



KON-TIKI FIELD REPORT SERIES **VOLUME 1/1997**
ARCHAEOLOGICAL EXCAVATIONS

- at the ahu Heki'i complex, La Pérouse, Easter Island, Oct.-Nov. 1996

by **Paul Wallin,**
and Helene Martinsson-Wallin

4.0 The Kon-Tiki Museum Excavations at *Ahu* Hekii 1 (Site 31-299 and *Ahu* *** (Site 31-286).

4.1 Introduction and Research Questions

During the field season 1996, The Kon-Tiki Museum, Institute for Pacific Archaeology and Cultural History, was invited by Dr Christopher Stevenson to join the Earth Watch project in La Pérouse area, Easter Island. The contribution by the museum was focused on excavations of ceremonial structures, *ahu*, and to try to locate settlement close to these structures, in the aim of obtaining material for dating. The investigations and dating of *ahu* and settlement/activity areas in the vicinity of the ceremonial structures are to be seen as a continuation of earlier research performed by the Kon-Tiki Museum at Anakena in 1986-88 (Skjølsvold 1994, Martinsson-Wallin and Wallin 1994, Martinsson-Wallin 1994).

The outline of the La Pérouse project is presented and defined closer by Dr Stevenson in the beginning of this report. The more specified aim of the Kon-Tiki museum excavations was to try to make the chronological frame of the ceremonial structures in Hanga Hoonu bay visible. During our six weeks stay (Oct. 10- Nov. 15), four test units were excavated in close connection to *ahu*, Hekii (site 31-299) and *ahu**** (site 31-286). Trench 1(1x3 m) was situated in the centre of the slanting plaza of *ahu* Hekii 1. Trench 2 (1x3 m) was situated at the base of the plaza wall, on the north-west side of *ahu* Hekii 1. Trench 3 (1x1 m) was situated 30 m west of the west corner of the plaza of Hekii 1 and c. 30 m south of the platform of the *ahu*, site no. 31-286. The last trench, trench 4 (1x1 m), was situated on the seaward side at the base of the rear wall, near the centre of the *ahu*, site no. 31-286.

The excavations were photo documented and video filmed, furthermore different features and profiles of the trenches were mapped. The trenches were excavated in levels of 10 cm's thickness if no natural layers could be indicated. The excavation team was mainly made up by Dr Paul Wallin and Dr Helene Martinsson-Wallin from The Kon-Tiki Museum and assistant Jenny Lavris (ASC Group, Inc.). Some aid was also provided by people from Earth Watch Organisation and volunteers from the island.

All trenches were excavated by using trowel and all soil was screened. Carbon and obsidian samples for dating and dirt samples for pollen, phytolith and phosphate analysis were recovered. All features found were treated separately and all finds have been registered according to forms from the Padre Sebastian Museum and our own registration. All find material were deposited at the Padre Sebastian Museum on Easter Island.

Ahu Hekii 1 was mapped and its chronology was discussed in 1955-56 by Carlyle Smith (site E-17). Thompson called the site Puapua (no. 35), Lavachery called it Hanga O Onu (no. 55), Métraux called it Hanga- o-honu and Englert called it Hekii (no. 109).



KON-TIKI MUSEET
OSLO

The structure is described by Smith in this way, "The *ahu* is erected upon an extensive sheet of lava that slopes towards the sea... [and it] ... is essentially a mass of stones rendered symmetrical through the use of retaining walls on three sides and the paving of the upper surface in a series of level and sloping planes" (1961 p. 184). The central platform (c. 40 m long) projects to the sea and there are wings on each side (l. c. 24 m long, r. c. 16 m long) and the retaining rear wall is up to c. 5 m high. The rear wall of the platform is irregular which is the result of that part of the wall is rebuilt. The retaining rear wall masonry is mainly made up by stones carefully selected for fitting and the only more well worked stone appear to be the east corner stone of the platform. The left wing shows more carefully fitted masonry to one side than towards the junction of the platform. In the central platform, front wall *paenga* stones are to be found. On the inland side, a loose mantle of stones is in front of the central platform covering the ramp. This modification is likely to be late and incorporate in the heap of stones are several parts of destroyed statues and burials to be found. The plaza is partly paved and large portions of it are made up by outcrops of bed rock. The part of the plaza closest to the ramp is inclined.

The *ahu**** site 31-286, which is close to the former *ahu*, was not described by Smith, and this *ahu* has no official name that we were able to find out. The outline of this structure resembles a semi-pyramidal *ahu* without a level central platform and it has been re-modified to be incorporated in and scavenged for stones to a historic system of fences. Small statues are associated with the structure. The masonry mainly shows crude stones without trimming but selection for fitting could be seen. No front wall *paenga* stones could be seen except one of red scoria, but it seems not to be in original position. C. 20-30 m behind this structure was a crematorium found placed in a natural outcrop. Petroglyphs and cave openings were also found in the vicinity of this structure.

The two structures may, together with Hekii 2 and structure 31-288, have formed a complex in the past.

4.2 Site Mapping

A map over *ahu* Hekii 1, Hekii 2 and the *ahu* Avanga in close connection with these was re-drawn from Smith 1961 p. 186 fig. 50. *Ahu* 31-286, structure 31-288, and the crematoria to the North of *ahu* 31-286, were mapped by the use of compass and a measuring tape of 30 m:s length. These two maps were then put together. The four excavated trenches are marked on the map. Maps showing the trenches, profiles and subsoil features are drawn in the scale of 1:40 and 1:20.

4.3 Test Unit Excavations

Trench 1, Site 31-299 (*ahu* Hekii)

Level 1 (0-10 cm)

The trench was first outlined as a 1x4 m long trench and the squares were named 1-1, 1-2, 1-3 and 1-4 (from north to south). After excavating the top 5 cm's, it was decided to stop excavate square 1-1 further, since the pavement was disturbed by a possible late burial. The top 10 cm's in the trench consisted mainly of grass, humus/brown soil and gravel, which lay on top of the pavement stones of the slanting plaza. Parts of bones were found in square 1-3 (probably human) in an area with darker soil and coral in between the pavement stones. In square 1-2 it was a lot of coral and in all squares was obsidian, pieces of red scoria and coral found. The pavement stones were mapped and numbered to make it possible to remove them, and later, after the excavation was finished, reconstruct their position. The pavement stones varied in size between 25-60 cm and had different shape.

Level 2 (10-20 cm)

The level consisted of the pavement stones and the fill between these stones. The fill was composed of sandy soil mixed with gravel and small stones (1-5 cm ø). Here, many small poro stones, pieces of red scoria, and corals were found. Other finds consisted of obsidian flakes and in square 1-4 a flake from a polished toki was found. In square 1-4 the bedrock became partly visible at this level.

Level 3 (20-30 cm) and 4 (30 cm <)

The pavement stones were removed and under the stones were a thin layer of dark brown clayey soil (natural deposit), which was situated right on top of the bedrock. In between the stones of the pavement was a sort of stone "paving" consisting of 5-10 cm edged and slightly porous stones. The layer of soil found on top of the bedrock varied in thickness from 1-20 cm (thickest in square 1-2). In this layer small poro stones were found, at least where the layer had its greatest thickness. Underneath the dark brown soil was the quite uneven bedrock uncovered.

In square 1-3, at the bottom of level 3, was feature 1 found. The feature may be interpreted as a primitive *umu* with a crude stone lining placed on the thin subsoil right on top of the bed rock. An activity of roasting and/or cracking nuts (probably nuts of the Chile palm) could be indicated. C. 20 cm to the West of the feature was an c. 10 cm large area consisting of charcoal in a thin lens. Scattered pieces of charcoal were also found right under the pavement stones in the top of level 3, in square 1-3. A large number of very small obsidian chips were found scattered around feature 1 (mainly to the South, in square 1-4). Level 4 was due to the uneven bedrock only to be found in parts of the trench and it mainly consisted of dark brown clayey soil (natural deposit). The pavement was reconstructed after excavation.

Trench 2, Site 31-299 (ahu Hekii 1).

The trench was placed at the base of the slanting side wall of the plaza, at the North West side of *ahu* Hekii 1. The trench was 3 m long, and 1 meter wide and the squares were named 2-1, 2-2 and 2-3 (from North to South).

Level 1 (0-10 cm)

The trench was outlined with a string and the surface was mapped, the surface slanted and differed c. 10 cm from the South to the north part of the trench. Four people from the Earth Watch organisation started to clean the area from grass. The first level consisted of brown soil mixed with stones c. 5-20 cm ø (mainly c. 10 cm) which almost formed a kind of pavement. Here, obsidian and basalt flakes, pieces of red scoria and small water polished poro stones were found. The stone "pavement" was mapped at 5 cm, before the stones were removed. Between 5-10 cm below the surface the stones were less in count and smaller in size (5-10 cm ø), and at the bottom of the first level there were only a few stones in each square. The soil consisted of brown loam. Square 2-1 included more flakes of obsidian and basalt as well as poro stones than the other squares. Scattered human bones were found in all squares.

Level 2 (10-20 cm)

In level 2 the brown soil was looser and contained only a few stones c. 2-6 cm in size. So far no features were observed in the trench. Small pieces of carbon were found at this level, especially in square 2-1 and 2-3, about 30-40 cm from the foundation stones (see plan drawing and photos). Other finds consisted of flakes and chips of obsidian and basalt, small poro stones, a basalt hammer stone, an adze/file? of sandstone, a few corals and red scoria pieces, and a few human bones.

Level 3 (20-30 cm)

The brown soil (loam) was present in the next level as well, and the base of the foundation stones of the plaza wall was reached at a depth of 20-30 cm from the surface. At 27 cm below the surface in square 2-2 was a rounded area containing loose earth found. It was named feature 1 and it was excavated and a flotation sample was collected. A sample of carbonised nut shell was submitted for ¹⁴C analysis.

At c. 28 cm below the surface two more features were found, named feature 2 in the squares 2-2/2-3 and feature 3 in the squares 2-1/2-2. These shallow pits were also defined by containing loose earth and no or few visible finds. At 24 cm below the surface in square 2-3 feature 6 was found. It was also defined by containing loose earth and a few red scoria and poro stones, a few chips and flakes of obsidian and basalt, and some carbon was found. It projected into the West profile and cuts deeper than the former ones. In level 3 the finds generally consisted of obsidian and basalt flakes, small poro stones, a few burnt bones and scattered pieces of carbon.

