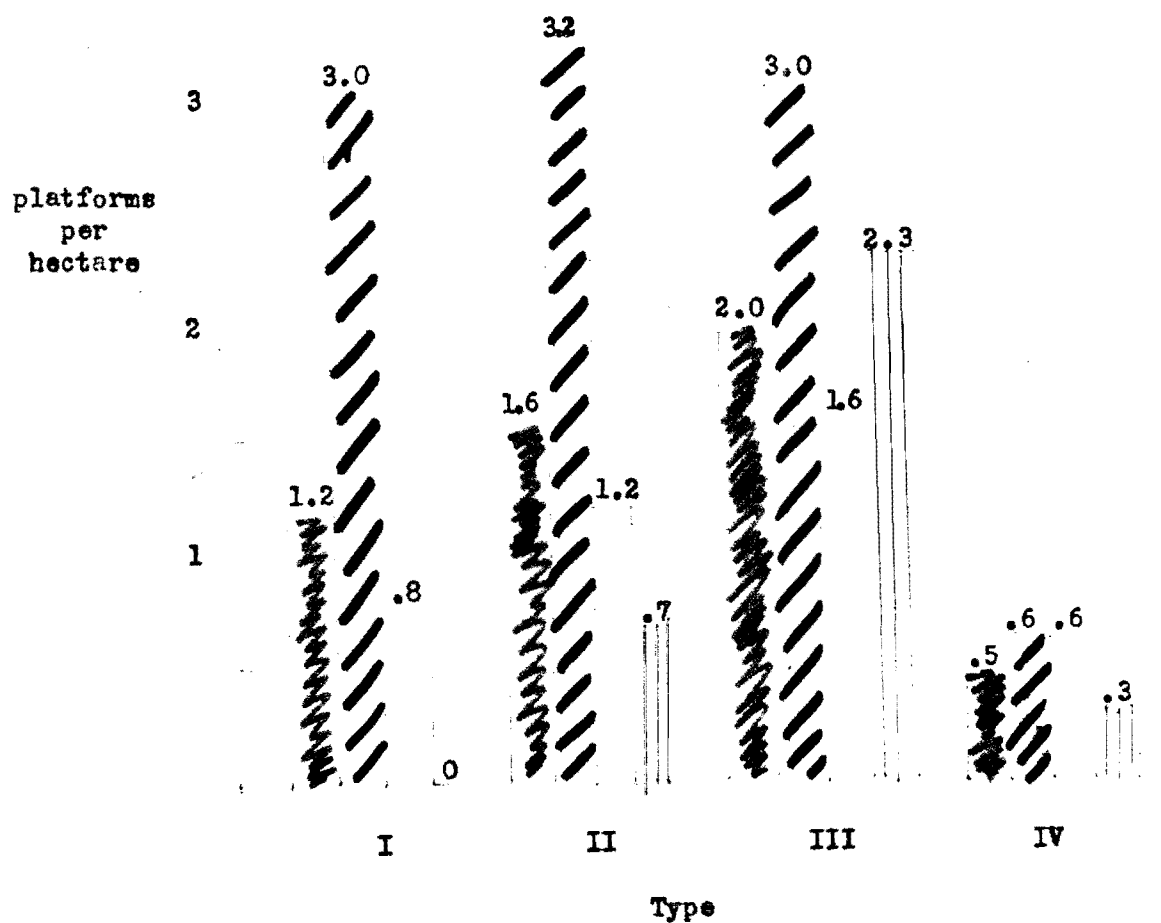
# APPENDIX F1b

Platform Area Types: Frequency by % of village-area

