

PETROGLYPHS
& HAWAIIAN ISLANDS

G. H. BALAZS FILE



B I S H O P M U S E U M

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April 20, 1984

Dr. George Balazs
P. O. Box 3830
Honolulu, Hawaii 96812

Dear George:

I had never heard of turtles in Hawaiian fishponds until I called Mr. Yee Hee, whose father tended He'eia Fishpond in the 1920s. In a telephone conversation this morning, he told me that his family usually had three or four turtles in the pond. They put them in when they were about 1½ feet in diameter and they grew to be "very big." They do stir up the bottom of the fishpond because they like to hide in the mud, and when they dig themselves a place in the mud it stirs it up and keeps the pond from getting stagnant. Yee Hee doesn't think that they eat that much limu. He believes weke eat more limu, and they and mullet do help to stir up the mud bottom, too. He described turtles making a hiding place in one spot, and then leaving it and going to another, and so on, until they have stirred up quite a few spots.

If you wish to talk with Yee Hee yourself, he is in the phone book. Office: 537-1572; home: 595-2352. He was a young boy when his father leased the pond from Bishop Estate, but he remembers quite a lot about it. I have a small report the museum published in 1975: Loko I'a O He'eia: He'eia Fishpond (Report 75-2), Department of Anthropology, Bishop Museum. Much of the material in this report is from Yee Hee. Somehow I never asked him about having turtles in the pond, so he never thought to mention them.

Hope this is helpful.

Cheers,

Marion Kelly

Opening Prayer for the Hula Pahu

Ke akua uwalo i ka la'i e,
E hea wale ana iluna o Puaa-
hulu-nui,
Ke akua pee i ka lau kiele,

O'u makua i kui lei,

E kui no oe a e lei no makou a.

The god who shouts aloud in the calm,
Is calling from the heights of Puaa-
hulu-nui,
This is the god that conceals himself
amidst the kiele leaves,
Who strung the wreaths (of honor) for
our forefathers to wear.
String us wreaths that we, too, may wear.

Kalani Kamanomano

Eia o Kalani ka-manomano
Ka manomano heke o ke kapu,
Ka honu peekua wakawaka,
Pipii ka unahi ma ke kua,
Hiolo ka unahi ma ke alo,
Ma ka maha opi o Kalani;
Kalani ka hiapo, kama kapu,

Hanau mua o Hawaii,
Ka ilio nukea ma ka lani,
Eia la ke o nei.

Here is our chief, our sacred one,
He of the strictest kapus.
A turtle with a horny shelled back,
With scales up the back,
Scales down the front,
Close to his wrinkled jowl.
The chiefess is his first-born child,
a sacred child,
First-born chiefess in Hawaii,
A white-fanged dog in the heavens,
We sing of her always.

This hula chant was said to have been composed by a god. This is the legend to which it belongs:

A beautiful young, kapu chiefess of Kauai was noticed to be continuously drowsy all day and when night fell, she was eager to retire into her private sleeping house and go to sleep.

Her father questioned her, but finding no satisfactory answer, consulted his kahunas. They told him she was in love with a sea god and that if he wished to see him for himself to set guards at intervals from her house to the shore. These guards were to maintain a perfect silence and when the god left just before the break of dawn, to gesture to the next one farther on when he had passed.

The chief and his kahunas were on the shore to see which form he would take before going out to sea.

Just before the dawn, a hand was seen to move to one side the mat that covered the doorway of the chiefess' sleeping house and a handsome youth emerged. He walked quickly to the beach and there he vanished. As he passed, a guard signaled by gesturing to the next guard that he was going that way.

The watching chief saw the youth vanish among the vines that grew over the sand and soon a huge, scaly and thick shelled turtle was seen to move toward the sea and swim away.

The following night the chiefess waited in vain for her loved. He did not come in person but instead he appeared to her in a dream and said, "You will never see me any more for I was seen by many eyes when I left you last night. When our child is born name her Honu (Turtle) for me. Listen, this is the name chant that you must sing for her and for her descendants, for she is both of divine and royal rank." This is how the chant "Kalani kamanomano" came into being.

The hula pahu was and is a hula of dignity and never danced for the pleasure of a ribald crowd.

Kamakau, in his story of Kamehameha I, tells of Kaahumanu's rank and of her descent from the high chiefs of Hawaii, Maui, Oahu, and Kauai and ends it with this phrase, "He honu peekua wakawaka o Kaahumanu," (a thick shelled turtle was Kaahumanu) or in other words, a descendant of this turtle god.

In the olden days the priests scanned the sky for signs and omens, and if the ever-changing clouds assumed the shape of a dog with bared fangs facing the land with tail on the seaward side, it foretold the coming of invaders that would slaughter and abuse the people, but if the dog-shaped cloud faced the sea with fangs bared, then the inhabitants, under the leadership of their

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hula

HISTORICAL PERSPECTIVES

by

Dorothy B. Barrère

Mary Kawena Pukui

Marion Kelly

An exposition of the hula as described and depicted from the period of first European contact to modern times, including: the hula in myths and legends, with particular attention to Hi'iaka; records of performances in the 18th and 19th centuries, with contemporary illustrations; essays by Mary Kawena Pukui, with texts of ancient chants and descriptions of early 20th century performances; an assessment of the Kē'ē sites, traditionally associated with hula, and of their use by present-day performing groups on Kaua'i, the island that receives considerable emphasis in this volume.

January 1980

PACIFIC ANTHROPOLOGICAL RECORDS NO. 30

Department of Anthropology
Bernice Pauahi Bishop Museum
Honolulu, Hawai'i

UNIVERSITY OF HAWAII LIBRARY

The following old Kauai kalaau chant points out an excellent moral:

Ahuwale Ka Mamane*

Ahuwale e ka mamane kau i ka laau,	The mamane berries in full view on the bush
Ke kaohi ala ka wahine kapu a,	Were plucked by the sacred woman.
Na ka manu e ai	(She was taunted for) eating the food of birds,
Ai lahui....	Food of which the birds are fond.
Lahui aku ia po.	(She) met (her tormentors) there at night.
Hookaawale i ke alo na'u e moe,	(And said) "Turn your faces away and let me sleep.
Moe aku au, paio olua,	While I sleep you may continue your quarrel,
Loaa kauhale ka imu ai ole.	(But) you'll find that it brings no food to your homes and imus.

The sacred woman referred to here was Pele who came to Kauai from Kahiki. Seeing the pretty berries, she went up the hillside to pluck them. There she met two quarrelsome woodland sprites who had come from Kahiki with her and her family some time before. One of them was named Kaumu-pue. He and his companion not only quarreled continuously themselves, but tried to arouse her ire by taunting her for eating bird's food. She was tired after her climb and so decided to sleep rather than pay attention to their foolish chatter. Before sleeping she said, "Turn your faces away so that I may sleep. Quarrel if you must, but those who spend their time in quarrel often find no food to put into their imus."

The ka-laau dancers of today use neither treadle board nor stone, and only two small sticks about six or more inches in length held one in each hand. The dancers either kneel while beating time with the sticks or use steps that are a cross between the two-step and the olapa. The ka-laau of today is somewhat lively and rather pretty.

Keahi knows also another hula ka-laau of Kauai called Kinau's house, Ka Hale Kinau, a very sacred one danced only on the night of Kane.

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7. The Drum Dance

To Kauai from far-off Kahiki came Laa to see his father Moikeha. With him came the first drum ever seen in these islands.

The natives on Oahu heard the sounds of his kaeke or bamboo instruments, his pu-niu (coconut drum) and pahu (big drum) as his canoe passed along, and were delighted with their sounds. A man ran along the shore of Oahu from Hanauma to Waimanalo to keep within earshot of Laa's drums. So at that time (about six hundred years ago) the hula pahu or drum dance came to Kauai. From thence it branched out to the other islands.

Laa-mai-Kahiki landed at a small canoe landing called Ahukini, a little south of Hanamaulu bay and the present Ahukini landing. His drum was taken to the heiau of Ka Lae o Ka Manu at Wailua. This is the heiau restored recently by the Kauai Historical Society.

*This particular chant, the animal chants, the drum chant, the image chant, and the name chants to Renown Sylvester and Keahi's great grandmother belong to the family of Keahi Luahine; i.e., they are kapu to all others who have not been given permission to use them. The reader is requested by the author to respect this kapu, as was done traditionally by Hawaiians.

REPRODUCED BY THE HAWAIIAN HISTORICAL SOCIETY

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 Comment: Dislike of being black is reflected in this tale, and indirectly by the loud laughter of the people as King David recited the tale into the recording machine.

"The Bonito and the Box-Fish"

The bonito suggests a bath to the box-fish and that they leave their tails on the shore. The bonito quickly finishes and carries off the box-fish's tail. The box-fish protests but the bonito says the other tail was bad, he couldn't paddle fast enough with it. The bonito goes with the big tail to the open sea to hide from the box-fish, who with the little tail has to stay ever after on the reef.

Indiana University,
 Bloomington, Indiana

The Transition tale of
 the female spirit who
 inhabited the form of Tui's wife

By Kenneth L. Emory

Emory

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SONGS (MELES) OF OLD KAU, HAWAII*

By MARY KAWENA PUKUI

THE HAWAIIANS were lovers of poetry and keen observers of nature. Every phase of nature was noted and expressions of this love and observation woven into poems of praise, of satire, of resentment, of love and of celebration for any occasion that might arise. The ancient poets carefully selected men worthy of carrying on their art. These younger men were taught the old *meles* and the technique of fashioning new ones.

There are many interesting characteristics of Hawaiian poetry. The lines were not always of the same length. This unevenness did not destroy the rhythm or smoothness of the flow because there was never any attempt at rhyming at the end of lines. Kalakaua was the only Hawaiian to attempt a poem with rhyming words.

But a far more interesting characteristic was the importance of the meaning of words and thought. It is difficult and unnecessary to consider the meaning of words separate from the meaning of expressions and I shall consider them as one subject.

Poets were skilled in the use of words. Carelessness in the choice of words might result in death for the composer or the person for whom it was composed. For instance, *lua* means "two," and it also means "pit." Pit is associated with death, and is therefore a word to avoid using, or to use with caution. *Lua* was often used in combination with another word to modify or make more clear and definite the meaning as *lua ole* (incomparable). Another word that was carefully used was *hilo*. When used alone it means "to be taken away." Combined with other words it is robbed of this dangerous meaning, as *i uka hilo* (away up inland). I remember hearing of the sudden death of a woman who had used the word *hilo* carelessly in a birthday chant she had composed.

Words and word combinations were studied to see whether they were auspicious or not. There were always two things to consider: the literal meaning and the *kaona*, or "inner meaning." The inner meaning was sometimes so veiled that only the people to whom the chant belonged understood it, and sometimes so obvious that anyone who knew the figurative speech of old Hawaii could see it very plainly. There are but two meanings: the literal and the *kaona*, or inner meaning. The literal is like the body and the inner meaning is like the spirit of the poem.

There were two directions that the *kaona* might take. First, it might concern itself with the statement made, what is meant, or, secondly, with the person to whom it refers, who is meant. Many a time I have heard my relative laugh and ask, "For whom was that?" In the following example to illustrate a *mele* subtly referring to persons there is still another characteristic of Hawaiian poetry to speak of. Many poems did not hold to one thought alone. Two lines might be about the beauty of a particular place and next about a

that perched on a tree. Such sudden and apparently fickle changes in light might sound peculiar and jerky to a European. But to the Hawaiians as comprehensible because the *kaona* told the straight, consecutive story, though dressed in a garb of colors that did not seem to match. Persons were sometimes referred to as rains, winds, ferns, trees, birds, ships, and so on. A son might be referred to in the same poem as rain in one place and as wind another. To illustrate how people were referred to as ferns, a tree, wind and so on, I will use a chant composed over half a century ago:

"Ka Iwalani"

Kaulana e ka holo a ka 'Iwalani,
 Ke ka'upu hehi 'ale a o ka moana.
 'Aole i ana iho ko'u makemake,
 I na 'iwa'iwa o ka uka o Ha'ao.
 I ahona Honu'apo i ka lau niu,
 I ka holo i ke ahe a ka makani.
 Aia i Punalu'u, ka'u aloha la,
 I ke kai kaula'a a ka malihini,
 Ke huli ho'i nei, o ka 'Iwalani,
 E'ike i ke kai malino a o Kona.
 No Kona ka makani, he kula'i pau,
 Kiki'i kapakahi o ka 'Iwalani.

Well liked is the sailing of the Iwalani,
 Moving like a sea eagle over the waves.
 Endless indeed is my admiration,
 For the maiden hair ferns of Haao.
 Honu'apo is made pleasant by the coconut leaves,
 That sway with the waiting of the breeze.
 Over at Punaluu is the one I love,
 Beside the dancing sea, the delight of visitors.
 Now the Iwalani is on its homeward way,
 To the smooth sea of Kona.
 To Kona belongs the gusty wind
 That heels the Iwalani over to its side.

The *Iwalani* was a ship that came with passengers and freight to the ports of Kau in the olden days, when my mother was a child. The captain was a handsome part-Hawaiian, well liked and quite a lady's man. It was he who was referred to in the chant as the *Iwalani*, and not his ship. The maiden hair ferns were two beautiful girls that lived near Haao, and the coconut of Honu'apo was none other than a very tall, slim girl who looked frail enough for the wind to blow about. The loveliest of all was the Punaluu girl, whom I remembered as a fine looking old lady. On his return to Kona, his girl there heard of his friendship with the beauties of Kau and stormed in her wrath. Hence the wind that heeled the *Iwalani* over on its side. Every one of these Kau women was related to my mother. The *kaona* in this *mele* is concerned in relating the characters even more than the happenings.

though one person were spoken of, but in reality there were three. If someone who did not know the background should attempt to explain it, I fear that he would see not three but one girl. This is the first part of the poem:

Kahikahi lenalena,
 Kukulu aniani,
 Heaha ka hana a Pawela,
 O ka 'o'e o ke 'owala.
 Pipi onu 'oo,
 Pono 'ole i ka palau,
 Oehu i ke kula o Kaunamano.

Lazy, lazy little girl
 Standing before a mirror.
 What does Pawela, the cow, do?
 She hooks and balks.
 Such an unruly cow,
 Useless to hitch to a plow.
 She gambols over the plain of Kaunamano.

The lazy person was my grandmother, who as a child, had everything done for her by a doting stepfather who raised her from babyhood. "Standing before a mirror," referred to her cousin, Keohopukai, who was beautiful and knew it. Like Narcissus in the old Greek mythology, she liked to gaze at herself in admiration. Pawela was the name given to a pet cow that belonged to a cousin, but the "Pawela" of the poem was still another cousin, Kauhewa, a much older girl, who did not care about marrying and settling down. She balked at any proposals and it was not until she was in her thirties that Pawela was at last "hitched to a plow."

The *kaona* of a chant was believed to be potent enough to bring lovers together, to mend broken homes or to break up an undesirable union. A good composer of such chants was as highly considered as a *kahunua kama aloha*, or *kahunua* (magical expert) that called upon the love gods to attract one to the person who consulted a *kahunua*, and asked for his intercession. But the *kaona* of a chant was ineffective unless chanted before a gathering of people (*oia a pua ka mele i waho*), and so the composer looked about for such an opportunity. Birthday celebrations were especially liked for the debut of a chant.

A relative of mine, of my grandmother's generation, had a lover who was very dear to her. He came to Honolulu and forgot to return after finding another sweetheart in town. She promptly composed a poem in which she used many words meaning to bind, to make fast, to nail down securely, and wove them into a poem for hula dancing. She chanted it at the first birthday party of a cousin, and so delighted her hearers that she was asked to repeat it several times. In the meantime, a feeling of restlessness came over her lover in Honolulu. A longing to see his Kau sweetheart seized him, and he took the first boat to Hawaii. He could hardly wait to marry her.

A poem with words of innocent sound may hide within it as good an example of untranslatable vulgarity as can be found anywhere, while perhaps,

Ke 'onu mai la ka 'omaka wai i ka uka o ka nahele,
 I ke kumu o na pali.
 O kolo wekeweke; o kolo makani,
 Makani hawele i na po'opo'o.
 I helu aku au ekolu ka mino
 Kauna i ke a'a e kolo ana,
 Kumamakahi i ke a'a lewalewa
 He wahine, he wahine po'owai no Waipahoehoe,
 No Kapua'iakua, no ka uai aku,
 Iluna ka hoanu e,
 A hoanu a'e 'oe i 'ike i ka mea e no,
 Ke ka'e hamani, hamani 'ele'ele,
 Ka ua i Lalawali.
 Heaha ka mea 'ele'ele?
 Papa'a 'uwala pulehu na ka 'ilio,
 Heaha ka mea 'eu la 'ula?
 He kahu'i kalamea,
 Noho ka puhohono i na pali,
 Noho ka enaena i na kapakapa,
 Ki'alo oi e, po'alo oi e.
 O kamalii o Kapali'iuka,
 Kai hole nei a ka paoo e.
 Ae, kainano ia; ae, kai wili ia.

The murmuring of the water from its source is heard in the upland forest,
 At the foot of the cliffs.
 Winding in and out, moving with the wind,
 The wind that blows down into the hollow places,
 Let me name the three small gullies,
 With the four roots crawling across,
 The eleven roots that hang loose.
 She is a woman, a woman that splashes the waters from Waipahoehoe,
 [And] from Kapua'iakua, farther on.
 Up above, there is an awesome sight,
 Up above is the awesome sight you see,
 Along the sheer precipices, the black and smooth precipices,
 Carrying along the rain to Lalawali.
 What is that black object?
 Burnt and blackened sweet potatoes for the dog.
 What is the red, movable object?
 Something that is overcooked and spoiled,
 The burnt odor reached up to the cliffs,
 Permeating the air on every side.
 Scrape it out, scoop it out!
 The children of Kapali'iuka
 Go to the shore where the paoo fish dart about.
 Yes, they dragged the (burnt food) along.
 Yes, it did smell strong.

About a hundred or more years ago, a man heard an insulting remark about
 the children. The inner meaning is so

granddaughter, this beautiful piece of vulgarity is our very own and is never used except as an insulting reply when similarly insulted. A tit for tat, as it were.

The other chant, though sounding obscene, was not at all so. It is a dialogue chant, one questioning and the other answering. I have heard it chanted outside of our home only once, and that was when my aunt resented the remark that a relative of ours was *pilau* (stink). The other chant just given is a chant of insult, but this one is a chant of resentment. It has been handed down for generations. I know only a small part of this long chant:

Hu hui nowai ka pilau?
 No Naheana a 'Owalawahie ka pilau.
 'Aole. 'Aole nona ka pilau.
 Hu hui nowai ka pilau?
 No Naheana a Haupu ka pilau.
 Ae. Nona i'o ka pilau i lohe 'ia.
 Hm! whose stinking odor is it?
 The stinking odor belongs to Naheana, wife of Owalahahie.
 No! The stinking odor is not hers.
 Hm! whose stinking odor is it?
 The stinking odor belongs to Naheana, wife of Haupu.
 Yes. The stinking odor is indeed hers, for I have heard it to be so.

Owalawahie was a Puna chief and Haupu was Kau's chief. They were contemporaries and married to women who were related and bore the same name. The Naheana of Kau had a beautiful skirt made and put away to perfume. Before the *weake* (paper mulberry) odor was thoroughly removed, an occasion arose that made Naheana put on her new skirt. At the feast someone remarked that she stank and her attendant was so resentful at such rudeness that he composed and chanted this poem.

There are some poems that have no inner meaning, and to read such meaning into them is folly. One of these is the *mele inoa*, or song of praise of our beloved *alii* (chief), Kukakee.

'Aole au i makemake ia Kona,
 O Kau ka'u
 O ka wai o Kalac e kahe ana i ka po a 'ao.
 I ke kapa, i ka 'upi kekahi wai,
 Kulia i lohe ai he 'aina wai 'ole.
 I Mana, i Unulau ka wai kali,
 I ka pona maka o ka l'a ka wai aloha e,
 Aloha i ka wai malama a kane
 E hi'i ana ke keiki i ke hokeo,
 E hano ana, e kani 'ouo ana,
 Ka leo o ka hawaii i ka makani,
 Me he hano puihala i ke aumoe,
 Ka hoene lua a ka ipu e o nei.
 E lono i kou pomaika'i, Eial
 Mamuli o kou hope 'ole, okoa ka ho'i.

Journal of American Folklore

Aloha 'ino no ka ho'i ke kau mamua.
'U'ina 'ino noho'i ke kau i hala aku nei.

I do not care for Kona,
For Kau is mine.
The water from Kalae is carried all night long.
(Wrung) from tapas and some from sponges.
This land is heard of as having no water,
Except for the water that is waited for at Mana and Unulau,
The much prized water is found in the eye socket of the fish,
The water prized and cared for by the man,
The child carries a gourd container in his arms.
It whistles, whistles as the wind blows into it,
The voice of the water gourd is produced by the wind
Sounding like a nose flute at midnight,
This long-drawn whistling of the gourd, we hear.
Hearken, how fortunate you are!
There is no going back, (our) ways are different.
In childhood only does one regret in secret,
Grieving alone.
(Look) forward with love for the season ahead of us.
Let pass the season that is gone.
A name chant for Kupakee.

We of Kau know what a dry land it was. Much more so than it is now with the waters drawn from our upland springs and piped to all the plantation villages. The people depended on brackish pools at the sea shore, the undercaves, or water in the few caves that were scattered far and wide over the plain. Most of the water came from the mountain springs many miles from the shore. As soon as a child was old enough to carry a water bottle he was given one and went along with the older folks to fetch some for himself. Water was so prized that after a shower, water caught in the eye socket of a fish's skull, in hollow stones, or any container that was clean and free of soil was collected together and saved.

The district is very windy and the wind blowing into the necks of the water bottles produced a whistling sound.

To my way of thinking when a poem gives in its literal meaning a picture as clear as does this name chant of our beloved chief, there is no need to dig deeper for an inner meaning. None is there, none was intended.

As we move farther off into modern times from ancient times it is increasingly difficult to understand the *kaona*. We have left the old atmosphere and associations, and it is no longer possible to re-create them. We must be sort, therefore, to hold fast to what is true, preserve what is actual knowledge, and take care not to do any dangerous guessing. Unless the *kaona* has been handed down as a record, written or oral, so that we have it as the ancient poet intended, it is wiser to stick to the literal meaning. Guessing only makes confusion and one may make the mistake of putting into it some thoughts that

means it should be given, so that the obscure passages be made more comprehensible.

Let us leave the digging of the inner meaning for such poems at this one which expressed the disgust of a Kau man for the unfaithfulness of his wife. Although it refers to some modern implements, it is over three-quarters of a century old.

'Iho ka palau a 'eku ilalo,
Pi'i ke puna a me ke 'o hala kau i luna.
Huhulu-i'i ka hulu o na manu
I ka ua kakahiaka.
Akaka wale no kau mai ka 'ohu,
'Ohu'ohu Punalu'u i ka Wai-hu-o-Kauila,
I ho'owali 'anapau ia e ke kai o Kamehame,
'Aohu hemeheha o ka pali o Pohina,
E kahiko ia nei e Waiohinu.

The plow digs down to root into the earth,

The spoon and the fork go up.

The feathers of the bird are ruffled

In the morning rain.

The mist above is clearly seen.

Punaluu is adorned by the gushing spring of Kauila

Which is stirred up by the sea of Kamehame.

There is nothing that the cliff of Pohina lacks,

It is bedecked by Waiohinu.

The implements, plow, fork and spoon, refer to the affair between his wife and her lover. The bird with ruffled feathers was the untidy appearance of the woman as she met him in the morning rain. Her husband saw her trickery as he saw the mist gathered above. The gushing spring of Kauila which adorned Punaluu was another reference to her, and the agitated sea of Kamehame referred to her lover. The husband proudly boasts of himself as the cliff of Pohina that lacked nothing. He is bedecked by Waiohinu, or in other words, he has already set his heart on another woman, after seeing his wife's unfaithfulness to him. Woven through this poem are some gross examples of vulgarity.

Among the chants collected by Helen Roberts' is a chant from Kau, about sixty years old. The proper names were not capitalized and question marks were put in where the recorder failed to understand. That was not the fault of the recorder as he did not know the people being referred to or anything about them. But I do know, for the Kanakaole mentioned in the chant was my mother's father and Ke-kipi-o-Hailliani, his younger brother.

E o e Ka-lawai'a-holona-i-ke-kai-o-Manaka'a,

Ku mai o Kanaka'ole ka mea iaia ka uba'i o ka 'ulei,

E ho'omakunau kakou oi kau ka la i luna,

O waiwai 'ole o Alakahu-i-ke-Kupa'ai,

O Ke-kipi-o-Hailliani ka i ke kua'u'ako,

... o Lumahelhei ka i ka'a i 'o
uuna ka maku o ka i'a,
kukui, shuwale lalo, 'ikea ka i'a a ka holona,
mai ua lawai'a nui nei, e ke keiki pehea au,
a uka, pakahi, palua, pakolu,
i o Kapule ka mea iaia ke ka'i o ka 'aha,
o-kamanomano ke ka'ika'i i na ipu,
nai'uki ke konikomi ma ka paia,

...

...a-kapu-kane 'ole'ole,
i ka hikiwawe Keawehano,
ku la ka uka ma'ulukua i ka i'a a ka holona
mai o Pamaho'a ia Kanakaole, "Ua hei ia 'oukou ka i'a?
hei ia makou ka i'a, ho'okahi lau me ke ka'au keu elua
i o Kahalikia-ka-manomano,
sipe'a, ka 'imi pono o na kaikua'ana,
no he mamo lawai'a; he mamo mahi'ai
i i ka la me ka ua,

...ewa ua lawai'a nui nei i o'o ka lae i mino ka papalina,

...ho la i ke a makapouli o ku'u 'aina,

...ai o Ka'wai-uhu.

...nai na keiki lawai'a nui a Kaha'i-moku,

...Pehea la ka i'a o Manaka'a?"

...u lawai'a nui nei, "A'ohē i'a, he i'a na ka holona."

...no he lawai'a nui i 'ole ka 'ai i ka pipipi i ka hulalilali,

...ka waha o ua lawai'a nui nei.

...anoa pakolu keia o na makua o'u i hea ai i ku'u keiki,

...lawai'a holona kona, o ka inoa ko ia nei a.

...li he makua, e o a.

er, O Ka-lawai'a-holona-i-ke-kai-o-Manaka'a (The unskilled-fishermen-at-sea-of-Manaka'a).

...kaole, who held the native rosewood rod stands forth,

...ng). Make ready while the sun is still above,

...Alakaihu-i-ke-Kupaa'i be without (fish).

...pipi-o-Hailiani was at the place where the outrigger boom joined the canoe.

...i and Lumahelhei sat beyond him.

...pyes of the fish were blinded (by the light),

...kukui nuts were blown into the water, [on] the sea floor could be seen the fish the unskilled ones.

...great fisherman called out, "My boy, how about me?"

...twice, thrice they went ashore.

...lule, who was in charge of the guide line stood forth,

...o-ka-manomano was in charge of the containers.

...uki patted along the sides (of the net)

...ite) Kalua-kapu-kane talked incessantly.

...quick one, Keawe-hano, stood forth,

...the news of the fish of the unskilled ones had reached inland.

...aho'a asked Kanakaole, "Did you catch any fish?"

...s, we have caught four hundred and eighty."

...aliku-ka-manomano stood forth,

...who was interested in the affairs of her elder sisters.

...are not the descendants of fishermen but of farmers

That farmed in the sun and the rain.
The great fisherman with strong forehead and wrinkled cheeks was mistaken
And ran over the blackened lava beds of my land
To the sea of Ka-wai-uhu.

The sons of the great fisherman, Kaha'i-moku,

Asked, "How is the fish of Manaka'a?"

The great fisherman denied that there was fish,

"There is none, except for the unskilled."

No great fisherman had even gone without eating the pipipi shell fish of the shiny lava rocks.

These have filled the mouth of the great fisherman.

The name given to the child was for her three "fathers" (uncles and fathers)

They were the unskilled fishermen, but the name is hers,

Huli was her mother—O answer to the name chant.

Keawe-hano was a noted fisherman and is referred to here as "the quick one." When the three Waikapuna men, Kanakaole, Ke-li-ki-pi-o-Hailiani, his brother, and Kawelu, his cousin, began to fish in the sea of Manaka'a and outside of Kawaiuhu, Keawe-hano made fun of them and called them the unskilled fishermen of Manaka'a. Kanakaole, who was a *kahunā* (medicine man) for the chiefs, began to offer prayers to a female *aumakua* (family god) who lived in the sea. It was said that she answered his prayers by giving him quantities of fish which he caught for his chief, Alakaihu.

When the first great haul of fish was caught at Manaka'a, Keawe-hano forgot his unkind words and in his excitement ran to help so that he might be given some.

Not long after this event, Huli-o-ka-manomano (mentioned in the chant) gave birth to the little girl. This was her name chant and she was named The-unskilled-fishermen-at-the-sea-of-Manaka'a. Kawelu was the husband of Huli-o-ka-manomano.

Years later, after this little girl had grown up and married, she gave birth to a stillborn baby. Kanakaole placed the child in a large calabash, held the calabash up to catch the warmth of the sun, and prayed that she would live. The baby stirred and cried and it was he who named her, "Hana-u-maka-o-Kalani" (Kalani-who-was-born-from-an-eye), for a shark *aumakua* who was born from his mother's eye.

Chants "belonged" to the person, or the family of the person to whom they were dedicated and for whom they had been composed. Others were not allowed to use them, except to repeat them in honor of the owner. It was just as much criticized, just as serious a crime as plagiarism is in European literature. In order to preserve chants, however, it was sometimes necessary to take old chants belonging to persons long since passed away, and revise and rededicate them to living persons in that family. An instance of this is Kalaua's taking the Kau chants of Naihe and having them adapted for himself. These were composed by an aged poetess. They were grand chants. One of them I shall give, in part.

Naihe was an expert surf rider and this made some of his fellow chiefs jealous. At their suggestion, a surf riding contest was held in Hilo, in which all the chiefs participated. Naihe came from Kau with two of his attendants,

an old woman, a chanter. The journey was slow and the contest had been when he arrived. The old woman went to sleep when Naihe joined the s. Not until Naihe was already in the water was he told of the rule that one was to come ashore unless his chanter stood on the shore to chant his chant. This was a plot to keep Naihe in the water, in order to be rid of All the chiefs had their chanters with them except Naihe. A Puna chief compassion on Naihe and secretly sent his servant to waken the sleeping an. When she heard of her master's plight, she hurried to the beach and, tears streaming down her cheeks, chanted his surf chant. The poem is I am giving only a part of the translation here:

The great waves, the great waves rise in Kona,
Bring forth the loin cloth that it may be on display.

The ebbing tide swells to set the loin cloth flying.

The loin cloth, Hoaka, that is worn on the beach,

It is the loin cloth to wear at sea, a chief's loin cloth.

Stand up and gird on the loin cloth

The day is a rough one, befitting Naihe's surf board,

He leaps in, he swims, he strikes out to the waves,

The waves that rush hither from Kahiki.

White capped waves, billowy waves,

Waves that break into a heap, waves that break and spread.

The surf rises above them all,

The rough surf of the island,

The great surf that pounds and thrashes

The foamy surf of Hikiau.

It is the sea on which to surf at noon,

The sea that washes the pebbles and corals ashore . . .

one can find four meanings to this poem or even three, he has found more the aged poetess ever dreamed of. She chanted her lord's praise and the upon which he rode and nothing else.

Many chants remain unchanged, however, In 1935, in a gathering of aged natives, one chanted the dirge composed for our chief Keoua Kuahu'ula. Although more than a century had passed since his death at Kawaihae, the old people still weep as they chant this, and many still keep a feeling of dislike for memory of the conqueror. We younger ones understand the feeling of our folks, yet I believe there is none among us who bears any grudge against the one who became the supreme ruler of the islands. This is but a part of the

ee:

Ku'u Haku i ka ua Ha'ao e,

Ke lele a'e la ka ua mauka o 'Au'aulele.

Lele ka ua, lele pu me ka makani,

E lele po'o ana i ka wai o ka-ha

Ku'u haku mai ka ua ha'ule po'o e.

My Lord in the rain of Haao,

The rain flies fast,

Flies over the plain of Auulele

The rain flies, driven by the wind,

The rain drives down the cliffs above.

The tears for my chief drop down on the heads of the people.

The rains were often used in dirges to denote the tears of the mourners, and in some instances the rains were said to be the tears shed by the heavens above for the beloved dead. Can anyone read anything besides grief in this poem of ours?

I have been asked whether the chants of the private parts are descriptive? No, they are not. Are they suggestive? Yes, some are and some are not. I have a small collection gathered in Kau and most of them are neither suggestive nor descriptive. Most of these that I have were composed by the cross-eyed chanter, Ka'ana'ana. In his youth, Ka'ana'ana wanted to become a hula master and went to consult the experts. They rejected him because his eyes were badly crossed and his appearance would therefore not be pleasing to an audience. He told them all that some day he would do as well as they did. He built himself a small grass house, went to the mountains for greenery, and erected his own altar. All the time that he could spare was spent there, studying, and it was said that the gods of the hula heard his pleas and taught him in dreams. He became one of the best chanters of his day.

When Queen Emma came to Kau, the other chanters did not include him as one of the entertainers to welcome her because of his eyes and homely appearance. While the entertainment was in progress Ka'ana'ana sat on the stone wall outside of the house and chanted. His voice was so beautiful that most of the people ran outside, and the Queen sent for him to come inside. He came and chanted for her so beautifully that she was pleased. It was against the hula rules to break in like this (called *wawahi pa kula*) and so the other chanters nursed a hatred for him. He died not long after the Queen's departure and it was believed that he had been poisoned. His body turned a peculiar bluish color. Thus ended the life of Ka'ana'ana, my mother's first cousin, and the son of Ke-kipi-o-Hailiani, who was mentioned in the chant of the fishermen of Manaka'a. He composed the following chant for a cousin:

O Hea ka lauoho,

O Lae-nui ka lae,

O 'Ia ka pepeiao,

O Makapioi ka maka,

O mene ka ihu,

O Waha-'ukele ka waha

O Auwae-lewa ka 'auwae

O A'i-nui ka 'a-'i

O Umauma-lahalaha ka umauma.

O Hakane ka 'opu

O Ipu-wai ka piko

O Halala ka ma'i

He ma'i no ku'u kaikua'ana.

Hea is (the name of) his hair,

Broad-forehead is (the name of) his forehead,

Ia is (the name of) his ear,

Tiny-eyes is (the name of) his eyes,

Flat-nose is (the name of) his nose,

Wet-mouth is (the name of) his mouth,

Swaying-chin is (the name of) his chin

Big-neck is (the name of) his neck,
Broad chest is (the name of) his chest,
Filled-container is (the name of) his abdomen.
Water-holder is (the name of) his navel
Halala is (the name of) his privates.

This is my chant for the privates of my cousin.

Most of these chants sound like childish nonsense—about mules, hornets, pigs, flowers, eels, and so on. Even some of those of our ruling chiefs were more all of humor than dignity. A few were composed in a dignified pattern, but those were not as common as the others.

There are many more chants of old Kau—chants to the gods, the chiefs, and those of the common people that I have not mentioned here. Religion is such an important subject and the chants to the gods are so numerous and so sacred that it seems best not to attempt discussion of them in this paper on chants in general, and Kau chants in particular.

I will end with this old Kau chant:

Ki'eki'e Kau kua makani,
He umauna i pa ia e ke 'A'eloa,
I ka Unulau pa a ka Unulau,
Ina aku ia paha i Nunu-weuweu,
Ka wahine ka'ili pua o Paiaha'a,
Alualu pua hala o Kamilo-pae-kanaka,
He kanaka ka ia no ke ano ahiahi,
O wau nei ia no ke ano kakahiaka,
I o ai ka inoa o na kupuna e.

Majestic Kau of the wind-blown back,
Whose chest is lifted to the A'eloa breeze,
The Unulau breezes blow one after the other.
Perhaps she is gone to Nunu-weuweu,
My lady who gathers flowers at Paiaha'a,
She is gone to seek the hala cluster at Kamilo-pae-kanaka.
The other person is perhaps a child of evening hours,
But I am a child of the morning hours.
This I chant that my ancestors may be honored.

A strong current draws in at Kamilo in Kau and to this day various objects are borne by the sea to this spot. The old people say that Kamilo is divided in two parts, Kamilo of the chiefs and Kamilo of the commoners. When a chief perished at sea, his body drifted in at Kamilo-pae-kanaka the spot to which everything else drifted. A native of Kau who left for Puna, always sent a message home by tying a lei (garland) or loin cloth, or maybe a cord to a cluster of *halia* (pandanus), and toasting it into the sea at Ialalani in Puna. The current carried it directly to Kamilo in Kau, where loved ones watched as anxiously and eagerly for the message of his safe arrival as we wait today for the postman to bring a letter.

Bernice P. Bishop Museum,
Honolulu, Hawaii

IN 1908 while a teacher for the United States government in the provincial high school in Pagsanjan, Laguna, I suggested to a class that had been studying Washington Irving's *Alhambra* the collecting of local folk tales.¹ The following are selected from those written by the pupils.
The first group concerns the pinciple of evil.

I

1. "A Legend of the Asuangs"

By Antonio Maceda

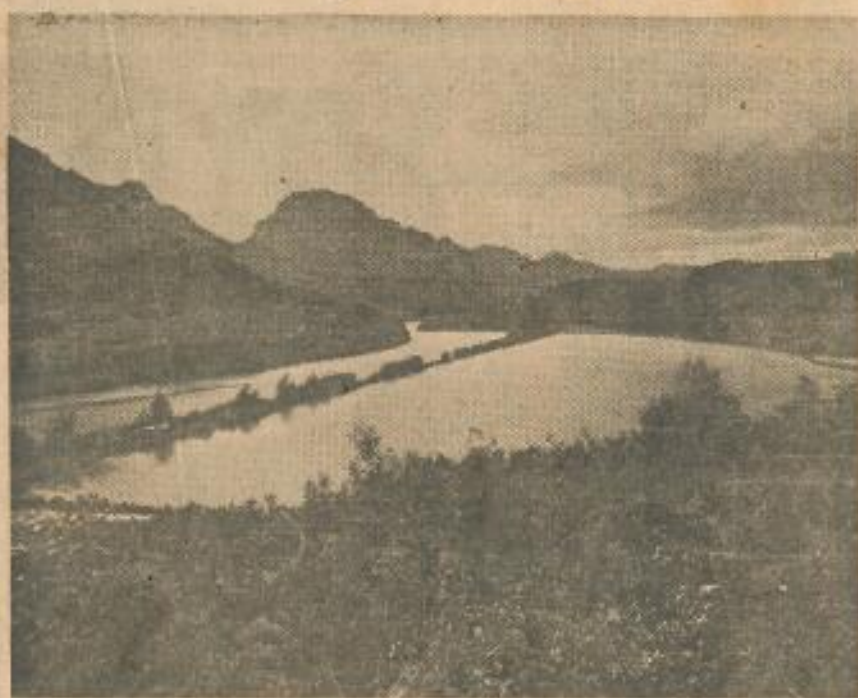
When I was a little boy, I was told by my grandfather a story about the asuang. The asuang is a person who has the power to change into a kind of monster with a relish for human flesh. There are two kinds of asuangs, the kind that walks and the kind that flies. The walking asuang can appear in any animal's form, but only as a male. It is his custom to sleep by day and to wander at night in the form of whatever animal he may choose. If an asuang does not go out at night to wander about, he becomes sick. The asuang enters the garden to destroy the plants, but if you know his real name and call it, he will stop at once. The asuang loves to wait under the house of a pregnant woman waiting for the birth of the child to steal the baby. In former times a pregnant woman did not dare to go away from the house for fear of seeing an asuang which would cause a miscarriage. It is the custom of the flying asuang, which is usually a female, to mark her body with a certain oil under the arms; then, stretching her arms from the window, her limbs are left behind, and she flies away in the form of some bird to seek for food. Now, if those living in the same house wish the asuang not to return, they move the limbs to another corner of the room, and then the two parts of the body have difficulty in joining. If they can not join before four in the morning, it is impossible ever after. Other charms against asuangs are garlic, ashes, and salt.

