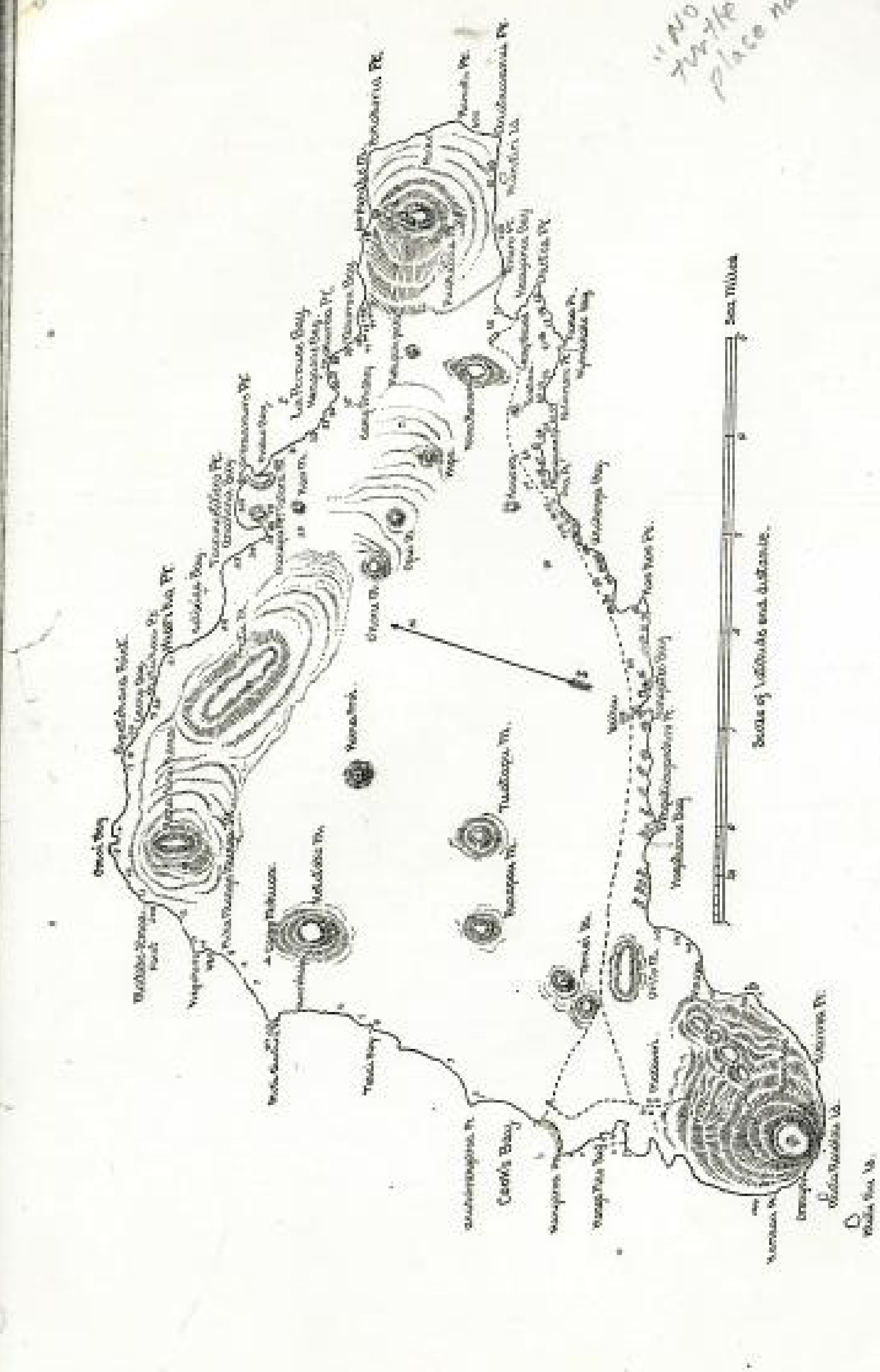
EASTER ISLAND

SEA TURTLES - EASTER IS.

G.H. BALAZS

2 of 2

"No write + place names?



MAP OF EASTER ISLAND.

TE PITO TE HENUA,
OR EASTER ISLAND.

— William J. Thomson, U.S.N.

Report of National

Mohican Lieut. F. M. Symonds, with Naval Cadet C. M. McCormick as assistant, made a careful survey of the island, and their chart, herewith appended, will be found accurate and replete with interest. (Plate XII.)

SAILING DIRECTIONS.

Vessels anchoring on this unprotected coast must be guided entirely by the direction of the wind at the time. The *Mohican* anchored in the roadstead of Hanga Roa (Cook's Bay on the English charts) on the morning of December 19, 1886, and afterwards moved to a position off Anakena Bay (La Pérouse Bay), for convenience in shipping the stone image, now in the National Museum.

On the south coast there are good anchorages during northerly and westerly winds, but there is usually a heavy swell from the southwest, making the boat-landings at Vaihu both difficult and dangerous. With easterly winds a good anchorage will be found just outside of Hanga Pico Bay, with sandy bottom, in about 26 fathoms of water, and the boat-landing will be found safe. The best boat-landing on the island is at Anakena Bay; the beach is comparatively free from stones, and even with northerly winds the landing would be no more difficult than is usual at Funchal.

The rise and fall of the tide at Easter Island is about 2 feet. The northerly and westerly winds do not produce a high sea, but generally bring rain, and are usually confined to the winter season. These winds are known to the natives as "papakino" (ill-force). The northeast wind is called "tongariki;" it is variable, and frequent in summer. The southeast wind, known as "anoraro" (wide expanse), is the prevailing wind in summer. The south wind, called "motu-rauri" (dark leaf rock), blows in winter. The southwest wind blows strong in winter, and brings rain and a high sea. Vaitara (cut-water) is a winter wind from the west. The prevailing winds are from an easterly direction, and all others are of short duration. Light airs that frequently shift direction are usually accompanied by rain, and are called by the natives "tepuhanga" (blows drift on shore), the reason for which is obvious.

GEOLOGICAL FEATURES.

The geological features of the island are replete with interest. The formation is purely of a volcanic character and embraces every variety pertaining to that structure. Basaltic, cellular, and tufaceous lavas abound in diversified forms. The basaltic is generally porous and scoriform, but on the slope of the hills the substrata are frequently as compact and dense as that of the coast-line. Near Anakena may be seen hills composed of scoria quite as cellular as pumice, and in close proximity compact beds having a dark blue basis, composed of crystals of glassy feldspar and olivine.

The cellular formation is mixed pumice and slag, in some cases similar to volcanic cinder, having the lightness and qualities of coke. In some of the varieties the cavities are filled with olivine crystals partly decomposed, but generally the cavities are empty. This lava when mixed with feldspar is sometimes of gray color; not unfrequently several tints of red may be seen, though the most common is a dark, lusterless brown.

The tufaceous lavas are extremely interesting, because they form the most prominent feature in the physiognomy of the island. To this geological structure, with the incessant action of the trade-winds and heavy rains, is due the fact that the island is surrounded by precipitous cliffs, rising in some cases to a thousand feet in height. The formation is extremely friable, and by the action of the elements, enormous masses are continually disappearing beneath the waves of the sea that beat upon this unprotected shore. These tufas differ considerably in consistency at the eastern end of the island. The species is a fine light-red dust that is blown about by the wind and is destitute of vegetation; towards the southwest end the basis is a compact mud-like red clay, while the colossal crowns, intended to adorn the gigantic statues, are carved out of a variety that has been scorified in one of the craters, and is of a dull reddish color.

The ordinary rules for estimating the age of rocks by compactness can be applied at Easter Island only hypothetically, because the scoriform and more dense specimens are found immediately contiguous to one another. In places they are quite conglomerated, as though older formations had been disturbed by volcanic convulsions, while a new flow of lava enveloped and sealed the whole into a heterogeneous mass. During our short stay on the islands there was no opportunity to measure the lava flow or to make investigations of that nature.

Natural caves are numerous, both on the coast-line and in the interior of the island. Some of them are of undoubted antiquity and bear evidence of having been used by the early inhabitants as dwellings and as burial places. It is reported that small images, inscribed tablets, and other objects of interest have been hidden away in such caves and finally lost through land-slides.

The numerous hills on this island have gently sloping sides, except where they approach the coast, falling at this point precipitously to the sea. The plains are irregularly shaped, and some of the smaller ones rise to a considerable height. The physical character of the soil is alluvial. The substratum is volcanic ash and stones, and the upper formation is composed of decayed vegetable matter mingled with a rich deposit of decomposed lava washed down from hills by the frequent rains. These plains being formed by the periodical eruptions of the volcanoes, some difference may be noted in the quantity of the soil, varying according to location.

After the successive discharges of lava from the craters of Rana Roraka and Rana-kao had prescribed the limits of the island and when

this flow had ceased, there was a heavy deposit of mud, covering deeply both hill and dale. This condensed earth, after the lapse of centuries, has formed a soil that produces a natural grass affording an excellent pasturage for flocks and herds. The expiring energy of the volcanic power appears to have been directed, long after the formation of this soil, to sprinkling thickly the entire surface of the island with stones and small bowlders, thus providing the means of attraction and holding the moisture, nature's substitute, as it were, for trees. The natives have distinct names for the following varieties: Black and red tufa with volcanic cinder and pumice are called "Maea-Hane-hane," "maea" being the generic term applied to all stone. A soft gray tufa is ground down with the juice of the sugar-cane and used as a paint. This is known as "Kiri-kiri Teu." Hard slates, black, red, and gray, are used for stone axes and called "Maea-Toke." Granite used for the same purpose is known as "Maea-Nevhive. The hardest and finest stone implements are made of the flinty beach pebble known as "Maea-Rengrengo." The hard cellular stones from which the majority of the platforms are built are called "Maea-Pupura." The material from which images were constructed is called "Maea-Matariki," and the obsidian from which spear-heads were made is known as "Maea-Mataa."

VARIOUS NAMES OF THE ISLAND.

Previous to the general recognition of the name bestowed by Admiral Roggeveen in commemoration of the day upon which the land was discovered, it had not been regularly christened by either of the earlier navigators who claimed to have sighted it. The Spaniards afterwards gave it the name of San Carlos, but the Dutchman's title of Easter Island was preferred by the chart-makers and was adopted by the world in general.

The island is known to the natives as "Te Pito-te Henua," the literal interpretation of the words signifying the "navel and uterus." This singular name was given to the land, according to the ancient traditions, by Hotu Metua immediately after its discovery, and has been handed down through succeeding generations unchanged. To the simple-minded Polynesian this name is suggestive, appropriate, and beautiful. The child of nature recognizing the volcanic origin of the island can see in the great volcano, Rana Roraka, a resemblance to the human "te pito" in relation to its shape and gently sloping sides surrounding the shallow crater. The same association of ideas would picture the majestic volcano, Rana Kao, at the southwest end, as "te henua," in whose womb was conceived the embryo and whose vitals brought forth the rocks and earth from which the island was formed.

"Kiti te eiranga" is stated by an English writer of some note to be the native name for the island, but we could not find any authority for it, nor did the natives with whom we came in contact recognize the name.

Throughout southeastern Polynesia this island is known as Rapa Nui, but the name is of accidental origin and only traces back about twenty years. When the islanders, kidnaped by the Peruvians, were being returned to their homes, there was for a time a question as to the identity of those from Easter Island. The native name of "Te Pito te Henua" was not recognized by the French officials, and finding certain fellow-sufferers hailing from Oparo, an island lying 2,000 miles to the westward, were more successful under the local appellation of Rapa iti Little Rapa), the euphonious title was dropped and Rapa nui (Great) Rapa) substituted. Teapy, Waihu, and various other names have been given to the island, but clearly without warrant. Vaihu was the name of a district and was occupied by the most powerful clan in the days of Cook and La Pérouse, but it was never applied to the entire island.

CLIMATE.

The climate is not unlike that of Madeira, with one wet and one dry season. From April to October the rainfall is copious, and in summer it is limited to passing showers. The mean temperature at the time of our visit (midsummer), in the shade, at 2 o'clock p. m., was between 78° and 80° Fah., and at 2 o'clock a. m. there was a fall of about 6 degrees. The southeast trades blow fresh at the beginning and end of the season, and make the climate salubrious and healthful. Our long fatiguing marches, while making the exploration of the island, were not accompanied with inconvenience from exposure to the direct rays of the sun, the constant breezes making the sensible temperature always appear lower than that recorded by the thermometer. Violent exercise induced profuse perspiration, but evaporation was always free and rapid. Electric storms are unknown.

VILLAGES AND HABITATIONS.

The Catholic missionaries built at Vaihu, on the south coast, near Cape Koe Koe, a commodious and substantial church, a parsonage containing three rooms, and several outbuildings. The house is now the residence of Mr. Salmon, the outbuildings are occupied by his employés, and the church has degenerated into a storehouse for wool. The principal native settlement is at Mataveri, on the southwest coast, and about a mile distant, at Hanga Roa, a small neat church has been erected. Here the islanders assemble on Sundays and other occasions to hear the service read by one of their number, who was ordained especially to take charge of this congregation upon the departure of the French missionaries. At the southwest end of the island, and near the base of Rana Kas, is the residence of Mr. Brander.

The house is of modern structure, with large and convenient rooms, but is in a state of bad repair, and is more attractive when viewed from a distance, surrounded by the shrubbery and vines that have been

as fully as possible in the care and attention the new plants would require, and made to understand the value of this addition to their resources. Not a trace can be found of the things planted by this generous Frenchman, but whether they were suffered to die out through the ignorance or indolence of the natives may never be known.

We found the lapse of a century had made but little improvement in the resources of the islanders. Trees have been planted around the house of Mr. Brander, at the southwest end of the island, but, with the exception of the fig, acacia, and paper-mulberry, they do not appear to thrive. At various places throughout this land we found small clumps of *Edwardsia*, *Broussonetia*, and *Hibiscus*, but all were dead, having been stripped of their bark by the flocks of sheep, which roam at will over the island. None of these trees were over 10 feet high, and the largest trunk we found would measure about 5 inches in diameter.

The natives are not altogether ignorant of husbandry, though they practice it spasmodically and at a great expense of time and labor, differing in no respect from the customs of their forefathers hundreds of years ago. In the cultivation of yams, potatoes, and taro, the young plants are protected from the fierce heat of the sun by a mulching of dried grass gathered from the uncultivated ground. Bananas are grown in holes a foot or more deep and with sloping sides, designed to catch and hold the rain-water as long as possible about the roots of the plant. Sugar cane is grown in protected spots, and attains the height of about 10 feet. During our peregrinations this succulent plant was extensively used in lieu of something to drink, and proved exceedingly valuable in preventing a parched condition of the throat. The natives have no knowledge of the art of extracting the juice of the cane for the purpose of making sugar.

The sweet potatoes are large and remarkably good. The natives eat them both raw and cooked. Experiments have been made recently with imported white potatoes, but they have been tried in various situations and at different seasons without success. After the first growth they appear like new potatoes, and when planted again they are invariably soft and sweet, and are much less palatable than the indigenous variety. We saw tobacco plants growing in secluded spots, but were unable to determine by whom or when they were introduced. The natives maintain that the seed was included among that which was brought to the island by the first settlers. Tomato plants were also found growing wild, and on several occasions proved a valuable addition to our limited fare.

A wild gourd is common, and constituted the only water-jar and domestic utensil known to the natives. Suitable clay abounds, but the potter's art seems never to have been known on the island. There are two varieties of indigenous hemp.

We saw no flowering plants that are indigenous to the soil. Verbena

Verbena officinalis, and a few others grow in great profusion, but they grew from cuttings obtained from a French vessel of war.

Ferns of many varieties are common, and grow in profusion in the craters of the volcanoes. Except in a few exposed places, the slopes of the hills and the valleys are covered with a perennial grass. It strongly resembles the Jamaica grass (*Paspalum*) and grows in bunches or tufts, which in the dry season become so slippery as to make the walking both difficult and dangerous. This natural growth supplies ample pasturage for the numerous cattle and sheep owned by Messrs. Salmon and Brander.

To avoid the depredations of the sheep that wander over the island without restraint, the natives are compelled to protect their cultivated patches by stone walls. The volcanic stones furnish the only available material for these barriers, and are thrown loosely together to a height of 5 or 6 feet, and inclose gardens from a few feet square to several acres. The deeply rooted prejudice existing in the native mind against physical exertion that might be avoided, has developed a happy expedient to save labor and at the same time to escape the ravages of the animals lately imported by the foreign residents. Ruins of houses, cairns, platforms, and tombs are thickly scattered over the island; many of the standing walls are sufficiently well preserved and others require but little repair. Within these ancient foundation walls are raised their limited crops of fruit and vegetables; the only disadvantage being the contracted area available for each plot.

MAMMALS.

There are no quadrupeds peculiar to the island except several varieties of rodents. The ancient traditions claim that a goat-like animal was found here by the first colonists, with wide-spreading horns and giving six young at a birth. It is difficult to imagine the foundation for this fancy. We found no representation of such an animal either in the mural paintings or outlined on the sculptured rocks, and diligent search of the débris of the caves failed to disclose any of the bones or traces of mammals.

La Pérouse found the islanders without domestic animals, and left with them two ewes, a she-goat, and a sow, with the male of each species. Their native names indicate the recent addition to the language.

In the caves and among the ruins we saw many rats of great size. The examination of the tombs disclosed the fact that the bones had been frequently gnawed by these rodents, and their nests were sometimes found inside the crania.

There are on the island a few cats as wild as though they had never seen the face of man, though they are descended from feline pets landed by some passing vessel. They have grown to an immense size, and upon several occasions when encountered in the dark recesses of a cave

or tomb presented a formidable appearance. Messrs. Salmon & Brander have a herd of 600 cattle, and a flock of sheep numbering 18,000. The cattle are from Chilian stock, are small, averaging only about 400 pounds, and possess no dairy qualities; the cows giving barely enough milk to rear their calves. The sheep were also imported from Chili. The wool is coarse and scant, the average being only about 2 pounds per animal. The export of last year in wool was 16 tons, and was shiped to Europe *via* Tahiti. An effort will be made next year to improve the breed of sheep by introducing blooded rams from Australia. A few tough little horses have been introduced from the island breed of Tahiti, but it is doubtful whether this will ever become an important industry.

BIRDS.

Small birds are altogether absent and, except the ordinary domestic fowl, we found only the tropic or man-of-war bird, petrels, gulls, and a variety of aquatic birds. George Foster observed noddies so tame as to settle on the shoulders of the natives, but he did not conclude that they kept a regular breed of them. The common domestic fowl was found on the island by the early navigators, and it is claimed that they were brought there by the first colonists. They are of the same kind as the common chickens reared at home; their bodies are small, and the legs long, but this is no doubt the result of long in-breeding. The natives all have tame fowls about their dwellings, but there are others in a wild state. We shot some of the wild fowls and found them tough and inferior in taste to those that were domesticated.

FISHES.

Fish has always been the principal means of support for the islanders, and the natives are exceedingly expert in the various methods of capturing them. The bonito, albicore, ray, dolphin, and porpoise are the off-shore fish most highly esteemed, but the swordfish and shark are also eaten. Rock-fish are caught in abundance and are remarkably sweet and good. Small fish of many varieties are caught along the shore, and the flying-fish are common. Eels of immense size are caught in the cavities and crevices of the rock-bound coast. Fresh-water fish are reported to exist in the lakes inside of the craters, but we did not see any of them.

Turtles are plentiful and are highly esteemed; at certain seasons a watch for them is constantly maintained on the sand beach. The turtle occupies a prominent place in the traditions, and it is frequently represented in the hieroglyphics and also appears on the sculptured rocks. A species of crayfish classified by Dr. Philippi, of Chili, as "paparchalu," is abundant. These are caught by the natives by diving into the pools among the rocks, and form an important article of food.

Shell-fish are plentiful. Remains of several varities of univalves were found in the stone houses at Orongo, and frequently met with in the débris of the caves throughout the island.

REPTILES AND INSECTS.

Small lizards are frequently seen among the rocks; the natives claim that a large variety is not uncommon, but we saw nothing of it. No snakes exist, but there are centipedes whose bite is said to be extremely painful, though not attended with serious consequences. Several varieties of butterflies were observed. Myriads of flies infest every part of the island. Vliegen Island was the name given to Riroa, in the Pamotu group, or Low Archipelago, by Schouten in 1616, but we were tormented here by hundreds where we saw tens on the Attol. From the earliest dawn of day to the close of the short twilight, hordes of flies annoyed us; it made no difference whether we skirted the cliffs to windward, climbed the breeze-swept hills, or burrowed in the musty caves and tombs, swarms of flies met us, prepared to dispute every foot of the ground. Whatever may have been the parent stock of the Polynesians, we came to the unanimous conclusion that we had discoverd here the lineal descendants of the flies that composed the Egyptian plague, and can testify that they have not degenerated in the lapse of time.

Fleas occasioned us more annoyance than the flies, because this industrious little insect was untiring in its attentions by day and night. They were found in numbers in all the camping places, and we seemed to get a fresh supply every time a halt was called.

There are fifteen or twenty mangy dogs of a mongrel breed on the island whose hides were literally alive with jumping insects. They had long ago given up all hope of relief, and made no ineffectual efforts in that direction, but they plainly expressed in their mute way the conviction that life in this flea-bitten state was not worth the living.

It was said that there were no mosquitoes on the island until cisterns were built by Messrs. Salmon and Brander to catch the rain-water. We saw none elsewhere.

Cockroaches about 2 inches long, with antennæ to correspond, infest every dwelling on the island, from the humble thatched hut to the comparatively comfortable residences of the foreigners. They partook of our food at meal-times with a freedom which showed that the presence of the stranger caused no restraint; while at night they made themselves familiar with our garments in whatever time could be spared from their gastronomic researches.

A peculiar variety of snapping beetle made its appearance every evening just before sundown, appearing suddenly and vanishing with daylight.

NETS AND ROPES.