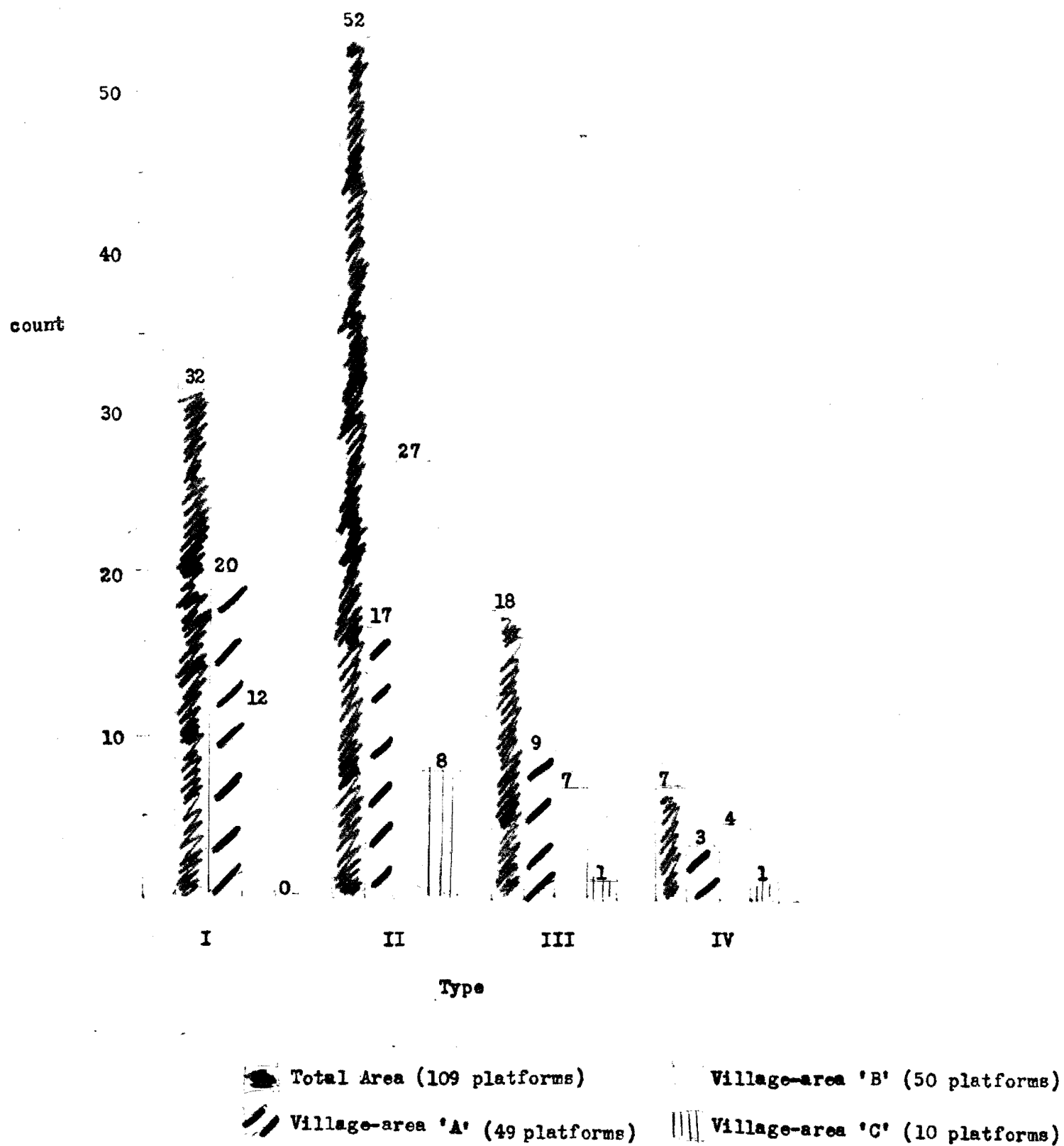


- Total Area (100%)
- ▨ Village-area 'A' (45%)
- Village-area 'B' (46%)
- ▤ Village-area 'C' (9%)