In the town of Binangunan, in the province of Tayabas, it is said that nearly all the people of the town are asuangs. Once it happened that three young men decided to make a tour from town to town, and upon approaching Binangunan they saw three beautiful ladies with bright faces and long hair carrying water from a spring in long hollow bamboo pails. The young men asked if they could carry the pails for them. The ladies granted the young men's request, and afterwards all went to the ladies' house where the men lodged that night. The ladies lived alone in a large beautifully ornamented house. After a long conversation night came, and all sat down to dinner. After eating, they slept in different chambers, the ladies in the front and the young men in the rear. After ten o'clock the latter heard the young ladies stir and go to the

¹ These folk tales, collected by Mrs. Lucetta Kellenbarger Ratcliff and her students more than forty years ago, were accepted for publication in the *Journal* in 1939 by its then editor, the late Ruth Benedict. Since Dr. Benedict retired from the editorship at the end of the same year, the tales were not published, but handed down in the backlog to subsequent editors. Although some of the tales may not derive directly from oral tradition, exhibit literary embellishment, and lack discussion and annotation, the editors have nevertheless chosen to include them in the "Pacific Number" because of their wide variety of types and motifs. The author's classifications have been kept, but numbers have been added to facilitate reference. Spellings deriving from faulty grammar have not been normalized.—THE EDITORS.

to Kikuchi

Aug 15, 76 SB-A



Advertiser photo

Menehune Fishpond on Kauai: a possible source of protein?

Ancient fishponds 'symbol of power'

By BRUCE BENSON
Advertiser Science Writer

Scientists are hoping to produce large amounts of protein from Hawaii's ancient fishponds, but that wasn't their original purpose, says anthropologist William K. Kikuchi.

Instead, prehistoric Hawaiians used the fishponds to yield selected fish on call as a symbol of the right of conspicuous consumption on the part of ruling chiefs and their large retinue, says Kikuchi.

His theory appeared in the July 23 edition of Science magazine, one of the most widely read science magazines in the country.

Kikuchi, an archaeologist and anthropology instructor at Kauai Community College in Lihue, writes of the ponds:

"THEY WERE manifestations of the chief's political power and his ability to control and tap his resources. As soon as the native aristocracy changed to a Western-style kingdom, the fishpond's function changed, until, by the 1930s, the majority were simply archaeological remains — mounds and walls of rock along a river or shore."

1778 produced a little more than one million kilograms of fish.

With an estimated population of 300,000 at the time, "each individual could have been allotted a total of only 3.62 kilograms (about eight pounds) of mullet, tenpounder and milkfish per year if the produce of fishponds had been open for public consumption.

"It can be readily ascertained that the fishponds would have been quickly depleted of their produce if they had served the entire community."

KIKUCHI ASSUMES the ponds were yielding 166.1 kilograms of fish per acre per year, an estimate based on the only known careful study of prehistoric yield.

In comparison, modern Southeast Asian fishponds yield about 1,800 kilograms per acre per year.

"But if fishponds were not designed to provide a significant source of protein for the populace, what was their role in that prehistoric society? It seems very likely that selected fishponds played an important symbiotic role in the nature and development of the chiefdom, in particular of the royal court."

Aquaculture was simply one end of a continuum in food production that ran from nonirrigated and irrigated fields ashore to fishponds at river banks and along the shore, he says. And ancient Hawaiians apparently utilized almost all possible sites for the ponds.

OTHER PRE-WESTERN cultures of Oceania apparently didn't develop fishponds. In Hawaii they became a comment on the cultural, philosophical and religious ways of the people who put them together.

"All of the land with its resources and produce was owned by the paramount chief," says Kikuchi. "Specific fishponds, in particular those noted for their antiquity or productivity, as well as all major temples, were also owned and controlled by the paramount chief as manifestations of his supreme rights, including his right of ownership and his right to rule."

THE KAUAI INSTRUCTOR figures that the ponds couldn't have supported the populace at large. Calculations suggest that 360 fishponds in use before Capt. Cook arrived in

Although highly mobile, the court still had to be fed and have its supplies furnished. This was accomplished by tapping local sources of food throughout the realm of the chief.

"IT IS KNOWN THAT, within the agricultural system of the Islands, certain agricultural plots, *ko'e'ele*, were set aside strictly for the chiefs. It seems, then, that fishponds became the aquacultural equivalent of the *ko'e'ele*, offer an ever-ready, sufficient supply of food.

"These fishponds were exempt from the coastal restrictions on fishing during spawning times and could provide fish, crustaceans and seaweeds at any time of the year, regardless of the vagaries of the weather.

"The court could freely tap its own resources without unduly burdening the commoners or stripping them of their supplies. As the power of the chiefs increased, and as the size of the court grew, the political and economic roles of fishponds probably took on different meanings in meeting the needs of the royalty."

Oceanic researchers check out restoration

Call Madden

Two Oceanic Institute researchers are examining whether Hawaii's ancient fishponds can be restored to production in a way that makes economic sense.

William Madden and Craig Paulsen have finished a survey of ponds on the Big Island and are turning to those on Maui, Lanai, Molokai, Oahu and Kauai.

Historically, there were more ponds on Oahu than on any other island, Madden said, but many of them have been lost to sedimentation and urbanization.

THE TWO FOUND a pair of ponds that are producing mullet commercially on the Big Island. Both were in the Keaukaha area. One is yielding about 35 pounds of mullet weekly, Madden said.

Under a contract from the State Department of Planning and Economic Develop-

ment, Madden and his colleague will study about 75 ponds. When Capt. Cook arrived in 1778 the Hawaiians were growing fish in about 360 ponds.

THE SEAFOOD that seems suitable for stocking in the ponds today include mullet, awa, moi, prawns, oysters and catfish. Criteria for deciding how they would do include a pond's general environment, water salinity,

temperature, mixing and flushing characteristics of the pond and source of water.

Several ponds throughout the State seem promising for restoration, they said. These include Molii Pond in Kaneohe Bay, Oahu; Lokea Pond at Haleiwa, Oahu; Nomilu Pond at Kalaheo-Kai, Kauai; Kupeke Pond on Molokai; Ulapu'e Pond in Kamalo, Molokai; and Alii Pond near Kaunakakai, Molokai.

Prehistoric Hawaiian Fishponds

Indigenous aquaculture influenced the
development of social stratification in Hawaii.

William K. Kikuchi

Ever since the discovery of the Hawaiian Islands by Captain James Cook in 1778, Polynesian and Hawaiian specialists have been intrigued by the factors that caused the development of the highly stratified chiefdoms found in the Pacific. The cultures of Hawaii, Tonga, Samoa, and the Society Islands were structurally complex, with well-defined status separating the high chiefs, chiefs, advisers, stewards, and commoners. Of these island groups, Hawaii had the most highly stratified society. If we assume that all of the cultures of Polynesia are ancestrally related and that they all share a common linguistic, technological, and agricultural base, then the question arises of why a high level of complexity was achieved in only these four island groups.

Wittfogel (1) claims that irrigation systems had a direct influence on the emergence of political power and on the development of a statelike government. Fried (2) states that in Hawaii the control of water resources was used to bolster control over the land. According to Sahlins (3), the control of water resources was achieved by restricting access to irrigation water rather than to the land. Sahlins attributes the evolution of political stratification to technological and environmental factors. All of these authors imply that the development of bureaucracy in the Hawaiian Islands resulted in part from the control of water sources, specifically, irrigation systems, rather than from the direct control of land.

The word irrigation implies agriculture. Of the many theories concerning the development of Hawaiian culture, most center around the productivity of the agricultural system. The system of ditches that fed and drained the taro (*Colocasia esculenta*) plots is always seen as proof of engineering and agricultural skills. I suggest, however, that there is another important area in the study of the complexity of Hawaiian culture. This is the aquacultural system,

which I do not see as an entity in itself but as one end of a continuum of food production technologies (Fig. 1). The fishpond system paralleled the agricultural irrigation system in many ways; that is, it dealt with the access to, restrictions on, and management of water resources. In this article I attempt to place the fishpond into such a context—to describe both its technological and political roles in culture.

Strung along the southern shore of the island of Molokai are a series of prehistoric fishponds whose remains can still be seen within the calm shoal waters. These remnants are only a fraction of the extensive aquacultural system that was evident on all of the major inhabited islands of the Hawaiian archipelago around the turn of the 20th century. Over the years, the ravages of high seas, tsunamis, floods, earthquakes, lava flows, and tectonic activities have greatly altered most such sites. Quite recently, fishponds have been filled and destroyed by commercial and industrial development. Some of the sites are now fringed with houses and industrial parks—foreign and incompatible environments that exhibit these sites as oddities, fossils of the past. Nonetheless, in isolated regions of the Islands a few fishponds can still be found in a relatively pristine environment.

Origins

The date for the origin of Hawaiian fishponds will probably never be known. It certainly is not within the reach of traditional archeological dating techniques. Mythological and legendary sources are the only means currently available for gauging the antiquity and the nature of the origin of fishponds.

The builder of the first Hawaiian fishpond is traditionally acknowledged to be Kū'ula-kai, who lived in an undated period of the Heroes and Gods. Kū'ula-

kai constructed the fishpond at Kaiwiopale in the district of Hana on the island of Maui (4). According to mythological sources (5), the fishponds of Alekoko and Nomilu on the island of Kauai were built during the period of the mythical Hawaiian dwarf-elves, the *mechune*. Associated with them is Chief Ola, whose historical placement remains unknown but who is alleged to have ruled in very ancient times. The fishpond is commonplace in legendary literature attributed to the 14th through the 19th centuries; therefore it can be conjectured that fishponds appeared in the Hawaiian Islands sometime prior to the 14th century A.D.

A survey (6) of aquacultural features in Oceania reveals a lack of true fishponds (that is, bodies of water primarily intended for the raising of fish), with the exception of ponds in the Gilbert Islands, where further study is needed. I propose that coastal fishponds in Hawaii evolved from irrigated agricultural plots, *lo'i kalo*, and became one end of a continuum of a basically agricultural, wet-plot system. On the basis of the barest and most questionable evidence from traditional material, I also propose that the fishpond was an independent Hawaiian innovation.

Typology

Four basic types of fishponds were developed by the prehistoric Hawaiians: *loko i'a kalo*, *loko wai*, *loko pu'uone*, and *loko kuapā* (Fig. 2). The prefix *loko* refers to any pool, pond, lake, or other enclosed body of water (7), while the suffixes denote the specific type of fishpond. Although there were many variations within each type, the Hawaiians do not seem to have used separate names to identify subtypes.

Loko i'a kalo were irrigated agricultural plots for the growing of selected fish (*i'a*), such as *aholehole* (*Kuhlia sandwicensis*) and *'o'opu* (*Eleotridae* and *Gobiidae* families), and of taro (*kalo*). Like other irrigated agricultural plots, *loko i'a kalo* were fed and drained through a system of ditches. Some of the fishponds were simply agricultural plots in inland areas or along the shore where both taro and fish could tolerate the varying degrees of water salinity.

Loko wai were inland ponds and lakes, usually found close to the shore. Since they most often had natural connections to the sea by way of ditches or

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streams, these fishponds, although called freshwater (wai) by the Hawaiians, would have been partially brackish because of tidal action. Aholehole; 'o'opu; amaama, or mullet (*Mugil cephalus*); awa (*Elops machnata*); and awa'aua, or milkfish (*Chanos chano*), all tolerant of both fresh and brackish water, were some of the fish raised in loko wai.

Loko pu'uone were coastal bodies of water that had been either stranded because of eustatic sea-level changes or isolated through the formation, by sea action, of loose, irregular walls (pu'uone) of sand and coral detritus. The permeability of the walls allowed seawater to percolate through, while freshwater springs along the shore provided internal seepage. Because of their proximity to the sea and because of their water salinity, loko pu'uone resembled natural estuarine habitats. Their fish were preferred as delicacies because the native Hawaiians believed that brackish to salt water produced a more savory fish than did freshwater.

Usually located in shallow shoal areas along the coast were loko kuapā, fishponds whose primary isolating feature was a wall of stone, coral blocks, or both as the backbone (kuapā). The kuapā core, usually of stone, was purposely made permeable in order to effectively absorb the forces of its containing body of water (either the sea or a river) while allowing a limited amount of water to flow through to reduce stagnation. Where the core was of earth, such as that found in loko i'a kalo or loko wai fishponds, other means of allowing water circulation were needed because the earth prevented water from entering or leaving the pond.

Geomorphological Consideration

A positive correlation exists between the geography and geomorphology of an island and the type, size, shape, and location of a fishpond (8) (Fig. 3). The favorable geographical features sought by the ancient engineer-architects were shallow shore areas protected by long fringing reefs, natural bodies of water inland or along rocky rugged coastlines, barrier beaches with large bodies of water trapped behind them, and shore areas with seepage of freshwater through natural springs, streams, or rivers. A survey of the aquacultural system of prehistoric Hawaii (6) suggests that ancient Hawaiians utilized practically all sizable bodies of water for the construction of fishponds.

Architectonic Features

Each of the fishpond types had some distinguishing architectonic feature, for example, a primary wall, secondary walls (pā), or ditches ('auwai) and their accompanying sluice gates (makahā). All of these were permanent and non-mobile in nature. In a recent study of selected fishponds (6), the mean width and height of 37 pond walls was computed to be 2.02 meters wide by 1.17 meters high, and the average length and volume of 90 pond walls was determined to be 487.68 meters and 954.9 cubic meters, respectively (6). The volume of the most massive seawall (kuapā), that of Kaloko fishpond on the island of Hawaii, was calculated as 4248.08 cubic meters. In comparison, secondary walls were small and crudely constructed. While seawalls

were intended to withstand the forces of erosion and to hold the fishpond intact over long periods of time, secondary walls served to partition the calmer interior waters into aquatic pens.

The Hawaiians made a distinction between ordinary ditches ('auwai) and those associated with the seawall ('auwai o ka makahā). 'Auwai were channels, usually a meter or two wide, that connected the fishpond with outside source of water. These features served to allow circulation of water while introducing dissolved nutrients from without. 'Auwai o ka makahā, on the other hand, consisted of that short portion of the ditch that passed through the seawall; these were always associated with the makahā, or sluice gate. Sluice gates were stationary structures that consisted of spaced, vertically placed wooden sticks lashed to two or more horizontally placed sticks; these were placed in the ditch to act as a sort of filter for debris and large fish.

The number and location of sluice gates seems to have been a function of the size of the fishpond and of the prevailing current patterns. Most often there were two gates. A shelter for the caretaker, hale kia'i, was associated only with the loko kuapā type fishpond. These small rudimentary shacks were placed adjacent to the sluice gate area in order to provide the caretaker with some protection against the elements while he guarded against poachers.

Cultural Significance

The prehistoric Hawaiian fishpond is an innovation not seen in other cultural areas of Oceania. Its evolution from a simple technological device into a symbol of status and power is significant from the vantage point of the development of stratified societies in the Pacific.

The universe of the native Hawaiian was a delicately balanced, tri-state system of the supernatural, the natural, and the cultural. Intertwined and integrated with one another, these three influences permeated every aspect of Hawaiian life. There were four "national" gods—Kū, Kane, Kanaloa, and Lono—who, with a multitude of demigods and guardian spirits, manifested themselves in every form of nature, from rocks and plants to atmospheric phenomena and running water. These served as constant reminders of the sanctity of all forms of earthly matter.

Complementing the gods were the

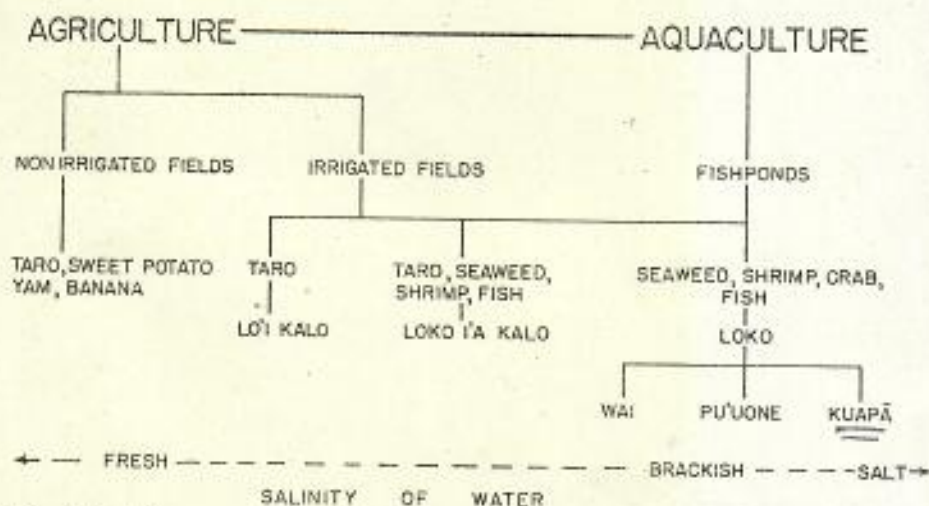


Fig. 1. Agriculture to aquaculture schematic of relationships without regard to chronology. The products of both systems are shown as a function of emphasis, with agriculture and aquaculture as extreme ends of resource management.

ali'i, or chiefs, whose status within the highly stratified order of nobility was determined by their genealogical proximity to the gods. Pedigree as well as privilege was correlated with individual linkage to both genealogy and the rights from conquest. Since each god had supernatural power, the human counterparts also possessed this mana, power bestowed directly or indirectly from a supernatural source (9), but in lesser degree.

There were two types of chiefs that were associated with fishponds: the ali'i-'ai-moku, or paramount chief, and the ali'i-'ai-ahupua'a, who were lower chiefs of land sections, or ahupua'a. All of the land with its resources and produce was owned by the paramount chief. Specific fishponds, in particular those noted for their antiquity or productivity, as well as all major temples, were also owned and controlled by the paramount chief as manifestations of his supreme rights, including his right of ownership and his right to rule. Other fishponds were feudally contracted to the chiefs of the various land sections, who, in turn, probably left control of the smaller fishpond-agricultural plots (loko i'a kalo) to the commoners. If this ownership pattern was in fact common in prehistoric Hawaii, a paucity of sites would be expected around fishponds.

A study (6, 10) was made of the published archeological surveys of ten fishponds and their surrounding archeological remains to determine the nature of the settlement pattern around them. These sites (11) are the only ponds left in the Hawaiian Islands which have not been denuded of their archeological sites during the course of historical coastal development. The features that are directly associated with fishpond activity and that are consequently to be expected around ponds are canoe sheds, net-drying areas, the caretakers' house sites, and burial platforms. The number of sites expected is small, and they should be widely distributed over the landscape.

Canoe sheds were discovered only on the inland side of Kaloko fishpond on Hawaii Island and were diagnostic of other structures with stored canoes. Enclosures and mounds lined with stone, common structures for the cultivation of sweet potatoes and yams, never occurred in large numbers but were scattered where the bedrock allowed soil and humus to collect. A total of 24 house sites was found at seven fishponds, for an average of more than three per pond. The mode was two, while the largest number of house sites found at one fish-

pond was seven. This is a very small number, in view of the fact that a typical Hawaiian house site was a complex usually composed of two or three separate structures. Other features found near

the fishponds were platforms, burial mounds, shelters, and walls. Such features ranged from 12 to 20 per fishpond. Although no chronological relationships have yet been established for these sites,

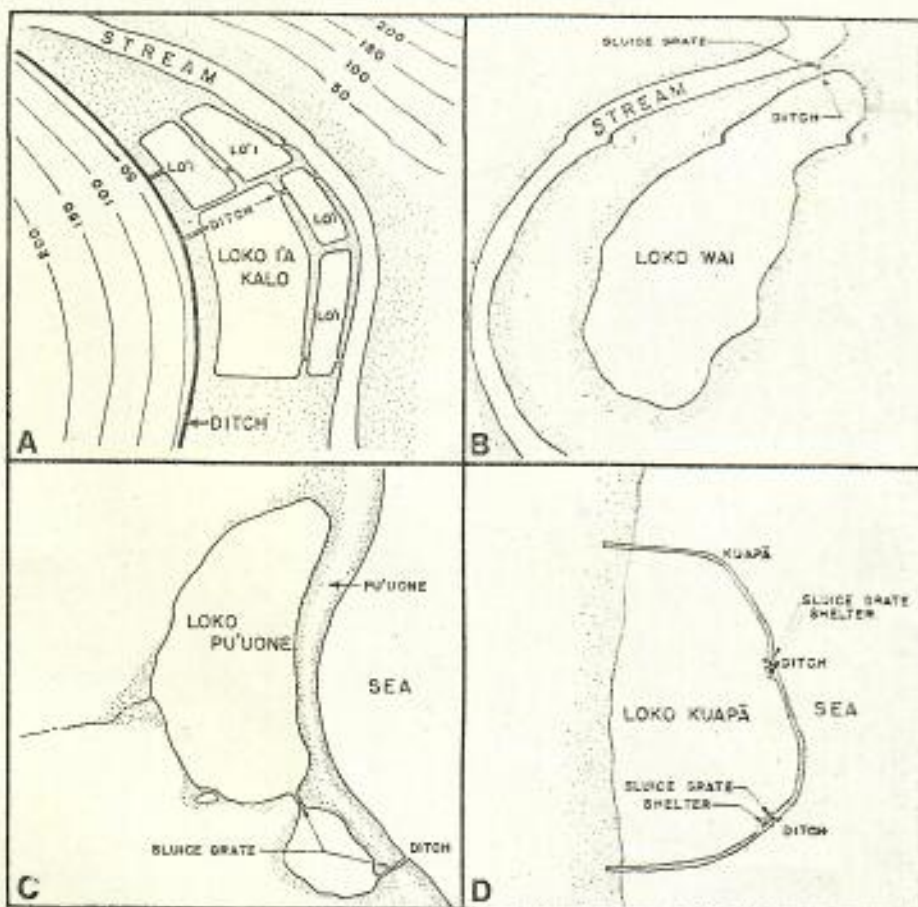


Fig. 2. The four basic Hawaiian fishpond types. (A) The loko i'a kalo, located in an inland area; (B) the loko wai, a natural lake artificially connected to a stream by a ditch; (C) the loko pu'uone, ponds created by coastal barrier beaches, artificially connected to each other, and drained by a ditch; and (D) the loko kuapā, two ditches and a seawall isolating a coastal body of water. No scale.

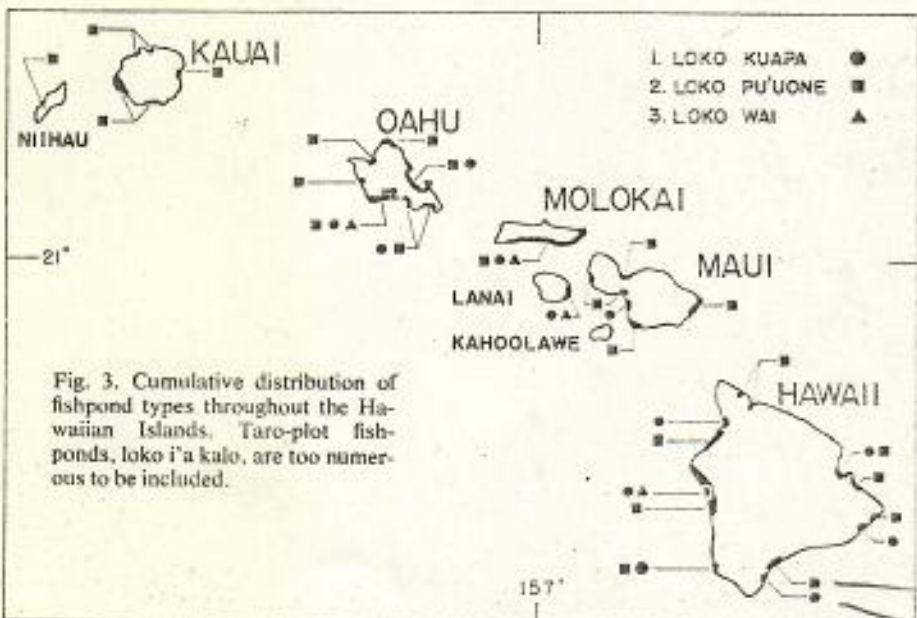


Fig. 3. Cumulative distribution of fishpond types throughout the Hawaiian Islands. Taro-plot fishponds, loko i'a kalo, are too numerous to be included.

there are not enough of them to have supported any sizable portion of the population even if they were all in use simultaneously. I expect that an effort was made to discourage settlement around fishponds, possibly to prevent poaching as well as to eliminate undue noise and sewage pollution.

Philosophically, fishponds were handled as if they were simple extensions of irrigated taro plots. That is, they were seeded (stocked with mullet fry) (12), fertilized (mulched with cut grass and pieces of mussel, clams, and seaweeds) (13), weeded (cleared of algae) (14), and harvested. The gods abhorred filth, sewage, and kitchen refuse, and, in historic times, even the use of chemicals was absolutely prohibited in fishponds and taro plots. This philosophy prevented fishponds from attaining optimum yield.

Unfortunately, the yield of Hawaiian fishponds in prehistoric times will never be known; native accounts tend only to exaggerate the abundance of fish. Only Cobb (15) took exact care in his documentation of the yield of Hawaiian fishponds. His study, made in 1901, is the only source available for use in making projections about prehistoric yield.

A tally was taken of all fishponds for which documented acreage is available (6). Out of a total of 360 ponds of all types, acreage is known for 304, giving a total of 5608.48 acres for an arithmetical average of 18.44 acres per fishpond. According to Cobb's figures for historic yield on the islands of Kauai, Oahu, Molokai, and Hawaii, the yield of preferred fishes (which would have constituted the major part of the total) from 99 ponds was 307,900.4 kilograms of fish per annum. This averages to 3063.8 kilograms of fish per pond, or 166.1 kilograms per acre per annum. (In comparison, modern southeast Asian fishponds yield approximately 1800 kilograms per acre per annum.) If we assume that 360 fishponds were used prior to Captain Cook's discovery of the Islands in 1778 and use the average size of 18.44 acres per pond and a yield of 158.6 kilograms of fish per acre per annum, it can be calculated that the annual fish production for all the Hawaiian Islands amounted to somewhere in the vicinity of 1,052,518.3 kilograms. At the time of discovery in 1778, the estimated population of the Islands was 300,000. On the basis of this figure, each individual could have been allotted a total of only 3.62 kilograms of mullet, tenpounder, and milkfish per year if the produce of fishponds had been open for public consumption. It can be readily ascertained that the fishponds would have been quickly depleted of

their produce if they had served the entire community. But if fishponds were not designed to provide a significant source of protein for the populace, what was their role in that prehistoric society? It seems very likely that selected fishponds played an important symbiotic role in the nature and development of the chieftdom, in particular, of the royal court.

The Hawaiian court was centered about its ruling chief, and surrounding him was a large retinue of relatives, servants, specialists, priests, warriors, and entertainers. The court had no permanent seat of government but moved about from area to area. Although highly mobile, the court still had to be fed and have its supplies furnished. This was accomplished by tapping local sources of food throughout the realm of the chief. It is known that, within the agricultural system of the Islands, certain agricultural plots, *kō'ele*, were set aside strictly for the chiefs. It seems, then, that fishponds became the aquacultural equivalent of the *kō'ele*, offering an ever-ready, sufficient supply of food. These fishponds were exempt from the coastal restrictions on fishing during spawning times and could provide fish, crustaceans, and seaweeds at any time of the year, regardless of the vagaries of the weather. The court could freely tap its own resources without unduly burdening the commoners or stripping them of their supplies. As the power of the chiefs increased, and as the size of the court grew, the political and economic roles of fishponds probably took on different meanings in meeting the needs of the royalty.

In order to effectively maintain control and organization of his lands, the paramount chief established a bureaucracy of specialists whose status and role were firmly spelled out. The first of these was the priest-architect, *kahuna*. In all of the chief's projects, whether the alteration of a taro plot or the construction of a new *loko kuapā* pond, a priest was consulted to advise the chief on all related engineering matters, from selecting the location to determining the dimensions of the site. These *kahuna-kuhikuhi-pu'uone* (7, 16) were specialists who knew the geography of the land, the nature of the resident spirits of the site, and the total lore of the native religion. Only by maintaining concordance with the gods and the guardian spirits could the success of any project be ensured and productivity made possible.

Two further members of the bureaucracy connected with aquaculture were

the land overseer, or *konohiki*, and the caretaker of a fishpond, the *kia'i-loko*. The land overseer was a male of chiefly status who served his superior by carrying out orders handed down to him. Superintendence duties surrounding aquacultural sites included instructing the tenants of the land when and where to construct, repair, and clean the different aquacultural structures. In many instances the *konohiki* also served as a warden to control poaching. Each *loko kuapā* fishpond apparently had one or more caretakers, *kia'i-loko*, who lived with their families at the site. These men patrolled the pond, cleaned it, and, when instructed to do so, harvested the fish.

In view of the statistics on the dimensions of fishpond walls, the amount of work involved in their construction and upkeep must have been considerable. Kamakau (17) estimates the manpower requirement for the reconstruction of several fishponds on the islands of Maui and Hawaii at around 10,000 men. The massiveness of even the shortest primary walls indicates that these construction projects were not based on the whim of commoners but were developed by individuals of status who could command and supply a large body of workers.

During interisland wars of conquest, invaders often destroyed the irrigation ditches that fed fishponds and agricultural plots (18) and tore down fishpond walls (19). The destruction of both agricultural and aquacultural systems effectively depleted the supplies of both commoners and elite for many years. Therefore, civil projects were necessary by both the conquered and the conquerors to reestablish their food sources. It was considered a commendable deed for conquering chiefs to spend time repairing breached fishponds.

Cultural and Religious Sanctions

Fishponds were protected by both cultural sanctions and religious restrictions. The paramount chief, through his overseer and caretakers, physically operated and guarded the fishpond and its environment. Proclaiming the sanctity of all of the chief's property was the *kapu*, a taboo that was made visible by tying strips of white barkcloth to stakes along the property boundary or along the shore, whichever the case might be.

Pollution in the form of sewage, rubbish, and offal not only dirtied the physical environment of the fishpond but insulted and violated both the chief's taboo and the religious sanctions guarding the

area. Religious controls in the form of traditional lore and mores were not directly manifested in the form of specific signs, such as taboo markers. Instead, their violation resulted in the disappearance of fish, crustaceans, and seaweeds and in sudden calamities such as floods, tsunamis, and storms.

All bodies of water, from the smallest pool to the largest fishpond, were the domicile of guardian spirits, *mo'o*, which manifested themselves in lizardlike or mermaid form. Their role was to protect their watery domain from man-made pollution in order to ensure an abundance and proliferation of aquatic foodstuffs. It was the duty of the caretaker of a loko kuapā to make offerings regularly to the guardian spirits at certain designated times of the lunar month; appeasement was likewise made through such offerings. Disrespect, in the form of verbal insults, of polluting the pond water with sewage, offal, or corpses, or of the presence of women in their menses, was considered sufficient cause for the spirits to denude a territory of its resources. Since famine was greatly feared, gross violation of cultural mores was punishable by death or by plucking out the eyes of the offender (20).

In order to restore a fishpond to a state of productivity, a ritual was performed to appease the guardian *mo'o*. This ceremony has been documented for Hana'loa (21) and Kuapā (22), fishponds on the island of Oahu. In each case, offerings were made at specific shrines near the ponds in the early dawn hours of the last phase of the moon. This night was the night of Kane, the god associated with life and with maleness, and thus with procreation.

Decline of the Fishpond

Discovery of Hawaii by Europeans in 1778 initiated tremendous changes in all aspects of Hawaiian culture. The greatest barrier to change fell in 1819 with the abolition of the kapu system. This effectively destroyed the Hawaiian religion and with it the chief's supernatural right to rule and his once undeniable control of the land and all its resources. From that time on, Western acculturation accelerated at a rapid rate, and money became the standard of exchange in place of the barter system. The fishpond was no longer a symbol of chiefly power,

but rather had to compete economically in the local market as well as with imports of foreign foods. Because of its inherent inefficiency, its low yield, and its requirement for frequent and extensive maintenance, the indigenous aquacultural system was doomed to decline during the population decline of the 19th century. Today, fewer than a dozen prehistoric fishponds are still in use throughout the Hawaiian Islands. The majority of these are operated by their owners, while a few are contracted out to lessees. Unless these ancient sites are physically altered, their economic impact on the local market will remain minimal. It is only through complete modernization that significant profits from fishponds can be foreseen.

Summary

One of the important technological concepts that was developed in the Hawaiian Islands is that of the fishpond. From the 14th to the 19th centuries, these sites served as aquariums for the raising of selected fish. From its inception until the 1900's, the fishpond progressed little in design and function. Its rudimentary nature was a function of both technology and religion. Because of the open ditches, sluice gates, and permeable walls, neither the types nor the quantity of juvenile fish entering or leaving could be controlled. In addition, religious beliefs prevented experimenting with fertilization to increase yield. Although seemingly inefficient, the native aquacultural system was not intended to produce a great amount of fish but rather to yield selected fish on call. Fishponds became symbols of the chiefly right to conspicuous consumption and to ownership of the land and its resources. They were manifestations of the chief's political power and his ability to control and tap his resources. As soon as the native aristocracy changed to a Western-style kingdom, the fishpond's function changed, until, by the 1930's, the majority were simply archeological remains—mounds and walls of rock along a river or shore.

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Closeup: Hawaiiana

Centennial tribute to Mary Kawena Pukui

Her legacy was perpetuation of Hawaiian language, culture

By Mark Matsumaga
Advertiser Staff Writer

MARY Kawena Pukui, modern Hawaii's foremost bridge to its past, was born 100 years ago today on the Big Island, a baby girl named Mary Abigail Kawenaulaokalanihi-iaikaipolioPele Wiggin.

Better known by her married name, Mary Kawena Pukui died nine years ago. She devoted

a lifetime to preserving the Hawaiian language and culture as an author, composer, linguist, translator and teacher of Hawaiian chants, music, hula and history.

A gentle woman with an astounding intellect and thorough mastery of Hawaiian and English, Pukui was the principal author of the "Hawaiian Dictionary," now in its sixth printing. She wrote and collaborated on hundreds of other books about Hawaii, wrote more than

150 songs and helped on hundreds more.

Pukui's work has touched virtually anyone with an interest in Hawaiian language or culture today.

"It's frightening to try to think what our lives would be without her work," said master chanter Ka'upena Wong, who began studying Hawaiian chants from Pukui in the early 1950s. "These Islands would be very un-Hawaiian. Kawena kept us Hawaiian."

Composer-songwriter Iringard Aluli also met Pukui in the '50s, forging a partnership that

See Kawena, Page A2



Mary Kawena Pukui, who devoted her life to perpetuating Hawaiian language, music and culture, performs "Mukiki Wai" in 1930.

photo courtesy
Bishop Museum

Kawena: Scholar of Hawaiiana remembered on her birth centennial

FROM PAGE ONE

collaborated on many songs. Aluli wasn't a native speaker of Hawaiian and often sought Pukui's help writing or checking her lyrics.

"She was my source for anything Hawaiian," said Aluli. "She wasn't afraid to pass on her knowledge."

Eddie Kamae, another Hawaiian music legend, still refers to Pukui as "my teacher, Kawena."

He once learned about an old song from a Hawaiian elder who recalled only one verse. Kamae mentioned it to Pukui, and "She picked up the pad and wrote the additional seven verses. She had remembered them from her childhood."

Pukui taught him about life more than songs, and inspired him to write music for children, "because they are the future." He plans to produce a film on Pukui. More than her accomplishments and



Bacon

awards, he hopes to convey her "beautiful soul, her wisdom. We all know what she's done, but it's that wisdom that I love."

Pukui was born in Haniumalu, in Ka'u. Her mother was Mary Pa'ahana Kali'ikana-kaole, descended from a line of medical *kahuna*.

Her father, Henry Nathaniel Wiggin, had immigrated from Salem, Mass., to work in sugar.

In her early years, Pukui was raised by her maternal grandmother, Nali'ipo'aimoku, who had been a dancer in Queen Emma's court.

Po'ai taught her *hapa-haole* granddaughter the ways of old



photo courtesy Bishop Museum

Mary Kawena Pukui at Bishop Museum.

Pukui tributes

■ Honolulu Academy of Arts and KHPR Radio tribute at 8 p.m. today. With Pat Namaka Bacon. Tickets sold out.

■ Bishop Museum daylong tribute 9 a.m. to 5 p.m. April 30. Program includes performances by Eddie Kamae, Hakelei Kamau'u, Na Pua Lei O Likolehua and Pua Ali'i 'Ilima; storytelling; games; contests; exhibits; and more. Admission, underwritten by Bank of Hawaii, free for Hawaii residents.

Hawaii while the rest of the Islands rapidly changed.

Po'ai died when Pukui was 6, and the Wiggin family moved to Kauai, then settled on Oahu. Pukui married Kaloli'i Pukui at age 18.

The couple adopted two girls. Pukui later gave birth to a third girl.

Meanwhile, Pukui began translating Hawaiian for various scholars, and joined the Bishop Museum as translator in 1937. Over the next 25 years she translated all kinds of material and interviewed hundreds of Hawaiians. A card file of Hawaiian words became the

basis for the Hawaiian Dictionary she wrote with linguist Samuel Elbert.

And always, Pukui's home was open to a continuous stream of visitors and students.

