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– ARTICLE –

Coastal and Inland Settlement on Raʻiātea (Society Islands) during the Development/Expansion, Classic, and Post-Contact Phases

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ABSTRACT

The Society Islands hold a central place in archaeological models of Central Eastern Polynesia (CEP) colonization and social complexity, given their spatial importance as a gateway into CEP from the west. Archaeological fieldwork in the Societies has had a patchy distribution, with most recent studies largely focusing on the Classic Phase in the Windward Island group, disallowing regional syntheses. Inland and coastal locales on Raʻiātea, (Leeward Society Islands) were excavated and dated in order to develop a local chronology. Analysis of artifact and faunal assemblages, in conjunction with settlement patterns, contextualize the Raiatean cultural chronology within the regional archipelago-wide cultural sequence. Finally, a suite of lab-based analyses (micro-fossil analysis, wood charcoal identifications, land snail identification) are used to tentatively model human-landscape interactions through time. With this new corpus of ^{14}C dates, we now have evidence for coastal Raiatean sites dating to the late Expansion and the late Classic to Early Post-Contact Phases. Data from inland sites indicate the construction of a sizeable ritual center, including several community level temple structures with notable architectural elaboration, in the late Classic Phase. This correlates well with regional archipelago-wide settlement pattern shifts during the Classic Phase.

Keywords: Society Islands, East Polynesia, cultural chronology, coastal settlement, ritual centers

INTRODUCTION

The Society Islands hold a central place in archaeological models of Central Eastern Polynesia colonization and social complexity, given their spatial importance as a gateway into CEP from the west. Varied lines of evidence illustrate their late prehistoric transformation into highly complex chiefdoms, central to their larger anthropological importance. However, the lack of widespread archaeological research in the archipelago precludes detailed investigations of Society Island culture change through time. This is particularly the case since most recent work in the archipelago has focused on the late Classic Phase (AD 1600–1767). Archaeological fieldwork in the Societies has also had a patchy distribution, another factor disallowing regional syntheses. The Windward Society Island group (Tahiti, Moʻorea, Meʻetia, Maiao, Tetiaroa, see Figure 1) has seen more sustained archaeological investigations than the Leeward group (Raʻiātea, Tahaʻa, Porapora, Huahine, Tupai and Maupiti).

As a means of filling in these research gaps, the author began a research program on the island of Raʻiātea. The primary goal was to locate and excavate a sample of Raiatean coastal and inland sites in order to develop a local chronology. A second goal was to analyze artifact and faunal assemblages, in conjunction with settlement patterns, in order to contextualize the Raiatean cultural chronology within regional archipelago-wide cultural sequences. The final goal was to use a suite of lab-based analyses (pollen coring and pollen analysis, micro-fossil analysis, and wood charcoal identifications), to analyze human-landscape interactions through time. After providing a synthesis of archaeological research completed on Raʻiātea and a discussion of the regional Society Island chronology, I present new archaeological data from the coastal Sunset Beach site (SB#1–3) and the inland VAV-1 complex in Faʻaroa Valley. I also discuss preliminary results of microfossil analyses from samples recovered in archaeological sediments and column samples; additional reporting of Raiatean pollen cores and wood charcoal analyses will be in forthcoming publications.

BACKGROUND TO THE SOCIETY ISLAND REGIONAL CHRONOLOGY

Following the increased pace of archaeological research

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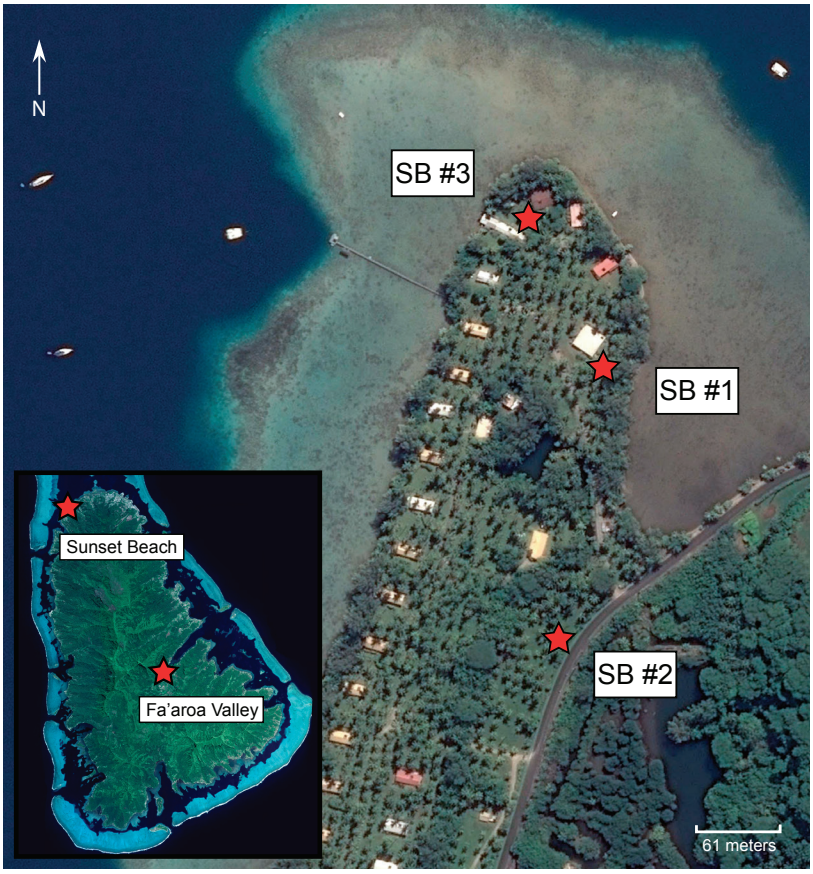

Figure 1: Raʻiātea Island with location of sites excavated, inset with plan view of Sunset Beach

in the Society Islands in the last three decades, I recently put forth a tentative four phase chronology for the archipelago (Kahn 2014) which draws from earlier models (Green 1996; Lepofsky and Kahn 2011). This chronological/cultural sequence includes the Colonization, Development/ Expansion, Classic, and Post-Contact Phases. The Colonization Phase ranges from *c.* AD 950–1200, a period when new plant and animal species were introduced by the first colonizers. Settlements were largely based on the coast, while intermittent slash and burn began in the interior. The Development Phase, *c.* AD 1200–1350, saw Maʻohi populations expanding along the coast and a more sustained focus on agriculture and animal husbandry. Archaic artifact styles, including those found in the Societies such as untanged adzes, trolling lures, and tattooing needles, are widely shared during this period (and perhaps earlier) in both Central East Polynesia and more remote East Polynesia (Bollt 2008; Davidson *et al.* 2011; Walter 1996), suggesting a period of intensive inter-archipelago interaction. In the Expansion Phase, after AD 1350, settlements extended into inland valley contexts and agricultural practices intensified (Dotte and Kahn 2017; Lepofsky and Kahn 2011). The Classic Phase, from AD 1600 until European Contact (AD 1767) saw regional variation within the Leeward and Windward groups, intensified construction of monumental temples and ritual centers, and increasing power of socio-ritual elites (Kahn and Kirch 2014; Maric 2016; Wallin and Solsvik 2006, 2010; Sharp *et al.* 2010; Sinoto 1996). Finally, in the Post-Contact period, historic artifacts (foreign material culture) entered into exchange systems. Shifts in settlement patterns, largely to coastal port towns or missions, are found, while introduced diseases led to devastating losses among the Maʻohi population (Hamilton and Kahn 2007).

PREVIOUS ARCHAEOLOGICAL RESEARCH ON RAʻIĀTEA

Located 210 km northwest of Tahiti, Raʻiātea is the largest of the Leeward Society Islands. The Leeward group is separated from the geologically younger Windward group by a 2–3 day sail by traditional canoe. Interaction and alliances between the Windward and Leeward chiefdoms were important components of pre-contact and post-contact socio-political organization. Oral traditions and explorer accounts attribute the greatest social eminence and antiquity to certain *marae* and religious practices (*ʻOro* cult, *ʻarioi*) originating in the Leeward Islands, particularly the ʻOpoa lineage and its national *marae* of Taputapuatea on Raʻiātea (Henry 1928; Maric 2016; Oliver

1974:661; Wallin 2014). However, given the general paucity of archaeological excavation in the Leeward Islands, it is difficult to understand what social transformations led to the pre-eminence of Raʻiātea during the Classic Phase.

Archaeological survey on Raʻiātea began with Emory's (1933) study of surface remains such as stone temples and house platforms. In a later report (Emory and Sinoto 1965: 27–30), Emory described at least 55 *marae* complexes (some with multiple structures) along the coast and interior that had been surveyed by himself, Edward S. Craighill Handy, Pierre Verin or Yosihiko Sinoto. Emory and Sinoto (1965) completed test excavations at ʻOpoa, a major ceremonial complex on the southeast coast. Much subsequent work has focused on limited site survey, excavation, and restoration, as well as cultural heritage management (i.e. UNESCO World Heritage classification) of stone structures at the ʻOpoa complex and in the adjacent valley (Edwards 1995; Niva 2009). Because few radiocarbon samples have been dated from these sites, our understanding of the Raʻiātea cultural sequence remains poorly understood. Emory and Sinoto's original dates suggested that the ʻOpoa temples and surrounding elite structures were constructed and used after AD 1500–1600 (Emory and Sinoto 1965; Solsvik and Wallin 2010; Table 1). Utilizing both archaeological and ethnohistoric data, Maric (2016) argued that Raiatean temple complexes originally were constructed in inland contexts, yet shifted to coastal locales in the 17th–18th centuries. Her work supports a Classic Period chronology for the ʻOpoa complex, with at least two construction events between the end of the 17th to the start of the 18th century.

