



KON-TIKI FIELD REPORT SERIES **VOLUME 7/2003**

PULEMELEI, SAMOA

- Preliminary report and further perspectives concerning the
archaeological investigations

by **Helene Martinsson-Wallin**

THE KON-TIKI MUSEUM
THOR HEYERDAHL'S RESEARCH FOUNDATION

PULEMELEI 2003
PRELIMINARY REPORT AND FURTHER
PERSPECTIVES CONCERNING THE
ARCHAEOLOGICAL INVESTIGATIONS AT
PULEMELEI, SAVAI'I', SAMOA
JULY 17TH – AUGUST 15TH 2003

KTM FIELD AND ARCHIVE REPORT SERIES VOL. 7

THOR HEYERDAHL'S
RESEARCH FOUNDATION

THE KON-TIKI MUSEUM
2003

Helene Martinsson-Wallin

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1. Background

1.1 Febuary 1985

Thor Heyerdahl, Arne Skjølsvold, Øystein Johansen and Egil Mikklesen from KTM visit Pulemelei to evaluate a possible project at the site. They conclude that a project here would demand too much resources from KTM and projects at the site should be left to researchers from New Zealand and Australia who previously had been involved in archaeology of Samoa.

1.2 May 2000 and February to September 2001

Discussion between Thor Heyerdahl and KTM researchers, and Geoffrey Clark and KTM researchers, concerning a possible project at Pulemelei.

1.3 October 2001

Drs. Paul Wallin (KTM) and Geoffery Clark (ANU) visit Samoa and discuss a possible project at Pulemelei with authorities and landowners. Authorities, NUS and landowner positive. Oral agreement with landowners for permission to start the project in 2002.

1.4 February 2002

Thor Heyerdahl visited Samoa for further discussions with landowners and authorities.

1.5 September 10th to October 10th, 2002

Drs. Helene Martinsson-Wallin (KTM) and Geoffrey Clark participate in conference at NUS by presenting a paper on further perspectives concerning archaeological research on Samoa. Initiating the project (Sept. 13) with clearing and test-excavations at Pulemelei site by Drs. Geoffrey Clark and Paul Wallin (see preliminary archaeological report 2002).

2. The continued archaeological investigations at Pulemelei, July 17th to August 15th, 2003

We would like to thank the landowners, the board at Nelson Ltd, for permit to excavate and for good cooperation. Special thanks go to Tupua Tamasese and Joe Annandale for their special interest and support at the site. We would also like to thank our two foremen Ailupu Setisifanu and Latu Ageli and all the workers. We would also like to thank Professor Roger Green at Auckland University for the moral support we feel that he has given us in this project. The support and finances provided from the board at the Kon-Tiki Museum and the interest for the site from the late Dr. Thor Heyerdahl has been essential to the project.

Project leader: Dr. Helene Martinsson-Wallin (KTM¹, July 18th to August 15th)

Co-directors in field: Drs. Paul Wallin (KTM, July 18th to August 15th), Geoffrey Clark (ANU², July 18th to August 8th) and Bjørnar Storfjell (THRC³, July 28th to August 15th).

Archaeologists: Dr. Alfredo Narvaez (Peru, August 7th to 15th); Dr. Suseela Storfjell (THRC, July 28th to August 15th); MA Epi Suafo'a (National Park, American Samoa, July 29th to August 1st).

Students of archaeology: Elin Brødholt (University of Oslo, July 18th to August 12th); Tautala Asaua (University of Auckland, July 18th to 31st).

Forman of the plantation: Aiolupo Setisefano.

Forman of the workers: Latu Ageli

Workers: Tuvale, Siaki, Fito, Sefo, Tuifaasina Iakopo, Taape, Fetauai Kesi, Mafae, Aso, Tanu, Vi, Lafaniu, Vaauli, Simi, Vaovao, Lafonga, Taitai, Avia, Alatina, Aiuli.

High school students: Ricky (July 29th to August 1st) and Veronica (July 29th to 31st) from American Samoa.



Excavation team.

¹ Kon-Tiki Museum.

² Australian National University.

³ Thor Heyerdahl Research Center, London.

3. Intiniary

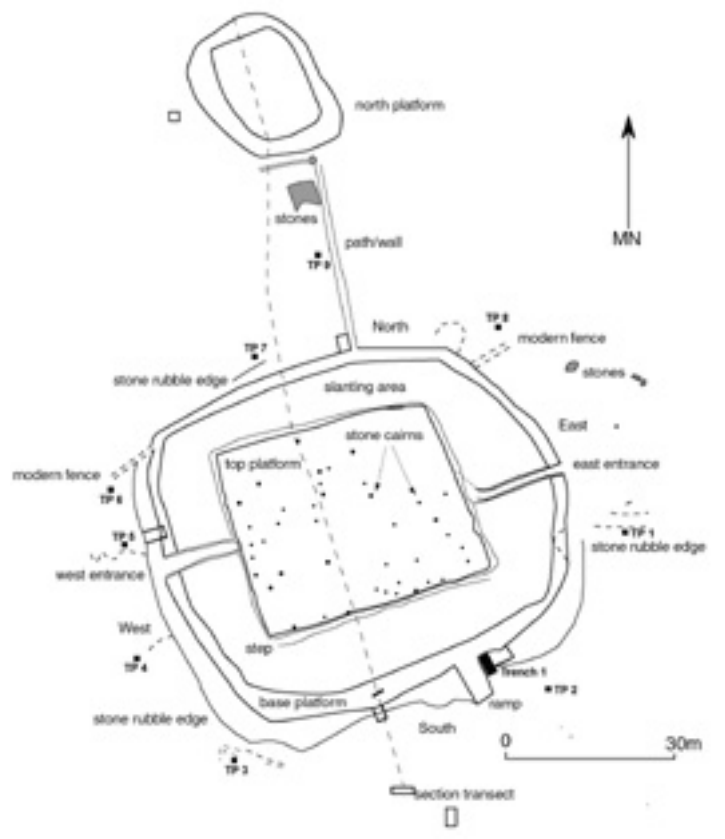
- July 16th:** Helene, Paul and Geoff arrive in Samoa
- July 17th:** Helene, Paul and Geoff meet with Elin and take ferry Savai'i. Accommodations at Siufaga Beach Resort. Meet Aiolupo and visit the Pulemelei site and plan excavations. Open bank account at ANZ and buy food and equipments.
- July 18th:** Start at site with clearing and planning. Forman Latu Ageli and 19 men. Joe Annandale visits the site. No excavation until ceremony planned on July 25-26.
- July 19th:** Work with description and planning. Visit the Ole Moe Falls.
- July 20th:** Tour on north part of Savai'i.
- July 21st-25th:** Clearing and mapping. Jacqueline Heyerdahl, Bjørnar and Suseela Storfjell arrive on Savai'i July 24. Visit Pulemelei together with Joe Annandale. July 25 ceremony prep.
- July 26th:** Mapping by Geoff and Paul. Sebra film arrives. Ceremony at Pulemelei in the evening (in pouring rain)
- July 27th:** Morning ceremony at Pulemelei (in pouring rain)
- July 28th to August 1st:** Excavations and clearing. Epi Suafo'a and highschool students participate. Helene, Jacqueline and Sebra film invited to ceremony at Tupua's house in Apia July 29. Tautala and Veronica depart July 31. Epi and Ricki depart Aug. 1. 'Ava ceremony for Epi.
- August 2nd:** Mapping by Geoff and Paul. Tour on the south side of Savai'i.
- August 3rd:** Tour around Savai'i.
- August 4th to 8th:** Excavations and clearing. July 8 'ava ceremony on the top of the mound.
- August 9th:** Trip to Upolu and Manono Helene, Paul and Geoff . Helene get traditional tattoo.
- August 10th:** Geoff departs. Attend church service at Sapapali'i.
- August 11th:** Excavation and clearing of Pa Tonga, uphill.
- August 12th:** Excavation. Visit by Tupua Tamasese and Joe Annandale
- August 13th:** Excavation. Heavy rain in the afternoon, stop early.
- August 14th:** Excavation and filling of trenches. Heavy rain before lunch. Eat at Aiolupo's house. Meet DNA researcher Rene Herrera at Latu's house.
- August 15th:** Filling of trenches and clearing. Last day. 'ava ceremony on top of mound.
- August 16th:** Helene and Paul leave Savai'i,
- August 17th:** Rest
- August 18th:** Helene and Paul in meeting with Tupua Tamasese and also Joe Annandale. Brief visits to the office of Minister of Culture, NUS and Tourist department
- August 19th:** Helene depart
- August 20th:** Paul depart
- August 21st:** Bjørnar, Suseela, Alfredo, Jacqueline depart