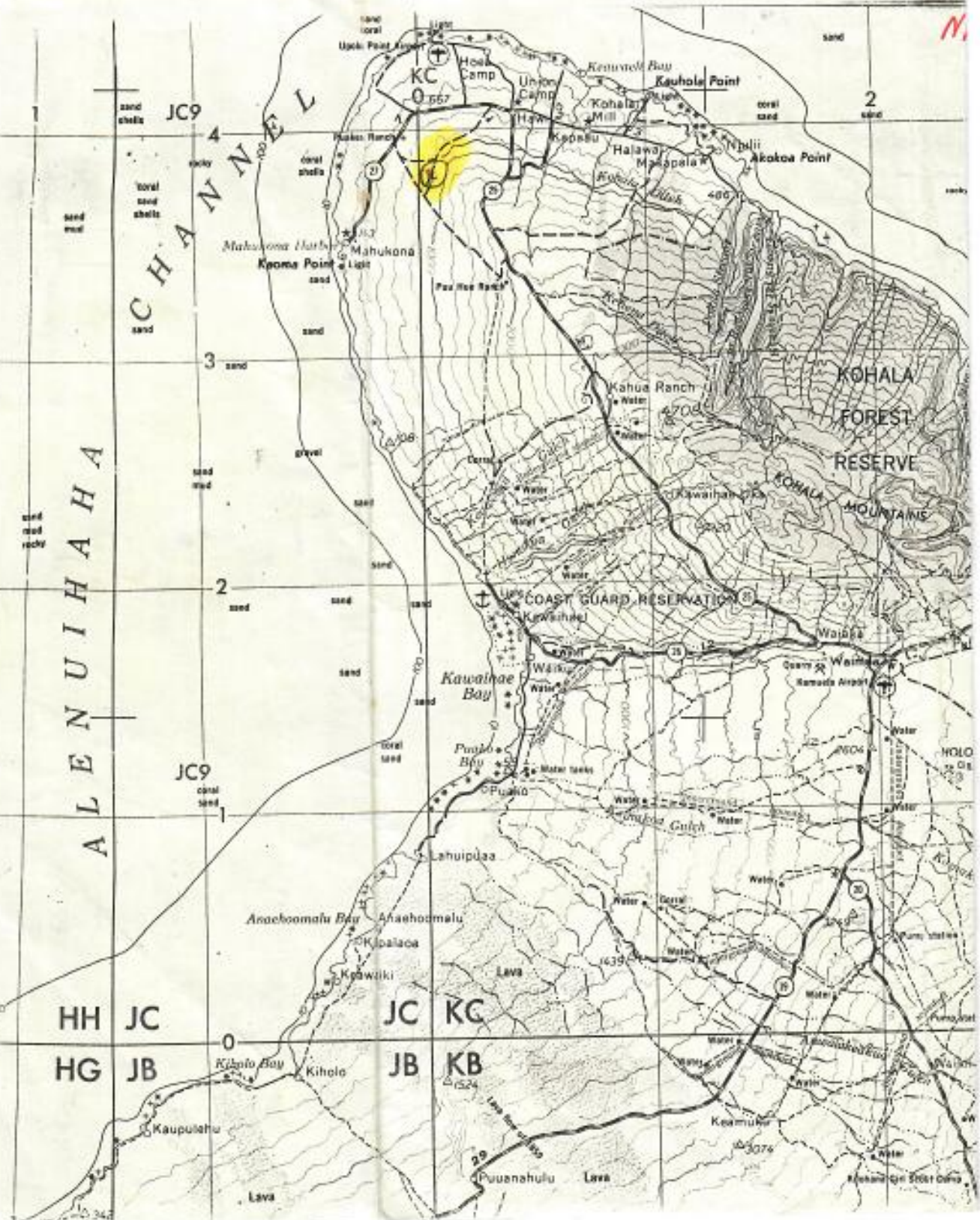
"It was like Grand Central Station," said Pukui's first daughter, Patience Namaka Bacon.

Aluli, Wong and Kamae were among those who called at Pukui's home, first on Birch Street in Pawaaw, later in Manoa.

They credit Bacon — a respected *kumu hula* in her own right — and her late husband George with providing the support that let Pukui teach them.

Bacon said: "She enjoyed imparting information to the young people who came because that was the way to preserve the culture."

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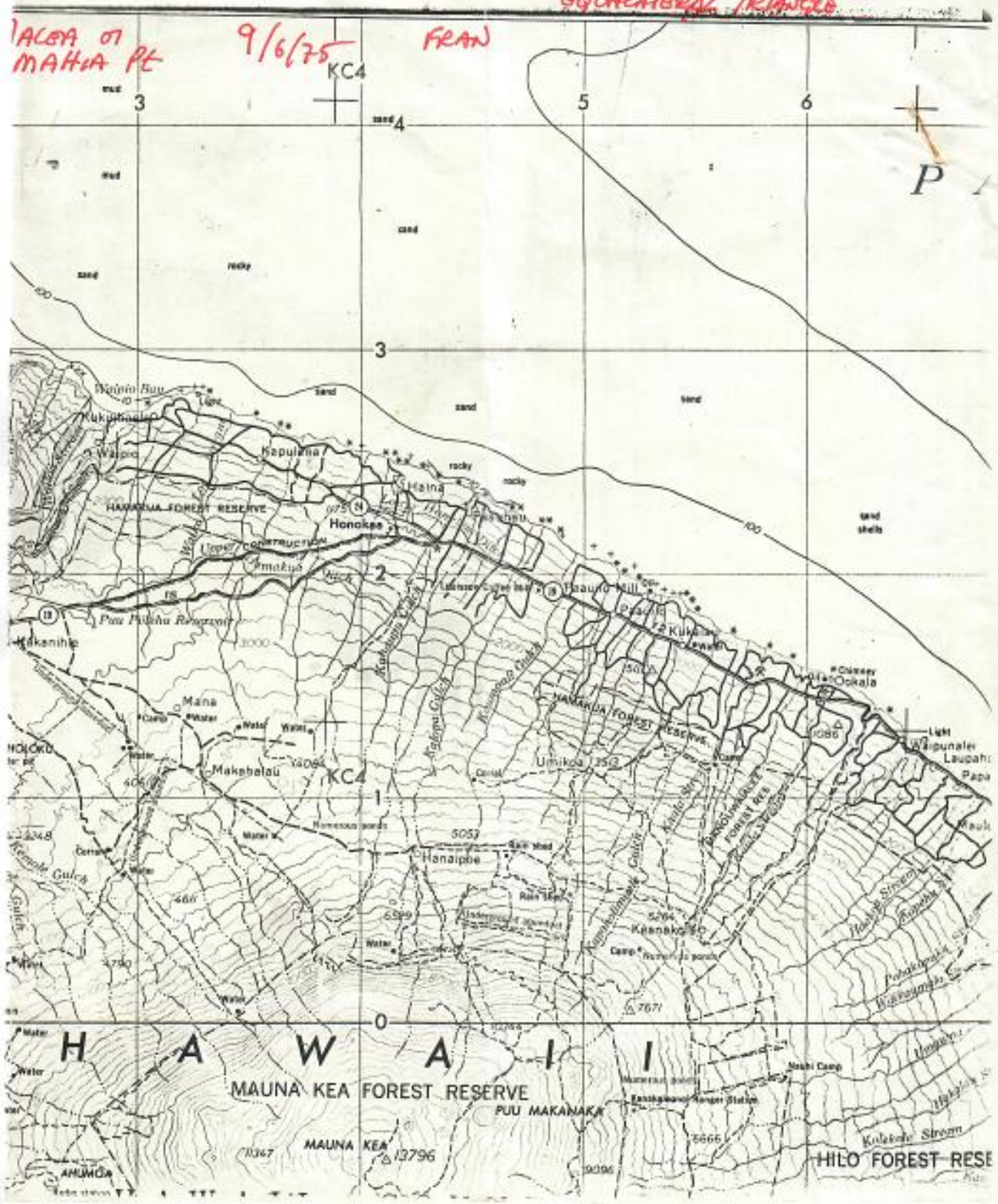
EQUATORIAL TRIANGLE

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5/16

George,

I am returning the map with the location of the heiau marked. The name is Kukuiipahu heiau.

Our maps are not much better than the one you sent. DNR should have a specific location map. Ask Ross Cordy in the Historic Sites Section.

The article is intriguing from many perspectives and makes me now want to see the site itself again. There were many features of the heiau that suggested an older (pre-tahitian) origin for it. The cut stone work, open court etc.

Let me know if you ever decide to take a look at it again. I will likewise give you my re-impession should I take a look at it again.

Virginia

Goldstein

County Planner

961-8288

Hilo

Bank of Hawaii presents

He lā e ho'ohiwahiwa ai iā Kawena

A day to honor Kawena

Commemorating the one hundredth
anniversary of Mary Kawena Pukui's birth

Bishop Museum
Sunday, April 30, 1995
9:00 am - 5:00 pm

FREE ADMISSION
for Hawai'i residents

Join us as we celebrate our beloved
kumu with others who are actively
perpetuating her legacy.

Opening ceremonies at 9 a.m.
by Kaha'i Topolinski and hālau Ka Pā Hula Hawai'i

RARE PUBLIC PERFORMANCES BY
Eddie Kamae, Hoakalei Kamau'u, Nā Pua Lei O Likolehua,
Pua Ali'i 'Ilima, and others!

PLUS...

- Traditional folktales by Emil Wolfgramm, Jeff Gere, Nyla Fujii, Woody Fern, and U.H. Ka'ao students
- Pa'ani (games) and contests, mele & nane (riddles) with Hawaiian language students from U.H. Mānoa
- Makahiki Ho'olaule'a with the Boy Scouts of Hawaii
- Ōlelo No'eau activities with the Hawaii State Library
- Display of Pukui memorabilia & historic documents,
oral presentations about Kawena, "talk story" time and more!



 **BISHOP MUSEUM**

Mahalo to
 **Bank of Hawaii**
for underwriting
Hawai'i resident admission.

Publisher's Report

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• With each issue we have the privilege of adding a bevy of new subscribers to our readership. Many new subscribers say they've recently "discovered" *Pacific Magazine* on a trip to the islands, in a library, or through a friend. Here are a few answers to questions most often raised by new subscribers:

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Thank you for subscribing. Whether you are an island resident or an islandophile, we hope that our magazine enriches your interest in the Pacific region.

In This Issue

• After two years touring the U.S. Mainland, **Bishop Museum** has brought home an impressive collection of **Hawaiian artifacts** for display through August in Honolulu. **Robert Graham** reviews the exhibition on page 25.

• Palau's stumbling block on the Compact of Free Association was the **nuclear question** (page 10), but **Henry Schwalbenberg, S.J.**, discusses a prime issue to FSM voters: **strategic denial** (page 22);

• Many areas in the Pacific have recently suffered drought conditions. **Chris O'Meara** and **Chip Romeo** discuss some efforts to procure **fresh water supplies** (page 17).

• After a crewmember took ill on a recent cruise through Micronesia, Skipper **Earl Hinz** charted his boat, *Horizon*, toward **Johnston Atoll**. Hinz had a rare look at that seldom visited U.S. military outpost, and writes about some of the "secrets" of "Mysterious Isle" (page 29).

• **Prime Minister Michael Somare** of Papua New Guinea covered a wide range of subjects in an interview with editor **Greg Knudsen** (page 55); and **Western Samoa's latest prime minister, Tofilau Eti**, discussed his administration's plans with **Rosie Afamasaga** (page 15).

Can You Identify?

• **George Balazs of Honolulu** really knows his turtles. An expert on sea turtles, Balazs even knows stone ones. He was the first to identify last issue's mystery photo as a **turtle petroglyph located on Tutuila, American Samoa**. Balazs (who incidentally took the colorful cover photo for our Jul/Aug 82 issue) added: "Petroglyph sites like this need to be safeguarded by local residents since they represent a tremendously valuable cultural heritage." A free one-year subscription will go to Balazs for his photo ID.

Bravo Juan

MARCH/APRIL 1983



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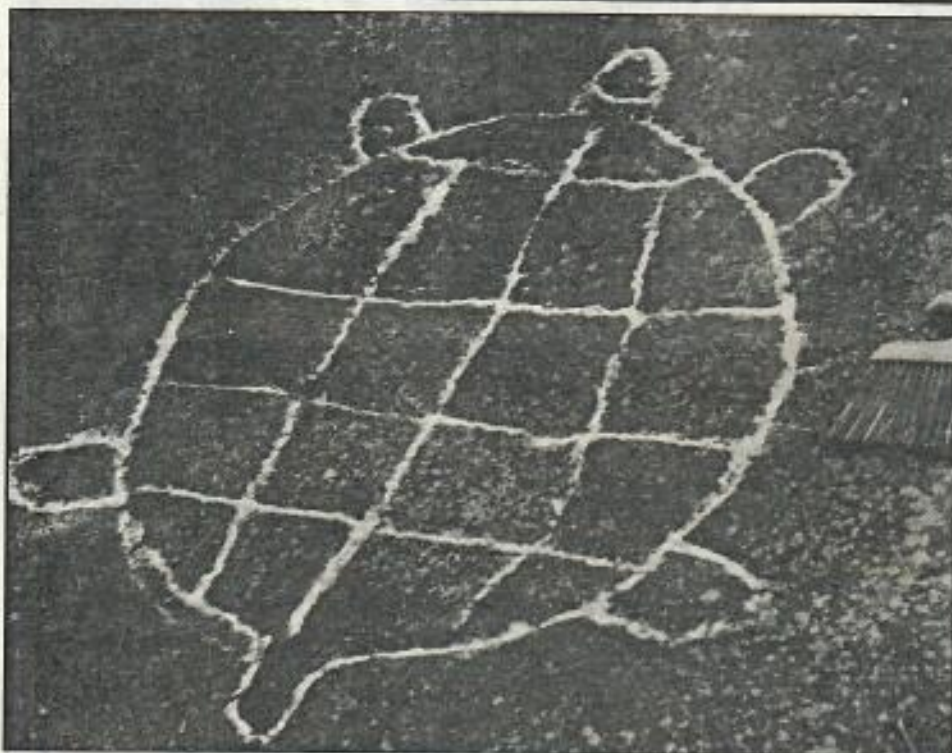
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The first person to correctly identify this photo will receive a free, one-year subscription to Pacific Magazine. The winner's name will appear in the next issue. (See Publisher's Report for details on last issue's Can You Identify.)

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Illustration by Gustav Berg from Oahu, Hawaii.

Puhā hewa ka honu i ka lā makani.

The turtle breathes at the wrong moment on a windy day.

Said of a person who says the wrong thing at the wrong time and suffers the result.

From *Yōki Nōwa: Hawaiian Proverbs and Their Origins*
by Mary Kawena Pukui. © Bishop Museum Press 1981.

There is one thing that causes some surprise in this series of legends, and that is, the absence of the well-known traditions in reference to Kahai (Maori Tavhaki) and of Maui. And yet both ancestors were known to the Hawaiians, for they enter into the genealogical table on page 25; and Mr. Westervelt in his little book, "Maui, the Demi God," has preserved a great deal relating to the latter from Hawaiian sources. For Maui has suggested that Kahai, his father, son and grandson were intermarried on the Hawaiian lines from southern genealogies, and this seems probable from the period in which they appear on the Hawaiian lines.

Altogether the appearance of this series of traditions marks a stage in the history of the Polynesian race to which the future historian must refer for much that is not elsewhere to be found. We congratulate Mr. Thrum on his labors, but wish he had seen his way to separate the "article" from the "noun" in proper names, and to have divided some very long names into their component parts by hyphens. Of course we know he was only following those who originally reduced the language to writing, but some of the names prove very difficult of pronunciation to those not having a knowledge of Polynesian languages.

WAIKIKI BEACH PROJECT.—Public opinion is aroused from time to time at the lessening area available to them of this much-heralded Honolulu attraction, and demands are made that private interests should not bar free access to the sand beach, bathing and surf-riding facilities of Waikiki. The matter is again agitated from both local and tourist-standpoints and is in the hands of a strong committee to devise the way and means of acquiring rights to a large section of beach property to be thrown open to the general public, that the famous recreative attraction prove Honolulu's worthy asset.

Thrum
Hawaiian Petroglyph Sources
(1825-1967)
Cox

THE writer has long been familiar with the petroglyphs of Kahaloa, Kona, and Naalehu, Kan., fully described and pictured by Mr. J. F. G. Stokes in No. 4, Vol. IV. of the Bishop Museum Occasional Papers and by Rev. W. D. Westervelt in the HAWAIIAN ANNUAL for 1906. There are also descriptions of other petroglyphs in different parts of the Territory, and references to other observers, in Mr. Stokes' article and in one by Mr. A. F. Judd in the HAWAIIAN ANNUAL for 1904.

For years rumors of extensive rock writings somewhere at the extreme northern end of Kona have filtered in to me, but only on recently reading in the paper above mentioned, about Mr. Stokes' discovery of a "remarkable sight of a couple of acres of pahoehoe closely covered with petroglyphs", on a trail at Puuanahulu in South Kohala", where it was "isolated by the flow of lava in 1859 and not easy of approach", did I determine to search for it. Mr. Stokes gives eight excellent photographs, considering that he had no chalk for outlining, and noted, in his brief examination, the innumerable forms, and what he calls concentric rings and cup marks, irregularly circular lines for the inclusion or separation of groups, and on the outskirts, Hawaiian names and initials, sometimes dated.

Proceeding by automobile to Huehue, North Kona, we got an early start in the saddle on what proved to be a forty-mile round-trip horseback journey on trails, a portion of which was over the roughest kind of lava. At one time these trails formed the main thoroughfare around the island, but on this occasion we saw but two living souls on the whole trip, tho we were away from the present main road thirteen hours. Reaching Kiholo in less than three hours, we pushed on toward Kawaihue, thinking that we might find our goal in the section between the flows of 1859, as that was surely "isolated by the flow of 1859", but it was away past both branches of this flow, some six or probably eight miles from Kiholo, and about two miles before the Kohala line. It was here, on some brown or

More Petroglyphs
(Puuanahulu and Honokohau)
by Albert S. Baker - M.A., M.D., B.A.

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ters included by an inclosing line may give the history of the journey. The illustrations will speak for themselves. It was impossible to get more than a few samples, and not all of these are chalked.

Luckily, just before dark, on the return journey, opposite a small stone-pile and a bit north of it, on the upper side of the trail, between the prominent flows from Hualalai and four or five miles from Kiholo toward Huelue and ten or twelve miles from the others, we saw a few ancient petroglyphs of the Kahalu type and ten or a dozen circles, up to three concentric ones, and one with two dots inside.

An entirely new group, or rather several groups, of very unusual petroglyphs was found on a recent visit to Honokohau makai, some three or four miles by trail from Kailua. These were found just west of a cement salt-pan, on either side of a



stone fence leading to the sea, and not far east of the heiau at the side of the fish pond. Here were a number of the Kahalu type of human figures again, and guns in excellent imitation. There were also three konane stones, as there are also three more in front of the village houses, a circle or so, some English letters, and various unknown figures. Again, a stone thrown south of the chapel are a few human figure, one elongated in a very peculiar manner, and a single figure twice as far from the chapel in a line toward the tombs north-east. Then there are also a half dozen guns and a human figure nearly at the tombs, in the same line from the chapel. So far as I know these have never been described, and the guns are

certainly unusual, as well as a peculiar type of ^{what I call} something like a tall hat.

The HAWAIIAN ANNUAL for 1915 refers to certain Italian petroglyphs in the States as being so similar to those in Hawaii, that we may have had early Indian visitors, but the Puanahulu variety add so many forms that it leaves the Hawaiian group distinct in itself, and excludes any probable connection.

Dr. J. Macmillan Brown of New Zealand visited the Kahalu petroglyphs with the writer in 1918, and expressed an opinion, based on other petroglyphs in the South Sea Islands, that the figures might represent humanized turtles or fish, and have to do with fishing rites, both when on the shore, as at Kahalu, and when inland. He considered them wholly Hawaiian. While the arms and legs are frequently flipper-like, and some are covered by the tide, yet again, the variety at Puanahulu excludes this theory also. It is a pity that this interesting mass of ancient picture writing is not more available for study by those competent to undertake the task.

KILAUEA VOLCANO DURING 1918.

BY L. W. DE VESKORTOX.

HAWAIIAN VOLCANO RESEARCH ASSOCIATION.

THE year just closed has been one of extreme interest so far as the great Volcano of Kilauea is concerned, and has seen spectacular changes and the greatest over-throw that have occurred within the past forty years. It should be remembered in studying this brief review, that the observed habits of the lava lakes of Kilauea point to a rise to the solstitial period, with a fall at equinox. There is, however, a secondary movement, due to gradual restraint and gradual release of gas pressure, productive of prolonged rising after the equinoctial fall, with a shorter fall before the rise to solsticy, while, after the rise to the solstitial period, subsidence may be expected to set in, with a pronounced rise immediately before the regular equinoctial fall. With this in view, it is interesting to have a

Hawm DU622 Thos. G. Thrum - Home 1921
AA Thrum's HAWAIIAN ANNUAL for 1922

chromium. Chemical analyses of some Hawaiian lavas that have been made by me in the last few months also show the presence of chromium and thus confirm the earlier observations. The actual percentages, it is true, are small and can be determined only by very careful chemical work, running from a trace up to about two or three tenths of one per cent. But chromium is very rare, if not entirely absent, in most lavas, so that such figures as these for this element, small as they may appear to be, are of great significance. In this connection it is especially noteworthy that fairly rich ore deposits of chromium are worked on the island of New Caledonia, where they occur with ores of nickel. Small amounts of nickel are also found in some of the Hawaiian lavas. On the other hand, numerous analyses also made by Morley show that the lavas of the circum-Pacific volcanoes of Japan, the Philippines, and of some of the islands of the Dutch East Indies do not contain either chromium or nickel, or but traces of them at best. There is, thus, good evidence that the lavas of the Pacific island volcanoes, contain notable amounts of chromium and of nickel, so that this is to be regarded as one of their minor chemical characters; while, on the other hand, the lavas of the surrounding coastal volcanoes are not characterized by the presence of these elements. We have seen above that the lavas of the two volcanic groups differ in their general chemical characters.

It must not be supposed, however, that there is any possibility of the discovery of workable chromium or nickel deposits on the Hawaiian Islands; these are but the summits of enormous volcanoes, while New Caledonia represents rather the basal portions, and has rocks (serpentine) of somewhat different character, in which the chromium and nickel are concentrated.

The matter is of special scientific interest because it is an excellent example of the way in which the various elements are distributed over the earth in the different lavas and other igneous rocks. The study of petrology is still scarcely more than in its infancy, but it gives promise of some interesting extensions of our knowledge of the composition and constitution of the earth.

Space is lacking for more examples of the varied problems presented by the study of lavas, including those of the Hawaiian volcanoes. But from what has been said it will be evident, I trust, that lavas are not all alike and of little interest except when they serve to furnish a magnificent scenic or pyrotechnic spectacle. Even when cold and inert—mere "chunks of rock"—they may be the objects of fruitful, interesting, indeed absorbingly fascinating study; and they may teach us much as to the globe that we inhabit, probably something also about the sun, and even possibly may give us a hint or two regarding the distant stars and the nebulae, out of one of which our own solar system is supposed to have been evolved.

PETROGLYPHS OF KAU.

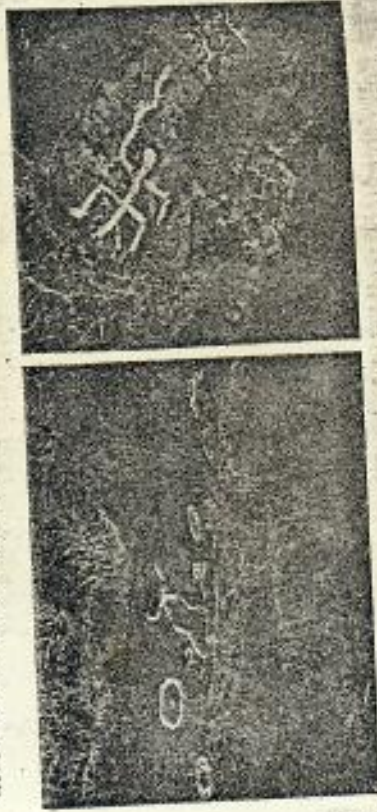
BY ALBERT S. BAKER, M.A., M.D., B.D.

AFTER writing of "Still More Petroglyphs" in the 1920 Annual, there was no expectation of continuing the subject, but a recent visit to the Volcano brought an invitation to view the petroglyphs discovered by Dr. T. A. Jagger, Jr., in the Kau desert, in the summer of 1920. We started in from the main government road by a very vague trail at first, although it soon grew much easier to follow. We left the road a little way on the Kilauea side of a pile of stones on a rock ridge, just a little in from the road on the Pahala side of a clump of trees in the pasture on the opposite side of the road, which clump is itself a little to the Pahala side of the main Kapapala Ranch gate, about an hour's ride by automobile from the Volcano.

Following this trail, which is one of several ancient Hawaiian trails which lead from different parts of Kapapala Puna, we come in about two miles to the so-called 1868 crack or rift, which is interesting in itself because of its tremendous length and weird depth and unique ball lava, the balls often being wrapped in extra layers of pahoehoe.

It may be well to note just here, that the recent Kau flow from Kilauea came out of this same crack much higher up, say some six miles from the crater, building Mauna Iki over the crack, a miniature Mauna Loa in shape, some two miles long. The flow is easily seen from the main road into Kau, having altered the whole skyline on that side. It flowed some five miles in all, with a little more issuing some nine miles from the crater and flowing about a mile. Previous flows from Kilauea have been in 1823 in Kau, partly covered by this flow, which broke out at the end of 1919; 1840 in Puna; a possible 1868 flow in Kau; and in the sea in Puna in 1884. In 1790 was the eruption from the crater of ashes, gas, sand, mud, pebbles, and boulders, over the whole neighborhood.

This so-called 1868 pahoehoe flow beyond the rift is easy to cross, and has many especially good tree molds, both above and below the surface, but we strike bad as later, especially in the 1823 flow. One has to be particularly careful when leaving the 1868 flow, not to take a trail to the shore, as cattle trails branch off in several directions, but to follow the same general direction in which we have been traveling.



The first petroglyphs are some two and a half miles from the crack, or four and a half from the road, at the head of an ancient lava channel, by temporary bench mark (T. B. M.) 1,249, between branches of the 1823 aa flow. They are few in number, extending for about 150 feet along the trail per-

laps. There are a few crude human figures of single line form, a few larger ones with bodies wholly cut out, and also some concentric circles and dots. One similar human figure is on a high rock above the trail about ten minutes walk farther on, and a half hour more, or within ten minutes of the end, at temporary bench mark 1,027, in black fresh-appearing lava of the 1823 pahoehoe, is an anchor, two circles near each other, a circle enclosing a dot, and two semi-circles or what are more like horseshoes or crescents perhaps, etc., for about 100 feet.



KAMOOLII HEIAU, KAU, HAWAII.

The end of our journey is in the Kamooolii region, by Kamooolii Heiau; a small heiau about twenty feet square, the lower half paved, just below the trail and this main group of some half acre of petroglyphs. This place is some two and a half miles from the first petroglyphs, or seven from the main road, perhaps 700 feet above the sea and 1,000 below the road, a couple of miles from the sea and twice as far below the end of the recent flow, in a wild lava region, in sight of Kenuhou and the high Puna bluffs. There are many small caves all about, some patches of grass, and many goats to add life to the scene. All this region is within the new Kilauea

National Park, which runs from shore to mountain-top, and will eventually comprise something like 100,000 acres.

One stone in the outside wall of the heiau toward Puna has petroglyphs, including a single line human figure with jointed legs and three-fingered and toed extremities. As in the larger fields on Hawaii the forms are very diverse. One man seems to grasp a stick, others have arms upraised, some figures seem to be animals, while circles, single and concentric, with and without dots, and semicircles are very common. One man has circles for legs, as does one figure at Kahaluu, Kona. Some figures are merely outlined and some wholly cut out.

An anchor seems to be represented here also, and what looks like a very good starfish, as well as many unrecognizable hieroglyphics in general, though some suggest oriental writings or even Greek letters.

Much is very crude, partly due to the nature of the rock, where an outer crust chips off jaggedly, leaving a darker surface underneath, as with the *kaalehu* petroglyphs, but some is in the usual hard pahoehoe and deep cut and smoothly done.

A few days later it was possible to revisit the *Naalehu* petroglyphs in company with Mr. Westervelt, with whom the writer first saw these, his first petroglyphs, sixteen years before, which visit he described in the *Annual for 1908*, under the title of "The Picture Rocks of *Naalehu*." It is not necessary to rewrite all that is known of Hawaiian petroglyphs, nor to refer to all the references, since this subject has already been summed up several times, only to state that from the first dis-



coveries of recent years descriptions and references to other and earlier writings have been published in the *Annals* of 1898, 1900, 1904, 1906, 1919, and 1920, and in the *Bishop Museum "Occasional Papers,"* Vol. IV, No. 4. Reference is made to *Naalehu* only in order to describe more fully the way to find the petroglyphs, themselves fully described by Mr. Westervelt as stated, and by Mr. Stokes in the *Bishop Museum Paper* just mentioned.

We passed through a gate just at the lower edge of the village of *Naalehu*, into and through a corral, and out into the pasture a little way from and along the lower side of a stone wall, for some three-fourths of a mile, to a group of *hala* trees near a natural bridge over an old lava channel. The petroglyphs are a few human figures under the bridge and on the *hala* tree side of it, on the upper wall of the channel. There are also a few petroglyphs by another clump of *hala* trees in the same channel about a quarter of a mile above and across the stone wall. These are also on the upper side wall of the channel. The lava scattered all over these fields shows unusual quantities of green chrysolite or olivin.

On this same trip two hitherto undescribed groups of petroglyphs in caves were shown us near *Pahala*. If the larger group can be called the *Kamooalii* group, and the other the *Naalehu* or *Natural Bridge* group, then these must be called the *Tortoise Cave* and *Cave of Refuge* Groups.

Part way from the lone *kukui* tree to *Pahala*, which tree is only a little way beyond the trail to the *Kamooalii* group, at the second concrete bridge from the trees, which is also the second bridge after leaving the trees about *Pahala*, we go toward the sea on a line from the bridge to the end of an old lava flow, for the *Cave of Refuge*. We go past and just to the right of a rocky protuberance with a few trees on its summit, perhaps two miles from the road, a third of a mile below the above rocky knob and a half mile before the end of the flow before mentioned, not far from a fence, to a small hole in the ground, with two more deep holes just beyond it and a third

still further toward the fence. We go down crude steps in the first hole, and just there at the entrance to the cave are a few lined human petroglyph figures and some solidly cut out spear heads, etc. Just above the second opening in the roof of the lava channel the cave had been so blocked with stone that only a narrow low opening had been left, through which only one person could enter at a time, as in the famous Cave of Refuge at Kalapana, Puna. A second similar barricade had been built a little further in, and smooth paving showed in the channel deep under the third opening. Lava tunnels ran off in all directions from different sections, and all the cave was well arranged for defense.

To reach the Tortoise Cave we leave the main road just a little nearer Pahala than for the Cave of Refuge, only go above. Proceeding from the latter, we walk above the road near a fence, finally crossing the fence, traveling only about a quarter of a mile in all. The cave is in the bed of the next stream, crossed nearer Pahala by the other concrete bridge. Here, near the entrance to the cave, were the usual crude human figures, male and female, and little else; while just above and around a bend, where it would be dark without artificial light, right in the bed of the ancient lava channel, is a large, finely shaped tortoise shell of lava, covered with the same kind of petroglyphs.

Mr. A. F. Judd, in the 1904 Annual, tells of petroglyphs discovered near Pahala by Mr. C. M. Walton, "in three caves not far apart, about a mile mauka of the mill and about five miles from the sea coast of Kau, chipped on the floor of the caves and a few on the ceilings." Nothing could be learned of these caves on this visit. They may be in the same neighborhood as the Tortoise Cave, although this is probably not one of them. Mr. Stokes, in his Bishop Museum Paper noted above, tells of a few small petroglyphs scattered along the shore in Kau, a couple of miles either side of Punaluu, and says that "it was this coast that Ellis referred to when describing the petroglyphs he saw."

Although not petroglyphs, it seems wise before leaving Kau, to tell of the bare footprints discovered by an observatory expedition to the Kau lava flow in the spring of 1920. To reach this place we go directly in toward Mauna Iki on a trail from the present so-called half-way house, much nearer the Volcano than the few ornamental trees and rusty iron tanks marking the site of the old half-way house. It is in the real desert region, some two miles from the road and a mile or two from the center of Mauna Iki, at the sandy region reached just past a prominent old aa flow.

The 1790 sand, mud, and ash eruption went all over this region, falling in layers over the rough rolling pahohoe at different levels and different angles. The lower sun-cracked mud layer has pisolitic mud rain-drops on its lower surface, just as the upper ash layer, above a foot or two of sand, is largely composed of them. Small stones also fell in the upper ash layer. These now stone layers are only an inch or two thick, and care must be exercised not to break them by too heavy foot pressure, as much has already been destroyed by the tramping of cattle and the ravages of time. Not only sun-cracks still show beautifully in what was the lower mud layer, but occasionally impressions of real rain drops may be seen. Both layers are yellow.

The best footprints show here; heel, ball of foot, and all of the toes, and of all sizes, even to a child's footprint. In places the once mud, but now stone, shows squeezed up around the footprints and between the toes in



Footprints in Pisolitic Ash Layer from Kilauea in 1796. Note how what is stone now squeezed around the feet when it was mud.

a most natural manner. A few prints are found in the lower layer, but most of them are in the upper layer, showing, however, that people were traveling during different periods of the 1790 eruption, as well as just after it. The footprints have been found by Dr. Jaggar here and there, in a strip some three-fourths of a mile wide, from a mile above this spot to two miles below it. The fact that these footprints, over 130 years old, are headed in all directions, makes one think that the people were not fleeing, but either sightseeing or perhaps looking for those who had been killed in Keoua's army. Both Keoua's army and these other travelers probably passed the volcano on the side of the present road, judged by the direction in which this strip of footprints extends and also because the funes would have been very bad on the other side.

Before closing this article on the petroglyphs of Kauai, it may be well to mention other recent undescribed finds, the largest being made by Mr. Kenneth Emory in the summer of 1921 on the island of Lanai. Most of these petroglyphs are at a high elevation, on boulders, some figures being of animals, but most being of human beings. In the summer of 1919 Mr. Charles N. Forbes found a few red ochre pictographs of human beings, on the trail to Keanae Gap in Haleakala crater on Maui.

On Oahu Mr. Emory kindly took the writer to see the Nuuanu Valley petroglyphs, long known by several people but only recently considered seriously in connection with other finds. We go in under the pretty trees, over the old Pacific Heights car-track bed opposite Bates Street, in Nuuanu Valley, but soon turn to the left to follow up the left side of the main Nuuanu stream, here near the Pacific Heights wall of the valley. The petroglyphs are all on the hard ledge rocks, and rather difficult to find, all the forms being wholly chipped out, although very roughly done and only to a very slight depth. The first were perhaps a third of a mile up from the Nuuanu car line, where the high rocks first come close to the trail. An animal is seen by the trail, where one must climb to a high

bench of rocks to find some, and also from there down in between rocks to find others. It is on the left of the trail just before reaching a concrete water drain which passes under the trail. Here are several human figures, and what appear like cows and dogs or pigs as much as anything. A little further along the trail we climb up into a split in the rocks and down into a cave-like place for a number of male and female human figures, and a very little further up the trail and on a level with or below it, just abreast of a path into Alapena Pool, are a few more. The cave-like place has peculiar regularly lined rock all ready for pictures. Of course, being right in the city, there is considerable modern stuff all around it. This is about a quarter of a mile below the end of the trail at Kapena Falls and Pool.

In the Bishop Museum is a cast of a large petroglyph rock owned by Miss M. Damon, some three miles up Moanalua Valley, and there are also other samples, including a number of artificial footprints from Molokai.

It took the writer so long to find the petroglyph cave near Koko Head, that directions for that will close this article, although the petroglyphs are few, difficult of access, and have been fully described. See 1904 Annual. One should go straight ahead, instead of turning toward the old Koko Head wireless station, when over the various bridges, and up the ridge between Koko Head and Koko Crater as far as one will venture his automobile. Then bear to the left along the path on the ridge away from pretty Hananua Bay, to the height near the ocean past the sunken crater. Going down to the left past the shore wireless masts, one should cross the first little gulch, which seems like an outlet from the sunken crater, and go down along the nearer edge of the second gulch on to the shore ledges, if there is not too rough a sea or too high a tide. The cave is toward Koko Crater, well around the first point to the left and north, after one has reached the shore rocks by the water. It is considerably before one comes to the fresh water trickling down the rocks from the green growth above to the

well within reach of the high sea waves. Aside
from the few rough petroglyphs seen, the
trip shows us a fine picnic region for other
excursions.

By John F. G. Stokes start p. 257
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Director's Annual Report.

70 Austral Islands, collected for the Museum by Mr. Seale in 1902. The channels are .1 inch deep and .6 inch wide, and had been slightly scratched by a pointed tool (as may be seen in the illustration) before the specimen reached the Museum. It was broken from the smallest of a circle of upright stones, all similarly graven. The surface of the stone has been bleached to a depth



FIG. 50. PETROGLYPHS FROM BORABORA, SOCIETY IS.

varying from .1 to .3 inch by weathering and makes a strong contrast with the almost black stone showing at the broken edge. The bleached part is naturally softer than the interior, and if this skin had been penetrated by the graving in order to bring out the contrast of the dark and the light, the weather has since made the whole surface uniform.

The other instance is of several petroglyphs on a large stone in Borabora, Society Islands. A postal card illustrating these was given to the writer, in answer to enquiries for rock-carvings in the South Pacific, by an officer of the French cruiser "Protet," and I

much regret that his name has slipped my memory. These petroglyphs (Plg. 50) show a workmanship which seems to far surpass that of the Hawaiians, and it is hoped that some investigation may soon be carried on in this interesting field, if it has not been done already. All the literature relating to the southern islands, which has so far been delved into, is silent on the subject.

At the present stage of investigation of Hawaiian petroglyphs and with meagre information concerning them gleaned from native sources, it seems premature to attempt an explanation of the objects or uses to which these primitive or literary efforts may have been applied.

[295]

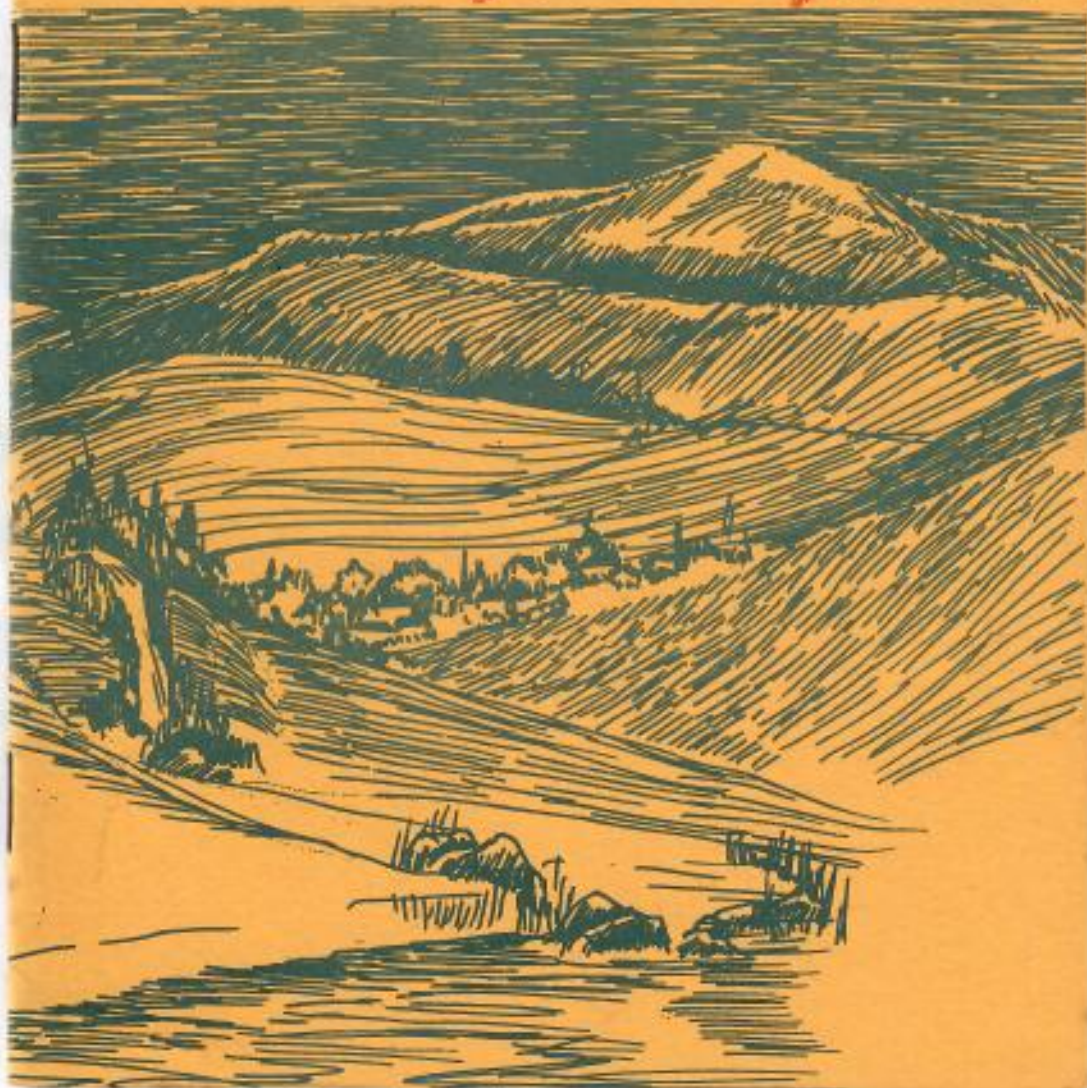


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Ghosts of the

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Hilo Hills



Ghosts of the Hilo Hills

Ghosts of the Hilo Hills

by

W. D. Westervelt



The Petroglyph Press, Ltd.