Table 1: Previous radiocarbon age determinations, Raiʻatea Excavations

Lab-#	Site	Context	Material	Conv. (cal BP)	C13	Calibrated (2σ)	Comments
NR	Vaihi	Layer IV	Unidentified wood charcoal	NR	NR	Not calibrated, reported as AD 1210 ± 80	Not AMS date, Chazine personal communication in Semah *et al*. 1978:7
GaK-299	*Marae* Taputapuātea	Coral *ahu*	*Scutarcopagia scobinatae* shell embedded in coral slab of *ahu*	700 ± 100	NR	AD 1503–1722 AD 1793–1799 or AD 1566–1820 (1σ)	Not AMS date, Emory and Sinoto 1965. Calibrated dates are reported in Solsvik and Wallin 2006: 18 with a Southern Pacific regional average marine reservoir correction (first two age ranges) and a Moʻorea marine reservoir correction (last age range)
GaK-403	Archery Platform to west of *marae* Taputapuātea	70 cmbs, likely pre-dates structure	Unidentified wood charcoal	360 ± 90	NR	AD 1677–1765 (31.3%) AD 1765–1772 (0.7%) AD 1776–1800 (63.5%)	Not AMS date, Emory and Sinoto 1965: 65–66, Fig. 67, p. 71; Wallin 1997; Wallin and Solsvik 2006a: 27
WK 16903	Faʻaroa Z2-US5 (soil flat adjacent to *paepae*)	Sondage C, hearth features found in Layer B/C, 30 cmbs	Unidentified wood charcoal?	348 ± 33	–26.26 ± 0.2	AD 1460–1636 (95.4%)	AMS date. Some data reported in Niva 2004; additional data supplied by WK
WK 16906	Faʻaroa Z2-US6 (interior of rectangular house)	Small scoop hearth, 10 cmbs	Unidentified wood charcoal	265 ± 35	–27.30 ± 0.2	AD 1492–1602 (40.6%) AD 1615–1673 (43.3%) AD 1778–1800 (9.6%) AD 1942–modern (1.8%)	Not AMS date. Some data reported in Niva 2004; additional data supplied by WK
WK 16904	Faʻaroa ZIV-US17 (destroyed *marae* and auxiliary structures)	Layer B, 'surface'	Unidentified wood charcoal	85 ± 54	–25.21 ± 0.2	AD 1677–1765 (31.3%) AD 1772–1776 (0.7%) AD 1800–1940 (63.5%)	Not AMS date. Some data reported in Niva 2004; additional data supplied by WK
CAMS 7090	Faʻaroa Upper Zone A2	EU5, Layer 5/6	Unidentified wood charcoal	630 ± 70	–25.6	AD 1266AD–1426 (95.4%)	Lepofsky 1994: 159, Table 4.1
CAMS 7091	Faʻaroa Upper Zone A2	EU5, Layer 6	Unidentified wood charcoal	790 ± 60	–26.1	AD 1046–1089 (4.8%) AD 1122–1139 (1.5%) AD 1148–1298 (88.8%) AD 1372–1378 (0.4%)	Lepofsky 1994: 159, Table 4.1

Gak: Gakushin lab, Wk, Waikato lab, CAMS, Center for Accelerator Mass Spectrometry. All dates recalibrated at 2 sigma with Oxcal 4.3 unless otherwise reported. All dates are standard radiometric dates unless reported otherwise as AMS dates in the Comments column

There has been little modern interest in Raʻiātea coastal sites. During 1960–61 Sinoto and Verin completed surface collections and small test excavations at a rockshelter (Parea, Haʻapapara), at a river cut with an earth oven at motu Tipaemaua (Opeha point), and at house sites on the Haʻaiaʻo motu (R3); charcoal samples were not submitted for dating (Emory and Sinoto 1965; Sinoto and Verin 1965). In 1964 Sinoto surveyed Nanao islet at the south portion of the island and surface collected a large number of artifacts. The discovery of the waterlogged coastal site of Vaihi along the north coast in the 1970s led to salvage excavations when the new circle island road was constructed (Charleux 1978; Semah *et al*. 1978). Four cultural deposits were encountered (LI–LIV), with LIII and LIV representing rich waterlogged deposits with excellent preservation of organic remains. At least one sub-surface structure was indicated by the recovery of post holes and remnant posts. Artifact recovery included bone tattooing needles, shell chisels, pearl shell fishhooks, tabs and blanks, and stone tools in addition to organics such as *nape* (braided coconut fiber) and wooden needles used in mat production. LIV was reported as dating to *c.* AD 1210 ± 80 (Chazine personal communication in Semah *et al*. 1978:7, Table 1), but no other data for this radiocarbon sample are available. The recovery of Archaic style artifacts such as bone tattooing needles, shell chisels, and untanged adzes are consonant with the single radiocarbon date suggesting a late Colonization Phase or Development Phase for the Vaihi site occupation.

Inland Raiatean contexts, such as Faʻaroa Valley on the east coast, saw sustained archaeological survey in the 1980s (Edwards 1985; see Gérard 1974, 1975 for inland valley survey in Mitimitiaute and limited excavation). Edwards provided preliminary analysis of Faʻaroa survey data including data on 588 agricultural terraces, 29 *marae,* and 44 house sites. Edwards grouped Faʻaroa site complexes based on aggregations of *marae* and house sites (or lack thereof). Group 1 and 2, with three plus *marae* and six or more house sites, were reasoned to be 'remarkable ceremonial complexes' (Edwards 1985: 19); these groups correspond to my definition of aggregate ceremonial centers restricted to corporate rituals of high status elites in the Classic Phase (Kahn 2011, 2016; Kahn and Kirch 2014). Subsequent studies have added to the Faʻaroa survey data and have provided limited results from test excavations (Niva 2004, 2005). Extant dating results suggest construction and use of *paepae* (upraised stone platforms), house sites, and temples during the late Expansion Phase and Classic Phase (Table 1). However, these radiocarbon samples were not identified to species and were not all run as AMS dates on targeted single wood charcoal fragments. As a result, these dated samples may suffer from in-built age.

Lepofsky's (1994) regional analysis of pre-contact Maʻohi agriculture involved excavations at agricultural complexes in Matorea Valley and Faʻaroa Valley on Raʻiātea. Lepofsky outlined how Faʻaroa agriculture complexes were constructed in the 13th–14th centuries, while those in Matorea were expanded in 15th century and were in use up to European contact. However, as with other Raiatean samples, Lepofsky's dates were not run on short lived species and may suffer from in-built age. Lepofsky also utilized Edwards' Faʻaroa data to analyze settlement pattern variation in the valley. She found Zone A1 had the most houses and temple sites, as well as the two largest *marae*, while Zone A2 was preferred for cultivation. Lepofsky's spatial analysis suggested that houses and temple sites were often associated with each other, while there was no correlation between these types of sites and agricultural complexes (1994: 234).

COASTAL SITES AT SUNSET BEACH (RAI-1): SURVEY AND EXCAVATION RESULTS

Sunset Beach is found along the northwestern coast of Raʻiātea in the Uturoa District (Figure 1). Here, the rectangular coastal plain is expansive, *c.* 685 m long by 152 m wide. The coastal plain is relatively undeveloped, although several tourist bungalows and houses dot the area. The northern end of this coastal plain opens up onto a moderately deep bay. Our auger testing and excavations focused on the northern and eastern expanses of the coastal strip where we investigated three areas (RAI-1-SB#1, 2, 3, see Figure 1).

Auger hole (AH) sediments were brought up in 30 cm intervals and screened through ⅛ inch mesh. All AH sediments were described in terms of texture, content, Munsell color, and depth below surface. Artifacts and charcoal were quantified by depth and stratigraphic deposit in order to locate zones with the deepest, most intact sub-surface cultural deposits. Test units of 1 × 1 m or 1 × 2 m and skip trenches were excavated in the richest zones in order to retrieve wood charcoal for dating and artifacts and faunal samples for analysis. Overall, 7 m^2 were excavated in three locales at Sunset Beach.

Eight samples of fast maturing fruit and nut endocarps, all representing short lived species with in-built age of a few years or less (Allen and Huebert 2014), were submitted to Beta Analytic to date the Sunset Beach cultural deposits (Table 2). Unlike the currently available radiocarbon dates for Raʻiātea (Table 1), our new suite of eight AMS samples do not suffer from problems of in-built age or the 'old wood' problem. Radiocarbon dates were calibrated with Oxcal 4.2.4, (Bronk Ramsey 2009) and the r5 INTAL 13 atmospheric curve (Reimer *et al*. 2013).