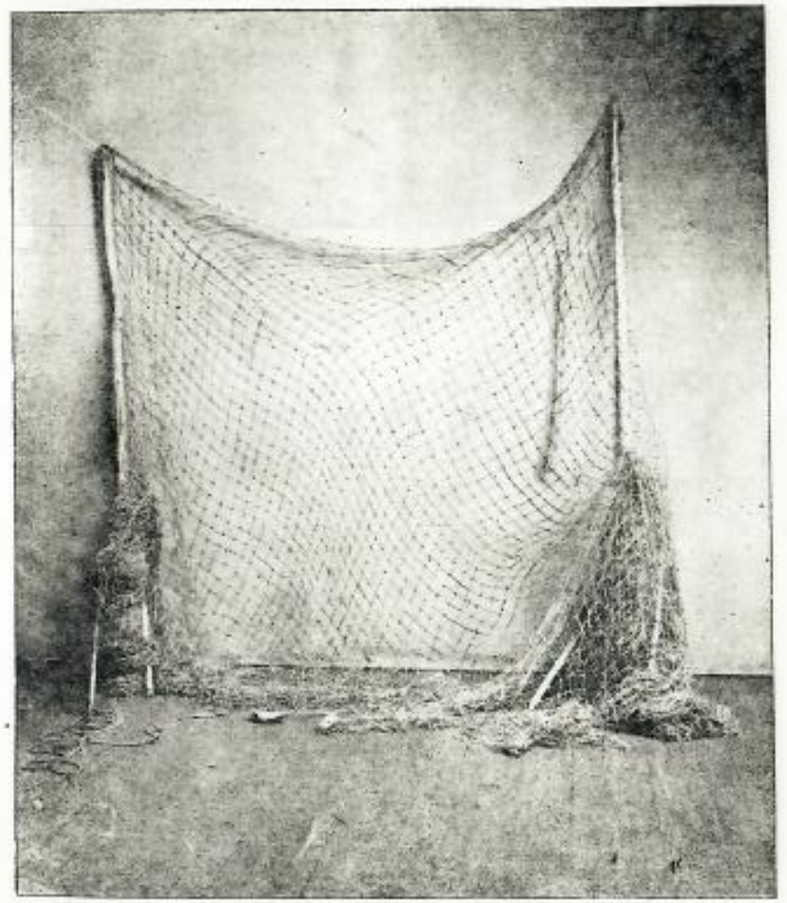
Various forms of fishing nets were manufactured, from the hand net to the long seine called "kupenga maito," which was supported by poles at the extremities, weighted with stone sinkers on the submerged edge and floated by billets of wood on the surface (Plate XIII). Their

light casting-nets were used with great dexterity as they waded along the beach, and when a shoal of small fish appeared, the net was thrown with the right hand. These nets were remarkably made, and in the manufacture a netting-needle of bone or wood was used, much after the fashion in more civilized countries. The coarse nets and cordage was made from the twisted bark of the *hibiscus*, and the fine ones from the fiber of the indigenous hemp. From the strong heavy ropes used in raising and transporting the colossal images to the light but durable fish-lines, the threads were all twisted by hand, across the knee, into even strands, which were multiplied according to the size and strength required.

NATIVES.

The population of Easter Island is not stated in actual figures by any of the traditions or legends, but all agree in the statement that the different districts were peopled by numerous and powerful clans who were constantly at war with each other. The immense amount of work performed by the image-makers and platform-builders would indicate the employment of a great many persons, if accomplished within a reasonable limit of time, or the extension over several centuries, if the undertaking was carried out by successive generations. The ruins of extensive settlements near Tahai Bay Kotatake plains, around Puka Manga-Manga mountain, the Rana-Hana-Kana coast, the vicinity of Anakena, the shores of La Pérouse Bay, and extending along the coast from Tongariki to Vinapu in an almost unbroken line, would prove either the presence of numerous inhabitants, or a frequent change of location. The limited area of the 32 square miles of surface available for cultivation precludes the idea of any very dense population, and many reasons might be assigned for a frequent change of habitation. We know that the stone houses at Orango were only occupied during the feast of "bird eggs." The image-builders engaged in the quarries of Rana Koraka probably lived at Tongariki, and entire communities may have changed location at different seasons of the year from failure of water supply, or some equally sufficient reason.

The early Spanish voyagers estimated the population at between 2,000 and 3,000. Admiral Roggeveen states that he was surrounded by several thousand natives before he opened fire upon them. Captain Cook, fifty-two years later, placed the number at between 600 and 700, and Foster, who was with him, estimated them at 900. Twelve years later (1786) La Pérouse placed the population at 2,000. Bushey (1825) puts the number at about 1,500. Kotzebue and Lisiansky make more liberal estimates. Equally chimerical and irreconcilable deductions are made by recent writers. Mr. A. A. Salmon, after many years' residence on the island, estimates the population between 1850 and 1860 at nearly 20,000. The diminution of the actual number of inhabitants progressed rapidly from 1863, when the majority of the able-bodied men



FISH-NET.

(Cat. No. 12678, U. S. N. M. Easter Island. Collected by Paymaster W. J. Thomson, U. S. N.)

probably originated this custom. Love of family is a strong trait in their character; children are fondly cared for, and the desire for offspring is general.

TATTOOING.

Tattooing is not practiced at the present time, none being observed upon children and young persons. But all those advanced in life are ornamented on all parts of the body. Unlike the Samoans and other islanders, where a standard pattern is adhered to, the designs were only limited by the fancy and ability of the artist. Both sexes were tattooed (Figs. 4, *a* and *b*), but the women to a greater extent and with more elaborate designs than the men. The material used in tattooing is obtained by burning the leaf of an indigenous plant called "ti," which is moistened with the juice of a berry called "poporo." A tattoo comb is made of bone or fish bones fastened to a stick, which is held in position and struck with a sharp blow.

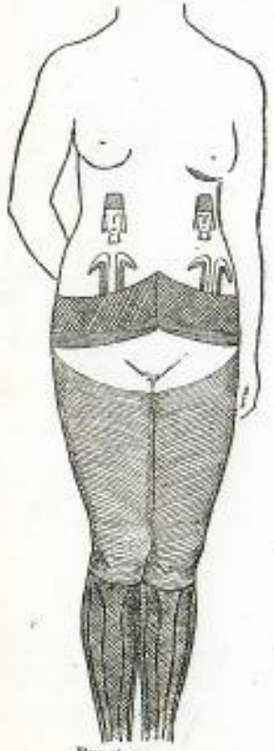


FIG. 4, *a*.
TATTOOING ON NATIVE WOMAN (FRONT VIEW).

FIG. 4, *b*.
TATTOOING ON NATIVE WOMAN (BACK VIEW).

The highest

by a stem. From the coronet, a line extended around the outside edge of the ear, with a circle on the lobe. The lips were freely tattooed, after the manner of the Maoris, with lines curving around the chin and extending towards the cheek-bones; the entire neck and throat covered with oblique or wavy lines, with occasional patches of solid coloring; a broad, wide girdle (Fig. 4, *a*) about the waist, from which bands rise in front and behind, representing trees and foliage, surmounted by large faces on the breast and back, and smaller ones on each side of the body. Below the waist belt the lines were fine, like lace-work, and from the thigh to the knee the appearance was that of silk tights with variegated pattern. Below the knee there were various designs, terminating in a point at the feet.

SALUTATION.

The form of salutation is "Kohomai," literally interpreted, "Come to me." This is always heartily expressed, and parties meeting often shout out the kohomai while some distance apart. The greeting is varied by the addition of a word of respect when addressed to a superior in rank, or a stranger, and by a term of endearment, when to a child or to a relation.

DRESS.

The costume of the natives is at present made up of the cast-off clothing obtained from ships of all nations that have called at the island, but principally old uniforms of the French, Spanish, and English vessels of war. Brass buttons appeal strongly to the native love for adornment, and many were made happy by the liberal contributions from the *Mohican*. Very little tappa cloth is made on the island at present, but specimens of the ancient handiwork are treasured up in every family. The mode of manufacture is quite similar to that practiced on the various groups of the South Sea, but the patterns are much less elaborate. The bark is stripped from the branches of the *Hibiscus*, in a manner to obtain the greatest possible length, and rolled into coils with the inner bark outside, in order to make it flat and smooth. It is then scraped with a piece of obsidian to remove the bark, the coils being occasionally soaked in water to remove the resinous substances. The strips are laid across a log and beaten for many hours with a heavy mallet. The mallets are made of the heaviest and hardest wood that can be obtained (*toromiro*), about a foot long and 3 inches on each face, some of which are smooth and others carved into grooves or ribs, to suit the different stages in the process of manufacture. Several strips of bark are beaten into one thickness of cloth, according to the purpose for which it was intended, some being

want of time. Human remains were found in this cave, but all very old.

The caves of Easter Island are numerous and extremely interesting in character. They may be divided into two classes: those worn by the action of the waves, and those due to the expansion of gases in the molten lava and other volcanic action. The process of attrition is in constant progress around the entire coast-line, and the weaker portions of the rock are being undermined by the incessant beating of the ocean. Some of these sea-worn caves are of considerable extent, but generally difficult of access and affording little of interest except to the geologist. The caverns produced by volcanic agencies are found throughout this island, and some were traced through subterranean windings to an outlet on the bluffs overlooking the sea. They are generally quite dry; the rain-water falling upon the surface occasionally finds its way between the cracks or joints in the solid rock, but these gloomy passages and chambers lack grandeur from the entire absence of stalactites and deposits of carbonate of lime. No glistening and fantastical forms of stalagmitic decorations exist here to excite the fancy and create in the imagination scenes of fairy-like splendor. The feeble rays of our candles were quickly absorbed by the somber surroundings, heightening the apparent extent and gloom of the recesses. Careful investigation proved that all of the caves visited had been used as dwelling-places by the early inhabitants.

Platform 18 deserved more attention than we were able to give to it, the facing-stones having been torn from their original position in the structure and lying scattered about as though thrown down by some great convulsion of nature. Some of them show evidences of having been ornamented with rude figures carved on the hard rocks; but the approach of sundown hastened our steps toward Motukau Point, where we could see the flags flying over our camp. The day's march had been exceedingly fatiguing on account of the rugged nature of the ground and the absence of water, but the last mile or so was accomplished at a swinging pace in view of the fact that the camp could not be reached after darkness had closed in. Our course had been around Cape North, and covering the territory between the coast and the base of Rana Hana Kana. Loose bowlders of every imaginable shape and size cover the ground, threatening sprained limbs and broken bones at every incautious step, as though the expiring energy of the volcanoes had been expended in creating this natural barrier.

Camp Day, named in honor of our commanding officer, was located in a district known as Vai-mait-tai (good water), but it was decidedly a misnomer, the supply being ample, but brackish and ill-smelling. After a hearty meal of mutton, prepared by our guides in true island style, we sought shelter under the lee of an outcropping rock, fatigued enough to sleep through the attacks of myriads of noxious insects and regardless of the morning showers of rain.

ANAKENA BAY.

December 23.—A dip in the sea at daylight, and a breakfast of mutton which had been slowly roasting all night on hot stones placed in the ground and covered with earth to prevent the escape of heat, put us in prime condition for the work in hand. Our route lay along the north coast of the island and around Anakena Bay, the place where Hotu-Matua and his followers landed when they arrived from the unknown and much-disputed locality from which they migrated. On the sand beach of this bay we found the small univalve, the remains of which were noticed in all the caves and ruins on the island and which are still highly esteemed by the natives as an article of food. Jelly-fish, such as are known to the sailors as "Portuguese men-of-war," also abound, and are esteemed a delicacy by the natives. The entire plain back of Anakena (La Pérouse) Bay is covered with small platforms, cairns, tombs, and the ruins of dwellings of various sorts. Houses built of loose stones, nearly circular in shape, are plentiful; but they belong to a comparatively recent date, as is indicated by the fact that the stones, of which they are constructed, have been taken from the platforms and from the foundations of the thatched tents. Any sort of material that came handy appears to have been freely used by the builders of these houses. In several we found well-cut heads that had formerly ornamented image platforms, built in the walls, some facing inside and others in the opposite direction. The ruins in the vicinity show that this had been the site of a large settlement, and that it continued to be a place of importance through many generations; but the greatest mystery is how such a number of people obtained a sufficient supply of fresh water.

Near Anakena is a large image in the best state of preservation of any found about the platforms of the island. The traditions assert that this was intended to represent a female, and that it was the last image completed and set up in place. Our guides informed us that it was only thrown down about twenty-four years ago, and previous to that time it had remained, for many years the only statue standing upon a platform on the island. Camp Whitney was located at Hangaone Bay, where we found shelter in a bug-infested cave. The water supply was obtained from an ancient tomb near by, and was both scant in quantity and nasty in quality. We were, however, in such an indifferent state of mind that anything wet was acceptable.

December 24.—With the knowledge that we had a particularly hard march before us, we struck camp early and got under way before it was fairly light in the morning. Around Cape Pokokoria the rugged nature of the ground passed over was extremely exhausting. The slopes of Mount Puakalika are in places covered with coarse hummock-grass and flowering vines, which look green and attractive during the rainy season of the year, but which were at this time almost as dry and parched as though scorched by fire. The toilsome march of this day was height-

God Atua Metua and goddess Karirituaria produced cocoanuts.
God Atua Metua and goddess Ki te Vuhi o Atua produced the toromiro tree.
God Atua Metua and goddess Tapuhavaoatua produced Hibiscus.
God A Heuru and goddess Hetomu produced the blue leaf plant.
God A Taveke and goddess Pouhutuhuturerevaimangaro, produced the white ash.
God A Habamea and goddess Hohio produced flies.
God Aukia and goddess Moremaanga produced roaches.
God A Via Moko and goddess Viatea produced boobies.
God Tereheue and goddess Viaraupa produced leaves.
God A Heroe and goddess Unhipura produced ants.
God Tahatoi and goddess Kateapiairiroro produced sugar-cane.
God Irapupue and goddess Irakaka produced arrowroot.
God Mangeongeo and goddess Herakiraki produced yams.
God Ahen and goddess Pana produced calabash.
God Heima and goddess Kairui-hakamarui produced stars.
God Huruan and goddess Hiuaoioi produced fowls.
God A Hikua and goddess Hiuaoioi produced vermilion.
God Tingahae and goddess Pararahikutea produced sharks.
God A Hikue and goddess Hiuaoioi produced porpoise.
God Tikitehatu and goddess Hihohihokiteturu produced rock-fish.
God Tikitehatu and goddess Hiuapopoia produced life.
God Tikitehatu and goddess Maea produced luck.
God Tikitehatu and goddess Ruruatikitehatu produced man.
Atimoterae created brook-fish and established them as the chosen food of the gods.
God Takoua and goddess Tukoua produced milk-thistle.
E Toto discovered the sweet taste of the yam and made it the principal food of the people.
Epuoko created the delicious banana food for the kings.
God Uku and goddess Karori produced bullrushes.
God Kuhikia and goddess Taurari produced small birds.
God Kuhikia and goddess Ruperoa produced sea-gulls.
God Taaria and goddess Taaria produced white gulls.
God Haiuge and goddess Hatukuti produced wind.
God Pauaroroko and goddess Hakukuti produced pain.
God Hiuitirerire and goddess Kanohotatataporo produced creeping vines.

Numia a Tangaire Turuhirohero was the founder of all things unpleasant and bad smells.

Turuki was the first builder of rock fences and barriers.

Kuanuku created death by drowning, death in warfare, death by accident, and death by disease.

TRANSLATION OF EASTER ISLAND TABLETS.

EAHA TO RAN ARIIKI KETE.

(Plates XL and XLI.)

1. Eaha to ran ariiki kete mahua i uta nei?
   E tupu tomo a mata mea e rangi ran e tuatea to ran ariiki kete mahua i uta nei.
   Ane rato mani rata karata te tuatea, karata te rangi ran karata te tupuna.
2. Eaha to ran ariiki kete mahua i uta nei?
   E ura e poopoo e koiro e nohoe e to ran ariiki kete mahua i uta nei.
   Ane rato mani rata karata te ura ki kara te poopoo e nehe e riku e kava-kava atu.
3. Eaha to ran ariiki kete mahua i uta nei?
   E nehe e riku e kava atua to ran ariiki kete mahua i uta nei.
   Ane rato mani rata karata te nehe karata riku karata rain kava atua.
4. Eaha to ran ariiki kete mahua i uta nei?
   E a hao nei e kahi e atu e ature.
   Ane rato mani rata karata te kahi kaharta ahi rarata te ature ane rato.
5. Eaha to ran ariiki kete mahua i uta nei?
   E ufi e tra e kumaro to ran ariiki mahua i uta nei.
   Ane rato karata te ufi kumara toa e mahua i uta nei, ane rato maru.
6. Eaha to ran ariiki kete mahua i uta nei?
   E honu e kea e pane te ran ariiki kete mahua i uta nei.
   Ane rato karata te honu te kea te pane.
7. Eaha to ran ariiki kete mahua i uta nei?
   E hetu e range e han e na e raa e mahua te ran ariiki kete mahua i irunga nei.
   Ane rato karata te rangi e hon e na e raa e mahua.
8. Eaha te ran ariiki kete mahua i uta nei?
   E anuga nei karata te hehun rangi han na raa mahua.
   Ane rato karata te hehun rangi han na raa mahua.
9. Eaha to ran ariiki kete mahua i uta nei?
   E ariiki e tapairu to ran ariiki kete i mahua i mua nei.
   Ane rato karata to ariiki te tapairu.
10. Eaha to ran ariiki kete mahua i uta nei?
    E oi e potapotu e ugarara e hata to ran ariiki kete mahua i uta nei.
    Ane rato karata main rata e oi e potupotu e ugarara e hata to ran ariiki kete mahua i uta nei.

ENGLISH TRANSLATION OF TABLET.

EASTER ISLAND ANTHEM.

What power has the Great King on the land?
He has power to make the plants grow and to change the sky to different colors.

young plants, to admire the skies of different colors, and to behold the clouds that rise.

What power has the Great King on the land?

He has the power to create the lobsters, white-bait, eels, ape-fish, and everything in the sea.

All hail the power of the Great King who gives us the knowledge of how to catch the lobsters, white-bait, eels, ape-fish, and all marine animals.

What power has the Great King on the land?

He has the power to produce the ferns, creeping plants, grass, bushes, and all vegetation.

All hail the power of the Great King who has taught us to love the ferns, creeping plants, and all green things.

What power has the Great King over the sea?

He has the power to create the mighty fish that swim in the deep water.

All hail the power of the Great King who has given us the strength and skill to catch the fish of the mighty deep.

What power has the Great King on the land?

He has the power to produce the yams, potatoes, and sugar-cane.

All hail the power of the Great King who enables us to use as food yams, potatoes, and sugar-cane.

What power has the Great King on the land?

He has the power to clothe the turtles in hard shell, the fish with scales, and protects every living thing.

All hail the power of the Great King who enables us to overcome the defense of the turtles, fish, and all reptiles.

What power has the Great King in the universe?

He has the power to create the stars, the clouds, the dew, the rain, the sun, and the moon.

All hail the power of the Great King who enables us to appreciate the blessings of the bright stars, the lowering clouds, the gentle dew, the falling rain, and the light of the sun and moon.

What power has the Great King upon the land?

He has the power to populate the earth, to create both kings and subjects.

All hail the power of the Great King who has created the human beings, given authority to kings, and created loyal subjects.

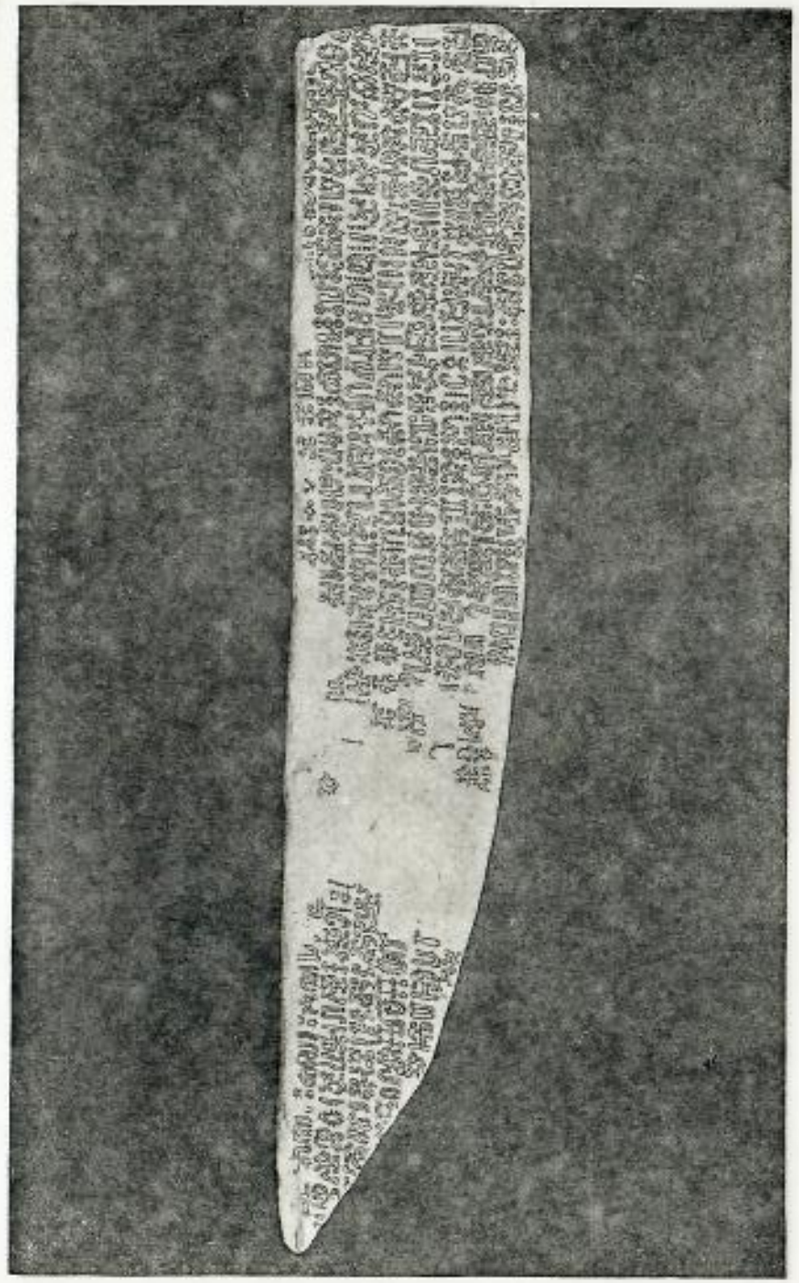
What power has the Great King upon the land?

He has the power to create maggots, flies, worms, fleas, and all creeping and flying insects.