Level 4 (30-40 cm)

In level 4 two more features of the same kind as the others were found, feature 7 and feature 8. Two areas that contained pieces of red scoria and charcoal was also found. One was situated in the South West corner of square 2-3. The other area, which contained small (2-4 cm) scattered stones, and small pieces of charcoal were situated in the north part of square 2-1,

and the North East part of square 2-2. The soil in level 4 consisted of brown silty loam. The finds in this level were the same as in level 3.

Level 5 (40-50 cm)

In level 5 an increase in the number of finds was noticed. In square 2-1, charcoal concentration I was found which containing carbonised nut shell (possible nut from Chile palm). Material from the concentration was collected for flotation and ¹⁴C dating. In the South corner of charcoal concentration was feature 9 situated at 43 cm below the surface. It contained no carbon or other find material. Close to feature 9 at the same level was feature 10 situated and these two rounded shallow pits filled with loose earth were divided by a c. 7 cm large stone. In square 2-3 at 45 cm below the surface an irregular concentration of scattered charcoal and bone fragments was found, named charcoal concentration II. Some larger stones were found at this level and the find material mainly consisted of flakes and chips of obsidian and basalt.

Level 6 (50-60 cm)

Feature 11 was found in squares 2-1/2-2 at a depth of 50 cm below the surface, right underneath feature 3, and maybe an extension of this pit. It contained chips and flakes of obsidian and basalt, a few small poro stones and some carbon. In the North West corner of square 2-2 at 65 cm below the surface a concentration of scattered charcoal was found, named charcoal concentration III. The finds in level 6 mainly consisted of flakes and chips of obsidian and basalt but some tools as a basalt scraper and an obsidian drill were also found.

Level 7 (60-70 cm)

Feature 12, was found in the South West corner of square 2-1 at 65 cm below the surface. It was situated c. 20 cm East of feature 8, which was a similar narrow rounded pit filled with loose earth. This level showed less find material than the levels above, mainly a few flakes and chips of obsidian and a few carbon pieces were found. In square 2-2 there were three stones placed on edge and the tops of these stones were first shown in level 5, and the bottom of them where reached in level 7.

Level 8 (70-80 cm)

Several large bedrock stones showed up in square 2-3, and some in square 2-2. There is also a shift in colour of the soil and the silty loam is gray, yellow and light brown. The find material consisted of a few pieces of obsidian.

Level 9 (80< cm).

The bedrock bottom was uncovered in all squares of the trench. The silty loam is yellow brown, mixed with stones of yellowish colour. The depth to the sterile bottom varied between 80-85 cm. Feature 13 was found in square 2-2 close to feature 12 at 83 cm's below the surface. It may be an extended bottom part of feature 12. No finds were found in the feature or

the surrounding soil. The Eastern part of the trench went down to a depth of about 140 cm, before the bedrock bottom was reached.

Earth samples

Earth samples for pollen and phytolith analyses were collected under the foundation stones of the side wall by PhD student Joan Wozniak. The analyse will be performed by Linda Scott Cummings. The samples will hopefully show something of the vegetation in connection to the cultural activity in the area right before the building of the plaza wall.

Earth samples were also collected from all different layers identified in the profile and they will be submitted to a phosphate analysis.

Trench 3, Site 31-286

The trench was 1x1 m in size and was excavated in an area that may be seen as the levelled plaza belonging to *ahu*, site 31-286. This *ahu* is situated close to *ahu* Hekii 1 (see plan drawing).

Level 1 (0-10 cm)

Below the grass was a c. 5 cm thick layer of very hard packed silty soil. Some small scattered remains of carbon and red earth were found there. The next 5 cm was of the same composition as the above, but not as hard packed. In this level only a few obsidian and basalt pieces were found.

Level 2 (10-20 cm)

The silty soil continued in this level but now it was very soft. Some stones c. 5 cm ø was found and in the South East corner was the bedrock uncovered. Only a few finds of obsidian chips were found.

Level 3 (20-30 cm)

The composition and texture of the soil were as at the previous level and more of the bedrock was uncovered, only a few finds of obsidian chips were found.

Level 4 (30 cm <)

Bedrock in almost all of the square, except in the middle of the square where level 4 was excavated. The composition and texture of the soil were as in the previous level. No finds were recovered.

Trench 4, Site 31-286

This trench was 1x1 m in size and was situated next to the rear wall, near the centre of *ahu* site 31-286. This *ahu* has no visible *paenga* stones in the front and no actual elevated platform is indicated (the front looks like a semipyramidal *ahu*). Most stones in the rear wall are not worked but some show traces of trimming on edges to obtain a better fitting. There are two more intact small statues and parts of statues in connection to the structure. Parts of the rear wall have been built higher and used as a fence and in some parts it has been scavenged for stones for a fence turning in a right angel from the rear wall and to the North (towards the sea). In the ramp at the

West side of the structure was a cave opening found, and another cave opening was c. 10 m South of the West edge of the structure. A crematorium was found in a natural outcrop c. 30 m North of the rear wall. The outcrop may be hiding the opening of a cave. A rock carving picturing a turtle was on the inland side (plaza?) of the structure and a newly discovered rock carving picturing a sea creature? and a row of cupules, was indicated to us behind the rear wall near the centre of the structure.

Level 1 (0-10 cm)

Consisted of a fill of stones 2,5-10 cm ø, with a light brown sandy soil and gravel in between the stones. In this level were many stones of red scoria, moai tuff and small poro stones found. Other finds were obsidian and basalt flakes and half of a *toki*.

Level 2 (10-20 cm)

The stones fill mixed with soil and gravel continued down to c. 16 cm, and under this the composition of the earth was brown soil mixed with some gravel. The find material was separated above and under c. 16 cm at this level. In the layer with brown soil mixed with some gravel were two features found. Feature 1 was interpreted as an *umu*, with pieces of carbon and some burnt bones. The feature contained stones (about 5-20 cm ø), affected by fire. Feature 2 was found closer to the rear wall and it was visible as a rounded pit filled with red scoria, coral stones, and a large basalt flake. At the bottom of the feature some pieces of carbon were found.

Level 3 (20-30 cm)

This level consisted of brown soil and mixed loam with stones 5-20 cm ø. The bedrock was visible in the Eastern part of the square. Feature 1 and 2 was visible at this level.

Level 4 (30-40 cm)

The level consisted of sterile soil (loam) mixed with stones 5-20 cm ø. More of the bedrock was visible in the eastern and southern part of the square. Feature 2 was still visible at this level.

Level 5 (40-50 cm)

The soil that was found in part of the square consisted of yellow brown sterile silty loam. The bedrock was uncovered in all the square at the bottom of this level. Feature 2 reached down to this level.

4.4 Subsurface Features, Description and Discussion

Trench 1

Feature 1

In square 1-3, at the bottom of level 3, was feature 1 found. It appeared as a 20x15 cm rounded burnt area found in the dark brown soil and the soil surrounding and underneath it had turned to a reddish colour due to the heat from the fire. The feature was limited by two larger stones to the West

and South. A concentration of stones was also found to the North of the feature, but it was difficult to know if the feature was entirely limited by stones to the East since one of the pavement stones above the feature not could be removed and covered this part. The feature consisted of a 3-4 cm thick carbon lens containing carbonised nut shells. Under the carbonlens was a 5 cm thick lens of burnt earth (top of level 4). The feature may be interpreted as a primitive *umu* with a crude stone lining.

Trench 2

Feature 1

It was found in square 2-2 at c. 27 cm below the surface. It appeared as an area c. 30x25 cm in size containing loose soil. It had an irregular bottom shape and was 30 cm at its deepest end, which thereby reached down into level 6. The feature was excavated and a flotation sample was collected and it contained a few finds of obsidian and basalt chips, and a few bones and charcoal pieces.

Feature 2

It was found in the squares 2-2/2-3 at 28 cm below the surface. It had an oval shape, c. 24x20 cm in size, and 17 cm deep with a rounded bottom. The feature reached down into level 4 and it contained loose soil and no or few visible finds. A few charcoal pieces were found.

Feature 3

It was found in the squares 2-1/2-2 at 28 cm below the surface. It was bean shaped, c. 40x20 cm in size, and 16 cm deep at the deepest end with an irregular bottom. The feature reached down into level 4 and it contained loose soil and no or few visible finds. A few charcoal pieces were found.

Feature 6

It was found in square 2-3 at 24 cm below the surface. It projected into the west profile but was estimated to have a rounded shape with a diameter of 36 cm. It contained loose soil and it was 64 cm deep with a rounded bottom, which cutted down into level 9. The finds in feature 6 consisted of a few red scoria and poro stones, a few chips and flakes of obsidian and basalt, and some pieces of charcoal.

Feature 7

It was found in square 2-3, 32 cm below the surface. It had a rounded shape, 28x16 cm in size, and was 15 cm deep with a pointy bottom at one side. A flotation sample was collected from the North half of the feature. The feature contained loose soil and it cutted down into level 5. The finds in feature 7 consisted of a few chips of basalt and obsidian.

Feature 8

It was found in square 2-2, 40 cm below the surface. It had a rounded shape, 20x18 cm in size, and was 40 cm deep with a rounded bottom. It contained loose soil and it cutted down into level 8. The finds in feature 8 consisted a few flakes and chips of obsidian.

Charcoal concentration I

It was found in square 2-1 at c. 43 cm below the surface. It consisted of a 4 cm thick charcoal lens with was rounded and about 30x30 cm in size. Material from the concentration was collected for ¹⁴C dating.

Feature 9

It was found in square 2-1 at the south east corner of charcoal concentration I, 43 cm below the surface. It appeared as a 18x20 cm large rounded pit filled with loose earth and contained three stones with a diameter of c. 3 cm. It was 10 cm deep with a pointy bottom and continued down into the top of level 6. Feature 9 contained no finds.

Feature 10

It was found in square 2-1 at 43 cm below the surface, only divided by a 7 cm long stone from feature 9. It appeared as a 15x13 cm large rounded pit filled with loose earth, 7 cm deep with a flat bottom. The feature contained no finds.

Charcoal concentration II

In square 2-3 at 45 cm below the surface a c. 54x25 cm irregular shaped area of scattered charcoal and bone fragments were found.

Feature 11

It was found in the squares 2-1/2-2 at 50 cm below the surface. The feature was found right underneath feature 3 and may be an extension of this pit. It appeared as a 80x60 cm large area containing loose soil and some stones c. 4-10 cm in diameter. Part of the feature projected into the East profile but it was estimated to have a more or less oval shape. It was 20 cm deep at its deepest and continued down to the top of level 8. Feature 11 contained chips and flakes of obsidian and basalt, a few small poro stones and some pieces of charcoal.