Human-environmental interactions and site-based cultivation and economic activities were tracked through time through via pollen and phytolith analysis. Seven samples were analyzed by Mark Horrocks, three from column samples at SB#2 TP2, three from column samples at SB#3 TP4, and one from a sub-surface feature recovered at site -52 in Faʻaroa Valley. Nonmarine mollusks recovered during the archaeological excavations were also analyzed as

Table 2: Radiocarbon Age Determinations, 2015 Raiʻatea Excavations

Beta–#	Site	Unit	Block	Layer	Depth (cmbd)	Material	Conventional (cal BP)	C13	Calibrated
424719	RAI-1	TP1	SB#1	LII	142–151	*Cocos nucifera* nutshell	180 ± 30	–23.6	AD 1652–1696 (19.1%) AD 1726–1814 (51.9%) AD 1836–1877(4.1%) AD 1916– modern (20.4%)
424718	RAI-1	TP2a	SB#2	LII	87–94	*Cocos nucifera* nutshell	370 ± 30	–29.6	AD 1446– 1528 (55.0%) AD 1553– 1634 (40.4%)
424713	RAI-1	TP6	SB#3	LIIb	96–101	Charred *Aleurites moluccana* endocarp	50 ± 30	–24.2	AD 1694–1728 (21.8%) AD 1812– 1919 (73.6%)
447572	RAI-1	TP5	SB#3	LIIb	111–116	Charred *Aleurites moluccana* endocarp	70 ± 30	–24.6	AD 1690–1730 (24.3%) AD 1810– 1924 (71.1%)
447573	RAI-1	TP5	SB#3	LIIb	116–130	Charred *Aleurites moluccana* endocarp	90 ± 30	–24.9	AD 1684–1732 (26.3%) AD 1807–1928 (69.1%)
424712	RAI-1	TP6	SB#3	LIIa	68	*Cocos nucifera* nutshell	100 ± 30	–23.8	AD 1682–1736 (27.1%) AD 1805–1935 (68.3%)
447571	RAI-1	TP6	SB#3	LIIb	102–136	Charred *Aleurites moluccana* endocarp	130 ± 30	–24.8	AD 1674– 1778 (38.0%) AD 1798–1894 (42.4%) AD 1905–1942 (14.9%)
424711	RAI-1	TP6	SB#3	LIIa	87–90	*Cocos nucifera* nutshell	1120 ± 30	–24.7	AD 778–790 (1.7%) AD 809–815 (0.5%) AD 826–841 (0.5%) AD 862–994 (91.8%)
447575	VAV-1-51	TP4	Feature 1 (ritual burn)	LII	194–201	*Cocos nucifera* nutshell	200 ± 30	–25.2	AD 1646– 1690 (24.9%) AD 1728– 1810 (51.2%) AD 1926–modern (19.3%)
447574	VAV-1-56	TP6	Feature 4 (cooking hearth)	LII	196	*Cocos nucifera* nutshell	150 ± 30	–25.4	AD 1666–1709 (16.3%) AD 1717–1784 (31.4%) AD 1796–1890 (30.0%) AD 1910–modern (17.7%)

part of a multidisciplinary study of anthropogenic environmental change. Bulk sediment samples from the Sunset Beach and Faʻaroa excavations were floated and then wet screened and picked through to retrieve land snail samples for analysis. This was followed by hand-picking in the laboratory by Carl Christensen with the aid of a stereomicroscope. Other terrestrial (bird, pig, dog, rat) and marine faunal remains (fish, shellfish) will be reported here as present or absent (Table 3); their analysis is ongoing and will be published elsewhere.

Sunset Beach #1 (SB#1)

SB#1 is found along the easternmost edge of the coastal plain, east of a large guest house. We laid out a roughly north-south 50 m transect and augered every 5 m (Figure 2). Two additional auger transects were completed to the west and east of the original transect along its southern end where sub-surface deposits were found to be thick and intact. TP1 was excavated at the southern end of the main transect which seemed to have the most promising sub-surface deposits; elsewhere along the SB#1 transects cultural deposits were ephemeral.

Figure 2 presents the stratigraphy found in TP1. Five deposits were encountered in this test unit which was excavated to a depth of *c.* 145 cmbs. A thin A horizon capped LIa (9–77 cmbs), a compact red-brown clay with lenses of degrading scoria and branch coral. LIa lacked artifacts and is interpreted as modern construction fill. LIb is a thin lens 2–6 cm in depth found below LIa. This deposit is a burn layer replete with burnt roots, ash, and charcoal. Parts of LIb are concreted, suggesting the surface was made moist after burning, left to dry, and then filled on top with LIa. LIb is interpreted as a modern slash and burn clearing activity before the LIa fill was added as construction fill. Layers Ia and Ib likely extend over the entire Sunset Beach coastal flat as the same deposits were encountered in the SB#2 and SB#3 excavations.

LII, a greyish brown medium-grained sand, represents the main cultural deposit. Cultural recovery was moderate, with infrequent charcoal; moderate shell, urchin and crab; infrequent faunal remains including a pig tooth; and in-

Table 3: Artifacts recovered at the SB#1–3 and Faʻaroa Valley excavations

Site	SB#1			SB#2			SB#3			51			52			54/56/57		
Strata	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Basalt Flakes	–	–	–	–	–	–	–	10	–	1	–	–	–	–	–	22	30	–
Flakes, Mugearite or Unknown	–	–	–	–	–	–	–	9	–	–	–	–	–	–	–	–	–	–
Adze Flake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Retouched Flake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–
Retouched/ Utilized Flake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–
Retouched/Worked Prismatic Basalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–
Coconut Grater	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–
Polishing Stone	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Chert Flake	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–
Strike A Light	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Historic Glass	–	–	–	–	Pr*	–	–	Pr	–	–	–	–	–	–	–	–	–	–
Glass Flake	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2	–
Cut Pinctada	–	–	–	–	–	–	–	18	–	–	–	–	–	–	–	–	–	–
Cut Turbo	–	–	–	–	–	–	–	25	–	–	–	–	–	–	–	–	–	–
Cut Shell (Other)	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–
Tab Pinctada	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–
Blank Pinctada	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Blank Turbo	–	1	–	–	–	–	–	5	–	–	–	–	–	–	–	–	–	–
Blank (other)	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Unfinished hook Pinctada	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–
Turbo Scraper	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–
Turbo Peeler	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Shell scraper	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–

* Pr = present

frequent artifacts including a single *Turbo* fishhook blank (Table 3). LII is interpreted as a pre-contact cultural deposit presently submerged under the water table, providing evidence that Raʻiātea is subsiding. The basal deposit, LIII is a compact fine-grained marine sand, white to cream colored. The deposit has frequent water-rolled shell, including bivalves (*Tellina* sp.) in growth position and coral inclusions, such as large *Porites* and *Acropora* fragments. LIII is interpreted as a sterile pre-Polynesian deposit, and any artifacts recovered in LIII likely dislocated from LII due to crab burrowing or intermixing of these waterlogged deposits.

A charred *Cocos nucifera* endocarp fragment was submitted to Beta-Analytic to date the Layer II cultural deposit in TP1 (Table 2). When calibrated, Beta-424719 has multiple intercepts, with an age range of AD 1652–modern. Historic artifacts were not recovered in the deposit and I reject the post-contact age range. The calibrated intercepts and artifact recovery suggest that LII most likely dates to the first three quarters of the 18th century, or the late Classic Phase just prior to European contact.

Sunset Beach #2 (SB#2)

Sunset Beach #2 includes the most inland transect and excavation locale. A 45 m transect oriented N-S was placed inland of the circle island road which runs NE by SW in this zone (Figure 3). We excavated a 1 × 2 m test pit (TP2) roughly mid-way along this transect. The upper deposits included LIa and LIb similar to those found at SB#1, TPI. The LII cultural deposit was *c.* 20 cm thick (86–105 cmbs). This grey-brown medium grained sand had infrequent charcoal and burnt coconut but more frequent recovery of land snails and faunal remains than SB#1 (Table 3). LII is presently under the water table and there is some admixture with the underlying LIII. LIII is a sterile pre-Polynesian deposit similar to that found in TP1 with abundant organic remains such as Pandanus keys.

A charred *Cocos nucifera* endocarp fragment recovered in Layer 2, TP2 was dated as Beta-424718 (Table 2). The calibrated age range at 2SD is AD 1446–1634 and most likely dates to the mid-15th to early 16th century portion of the age range. This places the SB#2 LII occupation in the late Expansion Phase.

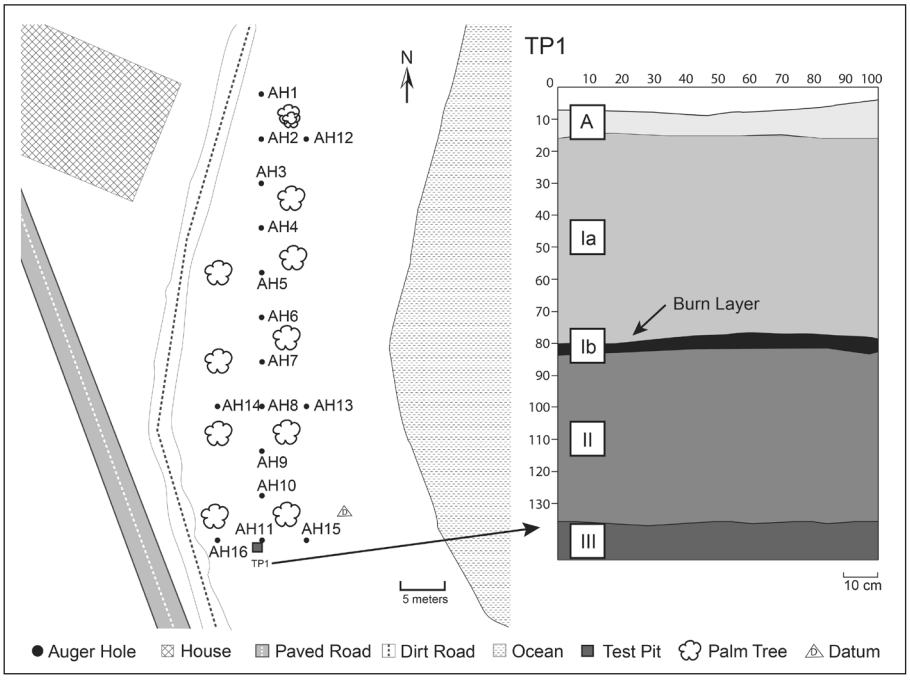

Figure 2. SB#1 Plan view with transects, auger holes, Test Pit 1 and inset of TP 1 stratigraphy