HILO

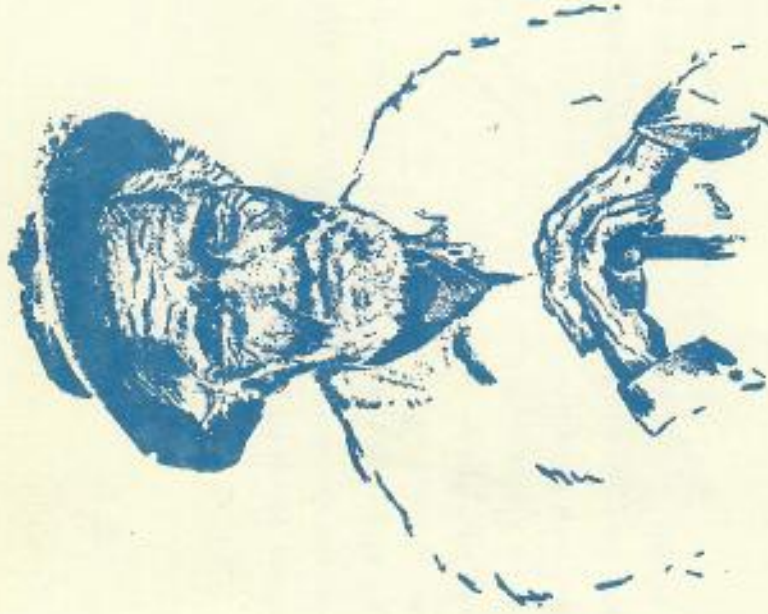
1968

HAWAII



Preface

This is a legend of Hina, the mother of Maui. Hina is a Polynesian goddess whose story is very interesting—one worthy of study when comparing the legends of the island groups of the Pacific. The Hina of Hilo is the same as the goddess of that name most widely known throughout Polynesia—and yet her legends are located by the ancient Hawaiians in Hilo, as if that place were her only home. The legends brought with the immigrants who settled on the Hilo coast are so old that the Hawaiians have forgotten their origin in other lands.



Ghosts of the Hilo Hills

THE legends about Hina and her famous son Maui and her less widely known daughters are common property among the natives of beautiful little city of Hilo. One of these legends of more than ordinary interest finds its location in the three small hills back of Hilo toward the mountains.

These hills are small craters connected with some ancient lava flow of unusual violence. The eruption must have started far up on the slopes of Mauna Loa. As it sped down toward the sea it met some obstruction which, although overwhelmed, checked the flow and caused a great mass of cinders and ashes to be thrown out until a large hill with a hollow crater was built up, covering many acres of ground.

Soon the lava found another vent and then another obstruction and a second and then a third hill were formed nearer the sea. These hills or extinct craters bear the names of Halai, Opeapea and Puu Honu. They are not far from the Waituku river, famous for its picturesque waterfalls and also for the legends which are told along its banks. Here

Maui had his lands overlooking the steep bluffs. Here in a cave under the Rainbow Falls was the home of Hina, the mother of Maui, according to the Hawaiian stories. Other parts of the Pacific sometimes make Hina Maui's wife, and sometimes a goddess from whom he descended. In the South Sea legends Hina was thought to have married the moon. Her home was in the skies, where she wove beautiful tapa cloths (the clouds), which were bright and glistening, so that when she rolled them up flashes of light (cloud lighting) could be seen on the earth. She laid heavy stones on the corners of these tapas, but sometimes the stones rolled off and made the thunder. Hina of the Rainbow Falls was a famous tapa maker whose tapa was the cause of Maui's conflict with the sun.

Hina had several daughters, four of whose names are given: Hina Ke Ahi, Hina Ke Kai, Hina Mahuia, and Hina Kuluua. Each name marked the peculiar "mana" or divine gift which Hina, the mother, had bestowed upon her daughters.

Hina Ke Ahi meant the Hina who had control of fire. This name is sometimes given to Hina the mother. Hina Ke Kai was the daughter who had power over the sea. She was said to have been in a canoe with her brother Maui when he fished up Coconut Island; his line breaking before he could pull it up to the mainland and make it fast. Hina Kuluua

was the mistress over the forces of rain. The winds and the storms were supposed to obey her will. Hina Mahuia is peculiarly a name connected with the legends of the other island groups of the Pacific. Mahuia or Mafuic was a god or goddess of fire all through Polynesia.

The legend of the Hilo hills pertains especially to Hina Ke Ahi and Hina Kuluua. Hina the mother gave the hill Halai to Hina Ke Ahi and the hill Puu Honu to Hina Kuluua for their families and dependents.

The hills were of rich soil and there was much rain. Therefore, for a long time, the two daughters had plenty of food for themselves and their people, but at last the days were like fire and the sky had no rain in it. The taro planted on the hillsides died. The bananas, sugar cane and sweet potatoes withered and fruit on the trees was blasted. The people were faint because of hunger, and the shadow of death was over the land. Hina Ke Ahi pitied her suffering friends and determined to provide food for them. Slowly her people labored at her command. Over they went to the banks of the river course, which was only the bed of an ancient lava stream, over which no water was flowing; the famished laborers toiled, gathering and carrying back whatever wood they could find, then up the mountain side to the great koa and ohia forests, gathering their burdens of fuel according to the wishes of their chiefess.

Their sorcerers planted charms along the way and uttered incantations to ward off the danger of failure. The priests offered sacrifices and prayers for the safe and successful return of the burden-bearers. After many days the great quantity of wood desired by the goddess was piled up by the side of the Halai hill.

Then came the days of digging out the hill and making a great imu or cooking oven and preparing it with stones and wood. Large quantities of wood were thrown into the place. Stones best fitted for retaining heat were gathered and the fires kindled. When the stones were hot, Hina Ke Ahi directed the people to arrange the imu in its proper order for cooking the materials for a great feast. A place was made for sweet potatoes, another for taro, another for pigs and another for dogs. All the form of preparing the food for cooking was passed through, but no real food was laid on the stones. Then Hina told them to make a place in the imu for a human sacrifice. Probably out of every imu of the long ago a small part of the food was offered to the gods, and there may have been a special place in the imu for that part of the food to be cooked. At any rate Hina had this oven so built that the people understood that a remarkable sacrifice would be offered in it to the gods, who for some reason had sent the famine upon the people.

Human sacrifices were frequently offered by the Hawai-

ans even after the days of the coming of Captain Cook. A dead body was supposed to be acceptable to the gods when a chief's house was built, when a chief's new canoe was to be made or when temple walls were to be erected or victories celebrated. The bodies of the people belonged to the will of the chief. Therefore it was in quiet despair that the workmen obeyed Hina Ke Ahi and prepared the place for sacrifice. It might mean their own holocaust as an offering to the gods. At last Hina Ke Ahi bade the laborers cease their work and stand by the side of the oven ready to cover it with dirt which had been thrown out and piled up by the side. The people stood by, not knowing upon whom the blow might fall.

But Hina Ke Ahi was "Hina the kind," and although she stood before them robed in royal majesty and power, still her face was full of pity and love. Her voice melted the hearts of her retainers as she bade them carefully follow her directions.

"O my people. Where are you? Will you obey and do as I command? This imu is my imu. I shall lie down on its bed of burning stones. I shall sleep under its cover. But deeply cover me or I may perish. Quickly throw the dirt over my body. Fear not the fire. Watch for three days. A woman will stand by the imu. Obey her will."

Hina Ke Ahi was very beautiful, and her eyes flashed

light like fire as she stepped into the great pit and lay down on the burning stones. A great smoke arose and gathered over the imu. The men toiled rapidly, placing the imu mats over their chiefess and throwing the dirt back into the oven until it was all thoroughly covered and the smoke was quenched.

Then they waited for the strange, mysterious thing which must follow the sacrifice of this divine chiefess.

Halai hill trembled and earthquakes shook the land round about. The great heat of the fire in the imu withered the little life which was still left from the famine. Meanwhile Hina Ke Ahi was carrying out her plan for securing aid for her people. She could not be injured by the heat for she was a goddess of fire. The waves of heat raged around her as she sank down through the stones of the imu into the underground paths which belonged to the spirit world. The legend says that Hina made her appearance in the form of a gushing stream of water which would always supply the wants of her adherents. The second day passed. Hina was still journeying underground, but this time she came to the surface as a pool named Moe Waa (canoe sleep) much nearer the sea. The third day came and Hina caused a great spring of sweet water to burst forth from the sea shore in the very path of the ocean surf. This received the name of Auauwai. Here Hina washed away all traces of her journey through

the depths. This was the last of the series of earthquakes and the appearance of new water springs. The people waited, feeling that some more wonderful event must follow the remarkable experience of the three days. Soon a woman stood by the imu, who commanded the laborers to dig away the dirt and remove the mats. When this was done, the hungry people found a very great abundance of food, enough to supply their wants until the food plants should have time to ripen and the days of the famine should be over.

The joy of the people was great when they knew that their chiefess had escaped death and would still dwell among them in comfort. Many were the songs sung and stories told about the great famine and the success of the goddess of fire.

The second sister, Hina Kuluua, the goddess of rain, was always very jealous of her beautiful sister Hina Ke Ahi, and many times sent rain to put out fires which her sister tried to kindle. Hina Ke Ahi could not stand the rain and so fled with her people to a home by the seaside.

Hina Kuluua (or Hina Kuliua as she was sometimes known among the Hawaiians) could control rain and storms, but for some reason failed to provide a food supply for her people, and the famine wrought havoc among them. She thought of the stories told and songs sung about her sister and wished for the same honor for herself. She commanded her people to make a great imu for her in the hill Puu Honu.

She knew that a strange power belonged to her and yet, blinded by jealousy, forgot that rain and fire could not work together. She planned to furnish a great supply of food for her people in the same way in which her sister worked.

The oven was dug. Stones and wood were collected and the same ghostly array of potatoes, taro, pig and dog prepared as had been done before by her sister.

The Kahunas or priests knew that Hina Kuluua was going out of her province in trying to do as her sister had done, but there was no use in attempting to change her plans. Jealousy is self-willed and obstinate and no amount of reasoning from her dependents could have any influence over her.

The ordinary incantations were observed, and Hina Kuluua gave the same directions as those her sister had given. The imu was to be well heated. The make-believe food was to be put in and a place left for her body. It was the goddess of rain making ready to lie down on the bed prepared for the goddess of fire. When all was ready, she lay down on the heated stones and the oven mats were thrown over her and the ghostly provisions. Then the covering of dirt was thrown back upon the mats and heated stones, filling the pit which had been dug. The goddess of rain was left to prepare a feast for her people as the goddess of fire had done for her followers.

Some of the legends have introduced the demi-god Maui into the story. The natives say that Maui came to "burn" or "cook the rain" and that he made the oven very hot, but that the goddess of rain escaped and hung over the hill in the form of a cloud. At least this is what the people saw—not a cloud of smoke over the imu, but a rain cloud. They waited and watched for such evidences of underground labor as attended the passage of Hina Ke Ahi through the earth from the hill to the sea, but the only strange appearance was the dark rain cloud. They waited three days and looked for their chiefess to come in the form of a woman. They waited another day and still another and no signs or wonders were manifest. Meanwhile Maui, changing himself into a white bird, flew up into the sky to catch the ghost of the goddess of rain which had escaped from the burning oven. Having caught this spirit, he rolled it in some kapa cloth which he kept for food to be placed in an oven and carried it to a place in the forest on the mountain side where again the attempt was made to "burn the rain," but a great drop escaped and sped upward into the sky. Again Maui caught the ghost of the goddess and carried it to a pali or precipice below the great volcano Kilauea, where he again tried to destroy it in the heat of a great lava oven, but this time the spirit escaped and found a safe refuge among kukui trees on the mountain side, from which she sometimes rises in clouds which the natives say are the surc sign of rain.

Whether this Maui legend has any real connection with the two Hinas and the famine we do not surely know. The legend ordinarily told among the Hawaiians says that after five days had passed the retainers decided on their responsibility to open the imu. No woman had appeared to give them directions. Nothing but a mysterious rain cloud over the hill. In doubt and fear, the dirt was thrown off and the mats removed. Nothing was found but the ashes of Hina Kuluua. There was no food for her followers and the goddess had lost all power of appearing as a chiefess. Her bitter and thoughtless jealousy brought destruction upon her and her people. The ghosts of Hina Ke Ahi and Hina Kuluua sometimes draw near to the old hills in the form of the fire of flowing lava or clouds of rain while the old men and women tell the story of the Hinas, the sisters of Maui, who were laid upon the burning stones of the imus of a famine.



Ghosts of the

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Hilo Hills



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Lee Mottler

Hidden Petroglyphs

THERE'S A secret inland cave in Hawaii Volcanoes National Park that's loaded with petroglyphs — about 550 of them recorded thus far — that few people alive today have ever seen.

Bishop Museum archaeologists make up most of the few. Then there are a few members of the National Park staff who have been guided there. Only one non-professional is known to have entered the cave.

She's an old hand at assessing ancient Hawaiian values and was immediately attuned to this cave's fragility and research potential.

If Joann even left any footprints, they have not been found.

Joann Morse's preliminary report in 1974 on the archaeological site sparked the scientific study. Phase I of the study is complete; Phase II awaits further funding.

MEANWHILE, the cave is off-limits officially to protect it from eager, but perhaps insensitive, curi-

Archaeologists are studying petroglyphs in a secret cave in Hawaii Volcanoes National Park.

By Russ and Peg Apple

Tales of Old Hawaii



recorded, plus perhaps an even greater number yet to do. All exhibit, the Bishop Museum says, "a delicate, or fine-lined, light-handed style that is unusual for Hawaiian petroglyphs."

Hawaiians found it relatively easy to peck petroglyphs in the main cave. Its numerous natural ledges and shelves run almost the entire length of the lava tube, and have a surface like glazed pottery. The glazed surface is thin and covers a relatively porous and soft lava.

Even the smallest petroglyphs are executed in great detail.

Toes, fingers, hair and head-dresses are common on the human figures.

PICTORIAL GROUPINGS are rare in Hawaii, but at least two such groupings were found in the main cave. One group is a cluster of six, almost identical triangular-body figures.

The other group is of two tiny, detailed fighting cocks inside a circle, with three human spectators.

Bishop Museum archaeologists believe the main cave was used frequently for shelter for 200 years, from about 1600 to 1800. It was a stopping place on trips between coastal fishing areas and the upland forests. It may have also been used for longer periods during wet winters.

No historic artifacts were found. None of the petroglyphs seen thus far had European motifs, such as letters, dates, or sailing ships, which are frequently found at other sites.

Chances are that the main cave, and the Hawaiians who used it, were uncontaminated by Western man.

osity seekers. Anyway, it's hard to find and difficult of access.

Someday, U.S. park rangers hope to run guided tours to it.

No, right now even the Apples don't know exactly where it is, nor do we want to. We might talk in our sleep.

What makes the cave — actually an ancient lava tube — so special and valuable is that the archaeologists were the first people to enter it since the Hawaiians walked away about 178 years ago.

When they abandoned it, about A.D. 1800, they left a few things behind, like wooden tapa beaters, coral abraders, bone fishhooks, birdbone picks, drilled shells and shell scrapers.

NEAR THE main cave are short stepping-stone trails across narrow fingers of rough lava that interconnect rock platforms, stone mounds, some other caves where people stayed and worked, shelters made in lava sinks and broken gas blisters, and an open-air petroglyph field with perhaps 100 petroglyphs.

Four test pits were excavated in the main cave — three to uncover some partially buried petroglyphs and one to look for carbon samples for dating the Hawaiian occupancy of the area.

Beneath the soil in one pit, cut on a smooth basalt ledge, were 27 petroglyphs: five complete human figures, four incomplete ones, a dog, a fishhook shape, eight simple dots, two groups of dots and a variety of six lines with dots.

The other two pits revealed 53 petroglyphs in one and 28 in the other.

THESE ARE part of the 550



a



b



c

0 50cm

Selected petroglyphs from the secret cave. The figures in upper right are of two fighting cocks inside a circle, with three human spectators.

Among the specialized art products of Niihau and Kauai, the mats of *makaloa* sedge are famous, as well as many of the mat designs. The sedge grew elsewhere but the mats were seldom made except on these two islands. The decoration of gourds and calabashes was done most extensively on Kauai and Niihau. Leis of small shells were made particularly on Niihau.

The technique of using two hands for pounding poi with a ring or block pounder was closely associated with the special forms. Also the fact that both men and women prepared food is an interesting distinction, as on the other islands the women were seldom permitted to take part in the food preparation. Another cultural difference is that mentioned by Cook—the lack of distinction among the Kauai chiefs. The fact that Cook landed at Waimea and the greatest chiefs lived on the opposite side of the island, at Wailua, may have influenced this opinion.

A linguistic distinction is mentioned by Fornander (24, p. 59.):

The effect of the new migration was great on the people. It even effected the speech of the people and as late as fifty years ago it was easy to distinguish a native from the leeward islands from one of the windward by his manner of pronouncing the *k* and *l*, which Kauai and Oahu natives, adopting the Tahitian style, pronounced *t* and *r*.

A slight distinction in physical measurements was noted by Sullivan (52, p. 273.):

A resume of Table XLIV shows that the differences from island to island are small. In specific instances some slight tendencies to differentiate appear; for instance, in cephalic index, for both sexes, Oahu and Kauai are opposed to the other islands, the index being lower. In head length this same grouping is more noticeable than in head width. In other characteristics, no such grouping is indicated.

Many of these features must be considered purely local developments of no great significance. Some of them, however, seem to indicate traces of an older Hawaiian culture which was covered by the later influx. Since Kauai became clearly part of the dominant Hawaiian culture, these distinctions must be carefully sought out. The contrasts are not glaring. The block grinders and the slab prototype of the block rubbers together with the Menes-hume cut stone causeway have flat surfaces and sharp angularity that contrasts with the curves in most of the later Hawaiian work. In this angularity, straight lines, and surfaces, there is some analogy to the Niihau and Necker culture. The place of women in preparing food, the speech difference, the slight skeletal difference, and to a greater or less extent the different artifacts all point to a culture not the same as the dominant later Hawaiian.

The following queries present themselves. If Kauai block rubbers and grinders are a feature of an earlier culture why are they not found on the other Hawaiian islands, at least in the primitive forms? why are they not found on Niihau or Necker islands? why have they not been found elsewhere

in Polynesia? If, on the other hand, they are local developments for the island of Kauai, why are there not more primitive, experimental forms, especially among the grinders?

If Niihau and Necker represent the early Hawaiian culture, why are there not more analogies found in Hawaii? The temple form on these islands is fairly well standardized—a non-Hawaiian characteristic. Wooden slabs may have been used as uprights on Kauai, but why are not some dike prisms found, like those on Niihau? And why are there not more of the artifacts found? So far only two, possibly three, adzes resembling the Necker type have been found among the thousands of Hawaiian adzes. None of the Necker images have been found on the other Hawaiian islands.

The geographical and political isolation of Kauai favors the development of local cultures and the retention of traces of a previous culture. In many ways it has developed local peculiarities, but at the same time it is dominantly part of the great Hawaiian culture. Certain local peculiarities suggest a previous culture that probably existed before and contemporaneously with the later culture. Also Kauai shows the closest relation to the Niihau and Necker non-Hawaiian culture.

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Oceanian Papers
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Director's Annual Report.

- Iracundus signifer* Jordan & Evermann. 4.2.
- Peristedion eugyceros* (Günther). 11.5. Lahaina.
- Cephalacanthus orientalis* (Cuv. & Val.). Lolo-ouu. 10.5.
- Osurus schauinslandii* (Steindachner). 4.6.
- Eleotris sandwicensis* Vail. & Sauv.). Oopu. 4.6.
- Brotula marginalis* Jenkins. 11.
- Platophrys pantherinus* (Rüppel). 7.
- One species not determined. 4.6.
- Antennarius leprosus* (Eydox & Souleyet). 4.2.

Two hundred and fifty-three casts in all.

[120]



Stone Sculpturings in Relief from the Hawaiian Islands.

By JOHN F. G. STOKES.

A STONE bearing a remarkable pair of petroglyphs was, a few years ago, ploughed up at a place called Puu o Ma'o on the cliff forming the eastern side of Moanalua valley, near Honolulu, and after being taken to the house of the owner, Hon. S. M. Damon, was photographed with that gentleman's kind permission.

The stone is an irregularly shaped piece of rather finely cellular basalt, measuring 31 inches long, 21 wide and 17.5 thick, the face of which has been carefully worn down by hammering with a stone or dull metal instrument, leaving the representations of two human figures in relief (fig. 1, *b* and *a*) the outer surface of which formed part of the original surface of the stone. The workmanship in the two figures differs in regard to care of execution, which is probably due to the fact that fig. 1, *a*, was nearer completion, and, being in higher relief than the other, this would allow greater scope to the dull tools applied. The area enclosed by the bodies, arms and thighs of both figures and the arm and chin of fig. 1, *a*, is higher than the surrounding plane. The sculptured surface might thus be likened to a zincotype well routed out. This would seem to be due to the deficiencies of the tools used.

The height of relief of fig. 1, *a*, varies somewhat, being at finger tip 1.1 inches, between chin and hand .8, chin 1.4, back 1.8, buttocks 2, foot .1 to .3, knee 1.3, between knee and elbow .6, belly .8. The measurement from head to foot is 11.8 inches. In this figure a piece has been recently broken out of the arm, leaving a scar running from the finger to the elbow; but it is still perfectly clear that the hand had only three fingers. It is also evident that an attempt was made to represent the juncture of the wrist and hand by a narrow cross ridge. A comparison with the conventionalized hands of the Maori carved figures might not be out of place. The portion representing the face has been symmetrically chipped away on both sides leaving a blunt ridge running from the forehead to

[121]

(37)

the upper lip without any distinctive mark to indicate the nose. At the angle of the cheek a piece has been gouged out to represent the eye. The chin has not been worked down and stands higher in relief than the upper lip. The mouth has been chipped at an angle. The head is joined to the shoulder directly above the armpit by a narrow flattened ridge, back of which is a shallow



b
FIG. 1. a

groove. The portion from the parietal region to the middle of the back has not been finished, as is apparent from the slope of the stone and the rough pits remaining (figs. 1 and 2). The shoulder is in higher relief than the head. The back as far as finished is well rounded. The buttocks are curved well under the figure. There was hardly enough material to carve the whole foot in relief, but a very prominent heel was left. The length of the foot traceable is 2.3 inches. The knee is represented by a straight cut 1 inch long. The edge of the belly was finished at a right angle.

[122]

probably by rubbing. The surface of this figure is as smooth as the rough lava would permit, and undoubtedly this effect has been produced by the same process.

Figure 1, b, measures 10.2 inches from crown to toe; the height in relief at back is .8 inch, and at belly .5. Unfortunately the outer part of the head has been recently broken off, but sufficient



FIG. 2. BACK VIEW OF a.

remains to show that there was no mouth. In contrast with fig. 1, a, this head was set firmly on the body. The chin is very angular. The hand appears to have only two broad fingers, wide spread, but probably it is unfinished. The foot is clearly shown in the photograph and is 2.2 inches long. The edge of the belly was squared and the other parts rounded. The carving was nowhere carried under the figure as in a. The surface is rough, and has probably not been rubbed. No doubt this figure is incomplete.

That the sculpturings were made in these islands there can be little doubt. Though the stone has not been chemically analyzed,

it is of a kind very common at Moanalua, forming a stratum four or five feet thick in the cliff of that valley. It might be surmised that the work was done with stone tools, from the pittings on the unfinished portions. Even were a dull metal instrument employed, it might be expected that the pittings would be deeper and that there would be evidence of an occasional glancing blow. It might be mentioned that the numerous imitations of stone idols seen in these days show nothing of the care with which these figures have been carved. The land where the stone was found was uninhabited from the middle of last century until about 1891 (when Mr. Damon's dairy was installed). There is one point yet to be cleared up. Mr. John Cullen, Mr. Damon's rancher, employed two men to prepare the small piece of land for planting, and a number of stones were dug up and used to fence the land, the stone in question, for some reason unknown, being left in the field. These men have since left the country. After their departure, Mr. Cullen, a staunch North Briton, seeing the stone in the field and wondering why it had not been placed in the wall with the others, made an examination and found the sculptures. If ever the two men are heard from, more may be learned concerning the details of the discovery.

Before accepting the petroglyphs as of Hawaiian conception, it would be well to consider the carving in profile, the squatting position and the detail of the limbs, which place these figures in a class apart from the Hawaiian petroglyphs so far discovered. The native wooden images were carved with a close attention to detail. The stone idols mostly consist of a crudely carved face at the end of a stone, but on all the Hawaiian idols observed, the nose was distinct. In fig. *a* there was sufficient space for the artist to carve a nose in place of the low ridge by which he indicated the central line of the face. In this respect fig. *a* calls to mind the figures on the Marquesan bone carvings and wooden stilt rests. The Rev. Wm. Ellis gives an illustration of a wooden idol with a long head and similar features, which was secured by Rev. John Williams in Rarotonga. Edge-Partington and Heape's figure another one,

¹An illustration of shaping poi pounders by chipping with pebbles may be seen in Mem. B. P. B. Mus., vol. i, p. 375, fig. 39.

²Polynesian Researches, London, 1830. Vol. ii, frontispiece, upper right hand corner.

³Ethnographical Album, first series, plate 23, fig. 6.

accredited to the same island, but it is doubtful how much consideration should be given these resemblances.

The carving in profile and position of the limbs of the petroglyphs seem to find close analogy to a figure carved on stone and seen at Orongo, Easter Island, by Mr. W. J. Thompson.⁴ This figure was perhaps another form of the god *Meke-meke*, which Mr. Thompson says was the most common figure carved at that part of the island. However, an examination of the numerous tablets illustrated in the plates accompanying Mr. Thompson's work will show a character, with variations, closely resembling the former figure, which, from the frequency of its occurrence, might be considered as a representation of a human form portrayed in various acts. Among the Maori carvings, birds and lizards are found in profile, but the conventionalized human figure is always presented with full face, even when the body is seen in profile.

The squatting position of the figures is not uncommon in Polynesia, as seen in these islands, remarked by the missionaries at Tahiti,⁵ by Melville⁶ at Nukuhiva, and by Rev. Wm. Ellis⁷ at Huahine.

The sculpturing in relief has already been observed on two Hawaiian stone lamps, one of which was recently purchased by this Museum with the Deverill collection (fig. 3), and the other, with a similar figure on one side only, was seen by the writer in 1900 on board a small local steamer which was wrecked a few days later. However, these figures have no other resemblance to those at present under discussion. The Bishop Museum is in possession of two stone fish gods with carvings of fish in relief. One, from the Deverill collection, represents a human head, with the face very well made and the neck shaped like a fish tail, the whole giving the suggestion of a round-bodied fish. At the back of the head a smaller fish two-thirds the length of the whole, has been carved in relief. The length of the idol is 8.5 inches. The second fish god is a thick stone roughly triangular in plan, with top and bottom flat and sides perpendicular. The top has been worked

⁴The Pito te Henua, by Paymaster William J. Thompson, U. S. Nat. Mus. Report for 1889, p. 481, fig. 7.

⁵Ibid., fig. 8.

⁶Missionary Voyage of the Duff, London, 1799, p. 77.

⁷Typee, New York, 1876, pp. 74 and 257.

⁸Polynesian Researches, London, 1830, vol. ii, pp. 209 and 210.

down at the edges for about an inch, leaving the shape of a deep flat-bodied fish, nine inches long. The material in both these specimens is a very hard compact lava.

Returning to the first subject. It is evident that the work was done here from the fact that it is unfinished, apart from the improbability of such a heavy stone being transported in canoes. The stone is comparatively soft and would not weather well, though being buried in a comparatively dry soil, it might last indefinitely. From its incomplete state and the fact of its burial, it might be argued that it was being carved at the time of the abolition of the tabu in 1819, and that the sculptor hid it for preservation during the general destruction of idols which followed. This concealment of images by their devoted attendants has been the means of preserving many valuable specimens to the present day.

Seeking the significance of the figures—it is not yet understood if the various Hawaiian petroglyphs are to be considered in the light of a written language. The natives belonging to Moanahua now living had not seen the stone, and the best explanation the oldest inhabitant could give was that the figures represented the mythical giant lizard, "Moo", which was ever present in native superstitions. The same suggestion has been made by natives from other islands of this group, but only from appearances.

A first glance at the figures would suggest two human beings in the act of prayer, but the older natives consulted, do not associate this position with that taken by Hawaiians engaged in the old forms of prayers. They describe several postures—depending on the nature of the prayer—standing, on hands and knees, on elbows and knees with forehead resting on the hands, sitting with legs and hands folded, also sitting with legs to one side and hands on the ground. In all these positions, they say that the head should be hung. The observant Ellis⁹ when at Huahine, noted some of the positions taken by the southern Polynesians in prayer, and remarked: "The petitioner did not address the god standing or prostrate, but knelt on one knee, sat cross-legged, or in a crouching position, on a broad flat stone, leaning his back against an upright basaltic column, at the extremity of a smooth pavement, usually six or ten yards from the front of the idol." A little later

⁹Polynesian Researches, London, 1830, vol. ii, p. 209.

on,¹⁰ referring to his request of an old blind priest at Parea, Huahine, for a repetition of one of the ancient prayers: "After great persuasion, he consented, and assuming the crouching position, or sitting as it were on his heels, he commenced....."

The writer is indebted to Dr. Brigham for the suggestion that the figures represent two people asleep, the position of the head following naturally the use of a hard pillow.

The idea that the figures represent deities appeals to the writer more than that of their being intended for mortals, following the claim of two old natives, who asserted that the figures must be gods since their faces looked upward. It is not to be expected that the Polynesian would expend the amount of arduous labor required to carve these figures so carefully, for any other than a sacred purpose, and the position of the arms and heads, indicating the act of eating or drinking, calls to mind the stories told of the offerings to the gods and spirits of deified ancestors, of food, but especially drink in the form of awa, which the gods were believed to have consumed. Were the stone found on the shore instead of a mile inland, it could be reasonably concluded that the figures were intended for Kuula, the fish god, and Hina his wife, whose names are generally linked together. These gods were worshipped at every fishing ground and in any convenient form, from a shapeless boulder to a well carved image.

Figure 3 shows a side and two end views of a stone lamp of basalt (No. 9338) purchased from the estate of the late W. F. H. Deverill, of Kauai. Unfortunately no history of the circumstances pertaining to its discovery have been preserved, but there are two recent abrasions on the outer surface, which might well indicate that the specimen was found when ploughing—a frequent means of discovery of many valuable stone implements in these islands. The upper edge of the lamp has been broken off to a depth varying from one-half to one inch, but the break is an old one as is shown by the soot clinging to the broken surface. The inner portion is heavily coated with soot. The Hawaiian lamps have been described already by Dr. Brigham,¹¹ but the cup in this lamp differs from that in other specimens in the Museum both in size and shape. The usual form has a roughly cylindrical hole, with bot-

¹⁰Ibid, p. 210.

¹¹Mem. B. P. B. Mus., vol. 1, pp. 391-398.

tom more or less flat, sometimes varied with another small pit in the middle. The cup in specimen No. 9338 is ovately conical, with a diameter of 2.8 to 3 inches at the edge and a depth of 3.5 inches. In this specimen, the greater outside diameter is 7.4, lesser 6.4 and height 6.6 inches. A raised figure of human form adorns each end, each 6.3 inches high. The noses are in evidence, while to represent the eyes and mouths, there are slight depressions. Small projections represent the ears. The legs are very short and are without feet. They were gradually worked down and disappear at the edge of the convex bottom of the lamp. The lower portion of the arms of fig. *c* are bent out a little to represent hands, and are seen more clearly in fig. *d*. In fig. *c* the breadth of shoulder is 3 inches, and the height in relief .8 inch, while in fig. *e* the measurements are 2.8 and .7 respectively.

The use of the human figure in native art as a means of ornamenting utensils occurred among the higher castes of Hawaiians, as is evidenced in some wooden bowls and dishes preserved in this and other museums. In regard to the intention of the carving being merely ornamental, a legend has been handed down with specimen No. 408 in this Museum to the effect that the figures supporting the dish represented Kahahana, the king of Oahu (conquered and slain by Kahekili of Maui) and his wife Kekuapoi-ula, who were shown in the carvings in the menial position of offering food and holding their mouths wide open as salt cellars.¹² It might reasonably be believed that the dish was the work of a Maui artist with the idea of degrading the memory of the vanquished Oahu king. The custom of honoring or dishonoring the memory of the deceased by the use of human teeth and bones inlaid in implements, has been referred to by Dr. Brigham.¹³ We might regard the figures ornamenting the stone lamp under discussion as representing persons in native history destined by the art of the sculptor to guard the lamp for all time, but whether as an honorable occupation or a menial task, we cannot decide.

This specimen of native stone work is probably unique, the only other lamp of like workmanship known, having been lost as before narrated.

¹²Mem. B. P. B. Mus., vol. II, p. 162.

¹³Ibid., pp. 368, 369, pl. xxxi.

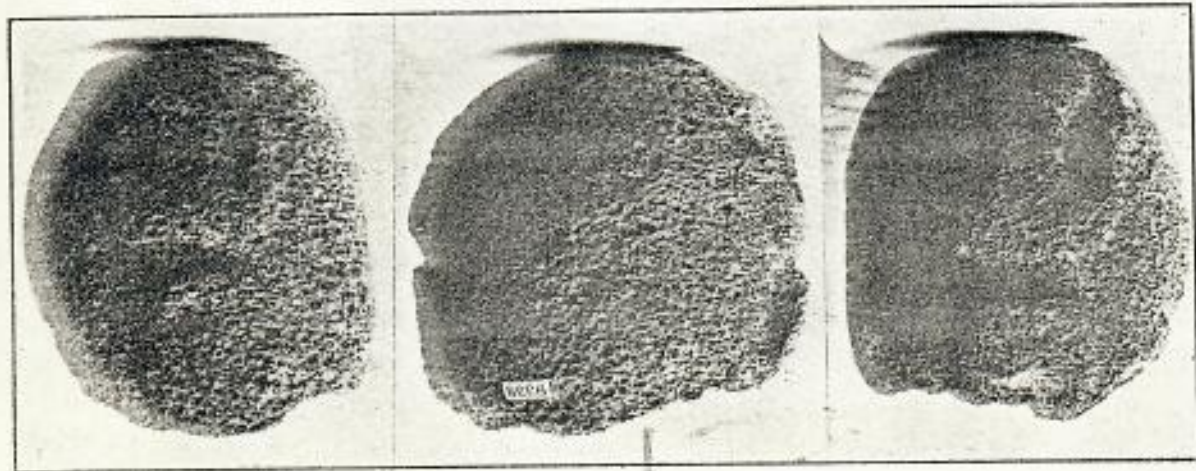


FIG. 3. SCULPTURED STONE LAMP.

While the following may not be apropos of the subject of this paper, it is submitted with the hope that it may be of use in locating the debated site of the human bone fence or house known as 'Kauaia'. There is an old native of Moanalua, aged 88, who has lived at Kalihi, a neighboring valley, for the past twenty-five years. From the old man's descriptions and the writer's measurements it appeared that the stone described in the first part of this article was found immediately near the Kauaia. The coincidence the writer thought might be of value as a clue to the significance of the petroglyphs. As the old native was very feeble, the writer awaited an opportunity when he should feel strong enough to drive to Moanalua and point out the exact spot where the Kauaia stood. This proved to be 700 feet away from the place where the stone was found, which fact the writer considered was sufficient to remove any probability of connection between the two. The native's opinion could not be shaken, and suggestions of other sites had no influence with him. The surveyors in these islands have found the Hawaiians invaluable in pointing out old boundaries in the former complicated land system, and it is generally conceded that the native testimony on land matters is reliable. The old man's story will be told in its sequence.

Forander⁴ gives the following in connection with the massacre of the Oahu people by Kahekili, king of Maui, after the conquest: "It is related that one of the Maui chiefs, named Kalaikoa, caused the bones of the slain to be scraped and cleaned, and that the quantity collected was so great that he built a house for himself, the walls of which were laid up entirely of the skeletons of the slain. The skulls of Eliani, Konamau, and Kalakioonui adorned the portals of this horrible house. The house was called 'Kauwaiaua', and was situated at Lapaka in Moanalua, as one passes by the old upper road to Ewa. The site is still pointed out, but the bones have received burial." Forander's account does not agree with the story told by the Moanalua natives today, which is repeated as briefly as possible: "Kalaikoa was chief of the district, lived right by the old highway where it crossed the cliff, and occupied himself by waylaying the travelers and killing them for the purpose of getting their bones to build a fence around his house. He was secure from reprisals, as he had a strong body of

⁴A. Forander, *Polynesian Race*, vol. II, London, 1880, p. 226.

soldiers at his call. After killing his victims he extracted the long arm and leg bones and planted them upright in the ground to make a low palisade. Retribution overtook the bloodthirsty chief, for when he had the fence completed, except for the bones of one man, he died, and his bones were used to fill the gap."

Lapaka is in the valley, about 500 feet away from the cliff. Were all details known today, the two versions would probably be found to fit together, except in regard to the bone 'house'. The old man's story agrees with the last, except that he says that the bones of two men were needed to complete the fence when Kalakoa died. He had seen the fence, and the following details were gleaned on the spot: The fence was composed of the leg and arm bones placed erect in the ground as close together as the fingers when relaxed. They were not tied. There was a single line of fence, making a square enclosure, one side of which was fifty feet (paced). In this enclosure was a large stone platform on which the grass house had stood, but there was no house standing when he first saw the place. Well outside the enclosure, 60 feet to the south, was a small house, built entirely of stone, into which the remaining portions of the murdered bodies were put. He had seen the bones there himself. The house was not an *imw* (underground stone-lined oven) but of proper house shape, large enough for the body of a man. The road passed between this and the fence.

This house the old man spoke of as a "heiau" dedicated to the war god Kahi. It had walls three feet high and four feet wide, with a pitched roof of stone and a door facing the bone fence. Outside the door was a stone pavement, where the priests gathered.

As pointed out, the Kauaia was in the land of the same name close to the boundary of Puu Kapu. The land of Kauaia is a small piece on the plateau about 600 feet wide between Puu Kapu and Puu o Ma'o. The boundaries of the various small sections were named for the writer's edification as they were passed. The site of the Kauaia is now occupied by a well built private road and was found at the place where the road passes over a subway used as a cattle drive.

The description given by Peter Corney⁵ in 1818 of a bone fence on Oahu, although not specifying the locality, is probably a

⁵Peter Corney, *Early Northern Pacific Voyages*. Edited by W. D. Alexander. Pp. 114 and 115. Honolulu (T. G. Thrum), 1896.

true account of the Kaulaia, as there has been no mention of more than one such place in the islands. "In my tour with Mr. Manning (Maui), we visited the ruin of a large stone house, or fort, which had formerly belonged to a great chief; it had a double fence of human bones around it; these were the bones of his enemies killed in the war before the islands were visited by Europeans. The bones of this great chief are said to be still in the house; the natives are afraid to go near it, preferring to go a round of five or six miles to passing it." The road to Pearl Harbor, whither Captain Corney was bound, passed through the land of Kaulaia at that time.