4. The archaeological excavations 2003

On the basis of the results of the test excavation in 2002 our primary aims of the 2003 were to make closer investigations concerning the structure and foundation of the mound. Excavations at the base of the structure where original wall still was found were prioritised. The intention was also to investigate the top platform and if possible carry out an excavation from the top and into the mound. Four trenches were opened at the base of the mound, trench 1 from 2002 on the south side was re-opened and extended and one additional trench (trench 4) was opened on the south side as well. One trench was excavated at the foundation on the north side (trench 2) and one on the west side (trench 3). The base foundation stones of vertical slabs/stones were exposed in trench 1, 2 and 4. An extended area around the mound was cleared and uncovered pavements to the east, the west and the south that are tied to the mound and form a complex. To the north a wall or raised walkway is running from the mound northward towards the smaller north mound. The area between these two mounds is probably cleared of stones, but some larger boulders close to the smaller north mound have on the contrary probably been transported from another location and intentionally placed here. Remains of the two *Pa* (fortification walls?) structures situated uphill the Pulemelei site, were also partly cleared from vegetation.



Overview of the Pulemelei area (after Scott 1969)

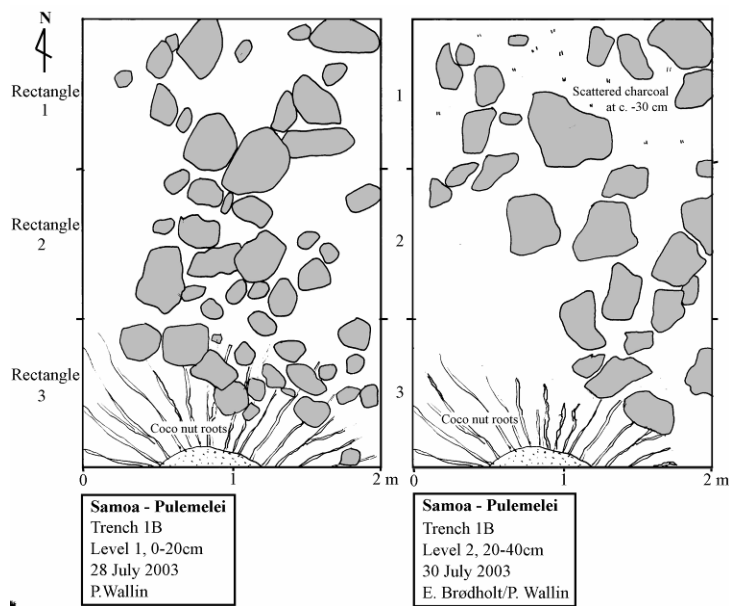


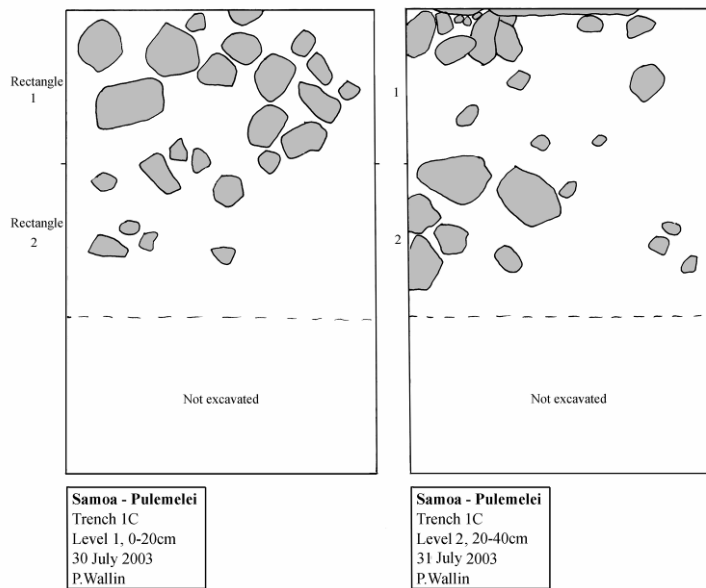
Map from 2002 years excavation

5. Description of excavation

5.1 Trench 1

This trench was outlined just E of the ramp situated on the S side of Pulemelei. It was a 4x3m large extension of trench 1 excavated in October 2002. The main purpose to excavate this trench was to investigate if the vertical foundation stone slabs found in 2002 continued at the base of the structure further to the E. Trench 1 from 2002 was first re-opened, (hereafter named trench 1A. The next two m to the E was called 1B, and the last two m consequently 1C. 1B and 1C were each 2x3 m in size, and they were also divided in rectangles (the one closest to the wall was called rectangle 1, followed by rectangle 2, and 3 further to the S in the trench) (see plan drawing).





Plan drawings of trench 1 B and C

The wall of the base platform of the mound is collapsed, but some parts of the original wall seems be intact behind the outfall of stones. The outfall is in these parts mainly from higher up on the side of the mound. The stone material consisted of volcanic rocks of the size of c. 15-60 cm in diameter.

The outfall was about 1,5 m thick closest to the base platform wall, and c. 1 m thick at 1 m out from the wall, and c. 0,5m thick at 2m. At 3 m it only consisted of some stones on the ground. When the loose stones were cleared away one could observe some stones mixed in with the brown to yellow brown clayey soil.