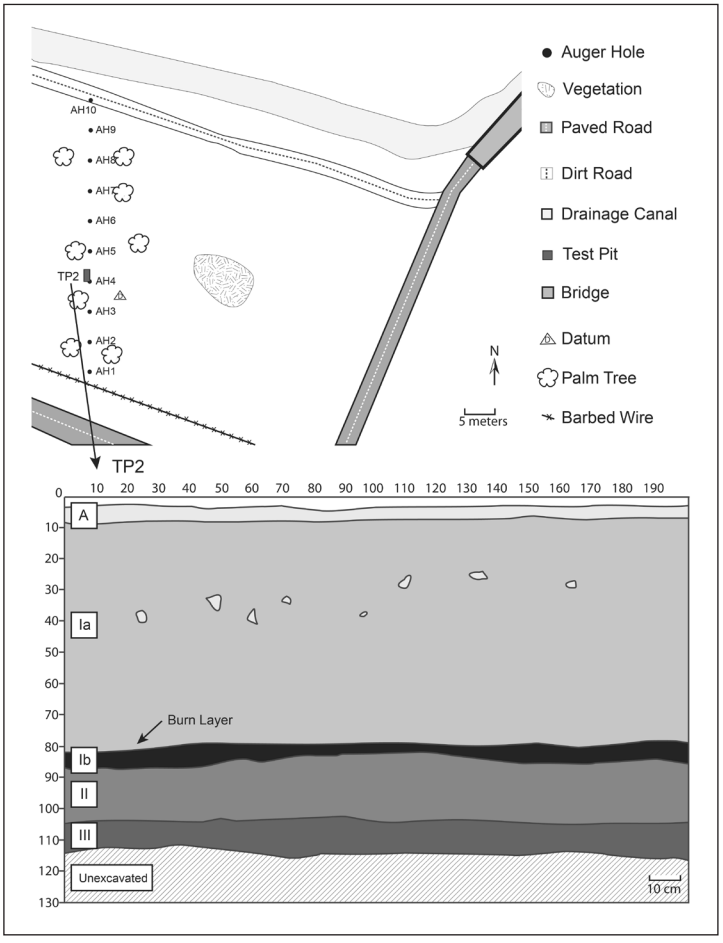

Figure 3. SB#2 Plan view with transects, auger holes, Test Pit 2 and inset of TP 2 stratigraphy

Sunset Beach #3 (SB#3)

At SB#3 a 30 m transect was laid out perpendicular to the coast. Two 1 × 1 m test pits (TP3, 4) were excavated along a 5 m skip trench. TP5 was excavated 5 m inland towards the coastline, while TP6 was placed 1 m to the North of TP5 (Figure 4). Each of the four SB#3 test pits had similar stratigraphy. The upper deposits included LIa and LIb similar to those found at SB#1 and #2. The main cultural deposit, LII was split into upper LIIa and lower LIIb. LIIa was a grey-brown medium-grained sand with small discontinuous bone and infrequent stone tools and flakes, the latter appearing to be flaked mugearite (Table 3). Historic artifacts were found in low frequency and included a few chert flakes and a strike-a-light; the chert flakes likely derive from strike-a-light use. In addition, a few glass fragments and a piece of flaked glass were recovered as well as a few historic ceramics.

LIIb, a light brown medium silty sand with higher silt content than LIIa, was largely under the water table. The upper portion of LIIb had many tree roots and infrequent historic artifacts which in the field, were interpreted as potentially having moved downward from LIIa due to root action. LIIb had increased animal bone (with rat, pig, and dog represented) and shell recovery when compared with LIIa. The deposit also had evidence for fishing activities, with pearl shell (*Pinctada*) and *Turbo* artifacts, such as cut shell, fishhook tabs and blanks, and unfinished hooks, represented. A few *Turbo* shells had use-wear suggestive of peeling and scraping activities. LIIb deposits capped LIII a fine-grained marine sand with large coral conglomerates. LIII was interpreted as a sterile pre-Polynesian deposit, as found elsewhere across Sunset Beach.

Six SB#3 samples comprised of short-lived species (*Cocos nucifera* and *Aleurites moluccana* endocarps) were submitted to Beta Analytic for radiometric dating (Table 2). Four samples were dated from the lower LIIb deposit. These samples tightly calibrate to the same age range, AD 1674–1942. Each sample calibrates to multiple intercepts and LIIB most likely dates to the early 18th-early 19th century portion of the age range. Two samples, Beta-424711 and 424712, were dated from the upper LIIa deposits. When calibrated, these samples fail to overlap at two SD. Beta-424711 calibrates to AD 778–994 AD and the sample most likely dates to the AD 862–994 portion of the age range. This is within currently accepted Society Island Colonization Phase age ranges of *c.* 1150–1050 cal yr BP (Kahn and Sinoto 2017; Lepofsky and Kahn 2011; Stevenson *et al.* in press; Wilmshurst *et al.* 2011, Table S1), thus, I cannot exclude the possibility that a Colonization Phase deposit might be located at SB#3 with additional excavations. However, when compared with the entire suite of LII dates, Beta-424711 is a unique early outlier. Following this, I argue that Beta-424712 most likely provides an accurate age based estimate for the LIIa deposit. Beta-424712 calibrates to AD 1682–1935 and the deposit most likely dates to the early 18th to early 19th century portion of the age range. This is internally consistent with the LII dating results. Overall, artifact and chronometric data suggest that the LII deposits likely span the late Classic to early

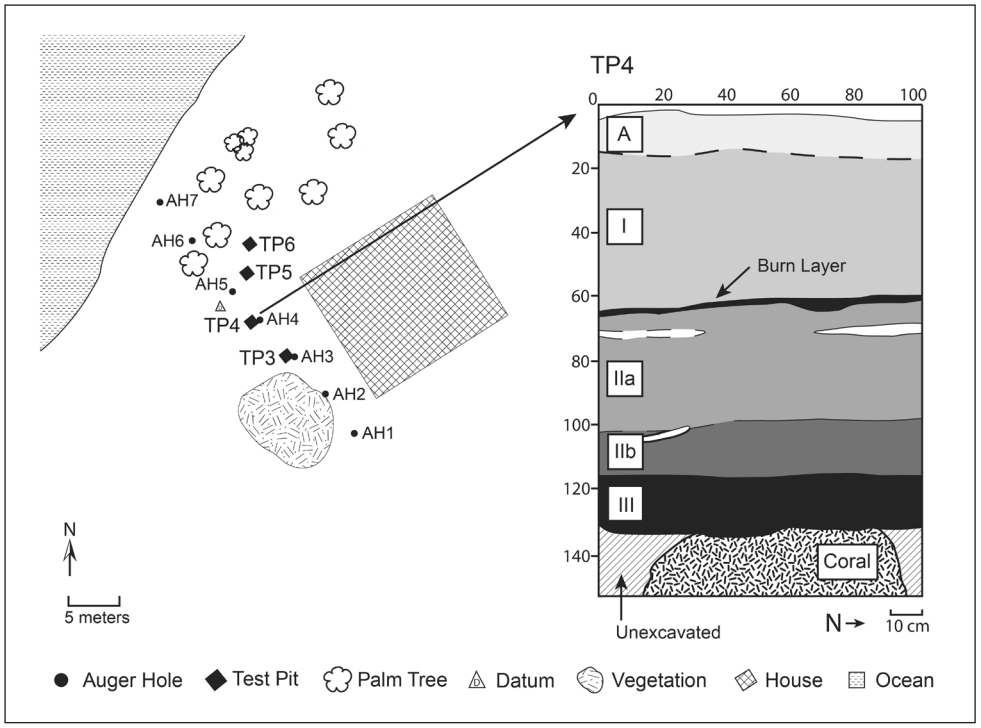

Figure 4. SB#3 Plan view with transects, auger holes, Test Pits 3–6 and inset of TP4 stratigraphy

Post-Contact Phases; this is consistent with the limited frequency of historic artifacts found mainly in the upper IIa deposits.

As discussed above, five of the six SB#3 dates were internally consistent, but Beta-424711 stands out as an outlier. This sample was run on *Cocos nucifera* endocarp that was thought to be charred. However, due to the waterlogged nature of the LIIa deposits, where the anaerobic context naturally darkens organic materials, as well as evidence for root and crab disturbance at this site, I cannot rule out that a piece of endemic *Cocos* from the LIII deposit was moved upward and inadvertently dated as part of the LII suite of samples. This brings an important issue to light. While in some East Polynesian contexts *Cocos* endocarp is felt to be one of most suitable materials to date, as it represents a short-lived species and a Polynesian introduction (Allen and Huebert 2014; Reith and Athens 2013; Athens *et al.* 2014), this is not the case regionally across East Polynesia. Other Society Island waterlogged deposits representing sterile beaches, similar to those found at LIII in SB#1–3, have returned dates on wild *Cocos* endocarps from the pre-Polynesian era (Kahn *et al.* 2014), with pollen cores offering similar data on the pre-Polynesian presence of *Cocos* in the Societies and some other CEP archipelagoes (Parkes 1997; Stevenson *et al.* 2017; Prebble and Dowe 2008). As such, care must be taken in choosing *Cocos* fragments from cultural deposits with diffuse interfaces with underlying sterile beach deposits and/or coastal contexts with significant root and crab disturbance. Running a suite of dated samples from similar contexts certainly aides in eliminating samples suffering from post-depositional movement from consideration and for identifying other samples that are effected by in built age (see Allen and Wallace 2007) or are misconstrued as charred when they are in fact waterlogged and color stained.