Charcoal concentration III

In the North West corner of square 2-2 at 65 cm below the surface a c. 30x20 cm large area of scattered charcoal was found.

Feature 12,

It was found in the South West corner of square 2-1 at 65 cm below the surface. It appeared as a c. 10 cm large area containing loose soil. It was c. 25 cm deep with a rounded bottom that curved slightly towards square 2-2 and continued down into level 9. It was situated c. 20 cm East of feature 8, which was a similar narrow pit.



Feature 13

It was found in square 2-2 close to feature 12 at 83 cm below the surface. Feature 13 appeared as an irregular area containing loose soil c. 12x14 cm. It had an irregular bottom and was 12 cm deep at its deepest end. Feature 13 may be an extended bottom part of feature 12. No finds were found in the feature.

Trench 3

In this trench were no subsurface features found.

Trench 4

Feature 1

It was found at 16 cm below the surface and on the top it was visible as an orange red spot, 40x 40 cm in size, with pieces of carbon and some burnt bones. The feature contained c. 10 stones about 5-20 cm ø, affected by fire. The feature continued down in level 3 and the bottom of the feature (c. 28 cm) contained more stones of the same size as mentioned above. The feature was interpreted as an *umu*.

Feature 2

It was found closer to the rear wall at 16 cm below the surface and it was visible as a 20-30 cm rounded pit filled with red scoria, coral stones and a large basalt flake. The feature was c. 25-30 cm deep and continued down to level 5 and at the bottom of feature 2 some pieces of carbon were found.

Discussion

The feature in trench 1 was interpreted as a primitive stone lined *umu* where activities of roasting and/or cracking up nut shell were indicated.

In trench 2 two different types of subsurface features associated to three different layers of chronological difference were indicated. 1) pits defined by containing loose soil and few find 2) charcoal concentrations. The first type of pits showed variation according to size, shape, depth and chronology. The features 1, 2, 3 and 6 may be associated with the use of this site after the building of the west retaining plaza wall. The features 7, 8, 9, 10, (11) and charcoal concentration I and II are indicated to belong to an earlier phase and the features 12 and 13, and charcoal concentration III, may be the earliest ones at this site. A suggestion is to interpret these pits as plantation pits, but some may be interpreted as the remains of post holes. The pollen analysis from this site may give closer indications to which activities that produced the pits.

Trench 3 did not feature any subsurface features, but in trench 4 two different subsurface features were found. Both of them were found in the subsoil containing brown soil mixed with some gravel on top of the bedrock at this site. Feature 1 was interpreted as an *umu* containing pieces of charcoal, burnt bone, and stones affected by fire. The earth in association to

this feature had turned slightly red due to the heat from the fire/hot stones. Closer to the rear wall, but at the same level as the former, feature 2, a rounded pit containing red scoria and coral stones, was found. The activity in connection to this pit is not clear but it seems to be a deposition of red scoria and coral stones conveying a specific meaning.

4.5 Artefact Analysis

The most common type of finds consisted of obsidian flakes and chips. Other frequently found find categories were basalt flakes and chips, small *poro* stones (water washed stones), coral stones, and stones of red scoria (the same stone the *pukao* was made of). Different tools and tool forms were sparse, but used flakes of obsidian and basalt, a few *toki* fragments, scrapers, knife/cutting tools, drills, a hammer stone, a *mata'a*, an abrasive stone, a stone file, and human and animal bones were recovered.

4.6 Chronological Determination and Discussion

Smith assigns Hekii 1 to the "middle period" (A.D. 1000-1680?) and he was of the opinion that after the *ahu* was built and some statues were placed there, part of the rear wall gave away and some of the statues were damaged. The ruined portion was repaired and a torso of a statue was incorporated in the masonry of the rear wall and the head of another statue was in the plaza of the inland side. The low slab wall below the platform was also repaired.

Five radiocarbon datings has been carried out on charcoal samples from three of the four trenches. The samples were dated using the AMS technique at The Svedberg Laboratory in Uppsala, Sweden. Three of the samples were composed of carbonised nut shell (probably nuts from the Chile palm) and two of the samples were made up by burnt wood pieces. The samples were chosen with the aim of dating the activities preceding or in connection to the building of the *ahu*-constructions Hekii 1 (site 31-299) and *ahu* site 31-286. The datings are as follows;

U-11700 Trench 1, Hekii 1: BP 705±45, calibrated age A.D. 1275-1367 (1 sigma), A.D. 1257-1387 (2 sigma). The dated sample stem from carbonised nut shell found in a primitive *umu* placed on the thin subsoil on top of the bedrock right below the stone pavement of the slanting plaza. The activity that produced this sample is suggested to be in close connection to an early building phase of *ahu* Hekii.

U-11701 Trench 2, Hekii 1: BP 700±45, calibrated age A.D. 1277-1368 (1 sigma), A.D. 1260-1388 (2 sigma). The dated sample stem from a small piece of charcoal or carbonised nut shell found in the fill of feature 1 when a flotation of the soil was made (level 3). The feature was found in the same level as the foundation stones of the plaza wall. This sample may be

interpreted as to be from an activity in connection to the construction of the plaza wall but two other samples arriving from deeper levels indicate a more recent date.

U-11702 Trench 2, Hekii 1: BP 465±45, calibrated age A.D. 1427-1496 (1 sigma), A.D. 1407-1610 (2 sigma). The dated sample stem from carbonised nut shell found in a charcoal concentration, burnt on the spot in level 5. This activity is below feature 1 and it is due to the "in situ" position to be considered earlier than feature 1.

U-11703 Trench 2, Hekii 1: BP 555±50, calibrated age A.D. 1325-1422 (1 sigma), A.D. 1298-1444 (2 sigma). The dated sample stem from carbonised nut shell found in the bottom of the cultural layer of the trench (level 8). The date is thereby not tied to any specific activity.

U-11704 Trench 4, *ahu* 31-286: BP 795±50, calibrated age A.D. 1204-1265 (1 sigma), A.D. 1148-1290 (2 sigma). The sample stem from charcoal found under the foundation stones of the structure and may indicate the age of the first building phase of this *ahu*.

Dates based on the obsidian hydration method have also been performed on obsidian flakes from all trenches. In trench 1, *ahu* Hekii 1, was only obsidian flakes from the subsoil on top of the bedrock (level 4) considered interesting since the other flakes came from the fill, which could have originated from anywhere. Two dates A.D. 1321 and A.D. 1200 from square 3, level 4 showed a good fit with the ¹⁴C date from this layer.

In trench 2 there are several obsidians dated from different levels and a general tendency is that flakes from lower levels show earlier dates than flakes from surface levels. The dates range from c. 1450-1800, and the obsidian dates generally indicate younger dates than the ¹⁴C dates.

In trench 3 only two obsidian dates, and no ¹⁴C dates, were made. The obsidian dates indicated an age of c. A.D. 1450-1500. This may date activities on the plaza to *ahu* site 31-286.

In trench 4, *ahu* 31-286, the obsidian dates from level 1 were indicated to be a little older than the dates from lower levels. The obsidian flakes from level 1 were considered to come from filling material, which probably not could be directly tied to the *ahu* structure. The dates from level 2,3 and 4 indicated dates from A.D. 1400-1600, which are younger than the ¹⁴C date from level 4.

Discussion

The ¹⁴C and obsidian dates from the thin soil on top of the bedrock under the paved slanting plaza at *ahu* Hekii 1 indicates that an activity in connection to the building of this part of the *ahu* is dated to c. A.D. 1200-1390. This may indicate a first building stage of *ahu* Hekii 1. The central platform and part of the plaza were built up on an elevated bedrock outcrop,

which was covered with a thin layer of soil in some parts. A level part of the bedrock outcrop was used as forming part of the plaza.

The dates from trench 2, excavated at the Western side of the built up plaza wall of *ahu* Hekii 1, indicated that this built up part and the wings to the side of the central platform may be a later addition. The early dated charcoal sample from the fill of feature 1 may have come from activities that were not directly tied to the digging and use of feature, but indicate an earlier activity in the area. This date coincides with the date from trench 1 (slanting plaza of Hekii 1). The two other ^{14}C dates and the obsidian dates from this trench indicate that the built up plaza wall and wings may have been added after c. A.D. 1600. The activities that produced the pits may be interpreted as planting activities in close connection to *ahu* Hekii 1, and the pits were situated at the foot of the elevated bedrock outcrop that formed the base for building of the *ahu*. The planting activity is dated to A.D. 1300-1600.

The *ahu* 31-286 showed one ^{14}C date that indicates the structure to be contemporary with the first phase of *ahu* Hekii 1. The obsidian dates indicated a slightly younger date but obsidian flakes from the surface fill may indicate activities in the area from c. A.D. 1350. The charcoal sample dated was taken from under the foundation stones in level 4 and the obsidian dates from level 4 was taken from the features 1 and 2, which had been dug down from level 2. This may indicate that the features are younger than the building of the *ahu*. This *ahu* structure also features several parts of small statues, which is interpreted to be of an early type.

The two structures possible together with Hekii 2 and structure 31-288 (these are not dated), have probably formed a ceremonial complex where the two structures may have had different function. The possible planting activities in between the two structures are probably to be seen as part of some kind of ritual. Since the place is called Hanga Hoonu (turtle) bay and there is a turtle rock carving on the plaza of *ahu* 31-286, it may be possible that the turtle had been important in the ritual too, but the time depth of the name and the rock carving is not known.

4.7 Summary

These excavations at the *ahu* Hekii complex at La Pérouse is the result of a collaboration between the Earth Watch organisation and the Kon-Tiki Museum.

Four test pits were excavated at two *ahu* structures, namely: Trench 1 and 2 at *ahu* Hekii 1 (site no. 31-299), and trench 3 and 4 at *ahu* site 31-286) to the NW of *ahu* Hekii 1. Trench 1 was situated on the slanting plaza, it contained one feature (an "in situ" burnt spot), placed down at the bedrock under the paved plaza floor. Trench 2 was situated at the base of the slanting side wall of the plaza. It contained several features, namely, pits filled with loose soil, and furthermore "in situ" burned spots. Trench 3 placed on the possible plaza of the *ahu*. It contained no features, but the top 5 cm's was a

layer of very hard packed silty soil, which may indicate the plaza floor. Trench 4 was situated next to the rear wall of the *ahu*. It contained two features, an umu and a pit filled with red scoria, corals, and a large flake of basalt.