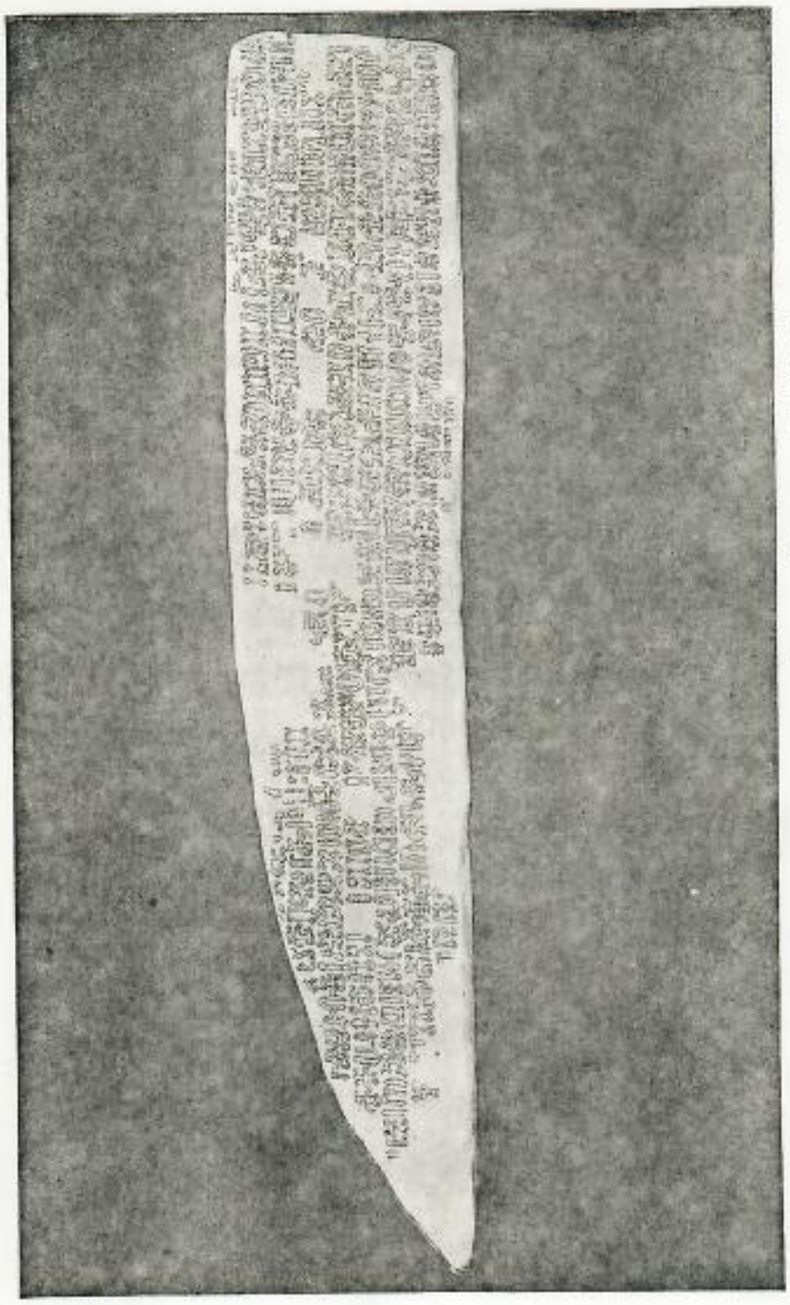
All hail the power of the Great King who enables us to withstand the attacks of the maggots, flies, worms, fleas, and all manner of insects.

What power has the Great King?

All hail the unlimited power of the Great King.



OBVERSE OF EASTER ISLAND WOODEN TABLET, "EAHA TO RAN AROKI KETE."
(Cat. No. 19774, U. S. N. M. Easter Island. Collected and deposited by Paymaster W. J. Thomson, U. S. N.)



REVERSE OF EASTER ISLAND WOODEN TABLET. "EAHA TO RAN ARIKI KETE."
(Cat. No. 126774, U. S. N. M. Easter Island. Collected and deposited by Paymaster W. J. Thomson, U. S. N.)

God Atua Metua and goddess Kariritunaria produced cocoanuts.

God Atua Metua and goddess Ki te Vuhi o Atua produced the toromiro tree.

God Atua Metua and goddess Tapuhavaoatua produced Hibiscus.

God A Heuru and goddess Hetomu produced the blue leaf plant.

God A Taveke and goddess Pouhutuhutaterevaimangaro, produced the white ash.

God A Hahamea and goddess Hohio produced flies.

God Aukia and goddess Moremannga produced roaches.

God A Via Moko and goddess Viatea produced boobies.

God Tereheue and goddess Viaraupa produced leaves.

God A Heroe and goddess Unhipura produced ants.

God Tahatoi and goddess Kateapiairiroro produced sugar-cane.

God Irapupue and goddess Irakaka produced arrowroot.

God Mangeongeo and goddess Herakiraki produced yams.

God Ahen and goddess Pana produced calabash.

God Heima and goddess Kairui-hakamarui produced stars.

God Huruan and goddess Hinaoioi produced fowls.

God A Hikua and goddess Hinaoioi produced vermilion.

God Tingahae and goddess Pararahikutea produced sharks.

God A Hikue and goddess Hinaoioi produced porpoise.

God Tikitehatu and goddess Hihohihokiteturu produced rock-fish.

God Tikitehatu and goddess Hinapopoia produced life.

God Tikitehatu and goddess Maea produced luck.

God Tikitehatu and goddess Ruruatikitehatu produced man.

Atimoterae created brook-fish and established them as the chosen food of the gods.

God Takoua and goddess Tukouo produced milk-thistle.

E Toto discovered the sweet taste of the yam and made it the principal food of the people.

Epuoko created the delicious banana food for the kings.

God Uku and goddess Karori produced bullrushes.

God Kuhikia and goddess Taurari produced small birds.

God Kuhikia and goddess Ruperoa produced sea-gulls.

God Taaria and goddess Taaria produced white gulls.

God Haiuge and goddess Hatukuti produced wind.

God Pauaroroko and goddess Hakukuti produced pain.

God Hiuitirerire and goddess Kanohotatataporo produced creeping vines.

Numia a Tangaire Turuhirohero was the founder of all things unpleasant and bad smells.

Turuki was the first builder of rock fences and barriers.

Kuanuku created death by drowning, death in warfare, death by accident, and death by disease.

TRANSLATION OF EASTER ISLAND TABLETS.

EAHA TO RAN ARIIKI KETE.

(Plates XL and XLI.)

1. Eaha to ran ariiki kete mahua i uta nei?
   E tapu tomo a mata mea e rangi ran e tuatea to ran ariiki kete mahua i uta nei.
   Ane rato mani rata karata te tuatea, karata te rangi ran karata te tupuna.
2. Eaha to ran ariiki kete mahua i uta nei?
   E ura e poopoo e koiro e nohoe e to ran ariiki kete mahua i uta nei.
   Ane rato mani rata karata te ura ki kara te poopoo e nehe e riku e kava-kava atu.
3. Eaha to ran ariiki kete mahua i uta nei?
   E nehe e riku e kava atua to ran ariiki kete mahua i uta nei.
   Ane rato mani rata karata te nehe karata riku karata rain kava atua.
4. Eaha to ran ariiki kete mahua i uta nei?
   E a hao nei e kahi e atu e ature.
   Ane rato mani rata karata te kahi kaharta ahi rarata te ature ane rato.
5. Eaha to ran ariiki kete mahua i uta nei?
   E ufi e tra e kumaro to ran ariiki mahua i uta nei.
   Ane rato karata te ufi kumara toa e mahua i uta nei, ane rato maru.
6. Eaha to ran ariiki kete mahua i uta nei?
   E honu e kea e pane te ran ariiki kete mahua i uta nei.
   Ane rato karata te honu te kea te pane.
7. Eaha to ran ariiki kete mahua i uta nei?
   E hetu e range e han e na e raa e mahua te ran ariiki kete mahua i irunga nei.
   Ane rato karata te rangi e hon e na e raa e mahua.
8. Eaha te ran ariiki kete mahua i uta nei?
   E anuga nei karata te hehuu rangi han na raa mahua.
   Ane rato karata te hehuu rangi han na raa mahua.
9. Eaha to ran ariiki kete mahua i uta nei?
   E ariiki e tapairu to ran ariiki kete i mahua i mua nei.
   Ane rato karata to ariiki te tapairu.
10. Eaha to ran ariiki kete mahua i uta nei?
    E oi e potupotu e ugarara e hata to ran ariiki kete mahua i uta nei.
    Ane rato karata main rata e oi e potupotu e ugarara e hata to ran ariiki kete mahua i uta nei.

ENGLISH TRANSLATION OF TABLET.

EASTER ISLAND ANTHEM.

What power has the Great King on the land?

He has power to make the plants grow and to change the sky to different colors.

All hail the power of the Great King who makes us lenient to the

TRANSLATION OF EASTER ISLAND TABLET.

"Ate-a-renga-kokau iti poheraa."

LOVE SONG.

(Plates XLIV and XLV.)

Ka tagi, Renga-a-manu — hakaopa;
Chin runarame a ita metua.
Ka ketu te nairo hihi — O te hoa!
Enha ton tiena — e te hoa — e!

Ita haga ta pospatu — O te hoa!
Kahii te riva forani — O te hoa — e!
Auwe ka tagi ati — u — a — iti iti.
Eha ton tiena — e ta hoa — e.

Ta hi tiena ita have.
Horoa ita have.
Horoa moni e fahiti;
Ita ori miro;
Ana piri atu;
Ana piri atu;
Ana taga atu.

ENGLISH TRANSLATION.

NATIVE LOVE SONG.

Who is sorrowing? It is Renga-a-manu Hakopa!
A red branch descended from her father.
Open thine eyelids, my true love.
Where is your brother, my love?
At the feast in the Bay of Salutation
We will meet under the feathers of your clan.
She has long been yearning after you.
Send your brother as a mediator of love between us,
Your brother who is now at the house of my father.
O, where is the messenger of love between us?
When the feast of drift-wood is commemorated
There we will meet in loving embrace.

TRADITION IN REGARD TO THE ORIGIN OF THE ISLANDERS.

The island was discovered by King Hotu-Matua, who came from the land in the direction of the rising sun, with two large double canoes and three hundred chosen followers. They brought with them potatoes, yams, bananas, tobacco, sugar-cane, and the seeds of various plants, including the paper mulberry and the toromiro trees. The first landing was made on the islet of Motu Nui, on the north coast, and there the first food was cooked that had been tasted for one hundred and twenty days. The next day the queen started in one of the canoes to explore the coast to the northwest, while the other canoe, in charge of the king, rounded the island to the southeast. At Anekena Bay the

OBVERSE OF WOODEN TABLET FROM EASTER ISLAND. "KA IHI IIGA."
(From photographs presented by George Davidson to the California Academy of Sciences.)

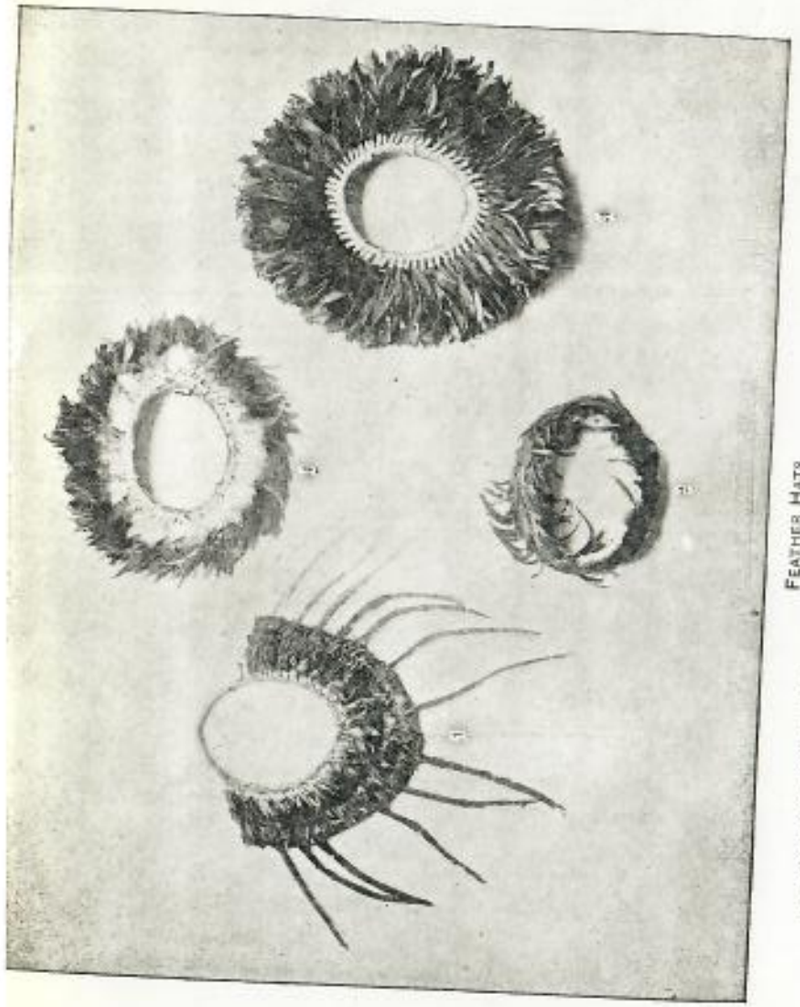
REVERSE OF WOODEN TABLET FROM EASTER ISLAND. "KA IHI URA."
(From photographs presented by George Davidson to the California Academy of Sciences.)

Note-
Easter Is.
S. of the equator.
Aug-Sept
& October

two canoes met and, attracted by the smooth sand-beach, Hotu-Matua landed and named the island "Te-pito te-henua" or "the navel of the deep." The queen landed, and immediately afterwards, gave birth to a boy, who was named Tuumae-Keke. The landing place was named Anekena in honor of the month of August, in which the island was discovered. All the plants landed from the canoes were appropriated for seed, and the people immediately began the cultivation of the ground. For the first three months they subsisted entirely upon fish, turtle, and the nuts of a creeping-plant found growing along the ground, which was named "moki-oo-ne." After the lapse of a number of unrecorded years, during which the island had been made to produce an abundance of food, and the people had increased and multiplied in numbers, Hotu-Matua at an advanced age was stricken with a mortal illness. Before his end drew near, the chief men were summoned to meet in council. The king nominated his eldest son as his successor (Tuumae-Heke), and it was ordained that the descent of the kings should always be through the eldest son. This important matter having been settled, the island was divided up into districts and portioned out to the children of the king as follows: To Tuumae-Heke, the eldest, were given the royal establishment and lands extending from Anekena to the northwest as far as Mounga Tea-tea. To Meru, the second son, were given the lands between Anekena and Hanga-roa. To Marama, the third son, were given the lands between Akahanga and Vinapu. The land lying to the northward and westward of Mounga Tea-tea was the portion of the fourth son, Raa, and was called Hanga-Toe. To the fifth son, Korona-ronga, were allotted the lands between Anekena and the crater of Rana-Roraku. To the sixth and the last son were given the lands on the east side of the island. His name was Hotu-iti.

The tradition here goes back before the advent of the people on the island, and states that Hotu-Matua and his followers came from a group of islands lying towards the rising sun, and the name of the land was Marae-toe-hau, the literal meaning of which is "the burial place." In this land, the climate was so intensely hot that the people sometimes died from the effects of the heat, and at certain seasons plants and growing things were scorched and shriveled up by the burning sun.

The circumstances that led to the migration are related as follows: Hotu-Matua succeeded his father, who was a powerful chief, but his reign in the land of his birth, owing to a combination of circumstances over which he had no control, was limited to a very few years. His brother, Machna, fell in love with a maiden famed for her beauty and grace, but a rival appeared upon the scene in the person of Oroi, the powerful chief of a neighboring clan. After the manner of the sex in all ages and climes, this dusky beauty trifled with the affections of her suitors and proved fickle-minded. When pressed to make a choice between the two, she announced that she would marry Oroi, provided he would prove his love by making a pilgrimage around the island,



FEATHER HATS.

(Cat. Nos. 125761-125763, U. S. N. M. Easter Island. Collected by Paymaster W. J. Thomson, U. S. N.)

persons of note, and were given a place of honor at feasts and ceremonies.

Stone image.—Called Moai Maea. Male figure; held in the same estimation as those made of wood. (Plate LI, fig. 1.)

Wooden clubs.—Called Ua. Made of toro-miro wood, 6 feet long, the point slightly widened and the handle ornamented with a bi-fronted head with eyes of bone and obsidian. These clubs were only used as batôns of office by the chiefs, and the handle was supposed to represent the effigy of the owner. (Plate LII, figs. 1 and 2.)

Wooden club.—Called Poa. Made of heavy wood, about 30 inches long, gradually widened from the handle to a broad blade, rounded at the end. These were used for fighting and were handled with great dexterity.

Wooden club.—Called Ao. Made of light wood, used as wands in dancing. The flattened ends are sometimes ornamented with heads supposed to represent females noted for skill and grace in this accomplishment. (Plate LIII, figs. 1 and 2.)

Wooden club.—Called Ariiki. Made of toro-miro wood, the end being turned at right angles from the short handle. The club is ornamented all over with heads. This was the batôn of the king and used only by him. Obtained with much difficulty and expense.

Calabash.—Called Hue Vai. Opened at the small end only, used as a water vessel, and for domestic purposes.

Calabash.—Called Epu Moa. Known as the fowl gourd, and a superstition ascribes a beneficial influence over the chickens fed and watered from it.

Calabash.—Called Tata. Used chiefly in boats for bailing.

Calabash.—Very old specimen obtained from an ancient tomb, covered with hieroglyphics similar to those found on the incised tablets. These calabashes grow in profusion on the island, but are worthy of note on account of the prominent place they occupy in the traditions, and because the seed was introduced by the original settlers.

Fish-net.—Called Kupenga Maito. This form of net has been in use from an early period, and is made from the fiber of wild hemp. Nets of different sizes used in fishing, as well as those for fighting and other purposes, were of similar material and mesh. (Plate XIII.)

Feather hat.—Called Vana-vana. Head-dress made of black and green variegated feathers, used only in delivering a challenge to combat for revenge. (Plate LIV, fig. 1.)

Feather hat.—Called Han Kura-kura. Small head-dress of brown or red feathers worn by soldiers in time of war. (Plate LIV, fig. 2.)

Feather hat.—Called Han Pau-ten-ki. Head-dress of long, black, green, and variegated feathers worn by dancing-people. (Plate LIV, fig. 3.)

Featherhat.—Called Han Tara. Small head-dress of trimmed feath-

ers ornamented by long tail feathers behind; used by chiefs on occasions of ceremony. (Plate LIV, fig. 4.)

Feather hat.—Called Han Vaero. Head-dress used in dancing, and formerly at marriage feasts. (Plate LV, fig. 1.)

Feather hat.—Called Han Hie-hie. Large and heavy head-dress made of black feathers worn by chiefs as insignia of office. These hats are made of chicken feathers secured by the quill ends to a foundation of knitted hemp, intended to fit the head closely. They are frequently referred to in the traditions. (Plate LV, fig. 2.)

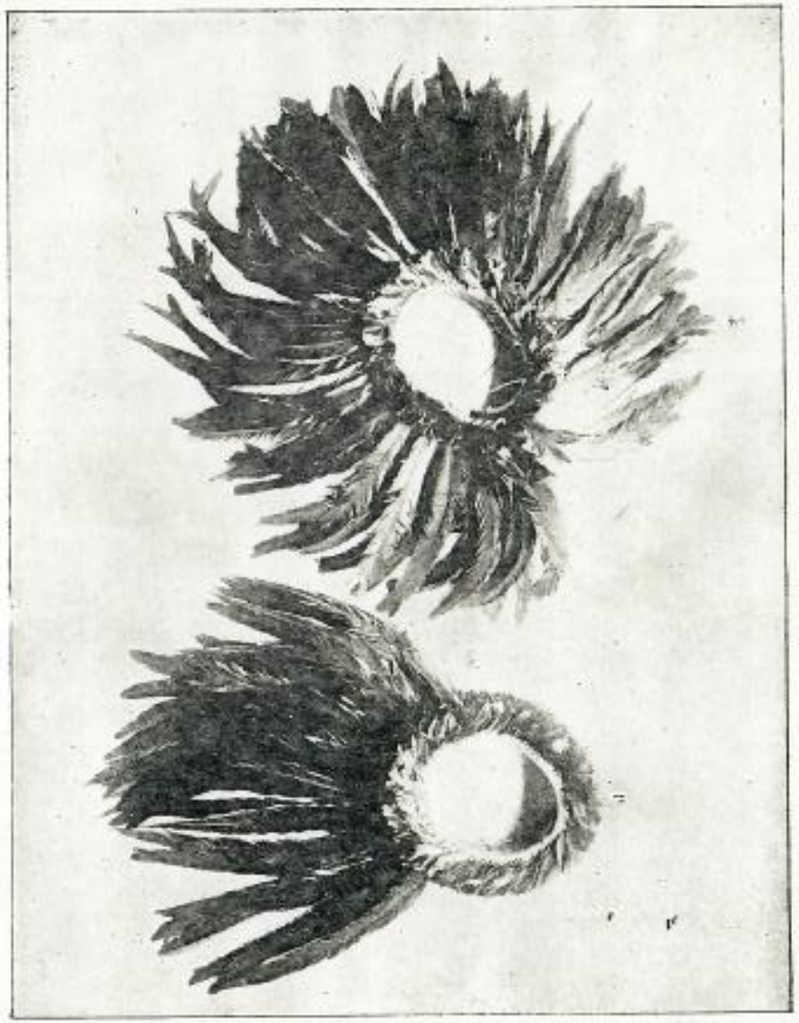
Wallet.—Called Kate. Made from bullrushes taken from the crater of Rana-Kau. (Plate LI, fig. 2.)

Mat.—Called Moenga. Made of bullrushes and used for sleeping mats.

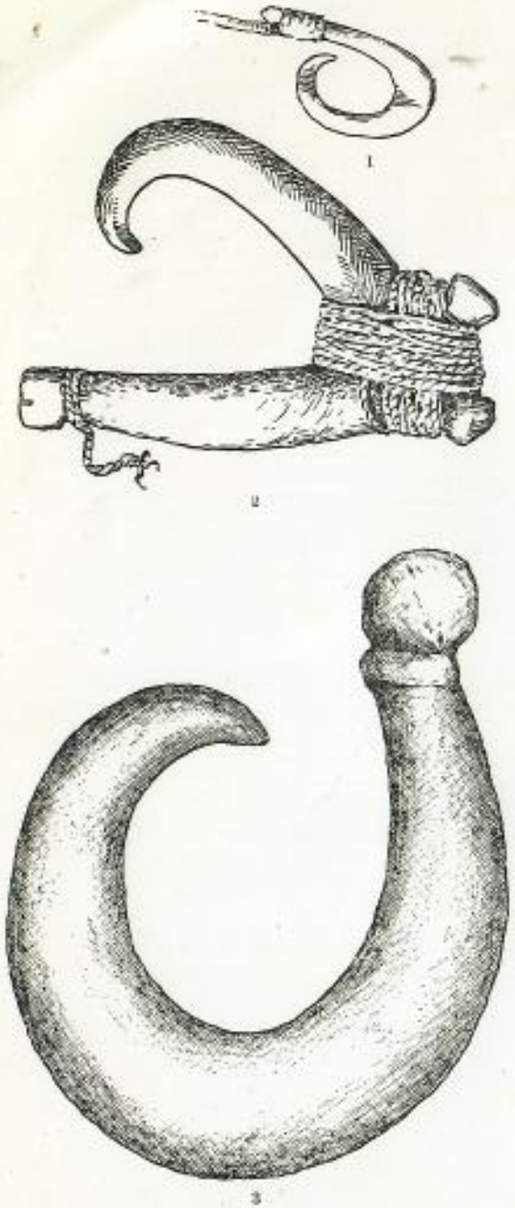
Obsidian spear points.—Plate LVI.—Large collection showing the nine classes into which they are divided by the natives. Fig. 1, narrow leaf-shaped spear-head, called Mataa Nutakuku. Fig. 2, wide round-pointed spear-head, called Mataa Rei-pure-pure-rova. Fig. 3, narrow and long-pointed spear-head, called Mataa Neho-mango. Fig. 4, narrow spade-shaped spear-head, called Mataa Hikutiveva. Fig. 5, broad straight-edged spear-head, called Mataa-hae. Fig. 6, smooth round-edged spear-head, called Mataa Aro-kiri. Fig. 7, broad fan-shaped spear-head, called Mataa Nutu-kuku. Fig. 8, concave and convex sided spear-head, called Mataa Roa. Fig. 9, long sharp, irregular pointed spear-head, called Mataa Hai-haerve. These spear-heads were fastened to poles about 8 feet long, by lashings of hemp, and formed the chief weapon used by the natives in their frequent strifes. They were thrown to a distance, as well as a thrusting weapon, much after the manner in which the Zulus use their assagais. The volcanic glass of which the points were made, crops out at many places on the island, but was chiefly obtained at the obsidian mountain of Orito. Spear-heads of different shapes and sizes were dependent upon individual taste and skill. The best samples in the collection were purchased from Mr. Salmon; others were found in the tombs and burial-places; and some were picked up on the old battle-grounds.