Human-Landscape Interactions: Microfossil and Land Snail Results

At the coastal contexts of SB#2 and #3, column samples from each of the major stratigraphic deposits were submitted to Mark Horrocks for pollen and phytolith identification. All of the SB#2 samples (Ia, II, III) contained *Casuarina equisetifolia* pollen (Mark Horrocks personal communication 2016). There is some uncertainty as to whether *Casuarina*, an important economic timber tree, is a Polynesian introduction (Stevenson *et al.* in press). *Cocos nucifera* and *Pandanus tectorius* pollen are likewise represented in all phases (LIa, II, III) of SB#2. Wild *Cocos* and *Pandanus* are indigenous to the Society Islands and comprised a major part of the pre-Polynesian strandline vegetation. It is likely that domesticated *Cocos* and other species of *Pandanus* were introduced with Polynesian settlement of the archipelago (Whistler 2009). Both species had a range of economic uses (Butaud *et al.* 2008; Lepofsky 2003).

Column samples from SB#3, TP4 had a similar microfossil constellation. Sediments from LI, LIIa, and LIIb contained *Casuarina equisetifolia*, *Pandanus tectorius*, and *Cocos nucifera*. In addition, pollen of *Morinda citrifolia* was found in all contexts. *Morinda* is indigenous to the Society Islands and had several pre-contact economic uses, notably as a dye for tapa cloth and as a medicinal plant, while its leaves were also used to pack food for cooking in earth ovens (Butaud *et al.* 2008). Small amounts of *Pinus* spp. pollen were recovered in LI. Pine is a historic introduction with pollen that is easily wind-dispersed. Its recovery in LI supports that this construction fill deposit dates to the modern period. Overall, the microfossil data allow us to begin to reconstruct paleo-shoreline vegetation on Raʻiātea consisting of *Cocos* and *Pandanus* and most likely *Casuarina*. The lack of substantial Polynesian introductions in the Polynesian phase settlements may be due to the sandy substrate which limits the types of cultigens that could be planted.

Land snail recovery from the Sunset Beach sites provide another line of evidence for interpreting human-environment interactions and ecological micro-environments. Recovery of a prehistorically introduced commensal species, *Allopeas gracile*, in each of the excavated contexts (SB#1, 2, and 3) provides confirmation of human presence at these sites. The presence of two freshwater snails, *Melanoides tuberculata* (a likely prehistoric introduction, see Christensen *et al.* 2018) and *Physa acuta* (a historic introduction) suggests the Sunset Beach sites had periods of freshwater input, perhaps from streams deriving from the interior mountainous zone. As land snail identifications from archaeological sites in the archipelago expand, the recovery of Polynesian introductions versus endemic species versus historic introductions can be used as markers for dating archaeological deposits and anthropogenic activities such as land clearance.

INLAND EXCAVATIONS AT FAʻAROA VALLEY (VAV-1): SURVEY AND EXCAVATION RESULTS

Edwards (1985:19) described the VAV-1 complex as one of two large ceremonial complexes in Faʻaroa valley, similar to major ritual-political centers as described elsewhere in the archipelago. The VAV-1 complex is comprised of two groups of aggregated temple sites, with a total of six *marae* associated with house sites, elaborate pavements, and agricultural complexes. The western zone of VAV-1, which Edwards called Group 1, includes three elaborate temples, each with an altar (*ahu*) and stone uprights (Figure 5[1]). Fronting these temples is a large, well-constructed stoned face terrace, site -52. Numerous architectural features are

1 Figure 5 shows the western zone of VAV-1 as documented by Edwards in 1985. Since then, *marae* -50 has seen bulldozer damage to its NE corner, as depicted in Figure 6 (Kahn field plan 2015).

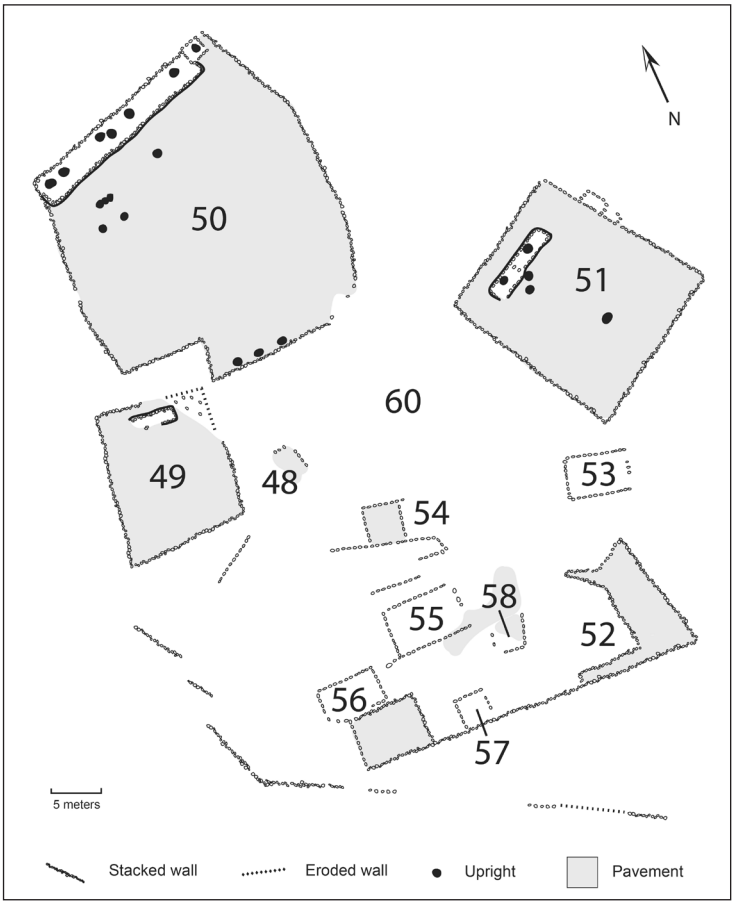

Figure 5. Western portion of VAV-1 Complex, Group 1, Fa'aroa Valley (after Edwards 1985)

found along the terrace interior, including four rectangular houses outlined with basalt curbstones and several paved areas. A fifth, more isolated rectangular house (-53) is found between terrace -52 and *marae* -51. The isolated nature of this house and its spatial proximity to an elaborate aggregate temple complex suggest it may have served as a priest's house (see Kahn 2015). Test excavations were completed on structures -50, -51, and -52; test units were numbered consecutively as continuous numbers across the sites.

Marae VAV-1-50

Marae -50 is a large, elaborate temple (Figure 6). Quadratic in shape, the *marae* has a paved enclosure with a notch mid-way along its southern limit. The *ahu* at one time extended across the northern edge of the paved enclosure, but its eastern limit has since been destroyed by bulldozer activities. The *ahu* is of moderate height (60 cm) and is formed from a banded facing of coral, beach rock, and basalt slabs along its front face, with two blocks of basalt, then two slabs of *Acropora* coral or beach rock, followed by two blocks of basalt. Worked red tuff blocks are found along the eastern face of the *marae* but some have been disturbed by the bulldozer activity. Series of stone uprights are found facing the *ahu* (n=3) and on top of the *ahu* (n=5). Two rectilinear features are found on the paved court facing the *ahu*. These are outlined in basalt slabs placed on end in alignments. Two to three uprights are found in each rectilinear feature. The *marae* court is well paved with well-chosen flat topped prismatic basalt and vesicular basalt. The form of the court suggests at least two episodes of site construction, with the original form being a square and a latter addition of a notch and low-lying eastern pavement along the eastern limit of the court. The form of the *marae* conforms to Edwards Category 3.

Two test pits were excavated at -50, one exterior to the western enclosure wall close to the *ahu*, and the other at the SW corner, exterior to the enclosure. Three stratigraphic deposits were encountered in the excavations. These included LI, a dark brown loamy clay with high organic content and infrequent flakes and charcoal. The underlying Layer 2, a dark orangish brown clay had moderate amounts of charcoal and basalt flakes. Layer 2 is interpreted as the main cultural deposit associated with the construction and use of the *marae*. Site- 50 has yet to be dated, however, its surface architecture, namely *Acropora* (coral) veneer facing of the *ahu*, suggests that the temple