## APPENDIX Flc

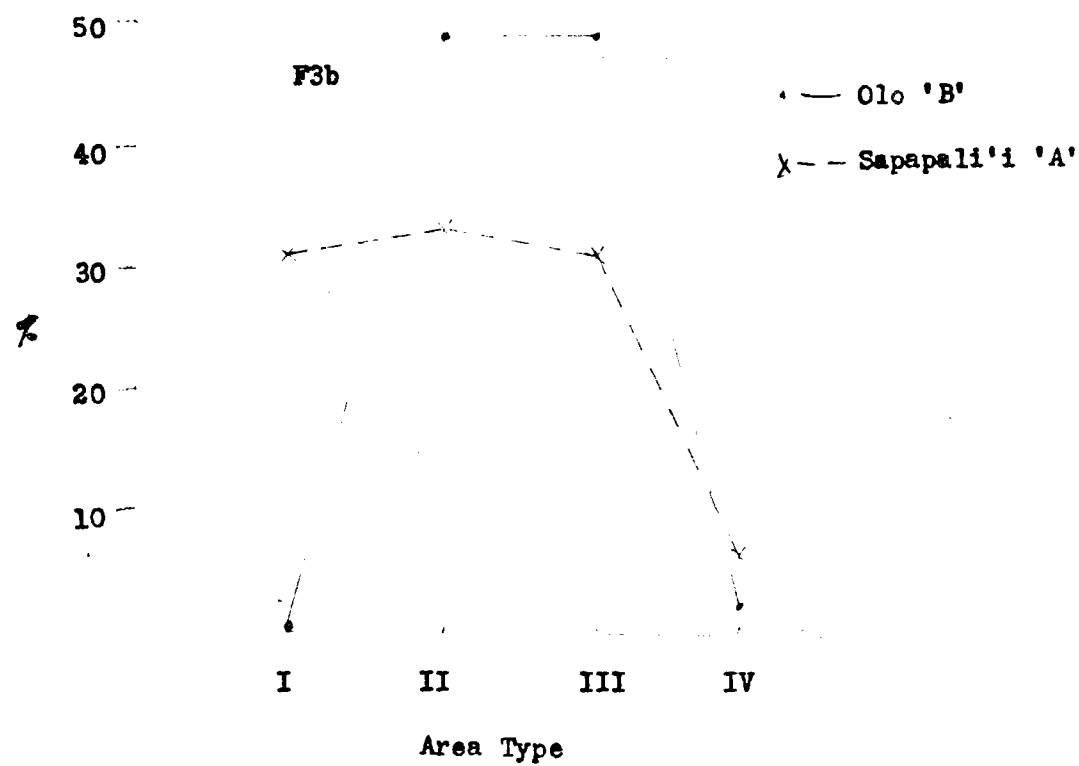
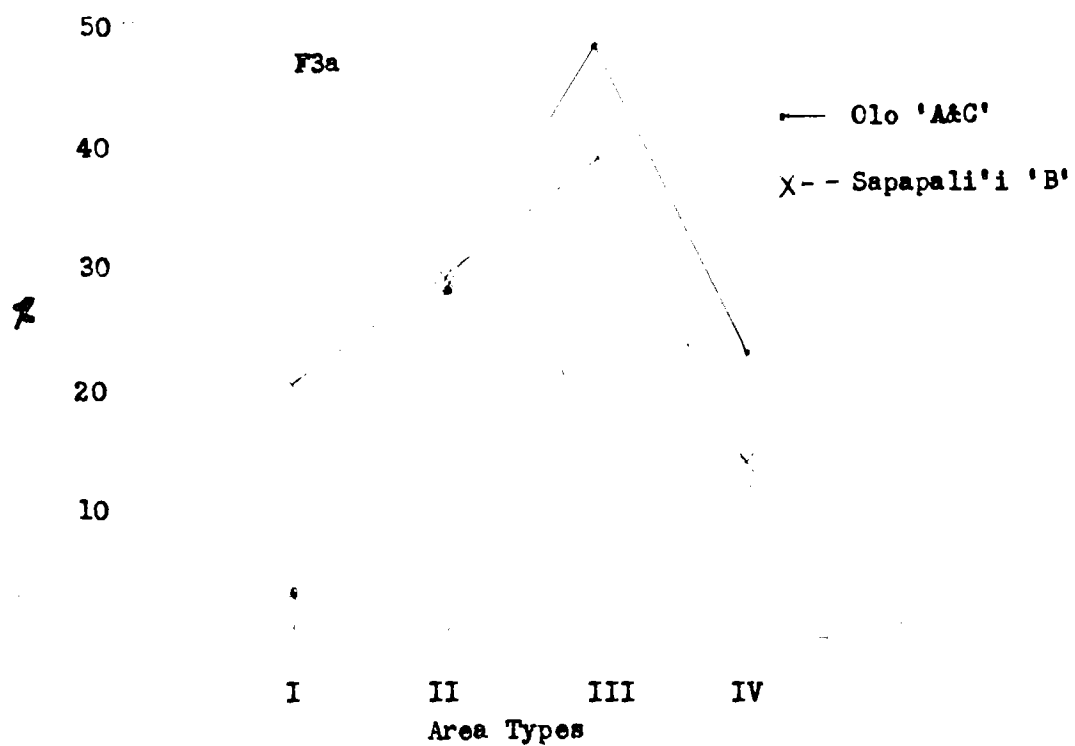
Platform Area Types: Density

## APPENDIX F2

Platform Volume Types: Frequency by count

# APPENDIX F3

## Olo-Sapapali'i Similarities



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