Fetish-board.—Called Timoika. Broad, flat paddle made of whalebone, 30 inches long and 14 inches wide. This wand is used in working a charm against an enemy. The injured individual while performing a sort of convulsive dance, makes mystic movements with the paddle, meanwhile muttering incantations in a monotonous tone. The result is believed to be the speedy death of the person against whom the fetish is invoked. (Plate LIII, fig. 3.)

Potato fetish.—Called Rapa. Small, light paddle double bladed, about 24 inches long, painted light red in color. It was used with appropriate ceremonies at times when the potato crop was in danger from insects or drought, and was believed to ward off and guard against evil spirits. (Plate LIII, fig. 4.)



FEATHER HATS.
(Cat. Nos. 129734-129735, U. S. N. M. Easter Island. Collected by Paymaster W. J. Thomson, U. S. N.)



FISHHOOKS.

Fig. 1. FISHHOOK OF HUMAN BONE. (Cat. No. 13736, U. S. N. M. Easter Island. Collected by Paymaster W. J. Thomson, U. S. N.)
Fig. 2. FISHHOOK OF HUMAN BONE. (Cat. No. 12637, U. S. N. M. Easter Island. Collected by Paymaster W. J. Thomson, U. S. N.)
Fig. 3. FISHHOOK OF STONE.

Stone adzes.—Called Toki. The collection comprises twenty-five different sizes, called by distinctive names which signify the use for which they are designed. Tools of this class were always used in a wooden handle. (Plate LVII.)

Stone knife.—Called Hoe. Ground down to a knife-blade with a point and cutting edge, used principally for fashioning the eyes and faces of the images. (Plate LI, fig. 3.)

Ax handles.—Miro Toki. Hard-wood, with natural joint, used for holding stone implements. (Plate LVII.)

Fish god.—Called Mea Ika. This rough, ill-shaped stone was one of the objects really worshipped by the natives. Some of them bear evidences of tool marks, but it does not appear that any effort was made to carve them into shape or decorate them. These gods were never common, and were possessed by communities or clans, and not by individuals. The legends claim that they were all brought to the island by Hotu Matua and the first settlers. (Plate LI, fig. 4.)

Bonito-god.—Called Mea Kahi. A stone with apparently no distinguishing characteristics, and nothing to merit the profound religious homage paid to it. It is not clear why the bonito should have the distinction of a separate god from the other fish, unless it be for the reason that it appears in great numbers in these waters, and has always been highly esteemed as an article of food. Fish always constituted an important diet with the natives, and the abundance in which they were found was ascribed to the faithful and constant adoration of these stone gods. (Plate LI, fig. 5.)

Fowl god.—Called Mea Moa. A beach pebble with slight traces of tool-marks, but it might readily be passed among other stones without attracting attention. To the fowl god is ascribed the custody of chickens, and its beneficial influence was secured by being placed under a setting hen for a short time before the eggs were hatched. (Plate LI, fig. 6.)

Stone Fish Hook.—Called Mugai Kihi. These primitive hooks, now very rare on the island, were made of the hardest rock to be obtained, and were ground into shape by long and constant rubbing. (Plate LVIII, fig. 3.)

Bone fish-hooks.—Called Mugai Iri. In accordance with an ancient superstition, these hooks were manufactured from the thigh-bones of deceased fishermen. The curve was fashioned with a small barb which prevented the escape of the fish. The form is so perfectly adapted to the purpose that the natives still use their old bone hooks in preference to those of European make. A fish-hook of similar design was used by the Indians of Santa Cruz Island. (Plate LVIII, figs. 1 and 2.)

Incised tablets.—Called Hokau Rongo-Rongo. Two specimens in excellent state of preservation, showing the hieroglyphics used in the written language. (Plates XXXVIII–XLI.)

Double paddle.—Called Mata Kao-kao. Made of heavy wood, bal-

anced by wide blades ornamented with outlined faces. Used in the ancient canoes in a similar manner to that practiced by the Indians of America. (Plate LII, fig. 3.)

Ancient scull oars.—Called Mata Kao. Angular float of peculiar shape and unique design attached to a long handle. Used for steering and sculling very large canoes. Very old and highly prized by the islanders as the only specimen of the scull-oar used by their ancestors. (Plate LIX.)

Human skulls.—Called Puoko Iri. An examination of these skulls shows very little difference between the crania of the present people and those found in the most ancient tombs. Three specimens obtained from the King's platform have hieroglyphics engraved upon them, which signify the clan to which they belonged. (Plate L.)

Native cloth.—Called Hami Nua. Made of the inner bark of the hibiscus and paper-mulberry trees. The manufacture of the "tappa" has now ceased altogether. (Plate LI, fig. 7.)

Tattooing implements.—Called Ta Kona. Tools used for puncturing the skin. Made of bird bones.

Needles.—Called Iri. Both bone and wooden needles used for sewing tappa cloth, and other varieties for knitting meshes of nets. (Plate LX, fig. 1.)

Fetish stones.—Called Atua Mangaro. A collection obtained by digging beneath the door-posts of the ancient dwellings. The majority are simply beach pepples; others have been formed by rubbing; and one is a triangular-shaped stone with a face outlined upon it. These were placed beneath the houses, with much ceremony, and were supposed to ward off evil influences. (Plate LX, fig. 2.)

Neck ornaments.—Called Hoko Ngao. Carved wood in fanciful designs worn during the dance.

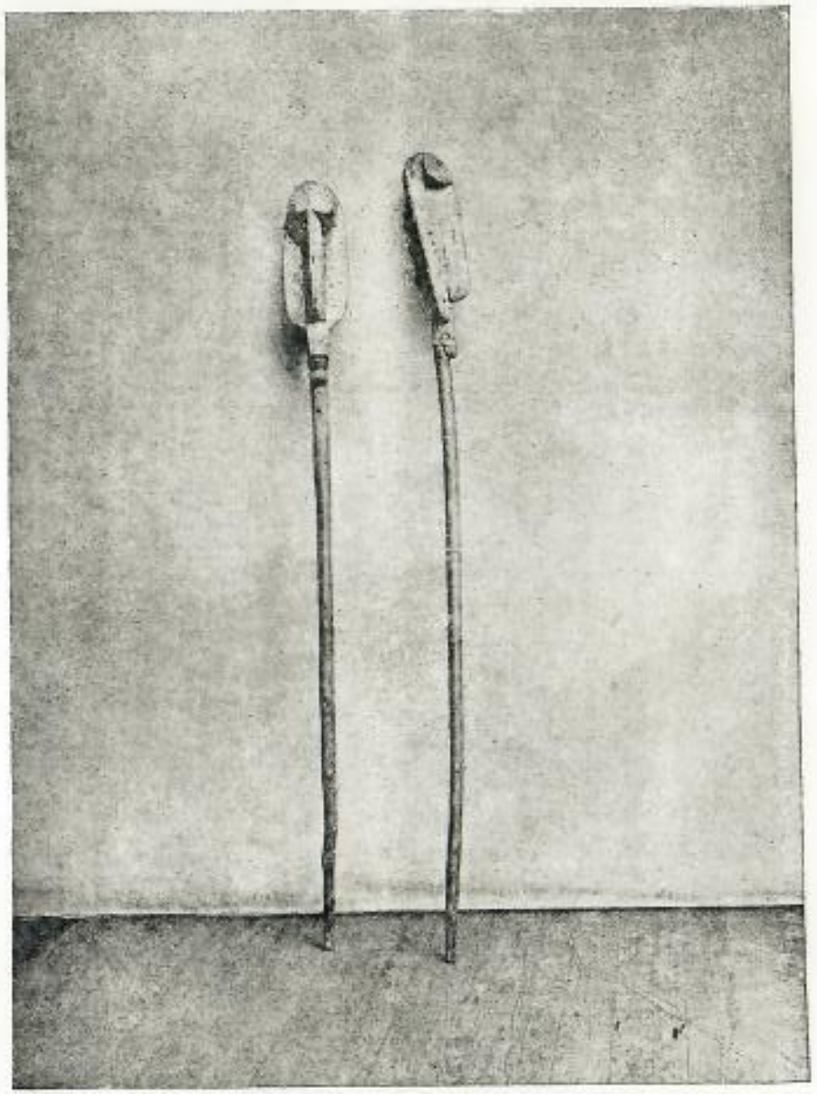
Pigments.—Called Penetuli. Natural paints used by being ground down in the heated juice of the sugar cane.

Frescoed slabs.—Taken from the inner walls and ceilings of the stone houses at Orongo. (Plate XXIII.)

Fetish stones.—Buried under the corner-stones of the houses.

POLYNESIAN ARCHÆOLOGY.

The most ancient monuments of Polynesia are the lithic and megalithic remains, coincident in style and character with the Druidical circles of Europe, and the exact counterpart of those of Stonehenge and Carnac in Brittany. These earlier efforts of the human art are invariably the remains of temples, places of worship, or of edifices dedicated in some way to the religion and superstitions of extinct generations, whose graves cover every island and reef. The most numerous, and perhaps the most ancient structures, are quadrangular in shape, and are composed of loose lava stones, forming a wall of great firmness and strength. These temples frequently exceed 100 feet in length, with a



ANCIENT SCULL-OARS.

(Cat. No. 12546, U. S. N. M. Easter Island. Collected by Paymaster W. J. Thomson, U. S. N.)

Fishhooks ?

REPORTS OF THE NORWEGIAN ARCHAEOLOGICAL EXPEDITION TO EASTER ISLAND AND THE EAST PACIFIC

Volume 1

ARCHAEOLOGY OF EASTER ISLAND

WITH CONTRIBUTIONS BY

THOR HEYERDAHL · EDWIN N. FERDON, JR.
EDITORS

WILLIAM MULLOY · ARNE SKJÖLSVOLD

CARLYLE S. SMITH

559 pp.

MONOGRAPHS OF
THE SCHOOL OF AMERICAN RESEARCH AND THE MUSEUM OF NEW MEXICO
NUMBER 24, PART 1, 1961

Distributed in United States of America, Mexico, Central America, South America by
RAND McNALLY & COMPANY · CHICAGO · NEW YORK · SAN FRANCISCO

Perdix coturnix, and the loica, *Leistes superciliaris*, were added to the Easter Island fauna by the Señores Toro between 1880 and 1891 (*Gusinde*, 1920, p. 227), but the latter was subsequently lost through the introduction of a small hawk nesting in the Rano Raraku cliffs. Among the unintentionally introduced species several insects have spread ashore from European ships, notably vast quantitites of flies, and a large cockroach, likewise a small scorpion.

Marine visitors, like sea turtles and seals, which formerly frequented the island shores, are now only spoken of as rare curiosities without effect on the island economy. Crayfish catching by hand, and coastal fishing with both spear and hook, have survived since early times and are commonly practised, as is also minor line fishing from small boats in the waters immediately off the coast.

HISTORY

Man's initial discovery of Easter Island upon an oversea voyage in aboriginal craft is in itself an incident worthy our fullest attention. The island spans only one tenth of a degree from north to south, and no inhabited land is located within a radius of over two thousand kilometers. Chances of finding the island are thus exceedingly small, both for drift voyagers and for the crew of an exploring craft. The isolated outpost of Pitcairn, uninhabited at the time of European arrival, lies nearly 2,000 km. (1,200 miles) to the west, and beyond there Mangareva, the nearest inhabited island, lies 2,500 km. (1,600 miles) from Easter Island. The Marquesas group and the Galapagos islands are both 3,200 km. (roughly 2,000 miles) away, as is also the entire curve of the South American coast from central Peru to south-central Chile.[9] In view of the distances involved it would therefore be tempting to accept the commonly occurring statement that the aboriginal discovery of Easter Island must have been the result of pure chance or else a unique feat without counterpart in nautical history. We believe that a survey of the island's history will show that neither of these interpretations are necessarily called for.

Let us first recall that, in Polynesia to the west as well as in the realm of the Inca Empire to the east, pre-European exploring parties with men and women on-board occasionally set into the open Pacific in search of new land, and that, to increase the chances of detecting a small island, the voyagers spread their vessels out in fan formation (*Heyerdahl*, 1952, pp. 556–572). We also know that, when an island had once been discovered and its position established, it was feasible for the Polynesians with their sailing canoes and paddles, and for the Peruvians with their sailing rafts and *guara* technique, to revisit the same locality a second time, and to pass on sailing directions to others. The remarkable aspect of early landings on Easter Island is thus at any rate restricted to the initial discovery of the island.

Traditional History

Sailing directions, traditions of island discoveries, and local royal genealogies were considered main tribal treasures in aboriginal Polynesia. Easter Island was no exception in this respect.

The first fragmentary references to local memory were recorded by Palmer (1868, p. 373; 1870a, p. 110; 1870b, p. 180), who made his call when the earliest missionaries had just established the first oral contact with the Easter Islanders. He briefly reported that two different people were supposed to have reached the island at different times. When the ancestors of the present population arrived from an other island to the west, they found an earlier people already in possession of the land. Thus, with reference to the stone statues, he recorded: "These were the work of a former race; the present one came here more recently, banished, it is said, from Oparo, or Rapa-iti, as they call it." No other details of the two arrivals were preserved, but for the recording of the name Tu-ku-i-u as the chief of the second immigration, and the statement that the newcomers were said "to have adopted the religion which they found upon the island."

The first complete traditions of the primary discovery and settling of Easter Island were collected in the period between 1877 and 1886 by an early local resident, Mr. A. P. Salmon. Salmon was an intelligent half Tahitian who spoke the native language and had come to live among the Easter Islanders only fifteen years after the disastrous Peruvian slave raid. He devoted much effort to the gathering of ancient local traditions, and had access to the undisturbed original versions from elder natives who were of advanced years at the time of the slave raid and the subsequent first European settling ashore.

In 1882 the English commander B. F. Clark had the first known interview with Salmon. He states in a letter to the Admiralty (*Clark*, 1882, p. 144) that "Mr. Salmon speaks the native language thoroughly, having learnt it

[9] A globe should always be consulted due to the great curvatures involved in major Pacific measurements.

"The tradition here goes back before the advent of the people on the island, and states that Hotu-Matua and his followers came from a group of islands lying towards the rising sun, and the name of the land was Marae-toe-hau, the literal meaning of which is 'the burial place'. In this land, the climate was so intensely hot that the people sometimes died from the effects of the heat, and at certain seasons plants and growing things were scorched and shriveled up by the burning sun."

Thomson (*Ibid.*, p. 532) adds: "It is difficult to account for the statement, so frequently repeated throughout the legends, that Hotu-Matua came from the eastward and discovered the land by steering towards the setting sun, because the chart shows no islands in that direction which would answer the description of 'Marae-toe-hau'."

According to the same traditions (*Ibid.*, p. 534), fifty-seven generations of kings had succeeded each other on Easter Island after Hotu Matua's arrival, and the name of each is recorded in the genealogy published by Thomson. If we follow the standard procedure among Polynesian ethnologists, and compute the number of years based on an average of 25 years to a generation, we arrive at the tentative date of approximately A. D. 450 for Hotu Matua's traditional landing.

Thomson (*Ibid.*, p. 531) points to the vague indications in the traditions to the effect that people had been on the island even prior to Hotu Matua's arrival. He thus records the remarkable detail that Hotu Matua's brother, Machaa, had been there in advance and even had one of his party killed by a turtle and buried in Anakena prior to the arrival of the celebrated royal discoverer. Thomson adds: "It is not unlikely that the natives, anxious to maintain the credit of the discovery of the island, attempt to account for the presence of an earlier people in this way. . . . it would account for Hotu-Matua finding a tomb or burial-place on the beach at Anakena, when he first landed."[11]

The Hotu Matua tradition was independently heard on the island by the Chilean meteorologist E. Martinez, who, after a year of local residence in 1891, told Knoche (1912, pp. 873–874) that he had found the traditional memories of Hotu Matua's original landing to be still so vivid among the elder people that one of them sat and wept with emotion on the day of the year which marked this traditional ancestral event. Knoche (*Loc. cit.*), on his own visit to Easter Island in 1911, was also told that the original discoverers had come from the *east*, but the name of the eastern land was now given as Wara-to-hiu; and Tuma-Heke, Hotu Matua's son, was now said to be the first local king.

At this time the old informants were gradually replaced by a younger generation that could not avoid getting affected by a steadily increasing knowledge of the actual outside world combined with the many European theories as to the identity of their own ancestral origins. The Galapagos, the Tuamotus, Rapa Iti, and finally the Marquesas had by now in consecutive order been proposed to them as likely starting places for Hotu Matua's voyage (*Geiseler*, 1883, p. 43; *Knoche*, 1912, p. 874). When subsequently Routledge arrived at the outbreak of World War I, her native informants had forgotten all information pertaining to the distance and direction of Hotu Matua's land, although Routledge (1919, pp. 277–280) was otherwise given a close variant of the former Hotu Matua legend.[12] Later again, Métraux (1940, pp. 55–69), using Routledge's interpreter Juan Tepano as his own informant[13], obtained much the same information, with further details on Hotu Matua's adventures after

[11] Another ancient local legend collected by Thomson, and known as the Apai, had a corresponding hint. This text was recited independently from a written tablet by two old Easter Islanders, and translated into English by Salmon. Between two unintelligible sections of text, "supposed to have been written in some ancient language, the key to which has long ago been lost" (*Ibid.*, p. 519), the following appears in the usual local language: "When the island was first created and became known to our forefathers, the land was crossed with roads beautifully paved with flat stones. The stones were laid close together so artistically that no rough edges were exposed. Coffee-trees [?] were growing close together along the borders of the road, that met overhead, and the branches were laced together like muscles. Heke was the builder of these roads, and it was he, who sat in the place of honor in the middle where the roads branched away in every direction. These roads were cunningly contrived to represent the plan of the web of the grey and blackpointed spider, and no man could discover the beginning or the end thereof." (After a further section of text in an unintelligible former language, the name of some persons living in the former fatherland are cited, and this former habitat is allegorically referred to as the land "where the black and white-pointed spider would have mounted to heaven, but was prevented by the bitterness of the cold.")

[12] Routledge (*Ibid.*, p. 282) wrote: "The statement . . . that Hotu-matua came from the east, was never met with by us. Kilimuti [Routledge's informant] did not know whence he came; the direction in which Hotu-Matua looked when dying would be west, or more accurately, south-west. Juan [Tepano] put the home of the first immigrants in the Paumotu; as a young man his knowledge of legend was a step further from the original, but it was often useful in summing up the general impression he had received."

[13] *Routledge*, 1919, p. 214; *Métraux*, 1940, p. 57.

REPORT 12

The Tupa of Hiramoko

BY WILLIAM MULLOY

Of the peculiar tower-like structures called *tupa* there are, according to Englert (1948, p. 238), twenty-seven remaining on the island, principally near the coasts. They are usually thick-walled, roughly circular structures with small entrances. Several have special forms. The idea has been expressed by Routledge (1919, p. 218) and Métraux (1940, p. 189) that they were towers used for watching for turtles at sea. Englert (1948, pp. 237–238) points out their impracticality for this purpose, and says that old people have told him that they were shelters used by fishermen. Though both of the above explanations may correctly reflect secondary uses of the structures, none would appear to account fully for the time and effort expended on them. Their purpose remains obscure.

THE STRUCTURE

The *Tupa* of Hiramoko (Site E–3; and Englert's No. 4, *Loc. cit.*) lies on the coast on the north side of the island about 300 m. east of the bay of Anakena (Fig. 2), on the top of a high cliff which overlooks the sea and protects the bay from the west. The cliff top is irregular rolling terrain, rising to form several hill tops, and broken by exposed masses of vesicular basalt. Everywhere are scattered boulders of the same material. There is a scanty cover of short grass.

Lying roughly parallel to the cliff edge is an exposed, seaward facing outcropping of basalt in the vicinity of the structure, being about 3 m. high, and about 30 m. from the cliff edge. The terrain in front of this slopes gradually downward toward the cliff edge, while behind it is relatively level for some distance. A portion of the outcropping is undercut to form an irregularly elliptical shelter about 11 m. long, 4.30 m. in maximum depth, and at the south end about 1.60 m. in maximum height. At the north end its height tapers to nothing (Fig. 86).

It is within and around this shelter that the peculiar *tupa* was constructed. Apparently the first operation was to construct a curved wall within the shelter, to separate the highest portion within, which was the part proposed to be used (Fig. 86, lower). This wall probably originally extended to the roof of the cave, though at the time of excavation only the lower course remained in place. It was of crudely selected basalt boulders, and enclosed a roughly elliptical area about 4 by 5 m. in diameter. A westward facing entrance about 1.20 m. wide was left open. This wall was constructed after the cave had had some previous occupation, for in several places up to 5 cm. of midden deposit appeared to extend under the lower course.

Outside of the structure a semicircular wall of selected basalt boulders was constructed about the entrance, to enclose an area about 2.50 m. in radius, and an entrance passage was built to its periphery from the interior entrance opening. As this wall was carried up, interiors were apparently filled with a rubble of smaller boulders (Fig. 86, lower). The entrance passage was roofed with irregular stones at about the height of the cave roof, the resulting passage averaging about 70 cm. wide, and about 1.20 m. high, before deposition of midden.

When this wall reached the height of the outcropping top it was continued landward to form a complete ellipse partly resting on the outcropping top. This is about 5 m. in maximum and 3.50 m. in minimum diameter. Its interior was similarly filled with rubble. At its highest point this wall remained about 4 m. above the cave floor, and was probably originally somewhat higher. Probably originally the structure had a flat top, but at the time observed it was partially destroyed and sloped seaward.