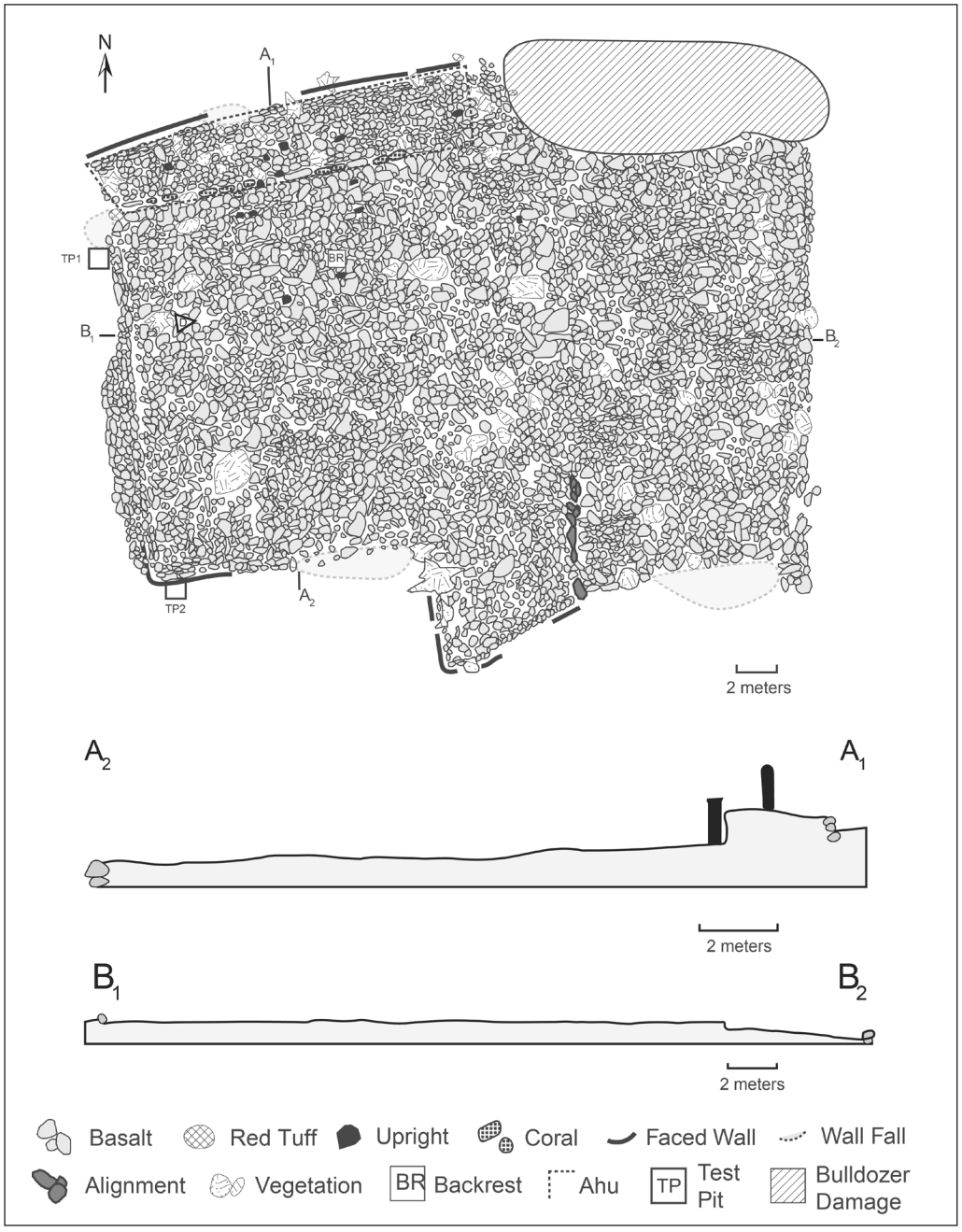

Figure 6. Plan view of *Marae* VAV-1-50 (Kahn field map 2015)

was constructed and used late in the Society Islands sequence during the Classic Period. It most likely post-dates AD 1620, similar to other Windward *marae* with similar *ahu* forms already dated via U-Th (see Kahn and Kirch 2014, Sharp *et al.* 2010).

Marae VAV-1-51

This moderately sized *marae* is rectangular in shape (Figure 7). The enclosure is well paved. A dressed red tuff block which had dislodged from the SW corner of the enclosure was located during the test excavations. A 40 cm high *ahu* is found along the northern limit of the enclosure but is not flush with the north enclosing wall. The *ahu* is not as elaborate as that found at site -50. While the -51 *ahu* has some *Acropora* coral slabs and beachrock slabs along its front facing, it does not have a banded facing nor are red tuff blocks used in its construction. The -51 *ahu* is split into two compartments by a small single course basalt alignment. Each side of the *ahu* has one stone upright along its top, while at least two uprights face the front of the *ahu*. Two other uprights are found along the southern half

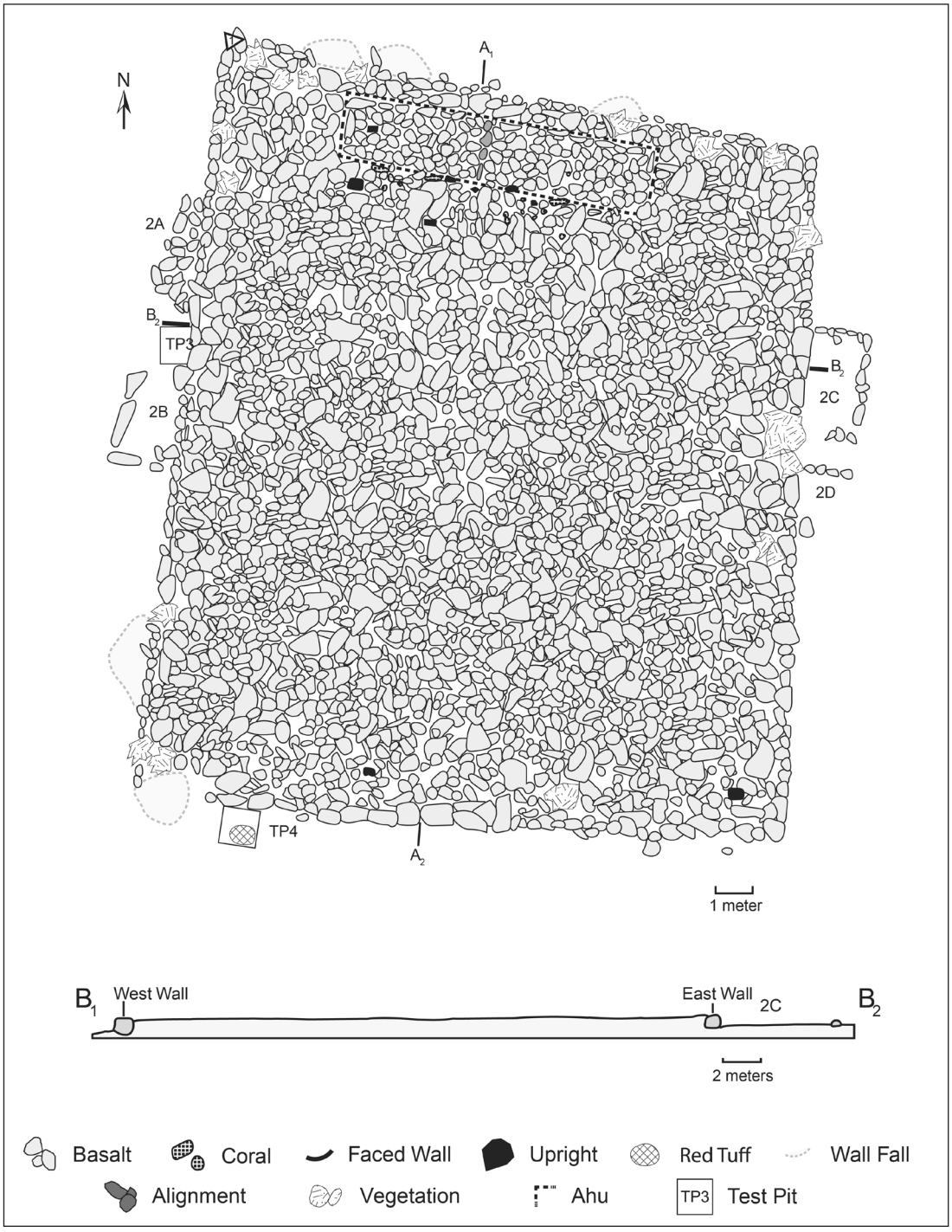

Figure 7. Plan view of *Marae* VAV-1-51 (Kahn field map 2015)

of the court. A pavement and two rectilinear features are found attached to the exterior of the paved enclosure, with features on the western limit and one on the eastern limit.

Two 1 × 1 m test units were excavated at -51. TP3 was situated exterior to the west wall of the enclosure, while TP4 was located exterior to the SW corner of the *marae* enclosure (Figure 8). Three stratigraphic deposits were encountered in the excavations. These included LI, a dark brown clay with high organic content and infrequent charcoal fragments and basalt flakes which represents a cultural deposit. In TP4 a large cut and dressed red tuff block was encountered in LI which likely fell from the SW corner of the *marae* enclosure. LI overlaid the main cultural deposit, LII which is interpreted as the cultural deposit associated with the main period of *marae* use. LII was a dark yellowish brown clay with moderate amounts

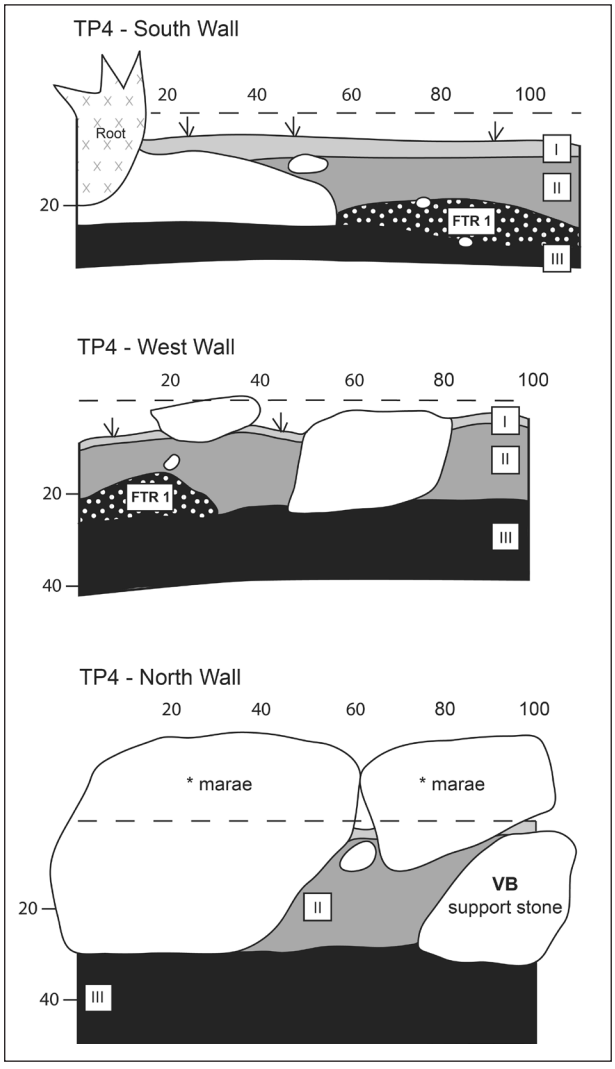

Figure 8. VAV-1-51, Test Pit 4 stratigraphic profile

of charcoal. In TP4, a small amorphous burn feature and ash dump (Feature 1, see Table 4) was found near the basal limit of LII. This feature had dense charcoal and ash and mounded upwards, suggesting an ash dump or in-situ burn not associated with a pit feature. However, the fact that this lens does not directly overlie the Layer III construction fill indicates that the feature postdates the first use of the area. The context of the feature and its form tentatively suggests a ritual burn related to *marae* cleaning ceremonies, as has been recovered at other temple excavations (Kahn 2005; Kahn and Kirch 2014; Orliac 1984). The basal deposit, LIII was comprised of orange clay with a high frequency of degrading scoria. The base of the southern enclosing wall stones were found in Layer III. LIII is interpreted as construction fill related to the construction event of the temple.