The original wall up to c. 3 meters height was still standing behind the outfall masses, and became visible when the stone rubble where cleared all the way down to the clayey soil level.

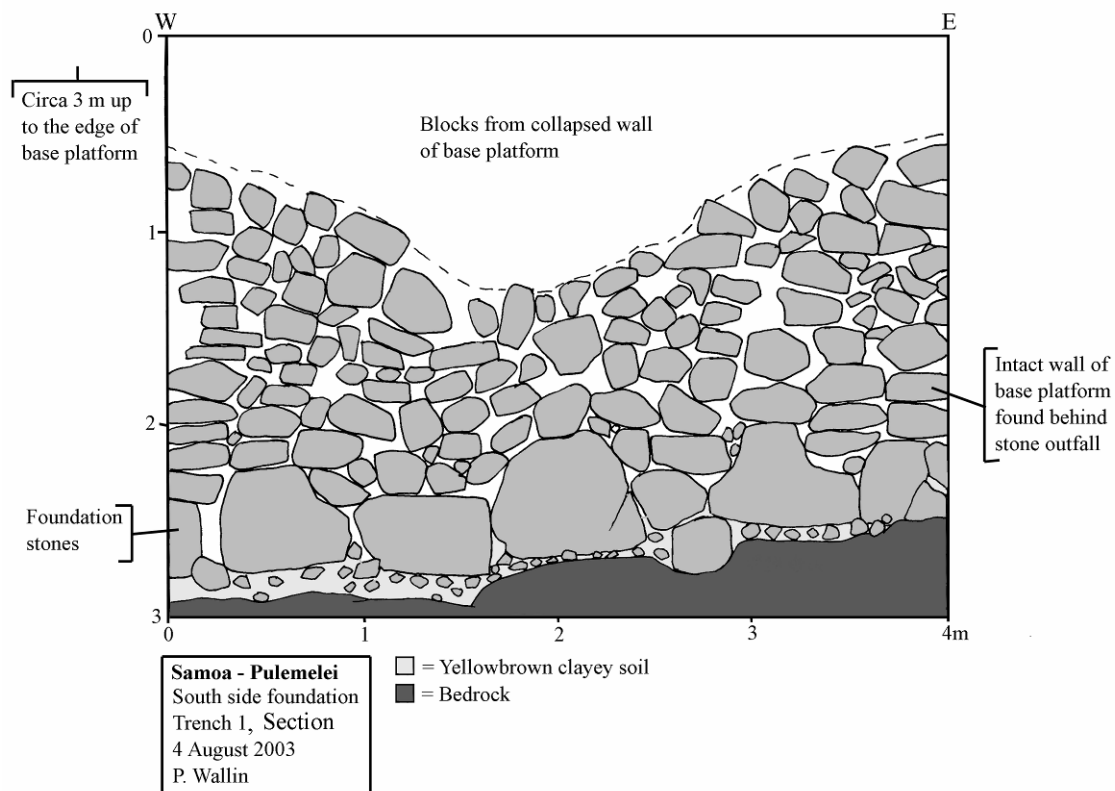
The stone rubble was removed and trench 1A from 2002 was re-opened to view the three foundation stones found there. The top soil mixed with dark brown vegetative soil was removed from the areas 1B and 1C, and level 1, 0-20cm, was excavated. The stones, mainly outfall, were removed, and the soil excavated. The soil contained some scattered charcoal and some water polished rounded river pebbles (c. 2-10cm in diameter) A sample was dated from this scattered charcoal which gave a date to 900 ±43 BP (see below). Level 2, 20 cm's depth and down to bedrock, exposed stones and rocks in the ground (some possible outfall,

and some natural in the ground close to the bedrock were found). Scattered charcoal and some water polished river stones occurred to a depth of about 40 cm.

Except from the *umu* found in trench 1A during the 2002 excavation no features indicating settlement activities were traced in this trench. The bedrock became visible at a depth of c. 50 - 55 cm, except in trench 1C where the bedrock was encountered at a depth of c. 45 cm.

When excavating level 2, six additional foundation stones became visible. These stones slabs c. 40-70 cm long, c. 40-50 cm high and about 15 cm wide were originally dug down and placed on edge in the clayey soil close to bedrock, side by side, to outline the foundation of the structure and stabilized by smaller rocks (c. 10-20cm large) placed at the base. It is clear that this technique was traditionally used in all Samoan stone work. The same pattern of construction was observed on part of the low platform situated to the W of Pulemelei, as well as in the walls of the ancient road, and in the pathway (wall) connecting Pulemelei with the smaller N mound. It is likely that the stone structures first was outlined by vertical stone slabs, and then were filled with stone rubble. The small dimension of the foundation stones and building technique was not well suited for extremely large buildings such as Pulemelei. This foundation appears too weak to hold the pressure of the stone masses of such large buildings. This might be one of the explanations the massive outfall from higher levels of this mound did. In other words, when the pressures of the base platform became too high, some of the vertical foundation stones were pressed forward and gave way, which caused collapses higher up on the platform, and the stones subsequently felled down on the sides of the mound.

The same kind of vertical foundation stones slabs were found on the N side, (Trench 2), as well as on the W side, (Trench 3), of the mound. No excavations were undertaken close to the base platform of the E side, but nothing speaks against that the same pattern should be found there.