As the exterior construction was being carried up, a vertical, rectangular, chimney-like passage was also made by a lining of selected stones to extend from the entrance passage to the top of the tower. It averages about 35 cm. square, and is centered about 80 cm. back from the exterior entrance. It may have been an arrangement for removing smoke from the interior, or it may have had a more obscure function.

secular dwelling. It is interesting to note that, during Geiseler's visit in 1882, the natives pointed out to him that they built their own reed houses in the same shape as the ceremonial Orongo dwellings (*Heyerdahl*, this vol., p. 80).

The Tupa

Thomson (1889, p. 484, Fig. 9), Routledge (1919, p. 218, Fig. 87), and Métraux (1940, pp. 189–190) all received the same information we did from the Easter Islanders, that the rather tall masonry construction having a small, slab-roofed chamber with a small, rectangular entryway, and locally referred to as a *tupa*, functioned as a watch-tower for turtle or fish. Mulloy (this vol., pp. 323–328) excavated a masonry enclosed cave near Anakena which, owing to the intentional piling on the roof of a mass of boulders to form a tower-like effect, has been interpreted as a *tupa*. This structure definitely proved to be a dwelling, but no detailed study was made by our expedition of the all-masonry *tupa* of the island. Casual study of a few, however, resulted in the conclusion that they were of solid, dry masonry construction, with a slight interior corbeling of the upper chamber walls, just sufficient to reduce the width of the ceiling to accommodate the large covering slabs. Since the corbeling never appeared to be excessive, there was no need for the extreme wall thicknesses found in the Orongo houses. Although the tall, solid masonry roof may have served as a tower, or platform, and obviously did so in the house pictured by Thomson (reproduced as Fig. 13 *c* in this vol.), the weight of this upper stone mass also served as a counterbalance for the corbeling stones, and aided in solidifying the entire structure.

Métraux (1940, p. 190) does not believe that the interior chamber of the *tupa* served as a dwelling, and the lack of evidence of prepared fire pits, or pit ovens, in those we observed would tend to confirm this. However, as noted (*Heyerdahl*, this vol., p. 57, and Fig. 4 *a–d*) Bernizet illustrates and describes in some detail what he refers to as a stone dwelling. Based upon his illustration and mention of a platform on the roof, this structure must have been what is now called a *tupa*. Not only was Bernizet's stone structure actually inhabited at the time of his visit, but it was complete with an adjacent pit oven and underground storage vault.

From all indications, the *tupa* was never a common house type. It is possible that this form of structure functioned in the same capacity as the sacred place of Marquesan fishermen, which was built at the edge of the sea and consisted of one or more houses on platforms.[5] Although the order of structural units was reserved in the *tupa* from that of the Marquesan sacred place, that is, the platform or terrace was above the dwelling rather than below it, the three elements of dwelling, platform, and seaside location were present. However, Englert (1948, p. 237) has pointed out that the *tupa* were not invariably on the seaside, a few were located far inland where neither fish nor turtle could be observed. Métraux (1940, p. 189) is in error when he states that the *tupa* does not exist on the south coast. Not only did the writer inspect several in the region of Hotu-iti, but Englert (1948, pp. 238–243, and Map, p. 239) has plotted their distribution. This showed a heavy concentration around, and immediately to the west of, Hotu-iti, and another concentration on the opposite, north coast in the Anakena-La Pérouse bay area. Beyond these two zones there are only three other *tupa*, one near North Cape, another at Hanga-roa, and a third near Point Baja about midway between Hotu-iti and Ahu Vinapu (Fig. 88 *d–f*).

Terrace-edge Houses

The three terrace-edge, masonry dwellings found at Site E-21 have been described in detail in the report on that site.[4] They consisted of a small cubicle formed by extending a free-standing wall out and around in a crescent shape from the facing of a terrace. The roof of the enclosure was of stone slabs. Entrance was gained through an opening in the roof. Only three of these structures, all at one site, were discovered and would appear to be a highly localized development. Two of them appeared to have shared a hidden storage cist.

Thick-walled Houses

The thick-walled, oval dwelling described in the reports on Sites E-2 and 5 had an excessively thickened wall segment which contained two hidden storage cists and probably also served as a raised work terrace.[5] Built of rough boulders, there was no attempt at roofing the structure with stone slabs, nor could such a roof have been easily constructed, for the interior space was too large to have been easily spanned in this manner, even with the use of corbeling. Although no further excavations were attempted in other structures of this nature, except

[3] *Linton*, 1925, p. 41.

[4] *Ferdon*, this volume, p. 314.

[5] *Skjölsvold*, this volume, Report 9; *Ferdon, Ibid.*, Report 10.

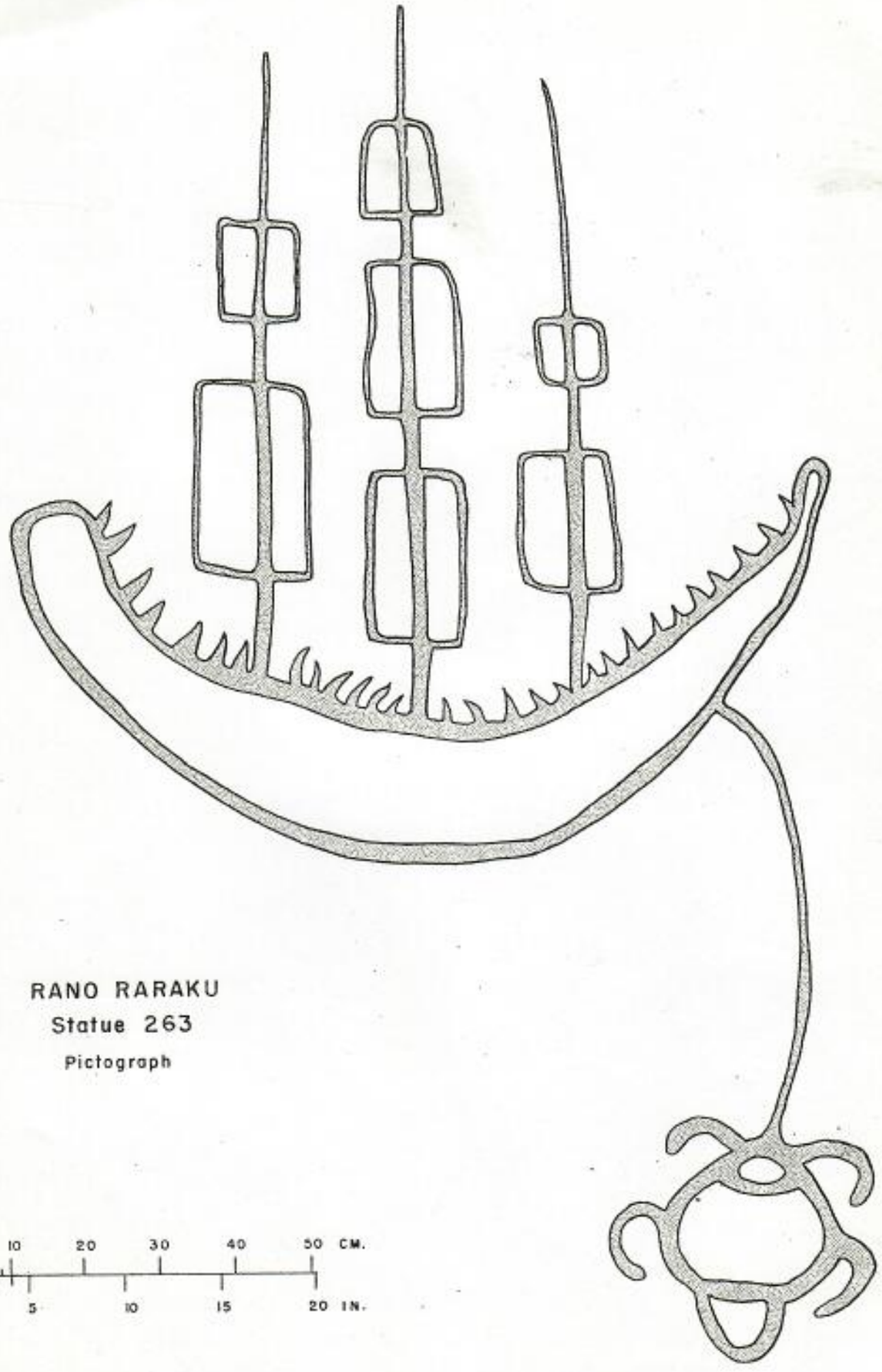


Fig. 93

the main figure. This figure could symbolize the ship's anchor, the line connecting it with the ship thus representing the 'anchor chain'. This possibility is indicated by the fact that the line terminates at the ship's underside. Against this interpretation may be held that the circular figure is not reminiscent of any known historic or prehistoric type of anchor. There are, as a second possibility, certain details which indicate that the figure may represent a turtle, as proposed by the local Easter Islanders witnessing the discovery. In this case the six small curved incissions may indicate the head, tail, and four fins of a turtle, while the line leading to the vessel would be the fishing line.[8]

It is difficult, on the basis of this petroglyph alone, to decide whether the figure was meant to represent a European vessel or not. The rigging seems to indicate it was, but the crescent-shaped hull is strange, and does not conform to such other ship pictographs on the island that certainly depict European sailing craft (e.g. Fig. 127 *a*). The three masts and the large 'crew' show that the reproduction is meant to illustrate a large vessel. Figures of ships of this strange crescent-shaped type are found in considerable numbers on Easter Island, the majority in the form of carvings, but some painted on flat slabs. Ferdon (this vol. pp. 236–240) describes several painted figures of similar boats from the houses in the ceremonial center of Orongo, and discusses the interesting possibility that they may be *totora* reed vessels of the large type formerly used and illustrated on the desert coast of Peru. Smith (*Ibid.*, p. 203, Fig. 57) notes a similar carving of a ship on the abdomen of the large overturned statue at Ahu Te-pito-te-kura. Mulloy (*Ibid.*, p. 117, Pl. 12 *a*) excavated a vessel with similar superimposed, rectangular sails at Ahu No. 2 in Vinapu, and architectural details revealed that the latter was covered by Early and Middle Period silt. Other carvings of crescent-shaped ships occur in various parts of the island, and some additional examples were observed in the quarries of Rano Raraku, the latter, however, being without masts and sails.

The carved relief uncovered at the back of the statue was mentioned earlier. It commences on a level with the elbows, where a ring has been carved with a diameter of 25 cm., a little flattened at the bottom. The band forming the ring is 2 cm. wide, and carved in 8 mm. high relief. The carved furrow showing the spine leads down to the upper edge of the ring which, as stated, is terminated below by a triple belt lying in a gentle curve across the entire back. The total width of the belt is 12 cm. and each band is 3 cm. wide. The height of the relief is the same as that of the ring above. On the lower edge of the belt is a zig-zag band forming a more or less M-shaped design. From the mid-point, an eroded ridge leads down to the base of the statue. The 'wings' of the zig-zag band are 27 cm. long, and 4 cm. wide.

Routledge (1919, p. 187, Fig. 64) describes similar symbols on Statue No. 367 which she examined inside the crater, and on one of the statues at Anakena. In the former case, the relief is identical with the one on Statue 263, except that it has two rings instead of one. The statue at Anakena (*Ibid.*, p. 187, Fig. 65) has a slightly different symbol, with one ring superimposed on a belt consisting of a single band. Below this are two large rings on each side of the mid-line, which in this case lead down to the base of the statue. The statue Hoa-haka-nana-ia in the British Museum bears a symbol that is identical with the one we found on No. 263. Five statues with these peculiar reliefs were found by our excavations, and there are reasons for believing that others exist.

As shown by Métraux (1940, pp. 295–296), a number of the small wooden figures found on the island are ornamented in a similar way. It seems possible that the symbol represents a loincloth with its knots. As Métraux (*Loc. cit.*) states: "The girdle with its band stretching down from the back is a conventionalized representation of the *maro*."

One of the local informants, Pedro Atan, when asked what the relief represented, replied without hesitation that the ring symbolized the sun, the belt the rainbow, and the zig-zag border lightning and thunder, and that it originated from an old cult connected with these powers of nature. The scientific value of this assertion is doubtful, however, since it is quite possible that the interpretation was improvised and was the product of Atan's prolific imagination.

Statue 263 belongs to the slim and better developed category of Easter Island statues, where special attention had been given to the execution of details. Among additional features may be mentioned that the navel is marked by a disc-shaped protuberance on the abdomen. At the back of the statue the raised elbow joints, and the indented line down the center of the back which appears to be the spine, are especially noticeable.

[8] Turtle petroglyphs are very common on Easter Island, and are represented with head, rounded tail, and backwards curving fins, as in the present specimen. (Cf. *Lavachery*, 1939, vol. 2, Figs. 19, 171, 174, 177, 178, 184, 185, 186; Pls. 11, 12, 91, 93, 94, 99–101.)

vex side, is carved to a slightly asymmetric rounded rectangular shape. The artifact is reminiscent of cat.no. 836.

Cat.no. 860 (Fig. 109 *w*): Shell ornament. The artifact is related to cat.no. 859, but the material is white cowry shell with the dental ridging along one longitudinal edge still visible. The outline is oval, and a slightly oval hole is cut through centrally near one end by bilateral carving with a sharp tool. A transversal groove is cut across the convex side below the suspension hole. The thickness of the shell is 3 mm.

STONE SCULPTURES

Relief Carvings

Relief carvings are very common on the island, and were more so formerly, as many of those found on the face of softer rock have eroded beyond recognition, others, often in harder material, have been removed or destroyed by man. This vandalism did by no means begin with the arrival of the Europeans, but was part of the reconstruction pattern in the Middle Period, and of the revenge pattern in the Late Period.

Worked stones other than the statues were first commented upon by Agüera (1770, p. 102) during the early Spanish visit. He noticed worked stones "on which may be seen several different figures, squares, oblongs, arcs [*rumbos*], triangles, and trapezia," but it is not entirely clear whether he is talking of relief designs or of the actual shape of the cut stones in fitted masonry walls. Relief decorations on *ahu* were, however, noted by the engineer of La Pérouse's expedition[34], who speaks of "some steps which, on the upper part, have a plinth . . . on which are represented the figures of recumbent skeletons". They appear on the accompanying illustration, reproduced here as Figure 7 *b*.[37]

As is shown above, after the time of Palmer's investigations in 1868, the ceremonial site of Orongo with its countless relief carvings (Pls. 30, 31 *a*)[38] became a regular attraction to visitors. Thus Thomson (1889, pp. 481–482) writes: "The most important sculptured rocks on this island are in the immediate vicinity of the stone houses at Orongo. As much time as possible was devoted to examining and sketching these curious relics. The hard volcanic rock is covered by carvings intended to represent human faces, birds, fishes, and mythical animals, all very much defaced by the ravages of time and the elements. The apparent age of some of the rock-carvings antedates the neighboring stone houses, the images, and other relics on the island except the ruined village on the bluff west of Kotatake Mountain.[39] Fishes and turtles appear frequently among these sculptures, but the most common figure is a mythical animal, half human in form, with bowed back and long claw-like legs and arms. According to the natives, this symbol was intended to represent the god 'Meke-Meke', the great spirit of the sea."[40]

Thomson, too, noticed that some of the *ahu* facing stones had been decorated. He thus says (*Ibid.*, p. 502) of an *ahu* termed Hananakou on the edge of the cliffs next to Ahu Ohau (Fig. 13 *d*), both of which *ahu* were subsequently unfortunately lost into the sea: "This is an exceedingly fine platform, and contains some remarkably large stones. In the face of the main structure are huge blocks of igneous rock that appear to have once been fashioned into faces and figures, but now so destroyed by the action of the elements and perhaps by the hand of the iconoclast that the features can only be dimly traced." Also of the obliterated Ahu Haahuroa near North Cape he says (*Ibid.*, p. 504): "The huge facingstones of this structure have been thrown about as though by some great convulsion of nature, and some of them bear evidences of having been ornamented with sculptured figures." Describing Ahu Akahanga on the south coast the same writer (*Ibid.*, p. 510, Fig. 19) figures a dressed facing-block decorated by an unidentifiable, presumably marine, animal, and says: "On the

[34] Cf. *Heyerdahl*, this volume, p. 64.

[37] The representations on the lower steps are secondary burial cairns of the Late Period. If the drawing is not reconstructed by the artist, this *ahu* apparently remained in perfect condition until at least 1786.

[38] Cf. *Ferdon*, this volume, p. 244, Pls. 30, 31 *a*.

[39] Cf. *Ferdon*, this volume, p. 330.

[40] Thomson (*Loc. cit.*, Fig. 8) illustrates this strongly feline representation of the local creation-god Makemake (confer *Ferdon*, this vol., pp. 251–254), and comments: "The general outline of this figure rudely carved upon the rocks, bore a striking resemblance to the decoration on a piece of pottery which I once dug up in Peru, while making excavations among the graves of the Incas. The form is nearly identical, but, except in this instance, no similarity was discovered between the relics of Easter Island and the coast of South America." Lavachery (1939, vol. 1, p. 100) derived at the chronological deduction that the Makemake figures in the relief carvings at Orongo, antedate the local bird men figures; and Ferdon (this vol., pp. 231, 252–253) reached the very same conclusion.

inland facing-wall there is a ground tier of grey volcanic stone finely dressed, and on this is a tier of tufa stones . . . and these are covered with hieroglyphics." This finely dressed red upper tier of facing-stones of Ahu Akahanga (Pl. 72 *c*) are still to be seen, but the relief motif on this softer Puna Pau scoria are eroded beyond recognition.

Relief decorations on the large Rano Raraku statues, first commented upon by Pinart (1878, pp. 201–202), were further encountered by Routledge (1919, pp. 187–188), who also found red painted human heads, one of which had a goatee beard, carved in high relief on the walls of one of the two caves she visited on Motu-nui (*Ibid.*, pp. 261, 269, 275). Subsequently a group of big-eyed and partly goatee-bearded Makemake heads carved in relief in He-u cave near Puna-marengo were discovered by Lavachery (1939, vol. 1, p. 102) and Métraux (1940, p. 271). The latter are still intact, but Routledge's bearded head was not found by the expedition in 1955–56. The writer, entering seven artificial caves on Motu-nui, found more petroglyphs and relief carvings, including another red-painted human head carved like a mask in high relief.

The older Orongo relief designs, representing Makemake carved in full body with arched back and claw-like legs and arms, described by Thomson as being the most common figure although very much defaced at the time of his visit, are now obliterated together with the fishes and turtles, and the obviously newer bird-men design remains as the dominent and ever-present local motif. Outside Orongo, relief designs on open rock are rare, but Orongo-type bird men in relief were observed in 1955–56 on several rocks on the north side of the Rano Kao crater rim, on a partly exposed boulder inland from Vinapu, and, combined with a Makemake face, on the rock above the water hole inland from Ahu Tepeu. A most peculiar relief of a large twisting snake with a pattern of cup-shaped dots along the back was made known to the expedition near Hanga-o-teo by Englert, whose native guides had identified it with the modern Spanish word *culebra*. The partly overgrown and badly eroded relief is unmistakable in representing a very long winding reptile rather than the short and stout eel.

With the exception of a wing-like geometric design on a facing stone in an *ahu* in La Pérouse bay, and the anthropomorphic figure in Ahu Naunau described by Smith (this vol., p. 209) and illustrated in Plate 24 *c*, clearly distinguishable relief carvings are no longer known to be present on Easter Island *ahu*. However, on Ahu Niho-pou, next to Ahu Naunau, the outlines of several badly eroded and barely discernible relief decorations were noticed at a certain low side light. Although the anthropomorphic relief carving on the hard basalt block in Ahu Naunau was in a fairly good state of preservation, it was obvious from its horizontal position with uplifted arms that it had been turned sideways when reinserted in the facing wall as a secondary Middle Period building block, as was also the case with the broken and overturned Early Period statue head inserted in the same wall (Pl. 24 *c*). An examination of this *ahu* and its immediate surroundings revealed two additional relief carvings, each representing a whale sculptured on the dressed face of a flat slab. One had been turned with its flat side up and covered with dressed but undecorated Early Period slabs to form a solid upper part of the *ahu*, intended solely to support the subsequently overturned Middle Period statues. Through Late Period displacement of some of the upper slabs, the projecting snout of the whale barely projected from the mass of stones. The second whale relief, almost identical with the first, but slightly smaller, was discovered while overturning for inspection the upper slabs in a jumbled stone pile immediately to seaward of the same *ahu*. Four additional line petroglyphs of whales, incised merely as vague and eroded outlines on slabs, were encountered among stones scattered to seaward of this *ahu*.

Relief sculptures of whales are not previously reported from the island. The fact that one of the two whale reliefs had been discarded as a sculpture, overturned, and inserted as a building block in a Middle Period reconstruction of an Early Period edifice, indicates that the specimen is an Early Period relic, like the broken and overturned statue head of aberrant type reused in the same Middle Period wall. Whether the two whale reliefs, which are certainly closely affiliated, originally were inserted as decorations among the dressed facing- or cap-stones of the *ahu* cannot be determinated. They differ from the anthropomorphic relief figure in the same *ahu* by the irregular outlines of their slabs. One of the two specimens discovered was brought to Chile, the other to the Kon-Tiki Museum, and is described below.

Cat.no. 1304 (Pl. 89 *a*): Whale relief. The material is a flat slab of hard, vesicular, greyish-red igneous rock. On one side is carved a porpoise in low relief.

The length of the slab is 119 cm., the maximum width 64 cm., and the thickness about 26 cm. The length of the whale relief is 118 cm., and its width 32 cm.

This specimen was found face up underneath the upper tier of masonry slabs in the seaward wall of the central platform at Ahu Naunau. The second specimen was very similar and only slightly smaller.

Zoomorphic Figures

Incised line petroglyphs of various marine species, birds, lizards, and spiders are common on Easter Island, and are duly recorded by Lavachery (1939). Zoomorphic stone sculptures in the round, however, appear to be extremely rare. None has been observed among the natives in historic time, although Métraux (1940, p. 264) states: "Natives still remember that formerly fishermen carried in their canoes stones selected for their shape which were supposed to bring good luck. Some looked like fish, others like cocks, and some suggested the form of a man."

Unquestionably, a great deal of secrecy and superstition surrounded these smaller 'good-luck stones', and from our own experiences on the island we have good reason to suspect that they were not always unworked stones, but that carved specimens are still too treasured to be volontarily disposed of by a living proprietor. Through an accident with a fallen wall, the ancient sculpture of a stone fish became known to Brown (1924, p. 158, Pls. pp. 152, 166) during his stay. The carving was very similar to the well known ancient good-luck sculptures for fishermen observed by Brown in the Marquesas group. The 35 cm. long, narrow oval stone fish with round bulging eyes was interpreted by Brown as "evidently a talisman for the increase of fish".