A wood charcoal sample (charred *Cocos nucifera*) deriving from Feature 1 was submitted to date LII and the main use of temple -51. The calibrated age range is AD 1646–modern with multiple intercepts. Historic artifacts were not encountered in the excavations, leaving me to reject the post-AD 1767 age ranges. Current data suggest that LII most likely dates to the late 18th–early 19th century, placing the construction and use of *marae* -51 in the Classic Phase. This is consonant with Windward *marae* with similar *ahu* forms dated via U-Th to the Classic Period (see Kahn and Kirch 2014, Sharp *et al*. 2010) and provides supporting evidence that *marae* -50, which has similar architectural features, dates to the Classic Phase.

Synthesis of the -VAV-1 Group 1 *Marae*

Maʻohi temples varied in their form, size, and importance, but also with respect to the form and size of the social groups who carried out and witnessed the religious ceremonies, prayers, offerings, and rituals at specific *marae* (Henry 1928; Kahn and Kirch 2014; Maric 2012; Oliver 1974; Wallin and Solsvik 2006). The size, form, and spatial layout of the Group 1 VAV-1 *marae* suggest their function as *marae mataʻeinaʻa* or community-level *marae* (Oliver 1974; Kahn and Kirch 2014:38–39). Such *marae* materialized chiefly titles and genealogies at the community scale (Henry 1928). At such religious sites members of localized villages or communities carried out religious rites and ceremonies, led by local chiefs and priests, and in accordance with the ritual calendar. The annual first fruits presentation (*pararaʻa matahiti)* would have been an important rite at community level *marae*, in addition to annual renewal ceremonies (*paʻiatua)*. While the VAV-1 Group 1 work only provides a limited sample with which to interpret Raiatean temple sites, the Faʻaroa chronology provides broad support for the elaboration of community level *marae* architecture in the Classic Phase, both in the Windward and Leeward Island groups (see Kahn and Kirch 2014; Maric 2012, 2016; Solsvik and Wallin 2010; Wallin and Solsvik 2006).

Terrace VAV-1-52

This large, well-constructed stone faced terrace fronts the -49, -50, and -51 *marae* complex (Figure 9). The terrace has a number of interior architectural features, including three rectangular houses (-55, -56, 57) and several alignments and pavements. Test excavations were completed at sites -56 and -57 and exterior to the stone retaining wall of terrace -52. Numerous sub-surface features were recovered in the -52 excavations.

Terrace Site -52

A 1 × 1 m unit (TP5) was excavated exterior to the stone retaining wall at the SW corner of the -52 terrace. Three stratigraphic deposits were encountered. LI represents a thin cultural deposit with infrequent charcoal and flakes, as found in other Faʻaroa Valley excavation units. LII was

Table 4: Sub-Surface Features, Fa'aroa Valley VAV-1 Excavations

Feature #	Type	Site, Unit	Context	Comments
1	Amorphous Burn/Ash Dump	51, TP4	Found c. 5 cm into LII cultural deposit	Lacks FCR but has ash, charcoal. Mounds up rather than being a pit feature.
2	Ash Dump/ Cleaned out hearth	57, TP5	Found c. 16 cm into LII cultural deposit	Small sub-rounded concentration of charcoal stained soil with large chunks of charcoal. Associated with basin shaped pit. Likely ash dump/cleaned out hearth.
3	Posthole	57, TP5	Found at the bottom of the LII cultural deposit, cut into underlying LIV sterile deposit	Medium sized shallow posthole. Gently sloping sides and flat bottom.
4	Hearth	56, TP6, 8	LII (Cut from top of LII to a few cm into underlying LIII construction fill)	Circular pit feature, basin shaped, basal deposit has thin red oxidized soil, *in situ* cooking feature
5a	Lens	57, TP7	Found at the bottom of LII cultural deposit at interface with underlying construction fill	Shallow lens dark grey in color with charcoal chunks and FCR- oven rake out or ash dump? Associated with features 5b and c.
5b	Hearth	57, TP7	Found at the bottom of LII cultural deposit at interface with underlying construction fill	Flat bottomed pit with sloping sides. Interior has frequent charcoal and FCR in addition to a large VB and a large WW. Associated with features 5a and c.
5c	Pit	57, TP7	Found at the bottom of LII cultural deposit at interface with underlying construction fill	Shallow basin shaped pit. Associated with features 5a and c.
6	Posthole	56, TP6	Bottom of cultural deposit LII at interface with LIII construction fill	Forms semi-circular alignment with features 7, 8
7	Posthole	56, TP6	Bottom of cultural deposit LII at interface with LIII construction fill	Forms semi-circular alignment with features 6, 8
8	Posthole	56, TP8	Bottom of cultural deposit LII at interface with LIII construction fill	Forms semi-circular alignment with features 6, 7

the main cultural deposit, a brown silty loam with frequent charcoal and moderate amounts of basalt flakes. Some of the TP5 LII artifacts may have originated from use of the -52 terrace and may have subsequently been redeposited in TP5 (which fronts the terrace) during cleaning and maintenance of the paved area in the interior SW corner of this terrace. The basal deposit, LIV was a compact sterile yellow clay lacking charcoal or artifacts.

Two-sub-surface features were encountered at the basal limit of TP5 LII and were cut into the underlying LIV. Feature 2 is a basin shaped pit with frequent charcoal and ash in its interior fill. It likely represents an ash dump or hearth cleaning out event. Feature 3 is a round posthole that may be part of a larger pole or thatch structure or may represent a storage post (*fata*). Current data suggests that cooking activities took place in front of the -52 terrace.

Rectangular House Site -56

This rectilinear architectural feature is outlined with basalt curbstones placed on end. It is adjacent to a well-constructed pavement. Surface architecture indicates that site -56 was a rectangular house (*fare haupape*). Two test pits (TP6, 8), totaling 1.75 m² were excavated exterior to the west wall of the structure. LI and LII deposits of similar color, texture, and content to -52 stratigraphy were encountered, with LII representing the main cultural deposit. Numerous sub-surface features were encountered in LII (Table 4) in addition to frequent charcoal and fire-cracked rock and moderate amounts of flaked basalt, including a polished adze flake. Sub-surface features include Feature 4, a circular pit partially outlined with basalt cobbles that was recovered in upper LII (see Kahn 2016: Figure 10). The pit interior was replete with charcoal and ash. At its basal limit a thin red oxidized lens was found, signaling an in-situ fire combustion feature. Feature 4 is interpreted as a cooking hearth. In lower LII, at the interface with LIII construction fill, three postholes (6, 7, 8) were recovered. These postholes are aligned suggesting that a pole and thatch structure was located on the -52 terrace exterior to house -56. A retouched and utilized fragment of prismatic basalt and a retouched basalt coconut grater were recovered in addition to moderate numbers of basalt flakes. Overall the -56 excavation data suggest that the area exterior to the house was most likely used for cooking activities and food preparation.