These features may be interpreted as plantation pits, post holes, and umu/fire places. The pit filled with red scoria and corals, may be seen as a deposition in connection with some rituals taking place close to the rear wall of this *ahu*.

Five radiocarbon datings, and several obsidian hydration datings have also been carried out. They placed the building phase of *ahu* Hekii 1 at about AD 1200-1390. The datings also indicated later activities in connection to the *ahu*. For example possible planting activities to about AD 1300-1600. One dating at *ahu* 31-286, placed that structure at about the same age as *ahu* Hekii 1.

Soil samples for pollen and phytolith analyses were also collected. The results of these analyses are however not yet finished.

The find materials collected from the trenches were treated after instructions from the Padre Sebastian Museum, and all find material was deposited at the same museum on Easter Island.

References

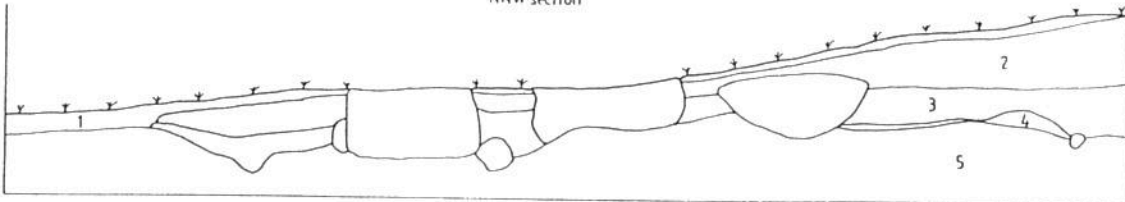
Martinsson-Wallin, H. 1994. *Ahu - The Ceremonial Stone Structures of Easter Island. Analysis of Variation and Interpretation of Meanings*. AUN 19. Uppsala.

Martinsson-Wallin, H. and Wallin, P. 1994. The Settlement/Activity Area at Anakena Easter Island. In; *The Kon-Tiki Museum Occasional Papers. Volume 3*.

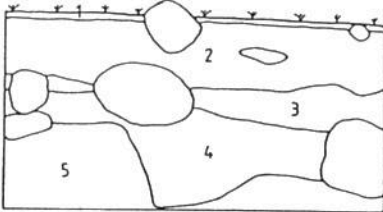
Skjølsvold, A. 1994. Archaeological Investigations at Anakena, Easter Island. *The Kon-Tiki Museum Occasional Papers. Volume 3*.

Smith, C. 1961. A Temporal Sequence Derived from Certain AHU. In: *The Archaeology of Easter Island*, Eds. Heyerdahl and Ferdon. Monographs of the School of American Research and the Museum of New Mexico, Number 24 Part 1.

NNW section



ENE section

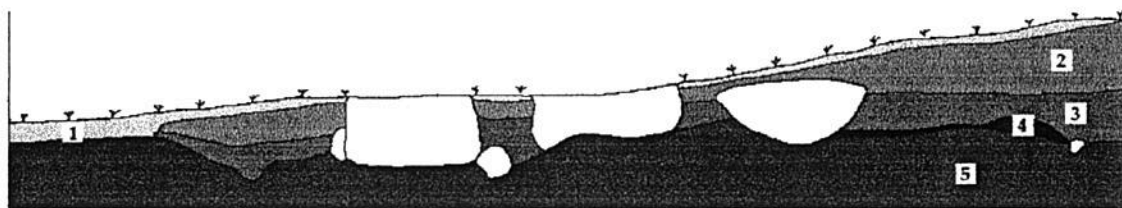


EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
AHU HEKII 1, SITE 31-299
TRENCH 1

Oct 1996
Scale 1:20

- 1=Vegetation layer.
- 2=Sandy soil with smaller stones (scoria, «poro», coral, red scoria and basalt).
- 3=Soil mixed with rubble of stones c 5 cm ø, almost like a pavement.
- 4=Dark brown clayish soil.
- 5=Bedrock.

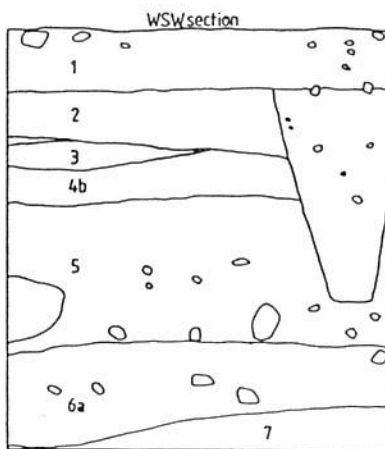
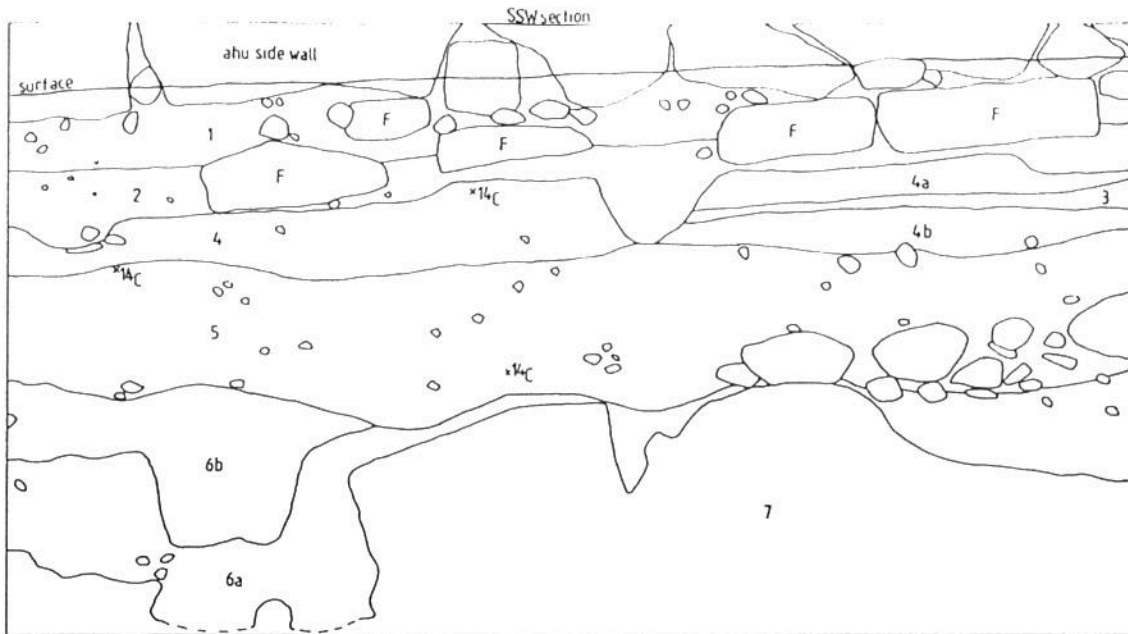
LA PÉROUSE, TRENCH 1, NNW SECTION



EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
AHU HEKII 1, SITE 31-299
TRENCH 1

Oct 1996
Scale 1:20

1=Vegetation layer.
2=Sandy soil with smaller stones (scoria,
«poro», coral, red scoria and basalt).
3=Soil mixed with rubble of stones c 5 cm ø,
almost like a pavement.
4=Dark brown clayish soil.
5=Bedrock.



EASTER ISLAND
 LA PÉROUSE
 AHU HEKII COMPLEX
 AHU HEKII 1, SITE 31-299
 TRENCH 2

Oct-Nov 1996
 Scale 1:20

F=Foundation stone.

1=Mixed brown soil with stones and gravel.

2=Mixed hard yellow-brown soil with sand and small gravel.

3=Red scoria gravel lens.

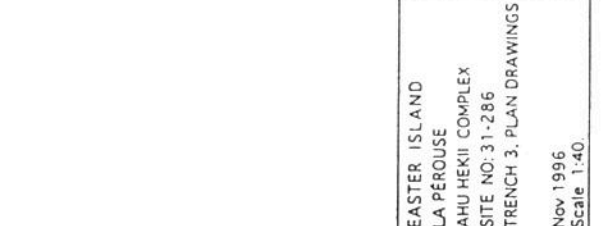
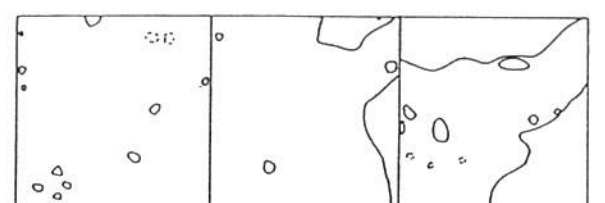
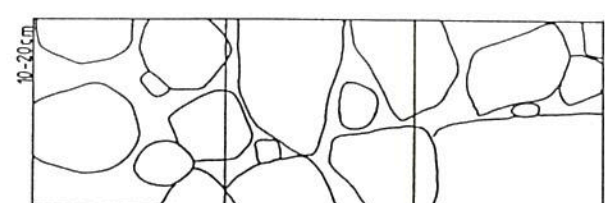
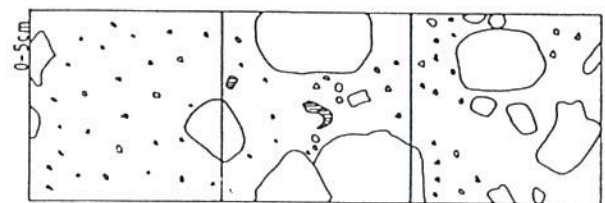
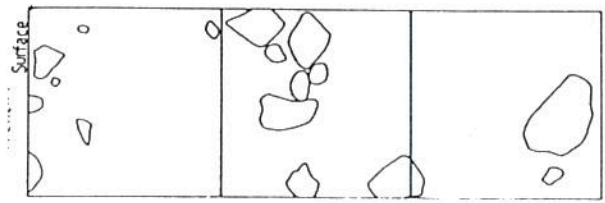
4a+b=Soft gray-brown loam.

5=Light brown soil with small stones and gravel.