Four zoomorphic specimens with similar, non-ethnographic provenience were collected by the expedition, and are described below.

Cat.no. 1011 (Pl. 89 *b*): Double-headed *moko*. The material is grey and vesicular, but hard and heavy, basalt. The stone is carved to a very oblong, almost cylindric shape with rounded ends, and is further modified by steps and grooves to form a crude, double-headed mythical animal generally known to the modern islanders as a *moko*. The cylinder is divided into three almost equal parts by two transversal grooves encircling the sculpture except for its somewhat flattened ventral side. The two grooves represent the necks at each end of a common central body, and each of the two opposed head sections are stepped from the dorsal side to form a forehead with a snout, pointing in opposite directions. Double longitudinal grooves follow the sides of the body, and adds to the general similarity to the conventionalized creature depicted in cat.no. 1924.

The length of the sculpture is 29.5 cm., the average width and thickness is about 7 cm., with a slight depression along the ventral side.

The specimen was found in an old habitation cave near Hanga-roa.

Cat.no. 1294 (Pl. 89 *c*, Fig. 123): Double-headed *moko*. The material is the same hard, vesicular basalt as in cat.no. 1011, and the general motif appears to be closely related although executed in a different form. The sculpture is almost spheroid, with a slight flattening of the ventral side, the rest of the surface being covered by a double-headed animal carved in low relief in such a manner that the heads face in opposite directions on each side of a round mutual body. The heads are represented as Makemake masks, with a straight narrow nose split on top into Y-shape, each branch continuing in relief as eyebrows running on in an almost complete circle back towards the nose while encircling two large and bulging round eyes. The mouth is not indicated. The masks, representing the heads, are connected through a short spinal column from which extend four curved legs, each placed directly above the eyebrows and running concentric to eyes and eyebrows until terminating directly below the eyes.

The average diameter of the stone is about 23.5 cm., the circumference from one nose tip to the other is 39.5 cm. The specimen was found between the lava boulders covering the *ahu* at Hanga-tetenga.

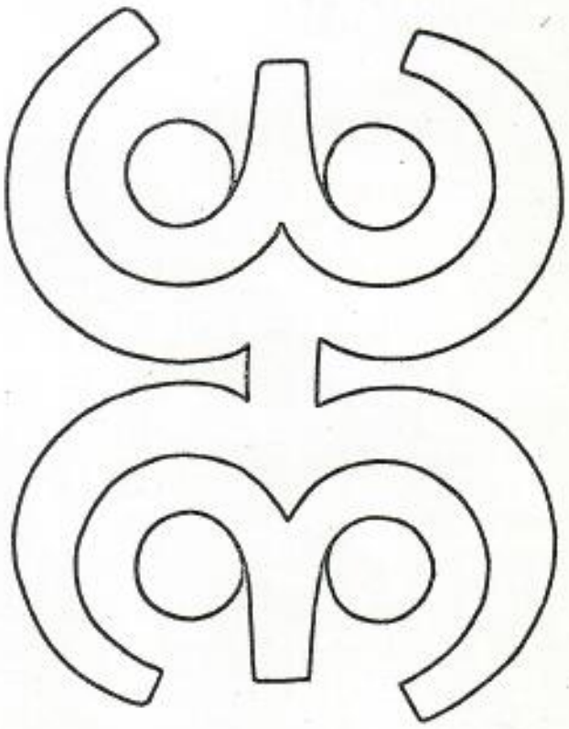


Fig. 123 Design on cat.no. 1294

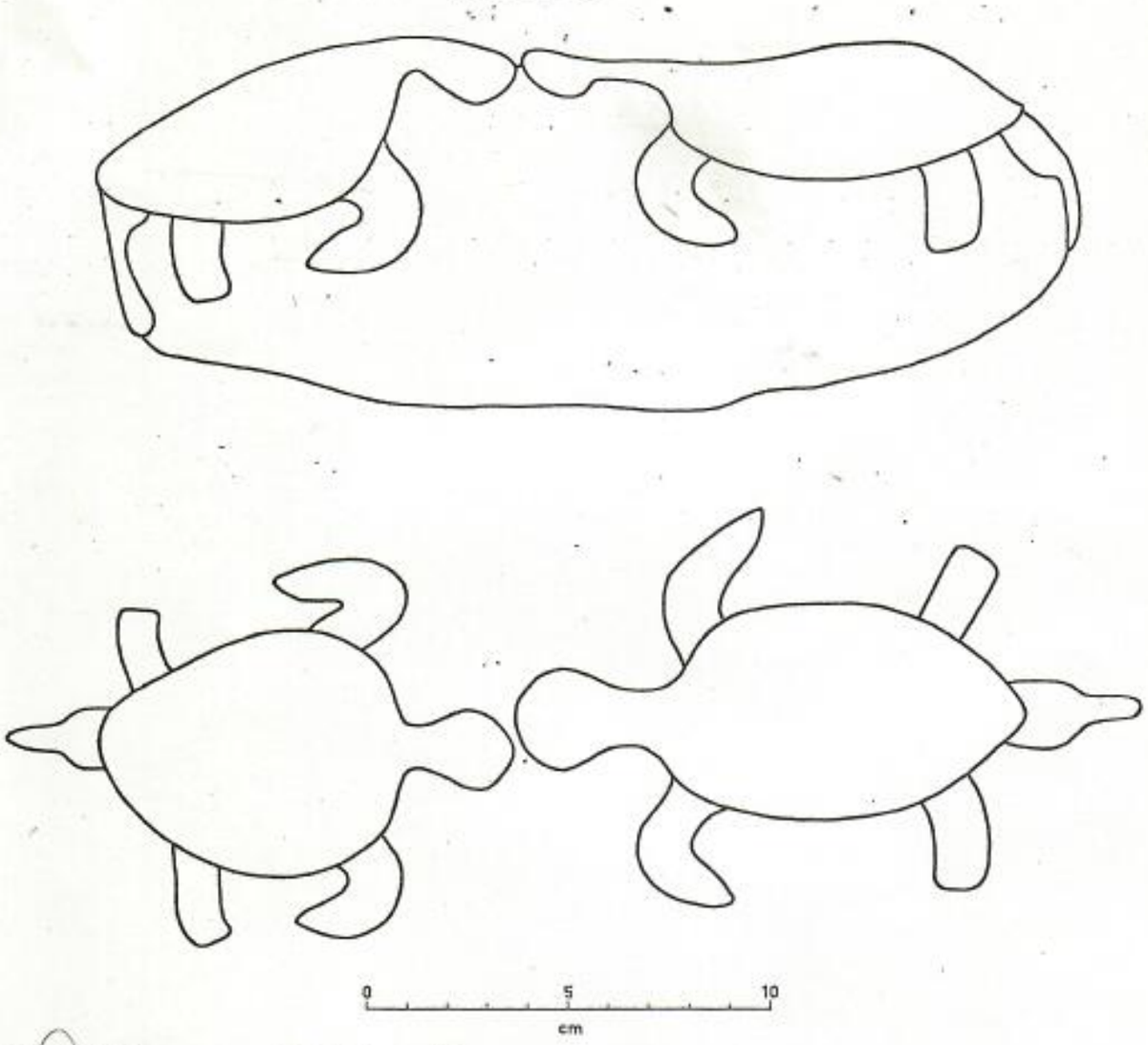


Fig. 124 Design on cat.no. 1059 side view and plan

Cat.no. 1137 (Pl. 89 *d*): Sea urchin. The material is hard and fine-grained basalt of grey color. The general shape is a rounded cone with some characteristics of the edible local sea urchin. The symmetry and fine workmanship of the sculpture is very remarkable. Four narrow ribbons in low relief run from the rounded apex down towards base, thus dividing the cone in four equal segments. At the strongly curved transition to base, each ribbon forks into two branches, each of the same width as the original ones, which now curve in both directions near the periphery of the base, to overlap and unite with the meeting ribbons from the neighboring forks, and thus outlining a star-shaped square with curved sides and sharply pointed corners that decorate the convex base.

The height of the sculpture is 8.7 cm., the maximum diameter is 9.5 cm. The width of the ribbons is about 8 mm., and their maximum relief where not eroded is 1 mm.

The marked patina and surface erosion of the piece show that it is undoubtedly genuine, but the young slightly sullen native who offered it for sale for a price far below proportion to the work embodied in the fine sculpture, had no comment concerning the motif or

provenience beyond the statement that he had found it. The probable provenience is a cave.

Cat.no. 1059 (Pl. 89 *e*, Fig. 124): Stone with turtles. The unique piece is carved from an oblong and somewhat flattened beach stone of extremely heavy and hard andesite. Along one of the longitudinal edges are two realistic turtles carved in low relief, with their heads nearly touching. The turtle carapaces curve across the edge in such a manner that the animals straddle, each with one front and one hind fin on opposed faces of the stone, their long stretched tails curving down the narrow ends.

Although some details disappear in the more eroded surface sections of the stone, the motifs are readily identifiable, and are rendered in plain and side view in Figure 124, Plate 89 *e* showing the opposite side of the stone.

The length of the stone is 24.5 cm., the maximum width and thickness respectively 8.5 and 5.9 cm. The length of the two turtles is respectively 11.1 and 14.4 cm.

The piece was discovered in a cache near Rano Raraku. The marked erosion of the hard stone surface including that of the sculptures may indicate considerable wear in water, and the piece might have been formerly used as a talisman to attract or increase the number of turtles. Turtles no longer frequent the island.

Stone Statues

In marked contrast to the rare animal sculptures known from the island is the almost incredible number of large statues and small figurines in human form. The monumental statues are especially numerous, a fact that may be partly due to the difficulty in disposing of them through either destruction, concealment, or sale. We have seen that Englert has numbered more than six hundred monolithic statues scattered about the local terrain, carved in Rano Raraku stone (*maea matariki*), and, with slight variation in the proportion between height and width, all representing various sizes of one uniform and conventionalized type.

Some very few Easter Island statues deviating from the local norm, principally in the material of the sculpture, have been previously reported from the island. Strangely enough, two of these exceptional pieces are among the extremely few statues ever removed from the island; one is exhibited in the British Museum, London, and the other in the Musée du Cinquantenaire, Brussels, both carved from basalt. The former of the two, the first one to be carried away and one of the finest but smallest statues found on the island, was the famous Hoa-haka-nana-ia, discovered in a stone house at Orongo by the H.M.S. *Topaze* party in 1868. This statue differs from the general norm in originating from some unknown basalt quarry rather than from the usual Rano Raraku image mountain, and is also aberrant in having a contracted bottom designed for embedding in earth rather than on an *ahu* platform. Being carved from a more enduring stone than normal, and kept indoors at Orongo, it is perhaps not so surprising that decorations both in low relief and in white and red paint were preserved until historic times.[41] It is most noteworthy, however, that Routledge (1919, p. 263) found that the bird men and also the *ao* and vulva symbols carved on the back of this basalt statue were roughly carved and appear "to be later workmanship than the raised ring and girdle".

A fragment of another aberrant statue was noted but only briefly commented upon by Thomson (1889, p. 507) when he wrote of the large Tongariki *ahu*: "The hard stones of which the sea-front of this platform is constructed are of immense size, faced and neatly joined together. One of the foundation-stones in the center of this wall is of red tufa and represents a human head."

Several visitors have also observed a dark, greyish-black basalt statue inserted in the seaward wall of Ahu Mai-taki-te-moa on the north coast. Routledge (1919, Fig. 42) and Brown (1924, Pl. p. 24) illustrate the wall with the built-in statue, Métraux (1940, p. 291) briefly mentions it as a basaltic statue at Puna-marengo, but none has given much attention to its unique position. The statue is shown in Plate 68 *b*, and Routledge's illustration, showing the typically reconstructed Middle Period *ahu* in which the aberrant statue is incorporated as a building block, is reproduced here in Figure 125. Routledge comments in her caption: "A statue from Raraku lies in foreground; another statue of different stone forms part of the main wall." Much of the seaward wall is actually built of large, standing irregular slabs, filled in and superimposed by horizontally overturned, possibly Early Period *paenga* and masonry slabs. The short and broad basalt figure is set into the wall with the back flush with the seaward facade, front and sides until recently hidden inside the masonry. Visitors subsequent to Routledge have removed part of the facing stones and core fill above the head, leaving the right corner of the face exposed, with oval eye concavities and a raised nose discernible. A contraction at base

[41] Routledge (1919, p. 257, Pls. 31, 106); *Heyerdahl*, this volume, p. 74; *Ferdon, Ibid.*, pp. 234, 249, 253.

accentuate the hollow cheeks; long extended ear-lobes; and always a goatee beard that curls back on the chin (*Ibid.*, p. 251). The abdomen recedes, and the ribs and backbone protrude as on a famished person. The most remarkable fact is perhaps the perfectly standardized physiognomy of this starving person which is known to every child on the island, and is said to have been carved in this identical manner since the models were first seen on the island by the traditional immigrant king Tuu-ko-ihu. Several writers, among them Routledge (1919, pp. 269–270) and Brown (1924, pp. 139–140), have recorded the consistent tradition of how the immigrant king Tuu-ko-ihu saw two of his famished models sleeping in the Puna Pau topknot quarry, and hurried home to carve their image in wood lest their appearance should be forgotten. According to Routledge the models were two emaciated ghosts, or *aku-aku*, according to Brown's native informants they were "aborigines who had been driven into the mountains by the new-comers and then driven frantic by famine" And: "So afraid was he lest any detail should fade from his memory that he sat down at once and carved the first *moai kavakava* . . ." According to local beliefs, the model of the long-eared figure with the goatee beard and aquiline nose is thus considered to be either some *aku-aku* residing in the topknot quarry on Tuu-ko-ihu's arrival to the island, or famished survivors of an earlier population driven to the hills by the new-comers. It would otherwise appear that a natural form for a ghost to take in the Easter Island cultural context would be just such a shrunken long-eared cadaver.

Whatever the inspiration behind this locally important figure may be, the actual carving of the firmly standardized type is undoubtedly based on an ancient artistic tradition. The physiognomy of the realistic and strongly human *moai-kavakava*, with the sagging upper cheeks, the goatee beard, the elongated ears, and the very hooked nose, may add interesting evidence towards a final interpretation of some elements present in different phases of the local stone-shaping art.

As stated, *moai* figures in wood have never been encountered archaeologically on the island. A logical reason would seem to be that wood does not stand up to enduring exposure. This can only be part of the explanation. An ancient root of hoarded *toromiro* wood, the two earlier described elements of wooden eel-snares, and a wooden turtle head were collected by the expedition, all in a fair state of preservation due to shelter in dry caves. The natives still search for the lost entrances to *ana miro*, or specially dry and ventilated storage caves for wooden objects, making *umu takapu*, or small ceremonial earth ovens, in the hope of increasing the chance of discovery. Yet, the only wooden artifacts they believe to have been deliberately hidden away are the *kohau rongo-rongo*, or written tablets, of which specimens are known to have been found in secret caves. This again indicates that the wooden clubs and dancing paraphernalia, the wooden ornaments, and the wooden *moai* carried to the dances were considered of more secular nature, or at least less sacred and respected than the treasured written boards and the household stone heads and figurines, of which most disappeared into caches at the introduction of Christianity.

The wooden turtle head collected by the expedition (cat.no. 1189, Pl. 96 *a, b*) was discovered in a habitation cave in Hanga-o-teo prior to our arrival. From the description it was probably not deliberately concealed in a cache, but left behind where last stored by the final occupant of the dwelling. Hanga-o-teo has not been occupied since pre-missionary times. A corresponding head

from the Bishop Museum collection is figured and described by Métraux (1940, p. 233, Fig. 29 *a*), who also identifies it as the head of a turtle, *honu*, and says that it is little doubt that this artifact was worn about the neck in a string like the ball-shaped *tahonga* ornament.

The material is a hard and fine-grained reddish wood, probably *toromiro*, carved into a vaguely flattened ovoid form with the pointed end forming the turtle's beak. The carving is bilaterally symmetrical, each side with a large round eye dominating its widest half section. Each eye centers around a pupil formed by a circular obsidian disc measuring 1.6 cm. in diameter, and inserted into the wood. A raised circular band, 9 mm. wide, directly encloses the black disc. Immediately in front of this ring is a narrow sickle-shaped relief forming almost a half circle. The ring and the adjacent sickle-shaped relief are jointly encircled by a raised spiral, beginning below and behind the eye and running forwards and around with increasing width until encircling the central section one and a half times, ending in a new point at the corner of the beak. The rear section of this band is covered transversally with V-shaped incisions giving the appearance of a plaited rope. The opening of the beak is a lenticular depression with two rows of parallel and oblique incised lines. Roughly parallel with the beak and on both sides of its opening run other incised lines which converge at the point of the beak. The upper lines are interrupted on both sides by wide nostrils consisting of two concentric circles enclosing a small conical hole, 3 mm. wide, and equally deep. At the neck end is a perforation surrounded by a raised oval ring which is placed vertically with outer diameters measuring 1.9 by 2.3 cm., and inner diameters 4 by 6 mm. This perforation continues as a curved tube to another hole at the ventral side of the head and 1.5 cm. distant. The ventral surface is transversally deeply concave throughout its length, and the beak section is covered entirely by the continuation of the parallel lateral furrows which join along the centerline in a continuous V-shaped pattern. Between the beak and the ventral perforation hole, and placed side by side, are two cup-shaped depressions 6 mm. wide and 3 mm. deep. Each is surrounded by two raised and concentric rings, with an outer diameter of 2 cm. When found, the carving was covered by white paint. This was unfortunately removed by the owner, and only traces remain in the furrows. The left obsidian eye is original, but the right was replaced by the owner when the original was lost in his house.

The length of the head is 12.9 cm., the maximum width and thickness is respectively 8.5 and 6.6 cm.

The excellent carving and intricate composition of this wooden turtle head, like all other local wood carving from the early historic period, form a marked contrast to the crude stone-shaping art on the island in the same epoch. Smith (this vol., Repts. 4 and 6) shows that obsidian scrapers increase in prevalence in relation to other artifacts in the Puapau and O-hae caves, and are especially prevalent in the Maunga Auhepa refuse. This he interprets to indicate increase in wood carving in Late Period times.

In consequence it may be concluded that wood, rather than stone, was the favored working material of Easter Island artists in the Late Period, and that sufficient wood was obtainable to make it unlikely that the numerous special features in the local culture can be altogether explained through the scarcity of forest. Furthermore, historical, archaeological, and palaeobotanical evidence argue that the island was more heavily wooded in former times. As this report goes to press, a letter from Mulloy brings us up to date on the Chilean government's efforts to replant the island. The eucalyptus plantations in various parts have done very well, and new trees are planted. *Miro tahiti* trees have also caught on, and with these for shade, experiments with coffee have proven rather successful, and many Easter Islanders are either starting or planning fairly large coffee plantations. Mulloy also found considerable changes especially in the Hanga-roa area, where "there are many more trees and more general vegetation than before". And: "During the year about 500 coconut trees were planted in the vicinity of Anakena and about 100 additional ones were planted by private persons in Hanga-roa. Most of them seem to be doing well. Also a lot of breadfruit trees were brought in from Tahiti. They seem to be doing less well, but probably some of them will produce. All this suggests strongly to me that this island formerly had a good vegetation and in the future will be capable of producing it again."

SUMMARY AND DISCUSSION

The non-perishable artifact complex of Easter Island is well represented in the material from the excavations reported above and from the collection of surface artifacts. The material culture of Easter Island differs markedly from that of adjacent sections of Polynesia. This difference may be due to environmental factors, to cultural complexity involving arrivals from outside Polynesia, or to both of these possibilities.

The presence on Easter Island of obsidian permitted the manufacture of a wide variety of tools and weapons absent throughout the rest of Polynesia. The principal

of these, and probably the most common and characteristic artifact on the island, is the *mataa*, a tanged obsidian blade which in historic times is known to have been lashed to a stick to serve as a pike for thrusting and as a javelin for throwing. The shape of the blade was generally fortuitous and intended for slashing rather than penetration, the tang being the only consistently worked and standarized feature. This artifact is characteristic of the Late Period on Easter Island, although it is possible that it was present in small quantities towards the end of the Middle Period, and perhaps developed from a short-handled[48] cutting tool (Fig. 99 B) or, perhaps, originally from a tanged knife blade as is rather convincingly postulated by Ferdon (this vol., pp. 309–310, Fig. 80, Type A, left).

A fighting weapon resembling the *mataa* of Easter Island is unknown elsewhere in Polynesia, and tanged spear-heads of other materials are not reported from other island groups. A unique Easter Island artifact of basalt (Bishop Museum, cat.no. 3556a) is shown by Métraux (1940, p. 168) to be of the same morphological type as the *mataa*, with chipped tang and rounded triangular blade, but the greater size (13.5 by 16.3 cm.) and the bluntness of the ground edges make the function of the artifact uncertain. Métraux (*Ibid.*) remarks that *mataa* are frequently figured among the signs on the Easter Island tablets. The only comparable artifacts inside Polynesia seem to be certain flint and chert knives of the Morioris of Chatham Islands. These occasionally approach the *mataa* in form, with a crudely chipped tang and a rather fortuitously shaped cutting edge at the opposite end of the blade. The relationship seems to be further strengthened by the tang on some ethnological specimens being lashed to a short wooden handle (*Skinner*, 1923, Pl. 26), and by the fact that the Moriori term for this implement is *matā*, which is their word for flint in general. These Chatham Islands specimens, with or without wooden handle, were used in cutting up grampus or any other variety of whale for food, the blubber of which was considered a great relish by the Morioris. Obsidian is known from an underwater reef at one of the Chatham Islands, and Skinner (*Ibid.*, p. 98, Pl. 26 g) illustrates a tanged Moriori obsidian *matā* from the Canterbury Museum, which in size and shape has much in common with an Easter Island *mataa*, a comparison which is also suggested by him. The same writer (*Ibid.*, pp. 98–99) adds that no hafted examples of flint knives have been recorded from New Zealand, "though some of the Otago flint implements, also called *matā*, approach the Moriori *matā*, in shape." Obsidian axe blades are known from British New Guinea, but their resemblance to a *mataa*, other than in the material, is rather remote and unconvincing. Outside of Easter Island only two obsidian artifacts, indistinguishable from the *mataa* in material, size, and form, have been found, both when a railway cutting intercepted an aboriginal burial place at Llolleo near the Pacific coast of central Chile. No European trade material was found in association, and Aichel (1925, pp. 267–269) who, together with Dr. Oyarzun of the Anthropological Museum in Valparaiso, discovered the two obsidian artifacts, claims that the cemetary of Llolleo is certainly pre-Columbian and that the specimens cannot be explained through possible exportation from Easter Island in historic times. The Llolleo specimens appear to be unique in Chile, if we exclude an undocumented earlier statement by Krämer (1906) to the effect that the Easter Island obsidian spear-heads recall very much certain finds in tombs northwards from Caldera in northern Chile. As shown by Smith (this vol. pp. 270–271), the relative recency of the popularity of the *mataa* on Easter Island, as revealed by excavation, would seem to contradict Aichel's conclusion and suggest a post-contact spread of the *mataa* to the Llolleo burial place. Unless further specimens are documented from the South American mainland, it would appear that Easter Island, rather than Chile, is the place of origin for the true *mataa*.