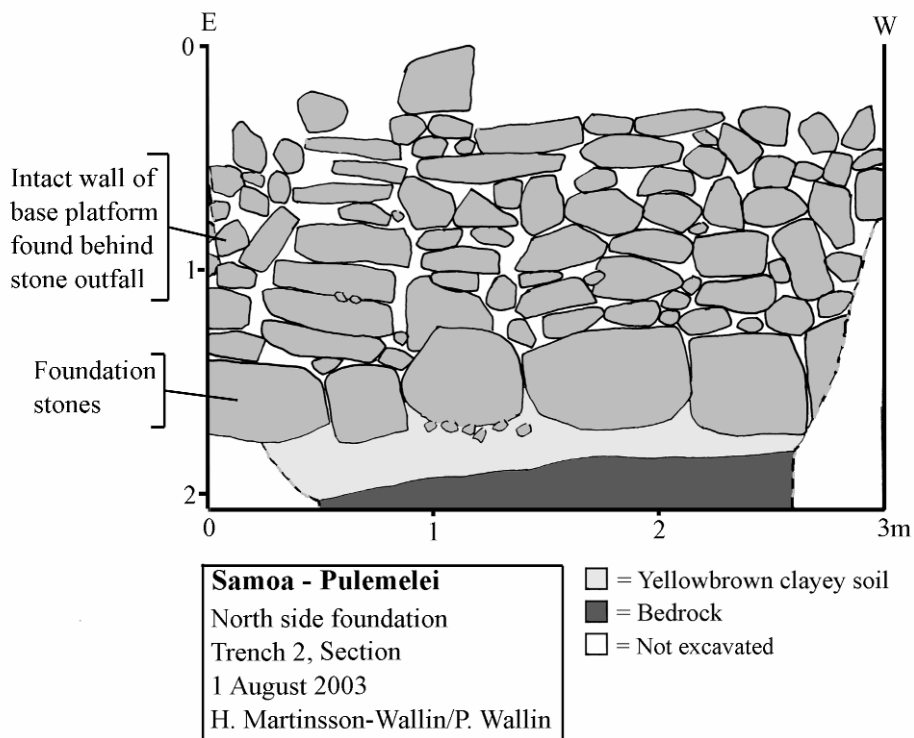


Trench 1A, B and C

5.2 Trench 2

An 3x4 m large trench was outlined on the N side of Pulemelei just W to the pathway/wall running from Pulemelei mound and north towards the north mound. The trench is situated in N-S line with trench 1. Original dry wall of a height of c. 2 meter was indicated here. This part seems to have been protected and supported by the N-S wall/pathway. The trench was excavated and first was the outfall removed and then the clayey brown/yellowish soil was

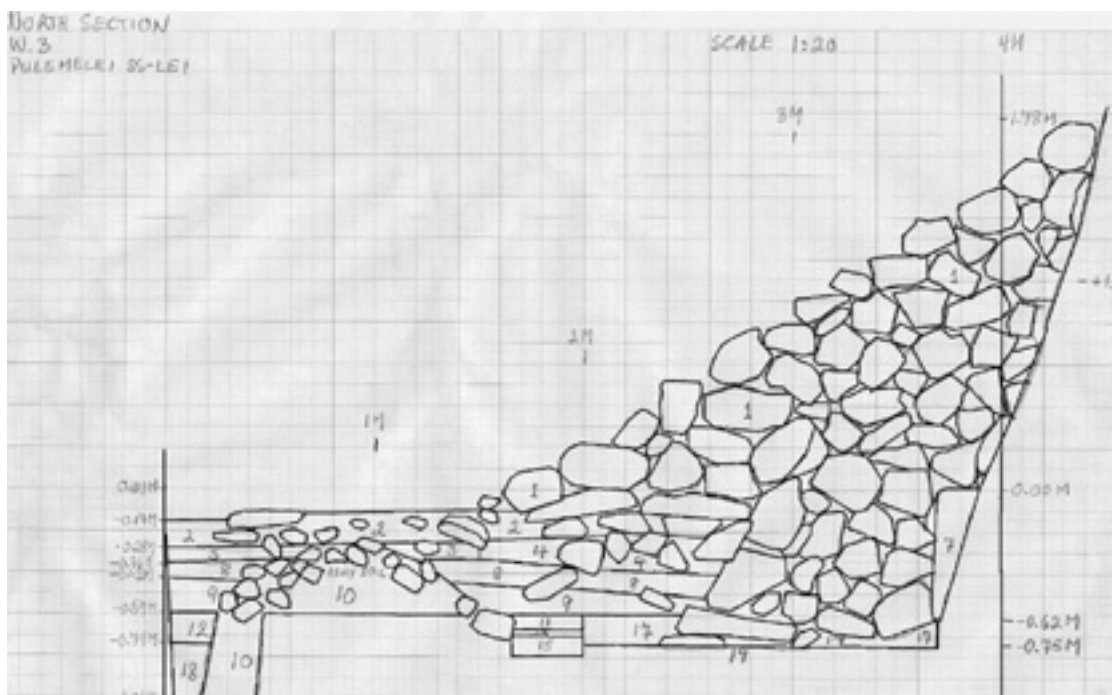
excavated. A charcoal sample from a charcoal concentration found (at -25 cm) on what could have been the original ground or close to the original ground surface was dated to 754 ± 59 BP (see below). A polished basalt adze was found at the same level close to the wall. Some slightly dislocated foundation stones slabs set on edge. These were placed yellow-brown clayey soil and surrounded with smaller stones close to the bedrock. One adze was found among the outfall in trench 2 close to the charcoal concentration. The adze was most similar to a type 9 when compared to Green and Davidson's classification (1969:), which probably is a late type.



Trench 2

5.3 Trench 3

This trench was opened just to the north of the entrance way on the west side. Test-pit excavated in 2002 had indicated cultural remains here. A 3x2 m large trench was outlined including wall outfall and towards the west. When removing the outfall, the original wall and foundation stones were difficult to find but three vertical slabs were found, below the outfall at 10-15 cm's depth from what could be interpreted as the original ground level. They were c. 60x15x50 cm standing in a row, perpendicular to the base of the mound, close to the entrance way. These stones might have been part of an entrance structure. One adze pre-form was found close to three vertical slabs. The excavation was extended to the east to form a 4x2 m large trench to try to find the foundation stones of the west wall. Two medium size boulders 50-75 cm was found at the original ground surface and they are probably remains of the foundations stones (see north and east section). The west wall of Pulemelei mound (or at least this part) seems to have collapsed.



Legend to north section trench 3

2. Dark brown silty-clay loam, under rock tumble and over a possible cobble surface 3. Dark yellowish brown silty-clay loam. 4. Dark reddish brown silty-clay loam. 7. Foundation stone? 8. Dark brown silty-clay loam. 9. Dark brown silty-clay loam. 10. Dark yellowish silty-clay loam and an *umu*. 11. Dark brown silty-clay loam. 12. Dark brown silty-clay loam. 17. Dark brown silty-clay loam. 18. Dark yellowish brown silty-clay loam. 19. Dark brown silty-clay loam.

Cultural remains as ceramic shards were found in 10, 11, 12, 15 and 17 and the majority were found in 15 and 17. One shard was found in the *umu* context (10). The *umu* and the ceramic shards probably stem from one or several earlier settlement phases prior to the mound. It was

clearly shown that the cultural layer continued under the foundation level of large mound. The majority of the ceramic shards were found in the same level as the *umu* just to the east of it. A dated charcoal sample from the *umu* gave the date 1157 ± 44 BP (see below).