[132]



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14 June 1979

Mr. George H. Balazs
Hawaii Institute of Marine Biology
P.O. Box 1346
Kaneohe, Hawaii 96744

Dear George:

Thank you very much for the information you sent me last week. I will certainly have to write to Dr. Richardson since I have not heard anything encouraging from Heron Island.

Plans for the exhibit are progressing nicely. I expect the proposal to be approved within the next week. After that happens I will have to write a general synoptic narrative for the exhibit based on the proposal. You could be of great help to me in this area by checking my work for factual accuracy. I believe all labels for the exhibit will be based on this narrative so it is important that all information in it be correct.

I am enclosing the list of turtle shell and bone artifacts in the Bishop Museum Ethnology Collection that we are considering for use in the exhibit. It is by no means a complete list of all the artifacts made from turtle bone or shell in the collection. We found soon after we started going through the artifacts that there were far too many to list individually so we merely listed the individual items we considered useful for the exhibit and also made a general list of the types of turtle shell and bone artifacts we found. Dora Jacroux informs me that it would be no problem for you to make an appointment to be shown the artifacts should you care to make a more complete list. Dora is Assistant Curator of the Ethnology Collection, and you can arrange to see the artifacts either through her or through Roger Rose (Curator). Their extension is 124.

Thank you for all the help you have been giving me.

Sincerely,

Carla

Carla H. Kishinami
Curatorial Assistant, Vertebrate Zoology

encl.

BPM#
TORTOISE SHELL

Hawaiian

Location

Description 9 Nov. 1978
turtle shell + bone artifacts in
BBM ethnology collection.
Large fishhook Hawa

LIBRARY OF
GEORGE H. BALAZS

3745	302A	Net spacer - bone
70.15.78	302 I	" " - bone
C. 6266	302 I	Net making tool
B2762	302 I	Lei niho palaoa
C5833 (unf.)	304 G	" " " "
E 4925	304 G	" " " "
C5834	304 G	" " " "
1316	304 A	" " " "
B 6770	306 G	Kupe'e - wrist ornament
C 5842	306 G	" " " "
C 1105	306 I	Rings
B 6964	Dwr A B1	Tortoiseshell chains
B 6965	Dwr A B1	" " "
HH1503	Dwr B4	" " "
C 4550	VIII-A-4 33C	E.I. Tortoise shell cane
B 3652	33A Dwr 2	" Tortoise shell plate
C 8355	33A Dwr 2	" " " girdle plates
8012	33A Dwr 3	Marg. crowns
B 3228	33A Dwr 3	" - unfinished crown fragments
B 3225	33A Dwr 9	" - maybe ear pierce?
B. 3210	33A Dwr 9	" - unident.
3563	33A Dwr 11	Samoa - ring
6778	" " "	" " "
D. 1805	33A Dwr 18	Rennell - ear plug
C. 6689-93	33A " "	Anuta - nose ring
1978.172.33	33A Dwr 18	Tikopia - nose ring
D. 2872	33A Dwr 19	Takuu - scraper
D. 3636	33A Dwr 19	Takuu - food scoop
C. 8558	33A Dwr 26	Yap. C.I. - necklace or belt
C. 8549	33A Dwr 26	C.I. - bracelet (Yap?; Truk?)
1970.10.85	33A Dwr 27	C.I. - shell of turtle shell neck ornament
L. 1722	33A - top of dwrs	Gilbert Is. - ear rings - large
C. 949	49-J	Melanesia - unloc.
Acc 5112	49-0	Unloc modern belt

small tooth
necklace
hair

BPBM	Location	Description
1714 b	52 B	New Ireland - Bismark
1714 c	52 B	Bismarck Archapela go. - kap kap
B 1024	52 C	" " - kap kap.
B 2182	52 D	^{like} New of York Is - chains
D 2062	52 E	New Brit - nose piece; Nakanai, Mts.
D. 2070	52 E	" " - arm pangs? "
11, 536	52 I	New Hebrides - ?
11, 557	52 J	" "
11, 704	52 L	" " - scraper?
1943	53 A	Solomon Is - kap kap.
6993	53 C	" " - kap kap.
C. 2643	53 F	Brit. " " - kap kap (ornament)
C. 7132	53 G	" " - Malaita - crescent w/ fringed
N/N	53 I	" " - ornament
D. 3005	53 L	Santa Cruz - earrings
D. 3010	53 L	" " - nose ring
7114	53 L	" " - rong rong (kap kap)
7116	53 L	" " - earrings
B. 8804	56 B	Pakapuka - fish hook
C. 8221	56 C	" " - trolling hook
C. 360 B	56 I	Samoa - trolling hook
C. 520 B	56 K	Tokelau - "
B. 3768	56 L	Tonga - " - large
? B. 3535	56 M	Taka Takamotu Arch - trolling hook
B. 3532 a	56 M	" " " "
C. 5014	57 B	Futuna - trolling hook
C. 5082	57 B	Wallis - " "
1972.107.06a,b	57 C	Anuta - trolling hook point
1978.172.34	57 C	Tikopia - " "
1972.107.36	57 c	Anuta - " "
C. 10170	57 D	Kapingamarangi
D. 2521	57 D	Nukuoro - " "
C. 6542	57 E	Sikiana - fish hook
D. 2958	57 F	Takuu - " "
C. 8534	57 G	Caroline Is. " "
D. 573	57 G	" " " "
B. 9798	57 K	New Guinea " "
1633	57 K	" " " "
7983	57 L	Fiji " "
1875	57 M	Solomon Is. " "
7025	57 M	" " " "

	Location	Description
D3046	57M	Solomon Is - fish hook
1682	50B	New Guinea - Bracelet
1684	50B	" " earrings.
X107	50E	" " necklace
X110	51E	" " fishhook.
B3006	54-6	Melanesia - comb
DB 3066	54-6	" "
D.2871	55-1	Polynesia - comb
C.8097	92-D	lookup scraper
C.8095	92-D	lookup Takau-scraper
1946.83.03	33C-B4	Hawaii - Queen Emma's tortoise shell jewelry box

General List

5915. net spec.

3916

Hawaii

1. Regular hook
2. Lure hooks
3. Net spool - bone & shell
4. Net making tools ?
5. Lei niho palaoa - whale tooth neck ornament
6. Kupu'e - wrist ornament.
7. Post contact bracelet
8. Pre contact "
9. Ring
10. Hair ornaments - combs, etc.
11. Miscellaneous rods
12. Kahili rings
13. Turtle bone scrapers
14. Cane

C. 3354
fish hook blank
B. 3652
C.I. - pike
B. 3210
Marq. ornament
D. 4129 (4)
~~D. 2872~~
~~D. 2872~~
11,536
N.H.
11,704
N.H.

put (813) ca. 2
on list net spec.
C. 5149.

and Hawaii

15. Hand kahili
16. Easter Is - turtle
17. Marquesan crowns & fragments
18. " hair ornaments w/ beads & teeth.
19. " ear piercer
20. " ? ornament.
21. New Zealand - ring - 33A Dwr. 10
22. Samoa - finger rings.
23. Samoa - hair clip
24. Rennell - ear plug
25. Atafu - nose ring
26. Tikopia - nose ring.
27. Takuu - shell scraper
28. Takuu - ornamental fishhooks.
29. Takuu - food scoop.
30. Caroline Is - bracelet.
31. Caroline Is - ornament, round. - Dwr. 27, Dwr. 22
32. Palau - C.I. - women's money.

- 33. Gilbert Islands - ear rings - large
- 34. Melanesia - ~~large~~ ornament
- 35. Unloc Pac - modern belt
- 36. Bismark Arch - kappaps
- 37. Duke of York Is - chain
- 38. New Britain - nose piece
- 39. " " - arm bands
- 40. New Hebrides - ornaments -
- 41. Solomon -
- 42. New Guinea - armband - 50 J.
- 43. ~~Charles~~ Caroline Is. - fans - 44 E

PETROGLYPH
50-30-03-3353
KENOMENE POINT, PRINCEVILLE, *HANAIEI, ISLAND OF KAUA'I

by

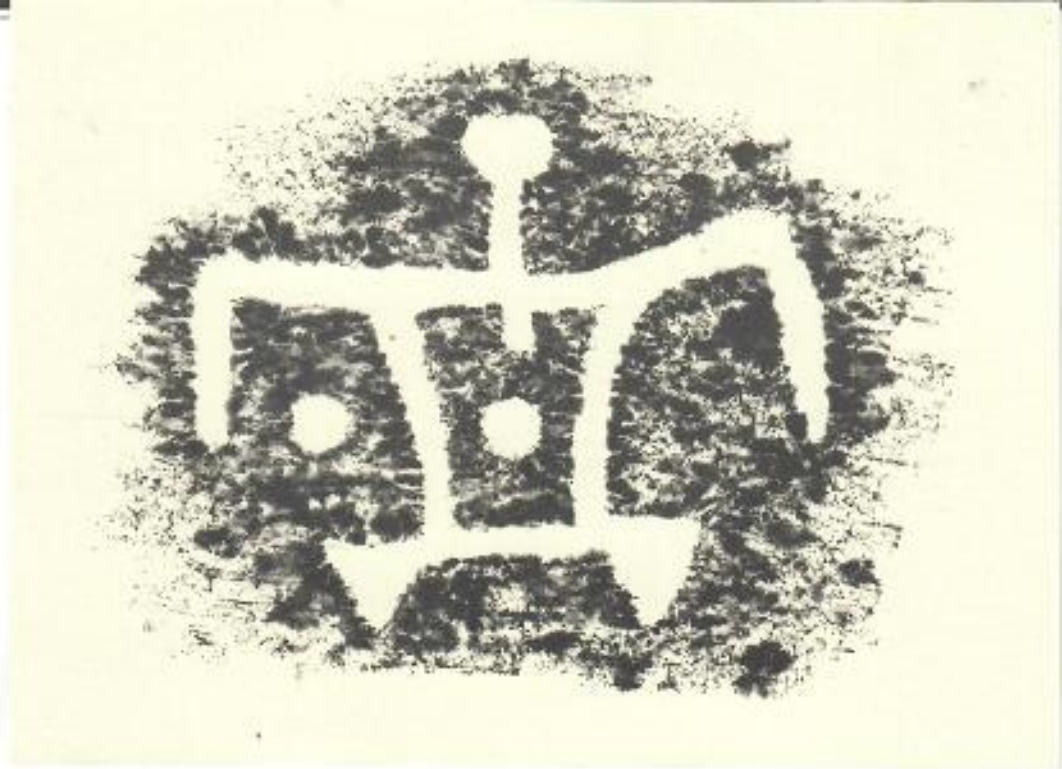
William K. Kikuchi

In the early part of 1979, Dr. Robert D. Nelson, M. D., a tourist staying at Princeville, came across a petroglyph on the beach. He called me, and over the phone I asked Dr. Nelson for photographs and details. These he sent to me from California. Having obtained permission to search the area below the Pali-Kekua condominiums, a crew assembled on 4 July 1979 to visit the site. The group consisted of Byron Cleeland, Bill and Odetta NeSmith, Dawnelle NeSmith, and me.

A thorough search was conducted all along the shoreline, resulting in the discovery of a single petroglyph. This petroglyph is located on the beach (see Maps 1 and 2) on a sloping beachrock shelf (Latitude 22° 13' 40", Longitude 159° 29' 43", TMK 5-4-12). Its design is basically that of a human stick figure which measures 21 inches (53.34 cm.) tall and 9 inches (22.86 cm.) across the shoulders (Figs. 1 and 2). It is noteworthy that the figure seems to have been raised by pecking or carving away a surrounding "moat" which accentuates the petroglyph. There is only one other example known to me similar to this unusual carved human form. This is a stone plaque with a pecked, raised human form that was stolen from the Kaua'i Museum about two years ago. Much of the beachrock shelf containing the petroglyph is swash at high tide, leaving the figure exposed, i. e., without a protective sand cover. If the petroglyph were prehistoric, a greater amount of surface erosion would be expected than was observed. For this reason, plus the unusual workmanship, the relief carving is believed to be historic rather than prehistoric.

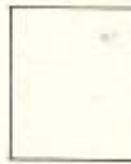
* Hawai'i place names which have been verified as being correct appear with an asterisk preceding them the first time they appear in each issue.

**Hawaiian terms spelling in accordance with recommendations of the 'Ahahui 'Olelo Hawai'i spelling project of 1978.



Turtle
Hawaiian Petroglyph
Puuloa, Hawaii

Rubbing by Barbara Decker, Copyright 1978



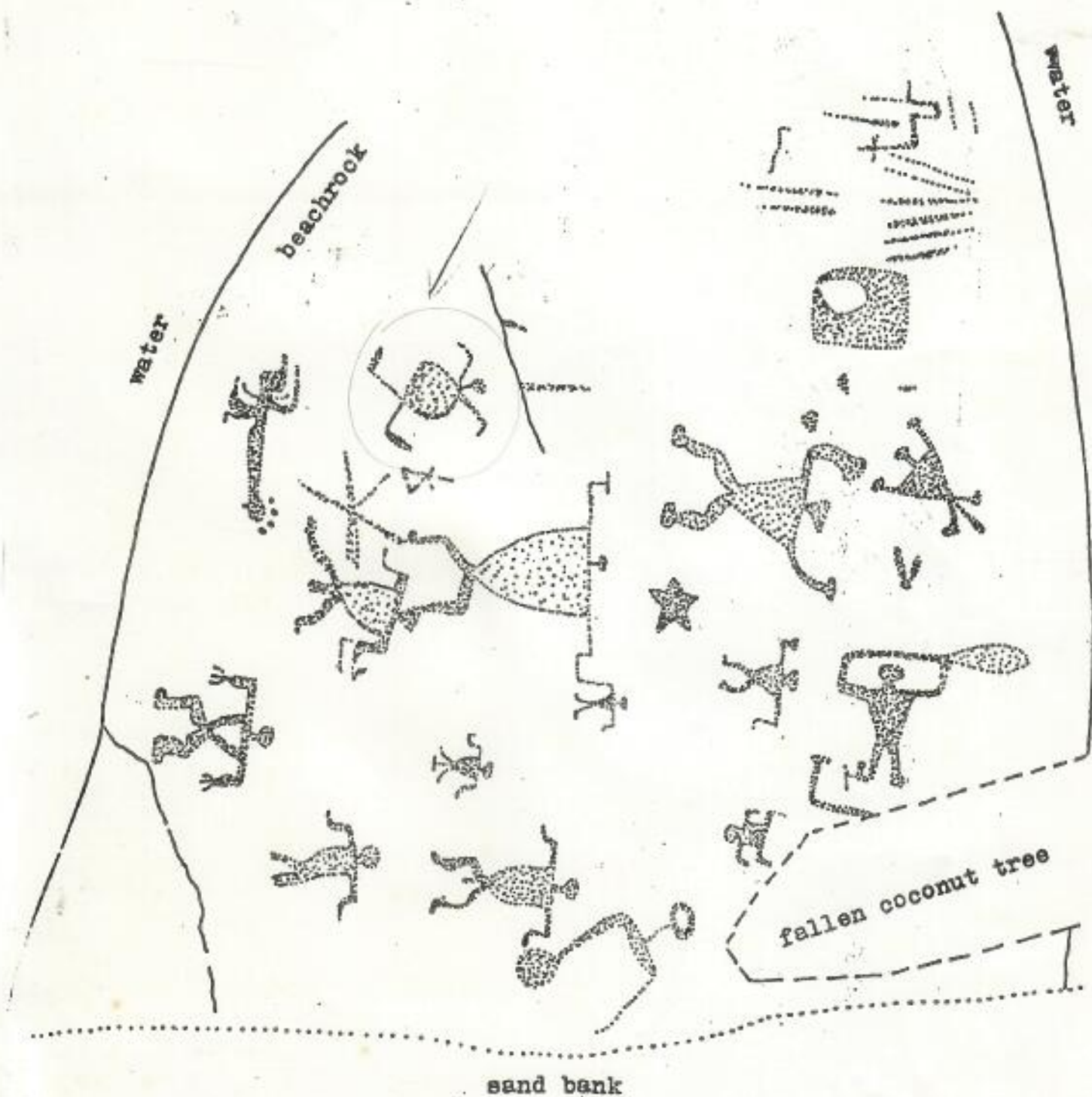


Fig. 3a Group A Petroglyphs
rough scale

Classified

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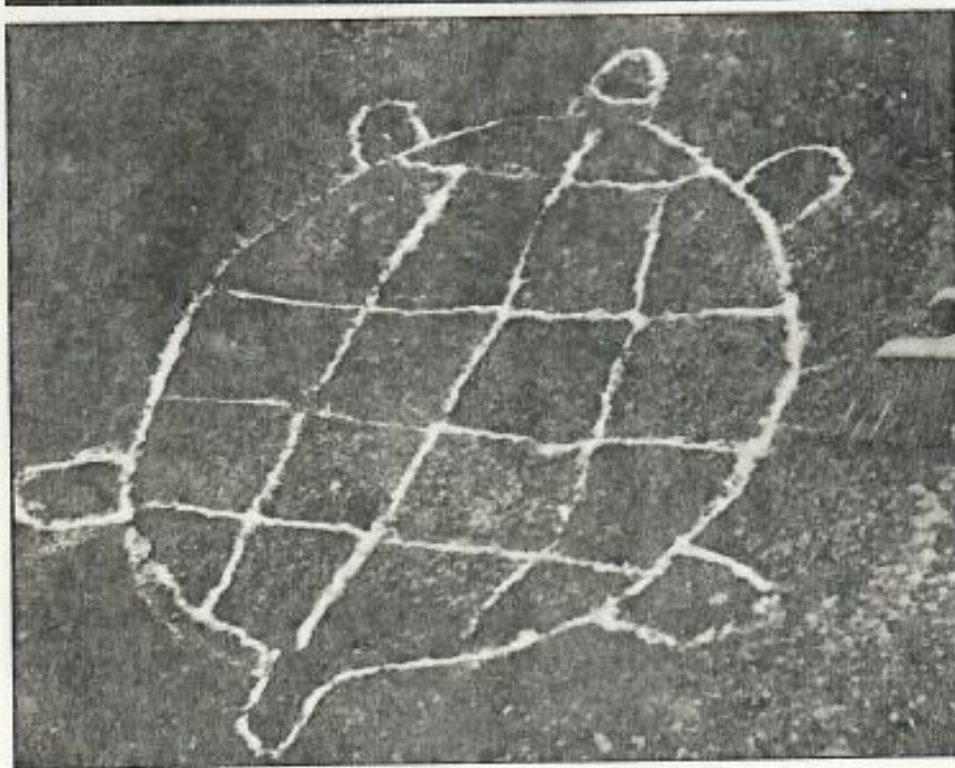
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Can You Identify?



The first person to correctly identify this photo will receive a free, one-year subscription to Pacific Magazine. The winner's name will appear in the next issue. (See Publisher's Report for details on last issue's Can You Identify.)

January 13, 1978

Mr. John Pyke
P. O. Box 1061
Pago Pago, American Samoa

Dear Mr. Pyke:

Dr. Emory, Senior Anthropologist at the Bishop Museum, has recently informed me of your discovery of turtle petroglyphs on boulders in the interior of Tutuila. I am presently conducting ecological studies of sea turtles in the Hawaiian chain, as well as examining (as time permits) past and present usage of these animals for food, tools, art and mythology by various Pacific island cultures.

I have considerable interest in your newly discovered petroglyphs, and would greatly appreciate any information that you can send me. I understand that you have taken several excellent photographs and, if possible, I would very much like to have copies for my records. I would of course pay for the duplication costs involved.

Enclosed is a complimentary copy of a color booklet which deals in part with my research. I look forward to hearing from you when your time permits.

Sincerely,

George H. Balazs
Asst. Marine Biologist

mk
Enclosure

Et O

Arts and Features

Tattooing is a g

by Jill Buddenhagen
Ka Leo Reporter

Slice the flesh like the teko teko's stone

The soft flesh, lip, membrane, skin.

Carve deeply, erase doubt as to who I am.

Use the sharpened pipi shell, bird bone, razor-blade,

Use them harshly and lacerate my legacy upon me

for all to read. (Vernice Pere)

Tattooing, a practice that originated many milleniums before Christ, flourished throughout time and space and is now coming into its renaissance among western cultures.

It is believed that tattoo (from the Tahitian "tatau") was adopted by Americans and Europeans after contact with early Pacific Islanders in Polynesia—where the practice is said to have experienced its heyday.

Due to such advanced maritime technology, this distinctive art form spread from Tonga to Samoa and then, eastward, throughout the rest of the Pacific between the years 1300 B.C. and 1000 A.D.

Within each culture, the tattoo played various social and religious roles, ranging from rites of passage and the display of tribal sta-

styles used in the world today," Pearce said. "The key is in the number of needles used, which affects line thickness and the depth of the ink. The Sailor Jerry style reduces fading and merging of lines later in life."

Because a tattoo is almost always permanent, a concept frightening to many, Pearce said it is extremely important for his clients to be serious about their choices.

"Once the needle hits the skin, that's it," Pearce stressed. "The design can be removed surgically, but then you're still left with an ugly scar that's just as permanent."

"I do my darndest not to tattoo drunks or minors. For one thing, it's against the law! It's also inhumane. Those people are in no condition to make decisions that'll stick with them for life."

Pearce said he offers extra counseling to his female customers as they tend to be more "sporadic" than males.

"It's true, women are starting to look at tattooing more for its artistic value," Pearce explained. "I just want the ladies to be absolutely positive."

Pearce's clientele represent all walks of life. He said he has put his mark on doctors, lawyers and nurses as well as the "stereotypical biker-types." The majority of Pearce's customers are in



Vetera

Tuesday, Oct. 2, 1990

growing art form



tus to aesthetic or sexual enhancement and eliminating one's feeling of nakedness.

the military. Besides popular western designs, Pearce also specializes in

Once the needle hits the skin, that's it. The design can be removed surgically, but then you're still left with an ugly scar that's just as permanent.

—'Sailor Jack' Pearce

Among Yapese women, the tattoo is worn on the thighs, groin and libia minima for the purpose of sexual attraction. Since it is somewhat taboo for Yapese to discuss sex in mixed company, one of their lewdest and most profane insults refers to "your mother's pubic tattoo."

The first professional artist to practice in the United States was Martin Hildebrand, who began marking Confederate and Union soldiers during the Civil War. He later opened a shop in New York.

In the early 20th century, tattooing began to acquire a vulgar, barbaric connotation among the American upper and middle classes because it was associated with seamen and circus freaks.

Since the mid-1960s, tattooing has undergone a certain restoration. It is now more readily accepted as a legitimate artistic medium by western society. This legitimacy increases as tattoo works become more popular in galleries and museums around the world.

Sailor Jack Pearce is a local tattoo artist who has been in the business for the past 15 years. He studied the Sailor Jerry style of tattooing under Mike Malone of China Seas, a reputable Honolulu establishment.

"Sailor Jerry's is one of the most unique American-Oriental

Polynesian tattoos.

Pearce tattoos many local Samoans, Marquesans and Tongans, who are attracted to their ethnic group's traditional style.

"They want leg and arm bands, symbols of ownership or identification. They're into tribalism," Pearce said.

Pearce said the difference between tattooing in the west and tattooing in primitive cultures is the sterility factor. Tattoo shops today are subject to random health inspections.

Instead of the charcoal serapings, berry juices and tin plates of his forefathers, Pearce uses non-toxic dyes and autoclaved, electric needles. And instead of trading his services for food and supplies, he accepts only cold, hard greenbacks.

A standard-sized Sailor Jack tattoo usually runs between \$75 and \$100, although at present he is in the process of completing a \$15,000 job—a full-body tattoo.

Sailor Jack has tattooed some pretty wild designs on even stranger body parts (genitals not excluded), but he claims his most memorable professional experience was working on Richard, his trusty sidekick.

"I tattooed the Kanji symbol for 'transcendence' over the top of his head," Pearce said, laughing.



Top: An oriental warrior design tattooed on Sailor Jack's back. Bottom: 'Sailor Jack' with his various tattoo designs.

photos by Wendy Chen/Ka Leo



Et Cetera

Arts and Features

Tuesday, Oct. 2, 1990

Tattooing is a growing art form

by Jill Buddenhagen
Ka Leo Reporter

Slice the flesh like the teko teko's stone

The soft flesh, lip, membrane, skin.

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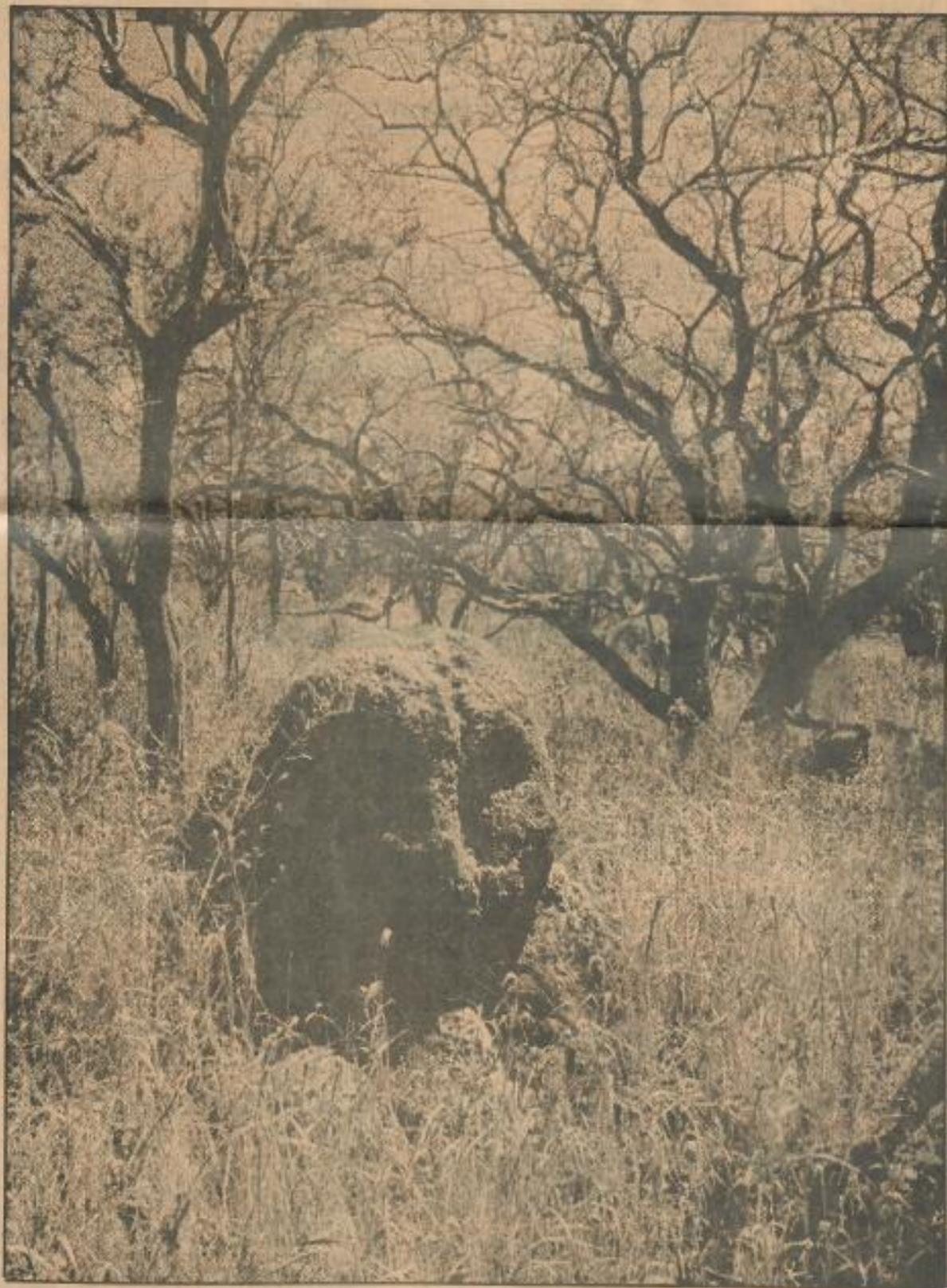
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TODAY

Friday, April 24, 1992 ■ Star-Bulletin



Pueo-o pohaku, located on Molokai, may be the last stone owl god left on site in Hawaii, says researcher specialist Lahe'ena'e Gay.

ROCK OF THE AGES

□ 'Spiritual foundation' of Hawaiians is slowly eroding, specialist says

By Tino Ramirez
Special to the Star-Bulletin

DESPITE plundering and development, many sacred stone sites in Hawaii still survive, their artifacts and spiritual power intact.

Families entrusted to care for them guard their locations, they are in isolated areas, or, says Lahe'ena'e Gay, the sites themselves are stubborn.

"They refuse to give in. And they find individuals, when they're in trouble, to help protect them."

Gay, a photojournalist and research specialist in Polynesian culture, is an example of the latter reason for sites surviving. Now 32, Gay has been taught and trained by her elders in the ways of *pohaku*, or sacred stone, since she was four. With her exhibit, "Pohaku: Through Hawaiian Eyes," which begins a tour of the islands tomorrow at Bishop Museum, she now hopes to preserve the remaining sites by sharing her knowledge through photos, lectures, and interviews with the media.

Work on the exhibit, which presents 66 photos of sites and legends about many of them, began by chance seven years ago when one of her "aunties" asked her to photograph a sacred *pohaku* that was about to be destroyed by development. Two weeks later someone else asked her to record another site. Gay then began to seek out sites on all the islands and has located, cataloged and photographed more than 2,000 sites.

Before contact with the West, sacred stones and stone structures were maintained throughout the islands. They were used as places for giving birth, they guarded families as well as valleys, streams and bays. They were also the core of ceremonial sites, from simple fishing shrines to large *heiau*.

"The stone was the only aspect of Hawaiian culture that everybody used, from the commoners to the *aliinui* (high chiefs)," says Gay.

"The commoners used stone for *kukui* nut lamps, they used *pohaku* for the *poi* pounders, for the *poi* slabs. They also were able to use *pohaku* for spiritual purposes when they couldn't use feathers, couldn't wear black *kapa*, red *kapa*, white



On display

- **What:** "Pohaku: Through Hawaiian Eyes"
- **Where:** Bishop Museum Kahili Room and Legacy Gallery
- **When:** 9 a.m. to 5 p.m., Saturday through May 10
- **Costs:** \$5.95; \$4.95 for seniors, children and military with I.D.
- **Also:** Lahe'ena'e Gay lectures at 7 p.m. Monday in the museum's Atherton Heiau. \$5. She also leads exhibit tours at 11 a.m. and 1:30 p.m., Monday through May 1, and May 3 and 4. Groups of 10 or more need reservations. Call 533-7944.

The flooring of *mana-o heiau*, or a *shark heiau*, on *Kauai*.

kapa, or certain types of herbs and certain colors of *ti* leaves."

Gay believes that the sites left today represent only 20 to 25 percent of what was here 200 years ago, and if their destruction continues both the Hawaiian culture and the state of **Hawaii will suffer.**

While we now accept the idea of saving *heiau* because they are sacred, she points out that many other structures, from fishing shrines to terraces surrounding *heiau* and sites associated with natural features, are also sacred.

"Pohaku are the spiritual foundation of the Hawaiian people . . . but what's happened in the process of time is that people have separated the spiritual value of these sites from their historical, scientific value.

"That's why so many Hawaiians today are so upset about how they're being handled. They're saying that these sites aren't just piles of stones. They have histories, they have lives, they have spiritual meaning to us. That's why we want them saved."

To recognize their spiritual aspect, people viewing the exhibit will be allowed to present *hookupu*, or traditional Hawaiian offerings to the *pohaku* displayed beside Gay's photos.

See **POHAKU**, Page B-3



Lahe'ena'e Gay: "The stone was the only aspect of Hawaiian culture that everybody used."

POHAKU: Auntie kindles interest in sacred stone

Continued from Page B-1

After the exhibit closes, these hookupu, either lei or offerings (excluding food) wrapped in three leaves, are to be buried on the museum grounds to make their love and prayers part of the museum's collection of pohaku.

The destruction of sites also hurts the future of tourism in Hawaii. Over the years, she says, visitors at sites with public access have spotted her with cameras and gear, and figuring that she knew something, they began to ask questions.

Tourists want to know what a site is, where they can find more of them, and they want to know where the real Hawaiians are and what happened to their culture.

Gay says there is a new generation of tourists who want to experience the real identity of the places they visit, whether it's the Amazon rain forest or the Alaskan tundra.

"More and more visitors leave Hawaii disappointed because it's just another New York, Chicago, or god forbid, Los Angeles. We're destroying our future assets, and our politicians need to know this. But they're not going to know unless people find out this culture is still alive."

Gay thinks that Bishop Museum could do more in presenting Hawaiian culture. Many of the pohaku on display with her photographs are being seen for the first time, she says, and most of the museum's collection of Hawaiian

artifacts has never been seen.

She hopes that the exhibit will focus public attention on the museum and encourage it to show its entire collection.

"Many Hawaiians feel that Hawaiian Hall should be Hawaiian Hall, which means that all three levels of the hall should be dedicated to the pre-contact Hawaiian culture... it should be filled with Hawaiian artifacts, not all this mish-mash."

While the museum has been criticized in recent weeks for allegedly covering up the discovery of a women's heiau in Halawa Valley to prevent realignment of the H-3 freeway, Gay says private-contract archaeologist have been responsible for the loss of far more sites.

"The Bishop Museum, I believe, has made many errors. But if the press wants to really investigate individuals who are responsible for the destruction of a large majority of Hawaiian cultural materials, they should take a look at the contract archaeological companies that are paid millions and millions dollars, who answer to no one, who in many cases will take bribes to state that there is nothing of cultural value (at a site)."

That work should be contracted out by the state of Hawaii, making archaeologists accountable to the people of Hawaii, not private developers, she says.

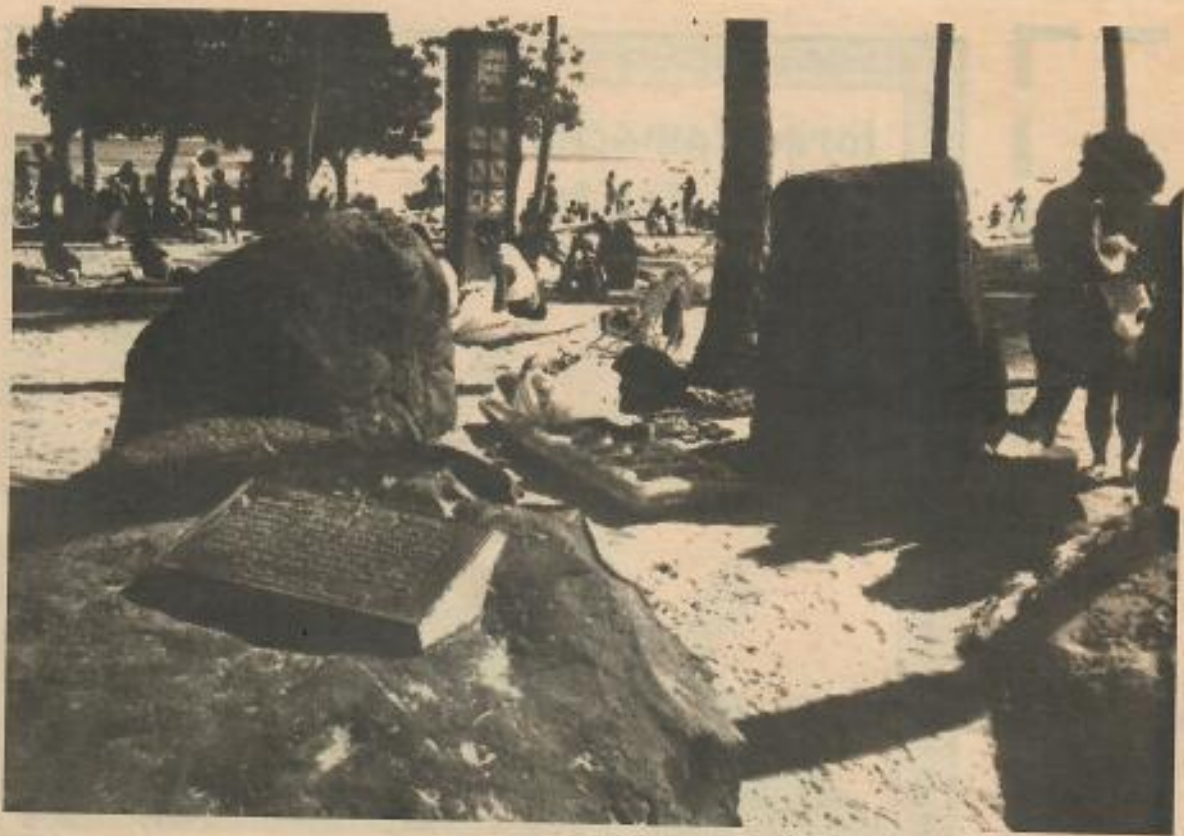
Stronger laws and penalties are also needed to prevent sites being looted and artifacts being taken

out of Hawaii.

And academics, archaeologists, and institutions should seriously consider what oral traditions and cultural beliefs say about a site.

About a year ago, Gay says, the elders who taught her about pohaku told her it was time to share what she knows about pohaku with the outside world.

"The only way destruction of our sites is going to stop, is if people know that we still care, that this is still part of our culture, and that these sites are alive, they breathe. The artifacts that are inside them are like the heart, and the lungs, and the stomach of a human body, and when you take the artifacts, you take part of the life force."



The Wizard Stones of Kapaemahu

9-11-91

Rocks of Ages

Honolulu Weekly

Nikki Ty-Tomkins

Four black stones sit clustered under the palms on Kuhio Beach next to the Waikiki Police Station. They are large stones, clearly visible against the backdrop of white sand and shimmering sea, but very few people take any notice of them. Tourists using the nearby public shower fling their towels over the stones or park their sandals on them; children clamber up to have their pictures taken; bicycles are propped against them. Often a half-eaten plate lunch is abandoned on one or another.

Still, these stones have a story to tell... and some people who know their history insist that powerful *mana* resides in these black lava rocks, the "Wizard Stones of Kapaemahu."

According to tradition, four wizards or, more properly, *kahunas* came to Hawaii sometime in the 16th century. The four — Kapaemahu, Kahaloa, Kapuni and Kinohi — apparently came from Mooulanuika, Tahiti. Their gentle ways, soft low speech and unusual healing powers swiftly attracted large numbers of followers, and their fame grew throughout the Islands. They settled in the mountains of Oahu but later moved makai, to Ulukou on Waikiki Beach (near the Moana Hotel).

History does not reveal why these men came to Hawaii or why they left. But before they disappeared, they asked the people to set up a permanent monument to commemorate their stay in Hawaii and the many healings they had done. Four huge lava rocks from the vicinity of the "bell rock" in Kaimuki were selected, and on a particularly auspicious night, the night of Kane, thousands of Hawaiians moved the huge boulders to Waikiki.

The four *kahunas* chose Ulukou

as the spot for two of the stones and their favorite bathing spot — on the shore directly opposite a spot in the outer reef known as the "Cave of the Shark God" — for the remaining two. The stones quickly became markers for swimmers and surfers who traditionally avoided the cave (when the stones were in place they could then check their position and make a detour when they came in line with them). They were also a good marker for surfers wanting to get through the break. Queen Kapiolani recalled that Kapuni's stone was of a peculiar shape and stood far enough into the sea to cause waves to break over it. The *ali'i* as well as the *maka 'ainana* liked to stand in its waves.