Obsidian cutting tools, drills, and scrapers representing a great variety of shapes and sizes combine to form the numerically dominant artifacts on Easter Island. Most specimens are unworked flakes of fortuitous shape, often showing use-retouch on one or more edges, but several varieties of shaped tools occur, which according to their repreatedly reoccurring forms may be segregated into distinctive types. Excavations reveal that most of these occur in Middle Period contexts, and some, well adapted for wood carving, increase in popularity and quantity in Late Period refuse, a fact interpreted by Smith as evidence for an increase in wood carving activity during this period. Some of these obsidian implements, which were probably used as chisels or planes, are axe-like in shape, and four of the largest specimens, which are strongly reminiscent of double bevelled axe-blades, were found in a *hare moa*, suggesting a Middle Period pro-

[48] The interpretation that the smoothly terminated, short-handled specimen illustrated by Routledge and reproduced above (Fig. 99 B) might originally have had a longer shaft which was cut by the collector to facilitate transportation is hardly tenable, as Routledge, with her private yacht at hand, would hardly have needed to mutulate a valuable specimen, nor does she include any statement to this effect.

venience. Another consistent form of obsidian artifact is shaped as a dagger, with a handle which is chipped and often partly or entirely pecked to fit the grip of a hand.

A heterogenous assemblage of basalt adzes, picks, and double bevelled axes or celts are present on Easter Island. The latter, which are in a minority, have been found in dateable Middle Period contexts. Crude picks, used as hand-axes or *coups de poing*, are numerically in a majority on the island, with a marked concentration in the quarry débris of the Rano Raraku area, and are likewise datable as Middle Period. The possibility that the celts and picks were present also in the Early Period can neither be verified nor denied due to the dearth so far of datable Early Period refuse. It is noteworthy, however, that these single or double pointed cutting tools from the Easter Island quarries are not reported from other Polynesian islands. The closest correspondence would seem to be the coarsely flaked and pointed basalt picks encountered by the expedition in the Pitcairn image quarry,[48] but these are much more slender and often approach the shape of a Type 6 adze, and very probably were hafted. Early quarry tools of the Andean area have not been reported, and local quarries, such as those of the extinct volcano Apia, from where huge blocks were brought to Tiahuanaco, have not been investigated. Quarry tools of the very same type as those used on Easter Island were, however, used among Middle American high cultures, and are reported and illustrated by Holmes (1919, pp. 337–338, Fig. 198) from the megalithic quarries of Mitla.

The heterogeneous Easter Island adze complex, reported in a subsequent volume of expedition papers by Figueroa and Sanchez, was found by them to include specimens of Type 2-A and B with variants, Type 2-C and E, Type 3-D and E, Type 4-D with variants, and Type 6.[50] They conclude that Easter Island is hard to include in a geographical pattern, and that its adze complex, though with Eastern Polynesian relationships, cannot be compared satisfactorily with any particular locality. Only the Marquesas demonstrates enough similarities to suggest specific relationship (Types 2-E, 2-F, and 4-D), and yet the characteristic pecking technique of adze manufacture, which is particularly rare in that group, is, in marked contrast, very important on Easter Island.

Finely ground basalt saws with modified elongated oval outline and bilaterally bevelled edge are common on Easter Island. This artifact has formerly been referred to as a stone knife, but an examination of 29 complete and fragmentary specimens collected by the expedition reveals that they are useless as knives if applied to harder substances such as wood or bone, whereas they are ideally adapted to the function of a saw. Specimens of worked bone reveal that sawing was a common technique in the manufacture of fishhooks, needles, and other artifacts, some of which were basic elements in the Easter Island culture at least since Middle Period times. The stone saw, accordingly, is an important element in the culture. No apparent prototype is reported from Polynesia. Referring to the Easter Island tool as a knife, Métraux (1940, p. 283) writes: "Bennett [1931, pp. 63–64] describes a few stone knives found on Kauai in the Hawaiian islands. They are somewhat like Easter Island knives but are far more crude, and lack the semicircular cutting edge characteristic of Easter Island specimens. The stone knife in Polynesia seems to be a culture trait without significance for comparative purposes." Two coral and one lava saw used for fishhook manufacture are illustrated by Emory *et.al.* (1959, Pl. 6) from Hawaii. The latter has one curved edge slightly reminiscent of Easter Island basalt saws, but is otherwise trapezoid and considerably smaller. Stone saws are common on the Pacific coast of South America. Archaeological specimens from the north coast of Chile, also used in fishhook manufacture, were included in the American Museum of Natural History exhibit "Across the Pacific" for direct comparison with Easter Island stone saws. The characteristic form of the Easter Island tool, however, still seems to be restricted to a local distribution.

It is noteworthy that a distinctive type of basalt side scraper has the same general form and size as the basalt saws. It differs morphologically from the latter essentially in having all edges intentionally ground dull and unfit for function as either saw or knife. These tools must have been used for scraping, cleaning, or polishing some soft and perishable material which would have been damaged by a sharper cutting edge. A distinct and characteristic form of basalt end scraper with converging and often slightly concave sides has the same dull working edge and may have served the same or a similar function. The latter type is reminiscent of Marquesan scrapers used in tapa making and commonly made from shell (*Linton*, 1923, p. 331, Pl. 48 E). Similar tools are known from the Chatman Islands (*Skinner*, 1923, Pl. 28 g) where they may have been used as sealskin scrapers, since tapa was absent.

[48] To be reported upon by Skjölsvold in a subsequent volume of expedition papers.

[50] In addition, Smith (this vol. p. 268) excavated a Type 4-E adze from the upper level in O-hae cave.

Stone files, abrasive stones, polishing stones, and sharpening stones are frequently found. They resemble those found both within Polynesia proper and on the mainland of South America. The cylindrical abrasive stones and the elongated concial stone files tend to assume a standardized form which, however, appear to be purely functional, at least in regard to the files which occur in almost identical form *e.g.* in Hawaii (*Emory*, et.al., 1959, Pl. 6), Easter Island (this vol. Pl. 73), and north coastal Chile (*Heyerdahl*, 1952, Pl. 86). In all of these areas the tool was used in preparing the interior curve of one-piece bone or shell fishhooks.

Among the bone artifacts that constitute an important part of the Easter Island tool complex, none occurs as commonly as the bone needle. Bone needles with eyeholes have a sporadic occurrence in the Pacific area, but to the knowledge of the writer, with the possible exception of some Northwest Coast shell middens (*Heyerdahl*, 1952, p. 137), it is not usually an important artifact numerically. On Easter Island one hundred and sixty-three complete and fragmentary bone needles were excavated or collected by the expedition and, together with obsidian artifacts, were the most common tools in refuse from boat-shaped houses and habitation caves. Larger bone needles with eyeholes were used in Hawaii for sewing together layers of tapa to make thick blankets, but as shown by Métraux (1940, p. 215) these are more like the long and thick specimens from Tonga, Fiji, and Wallis Island that were used for sewing mat sails than the delicate bone needles with much smaller eye holes which are characteristic of Easter Island. As shown by the same writer, inside Polynesia the closest affinity to the Easter Island bone needles is found in some archaeological specimens of unknown use from New Zealand and Chatham Islands (*Steele*, 1930, pp. 310–314; *Skinner*, 1923, Pl. 9 c). The latter, however, are considerably larger than the bulk of Easter Island needles, and Métraux's (1940, p. 215) statement that the occasional presence of two eyes on one needle is common to Easter Island and New Zealand must be modified. The double eye is an anomaly on Easter Island needles. It did not occur on a single specimen of the large collection described above. The reason for the remarkable importance of small sewing needles on Easter Island is most certainly to be found in another cultural difference between this island and the rest of Polynesia, *i.e.* in the locally divergent method of bark-cloth manufacture. As stated by Métraux (*Loc. cit.*) with reference to the treatment of tapa: "Easter Island is the only place in Polynesia where strips were fastened together by sewing. Elsewhere in eastern Polynesia the strips were felted together; in western Polynesia they were pasted." Obviously this difference in tapa manufacture would create a corresponding difference in the need for small sewing needles, and as Easter Island is the only Polynesian area where the bark strips are sewn together with fine strings of *hau* rather than being merely beaten or pasted together, this peculiarity would naturally be reflected in the local tool complex.

The difference in cloth manufacture goes beyond the final sewing of bark-strips on Easter Island. The grooved wooden tapa beater so characteristic of all the tapa-yielding islands of Polynesia proper seems not to have been part of the Easter Island artifact complex. In premissionary times smooth and unworked, or carefully rounded and polished, beach stones were used for beating the *mahute* bast once it was stripped off the tree and the bark had been removed from the bast with a scraper, probably one of the dull-edged basalt types discussed above. It is difficult to account for this divergence from the general Polynesian pattern of tapa manufacture by attributing it to a scarcity of wood on Easter Island. Archaeological, palaeobotanical, and, not the least, historical evidence show that there was more than adequate material at hand to provide the entire population with the customary Polynesian tapa mallets. The diversity of tools employed in tapa manufacture on Easter Island, in spite of the presence of the Polynesian *mahute*, thus creates a problem.

The second of the two principal and characteristic household implements of Polynesia proper, the *poi* pounder, is also lacking on Easter Island. This is equally remarkable in as much as *poi* pounders of most elaborate forms are dominant elements in the archaeology of the Marquesas group, Rapa Iti; and other East Polynesian regions from which the Polynesian stock on Easter Island could be expected to have come.[51] The absence of *poi* pounders in the archaeology of Easter Island is immediately explained through the absence of the fermented *poi* in the diet of the local population. This is equally surprising however, since *poi* was the food staple of all the aforesaid Polynesian communities, and taro, which was a principal ingredient in the preparation of *poi* in the Marquesas and the Tuamotus, and the only one in Rapa Iti, was cultivated, although considered of secondary importance, on Easter Island. The absence of *poi* on this island is the more remarkable as the storage of this Polynesian food product would have carried the Easter Islanders through many of their severe periods of food

[51] Linton (1923, p. 337) writes: "Pounders were, with the possible exception of adzes, the commonest of Marquesan stone artifacts, and they still form a regular part of the domestic equipment of all native households."

scarcity and starvation, of which their history is replete (*Brown*, 1924, pp. 182–183). The absence of the pan-Polynesian stone *poi*-pounder on Easter Island can, at any rate, not be ascribed to local scarcity of workable material.

A lesser problem is created by the absence on Easter Island of an equivalent to the culturally important Polynesian *kava* making. *Piper methysticum* was not grown on Easter Island, and yet the ceremonial drinking of a salivary ferment from various vegetable products was almost universal in the Polynesian and Polynesian-affected sections of the Pacific, as well as all through Pacific South America northwards into Mexico (*Heyerdahl*, 1952, pp. 651–654).

Turning next to the aboriginal fishing methods on Easter Island, archaeological material is almost entirely confined to the presence of non-perishable fishhooks. Bone awls and bone netting tools are found, and the latter were in all probability used in fish-net manufacture which, according to historic sources, was highly developed on the island. Métraux (1940, p. 188) found that a comparative analysis of Easter Island nets was almost impossible, because, with few exceptions they are known only through secondary descriptions. Both Geiseler (1883, pp. 37, 42) and Thomson (1889, pp. 459–460, 535, Pl. 13), however, were much impressed by the great variety of remarkable fish-nets on Easter Island, and by the fine lines and strong cordage from which the different types were made. Thomson states that the heavy ropes were made from *hibiscus* bark and the fine threads from an indigenous hemp (?), whereas Geiseler describes the principal fish-nets and lines as manufactured from *totora* reed cut in the crater lakes and beaten into fibres. He claims that nowhere in Polynesia were similar nets manufactured.

Wooden components of eel snares were collected. Ethnological specimens are known, and these concur closely with specimens used in Rapa Iti.

The unusually heterogenous fishhook complex of Easter Island is well represented in the expedition's collection. Of fairly common occurrence is a large one-piece hook of hard, close-grained basalt, with circular shank and point and smoothly polished surfaces. The hook is masterfully designed for strength and balance and represents perhaps the finest example of stone working art in the Pacific. Three complete and thirty-eight fragmentary or unfinished specimens were excavated or collected, and comprise a sequence revealing the complete manufacturing technique. No datable finds were included, but Mulloy, on his subsequent return to the island in cooperation with the University of Chile, reports stone fishhook fragments from cremation burials dating back at least to Middle Period times. Such fishhooks are generally considered characteristic of, and restricted to, Easter Island, and a single specimen reportedly derived from Pitcairn has been considered of doubtful provenience (*Métraux*, 1940, p. 181). Three additional samples reported by Skinner (1923, Pl. 8) from the Chatham Islands are generally overlooked as they are identified by him as pendants for personal decoration. His illustrated specimen, although considerably larger, shares all its characteristics with the Easter Island hook reproduced in Plate 73 *a* of the present volume, and is thus briefly described by Skinner: "Stone pendant in the form of a fishhook. It is beautifully cut from grey basalt and is the best example of work in this material that I have ever seen." The possibility that the Chatham Islands hooks, even if worn ethnologically as pendants, represent a survival of a former fishing implement related to the archaeological specimens of Easter Island, must be considered. The only other now known center of apparently closely related stone fishhooks is the Santa Barbara region of California, where archaeological specimens are not uncommon in local excavations both on the mainland and the coastal islands. The striking morphological resemblance between these hooks and their counterparts on Easter Island was pointed out by the American Museum of Natural History exhibit "Across the Pacific". Anell (1955, pp. 141–142), in his study of Pacific Island fishhooks, also sees a possible link between the one-piece shell hooks of this specific American area and those of Polynesia. Although recent excavations have revealed related forms of circular shell hooks at sites as far south as in Ecuador, Peru, and Chile, a corresponding distribution is not verified for the aforesaid specialized stone specimens, although a few hooks of chipped stone are found in a site examined not far from Arica in northern Chile (*Ibid.*, p. 138).[82] It is interesting that an unverified tradition of the nearby Tiahuanaco region claims that "the Aymara used to fish with stone hooks 'carved out of pumice'." (*Anell*, 1955, p. 139). According to Anell (*Loc. cit.*) there is also mention of stone fishhooks from Chile in older Dutch sources. Future excavations may throw further light on this problem.

Numerically dominant in the Late Period fishing culture of Easter Island are one-piece bone fishhooks of both U-shaped and circular form. Seventy-one complete or fragmentary specimens were excavated or collected. They vary greatly in form and may be segregated into a variety of types according to the shape of the head with associated binding constrictions, the presence or absence

[82] At the Punta Pichalo site near Pisagua.

of a barb, the presence of a straight, angular, or curved shank, the ratio between the width of the bend and the height of the point, and the presence of a straight or incurved point. Although the wide variety of Easter Island one-piece bone hooks seems to be interrelated, the U-shaped jabbing hook with rather straight shank and point seems to be dominant during the Late Period well into historic times, whereas circular forms are found with the earliest datable deposits belonging at least to the beginning of the Middle and possibly to Early Period times. Related forms variously carved in bone and shell have a wide distribution in Polynesia, and on the peripheral Polynesian islands of eastern Melanesia and eastern Micronesia. They do not occur at all in Indonesia, where bone, shell, and stone hooks of any form are absent, and Anell (*Ibid.*, pp. 120–121) shows that the only type of fishhook that can be cited from Indonesia and south-east Asia is the primitive thorn-hook, on which the shank and point are formed by a section of a wooden stem with its remaining thorn. The same author shows that, while the U-shaped type of hook appears in northern Asia, particularly in Japan, circular hooks are not found in Asia at all.

U-shaped, rounded U-shaped, and circular hooks occur sporadically, however, both in North and South America, with marked concentrations in the aforesaid Pacific regions of Santa Barbara, California, and on the coast of Ecuador, Peru, and northern Chile. Shell hooks, so common on the truly oceanic islands of the Pacific, but non-existant in Asia, are also very common in the midden deposits from these New World fishing cultures. Bone hooks with the same form as the shell hooks have been found, though less frequently, in northern Chile, and since the local circular one-piece hooks were first compared to those of adjacent Polynesia by the aforesaid American Museum of Natural History exhibit, there has been a tendency among those familiar with both to see a relationship between them. Recent excavations in Ecuador reported by C. Zevallos at the 34th International Congress of Americanists has disclosed one-piece hooks with specialized binding restrictions bringing South American specimens still closer to dominant Polynesian forms, although even some of the Chilean specimens with notches or grooves in a generally tapering shank head (*Anell*, 1955, p. 137) are direct counterparts to archaeological specimens from Polynesia (*Skinner*, 1923, Pl. 11; *Emory et.al.*, 1959, Fig. 6, nos. 19–24).

One complete and thirteen component parts of two-piece bone fishhooks were excavated or collected by the expedition on Easter Island. Some are known, through carbon dating of associated cremation burials, to date back at least to the beginning of the Middle, if not to the Early, Period. Anell (1955, p. 218) claims that the older forms of bonito spinners did not occur in East Polynesia, and Métraux (1940, p. 182) correspondingly stresses that, though Polynesian bonito hooks, like Easter Island composite hooks, are made of two pieces lashed together, they have no other characteristics in common. This would argue for independent invention, or an origin elsewhere, for this early and very specialized Easter Island form. As shown by Métraux (*Loc. cit.*) these composite hooks of Easter Island may be divided into two classes: one having straight, cylindrical shank, and one with slightly convex outer edge. The former was not found by our expedition, but a complete specimen of the latter type was found in a *hare moa*, indicating a possible Middle Period use. The latter type has some particular features in common with certain unbarbed samples of two-piece human bone hooks from Hawaii (*Emory, Bonk,* and *Sinoto,* 1959, Pls. 3, 4), whereas the straight-shanked form finds its counterparts respectively among the Moa-hunters of New Zealand and in early archaeological sites of the Arica, Pisagua, and Taltal areas of northern Chile. Some of the cigar-shaped shank components of the Moa-hunters, with encircling grooves at each end, would pass as replicas of still earlier specimens from the oldest pre-ceramic cultures of northern Chile (cf. *Heyerdahl,* 1952, Pls. 86, no. 28 and 87, no. 5). In both of these areas the shank component was variously made of stone, shell, or bone, and the point of bone (*Loc. cit.; Anell,* 1955, pp. 181–182). In these specimens the point component appears to be lashed to the side of the shank. The whale-bone shanks described from Easter Island, however, are provided with a vertical basal groove or slot, into which the base of the point was inserted. This detail was not unknown in early Chile. Anell (*Ibid.*, pp. 217–218) writes: "In Arica two shanks of whale-bone were found. These were cigar-shaped and had grooves in the top and base for the line-attachment and the point-lashing. One of them also had a notch in the one side into which the point had evidently been inserted. The length of the shank is 8 cm. . . . Shanks of bone, shell or stone and with a similar appearance have been found, further, at Pisagua. One shank of stone measured only 4 cm., another of whale-bone 10 cm. The last-mentioned specimen is rectangular in cross-section and a groove in the inner side shows that the point was made fast to the inside of the shank-base. . . . Shanks of the above-mentioned type have been found also at Taltal; and they appear to belong to the period immediately preceding the introduction of pottery. No points were found. The shanks had grooves in top and base, and the points were made fast at the side, as in the case of the Arica

specimens. ... Archaeologically, the compound hook has been definitively instanced only from northern Chile. *M. Uhle*, however, asserts that it has been used along large parts of the Peruvian coast; and *T. Joyce* seems to be of the same opinion."[55] A further point of correspondence between these composite hooks of New Zealand, Easter Island, and Chile is that specimens provided with hackles or feathers tied on at the juncture of shank and point are reported from all three areas (*Métraux*, 1940, p. 182; *Heyerdahl*, 1952, p. 699).

As was the case with one-piece hooks of shell, bone, or stone, composite hooks of any form do not occur in Indonesia or Southeast Asia. Not even the widespread two-piece bonito hook of many of the other islands, allegedly unrelated to the Easter Island two-piece hook, can have entered the Pacific from that area. Anell (1955, p. 193) writes: "But there is little reason to suppose that the use of compound hooks as such should be native to Oceania. As a matter of fact such hooks have been instanced from the entire sub-Arctic region, both in Eurasia and in North America, as well as from northern Chile. In southern and southeastern Asia, however, they are quite unknown." The logical consequence of this reasoning as to their origin would be that the compound hooks spread into Oceania either from the sub-Arctic or from nearby coastal Chile. With regards to the latter area the same writer (*Ibid.*, p. 218) argues: "As it is rather improbable that such a complicated hook might have developed locally, one may assume that the compound hooks of northern Chile are either results of a separate Polynesian visit ... or, most probable, are they, as the simple shell-hooks, a rather old culture element which derives from western North America, though the traces of a presumable former distribution in Central America and northern South America are obliterated."

Uhle's and Joyce's undocumented references to corresponding hooks along the coast of Peru, and their actual reappearance on the Pacific coast of Oregon (*Heyerdahl*, 1952, Pl. 86, no. 32), tend to link the Pacific American composite hook with its Arctic distribution area. Certainly, chronological evidence precludes its possible spread from Polynesia to Chile. Ekholm (1950, p. 350) states, with reference to the "identical and similar forms" of one-piece and composite hooks respectively in the Pacific and the Americas: "The oldest known occurrence of the two forms is in Northern Chile where they were used by the first inhabitants of the coast, probably before 1000 B.C." Even if we assume that the specialized two-piece hook on Easter Island might be antedated by the related Moa-hunter specimens, the latter again was necessarily considerably antedated by these continental specimens from coastal South America directly below Tiahuanaco.

Excavations directed by Emory in the Hawaiian group and more recently still by Roger Green in Mangareva and the Society Islands show the extreme importance of the fishhook complex to the groups that first settled Polynesia, with an evolutionary trend from early interrelated forms, but with distinct prototypes of both the one-piece and the specialized composite hook at the earliest levels. It becomes increasingly clear, as expressed by Green (*viva voce* to the editors, Honolulu, 1961), that the fishhook complex of the Andean coast and adjacent Polynesia is too interrelated in specialized forms to be any longer considered as separate phenomena.