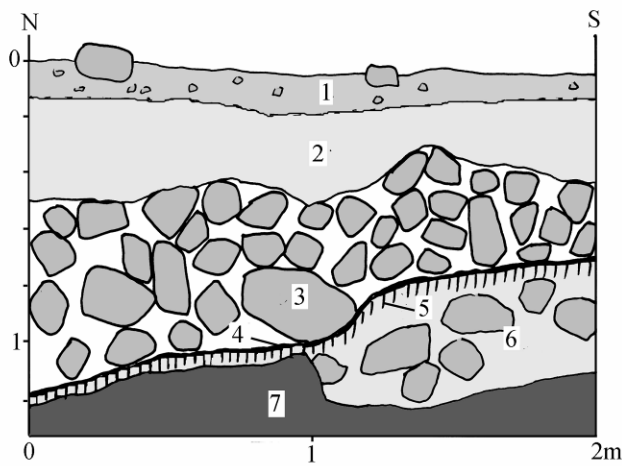
Umu in trench 3

5.4 Trench 4

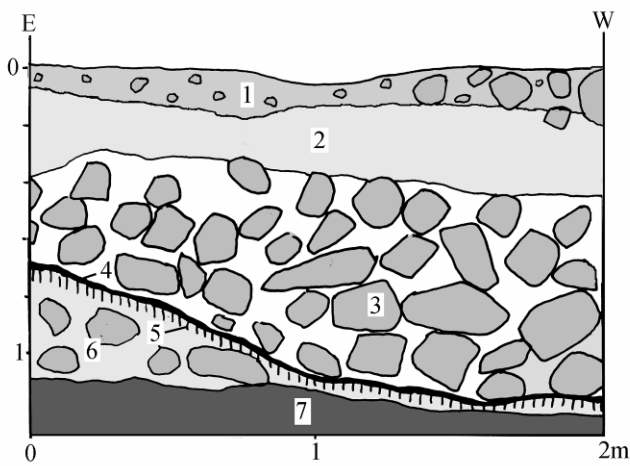
Was a 2x4 meter large trench outlined on the south side of the mound some 10 meters to the west of trench 1A, B, C. The primary objective was to investigate if foundation slabs could be found as well as some intact wall parts under the stone outfall. When removing the out-fall the original ground surface of brown clayey soil was shown. The soil was mixed with some stones which probably was natural to the ground. The only secure find was a polished adze flake which was found in the south west part of the trench. The soil was here changing to a darker colour and it was seen in the west section that this layer continued and got thicker in the south of the trench. It is most probable that this is the same cultural layer as found in trench 7, which is situated on the north edge of the house platform/terrace c. 10 meter to the south of trench 4. Since it was danger of more rock tumble the level of the foundation stones could not be reached in this trench but it was not indicated that the cultural layer continued under Pulemelei mound on this side as in trench 3. Only scattered and few charcoal was found in this trench.

5.5 Trench 5

This trench was opened on the W side of the smaller north mound where an earth oven was indicated on Jacmond's map. The excavation, which was 2x2 m in size, confirmed the earth oven, but the trench only exposed a small part of it. When the area was cleared from under vegetation the outer rim could be estimated. The size of the oven is c. 12 in diameter and c. 1.50 deep. The stones used in the oven varied 20-50 cm in size. Some vegetative material was found among the stones at x cm depth. It has not been analysed yet. A charcoal sample has been dated and gave the date 372 ± 43 BP. The *umu* stones were unusually large and many of them broke during the excavation. It is possible that the oven only was fired once.



Samoa - Pulemelei
 Trench 5
 Sections, Umu
 4 August 2003
 P. Wallin



1. Yellow brown vegetative soil.
2. Yellow brown clayey soil.
3. Umu stones/fire damaged.
4. Charcoal lens.
5. Red/orange brown burnt clayey soil.
6. Natural stones in yellow brown clayey soil.
7. Bedrock.

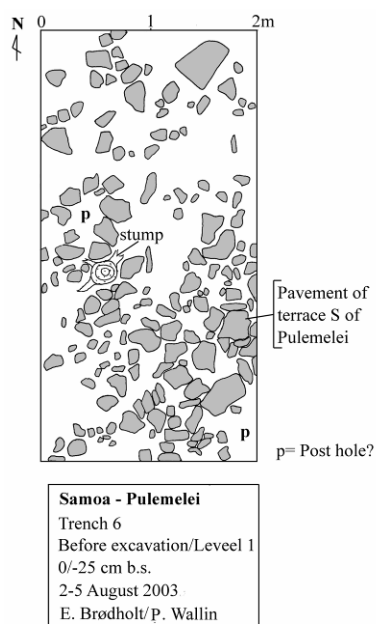


Earth oven in trench 5

Two trenches, (trench 6 and 7), were opened in connection to the pavement to the south of the large mound. This pavement may have been used as a house platform during the Pulemelei phase.

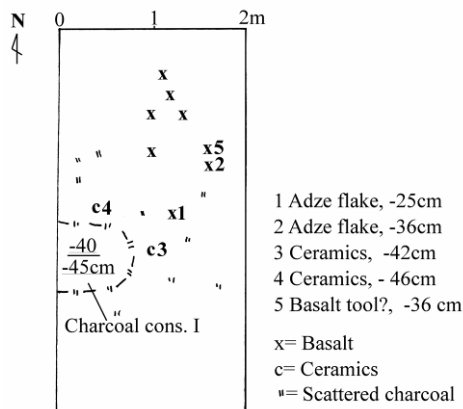
5.6 Trench 6

The trench was outlined on the NE side of the terraced stone platform (possible house platform) just south of Pulemelei mound. The trench, 2x4m in size, is oriented with its long axis in a N/S direction. Two possible post holes were indicated among the stones as circular depressions in the stone rubble. The surface of this terrace/platform is slightly slanting from north to south and paved with irregular volcanic rocks c. 5-50 cm in diameter.



5.6.1 Level 1 c. 0-20cm

The terrace/platform is constructed in two layers of stones with a top soil of dark brown vegetative soil in the first c.5 cm's (recent) and then yellow brown clayey soil in between the stones. The bottom of the second layer was found at a depth of c. 15-20 cm from the surface. Some scattered charcoal was found at a depth of c. 12-15 cm. The possible post holes were excavated, but they could not be confirmed to be post holes.



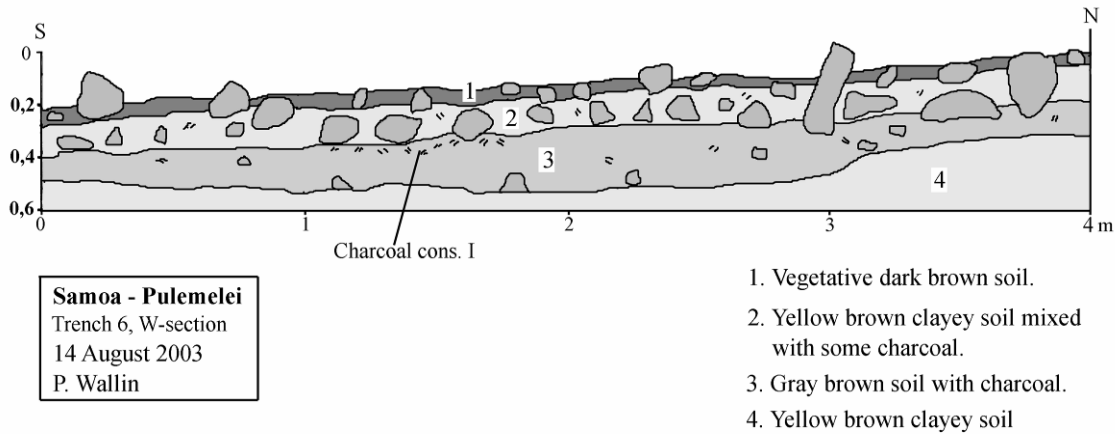
Samoa - Pulemelei
 Trench 6
 Cultural layer
 c. -25/-46 cm b.s.
 6-13 August 2003
 P. Wallin

5.6.2 Level 2 c. 20-45cm

Just under the second layer of stones of the platform we found scattered charcoal which might belong to a cultural activity prior to the house platform/terrace. At a depth of about 25 cm some small basalt flakes were found and the soil changed to a slightly darker colour and mixed with scattered charcoal, especially in the NE part of the square. A couple of the flakes probably derive from polished adzes. The charcoal pieces were large c. 1 cm in diameter and found in quite large quantities. A charcoal concentration was found in the central W part of the trench in a c. 1x1 m large area, but no burnt soil could be distinguished. A charcoal sample from the charcoal concentration has been dated to 454 ± 46 BP . This might indicate the age of the platform and not the cultural layer beneath the platform.