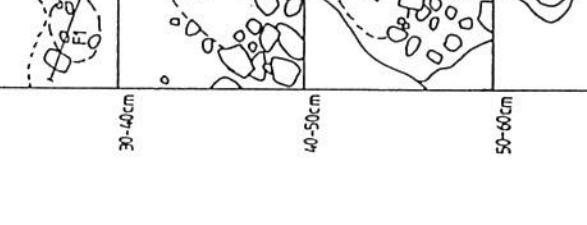
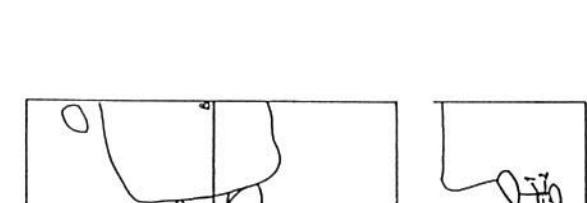
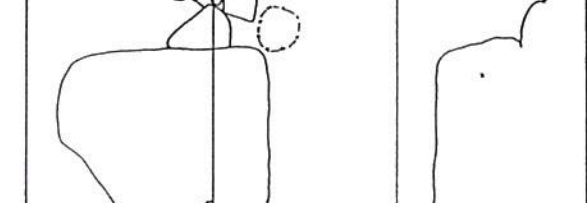
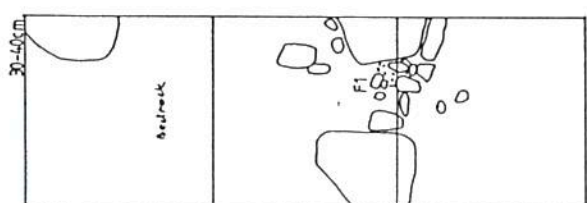
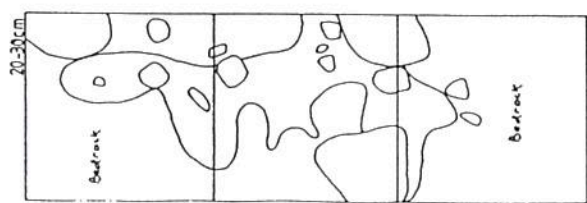
6a=Brown-yellow soft silty loam.

6b=Brown soft silty loam.

7=Gray-yellow bedrock.

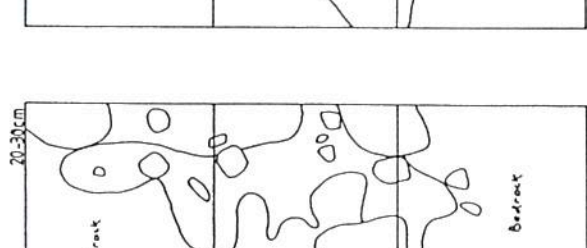
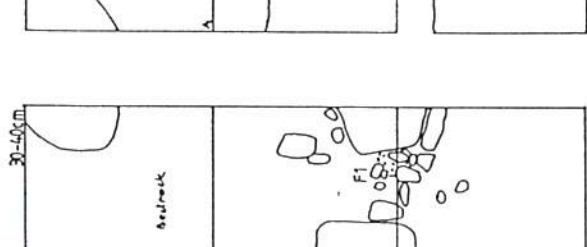
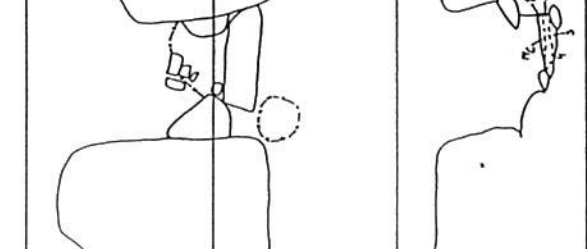
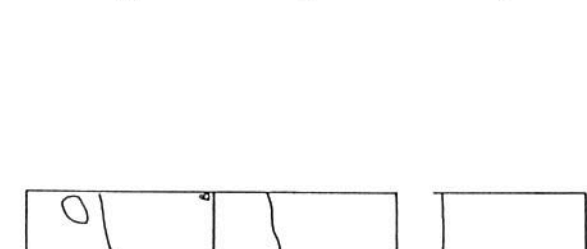
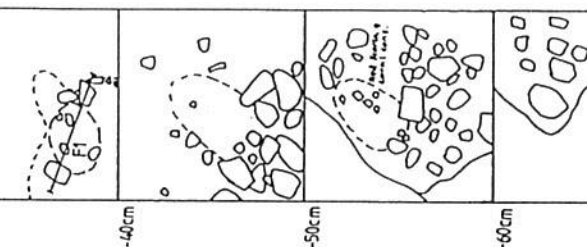
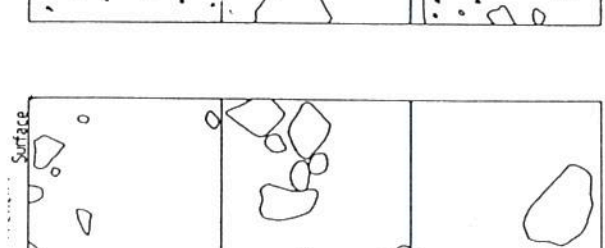
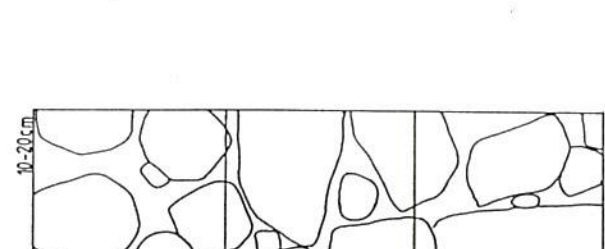
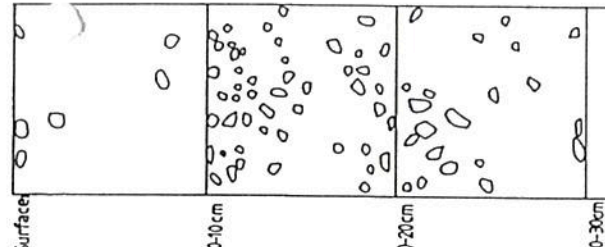


EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
SITE NO: 31-286
TRENCH 3, PLAN DRAWINGS
Nov 1996
Scale 1:40.

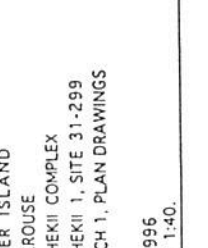
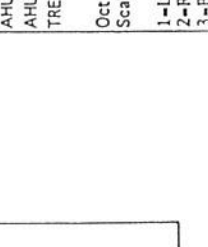
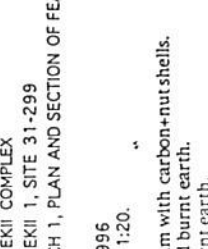
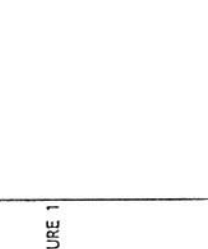
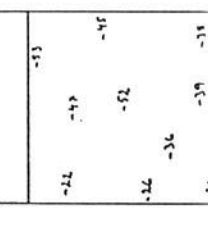


EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
AHU HEKII 1, SITE 31-299
TRENCH 1, PLAN DRAWINGS
Oct 1996
Scale 1:40.

EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
AHU HEKII 1, SITE 31-299
TRENCH 1, PLAN AND SECTION OF FEATURE 1
Oct 1996
Scale 1:20.
1-Loam with carbon+nut shells.
2-Red burnt earth.
3-Burnt earth.

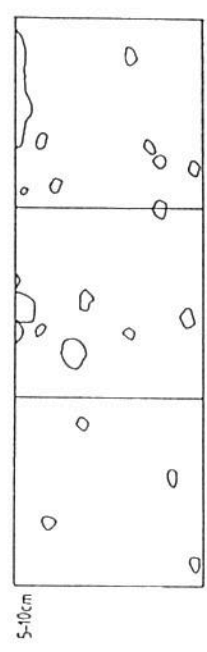


EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
SITE NO: 31-286
TRENCH 4, PLAN DRAWINGS
Nov 1996
Scale 1:40.

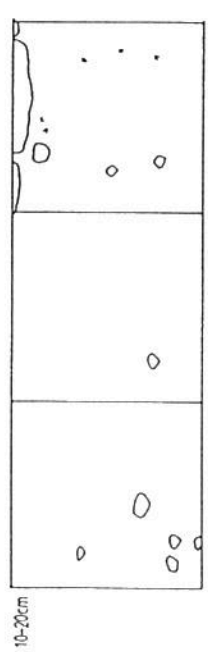




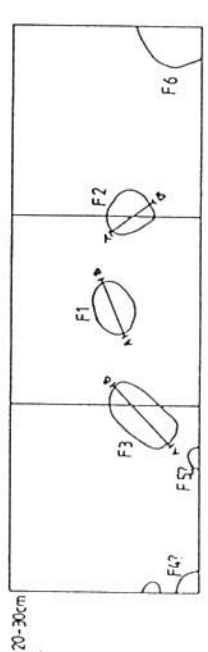
0-5 cm



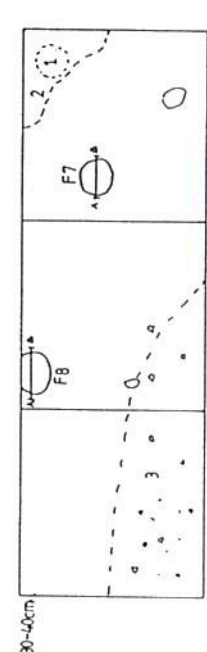
5-10 cm



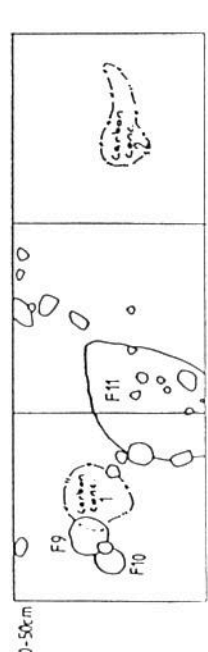
10-20 cm



20-30 cm

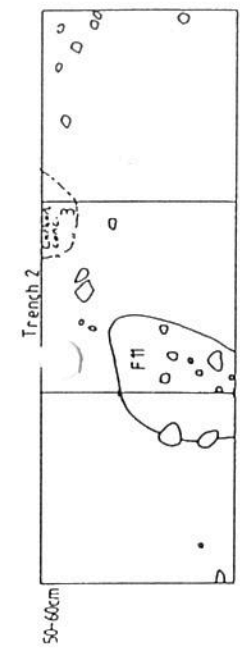


30-40 cm

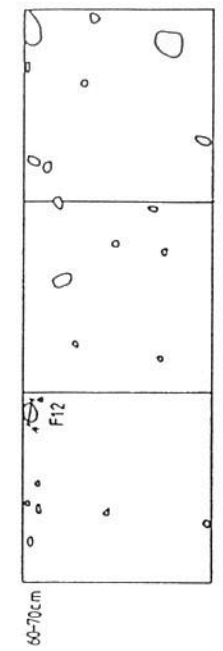


40-50 cm

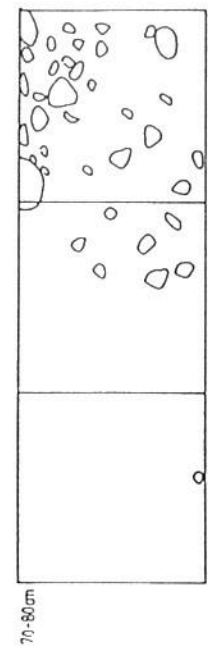
EASTER ISLAND
 LA PEROUSE
 AHU HEKII COMPLEX
 AHU HEKII 1, SITE 31-299
 TRENCH 2, PLAN DRAWINGS
 Oct-Nov 1996
 Scale: plan drawings 1:40.