After the stones were hefted into place, days of rituals, prayers and celebrations ensued. Kapaemahu, the chief *kahuna*, named the largest stone for himself, and Kahaloa, Kapuni

they held some strange and exciting *mana*... always respecting the lore connected with them."

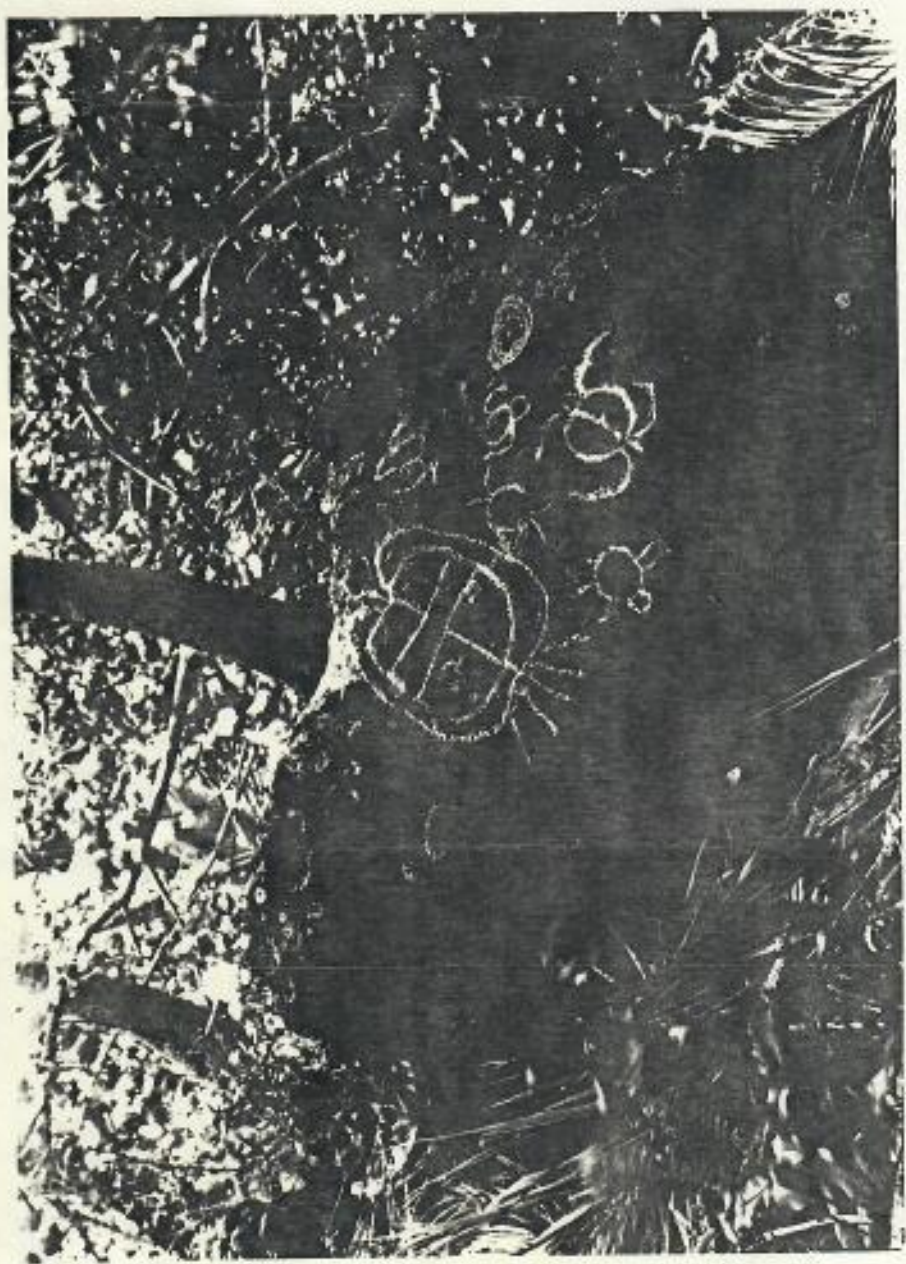
In 1907, the stones were "rediscovered" and began their peripatetic journey from one location to another. Cleghorn had the rocks exhumed from their bed of sand and placed more prominently in position. In his will of 1910, he specified that "these historical stones now upon the premises shall not be defaced or removed from the said premises." The governor's wishes were subsequently sadly ignored. The Bishop Museum refused an offer of the stones. In 1941, the Cleghorn property was leased for a bowling alley and the stones were broken into several pieces during the excavation, probably to facilitate construction. In 1958, the area was taken over by the city for a park. The Waikiki Bowl was torn down, the stones unearthed, and the Parks Board decided to keep them in the area because of their historical interest. In 1963, they were deeply imbedded in the sand so as not to "mar the landscape or interfere with the use of the beach."

In 1980, after beach alterations, the stones were reinstated in their present location, about 50 feet up the beach from the Moana and Surfrider hotels. A small bronze plaque relating a short history of the stones has been affixed to Kapaemahu's stone. It is half hidden by blowing sand and only a few people stop to read it. From the nearby public shower, built a little above the level of the stones, a constant stream of murky water gushes down; it frequently engulfs the stones in a fetid pool. In the evenings, large plastic bags of garbage are dumped against the surrounding palms and often against the smaller stones as well. Occasionally a dog pauses for a moment while its owner calmly watches it raise its leg. Only sometimes does someone offer a small bunch of flowers or an open palm.



and Kinohi claimed the others. Then the four transferred their *mana* to the stones and disappeared, never to be heard from again.

The stones rested quietly in their chosen spots for a number of years. Interest in them gradually diminished. Princess Likelike, mother of Princess Kaiulani and wife of Gov. Cleghorn, apparently kept the legend in her heart for she always placed a lei on each stone before entering or leaving the water. Her son, Thomas Alexander, recalled the stones on the family property facing Kalakaua: "As a child I played on and around the stones, knowing that



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Aug 84

Tribune-Herald

LIFESTYLE

TURTLE DANCE

P o e m s o f H a w a i i



AELBERT AEHEGMA

Illustrations by D.E. Adlesberger

Volume of poems celebrates Silver Jubilee of Statehood

"Turtle Dance"—Poems of Hawai'i—by Aelbert Aehegma of Ka'u has been published as a commemorative edition celebrating the Silver Jubilee of Hawai'i Statehood.

Included in the volume are several translations and interpretations of the "Prologue to the Night World" from the Kumulipo, the 2,000 line poem of genesis of the Hawaiian and Polynesian peoples and nature.

Linocut reproductions of Polynesian themes based on research by Dale Adlesberger enhance the limited edition collection of poems. First editions are limited and available as long as the supply lasts, according to the author.

The volume received first place for its title poem "Turtle Dance" in a statewide contest held by the Hawai'i Education for Social Progress Foundation, and the poem based on ancient hula and accompanying legend of the

islands "rising like a turtle" has been published in the foundation's Ka Huli'au. It also appeared in Turning Point, a national anthology about endangered species.

Author Aehegma, a resident of Ka'u, has to his credit two previous publications—a collection of poems, and a history of the American Revolution. He also works with a partner in a macadamia nut orchard and sheep ranch.

He is listed in the International Who's Who of Authors and Writers, London, and was nominated to the International Platform Association.

Also a visual artist, Aehegma will be featured in a one-man show at Galerie Cluny in Geneva, Switzerland during September and October. He also exhibited last fall at Le Salon des Nations' International Exhibition at the Center for Contemporary Art in Paris, France.

Aloha mai,

May 15, 1984

Thank you for writing back to me. I am glad that the mele were of interest to you. I feel that they add color to the science/study, and share an understandable/personal example of man's relationship with nature.

"Kalani manomano", the mele and description comes from a "Gaeden Isle" (Kaua'i newspaper) article in the 1940's, written by Kawena Puku'i. It has been republished in BPBM Bull. # 30, on the hula. Puku'i - Barrere - Kelly (1979/80).

Also, thank you very much for your time and consideration on the sand collections. I look forward to hearing from you at your convenience.

Take care and aloha.

me ka ha'aha'a,

Kepa Maly

W. Travis DT 416 T73
548-4165

Aloha nui,

May 8, 1984

As things seem to be settling down, at least for the time being, I would like to take the time to say hello, and thank you for writing to me. I am not sure that the little information that I have will be of much use though.

I have a keen interest/respect for the honu, though I have little experience with them except through the ancient chants and dances of the Hawaiians. The hula honu (turtle dance) mimicked the motions of the honu (rising for air - settling in the sand etc.). In time spent with Kawena Puku'i we have discussed the hula honu. Enclosed are two mele (chants) to the hula honu. I hope that the mele will be of interest, at least as an example of how the ancient Hawaiians related the honu to their lives and songs.

If you have any questions or thoughts, please do not hesitate to contact me again. I look forward to hearing from you.

I am going to take a moment to interject a couple of personal requests. If you have any suggestions on how I could possibly get to any of the northern islands for observations and photographs of the honu and 'ilio-holo-kai (monk seal) I would appreciate your thoughts. Also, I am doing work on/with Ni'ihau shells and sources. If you have an opportunity to collect a cup of sand from any coves or atolls above Ni'ihau and mark where the sand came from, it would be great. I am interested in dispersal of, or how site specific the lei type of shells are.

I used to teach Ni'ihau children while they were on Kaua'i and we have family from Ni'ihau. Our conversations have made me curious about the shells. Any help or ideas that you might be able to offer would be valued.

Good luck in your work and take care.

me ke aloha,

Kepa Maly

Opening Prayer for the Hula Pahu

Ke akua uwalo i ka la'i e,
E hea wale ana iluna o Puaa-
hulu-nui,
Ke akua pee i ka lau kiele,

O'u makua i kui lei,

E Kui no oe a e lei no makou a.

The god who shouts aloud in the calm,
Is calling from the heights of Puaa-
hulu-nui,

This is the god that conceals himself
amidst the kiele leaves,
Who strung the wreaths (of honor) for
our forefathers to wear.

String us wreaths that we, too, may wear.

Kalani Kamanomano

Eia o Kalani ka-manomano
Ka manomano heke o ke kapu,
Ka honu peekua wakawaka,
Pipii ka unahi ma ke kua,
Hiolo ka unahi ma ke alo,
Ma ka maha opi o Kalani,
Kalani ka hiapo, kama kapu,

Hanau mua o Hawaii,
Ka ilio nukea ma ka lani,
Eia la ke o nei.

Here is our chief, our sacred one,
He of the strictest kapus.

A turtle with a horny shelled back,
With scales up the back,
Scales down the front,
Close to his wrinkled jowl.

The chiefess is his first-born child,
a sacred child,

First-born chiefess in Hawaii,
A white-fanged dog in the heavens,
We sing of her always.

This hula chant was said to have been composed by a god. This is the legend to which it belongs:

A beautiful young, kapu chiefess of Kauai was noticed to be continuously drowsy all day and when night fell, she was eager to retire into her private sleeping house and go to sleep.

Her father questioned her, but finding no satisfactory answer, consulted his kahunas. They told him she was in love with a sea god and that if he wished to see him for himself to set guards at intervals from her house to the shore. These guards were to maintain a perfect silence and when the god left just before the break of dawn, to gesture to the next one farther on when he had passed.

The chief and his kahunas were on the shore to see which form he would take before going out to sea.

Just before the dawn, a hand was seen to move to one side the mat that covered the doorway of the chiefess' sleeping house and a handsome youth emerged. He walked quickly to the beach and there he vanished. As he passed, a guard signaled by gesturing to the next guard that he was going that way.

The watching chief saw the youth vanish among the vines that grew over the sand and soon a huge, scaly and thick shelled turtle was seen to move toward the sea and swim away.

The following night the chiefess waited in vain for her loved. He did not come in person but instead he appeared to her in a dream and said, "You will never see me any more for I was seen by many eyes when I left you last night. When our child is born name her Honu (Turtle) for me. Listen, this is the name chant that you must sing for her and for her descendants, for she is both of divine and royal rank." This is how the chant "Kalani kamanomano" came into being.

The hula pahu was and is a hula of dignity and never danced for the pleasure of a ribald crowd.

Kamakau, in his story of Kamehameha I, tells of Kaahumanu's rank and of her descent from the high chiefs of Hawaii, Maui, Oahu, and Kauai and ends it with this phrase, "He honu peekua wakawaka o Kaahumanu," (a thick shelled turtle was Kaahumanu) or in other words, a descendant of this turtle god.

In the olden days the priests scanned the sky for signs and omens, and if the ever-changing clouds assumed the shape of a dog with bared fangs facing the land with tail on the seaward side, it foretold the coming of invaders that would slaughter and abuse the people, but if the dog-shaped cloud faced the sea with fangs bared, then the inhabitants, under the leadership of their

chiefs, would be able to repel and defeat any invaders that dared to attempt an invasion. "A white-fanged dog," signified protection and ability to protect one's own land and people.

EMERSON, N.B. 1915

PELE AND HILAKA—A MYTH

from Hawaii
115

Honolulu Star-Bulletin
Ltd, Honolulu
250p.

A Moloka'i nui a Hina,⁽¹⁷⁾
A Kaunu-ohua⁽¹⁸⁾ he pali,
A kukui o Haupu.⁽¹⁹⁾
Haupu ke akua li'ili'i;
Puka mai Pele, ke Akua nui,
Me Haumea, me Hiiaka,
Me Kukuena, me Okaoka:⁽²⁰⁾
O ke a ke ahi iki, e a!
He onohi no Pele,
Ka oaka o ka lani la, e!
Elieli, kau mai!

A Nana'i⁽²¹⁾ Ka-ula-hea,⁽²²⁾
A Mauna-lei kui ka lei.
Lei Pele i ka i-e-i-e, la;
Wai hinu po'o o Hiiaka;
Holapu ili o Haumea.
Ua ono o Pele i kana i'a,
O ka honu o Poli-hua —⁽²³⁾
Honu iki, a-i no'uno'u,
Kua papa'i o ka moana;
Ka eā nui, kua wawaka.
Hoolike i ka ai na Pele,
I na oaka oaka i ka lani, la!
Elieli, kau mai!

A Kaua'i, i ke olewa iluna,
A ka pua lana i kai o Wai-lua,
Naná mai Pele ilaila:
E waiho aku ana o Ahu.

(17) Hina, the goddess with whom Waka consorted after he had divorced his wife Papa by spitting in her face. Hina became the mother of the island of Moloka'i. From such a distinguished parentage arose the proverbial saying "Moloka'i nui a Hina."

(18) Kaunu-ohua, a hill on Moloka'i between Halawa valley and Puko'o, where is said to repose the body of Pele.

(19) Haupu, a hill on Moloka'i.

(20) Okaoka, said to be the flame-body of Pele, or the small stones, which that entered into the composition of her body.

(21) Nana'i, an archaic form of Lana'i.

(22) Ka-ula-hea, a goddess with whom Waka consorted after his divorce of Papa. The name also of a historic king of Lana'i, as well as of a kaula—prophet—attached to the disreputable set of gods that infested Lana'i at one time.

(23) Poli-hua, a sandy cape on Lana'i famous for its sea-turtles.

on Lanai - Poli-hua (egg bay) was a place at which
the honu come to shore to lay their eggs. My kupuna
remember the event, though it evidently hasn't
happened recently
Kapa May 5/15/84

Wild the sea-mist at Kohala-loa,
 Sea roughed by the breeze from the upper hills,
 Sea that peeps o'er the cliffs of Kupehau,
 Invading the groves of pandamus;
 It reaches the lowlands of Maui—
 The sea of this Goddess, this Queen.
 The lehuas are twisted like garlands
 At the touch of this sea of god Pele;
 For Pele, indeed, is my god.
 Wonder and awe possess me!

Thou mountain wall all swathed in mist,
 Now groans the mountain-apple tree;
 I see a fire of blazing rocks;
 I see an aged dame, who snores
 On lava plate, now hot, now cold;
 Now 'tis canoe in shape, well propped,
 A chock 'neath bow, midships, astern;
 Needs bail the waist where drains the bilge,
 Else salt will crust like staring eye—
 Gray roving eye of lawless Niheu.
 Wonder and awe possess me!

On famed Moloka'i of Hina,
 At the pali of Unu-ohua,
 Where burn the lamps of Haupu,
 Assemble the throng of little gods.
 Then comes forth Pele, a great god,
 Haumea and Hiiaka,
 And Kukuena and Okaoka:
 If the small fire burns, let it burn!
 'Tis the beaming of Pele's eye,
 The flashing of heavenly fire.
 Wonder and awe possess me!

Now to Nana'i of Ka-ula-hea;
 At Mauna-lei Pele plaits her a wreath;
 She plaits it of i-e-ic;
 Hiiaka pelts head with ginger cone;
 Haumea anoints her body;
 And Pele eats with zest the flesh
 From the turtle of Poli-hua—

A young thing, short in the neck,
 Backed like a crab from the sea,
 Like a sea-turtle plated and patterned —
 Turned into meat for Pele,
 Food for the heavenly flame.
 Wonder and awe possess me!

From the ether above Kaua'i
 To the blossoms afloat at Wailua
 Ranges the flight of Pele's gaze.
 She sees Oahu floating afar;
 Feels thirst for the wat'ry mirage;
 Inhales the scent of mokihana —
 The bath-water of Hiiaka.
 She once had a contest there;
 She had no tenant to guard the place.
 Pele spurns with her feet the long waves;
 They give back a flash like her eye,
 A flash that's repeated on high.
 Wonder and awe possess me!

When Pele came voyaging from the east
 And landed at Mo'o-kini —
 The rain poured down at Ku-malae —
 Her people set up an image,
 And there they made their abode,
 With the workmen who carve the canoe;
 And they offered prayers and gave thanks.
 Then Pele led them in journey
 To the cape of Lele-iwi,
 Where they breathed the incense of hala.
 With Mokau-lele's rich lehua
 Goddess Pele weaved her a wreath.
 They built a village at Pu'u-lena,
 Her bedroom at Papa-lau-ahi,
 A mighty hall at Kilauea.
 Wonder and awe possess me!

When Pele fell through from Kahiki
 Bitter the rain, lightning and quaking —
 The big-dropped rain that shatters the leaves
 Of the women folk in Mau-kele's wilds.

Rock thefts mar Big Island heiau

□ The high priestess appeals for the return of the stolen items

By Becky Ashizawa
Star-Bulletin

Wind, rain and lava are not the only forces threatening to destroy heiaus on the Big Island. In North Kohala, the Mookini Luakini heiau is being ravaged by human hands, said Leimomi Mookini Lum, kahuna nui (high priestess) of an ancient Hawaiian temple dedicated to the war god Ku. Since 1984 Lum has seen more and more lichen-covered rocks disappear from the temple's massive 30-foot walls. In some sections as much as seven feet have been carted away.

The stealing got so bad this year that Lum finally turned to the state Legislature for help. Sen. Eloise Tungpalan, chairwoman of the Culture Arts and Historical Preservation Committee, was likewise shocked at the deterioration of the heiau.

"I look at it as a monument, the essence of what Hawaii is," she said. "If we don't keep it, we lose a testament to our past."

Although Tungpalan budgeted money for relief efforts that may be available in 1990, Lum said she needs a guardhouse on the site and some security people by November to

See HEIAU, Page A-8

Hawaii's heritage threatened

Lichen-covered rocks of the Mookini heiau. Since 1984, as much as seven feet of the temple's 30-foot stone walls have been stolen in some sections.



Special to the Star-Bulletin

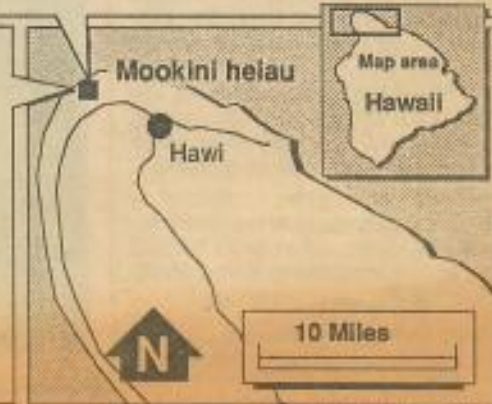
“
These rocks belong here
... they are my children.
”

Leimomi Lum
Kahuna nui of the Mookini heiau



The history

- **Background:** Dedicated to war god Ku; one of the Big Island's oldest and largest historic sites.
- **Construction:** 18,000 people built heiau in one night, according to legend, using 14-mile human chain to carry rocks.



By Joanne Ostendorf, Star-Bulletin

HEIAU: Theft of stones mars sacred temple of old Hawaii

Continued from Page A-1

curb the escalating vandalism.

"When you enter this place, it's like entering a church. You wouldn't think of taking its pews or the candles," Lum said.

But somehow the general respect accorded churches and temples hasn't been extended to the heiau, the size of a football field.

Lum said local residents and tourists are guilty of stealing.

"I know where the rocks are," she said. "People take them for their meditating gardens or pocket them as souvenir items. Others have built entire moss rock walls for their homes."

"I could call the rocks back," Lum said, using an ancient chant, "but that would cause great harm to the people and would really shake things up."

Instead, she prefers that people voluntarily return the rocks. "People will only hurt themselves by keeping them."

Lum could not have foreseen these problems when she lifted the single kapu that opened the heiau to the public in 1978.

Since the temple's creation in the year 480 — according to Lum's genealogical chant — the area was off limits to anyone who wasn't a king or a ruling chief.

But Lum does not regret her decision. Nor does she want to close the heiau again.

She said she promised her uncle, a previous kahuna, to make the heiau accessible to Hawaii's children.

"The kapu was lifted so the children of Hawaii could come and go safely," she said, "because at a later time they will be the ones who will host the children of the world."

And for 11 years, Lum has fulfilled her promise.

Each November the Mookini Luakini heiau is the site of a day-long festival where children from Big Island schools and those staying in nearby hotels are invited to learn more about Hawaii's past, culture and religion.

Nearly 4,000 children visited the heiau during the last event.

But Lum insists that children gain more than facts and figures from their walk.

In this barren, windswept plain skirted by the ocean, Lum said children learn about wonder and a sense of sacredness that comes from the land.

They learn to soak things up through their senses, blunted too often by modern day living, she said. "Here they can see the ocean, smell the dust, feel the wind, hear the silence. . . ."

• But the quality of sacredness

also may lead to the stealing.

"People come here, experience the power, can't get enough of it so they want to take it home," she said.

"But these rocks belong here, they are part of a family, they are my children. When I rededicated this place, I gave each rock a new vibrancy and new life."

By stealing the rocks, "they're breaking up the family," Lum said.

Recently a favorite rock, one that Lum calls Kii, was returned to the heiau after a 12-year absence.

The 200-pound stone resembles the head of a bird and had stood at one of the four corners of the heiau.

Lum said Kii was kept by a woman who secretly arranged to have it returned because her family had suffered too many deaths.

Today Kii is easily identifiable from the rest of the rocks because it lacks the typical moss covering.

The heiau, considered one of the Big Island's oldest and largest historic sites, lies only about 1,000 yards from the birthplace of Kamehameha I.

In 1963, it became the first registered national historic landmark and in 1978 was deeded to the state.

According to Lum's chant, the heiau was built in a single night by 18,000 people forming a 14-mile human chain that carried the rocks from Pololu Valley to the grassy clearing.

Caring for the heiau has been a part of her family's legacy for 1,500 years. In 1977, Lum was named kahuna nui, only the seventh woman in her ancestral line to be given the title.

Although much of the chant is a well-guarded secret, Lum said it traces her ancestors' beginnings to the Persian Gulf and charts their migration to Hawaii.

She lives in Honolulu with her husband Maj. Gen. Alexis Lum, state adjutant general, but manages to fly weekly to the Big Island to visit the heiau.

For 32 years, Lum worked as police officer with the Juvenile Crime Prevention Division of the Honolulu Police Department while training with her father and uncle in temple traditions.

Since becoming kahuna nui, Lum has unveiled plans for a museum complex to be built near the heiau, strengthening further her desire to link the past and future of Hawaii by serving its children.

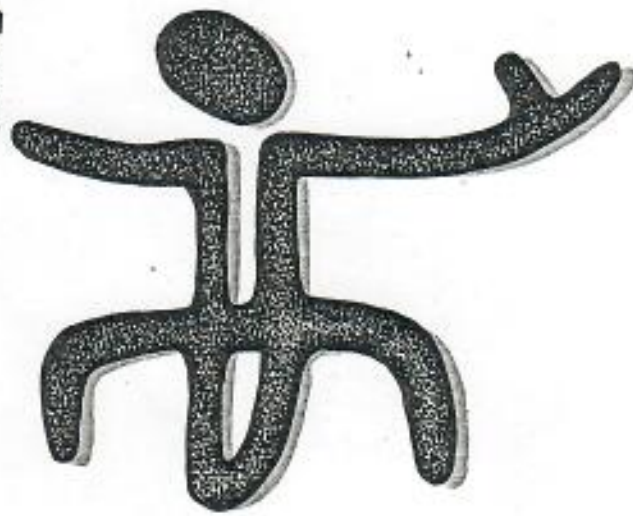
Lum didn't think it was necessary to post signs at the heiau, warning visitors to leave the rocks alone. She thought it was understood.

"This is a sacred place. This is where it all began."

FEAR NOT THE MINDS OF MEN
BUT RATHER SERVE TO PLEASE GOD.





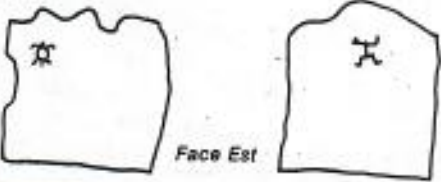
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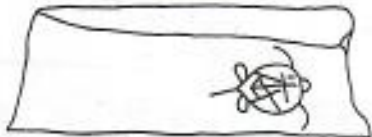
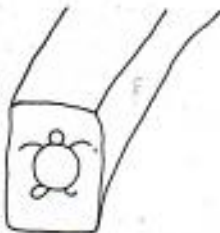



Raiatea
Bora-Bora
Huahine



	LOCALISATION	SUPPORT		MOTIFS	
		Matière	Dimensions (x h x e (m))	TYPE	longueur (l) profondeur (p) du trait (mm)
HUAHINE (HUH) Voir plan 1					
HUH 1 Face Sud	 MAEVA, MARAE RAUHURU, mur avant de l'ahu ; 7ème dalle à partir de la gauche Emory Site 120	corail	1,2 x 1,8	3 tortues, cercles, figures géométriques	en relief p. < 10
HUH 2 Face Nord	 MAEVA, MARAE RAUHURU, mur arrière de l'ahu ; 3ème dalle à partir de la droite Emory Site 120	corail	1,35 x 1,2	1 pirogue, 1 cercle inachevé	l. 10-15
HUH 3 Face Nord	 MAEVA, MARAE RAUHURU, mur arrière de l'ahu ; 4ème dalle à partir de la droite Emory Site 120	corail	1,3 x 1,3	2 tortues (en relief), 2 pirogues, figures géométriques	l. 5-15
RAIATEA (RFP) Voir plan 2					
RFP 1 Face Est	 TEVAITOA, MARAE TAINUU, mur avant de l'ahu ; 2ème dalle à partir de la droite Emory Site 200	corail	2,7 x 2,9 x 0,7	6 tortues, 6 pirogues, figures inachevées	l. 10-20 p. < 5
RFP 2,3 Face Est	 TEVAITOA, MARAE TAINUU, mur avant de l'ahu RFP 2 : 11ème dalle à partir de la droite RFP 3 : 1ère dalle à droite	corail corail	3,9 x 3,7 2,6 x 3	1 tortue, 1 figure humaine	l. 20 p. 5 l. 20 p. 5

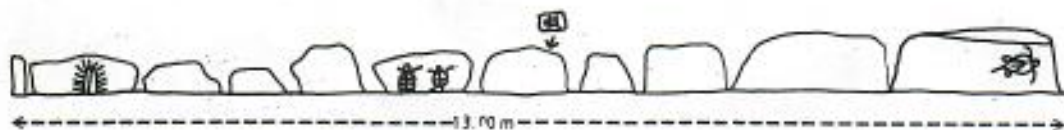
TEVAITOA, MARAE TAINUU, mur avant de l'ahu (face est)



	LOCALISATION	SUPPORT		MOTIFS	
		Matière	Dimensions (l x h x e (cm))	TYPE	largeur (l) profondeur (p) du trait (mm)
RFP 4  Face Sud	TEVAITOA, PLATE-FORME A TAINUU, 50 m devant le <u>marae</u> Tainuu, à côté de la route ; 1ère dalle à partir de la droite	basalte	2,15 x 0,75	1 tortue	l. 5 p. 5
RFP 5  Face Sud	TEVAITOA, PLATE-FORME A TAINUU ; 5ème dalle à partir de la droite, sur la face supérieure	basalte	1 x 0,58	1 tortue	l. 3 p. 2
RFP 6  Face Sud	TEVAITOA, PLATE-FORME A TAINUU ; 5ème dalle à partir de la droite	basalte	1,3 x 0,53	2 tortues	l. 5 p. 3
RFP 7  c.f. Emory : Stone remains in the Society Island Site 200 Face Sud	TEVAITOA, PLATE-FORME A TAINUU ; 10ème dalle à partir de la droite	basalte	1,35 x 0,49	1 "hupe"	l. 3 p. 3
RFP 8  Face Ouest	TEVAITOA, PLATE-FORME A TAINUU, face ouest ; 7ème dalle à partir de la droite	basalte	1,4 x 0,4	2 tortues	l. 20 p. 3

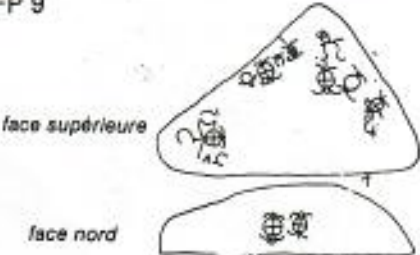
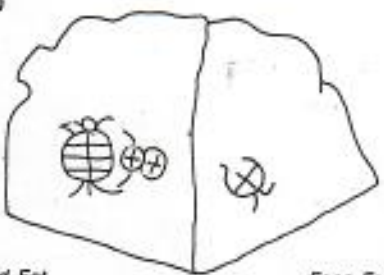

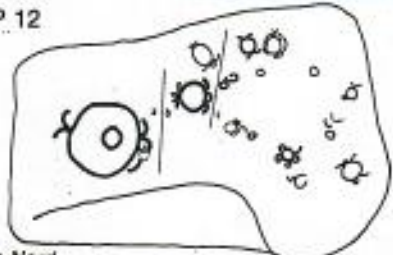
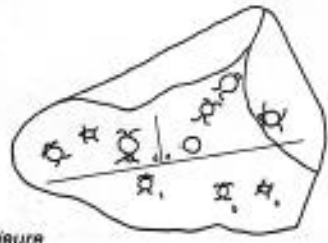

RFP 4 à 8

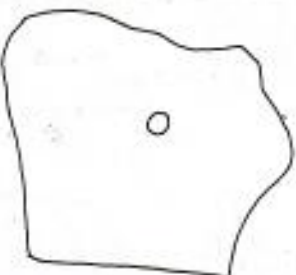
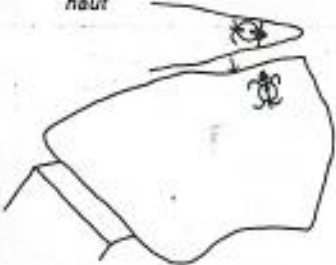

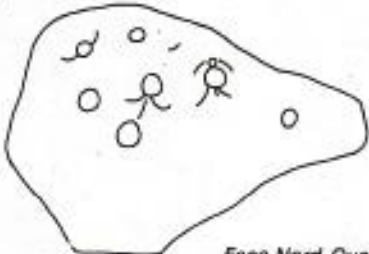

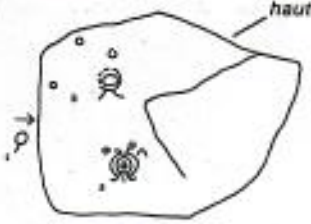
TEVAITOA, PLATE-FORME A TAINUU, face sud

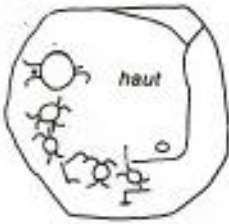







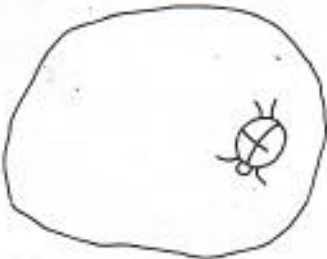
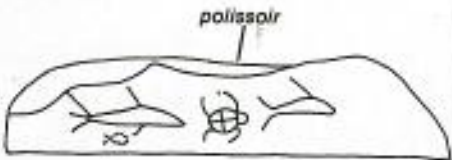


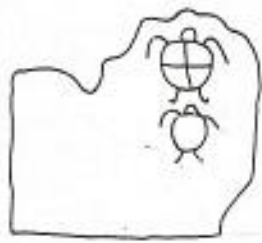
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largeur (l)
profondeur (p)
du trait (mm)5
53
25
33
320
3

	LOCALISATION	SUPPORT		MOTIFS	
		Matière	Dimensions l x h x e (cm)	TYPE	largeur (l) profondeur (p) du trait (mm)
RFP 9 	TEVAITOA, VALLÉE UPARU ; "Ofai honu" ; à 2 km de la côte ; 100 m au nord de la rivière Emory Site 202	gabbro	2,75 x 0,9 x 2	13 tortues, tortues inachevées	l. 10-40 p. 5-15
RFP 10 	TEVAITOA, VALLÉE UPARU ; à 7 km au nord- ouest de "Ofai honu" (RFP 9)	gabbro	1,1 x 1,1 x 1,7	2 tortues, 2 tortues ?	l. 10-40 p. 10-20
RFP 11 	UTUROA, sur le terrain de l'administrateur d'état ; trouvé pendant la construction de la route, dans les alentours, il y a 30-40 ans	basalte	0,5 x 1,5 x 0,6 (cassé)	1 tortue	l. 10-20 p. 5-10
RFP 12 	AVERA, VALLÉE MIIMITIAUTE, RIVIÈRE VAIRAHU (VARAHI ?) ; 300 m du pont en remontant la rivière.	basalte	5,5 x 2,5 x 3	10 tortues, cercles, figures inachevées	l. 10-50 p. 5-20
RFP 13 	AVERA, VALLÉE MIIMITIAUTE, RIVIÈRE VAIRAHU ; dans la rivière à 10 m plus bas que RFP 12	basalte	4,5 x 1,4 x 3,2	9 tortues, 1 cercle	l. 5-40 p. 5-10
RFP 14 	AVERA, VALLÉE MIIMITIAUTE, RIVIÈRE VAIRAHU ; dans la rivière à 20 m plus bas que RFP 13	basalte	2,3 x 1 x 2,6	1 tortue, 1 cercle, 4 cupules	l. 5-10 p. 2-3

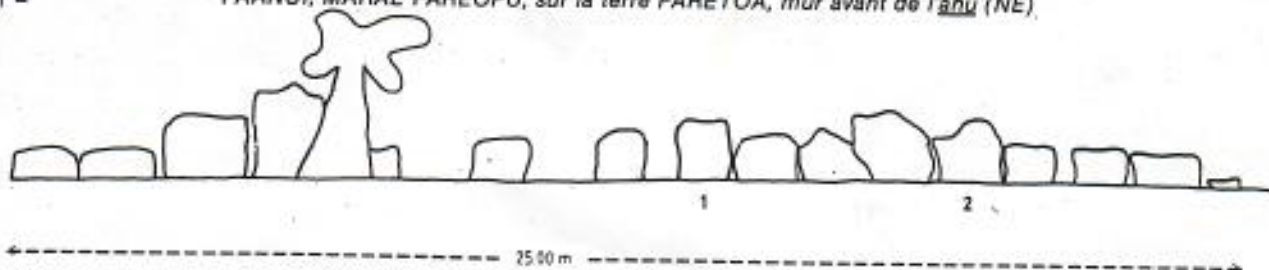
	LOCALISATION	SUPPORT		MOTIFS		
		Matière	Dimensions l x h x e (cm)	TYPE	largeur (l) profondeur (p) du trait (mm)	
RFP 15 <i>Face Nord</i>	 <i>Face Nord</i>	AVERA, VALLÉE MIIMITIAUTE, près d'un <u>paepae</u> et des terrasses agricoles, pas de planche	basalte	1,4 x 1,2	1 cercle (Ø10 cm)	l. 15 p. 2-5
RFP 16 <i>Face Sud</i>	<i>haut</i>  <i>Face Sud</i>	AVERA, VALLÉE MIIMITIAUTE, à 40 m à l'ouest se trouve un <u>marae</u> très détruit	basalte	3,5 x 2	2 tortues	l. 20-40 p. 5-10
RFP 17 <i>face supérieure</i>	 <i>face supérieure</i> <i>Face Est</i>	AVERA, VALLÉE MIIMITIAUTE, dans une petite rivière.	basalte	3 x 2,5	10 tortues, tortues inachevées	l. 15-20 p. < 5
RFP 18 <i>Face Nord-Ouest</i>	 <i>Face Nord-Ouest</i>	AVERA, VALLÉE MIIMITIAUTE	basalte	2,1 x 1,5 x 0,8	3 tortues, 4 cercles	l. 20-30 p. 5-15
RFP 19 <i>Face Sud-Ouest</i>	 <i>Face Sud-Ouest</i>	AVERA, VALLÉE MIIMITIAUTE	basalte	1 x 1,8 (cassée)	1 tortue	l. 20-30 p. 5-10
RFP 20 <i>haut</i>	 <i>haut</i>	AVERA, VALLÉE MIIMITIAUTE	basalte	2,5 x 1,5	2 tortues, cercles	l. 5-20 p. 2-10

S	largeur (l) profondeur (p) du trait (mm)	LOCALISATION	SUPPORT		MOTIFS		
			Matière	Dimensions (l x h x p) (m)	TYPE	largeur (l) profondeur (p) du trait (mm)	
15 2-5		RFP 21  face supérieure	AVERA, VALLÉE MIIMITIAUTE	basalte	2 x 0,7 x 2	5 tortues, 1 cercle, figures géométriques	l. 10-20 p. 5-10
20-40 5-10		RFP 22  face supérieure	OPOA, VALLÉE DE HAAPAPARA ; 300-400 m du pont de la rivière Apoomau (route de ceinture), 45 m au nord de la rivière Valava ; pierre couverte de lignes et trous (naturels ?)	scorie	4,6 x 2,1 x 3,8	3 tortues	l. 15-20 p. 5-10
15-20 < 5		RFP 23 	OPOA, VALLÉE DE HAAPAPARA ; 300-400 m de la côte ; c.f. localisation sur plan 2 grand rocher de forme arrondie ; les figures sont réparties sur la totalité de la surface	basalte	9 x 4 x 10	4 tortues, figures humaines achevées et inachevées figures géométriques	l. 10-50 p. 10-20 (RFP 23 a) p. 30-50
20-30 5-15		RFP 24  Face Nord	OPOA, VALLÉE DE HAAPAPARA ; c.f. localisation sur plan 2	basalte	19 x 4,2 x 16	1 tortue,	l. 12 p. 3
20-30 5-10		RFP 25 	OPOA, VALLÉE DE HAAPAPARA ; c.f. localisation sur plan 2	basalte	1,8 x 1,5 x 0,9	figures géométriques	l. 30 p. 5
5-20 2-10		RFP 26 	OPOA, VALLÉE DE HAAPAPARA ; c.f. localisation sur plan 2	basalte		1 tortue, figures géométriques	l. 10 p. 5

	LOCALISATION	SUPPORT		MOTIFS	
		Matière	Dimensions (x h x e (cm))	TYPE	largeur (l) profondeur (p) du trait (mm)
RFP 27	 OPOA, VALLÉE DE HAAPAPARA ; c.f. localisation sur plan 2	basalte	1,5 x 0,4 x 1,1	1 tortue	l. 13 p. 4
RFP 28	 OPOA, VALLÉE DE HAAPAPARA c.f. localisation sur plan 2 dans la rivière la face supérieure de la pierre est un "polissoir" de 80 cm de diamètre et de 5 cm de profondeur	basalte	2,8 x 0,7 x 1,2	1 tortue, 3 poissons	p. 1-10
RFP 29	 OPOA, VALLÉE DE HAAPAPARA dans la rivière c.f. localisation sur plan 2 sur la même pierre, d'autres n'ont pas été relevés	basalte		2 tortues, 1 poisson	l. 10-20 p. 5
BORA BORA (BOB) Voir plan 3					
BOB 1	 FAANUI, MARAE FAREOPU ; mur avant de l'ahu ; 8ème dalle à partir de la droite Emory Site 223	corail	1,35 x 1,5	4 tortues, 1 tortue inachevée	l. 10 p. 3-15
BOB 2	 FAANUI, MARAE FAREOPU ; mur avant de l'ahu ; 4ème dalle à partir de la droite Emory Site 223	corail	1,2 x 1,35	2 tortues	l. 10 p. 5-10

BOB 1+2

FAANUI, MARAE FAREOPU, sur la terre FARETOA, mur avant de l'ahu (NE).