Some basalt flakes were found in an area in the central to N part of the trench at a depth of c. 40-45cm, as well as a couple of ceramic shards. The soil of the cultural layer was clayey yellow brown with a greyish nuance.

The trench was excavated to a depth of c. 45-50 cm where sterile yellow brown clayey soil was found, but the excavation could not continue down to bedrock due to bad weather and shortage of time.



Trench 6

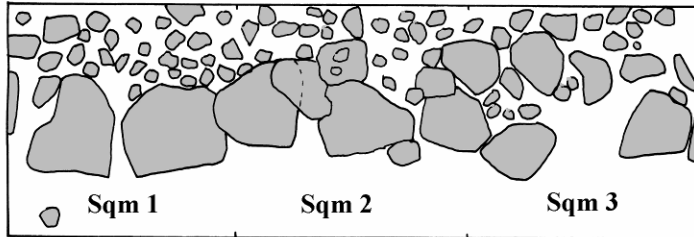
5.7 Trench 7

The trench was situated at the rear stone line of the house terrace/platform (see trench 6) at the south side of Pulemelei. Eight stones forming the north rear edge of the terrace/platform were running E/W through the centre of the trench, which is 1m wide and 3 m long and outlined along the E/W axis. The surface stones were drawn and photographed. A top soil of vegetative brown soil was cleared down to about 5 cm. The trench was then divided in sqm 1, 2, and 3, with sqm 1 furthest to the E.

5.7.1 Level 1

The house terrace/platform was also here found to be constructed of two layers of stones (see trench 6), and went down to a depth of c. 15-20cm from the surface. After the clearing of the top soil dark vegetative soil c. 5 cm one could see that the inside of the terrace close to the end stones was filled with smaller stones c 5-15 cm in diameter. After excavation of level 1 (0-15cm), one could clearly see that the stone outline of the edge of the terrace was partly built in two layers of flat stones. Scattered charcoal was found outside the stone line first at a depth of c. 12 cm in sqm 2. The layer below the stones was brown from cultural activities, and in sqm 3 outside the stones the soil was dark brown and "rich".

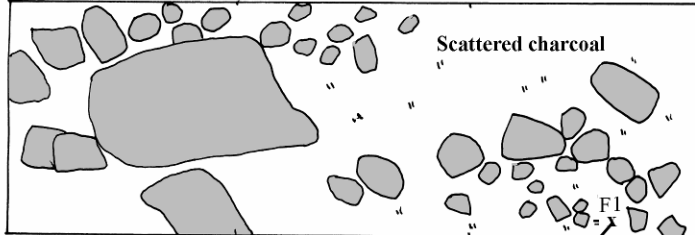
Level 1, 0 -10cm b.s.



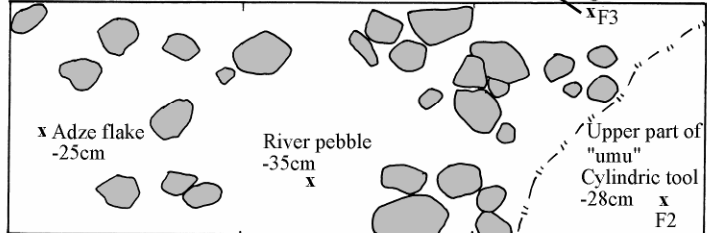
Samoa - Pulemelei
Trench 7
Level 1-5
6-13 August 2003
P. Wallin



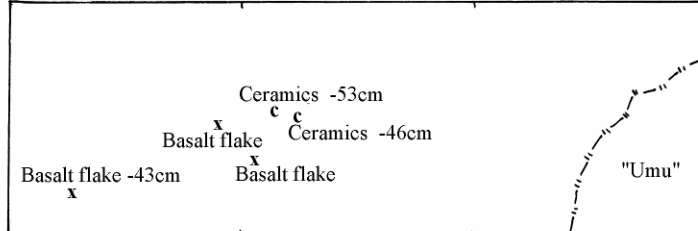
Level 2, -10/-20cm b.s.



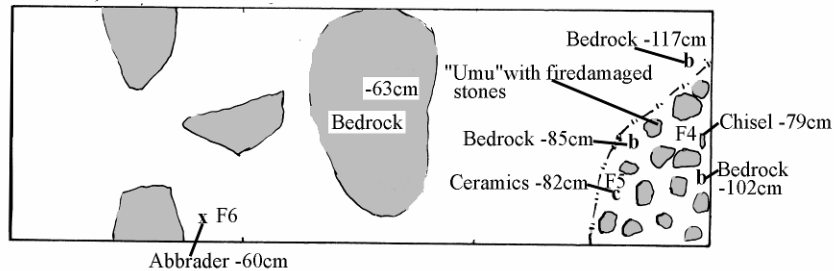
Level 3, -20/-40cm b.s.



Level 4, -40/-60cm b.s.



Level 5, -60/-117cm b.s.



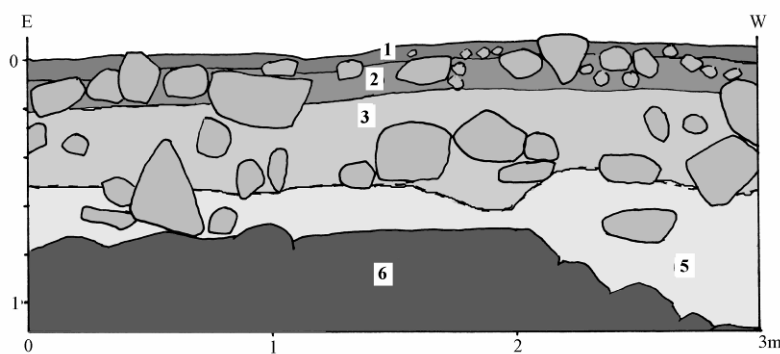
Trench 7

5.7.2 Level 2 Cultural layer

The dark brown and "rich" soil was found under the level of the stone pavement and continued further down. It therefore indicated an earlier activity in this area. In sqm 3 we also found a flake from a polished stone adze at the depth of 20 cm. The "rich" soil in this

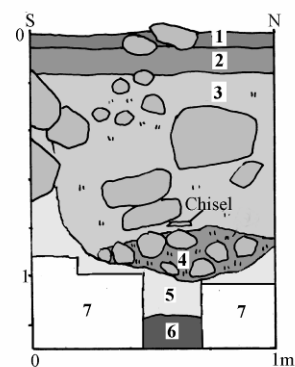
sqm was also darker than the soil in sqm 2, which suggested a possible feature (pit or *umu*). The soil was dark brown/grey, and partly almost blackish and “rich”, especially in sqm 3.