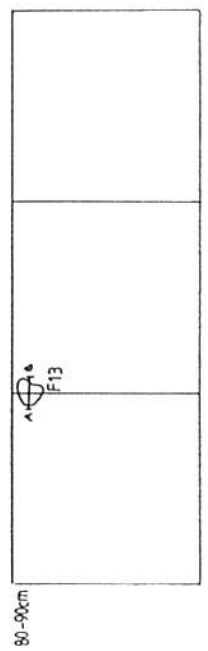
50-60 cm



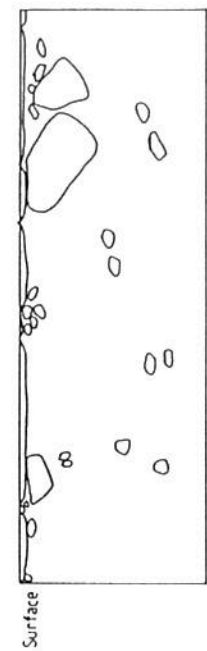
60-70 cm



70-80 cm

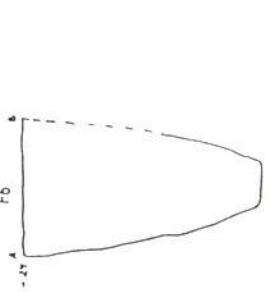
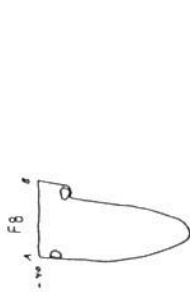
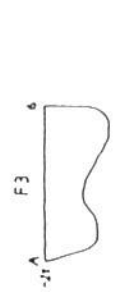
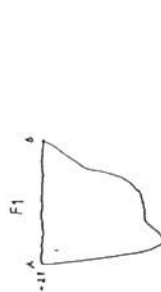


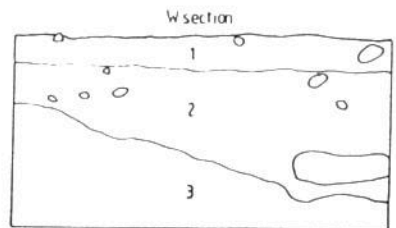
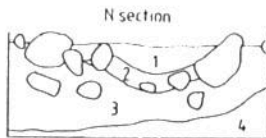
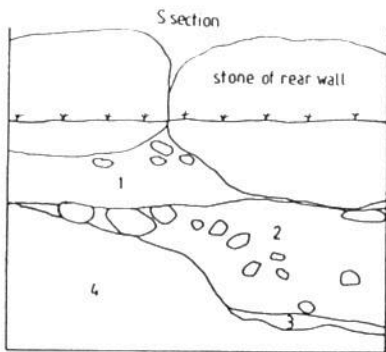
80-90 cm



Surface

EASTER ISLAND
 LA PEROUSE
 AHU HEKII COMPLEX
 AHU HEKII 1, SITE 31-299
 TRENCH 2, PLAN DRAWINGS AND SECTIONS OF FEATURES
 Oct-Nov 1996
 Scale: plan drawings 1:40, features 1:20.





EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
AHU NO: 31:286
TRENCH 4, FEATURE 1

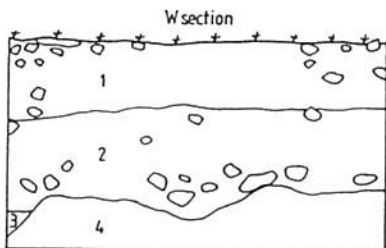
Nov 1996
Scale 1:20

1=Orange brown loam with pieces of charcoal.
2=Brown-red loam.
3=Brown loam mixed with stones.
4=Yellow brown bedrock.

EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
AHU NO: 31:286
TRENCH 3

Nov 1996
Scale 1:20

1=Compact light brown soil, plaza floor?
2=Brown soil.
3=Bedrock.



EASTER ISLAND
LA PÉROUSE
AHU HEKII COMPLEX
AHU NO: 31:286
TRENCH 4

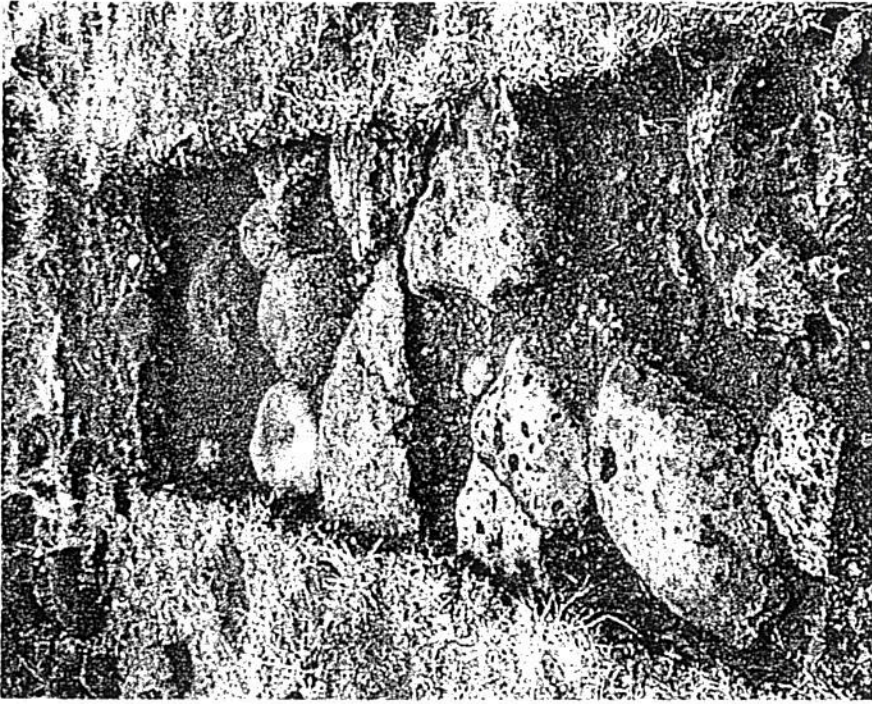
Nov 1996
Scale 1:20

1=Mixed material, gravel with red scoria, «moai», and «poro» stones in light brown loam.
2=Brown loam mixed with stones.
3=Yellow brown silty loam.
4=Yellow brown bedrock.