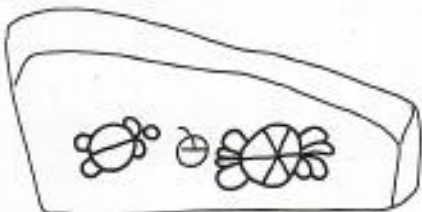
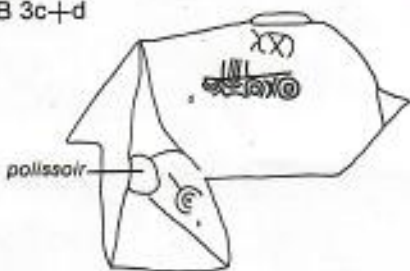
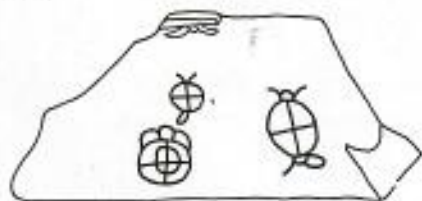
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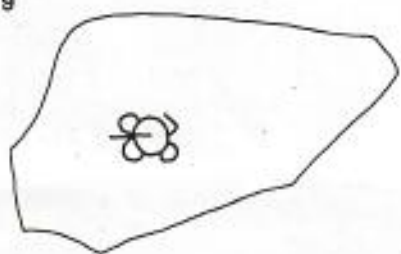
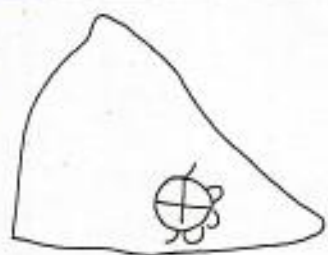
largeur (l)
profondeur (p)
du trait (mm)13
4

1-10

10-20
510
3-1510
5-10

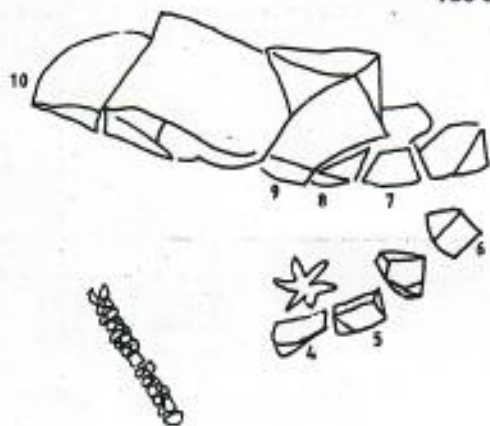
	LOCALISATION	SUPPORT		MOTIFS	
		Matière	Dimensions (l x h x p (cm))	TYPE	largeur (l) profondeur (p) du trait (mm)
BOB 3a	<i>NUNUE (?)</i> , VALLÉE DE VAIATI ; à 200 m à l'ouest de la station hydroélectrique de TIIPOTO ; 10 m à l'est de la rive gauche de la rivière ; la pierre s'appelle "Ota/honu" ; l'inscription ne présente aucune différence technique avec les autres motifs relevés	scorie	2,7 x 1,35 x 2,5	4 tortues, figures géométriques inscription	l. 10-40 p. 5-15
BOB 3b	voir 3 a ; sur la pierre se trouve une tortue en relief (40 cm large, 8 cm haut) Emory Site 236	scorie	2,7 x 1,35 x 2,5	3 tortues, 1 tortue en relief	l. 20-40 p. 10-15
BOB 3c+d	voir 3 a ; en haut du dessin 3 c se trouve un polissoir, 40 cm de diamètre	scorie	2,7 x 1,35 x 2,5	1 tortue, figures géométriques	l. 5-25 p. 5
BOB 4	<i>NUNUE</i> , TIIPOTO, terre PUARII ; à 500 m au nord-est de la station hydroélectrique ; 13 m au sud-ouest de la rivière sur une terrasse agricole	scorie	1,7 x 0,95 x 0,9	3 tortues	l. 20-50 p. 3-15
BOB 5	<i>NUNUE</i> , TIIPOTO	scorie	1,4 x 1,25 x 0,6	2 tortues	l. 5-40 p. 5-20
BOB 6	<i>NUNUE</i> , TIIPOTO	scorie	0,8 x 0,7 x 0,5	2 tortues, figures érodées	l. 5-10 p. 5



	LOCALISATION	SUPPORT		MOTIFS	
		Matière	Dimensions (l x h x e (m))	TYPE	largeur (?) profondeur (?) du trait (mm)
BOB 7		NUNUE, TIIPOTO, PUARII ; grand rocher cassé	scorie	1,1 x 1,6	2 tortues, 1 pirogue (?) l. 5-30 p. 2-10
BOB 8		NUNUE, TIIPOTO, PUARII grand rocher cassé	scorie	1,4 x 1,6	2 tortues, 4 cercles, 1 figure ? l. 5-30 p. 2-10
BOB 9		NUNUE, TIIPOTO, PUARII grand rocher cassé	scorie	1,7 x 1	1 tortue l. 15-20 p. 10
BOB 10		NUNUE, TIIPOTO, PUARII grand rocher cassé	scorie	1,4 x 1,4	1 tortue l. 10 p. 5

BOB 4 à 10

vue supérieure de l'ensemble



Turtle Mother Time®

Terry Taube 1995

Turtle mother time spent her life
swinging in a sea of millions of years of turtle tears
Each and every tear was a great joy or sorrow
Each the essence of moist precious memory

She knew that to get to her nest and lay her eggs
she must find the forgotten island of forgetfulness
and to do this she must remember [be] everything

She must know from where she comes to know where she goes
Otherwise if she were to find it, she would never know it!
Isn't that a little like you and I?

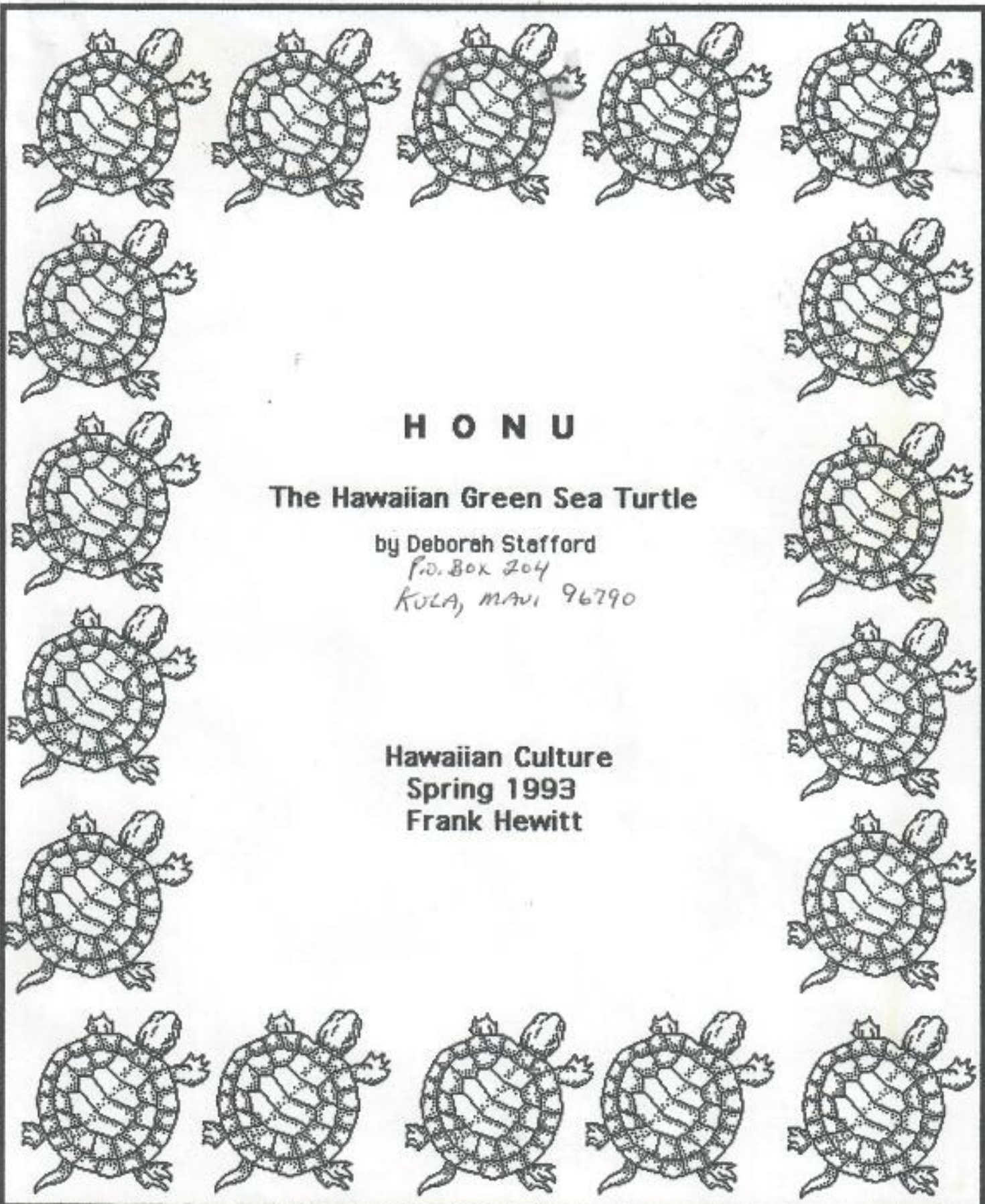
We need to remember our mother our earth
to know who we are in the circle of life
in the great peace on earth

We need to understand how to make our nest
to remember our ancestors
to not forget our children

To extend the family a little further to include all creatures
Let's tend to the tendency
Let's live Pacificlee







H O N U

The Hawaiian Green Sea Turtle

by Deborah Stafford
P.O. Box 204
KULA, MAUI 96790

Hawaiian Culture
Spring 1993
Frank Hewitt

Introduction

The Hawaiian Green Sea Turtle has been swimming in the Oceans for over 90 million years. They have survived asteroids, the Ice Age and other natural disasters. The ancient child held the sea turtle or Honu in high regards and although they were used as a food source, the Kapu system ensured their existence for future generations. The Europeans broke the Kapu and hunted the turtle both for its meat and its valuable shell. It wasn't until the 1970's that hunting Sea Turtles was outlawed. Although the turtle is now protected it is in crisis and these ancient beings may be lost forever. I hope with this paper I can present some facts about the Hawaiian Sea Turtle and some of the dangers it faces. I feel the best approach to saving the Honu is to create an awareness of the problems and hope that a growing concern will lead to change.

The Story of the Turtle Girl

On the big island of Hawaii there is a bay called Punalu'u. It is deep and sheltered from the prevailing winds. It has a beach where fishing canoes can land in good weather. It has survived tidal waves that have destroyed other beaches.

Punalu'u means diving springs and was named for the drinking water that the natives had to dive (or lu'u) down in the bay to an underground spring (or puna). In ancient times the people of Punalu'u would go to the spring at Ninoli for drinking water but the ogress Kal'kapu settled there, this is when they began diving for water in the bay. Men would take gourds out to where the fresh cold water was near the bottom of the bay, unstop his container, fill them and return to the shore. There came a time when stormy weather kept the men from diving. From the ocean to Punalu'u came two supernatural turtles Honu-po'o-kea (turtle with the white head) and Honu'ea (turtle with the reddish brown shell). The mother, Honu-po'o-kea gave birth to an object that looked like a piece of Kauila wood. She buried it in the sand and the turtles dug into the earth and made a spring; then returned to the sea. When the object hatched it was a turtle with a shell the color of polished Kauila wood. The mother and daughter lived in the spring until the baby grew up. The spring came to be named "The rising water of Kauila. The turtle girl could assume human form and play with the children. The children would come to fish in the spring and Kauila would watch and make sure they did not fall in. The people loved her for her protection and her sweet drinking water. Kauila would return to turtle form when she went back into the spring and people knew when bubbles came up in the spring that the turtle girl was asleep in her home. The people of Punalu'u honored the turtle girl and the water was then only used for drinking purposes.

Facts

The Green Sea Turtle is listed and protected under the U.S. Endangered Species Act. The Honu is a long range migrant breeder. Because of the nutritional limitations of its mainly herbivorous diet it has a delayed sexual maturity and slow growth. These turtles live in near shore areas where they eat sea grass or lo loa and macroalgae. They rest underwater on ledges and places that shelter and protect them. The adult females migrate to reproduce at intervals of 2,3,4 years or longer. The adult males migrate to mate on an annual basis. 90% of all reproduction by the green sea turtle takes place at French Frigate Shoals which is approximately at the midpoint of the Hawaiian Archipelago. The round trip migration is a total of 1600 miles. The French Frigate Shoals is a crescent ring of coral and is a national wildlife refuge. The nesting season extends from late April through September, peaking during June and July. Mating takes place in shallow protected waters close to the islets where the females will come ashore to lay their eggs. During the season anywhere from one to seven clutches are laid by each female at intervals of 11-18 days. An average of 100 eggs per female. Once hatchlings emerge from the nest they swim quickly out to where the westerly currents transport them to a pelagic habitat. They begin their oceanic phase of development, that may last for up to three years or longer. Here they live at or near the surface and feed on macroplankton. When turtles reach 35-40 cm. they return to nearshore areas and their diet changes. They begin to eat sea grass or loloa that grows on the bottom.

The Hawaiian Green Sea Turtle are among a very few of the sea turtles to bask on the shoreline. The reason for this behavior may be to avoid the tiger shark or to conserve energy.

Threats to the Green Sea Turtle

Turtles are threatened by a number of things. Hawaiian Green Sea Turtles are exploited for food and commerce. Until the 1950's the French frigate Shoals were harvested and the nesting and basking turtles were killed and shipped to Honolulu. The tiger shark is also a threat to the sea turtle. Turtles are killed in drift nets and caught in fishing lines. Coastal development threatens the nesting places. Their habitat has been changed by pollution and much of the algae that is their food is being destroyed.

A new concern has been the fibro-papillomas found in the sea turtles. There has been an eruption of these tumors on Green Sea Turtles in both Florida and Hawaii. These fibrous tumors debilitate, disfigure and are life threatening to the affected turtles. They often occur on the eyes, in the mouth and on the flippers making it difficult or impossible to see, eat or swim. The cause of the disease is unknown. Pollutants are suspected of being a factor in this frightening disease.

There is research being done to determine the cause and possible cure. Fibro-papilloma may seriously affect the abundance of breeding adults and may lead to the decline in turtle population.

Monitoring the turtles in an attempt to learn more about the population has been undertaken. The capturing, tagging and releasing of turtles allows researchers to track migration and record changes in the size and occurrences of tumors among the Hawaiian Green Sea Turtles.

Turtle Petroglyphs and Motifs

The significance of the turtle in polynesian culture can be seen in the petroglyphs found throughout the islands. In Hawaii, the Marquesas, Necker Island and New Caledonia, petroglyphs of turtles demonstrate the role they played in Island life and lore. Turtles held a central role in certain ceremonies held at religious sites. In Tiamotu Islands in Eastern Polynesia turtles were disembowled at the temple site. Then they were cooked in special ovens and eaten by the priest. A similar ceremony in Central Polynesia brought turtle meat to the community meeting place and was served to the chiefs (Turtle motifs were found tattooed on the knees of a Rarotongan Chief when the rest of his tattoos were geometric patterns).

Taboos regarding the consumption of turtle by anyone except those of high status are known in Society Islands, Tuamotus, Cook Islands, Hawaii, Easter Island, Lau Island, Fiji and Melanesia.

Turtle petroglyphs exist throughout Polynesia on stones used on the exterior wall construction of elite residences, engraved turtle motifs are found on borders near raised stone structures of religious significance.

Although the meaning of petroglyphs is not known there does seem to be a connection between the turtle and the passage to the afterworld. The idea that because the turtle can pass from the depths of the ocean to the land where it lays its eggs; it is also able, in a metaphorical sense, to cross the boundary between two separate worlds. The idea that the Polynesians believed in the ability of the turtle to cross these boundaries is found in chants. One such Melanesian chant translates

The Nether world, the upper
world is free of restrictions
There is Tu there is Ragi
Mata-ike Mataho
Sounding in the nether world
Sounding in the upper world

The contrast of above and below and of island and seaward are common in many polynesian chants. Turtles are associated with Gods because of their ability to transcend boundaries between worlds.

Conclusion

After researching the Hawaiian Green Sea Turtle and learning what I have in this Hawaiian Culture course I can not help but to see a parallel in the negative effects that today's technological world has had on both the Hawaiian Culture and the Honu. Because of greed for land and a disregard for the ocean an ancient being and an ancient culture may disappear forever. Are money, greed and power going to rob us of our ancient cultures and our natural environment? I believe that the natural balance is in play however I see the need for individuals to live in Pono and take responsibility for their actions. By looking to the ancient ways we can learn how to live in harmony with nature. The disease that afflicts the Honu is symbolic of the disease that afflicts our society. We must find a cure for both. Hopefully Honu will survive for another 90 million years in the oceans of Hawaii.


HAWAIIAN ARCHAEOLOGY



P12
Palau, Molokai

HAWAIIAN FISHPONDS

By Catherine C. Summers



FRONTISPIECE:—Aerial view of fishponds on Molokai, taken in 1941. From left to right, the ponds are: *loko 'umeiki* at Wawaia; Kalokoiki; Paialoa; Kaina'ohe; traces of Papa'ili'ili; and, at the extreme right, Keawanui Pond. Dark area left of Keawanui Pond is a portion of the shoal waters. (Photograph by 11th Photo Section, Air Service, U.S.A.)

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FISHPONDS**

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BERNICE P. BISHOP MUSEUM SPECIAL PUBLICATION 52



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1 table, 14 figures in text

INTRODUCTION

Fishponds were things that beautified the land, and a land with many fishponds was called "fat."

S. M. KAMAKAU

THE CONSTRUCTION and operation of fishponds in the Hawaiian Islands, as they existed before the introduction of foreign materials to the Hawaiian culture, will be the primary concern here. The examples and statistics given are based on the Oahu and Molokai fishponds where the majority of ponds were located.

Fishponds are known to have been located on the islands of Hawaii, Maui, Lanai, Molokai, Oahu, and Kauai. Most of them are now in ruins or completely destroyed. The approximate number, not including the numerous small inland ponds, on each island was: Hawaii, 20; Maui, 16; Molokai, 58; Oahu, 97; and Kauai, 12. According to Cobb (1902, p. 429) "There used to be a number of fish ponds on Lanai, but they have all been allowed to fall into decay." The total number of ponds for all the islands, again not including the many small inland ponds, was about 210.

The general term for a fishpond is *loko*, "pond," or, more specifically, *loko 'a*, "fishpond." *Loko 'a* were used for the fattening and storing of fish for food, rather than for fish culture, and also as a source of tabooed fish.

A fish was tabooed by the Hawaiians during its spawning season. The taboo prohibited anyone, chief or commoner, from catching the fish in the sea, but it did not apply to fishponds because they were considered a part of the land. Consequently some fish, such as the mullet which was tabooed from November through March, were available throughout the year to the owners of ponds containing them.

There were two kinds of fishponds: shore ponds and inland ponds.

SHORE PONDS

The shore ponds were of two types: those entirely enclosed, *loko kuapa*; and those having lanes leading in and/or out of the pond, *loko 'umeiki*.

LOKO KUAPA

A *loko kuapa* is a "fishpond made by building a wall on a reef" (Pukui and Elbert, 1957, p. 157), and *kuapa* is the term for its wall.

Loko kuapa are not found anywhere else in Polynesia. Because of physical conditions, such as the shoal waters off of Molokai, they are unique to the Hawaiian Islands.

Loko kuapa were owned by the kings and chiefs, and at their command, were built by the common people. The building of a pond was a communal project of the chiefs who, from their individual land sections (*ahupua'a*), furnished the large number of people required for this work.

The following testimony about the building of Puko'o Pond, which was a *loko kuapa* on Molokai, is included in the transcript of a Land Commission hearing:

... said fishpond was affirmed to have been built by all of the people of Molokai, is the fruit of their joint labor and toil in former days, when they were drafted and commanded by lunas and chiefs, from every point of Molokai and brought to that work, and they further affirm, that said pond not having been built by the private labor of any one chief with his *po'alima*, but as afore said, by all the people of Molokai. . . .

Lokomaikai sworn: He helped build the wall of fishpond of Pukoo under Ilae Luna Auhau, about the year 1829. All the people were called to this work from Kamaloo to Halawa. [The area from Kamalo'o, now known as Kamalo, to Halawa is one quarter of the southern portion of Molokai.]

Kawelo of Ualapue sworn: He helped build said fishpond wall at the command of Ilae. Women and children also went and worked in the sea gathering lime [*puua* coral] for said wall.

Kaluna sworn: Lived at Kamaloo in day of Ilae and with all people from Kamaloo to Halawa was commanded and went and built fishpond wall in sea of Pukoo.

Said testimony confirmed by multitudes listening who said they were fellow workers in wall (Land Commission Award 3730, n.d.).

The fish most commonly raised in *loko kuapa* were the *'ama'ama*, or mullet, and the *awa*, or milkfish. Hiatt (1944, pp. 254, 255) reports both of these fish reaching a length of 15½ inches in ponds. They obtain most of their food from microbenthos, which seems to grow best in brackish water and at a depth not exceeding 2 feet. The following is a description of this food:

This is a complex found abundantly as a crust or mat upon the bottom of the ponds and is similar to "lab-lab" found upon the floor of nursery ponds for milkfish in the Philippines. It forms an almost solid mat on the bottom of the ponds from the edges down to a depth of approximately two feet. As greater depths are reached it becomes sparse, probably because of diminished light penetration as a result of nearly constant wind disturbances which fill the water with suspended detritus.

A microscopic examination of this complex shows it to be composed largely of unicellular, colonial, and filamentous blue-green algae, mostly small species of Oscillatoriaceae; there is a great variety of diatoms, bacteria, unicellular green algae, and a small proportion of very fine threads of Chlorophyceae, predominantly *Cladophora* spp. and *Vaucheria* sp. It also contains many protozoans, nematodes, and small crustaceans. The incoming tide and wind disturbance will often break up large patches of benthos filled with oxygen which buoys them up to the surface (Hiatt, 1944, pp. 264-265).

The adult *awa* feeds also on the larger algae, in addition to the above benthos. (For a complete account of the feeding habits of *'ama'ama* and *awa* in shore ponds see Hiatt, 1944, pp. 250-280.)



FIGURE 1.—Map of Pearl Harbor and Kalihi Basin, Oahu. Dark areas show the location of 40 fishponds. (Adapted from McAllister, 1933, p. 29.)

The ponds were built along the sheltered seashores (Fig. 11) or in bays, such as Pearl Harbor and Kalihi Basin (Fig. 1),* and Kane'ohe Bay on Oahu. Often they were located where fresh-water or brackish springs were to be found in the shallow waters, or at the mouth of a stream. As was stated above, the fish's food thrived best in brackish water. The streams also benefited the ponds by washing in inorganic material, thus fertilizing and consequently increasing the food supply.

Loko kuapa were made by using one of two methods. One was to construct a wall across the mouth of a small bay or between two close points of land (Fig. 2); the other was to run a wall out from two places on the shore line to

* The drawings in this book were made by William K. Kikuchi.

form a semicircular enclosure (Fig. 3). Most of the Molokai fishponds were built by the latter method. The coast line on the south shore of this island, where all the fishponds are located (see Fig. 11), is fairly straight; and the shoal waters, having a maximum depth of 3 feet, extend several hundred to over a thousand feet.

Where numerous ponds had been constructed close together, as was done on the southeastern coast of Molokai, and at Pearl Harbor and Kalihi Basin on Oahu, a new pond was sometimes built by using a portion of the wall of an existing pond as part of its wall. For example, Kalokoiki Pond at Wawaia,

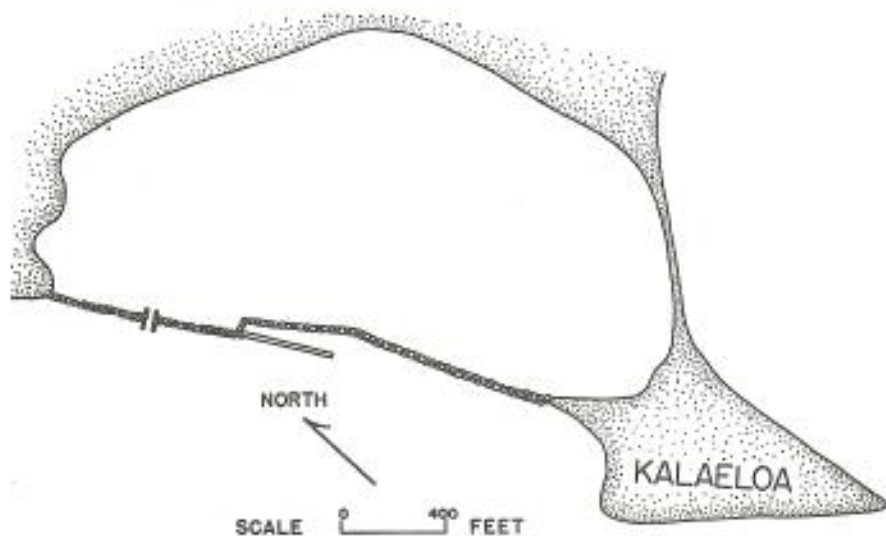


FIGURE 2.—Plan of a *loko huapa* made by constructing a wall between two points of land. Keawanui Pond, Keawanui, Molokai; area, 54.50 acres. This pond was built before the 16th century and is still being used. (Plan adapted from Evans, 1937.)

Molokai, has 340 feet of Paialoa Pond's wall for its eastern wall. These two ponds, although damaged, may still be seen.

In a few cases, a connecting wall was built between two neighboring ponds to form a third pond. Kapu'u Pond in Kane'ohe Bay, Oahu, was constructed in this manner. A wall was made from the northeastern part of Mikiola Pond over to the northwestern part of Mahinui Pond, thus forming Kapu'u Pond. These three ponds are now filled.

To build a *loko huapa* probably required a year or more. Kamakau (1869a) reports that the repairing of the south wall of Kalepolepo Pond on Maui, which was approximately 500 feet long, "took several months of work," and, as he remarks, this was "not more than a quarter of the work done by the ancient people who built them [the ponds]." Many ponds had walls over 2,000 feet long.

The size of *loko kuapa* varied from 1 acre to 523 acres, the largest being Kuapa or Keahupua-o-Maunaloa Pond at Maunaloa, Oahu (now a part of the "Hawaii Kai" housing development).

The length of walls varied from a few hundred to several thousand feet. The longest wall reported for an Oahu pond is 5,000 feet. This pond, He'eia Pond, is still being used. The length is not always an indication of the size of a pond. The wall of Ali'i Pond (Fig. 3) is 2,700 feet. Keawanui Pond (Fig. 2), with over twice the area of Ali'i Pond, has a wall 2,000 feet long.

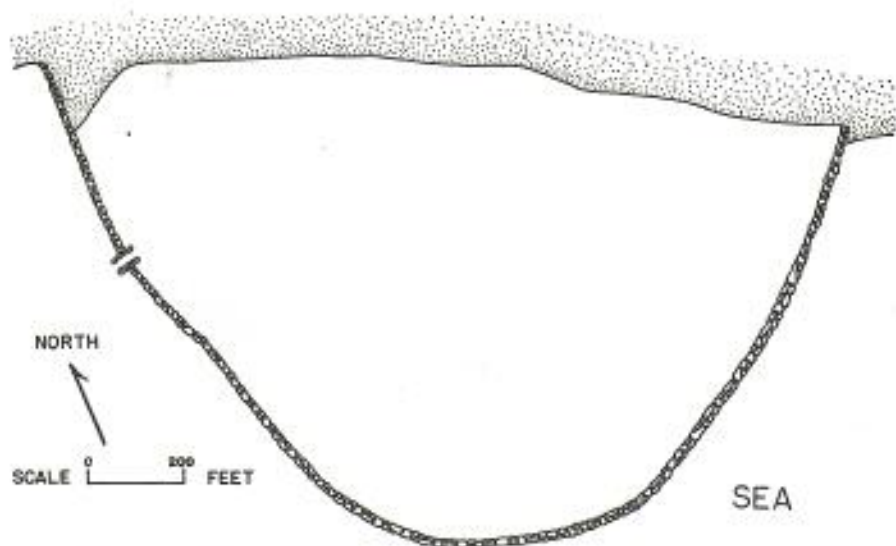


FIGURE 3.—Plan of a *loko kuapa* made by constructing a wall from two places on the shore line to form a semicircular enclosure. Ali'i Pond, Makakupaia, Molokai; area, 25.80 acres. (Plan adapted from Evans, 1937.)

The walls vary from 3 to 19 feet in width. The average is about 5 feet. However, the width of an individual wall sometimes varies. The wall of a pond near Kolo on Molokai was 8 feet wide in some sections and 11 feet in other sections; the wall of 'Ualapu'e Pond on Molokai is 8 to 19 feet wide.

Walls were from 2 to 5½ feet high, the average height being 3 to 5 feet. The height of a wall depended on the depth of the water, which in most ponds reached a maximum of 2 or 3 feet. The wall of a *loko kuapa* was not submerged at high tide.

Walls were usually constructed of coral (Fig. 4) or basalt (Fig. 5), or with both coral and basalt (Fig. 6). As McAllister (1933) points out, the most accessible material was used. Some of the stones used in the walls are estimated to weigh half a ton.

Most walls are faced on both sides with a rubble of either coral or basalt, or a combination of the two. In a few cases sand or dirt has been added to the fill. On the walls of two ponds (Puko'o and Pakanaka Ponds, Molokai) coralline algae was observed growing on the coral which had been used as fill. In its secreting, the coralline algae had "cemented" together portions of the coral and rock fill, thus strengthening the wall. It is probable that the Hawaiians were



FIGURE 4.—Wall of *loko huapa* made of coral. Lauilaunui Pond, 'Ewa, Oahu. (B. P. Bishop Museum Negative 3744.)

aware of the characteristics of coralline algae. (A coralline algae is a lime-secreting seaweed. It serves as a binding agent on reefs; however, it is not necessary for it to be submerged in order to live.) The "women and children also went and worked in the sea gathering lime [*puna* coral, all *Porites* spp.]

for said wall" (see p. 2), and incidentally, or on purpose, gathered coralline algae, too.

The top of the wall is fairly level, providing easy access to the *makaha* and facilitating the supervision of the condition of the pond. A *makaha* is an opening in the wall with a grill across it. Specifically, *makaha* is the grill itself (see Fig. 7).

The majority of walls are loosely constructed to permit water to seep in and out according to the tide, thus preventing stagnation in the pond. McAllis-

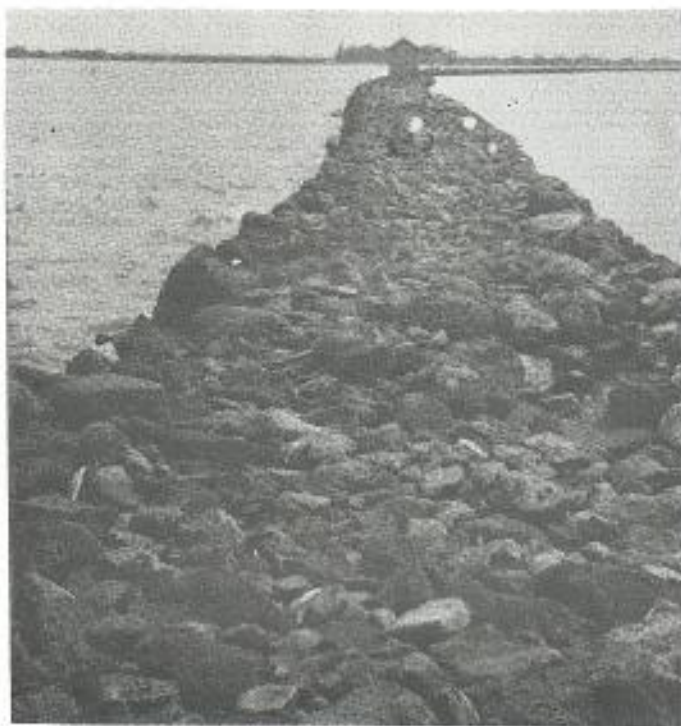


FIGURE 5.—Wall of *loko kuapa* made of basalt. Weloko Pond, Waimano, Oahu. (B. P. Bishop Museum Negative 3751.)

ter (1933) describes two ponds on Oahu with compact walls. One, Wailupe Pond (Site 56, p. 71), which is now "Wailupe Circle," had four *makaha* in its 2,500-foot wall; the other, He'eia Pond (Site 327, p. 173), has five *makaha* in its 5,000-foot wall. In these ponds, the flow of water through the *makaha* provided the only means of circulation.

It was taboo for a menstruating woman to walk on the wall of a fishpond "lest the *kuapa* be defiled" (Kamakau, 1869b).

Makaha were constructed to permit both water and very young fish to enter the pond. "These [*makaha*] are of straight sticks tied on to two or three cross beams, the sticks in the upright standing as closely as possible, so that no fish half an inch in thickness can pass them, while the water and young fry can pass freely in and out" (Beckley, 1883, p. 21).

Not only did the *makaha* keep the fish inside the pond, it also kept undesirable fish, such as predators, out, providing they were large enough to be unable to pass through the openings.

No part of the ancient *makaha* was movable. Those of today may be opened or closed like a gate; others may be raised or lowered (Fig. 8). They are



FIGURE 6.—Wall of *loko kuapa* made of coral and basalt. Pakole Pond, Kahalu'u, Oahu. (B. P. Bishop Museum Negative 15359.)

opened when the tide is rising in order to allow fish to enter. At this time both desirable and undesirable fish can come into the pond. When the tide turns, the gates are closed thus entrapping the fish.

Makaha were placed either on the seaward side of the opening, the pond side, or in between. In some ponds there is a sluice or lane called '*auwai*' or '*auwai o ka makaha*,' "ditch of the *makaha*," which was made of two rows of piled stones running from the *makaha* opening to about 10 feet in or out of the pond. Sometimes the '*auwai*' extends both inside and outside the pond (Fig. 9).

A *makaha* was built in the following manner:

When the stone walls of the *kuapa* banks were completed, then the task remained to find the proper wood for the *makaha*. This was selected by the kahuna of the '*aumakua*' who

increased the fish in the shore ponds. The wood was either *'ohi'a 'ai* or *lama*, or some other suitable wood. When the wood for the *makaha* was ready, and the proper day had arrived for its construction, the kahuna was fetched to set up the first piece of timber. For this important duty he offered a hog and a dog suitable to this work of inspiring the increase of fish, and appropriate prayers to this work. Then he reached for a timber and set it up for the *makaha*, and offered the closing prayer. Then the men built the *makaha*, binding it together with *'ie* cords. After that they arranged foundation stones with the *makaha* grating, and poured in pebbles. It was in this way that all *makaha* were made (Kamakau, 1869a, 1869b).

Most *loko kuapa* have from one to four *makaha* openings, although some have as many as seven, and others have none. The number of *makaha* did not necessarily depend on the size of the pond or the length of the wall. Mahiliika Pond on Molokai had an area of 13.30 acres. In its 1,750-foot wall there were

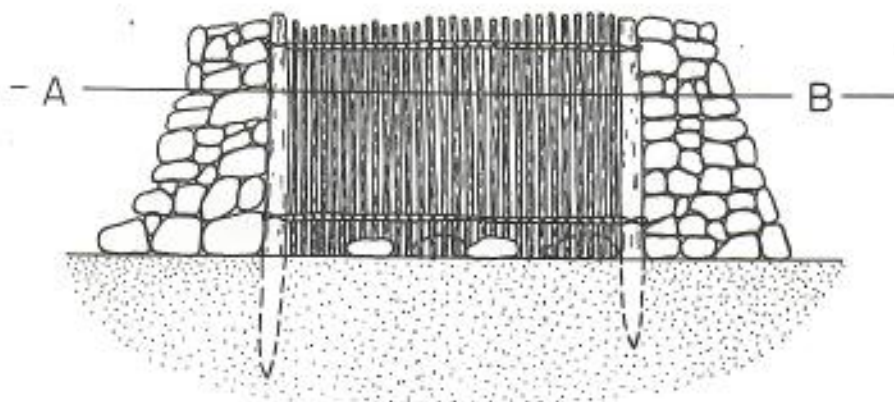


FIGURE 7.—Vertical view of a *makaha*. Line A-B indicates water level. (Adapted from McAllister, 1933, p. 30.)

three *makaha*. Ali'i Pond (Fig. 3) has an area of 25.80 acres, with but one *makaha* in its 2,700-foot wall.

There was no set rule for the location of a *makaha* opening. In some ponds they are located in the outermost bend of the wall, in others on the sides, and sometimes they are near the shore.

It was customary to build a small thatched guard house, *hale kia'i*, near the *makaha*. Here the keeper of the *makaha* stayed.

On the nights of high tides every keeper slept by the *makaha* of which he had charge, and it was their custom to build small watch houses from which to guard the fish from being stolen, or from being killed by pigs and dogs. When the tides receded the fish would return to the middle of the pond, out of reach of thieves (Kamakau, 1869b).

The stocking of a *loko kuapa* with fish was accomplished in two ways. One was by the young fry entering through the *makaha*. After feeding in the pond, they would be unable to return to the sea because they had become too large

to pass through the narrow openings of the *makaha*. The other method used was to catch the fry, measuring $\frac{1}{2}$ to 1 inch long, in nets while they were in shallow waters or bays, and transport them alive to the pond.

The general opinion is that mullet do not spawn in fishponds. However, Phelps was told to the contrary:

It has been said that mullet do not spawn in the ponds, but I have been assured that under the old management they did. The Hawaiian knowledge of the natural history of fishes, in the old days, should not be underestimated (Phelps, 1937, p. 14).

When the keeper of the pond wished to remove some fish, he would go to the *makaha* while the tide was coming in. Here the fish had gathered, being



FIGURE 8.—*Makaha* of Weloko Pond, Waimano, Oahu, in 1911. (B. P. Bishop Museum Negative 3754.)

attracted by the incoming water. With a scoop net, the keeper caught the number of fish desired.