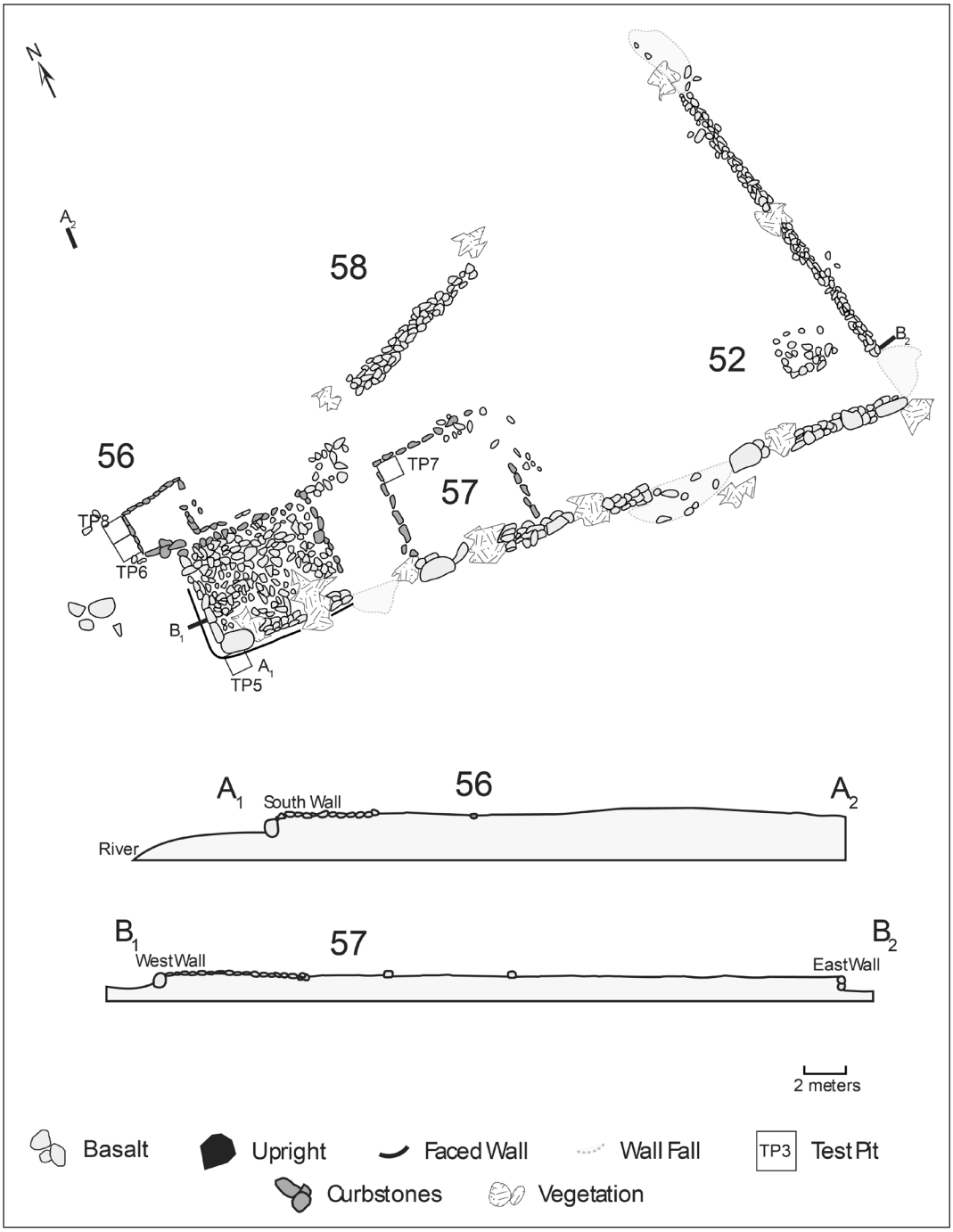

Figure 9. Plan view of Terrace VAV-1-52 (Kahn field map 2015)

A wood charcoal sample (charred *Cocos nucifera*) deriving from Feature 4 was submitted to date LII and the main cultural occupation of house -56. The calibrated age range is AD 1666–modern with multiple intercepts. Historic artifacts were not encountered in the excavations, leaving me to reject the post-AD 1767 age ranges. Current data suggest that LII most likely dates to the late 17th–late 18th century, placing the construction and use of this rectangular house in the Classic Phase.

Rectangular House Site-57

This large rectilinear feature abuts the -52 retaining wall along its southern limit. Site -57 is outlined by basalt curbstones and its surface architecture suggests the presence of a rectangular house. TP7 (a 1 × 1) was excavated in the NW corner of structure's interior. As with site -56, three stratigraphic layers (I, II, III) were encountered, with LII representing the main cultural deposit. LII deposits were replete

with charcoal, fire-cracked rock, and moderate amounts of basalt flakes, including a utilized flake. Excavations in LII uncovered a series of three adjacent features, including a lens with oven rake-out and ash (5a), a hearth (5b), and a pit (5c). As with site -56, excavation data at -57 suggest a focus on cooking activities and food preparation.

Synthesis of the -52 terrace and associated structures

Our test excavations in front of terrace -52 and at structures on the elevated -52 terrace revealed the presence of stone tool production and use, the latter illustrated by the coconut grater and retouched flake in addition to debitage, as well as plentiful evidence for cooking activities and food preparation. The spatial context of the -52 terrace, fronting an elaborate grouping of district level temples, as well as the terrace's architectural elaboration, tentatively indicate that the site served as a locale for tribute collection (see Kahn and Kirch 2014) and communal secular activities (Kahn 2016). Given site proxemics, the rectangular houses situated on the -52 terrace likely had specialized functions, either serving as priests' houses, houses for storing sacred items used in temple ceremonies, or specialized eating sheds used associated with elite feasting (*fare tamaʻaraʻa*) (Kahn 2005; Orliac 1982). While additional excavations will aid in qualifying functional interpretations, the -56 and -57 houses may have served as eating sheds associated with elite feasting, similar to data from other fronting terraces and temple contexts in the Society Islands dating to the Classic Phase (Kahn 2016).

Human-Landscape Interactions: Microfossil and Land Snail Results

Samples from Faʻaroa Valley TP5 Feature 2 were submitted for microfossil analysis to gather information on vegetative landscapes and economic activities in this inland context. Feature 2 has been interpreted as ash dump or cleaned out hearth. Pollen from Moraceae/ Urticace was recovered in this sub-surface feature (Mark Horrocks personal communication). This pollen could be from one or more introduced cultigens, namely breadfruit (*Artocarpus altilus*) or paper mulberry (*Broussonetia papyrifera*). Current data suggests that either species may have been cultivated or processed around site -52. The Feature 2 sample also included *Cocos* and *Pandanus* pollen in addition to *Pinu*s spp. pollen. Given the secure pre-contact dating of two structures in the -51 complex, I interpret the TP5 pine pollen as a modern wind dispersed contaminate. While limited, the Faʻaroa microfossil datasets begin to outline the sorts of cultigens and activities (food preparation, food storage, production of cloth for tribute?) that may have taken place at this inland ritual complex.

Land snail recovery from LI at the Faʻaroa excavations included *Allopeas gracile* (prehistorically introduced), *Subulina octona*, and *Paropeas achatinaceum* (historic introductions) (Christensen & Weisler 2013; Christensen *et al*. 2018). This deposit is interpreted as a modern deposit, thus the mix of prehistorically introduced and historic introduced species is not unexpected. The only recovery of land snails in a pre-contact deposit at Faʻaroa was of a single young juvenile specimen of *Lissachatina fulica*. The historically introduced Giant African Snail from VAV-1-50, TP1, LII is indicative of sediment disturbance.

CONCLUSION

Our coastal excavations were successful in locating archaeological deposits dating from *c.* mid-15th century onwards. Based on previous work on other islands in the archipelago (Kahn *et al*. 2015a, 2015b; Dotte-Sarout and Kahn 2017), it is highly likely that more substantial auger coring along coastal transects will identify Colonization Phase sites. The windward portion of the island (northeast, east) should be targeted for future work as many of the archipelagoes' early sites are situated in windward contexts opposite to major reef passes (Kahn in press).

The Sunset Beach suite of sites argues for sustained use of the coast through the late Expansion (SB#2), the late Classic (SB#1, SB#3), and the early Post-Contact Phases (SB#3). The latter is of some import as few Society Islands sites have well-excavated post-contact deposits with foreign artifacts; the Rivnac site on Tahiti provides perhaps the only other well-studied context (Eddowes and Dennison 1996). The SB#3 cultural deposit is quite thick, suggesting increased sedimentation and thus some sort of environmental change, or a long and sustained late Classic to early Post-Contact occupation, or a settlement of some size and/or with a large number of residents.

The inland Faʻaroa contexts date to the late Classic period, illustrating that both inland and coastal sites on the island see sustained expansion during this time period. With our current small corpus of radiocarbon dates it is impossible to test Maric's hypothesis that elaborate temple complexes were first constructed inland and then shift to coastal locales in the 17th–18th centuries. Additional chronometric dating is needed; U-TH dating will likely be the best method to parse out the sequences of elaborate temple construction in inland and coastal contexts.

The currently available data from the VAV-1 Group 1 complex in Faʻaroa Valley suggest the construction of a sizeable ritual center, including several community level temple structures with notable architectural elaboration, in the Classic Period. In my view, the spatial arrangement of the VAV-1 *marae* suggests aggregate centers with clusters of two or more temples, associated with fronting terraces and house sites. The data supports Lepofsky's (1994) Faʻaroa survey analysis indicating that houses and *marae* were often clustered together. Yet it seems that at least at the VAV-1 group 1, specialized use houses, either used for feasting, as men's eating houses, or housing for priests,

were tightly clustered with community-level *marae*, rather than being situated within domestic residential sites of the elites. This supports data from highly sacred aggregate ritual centers in Leeward and Windward island contexts where the majority of house sites tend to be those of a specialized use nature (Kahn 2016; Kahn and Kirch 2014).

The Faʻaroa data correlate well with regional archipelago-wide settlement pattern shifts documented during the Classic Phase. Post-AD 1600 the elaboration and expansion of *marae* and ritual centers occurs in both interior valley contexts and coastal zones throughout the principal islands of the Windward and Leeward groups (Kahn and Kirch 2014; Maric 2012, 2016; Sharp *et al*. 2010; Wallin and Solsvik 2006:17). The pattern suggests widespread intensification of socio-ritual and economic systems in the Classic Phase (Kahn 2014). This included intensive feasting by socio-ritual elites, perhaps as highly visible material expressions of their rank and power.

Microfossil analysis and land snail analysis have documented important aspects of Raiatean ecological microenvironments, and the presence of important endemic and prehistorically introduced species. Yet more detailed analyses will be required to develop Phase-based analyses of human-induced landscape change. Future papers will focus on the description and analysis of a pollen core taken from the southern portion of Raʻiātea, which is currently under analysis, as well as diachronic analysis of wood charcoal assemblages recovered from inland and coastal contexts.

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