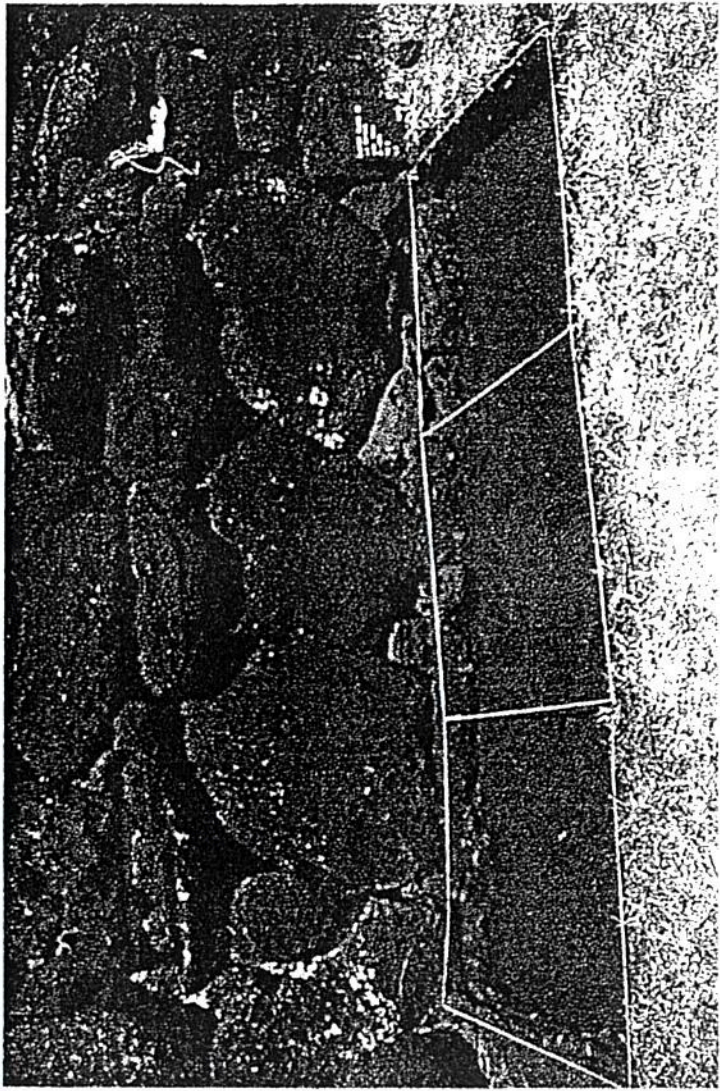
Alu Hekim 1



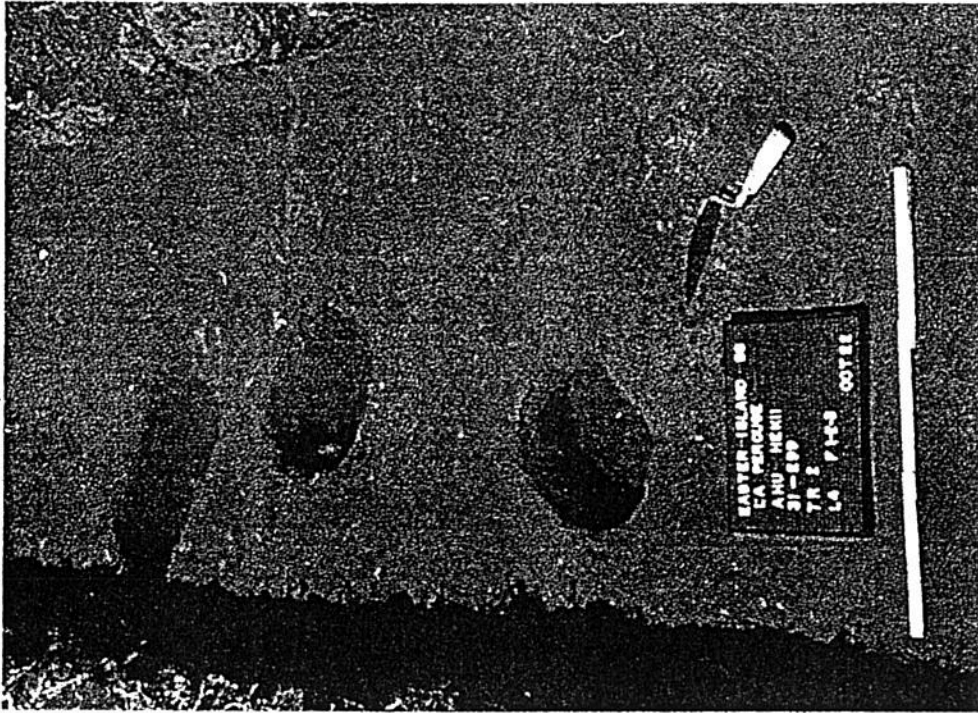
Trench 1



Trench 2



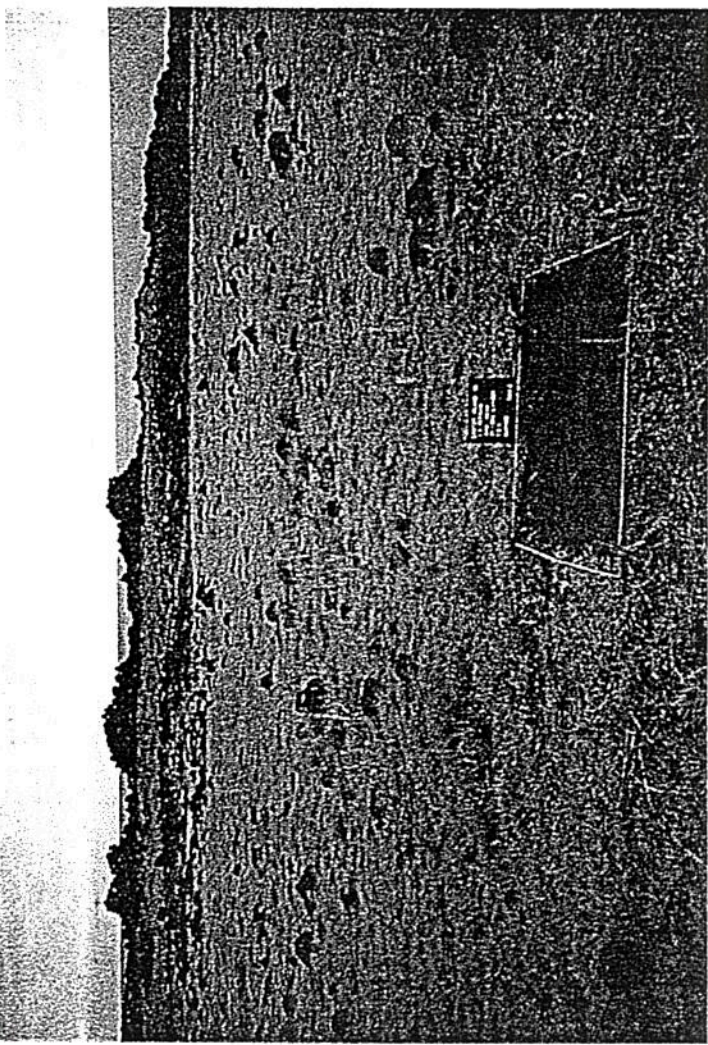
Trench 2, Features 3, 1 and 2



Trench: 2, Section



Trench 3



Trench 4



Artifact/Trench	Trench 1	Trench 2	Trench 3	Trench 4
Obsidian flakes	188	247	2	134
Used obsidian flakes	74	92	0	23
Obsidian chips	485	648	3	151
Basalt flakes	127	103	2	180
Used basalt flakes	1	8	0	1
Scraper, obsidian	1	0	0	1
Scraper, basalt	2	5	0	0
Core/Scraper	0	2	0	0
Core, obsidian	0	13	0	3
Core, basalt	3	3	0	1
Drill, obsidian	0	4	0	3
Drill/pointed tool, basalt	1	0	0	0
Adze (toki), basalt	5	0	0	3
Mata'a, obsidian	1	0	0	0
Knife?	0	1	0	1
Perforated shell	1	0	0	0
Hammer stone	0	1	0	0
Abrasive stone	0	1	0	0
Undefined tools	0	4	0	1
"Poro" stones	78	536	0	258
Red scoria	109	48	0	665
Corals	159	9	0	32
Moai tuff	2	0	0	213
Shell	36	2	0	2
Bones, Human	53	95	0	0
Bones, Rat	3	0	0	1
Bones, Bird	18	0	0	0
Bones, Fish	12	0	0	0
Bones, Not identified	3	1	0	2

Tandem Laboratory
Uppsala University

Helene Martinsson-Wallin
Kon-Tiki Museet
Institutt for Stillehavsarkeologi
og Kulturhistorie
Bygdøyenesveien 36
N-0286 OSLO
Norge

Uppsala 1997-03-21

Resultat av ^{14}C datering av nötskal och träkol från Chile.

Förbehandling av träkol och liknande material:

1. Synliga rottrådar borttages.
2. 1% HCl tillsätts (6-8 timmar, under kokpunkten) (karbonat bort).
3. 1% NaOH tillsätts (6-8 timmar, under kokpunkten). Löslig fraktion fälls genom tillsättning av konc. HCl. Fällningen som till största delen består av humusmaterial, tvättas, torkas och benämns fraktion SOL. Olöslig del, som benämns INS, består främst av det ursprungliga organiska materialet. Denna fraktion ger därför den mest relevanta åldern. Fraktionen SOL däremot ger information om eventuella föroreningars inverkan.

Före acceleratorbestämningen av ^{14}C -innehållet förbränns det intorkade materialet, surgjort till pH 4, till CO_2 -gas, som i sin tur konverteras till fast grafit genom en Fe-katalytiskreaktion.

I den aktuella undersökningen har fraktionen INS daterats.

RESULTAT

Labnummer	Prov	$\delta^{13}\text{C}$ ‰ PDB	^{14}C ålder BP
Ua-11700	Ahu Hekii 1, Trench 1, site no. 31-299, sample 8a	-22.20	705 ± 45
Ua-11701	Ahu Hekii 1, Trench 2, site no. 31-299, sample 13b	-23.88	700 ± 45
Ua-11702	Ahu Hekii, Trench 2, site no. 31-299, sample 21b	-22.77	465 ± 45
Ua-11703	Ahu Hekii, Trench 2, site no. 31-299, sample 33	-22.17	555 ± 50
Ua-11704	Ahu, site no. 31-286, Trench 4, sample 45	-19.81	795 ± 50

Med vänlig hälsning

Göran Possnert

Göran Possnert / Maud Söderman

Postadress	Gatuadress	Telefon 018-182500	Telefax	Telex
Postal address	Visiting address	Direktval 183059		
Box 533	Villavägen 4	Phone + 46 18 182500	Nat. 018 555736	76088
S-751 21 Uppsala	Uppsala	Direct 183059	Int. +46 18 555736	TSLISV-S
Sweden		E-mail: Possnert@tsl.uu.se		

EXPLORATORY POLLEN AND PHYTOLITH ANALYSIS
ON SEDIMENT UNDER THE FOUNDATION OF THE PLATFORM
FOR AHU HEKII

APPENDIX II

By

Linda Scott Cummings
Paleo Research Laboratories
Denver, Colorado

Paleo Research Labs Technical Report 97-16

Prepared For

The Kon Tiki Museum
Oslo, Norway

June 1997

INTRODUCTION

One sediment sample was collected from the area on the north side and immediately under the foundation of the platform extending from the front of Ahu Hekii at La Perouse Bay. Pollen and phytolith analysis were undertaken on this sample to identify local vegetation prior to the construction of this ahu.

METHODS

Pollen

A chemical extraction technique based on flotation is the standard preparation technique used in this laboratory for the removal of the pollen from the large volume of sand, silt, and clay with which they are mixed. This particular process was developed for extraction of pollen from soils where preservation has been less than ideal and pollen density is low.

Hydrochloric acid (10%) was used to remove calcium carbonates present in the soil, after which the samples were screened through 150 micron mesh. The samples were rinsed until neutral by adding water, letting the samples stand for 2 hours, then pouring off the supernatant. A small quantity of sodium hexametaphosphate was added to each sample once it reached neutrality, then the beaker was again filled with water and allowed to stand for 2 hours. The samples were again rinsed until neutral, filling the beakers only with water. This step was added to remove clay prior to heavy liquid separation. At this time the samples are dried then pulverized. Zinc bromide (density 2.1) was used for the flotation process. The samples were mixed with zinc bromide and centrifuged at 1500 rpm for 10 minutes to separate organic from inorganic remains. The supernatant containing pollen and organic remains is decanted and diluted. Zinc bromide is again added to the inorganic fraction to repeat the separation process. After rinsing the pollen-rich organic fraction obtained by this separation, all samples received a short (20 minute) treatment in hot hydrofluoric acid to remove any remaining inorganic particles. The samples were then acetolated for 3 minutes to remove any extraneous organic matter.

A light microscope was used to count the pollen to a total of 100 pollen grains at a magnification of 600x. Pollen preservation in this sample varied from average to poor. Comparative reference material collected at the Bishop Museum Herbarium in Honolulu, Hawaii, as well as publications including Flenley *et al.* (1991) and Selling (1947) were used to identify the pollen to the family or genus level, where possible.

Pollen aggregates were recorded during identification of the pollen. Aggregates are clumps of a single type of pollen, and may be interpreted to represent pollen dispersal over short distances, or the introduction of portions of the plant represented into an archaeological setting. Aggregates were included in the pollen counts as single grains, as is customary. The presence of aggregates is noted by an "A" next to the pollen frequency on the pollen diagram. A plus (+) on the pollen diagram indicates that the pollen type was observed outside the regular count while scanning the remainder of the microscope slide.