[On the nights of high tide] the keeper would dip his foot into the water at the *makaha*, and if the sea pressed in like a stream and felt warm, then he knew that the sluice would be full of fish. The fish would scent the fresh sea and long for it. I have seen them become like wild things. At a sluice where the fish had been treated like pet pigs, they would crowd to the *makaha*, where the keepers felt of them with their hands and took whatever of them they wanted, perhaps *awa*, *'anae*, *'o'io*, or whatever they desired (Kamakau, 1869b).

Another time for catching the fish was when they were fed, "for this was regular and always at the same spot. A common food was taro" (Phelps, 1937, p. 15).

When a large number of fish was desired, "the long net, generally known as the *'upena ku'u*, is used, the same as in shallow sea fishing" (Beckley, 1883, p. 21). Two men held the net while others splashed the water to drive the fish into it. According to Kahaulelio (1902), this form of catching fish in a pond was done just before daylight.

Fish raised in ponds, in addition to the *'ama'ama* and the *awa*, were the *awa'awa*, *kaku*, *aholehole*, *'o'opu*, *'opae*, and *puhi*. "The caretakers of the pond could eat openly of the *aholehole*, *awa'awa*, *kaku*, *'o'opu*, and the *'opae*, but those kinds reserved for the chiefs they would eat secretly" (Kamakau, 1869b).

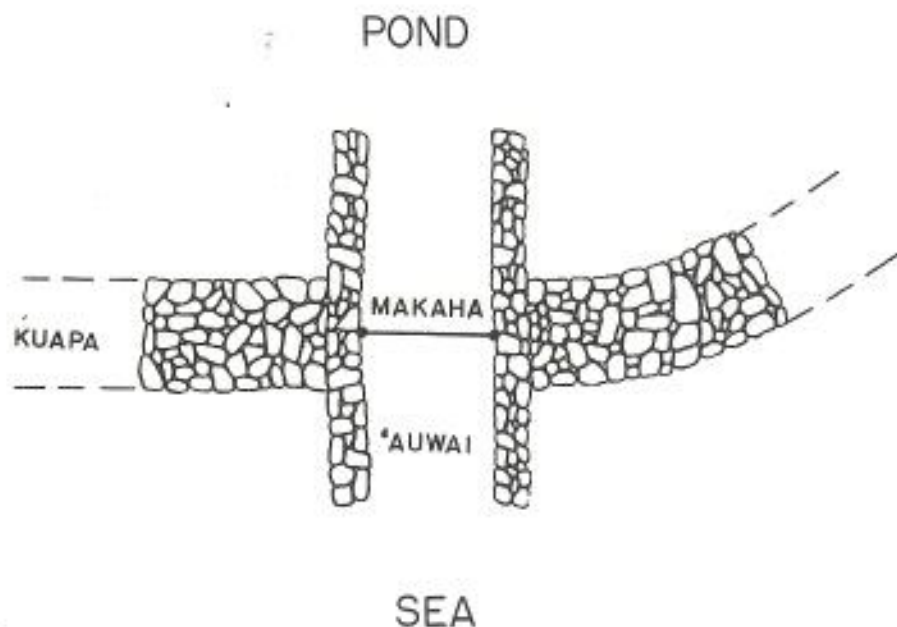


FIGURE 9.—Horizontal view of *'auwai o ka makaha*.

During heavy rains, sediment was washed into the ponds, especially into those which were located at the mouth of a stream. In order to prevent the filling of a pond with silt, an entrance, probably with a *makaha*, was sometimes built near the shore on either side of the pond. On the flow of the tide, the water entered through one entrance and washed the silt to the other side of the pond where it would be carried out through that entrance at the ebbing of the tide. This method of cleaning was employed in some of the Molokai ponds.

Phelps (1937, p. 15) speaks of a weighted bamboo rake, *kope 'ohe*, as being used to clean a pond. "This *kope 'ohe* was towed behind a canoe and the collected matter taken to the sluice. At ebb tide, while the fish were kept in by

nets or the gate [*makaha*], the mud was swept into the *'auwai* and so carried out."

According to Carlson (n.d., p. 17), "The people once or twice each year had to go out into the pond and with coconut halves scoop the mud out. At the same time the pond was firmed on the bottom creating a better bed for the fish plants and the fish food."

The earliest recorded date for the building of a *loko kuapa* is in the middle of the 15th century. At this time Kauholanuimahu built the pond at Keone'o'io on Maui (Fornander, 1880, p. 71). Ponds were probably built before this time, for by the 13th century, or perhaps earlier, the chiefs had enough power to command the number of people required to build a large *loko kuapa*. (It is known from archaeological evidence that the Hawaiian Islands were well populated by A.D. 1000. See Emory, Bonk, and Sinoto, 1959, p. ix.)

Ponds were built over the years until the early part of the 19th century. Some were destroyed by the sea or by volcanic action; others were abandoned due to the decrease of the population. In some cases the very existence of a pond has been forgotten. Such was the case of two ponds on Molokai whose foundations appear on aerial photographs. One pond was adjacent to the land of West 'Ohi'a, and the other adjacent to the seaward wall of Ni'aupala Pond at Kalua'aha. No claim was made to either pond during the Land Commission hearings in the 1800's. Presumably the ponds had been destroyed so long ago that they had been forgotten.

The following list of *loko kuapa* which were still being used commercially in 1960 was compiled by the State Department of Agriculture and Conservation:

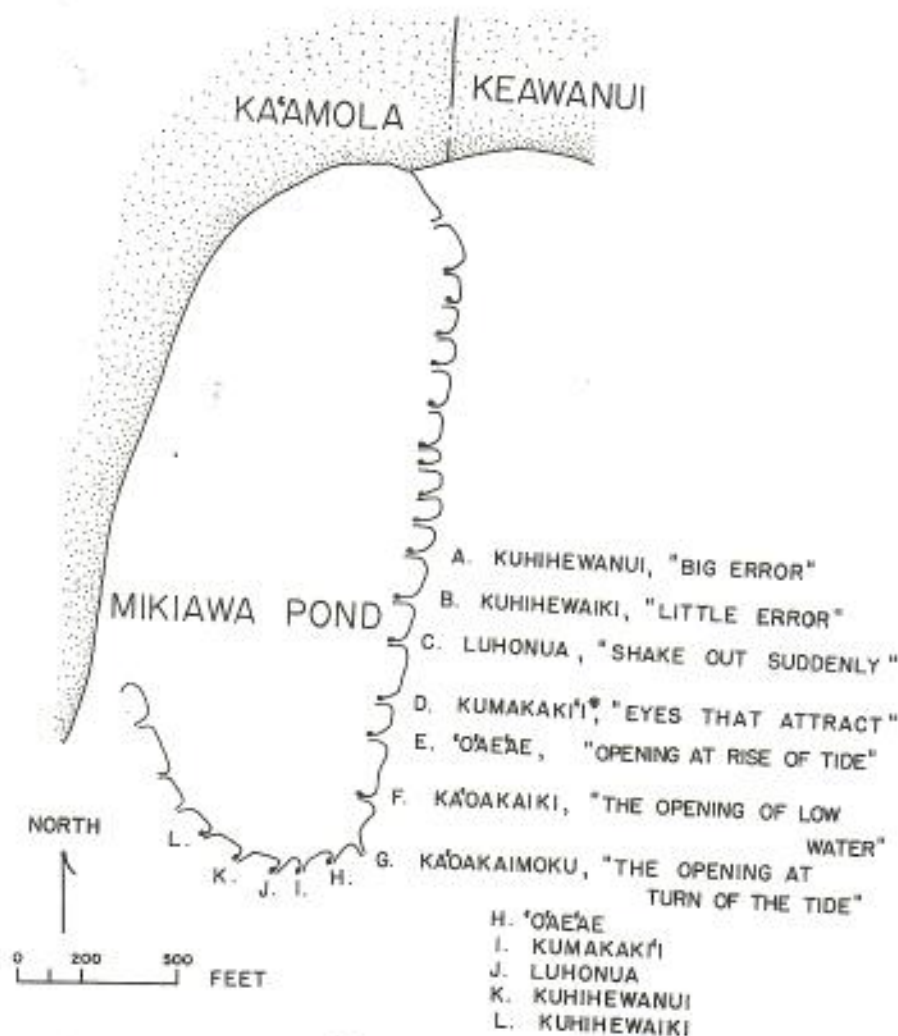
OAHU	MOLOKAI
Heeia Pond, Heeia	Kaopeahina Pond, Kaluaaha
Pond, Honolulu	Keawanui Pond, Keawanui
Kahouua Pond, Kahouua	Kupeke Pond, Kupeke
Kuapa Pond, Maunaloa	Ualapue Pond, Ualapue
Molii Pond, Kualoa	
Waikalua Pond, Kaneohe	

There were no *loko kuapa* reported as being used commercially on the islands of Hawaii, Maui, or Kauai.

LOKO 'UMEIKI

A *loko 'umeiki* is a shore pond "surrounded by a low wall that is submerged at high tide and has openings, walled on each side like lanes, leading in or out of the pond" (Beckley, 1883, p. 20). (See Fig. 10.) Both Beckley (1883) and Stokes (1911) give *loko 'umeiki* as the name for this type of pond.

It was a form of fish trap, but was regarded as a pond by the Hawaiians. Beckley (1883, p. 20) uses the term "pond" in describing *'umeiki*; Keawe'iwi



* KUMAKAKI'Ī WAS A GOD OF FISHPONDS

FIGURE 10.—Plan of a *loko 'umeiki*. The inward lanes were used when the tide was coming in, the outward lanes when the tide ebbed. Mikiawa Pond, Ka'amola, Molokai; area, 35 acres. When known, the name of the lane is given. (Adapted from plan made by John F. G. Stokes.)

(n.d.) refers to Mikiawa Pond, which was a *loko 'umeiki*, as "Ka loko o Mikiawa"; and Cobb (1902, pp. 429-430) includes them in his list of Molokai fishponds, making no distinction between *loko 'ā* and *loko 'umeiki*.

There were at least ten *loko 'umeiki* on Molokai. No record of this type of pond has been found for the islands of Kauai, Oahu, and Maui. (See: Ben-

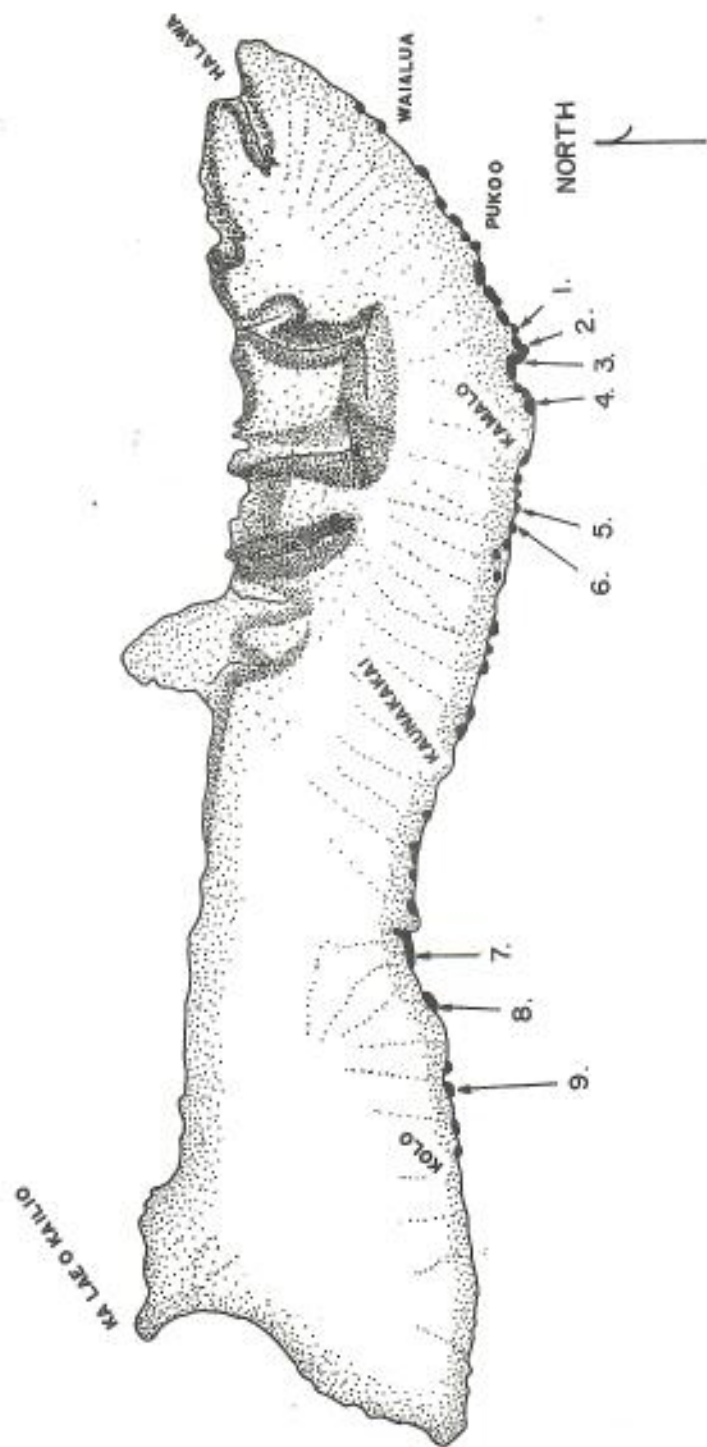


FIGURE 11.—Map of Molokai. Dark areas on south coast are fishponds. Arrows indicate *loko 'umeke*. Numbers refer to ponds listed in Table 1. (Adapted from Cobb, 1902, Plate 27.)

nett, 1931; McAllister, 1933; Stokes, 1909a; and Walker, 1931.) Whether there were any on Hawaii or Lanai is not known.

In 1909, John F. G. Stokes surveyed and drew plans of five *loko 'umeiki* on Molokai: Kaunahiko'oku; Mikiawa; Papa'ili'ili; Pala'au; and Naninani-ku'eku'e. He made notes on two others: Ho'olehua and Pakanaka. The foundations of three more can be seen on aerial photographs (Aerial Photographs, 1949). Six of the ponds were located on the southeastern portion of Molokai, the other four on the southwestern part of the island, as shown in Figure 11.

A *loko 'umeiki* was generally used by the people for catching one fish at a time, and it provided a means for a number of individuals to conveniently catch their day's supply. The fish caught in one of these ponds, Mikiawa Pond, Mo-

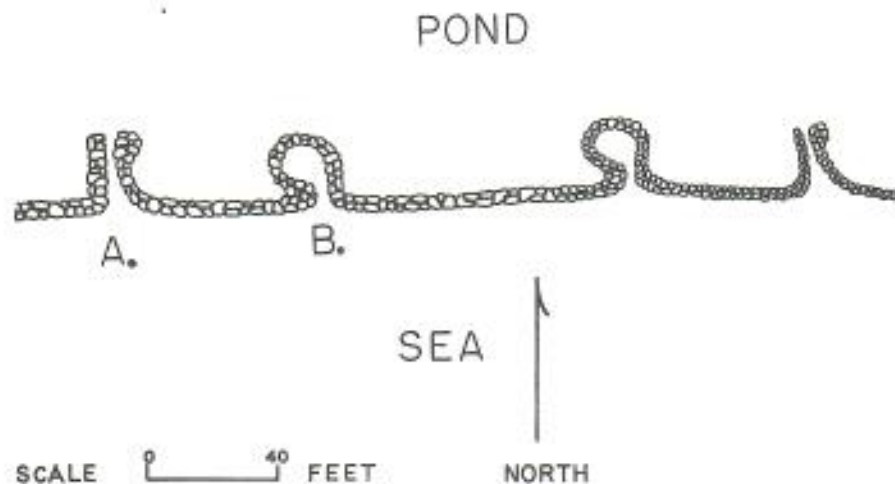


FIGURE 12.—Section of the wall of Papa'ili'ili Pond, Ka'amaia, Molokai. A, Inward lane showing platform on eastern side of the end of the lane; western wall of lane was 21.6 feet long. B, Closed inward lane, 2.6 feet wide at wall, 16 feet long, 14 feet wide (inside dimension). Note platform on western side. (Adapted from plan by Stokes.)

lokai, were the *'ama'ama*, *awa*, *weke*, *ulua*, *moi*, *kala*, *'o'io*, and *palani* (Stokes, 1909b, p. 11).

The ponds were operated in the following manner: At night when the tide was coming in, a man or a woman (Beckley, 1883, says more frequently a woman) waded out to the end of an inward lane. Here he, or she, sat on a raised stone platform which was situated at the end of one side of a lane (see Figs. 10 and 12). The fisherman held a net which was just wide and deep enough to cover the opening of the lane. The mouth of the net was faced toward the sea.

[The man or woman] sits very quiet until a jerk in the net is felt, when it is immediately pulled up before the fish have time to return, and the fish dropped into a gourd or basket, when the net is immediately returned to the water and waiting and watching are resumed. Two persons generally go to this kind of fishing and sit on opposite sides of the entrance, so that as one net is raised another is still there, and under certain conditions of the water and weather, two persons will be kept busy scooping up fish as fast as the nets can be lowered. No fish must be allowed to get free as that would put a stop to the fishing at that entrance during that turn of the tide.

These entrances are favorite stations for the ground sharks of the neighborhood to prey on the fish as they go in or out, and so when the tide is about medium height, the fishing people return to shore, as their platforms would be entirely submerged at high tide (Beckley, 1883, p. 20).

When the tide turned and the platforms were once again exposed, other people waded out to the outward lanes, faced the nets toward the pond, and fished in the same manner as described above.

The above description is adapted from Beckley (1883), who at one time had part ownership in a *loko 'umeiki* located on the eastern section of Molokai. Stokes (1911) was given the same information about the operating of these ponds as Beckley describes, "except in regard to two people fishing at one opening simultaneously." It seems more likely that only one person used an opening at a time. The platforms were located on only one wall of an individual lane; and the walls of the lanes being fairly narrow, they would not provide a good seat for a fisherman.

"Sometimes one person had a prior right to fish at a certain inward and a certain outward opening both of which bore the same name. [See Fig. 10, A and K, B and L, etc.] . . . Other persons might use the same openings in the proprietor's absence" (Stokes, 1911).

Some *loko 'umeiki* were owned "by proprietors of two adjoining lands, the people of one owning the right to fish during the rise of the tide known as the *kai-ki*, and the others during the ebb, *kai-emi*" (Beckley, 1883, p. 20). Such was the case of Mikiawa Pond at Ka'amola, Molokai (Fig. 10). When the tide was coming in, the people of Keawanui could use the lanes. When the sea ebbed, "the fish belong to Ka'amola" (Keaweiwi, n.d.).

Long nets were also used in these ponds, but they could only be used by the people of the land who had the right to use the pond at that particular condition of the tide.

Due to the functioning of this type of pond, the features and dimensions vary considerably, for an individual pond had to be adapted to its own location. The features and dimensions of each pond are given in Table 1.

Pond Nos. 4, 5, and 6 were deteriorated in 1901 (Cobb, 1902, p. 430). However, the portions of their foundations which appear on the aerial photographs are similar to the dimensions of Kaunahiko'oku Pond (No. 1). Only half of the foundation of No. 4 remains, therefore the number of its lanes reported is probably incomplete. Presumably there were more outward lanes.

TABLE 1
STATISTICS FOR LOKO 'UMIHI ON MOLOKAI*

Pond	AREA (ACRES)	No. LARVAE			DIAGNOSTICS (IN FEET)						CLOSED			
		Inward	Outward	Total	Inward Lanes			Outward Lanes			In-ward	Out-ward		
					Width of Wall	Length	Width at End	Width at Wall	Length	Width at End				
Eastern														
1. Kaunahiko'oku, West 'Ohi'a	13.0	2	9	11	10-15	30	3.6	9-15	20-40	2-5.6	—	—	—	
2. Miliawa, Ka'amola	44.0±	16	10	26	27-36	47-70	5-7	19-25	32-50	4-5.5	—	—	—	
3. Papa'ihii, Ka'amola	6.5	3	3	8	9	16-24	—	—	24-31	—	2	—	—	
4., Wawaia	40.0	4	4	8	—	—	—	—	—	—	—	—	—	
5. Kamaunawa, Kapoko'olan	30.0	3	7	14	—	—	—	—	—	—	3	—	1	
6. Punahaha, Makolelan	36.0	5	9	17	—	—	—	—	—	—	2	—	1	
Western														
7. Pala'au, Pala'au	200.0 (approx.)			27				4-7.5	12-18	3-5				
8. Pakanaka, Tioi	68.8			20				10	13	5				
9. Naminaniku'eku'e, Kalukoko'i	22.0			8				5-13	8-20	4-6				

* The statistics used are from Stokes (1956, 1959c); and from Aerial Photographs (1949).

The six eastern ponds had lanes leading both into and out of the pond. All inward lanes were located on the eastern portion of the pond, and all outward lanes in the center or western portion. The arrangement of the lanes was probably made to take advantage of the currents. The currents along the shore line of Molokai, between Kalua'aha and Kaunakakai, usually run from east to west, in the same direction as the prevailing wind. Therefore, it is logical that the inward lanes, which were used when the tide was coming in, should be located on the eastern side, and the outward lanes, which were used at ebb tide, should be located to the west. Stokes (1909a, p. 29) found a similar situation in the Pearl Harbor fish traps:

It is interesting to note what advantage of natural conditions was taken by the early fishermen in constructing their traps on the banks jutting out into the channel. . . . The natives say that the incoming tide flows more strongly against the east side of the channel, while the west side bears the heavier proportion of the ebb. To reap the full benefit of the condition, the entrances of the ponds [traps] were built opposed to the stronger current.

On the eastern wall of an inward lane, at its end, was the platform which the fisherman sat upon (see Figs. 10 and 12). The platform for an outward lane was located at the end of the western wall. All the platforms recorded were in the same relative location. The fact that the Hawaiians are mainly a right-handed people probably accounts for the positions of the platforms.

Three of the ponds had closed lanes which opened either toward the sea, as shown in Figure 12, B, or toward the pond. Here, too, platforms were located in a similar manner as on the open lanes. The walls of these ponds were from 4 to 7 feet in width. The platforms averaged 6 feet in width, and were from 1½ to 2½ feet high.

The western ponds differ somewhat from those on the east. Instead of having lanes leading both into and out of the pond, as was the case in the eastern ponds, all the lanes of a western pond led in one direction, either into or out of the pond. Despite this difference, Stokes (1911) was of the opinion that the western and eastern ponds functioned in the same manner. No platforms are reported for western ponds.

Of the four western ponds, only one, Ho'olehua Pond, had lanes leading inward. When Stokes saw this pond in 1909, it was almost entirely covered with mud. However, he did find the walls of six inward lanes (Stokes, 1909c). The lanes of the other three ponds all led outward.

Pala'au Pond, which was the largest *loko i'a* on Molokai, had walls 3½ feet high with a maximum width of 5 feet. They were constructed of coral and basalt. The height of the walls of Pakanaka Pond is 2½ feet. They vary in width from 3 to 6½ feet, and are loosely constructed of basalt and some coral.

Stokes (1911) was told that Pala'au Pond was a *loko po'oiki* which he considered was a local term for *loko 'umeiki*.

The earliest date for a *loko 'umeiki* is before the 16th century. Keawanui Pond, Molokai, was being used at the beginning of the 16th century (Keawe'iwi, n.d.), and according to Stokes (1911), Mikiawa Pond was built by the same chief that built Keawanui Pond. Papa'ili'ili Pond was built later for its walls connected on the east to the wall of Keawanui Pond and on the west to the wall of Kaina'ohe Pond. Pala'au Pond, according to one account (Anon., 1922) was built during the time of Kamehameha I. It was constructed after Ho'olehua Pond, for the western wall connected to Ho'olehua Pond.

It is evident that Mikiawa Pond was originally built as a *loko 'umeiki*. The shape of its curving walls and the length of the lanes indicate that it was built with the intention of being used as a fish trap. Pala'au Pond, with its 6,300-foot wall and 27 lanes, seems likely to have been in its original form. The other *loko 'umeiki* could have been *loko kuapa* which were converted into *loko 'umeiki*.

The open lanes and the closed lanes of these ponds are similar to features found in Polynesian fish traps.

Portions of Panahaha Pond at Makolelau can still be seen at low tide. Pakanaka Pond at 'Ihohi and Naninani'eku'e Pond at Kaluako'i are damaged, but most of their walls can be seen.

INLAND PONDS

The following is a description of the inland ponds at Waikiki in 1824:

The whole distance to the village of Whyteete is taken up with innumerable artificial fishponds extending a mile inland from the shore, in these the fish taken by nets in the sea are put, and though most of the ponds are fresh water, yet the fish seem to thrive and fatten. Most of these fish belong to the chiefs, and are caught as wanted. The ponds are several hundred in number and are the resort of wild ducks and other water fowl (Bloxam, 1925, pp. 35-36).

The inland ponds were of three types: those which connected with the sea, *pu'uone*; those in which wet land taro grew, *loko 'a kalo*; and fresh-water ponds, *loko wai*. The majority of these ponds were built and used by the land agents (*konohiki*) and the common people. A few were for the exclusive use of the chiefs.

PU'UONE

Pu'uone were located near the sea and were connected to it by a ditch (Fig. 13) or a stream (Fig. 14). They had either brackish water or a combination of brackish and fresh water. Some ponds were fed by springs, and some by streams flowing into them from the interior.

The ponds were of two kinds: those which were small, needed little artificial work in their construction, and were usually built by the farmers who cared for and used them in addition to cultivating their fields; and those which were large, from several acres to over 300 in area, required many workers in their construction, and were for the use of the chiefs.

The farmer made his pond by clearing out and improving a depression or natural basin near the seashore. He first cleared away the rushes and weeds, then dug out the mud to the desired depth. The mud was piled up around the pond to form earth embankments. In sections where the earth embankment was not adequate, a rock wall was built which was either covered or backed with dirt.

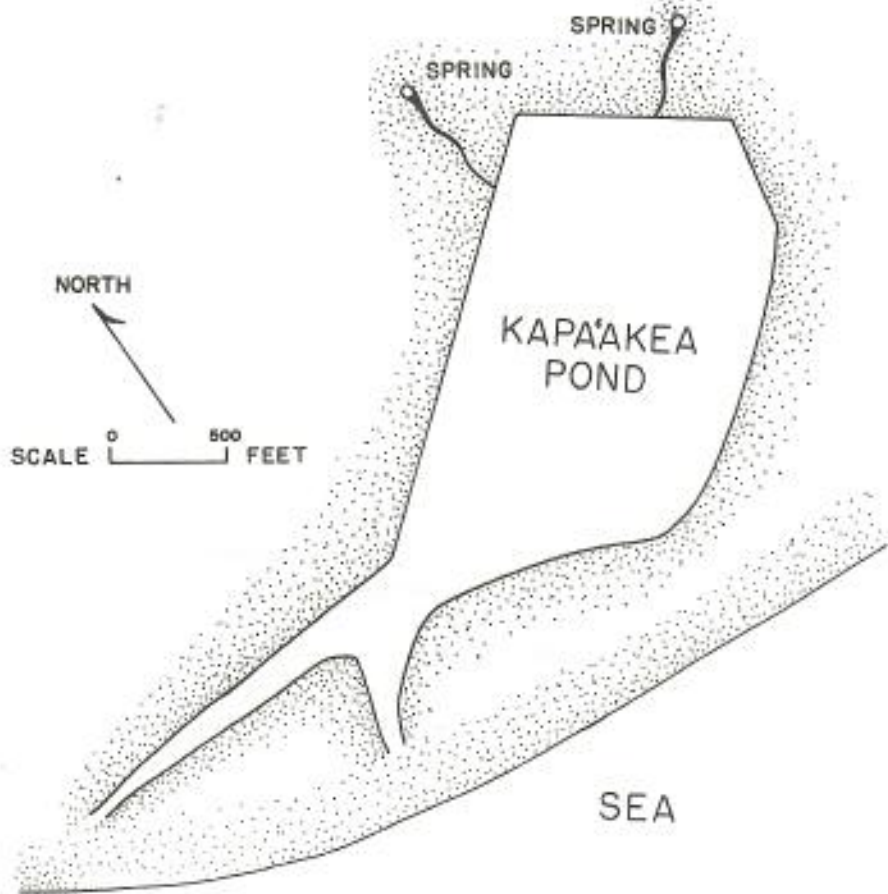


FIGURE 13.—Plan of a *pu'uone*. Kapa'akea Pond, Kapa'akea, Molokai. (Adapted from Evans, 1937.)

A ditch (*'awwai kai*, "salt-water ditch") was made from the pond to the sea, or if there was a stream connecting the pond to the sea, it was enlarged, thus allowing the entrance of salt water. "If sea water was made to enter the fresh water at times, the fish would grow more rapidly, and they would be delicious and full of fat" (Kamakau, 1869b).

By bringing two or three gourds full of *awa* and other young fry at a time, the ponds were stocked over a period until there was a sufficient supply of fry. After the first stocking of the pond, an offering was made of sweet potatoes to the *'aumakua*, "and if there were no such service, the grubs of freshwater creatures (*mo'o*) and dragon flies would take over, and there would be either no fish at all, or else maimed and sickly fish that would soon die" (Kamakau, 1869b).

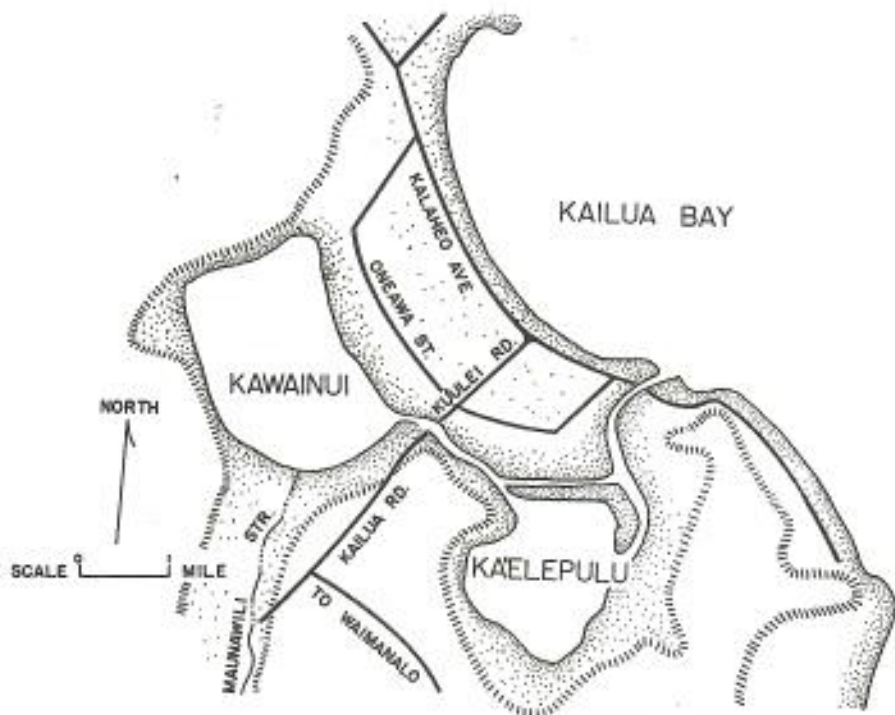


FIGURE 14.—Map showing location of Kawainui and Ka'elepulu Ponds at Kailua, Oahu.

After the pond had been built, silting and the action of the sea formed a dam (*kumano*) in the *'awwai kai*; and with the growing of the young fry, the water in the pond became stagnant. A *makaha* was then built.

... he [the farmer] went upland to fetch *lama* wood and *uluhe* ferns for a *makaha*. He made several bundles, tied them with *'ie* vines, until he had a matting an *iwilei* or more in width. If he had two or three *pu'none*, he made as many *makaha*. When the high tide days came, he kindled a fire, and when that was done, he went to break down the dam (*kumano*) at the outlet to the sea (*'awwai kai*). First he set up the *makaha* securely, packing mud around it to hold it in place. When the sea washed in over the *'akulikuli*, *ilioha* and the *hinahina* plants on the shore, and the *makaha* was found to be set firmly in place, he broke down the dam on the sea-washed side, and the sea water entered the *pu'none* (Kamakau, 1869b).

The large *pu'uone* owned by the chiefs required more work in their construction. Lelepaua Pond at Moanalua, Oahu, had an area of 332 acres with walls of "coral and earth embankment, 10 feet or more wide" (McAllister, 1933, Site 82, p. 93).

Two chiefs' ponds, Kawainui (now Kawainui swamp) and Ka'elepulu (now "Enchanted Lake") in Kailua, Oahu, are shown in Figure 14. Ka'elepulu Pond, having an area of approximately 200 acres, "was limited by natural contours and some earth embankments" (McAllister, 1933, Site 377, p. 190). It was connected to the sea by a stream a mile long. "Fat mullet, *awa*, *ahole* and 'o'opu fish were found there [Ka'elepulu], and much *limu kala-wai*. This *limu* was eaten with fat fish and much liked with *awa* fish. The fish were tender and always fat" (Alona, 1939).

Formerly there were taro patches between the [Ka'elepulu] pond and the stream from the Kawainui swamp. The stream was diverted into patches and from the taro terraces ran into Ka'elepulu. When the taro land was being dried, there was a ditch which could be used to bring water from the Kawainui stream to the pond (McAllister, 1933, Site 377, p. 190).

Kawainui Pond had an area of approximately 450 acres. It had "the finest fat mullet on this side of the island. . . . The *awa* fish were so tame that they were easily caught" (Alona, 1939). The pond was fed by the Maunawili stream. According to Louis Mahoe (informant, 1953), there was a *makaha* located in back of the present Davis Building in the "auwai" which leads to the sea.

Large *pu'uone* required cleaning when few fish were caught, owing to the accumulation of algae preventing the nets that were used for catching the fish from reaching the bottom of the pond. The fish were then able to escape from under the nets.

The following account of the cleaning of Kawainui Pond is adapted from Kekoowai (1922):

This being communal work, the *konohiki* (land agent) commanded the men, women, and children of Maunawili, Kailua, and Waimanalo to come to Kawainui. The people went into the pond, and with their hands, broke the *limu* (algae) loose, piling it up and twisting it under as it was gathered. After a quantity of *limu* had been piled and twisted under, the workers formed it into a ring. "Then the *limu* that was broken off was pressed (*pili*) down like a dish, and all the fish that were caught in this *limu* dish were for the *limu* breakers." The workers put these fish into *lauhala* bags which were tied behind them, for the fish in the "limu dish" were no longer the property of the *konohiki*. Breaking of the *limu* was continued until the pond was clean and "the food of the fish clean," which for Kawainui Pond, required three days.

Not all *pu'uone* owned by the chiefs were as large as Lelepaua, Ka'elepulu, or Kawainui Pond. The ponds at Waikiki whose areas are recorded (Cobb, 1902, p. 429) were from 1.3 to 13 acres, and some shown in the same area on a map made by Monsarrat (1897) were smaller than an acre.

LOKO I'A KALO

Loko i'a kalo, "taro fishpond," are also referred to as *loko lo'i kalo*, "taro-patch pond." As the name implies, they were a combination of taro patch and fishpond.

The taro in such ponds was planted in mounds (*pu'epu'e*), each separated from the other, leaving spaces and channels where the fish could swim about. They fed upon the ripe leaf stems (*ha pala*) of the taro, and thus quickly acquired size (Kamakau, 1869b).

After the taro had been planted, the ponds were stocked by hand with *awa*, mullet, *'o'opu*, *aholehole*, and *'opae 'oeha'a*. Fish also entered through the *maka* (Kamakau, 1869b).

Some fish grew to a large size in these ponds. McAllister was told by one of the old Hawaiians at La'ie, Oahu, that "one day in her childhood, while her parents were gathering taro, as she swam and played in the water she was knocked senseless by a fish" (McAllister, 1933, Site 282, p. 158).

LOKO WAI

Loko wai, "fresh-water pond," were natural ponds. "Some *loko wai* were made when the earth was made . . ." (Kamakau, 1869b).

Fresh water ponds are very seldom over half an acre in extent and are for *'o'opu* and *'opae* preserves, and sometimes for *awa*, a kind of tropical salmon that breeds in brackish water and will live and grow fat in perfectly fresh water. The young fry of this fish is procured in shallow waters on the beach where a stream or spring of fresh water mingles with the sea, and is carried sometimes many miles inland in large gourds with water (Beckley, 1883, p. 21).

Kamakau (1869b) lists "*'opae*, crisp *limu kala-wai*, and reddish *'o'opu* roe" as being "furnished" by *loko wai*.

CONCLUSION

Fishponds provided a convenient source of one of the Hawaiian's basic foods. Catching the fish required little effort, and was not dependent on weather as is sea fishing. The *loko kuapa* and large inland ponds furnished chiefs and their retinue with the numerous fish they required. For the commoner, the inland ponds were a source of fish which did not require a fisherman's skill and knowledge.

Fish of the *loko i'a kalo* gave life to men, women and children and to the family. . . . If a stranger, or a land overseer arrived in the night, the dwellers were prepared; they could quickly get the fish that had grown fully developed scales and hard heads, and the container of poi. Then the poi, the *awa*, the *'awaae*, were placed in front of the stranger or the overseer, or friends, perhaps. Thus they lived in the old days, and that is why the "children" of places that had *loko kalo i'a* and *pu'uone* loved the lands where they dwelt (Kamakau, 1869b).

GLOSSARY*

- ahole, aholehole. *Kuhlia sandvicensis*.
 ahupua'a. Land division usually extending from the uplands to the sea.
 'akulikuli. General name for succulent plants.
 'ama'ama. Mullet (*Mugil cephalus*).
 'anae. Mullet (*Mugil cephalus*).
 'aumakua. Family or personal god.
 'auwai. Ditch.
 awa. Milkfish (*Chanos chanos*).
 awa'aua. Ten pounder (*Elops hawaiiensis*).
 hinahina. Beach heliotrope (*Heliotropium anomalum*).
 'ie. Aerial root of *Freycinetia arborea* Gaud.
 ilioha. Horsetweeds (*Erigeron* spp.), tall, slender coarse weeds of the daisy family.
 iwilei. Measurement of approximately one yard.
 kaku. Barracuda (*Sphyraena barracuda*).
 kala. Unicorn fish (*Naso unicornis*).
 konohiki. Headman of an ahupua'a land division under the chief.
 kope 'ohe. Bamboo rake.
 kuapa. Wall of a loko kuapa.
 kumano. Natural dam.
 lama. *Diospyros* sp.
 lauhala. Pandanus leaf, especially as used in plaiting.
 limu kala-wai. One or more kinds of pond scum (*Spirogyra* spp.).
 loko. Pond.
 loko i'a. Fishpond.
 loko i'a kalo. Pond in which wet land taro grew.
 loko kuapa. Enclosed shore fishpond made by building a wall on the reef.
 loko 'umeiki. Shore fishpond having lanes leading in and/or out of the pond.
 loko wai. Fresh-water pond.
 makaha. Sluice gate of a fishpond.
 moi. *Polydactylus sexfilis*.
 'ohi'a 'ai. Mountain apple (*Eugenia malaccensis* L.).
 'o'io. Bonefish (*Albula vulpes*).
 'o'opu. General name for fishes included in the families Eleotridae, Gobiidae, and Blenniidae.
 'opae. Shrimp.
 'opae 'oeha'a. Clawed shrimp, *Macrobrachium grandimanus*.
 palani. *Acanthurus dussumieri*.
 po'alima. Work done by the commoners once a week on the chief's plantations.
 puhī. Eel.
 pu'uone. Inland fishpond connected to the sea.
 ulua. Jacks of the genera *Caranx*, *Caragoides*, *Gnathodon*, and *Alectis* (family Carangidae).
 uluhe. False staghorn fern.
 'upena ku'u. Gill net.
 weke. Family Mullidae.

* Major references used: Pukui and Elbert (1957) and Gosline and Brock (1960).

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