The excavation continued under the stones of the terrace. At a depth of c. 30-55 cm we found in sqm 2 and 3 some ceramic shards, as well as some basalt flakes. In sqm 3, we found at this depth a cylindrical shaped stone handle of fine grained tuff, as well as a very fine grained grinding stone (see figs.). In sqm 1 a piece of an abrasive stone was found. Scattered charcoal was found in all sqm's down to a depth to about 50-60cm. At the -60cm and down, it became clearly evident that the dark soil of sqm 3 originated from an *umu* pit, which had been partly disturbed in its upper levels. However, towards the bottom the feature it was quite distinct. The *umu* could be defined to the NW part (corner) of the square. Larger pieces and higher quantities of charcoal were collected. At the depth of -79 cm from the surface we found inside the *umu* a complete nicely polished basalt chisel. Under this towards the bottom of the *umu*, we also found fire cracked stones c. 10-20cm in diameter. At a depth of -83cm a piece of pottery was found inside the *umu* structure. Lots of charcoal was found towards the bottom of the *umu*. The bottom of the *umu* was found at a depth of -97 to -102cm. The bedrock was found at a depth of between 70 -117 cm in different parts of the trench. The thickness of the cultural layer was about 40 cm. This cultural layer corresponds with the cultural layer found in the nearby trench 6. The colour of the soil was however much darker in trench 7. A charcoal sample from the *umu* was dated to 1993 ± 55 BP.



Samoa - Pulemelei
Trench 7, S-section
14 August 2003
P. Wallin

1. Vegetative dark brown soil.
2. Dark brown soil.
3. Gray brown soil with charcoal.
4. Brown soft soil with charcoal.
5. Yellow brown clayey soil mixed with some charcoal.
6. Bedrock.
7. Not excavated



Samoa - Pulemelei
Trench 7, W-section
14 August 2003
P. Wallin



Trench 7 during excavation.

5.8 Trench 8

This was a trench excavated close to the edge of the East pavement. No finds or cultural activity were found but the trench was not finished.

5.9 Test pits

Two test pits were opened on the northeast and east side of the small north mound but nothing was found.

Several small heaps of stones were found after clearing on the E and N side. These features were mapped and described. One of them, F 43, was excavated and no finds were made. The stones in F43 had been piled up around a natural out crop. The interpretation of the majority of these heaps are that they been created when clearing the ground but stone heaps as markers for graves should not be ruled out. Scott excavated a similar heap of stones 1964 and found nothing, but we found his trench still open (Scott 1969).



Pulemelei on the east side

The area where Pulemelei is situated show uneven bedrock. In some places the bedrock is seen on the surface as a pavement of flat stones and in some places the bedrock was found more than 1 meter below the current surface. Some of the flat surface bedrock areas found have probably been used as pavements which were included in the ceremonial complex (for example the outcrop in front of the east entrance of the mound).

6. Finds

The adze and adze pre-form was made from similar stone material, a dense volcanic stone of a light grey colour. These adzes are probably contemporary with the Pulemelei phase and they fit the adze type 9 description (see Davidson and Green 1969:). One flake of a ground adze was also found in trench 4, but this flake probably belongs to the settlement phase that preceded the building of Pulemelei. Several ceramic potshards as well as an earth oven from the early settlement were found in trench 3. In trench 6 basalt flakes were found and in trench 7 ceramic shards, a small grinding stone and, a rounded too/handle of stone were found in connection to an *umu*, earth oven.



Tuff handle/tool Tr. 7



Basalt chisel Tr. 7



Basalt adze Trench 2



Basalt preform Trench 3

7. Conclusions of the investigations 2003

7.1 The construction of the mound

The mound is made up of natural basalt stones found locally and no worked stones could be seen. The foundation of the mound is made up of vertical stone slabs on edge. The size of the vertical foundation stones was interpreted as insufficient to be able to support the enormous weight from this huge structure. This might explain why there was outfall/rock tumble on all sides of the structure. The first level of the mound is made up of a platform with vertical wall of dry masonry c. 3-4 m high. The next level is slanting inwards towards the top and it could not be determined if it originally had formed a step or several steps or had a slanting surface. On the south side of the mound close to the top platform was a small step indicated. In trench 3, at the W side of the mound, three slabs on edge were found perpendicular to the foundation of the mound and they might have been part of the entrance structure. The entrance structure or stairway could be a later alteration to the mound. The top platform is different in shape and structure and could very possibly be a later addition as well.

7.2 Dates

Six charcoal samples were sent for analyses from this the 2003 years excavation. In addition to five dated samples carried out on material found during the excavations in 2002, a preliminary chronology of the site could be worked out.

7.2.1 Dated samples from the 2002 years excavation

Samle no	Trench/test pit	Radiocarbon years	Cal. AD 2 sigm
Beta-172928	T1	1250 ± 100 BP	620-1000 (umu).
ANU-11891	TP 1	780 ± 120 BP	1020-1400 (umu)
Beta-172927	TP 3	850 ± 50 BP	1040-1270 (charcoal conc at 40 cm)
Beta-177607	TP 6	680 ± 80 BP	1230-1420.(scatt. charc. at10-20 cm)
ANU-11890	Top platform	310 ± 90 BP	1420-1690

7.2.2 Dated samples from 2003 years excavation

Your code	Wk	dC13	% Modern	Results BP	Cal. AD 2sigm
SS-Le-1 T5	6613866	-26.5 +/- 0.2	95.5 +/- 0.5	372 +/- 43 BP	1440-1640
(sample from the charcoal lens in the bottom of the umu)					
SS-Le-1 T6	7013867	-27.3 +/- 0.2	94.5 +/- 0.5	454 +/- 46 BP	1390-1530
(sample from charcoal concentration at -40 cm, cultural layer)					
SS-Le-1 T2	1113865	-26.9 +/- 0.2	91.0 +/- 0.7	754 +/- 59 BP	1160-1330
(sample from charcoal concentration at -25 cm close to the north wall)					
SS-Le-1 T1B	613864	-26.3 +/- 0.2	89.4 +/- 0.5	900 +/- 43 BP	1020-1220
(scattered charcoal from 20 cm, original ground surface)					
SS-Le-1 T3	12513869	-26.1 +/- 0.2	86.6 +/- 0.5	1157 +/- 44 BP	770-990
(sample from charcoal lens in bottom of umu)					
SS-Le-1 T7	7713868	-27.5 +/- 0.2	78.0 +/- 0.5	1993 +/- 55 BP	120BC-130 AD
(sample from umu sqm 3 -80-90 cm)					