Indeterminate pollen includes pollen grains that are folded, mutilated, and otherwise distorted beyond recognition. These grains are included in the total pollen count, as they are part of the pollen record.

Phytoliths

Extraction of phytoliths from these sediments also was based on heavy liquid floatation. Approximately 50 ml of sediment was added to 50 ml of sodium hexametaphosphate (0.1 molar solution) to suspend the clays. The sample was then sieved through 150 micron mesh. The sample was allowed to settle for two hours, then the supernatant was poured off, which contained clay. This settling time allowed the phytoliths to settle to the base of the beaker. The samples were mixed with water, allowed to settle for two hours, and the supernatant discarded several times, until the supernatant was clear. Liquid bleach was added to the sample and allowed to sit overnight to destroy the organic fraction in the sample. Rinses were continued to remove the bleach, then the remaining clays. The last two times the sample is allowed to settle the time is reduced to one hour. This procedure removes most of the clays. Once most of the clays were removed, the silt and sand size fraction was dried. The dried silts and sands were then mixed with zinc bromide (density 2.3) and centrifuged to separate the phytoliths, which will float, from the other silica, which will not. Phytoliths, in the broader sense, may include opal phytoliths and calcium oxalate crystals. Calcium oxalate crystals are formed by Opuntia (prickly pear cactus), and are separated, rather than destroyed, using this extraction technique, since it employs no acids. If calcium carbonates are present, use of glacial acetic may be employed to dissolve the calcium carbonates without destroying any calcium oxalates present. Any remaining clay is floated with the phytoliths, and is further removed by mixing with sodium pyrophosphate and distilled water. The samples are then rinsed with distilled water, then alcohols to remove the water. After several alcohol rinses, the samples are mounted in Cinnamaldehyde for counting with a light microscope at a magnification of 500x.

DISCUSSION

A single sediment sample was examined for pollen and phytoliths that would identify vegetation prior to the construction of Ahu Hekii. The pollen record from the sample collected immediately beneath the foundation was dominated by Palmae (palm family) pollen (Table 1). ~~A single grain of Cocos nucifera was noted, indicating the presence of coconut, as well as another member of the palm family reflected by the Palmae pollen.~~ The single grain of Liliaceae pollen could not be positively identified as Cordyline, but neither could this identification be ruled out. Preservation was not sufficiently good for a positive identification. A single grain of Cyperaceae pollen represents the presence of sedge. Ferns are represented by three types of fern spores. Recovery of tracheary elements probably represents woody plants in the area. None have been identified to family or genus. Pollen concentration was moderate (461 pollen per ml of sediment) and preservation was sufficiently good to identify the majority of the pollen observed.

The phytolith record from this sample was dominated by Palmae phytoliths. Only a few grass phytoliths were noted in the original count. A few dicot phytoliths were observed, but could not be identified to family or genus. After the phytolith sample had been counted to 300

phytoliths, the count was extended to 75 non-Palmae phytoliths. This provided a pattern of subdominance by grasses. Cool season (Festucoid) grasses that produce sinuate elongate forms were most abundant. More than one Festucoid grass may be represented, as crenate forms also were noted. In addition, a single Chloridoid saddle form was observed, indicating that short grasses were present. Pillow forms, elongate smooth and spiny, and trichomes are general grass forms that do not provide more specific identifications. The dicot forms recovered are not produced by any of the plants represented in the pollen record and remain unidentified.

Phytoliths are silica bodies produced by plants when soluble silica in the ground water is absorbed by the roots and carried up to the plant via the vascular system. Evaporation and metabolism of this water result in precipitation of the silica in and around the cellular walls. Opal phytoliths, which are distinct and decay-resistant plant remains, are deposited in the soil as the plant or plant parts die and break down. They are, however, subject to mechanical breakage and erosion and deterioration in high pH soils. Phytoliths are usually introduced directly into the soils in which the plants decay. Transportation of phytoliths occurs primarily by animal consumption, man's gathering of plants, or by erosion or transportation of the soil by wind, water, or ice.

Types of grass short-cell phytoliths recovered from this site include festucoid and chloridoid. Smooth elongate phytoliths are of no aid in interpreting either paleoenvironmental conditions or the subsistence record because they are produced by all grasses.

The festucoid class of phytoliths is ascribed primarily to the subfamily Pooideae and occur most abundantly in cool, moist climates. However, Brown (1984) notes that festucoid phytoliths are produced in small quantity by nearly all grasses. Therefore, while they are typical phytoliths produced by the subfamily Pooideae, they are not exclusive to this subfamily. Chloridoid phytoliths are found primarily in the subfamily Chloridoideae, a warm-season grass that grows in arid to semi-arid areas and requires less available soil moisture (Gould and Shaw 1983:120).

Phytoliths referred to as "pillows" are the same as those reported by Rovner (1971). While these phytoliths are described, no taxonomic nor environmental significance has been assigned. They most probably represent grasses. Other grass phytoliths recovered in this study include trichomes -- produced by the glumes or bran surrounding grass seeds. Dicots are represented by two unidentified forms.

SUMMARY AND CONCLUSIONS

Pollen and phytolith analysis of a single sample collected beneath the foundation of Ahu Hekii on the north coast of Easter Island at La Perouse Bay yielded overwhelming evidence of the presence of palms (Palmae). ~~In addition, specific presence of coconut (*Cocos nucifera*) was recorded in the pollen record.~~ Small quantities of sedges (Cyperaceae), a member of the lily family (Liliaceae), cool season grasses, short grasses, and at least one unidentified dicotyledonous plant are represented in the remainder of the pollen and phytolith samples.

TABLE 1
 POLLEN COUNT FOR AHU HEKII

Scientific Name	Common Name	Pollen Counted
Palmae	Palm family	91
Cocos nucifera <i>Palmae</i>	Coconut <i>Palm</i>	1
Cyperaceae	Sedge family	1
Liliaceae	Lily family	1
Indeterminate	Too eroded to identify	6
Angular starch with multi-cracked hilum & X		1
SPORES:		
Monolete bumpy	Fern	3
Monolete smooth	Fern	14
Trilete smooth	Fern	6
TRACHEARY ELEMENTS:		
Periporate		12
Large		23
Whole, 35 micron		1
POLLEN SUM:		100
POLLEN CONCENTRATION:		461

TABLE 2
PHYTOLITH COUNT FOR AHU HEKII

Scientific Name	Common Name	Original Phytolith Count	Original Phytolith Percent	Second Phytolith Count	Second Phytolith Percent
Palmae	Palm family	291	95.4		
Poaceae:	Grass family				
Elongate smooth		5	1.6	52	50.5
Elongate spiny				2	2.0
Pillow		1	0.3	1	1.0
Trichome				2	2.0
Festucoid types:	Cool season grasses				
Crenate		3	1.0	3	3.0
Elongate sinuate				14	13.6
Chloridoid	Short grasses			1	1.0
Dicot, 3-dimensional, long		4	1.3	20	19.4
Dicot, 3-dimensional, trapezoid		1	0.3	8	7.8
Phytolith sum*		305	100.0	103	100.0

* Percents may not add to 100.0 due to rounding

REFERENCES CITED

- Flenley, J. R., A. S. M. King, J. T. Teller, M. E. Prentice, J. Jackson, and C. Chew
1991 The Late Quaternary Vegetational and Climatic History of Easter Island. Journal of Quaternary Science, Vol. 6:85-115.
- Selling, Olof H.
1947 Studies in Hawaiian Pollen Statistics: Part II, The Pollens of the Hawaiian Phanerogams. B. P. Bishop Museum Special Publication 38, Honolulu, Hawaii.



THE KON-TIKI MUSEUM FIELD AND ARCHIVE REPORT SERIES

Thor Heyerdahl's Research Foundation

VOLUME 1: Archaeological Excavations at the Ahu Heki'i Complex,

La Perouse Easter Island, October–November 1996

Paul Wallin and Helene Martinsson-Wallin, 1997, 15 pp

VOLUME 2: Archaeological Excavations at the Ahu Ra'ai,

La Perouse Easter Island, October–November 1997

Helene Martinsson-Wallin, P. Wallin and R. Solsvik, 1997, 10 pp

VOLUME 3: Archaeological Excavations on Christmas Island,

The Republic of Kiribati, Central Pacific, August-September, 1999

Paul Wallin and Helene Martinsson-Wallin, 2000, 12 pp

VOLUME 4: Marae Suvery (2001-2002),

(Huahine and Mo'orea)

Paul Wallin and Reidar Solsvik, 2003, 113 pp

VOLUME 5: Test Excavation of Marae Sch-2-62-3 and Sch-2-65-2,

Te Ana, Maeva, Huahine, French Polynesia, August 2002

Reidar Solsvik, 2003, 23 pp

VOLUME 6: Test Investigations at the Pulemelei Site,

Vaitoa, Savai'i, Samoa (September 12. to October 10.), 2002

Paul Wallin, Geoffrey Clark and Helene Martinsson-Wallin, 2002, 50 pp

VOLUME 7: Preliminary Report and Further Perspectives

Concerning the Archaeological Investigations at Pulemelei, Savai'i, Samoa

Helene Martinsson-Wallin, 2003, 29 pp

VOLUME 8: Excavations of on Habitation Site and Various Marae

Structures on Land Fareroi, Te Ana, Tehu'a, Tearanu'u and Tetuatiare in Maeva,

Huahine, Society Islands, French Polynesia, 2003

Paul Wallin, Eric Komori and Reidar Solsvik, 2004, 114 pp

VOLUME 9: Test Excavations of Marae Structures on Huahine,

Society Islands, French Polynesia, October and November 2004

Paul Wallin and Reidar Solsvik, 2004, 31 pp

VOLUME 11: Drift Voyages across the Mid-Atlantic

Richard T. Callaghan, 2009, 19 pp

VOLUME 12: MANUAL - Collections, archives and library

Reidar Solsvik, 2017, 79 pp

VOLUME 13: Edwin N. Ferdon Archive - Detailed ICA Description

Paloma Lopez Delgado, Marit Bakke, Reidar Solsvik, 2017, 79 pp

VOLUME 14: Beng Emmerik Danielsson - Preliminary Detailed ICA Description, August 2017

O.E. Johannes Stenberg, Anton Öhman, Reidar Solsvik, 2017, 79 pp