7.3 A preliminary interpretation of the site based on dates and structural features are

1. By 1700-1800 AD the site was abandoned and/or lost its importance
2. During 1400-1600 AD there were activities in the area, that could be interpreted as ceremonial. The large *umu*, which only seems to be used once, is dated within this time frame and the top platform, possible the the stairways and supporting ramplike structures on the south, east and north might be additions made during this time. The stone platforms to the south, west and east could be constructed during this time frame as well. This activity could be related to the coming together of the four *Pule* titles and the queen Salamasina. Further excavations in the top platform, the north mound and the platforms to the south, east and west as well as studies of traditional history would be essential to strenghten this hypotesis.
3. Durning 1100-1400 AD, the Pulemelei mound was probably constructed and used. The original structure could have been a grave and/or a ceremonial place and/or functioned as a house foundation for a god house. A georadar investigation and excavations into the mound

would give further insights to this matter. One adze pre-form and one adze of similar stone material (light grey dense basalt) found, probably belong to this phase.

4. Between 200 BC-850 AD, settlement activities featuring earth ovens, Polynesian plain ware pottery and stone tools have been found. It is so far not ascertained if it is a continuous settlement phase or two different phases. Further excavations could probably answer these questions and give the extension of the settlement area(s) as well as providing find material for comparative studies and other analyses

These are the conclusions that so far could be drawn from the investigations but additional analyses of charcoal/wood samples, stone tools and ceramic shards is yet to be done and will give further insights to the interpretation of the site.

8. Ceremony at Pulemelei

The ritual took place on the evening at sunset of July 26 and in the morning at sunrise on July 27. It was a purification and holy oil ritual. Graves are *tapu* and in case of us of finding human burials at the excavation this ritual was necessary. A traditional making of the fire *si'a* was started at the smaller north mound and it was taken to light other fires, which began the ritual funeral chant. A funeral rite known as *auala* (pathway) was performed by two groups, which proceeded through the traditional pathway to the east of Pulemelei. The family of the landowners came last in the procession wearing the sandalwood leafs as head dresses and *'ula*. Two fires were lit on the east side one for Samoa and one for Tonga. On the north side was one fire lit for Fiji and Uvea. On the west side was one fire lit for Aotearoa and Rapa Nui and on the south side was one fire lit for Tahiti and Hawai'i. The fire was passed on to Jacqueline Heyerdahl who took it up to the top of the mound where 8 fires of sandalwood should be lit. The eight fires symbolised the octopus with its eight tentacles since in old religion the octopus symbolised the earthly manifestation of God. The first fire was lit in the honour of Thor Heyerdahl and the seven other fires represented Niue, Tokleau, Futuna, Tuvalu, Vanuatu, Papatea and Pulotu. At the end the invited Maoris did a chant and the people proceeded to present sandalwood (*asi*) leaves to the centre of the mound where two mats had been laid out. Tupua Tamasese was the last to lay down his leaves and then Salelesi made his chant. The ceremony is referred to coincide with sunset. The fires were burning all night. In the morning at sunrise, a Congregational Church pastor from Vailoa held a sermon and prayer. After this the Maoris made a chant and the archaeology student Tautala Asaua took the fire back to the small north mound, which carried out the official end.



Traditional making of fire, *si'a*.

After the ceremony the talking chief of Vailoa made a speech where he thanked all, but also made a request that the mound now should not be touched (e.g. no archaeological excavations of the mound).

Two days later was a reception hosted at Tupua Tamaseses house in Apia in honour to Jacqueline Heyerdahl, The Kon-Tiki Museum, and the Maoris. Helene Martinsson-Wallin held a short presentation of the results archaeological excavations and a presentation of gifts and songs were held (a *sua* presentation) by members of the village of Asau, Savai'i'. Traditional dancing was performed at this presentation.

A week after the ceremony was held at Pulemelei the ritual of making the holy oil was carried out. It was also a sunset/sunrise affair. It was carried out on the property of Taupa Tamasese.

The holy oil (from the Pulemelei ceremony), sennit and a large bark cloth was presented to Thor Heyerdahl's family as an honour and a type of burial ritual, by Tuiatua Tupua Tamasese Efi at the Kon-Tiki Museum Oslo, in connection to the opening of an exhibition of the Pulemelei project on the 16th of April 2004. A seminar on the Tagaloa tradition in relation to Pulemelei was also held by Tamasese at the Kon-Tiki Museum Institute some days later.



Presentation at the Kon-Tiki Museum.

Holy oils will also be presented to the Ngai Tahu Maoris in Canterbury.

9. Further perspectives. A Path of Possibilities

9.1 Research and excavations

To be able to investigate the mound further we suggest that remote sensing with ground penetrating radar be used. This would give insights to whether the mound is solid or not. This can give us a foundation for evaluating a possible excavation from the top or side of the mound. The area around the mound and other mounds and platforms in the vicinity could also be subjected to remote sensing and excavations. Excavation of the top platform and north mound and platforms to the south, west and east could give further in-sights to a re-use of the site.

The early settlement/settlement phases found should be investigated further to understand the extension and if it as a continuous settlement phase or not. Further excavations can revile additional material remains and feature to obtain a better platform for an in-depth understanding of the site. A more extensive find material will be able to be used in exhibitions and educational programs. Since large mound structures, pavements, roads, earth ovens, house mounds/platforms as well as an early settlement if found here it may be a very fruitful site to be able to understand the transformation of the ASP (Ancestral Polynesian Society) and the rise of the Polynesian chiefdom and the mound building tradition.

Together with results on early coastal Lapita sites on Savai'i, currently investigated by the Japanese doctoral student Tomo Ishimura, extended investigation at the Pulemelei area could probably tell us more about the development of the Polynesian society and the prehistory Savai'i and the Samoans.

9.2 Heritage, education and tourism

Considering the location on Savai'i and the quality of the site as well as the multitude and variation of the prehistoric remains at the site, it has large potentials to become national and common Polynesian heritage, a major tourist attraction and possible also a World Heritage site. This perspective necessitates a focus on and education, especially related to archaeology and cultural resource management

The site is very suitable for student education in archaeology and anthropology. An educational program, which mainly focuses on students of Samoan or Polynesian decent,

would be beneficial both in regard to issues of national/Polynesian identity but also to be able to facilitate, strengthen and maintain the infrastructure of museums and institutions related to prehistory/history and tourist business. To be able to pursue such a track it is probably of importance with local, government and university involvement. The site could already with the current invested work be used as a tourist attraction but future investments depend on what is desired and what the ambitions are. The size of the funds and other resources that might be invested in the site is intimately tied to these ambitions.

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