An important artifact in the material culture of Easter Island, which has not been previously described, is a small and beautifully executed stone bowl or dish of dense basalt. Stone bowls in general appear to have been very common on Easter Island, and a wide variety of sizes and forms occur. With few exceptions, which were well executed and probably had served some ceremonial function as they were found concealed in *ahu* or masonry walls, the larger stone bowls are generally heterogeneous in form and rather crude. However, a certain type of smaller, semi-spheroid bowl, which is invariably carved from hard, dense, and fine-grained basalt, is symmetrical, elegant in appearance and skilfully designed, with only minor variations in the relative interior depth, the steepness of the walls, and the presence in two instances of a flattened base which in one case is raised as a square in relief. Som of the shallower specimens approach the form of a dish rather than a bowl. A few complete or fragmentary specimens might have been secondarily used for paint in the Late Period, but paint mortars were generally crude, more or less unaltered stones. There is little reason to suspect that the elegant stone bowls were designed for this purpose originally, and their function is obscure. Two specimens were reportedly found in *hare moa*, one associated with a composite whale-bone fishhook, and this provenience would indicate a Middle Period deposit, a date which in regard to composite bone fishhooks is verified elsewhere on the island through carbon dating.

The stone bowls occasionally occurring in Polynesia, notably in Tahiti and Hawaii, bear no resemblance to these hemispherical dishes and bowls of Easter Island. Stone bowls and dishes, frequently of most beautiful workmanship, are common in ancient Peru, and a

[55] Uhle, M. (1922): *Fundamentos étnicos y arqueología de Arica y Tacna.* — P. 63. Quito. Joyce, T. A. (1912): *South American Archaeology.* — P. 125. London.

number of hemispherical basalt bowls corresponding in type and size to the Easter Island specimens have been seen by the writer in collections from north-central coast sites in Chile.

Stone lamps are common on Easter Island, but are generally natural or partially altered stones of non-descript characteristics.

Shallow grinding stones of unknown function are also common. Eliminating possible sharpening stones for tools, paint mortars, and watertight boulder-depressions that might theoretically have served as rain collectors or salt evaporators, a number of specimens remain that can only have served for the grinding or pulverizing of some unidentified solid material. Morphologically they resemble American *metate* stones, but the absence of cereals on Easter Island argues for another function.

A most characteristic and commonly occuring artifact is the so-called *paenga*, a long and narrow, beautifully cut and dressed slab of hard vesicular basalt. The *paenga*, which is commonly rectangular in cross-sections, but occasionally longitudinally curved, and always provided with one or more drilled holes on the upper edge, served a multiple purposes in the Late Period, although it was orginally designed solely to hold the rafters of the boat-shaped pole and thatch houses of the Middle, and possibly even the Early, Period. In their specialized form *paenga* stones appaer to be characteristic of Easter Island only, and must be considered as the result of a local evolution stimulated by the need for keeping the arched and springy house-poles firm in the softening soil during heavy rain.

Stone pillows and *totora* mats represent the customary furniture of aboriginal Easter Island. The pillows were generally waterworn beach-stones selected according to convenient size, form, and smoothness. The most common form was oval and flat, and almost invariably decorated with incised lines, commonly representing the vulva, but even more often revealing no apparent motif, and only in exceptional cases depicting the human face. Such stone pillows were not in use on any of the other Polynesian islands (*Métraux*, 1940, p. 201), and the clearly overstated scarcity of forest providing material for making wooden head-rests has again been resorted to for explaining the deviation from the pan-Polynesian pattern.

The occurrence of pottery on pre-European Easter Island cannot be authenticated archaeologically. A body sherd of a thick-walled, coiled pot of seemingly primitive manufacture was encountered in unknown context below the surface at Mataveri. Evidence is otherwise restricted to native tradition, nomenclature, and ethnological material, apart from one quite unverified source reference from the first European visitors. The future discovery of archaeological evidence would not be surprising, however, in view of ceramic finds from the earliest horizons having recently been made both in the Marquesas and Samoa, with other early ceramic traditions surrounding Polynesia on all sides except in southern Chile and in the general area of Northwest America and adjacent islands.

A number of miscellaneous objects which apparently served some magical or practical functions are well represented in the expedition's collection. Most characteristic were certain *hongaa uha*, or chicken fertility stones, treasured by the present population for their assumed ability to increase the egg-laying capacity of the chickens. They are generally roundish flat or loaf-shaped stones carved from vesicular and light lava, occasionally with a handle-like extension, and invariably with a series of cup-shaped depressions the size of an egg. To the knowledge of the writer, similar artifacts have not been reported from areas outside of Easter Island.

Small phallic stones of lava and basalt occur, but are less common. Stone balls or spheroids of various sizes are also found, and appear to have had some magic or religious importance. The largest specimen, associated with an *ahu*, is 75 cm. in diameter and oblate, the smallest is pecked to a perfect spheroid with a diameter of 19.5 cm.

Sinkers and grooved stones, partly of unknown function, are common. They vary greatly in size, and are carved variously from scoria, vesicular lava, or dense basalt.

Varieties of unidentified stone objects were also collected and are described above, some evincing masterful workmanship in design and execution.

Bone and shell ornaments, rarely encountered on Easter Island, are fairly well represented in the collection. Most are rectangular or ovoid blanks perforated near one or both ends for a suspension string, and were probably worn as neck pendants. One bone specimen is ornamented with an incised design. A pair of shell earspools was found through excavation. The collection contains one whale tooth pendant. Only the latter, apparently unique for Easter Island, is a common form of pendant in other parts of Polynesia, including the Marquesas and Mangareva (*Buck*, 1938, p. 173).

It is evident that most Easter Island ornaments were made from perishable material, principally feathers and wood. Feather ornaments have a wide distribution in the Pacific, although only in the eastern half: the New World and Polynesia. It is listed by Nordenskiöld (1930, pp. 8, 19) as a specific culture element common in the Americas while absent among Asiatic peoples, and yet

presents a universal distribution throughout Polynesia (*Buck*, 1926, p. 145). The direct analogy between feather cloaks and other feather ornaments of these two adjacent Pacific regions is repeatedly pointed out (*e.g. Boas*, 1925, p. 28; *Roberts*, 1926, p. 341; *Handy*, 1930 b, p. 24; *Heyerdahl*, 1952, pp. 677–680), and the elaborate feather head-dresses of Easter Island have counterparts both in Mangareva, the Marquesas, and ancient Peru. A more restricted local distribution appears to appertain to the specialized wooden ornaments of Easter Island. These include boat-shaped pectorals, *tahonga* balls, and a number of other hard-wood pendants of conventionalized forms, none of which have known counterparts outside of Easter Island. One well preserved specimen collected represents a stylized turtle head with inlaid obsidian eyes. Similar disc-like obsidian eyes were discovered through site excavations.

A considerable number of Easter Island stone sculptures were encountered. Some were relief carvings, but most were figures in the round. With few exceptions, nearly all were anthropomorphic representations. These sculptures, varying in size from small portable figurines to monolithic monuments, include a variety of art forms with artistic expressions hitherto unknown from Easter Island. Stone sculptures of comparable general nature are known from a few islands in East Polynesia, and from the general Andean area. Statues as well as figurines are common in the Marquesas, statues of varying sizes occur in Raivavae, a few small ones existed formerly in Pitcairn, and still smaller specimens have been found in the Society islands and Necker Island, with an occasional figurine being reported from New Zealand. Stone statues of varying sizes and a large number of figurines are known in the Andean area, from San Augustín, Colombia, southwards to Tiahuanaco, Bolivia. A particular concentration is found in the general Tiahuanaco area surrounding Lake Titicaca.[64] Some of the larger Easter Island forms seem to find their closest affinities in specialized statues in this area, with a somewhat less specific relationship extending westwards to Raivavae and the Marquesas islands. A comparison of these newly discovered Easter Island statuary art forms is included in the General Discussion and will not be further enlarged upon here.

In summary, the artifact complex of Easter Island reflects a material culture which is related to, and yet in many respects is basically different from, that of the islands further west. A number of dominant features in the local archaeology are unknown elsewhere in Polynesia, and elements generally characteristic of Polynesia are often absent on this island. In this respect the artifact complex follows and supports the additional evidence furnished by other irregularities in the culture pattern, including such aspects as the complexity of specialized dwelling structures, duality in boat-form, the Early Period importance in solar observation and orientation, the worship of the non-Polynesian supreme god Makemake, and the array of aberrant ceremonial manifestations at Orongo. The recurrence of most of these non-Polynesian Easter Island features in the Andean area from Tiahuanaco to the Pacific coast directly below cannot be ignored, since there is no ethnic or geographic barrier to intercept or impede a direct human transfer from this area to Easter Island.

---

[64] *Kidder*, 1943, p. 38; *Heyerdahl*, 1952, pp. 354–359.

population, and small *mahute* plants were seen in a very few. Reconnaissance by Ferdon, however, brought forth evidence indicating that they were probably former dwelling structures, and that secondarily some, but far from all, had been found suitable for protected cultivation. Subsequent excavations by Skjölsvold (this vol., Rept. 9, Pl. 36 *a*) and Ferdon (*Ibid.*, Rept. 10, Pl. 38 *a*) verified this suspicion. The reader is referred to their respective reports for details of house construction and associated features. Carbon dating from presumably one of the last fires to have burned in the pit oven inside the circular masonry house of Site E–2 (Pls. 36–37), shows the house to have been still inhabited around A.D. 1526. From this and other observations Ferdon (Report 13) concludes that the thick-walled circular masonry house is a Middle Period feature. There is no indication of this house form being present in earlier times. On the contrary, the fact stressed by Thomson (1889, p. 489) that *paenga* stones and broken image heads appeared in the masonry of these structures, is a direct repetition of a characteristic feature of Middle Period walls. The only statue head witnessed by the writer in a circular house wall appeared to be a small, round Rano Raraku tuff head with deep-set eyes of the type characteristic of the earliest phase of Easter Island stone sculpture.[20]

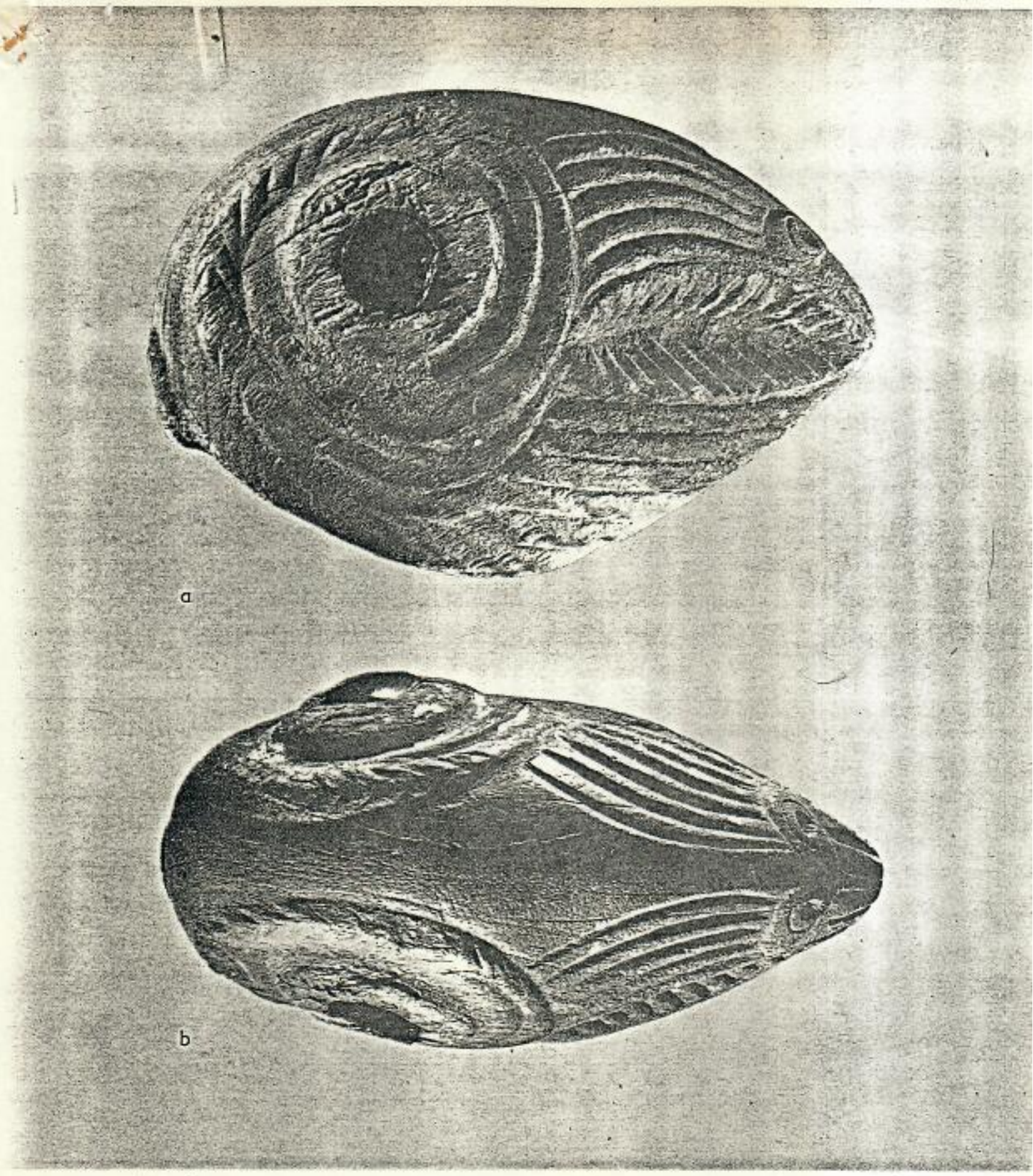
From present knowledge may be concluded then, that thick-walled masonry houses, frequently of circular shape but also often rectangular and with walls built of core masonry from 1 to 1.25 m. high, were common on Easter Island in the Middle Period, but probably not earlier. They survived sporadically into the Late Period and well into historic times, and were remembered by Englert's informants essentially through their survival as school houses where *rongorongo* men instructed the youth in the sacred rituals of the ancestral tablets. This house type was termed *hare paepae*, presumably in reference to the stone terrace frequently formed by the masonry wall at one side, and they had a lofty, presumably conical, thatched roof with access to the interior generally through an entrance in the side of the sloping ceiling. Corresponding houses are unknown throughout the remainder of Polynesia, but similar ruins are left in the Andean area, and have been visited by the writer notably in some of the large prehistoric village sites on the hills along the east shore of Lake Titicaca. Circular adobe houses with low vertical walls and lofty, conical thatched roofs are still built on the northern shores of the same lake.[21]

A completely different stone structure is the slab-roofed masonry tower with a very small and generally square entryway near the ground on one side. As shown by Mulloy (this vol., p. 323) and Ferdon (*Ibid.*, p. 331) this problematic structure, known as a *tupa*, was said by the modern islanders to have served their ancestors as watch towers for observing turtle or fish. Thomson (1889, p. 484), Routledge (1919, p. 218), Brown (1924, pp. 112–113, 153), Lavachery (1935 *b*, p. 334), and Métraux (1940, pp. 189–190) all accept this explanation. Skottsberg (1920, vol. 1, p. 12) is puzzled by the importance of this elaborate construction, which is obviously out of proportions to the purpose for which it was supposedly built. Métraux (1940, pp. 189–190) is equally puzzled by the fact that these towers, which he believes to be restricted to the coast, still "do not give the watchers any better view of the sea than any near-by hill." And: "There is nothing in the *tupa* to facilitate access to the top of the tower, which is not a very comfortable place. The vaulted chamber inside suggests no practical purpose, since a cave or shelter would have been quite sufficient for the watchers, whose homes stood near the tower. Turtles were not, even then, common on Easter Island, where the climate is too cold for them and where there are only a few sandy beaches." Yet his conclusion is: "Turtles were watched from turtle watchtowers (*tupa*) along the shore near ancient settlements."

---

[20] This house was built directly on exposed rock near a bluff between Hotu-iti and Toatoa. See also *Smith*, this volume, p. 264.

[21] In certain lights and at certain seasons the yellow grass on Easter Island, when seen from some height, would reveal a pattern of green circles about the size of a *hare paepae*. This feature was especially noted on the plateau west of Anakena, on the plains near the small hills inland from La Pérouse bay, and at the foot of Rano Raraku on its western side. A test excavation by Skjölsvold of one of these green grass circles on the plain west of the quarries produced no floor features or other sub-surface peculiarities, and the origin of the green circles remains a problem, perhaps of botanical nature. Stone circles of a single line of slabs or blocks, and with a diameter corresponding to the common *hare paepae*, were seen in some localities, notably on the plain next to Toatoa. Englert (1948, pp. 270–271) illustrates such a stone ring with a pentagonal stone oven, *umu pae*, in the center, and writes: "Some of these *umu pae* were, furthermore, surrounded by a circle of stones, such as used also among the Indians of Tierra del Fuego." Future investigations may disclose whether or not any of these remains are vestiges of former circular grass houses without masonry foundation. Evidence to this effect was not produced by the present expedition.



WOODEN TURTLE HEAD with inlaid obsidian eyes, cat. no. 1189 a) right side profile; b) seen from above

University of Hawaii at Manoa

Hawaii Institute of Marine Biology
P.O.Box 1346 • Coconut Island • Kaneohe, Hawaii 96744
Cable Address: UNIHAW

July 20, 1982

Apina Nui Residencia
Hangaroa
Easter Island, South Pacific

Dear Sirs:

I am writing to ask if you can provide me with information on the occurrence of sea turtles at Easter Island. I would like to know the following:

1. Do sea turtles ever come ashore to nest and lay their eggs on the sand beaches at Easter Islands?

2. Do the people ever catch sea turtles while they are fishing in the waters around Easter Island? If so, do they eat the turtles?

3. What kinds of sea turtles occur at Easter Island? To help you answer this question, I am sending you (as a gift) the enclosed color identification poster showing the different kinds of sea turtles.

I am a biologist that studies sea turtles here in Hawaii and at other areas of the Pacific. Any information that you can write to me about sea turtles at Easter Island will be greatly appreciated. Thank you very much for your assistance.

Sincerely,

George H. Balazs
Assistant Marine Biologist

mk
Enclosures

are excellent. The ecologist Mr. Ken Tinley, whose wife is also a biology graduate, has an able assistant.

Last year the Government decided to create a new reserve, to be called Banyine, some hundreds of miles to the south near Laurenço Marques. It will be 80 square miles, and cover every type of terrain from kopje to mangrove, and include some species unknown or scarce in Gorongoza – giraffe, roan, sessaby and cheetah with dudong and turtles on the foreshore.

The Somali Wild Ass

The need to create a reserve for the Somali wild ass *Equus asinus somalicus* in Ethiopia is urgent, reports Dr Hans Klingel, who has completed his survey, described in the last *Oryx*, page 6. Dr Klingel has found more animals than expected, but their situation is far from secure. The major threat comes from the Afar people and their large herds of domestic animals. In the rainy season the wild asses can subsist in the desert, but in the dry season they need the water of the Awash River and the few permanent springs. It is therefore essential that the uninhabited Teo area, at present a no-man's land between the Afar and Issa tribes, should be declared a wildlife reserve for the asses before either or both of these nomadic tribes decide to graze stock there, a move that may be precipitated by the building of the Awash-Tendaho highway now going on right through the Teo area. This might lead these nomadic people to change their migration pattern, and the road might easily become accepted as a boundary between their grazing lands. Even in the rainy season the vegetation here is very sparse, and the wild asses could not successfully compete with stock, quite apart from being exposed to the firearms of both tribes who value their meat. The other main concentration of the wild asses, some 70 kms to the north-east, and north of the Awash River, has to contend in addition with some hunting and, much more serious, with tourists, whose chasing of the animals in vehicles in order to get photographs is believed to be a major cause of mortality through exhaustion. Dr Klingel recommends a reserve of about 2800 square kms in the Teo area, with Afar game guards under an Ethiopian warden to enforce the game laws, and notices (in Amharic, English and Italian) warning visitors that chasing any wild animals by vehicles is illegal and could mean confiscation of the vehicle.

Easter Island: A Last Outpost

Tom Harrisson

Man is the only land vertebrate to have successfully colonised the remote Easter Island, and his domestic animals graze almost the whole island. Three, perhaps four species of sea turtle occur, and of fourteen species of seabird, eight breed, some in very large numbers. Five bird species have been introduced with unhappy results. There is now a weekly air service to Easter Island, and Dr. Harrisson, who spent eight days there early this year, urges the need for careful study of conservation problems and support for the Chilean government.

Easter Island (Rapanui), 11 miles long and between two and seven across, lies at 27° south, about 2,100 miles west of continental South America, and 2,200 miles south-west of the Galapagos. Until the Chilean Airline LAN, recently started a weekly air service touching there between Tahiti and Santiago, Rapanui was only occasionally accessible by ocean-going vessels, although a few individual travellers, like the Duke of Edinburgh with Lord Mountbatten and friends early this year, called in. Thor Heyerdahl's longer expedition regrettably contained no biologist. Zoological literature at all levels is extremely meagre. This note calls attention to the present strange situation on Easter Island as a base line for consideration now that large-scale tourism development is planned. I was on Rapanui with my wife for eight days in February 1971. We were able to cover most of the island and to land on the difficult offshore islets.

The 'miracle' of Easter Island is that men not only got there, but developed a unique, elaborate, dynamic and highly creative culture of their own, with a few thousands population (now c. 1500), wholly isolated from the great trends of developing civilisation. No other land vertebrate is known to have reached Rapanui and survived. But fourteen species of seabird have now been identified, of which at least eight nest, sometimes in very large numbers (Johnson, 1970; Harrison). Moreover, probably at least three species of large marine turtle visit the island with some regularity – there has been no previous record of any (Pritchard; Bustard; and below).

This is one of only two possible breeding stations for all these birds and reptiles in an area covering over 2,000,000 square miles of the south-east Pacific. The other is Salla y Gomez, an uninhabited reef about 800 miles to the north-east, on which there appears to be near zero scientific literature (King, 1971).

These oceanic arrivals, sharply seasonal and centred around the 'autumn' months, evidently made an enormous impression on the ultra-insular human residents. Migration events played a major part in their cosmic concepts, expressed also in lavish rock and wood carving; the annual rites of kingship by contest, decided by the first to obtain the egg of a sooty tern; and the still unsolved *rongorongo* script, largely of bird symbols.

Rapanui has been a sanctuary by nature of its position alone, fortified by the conservationist approach of the pagan islanders, who minded – indeed, virtually worshipped – sections of the fauna, as though they were visitors from outer space. Now, with only Christian sanctions and the prospect of a dollar deluge (already beginning) this position is at risk.

The concentrated sea-bird population is especially vulnerable. The islanders are getting better supplied with outboards, fuel and other technical equipment, alongside a new demand for visits, souvenirs, etc. Apart from a few red-tailed tropic-birds *Phaethon rubricauda* the whole avifauna is centred on four little islets off the east coast, three close together near the main island's only settlement and harbour. While we were there, an expedition gathered all the eggs and birds that could be collected, including two sitting adults of the Kermadec petrel *Pterodroma neglecta*. From the wing of one adult, Dr King of the Smithsonian Institution was able to determine the race as *neglecta* also – its previous nearest known breeding station was the uninhabited Ducie Island, 1000 miles to the west (King, 1967; 1971).

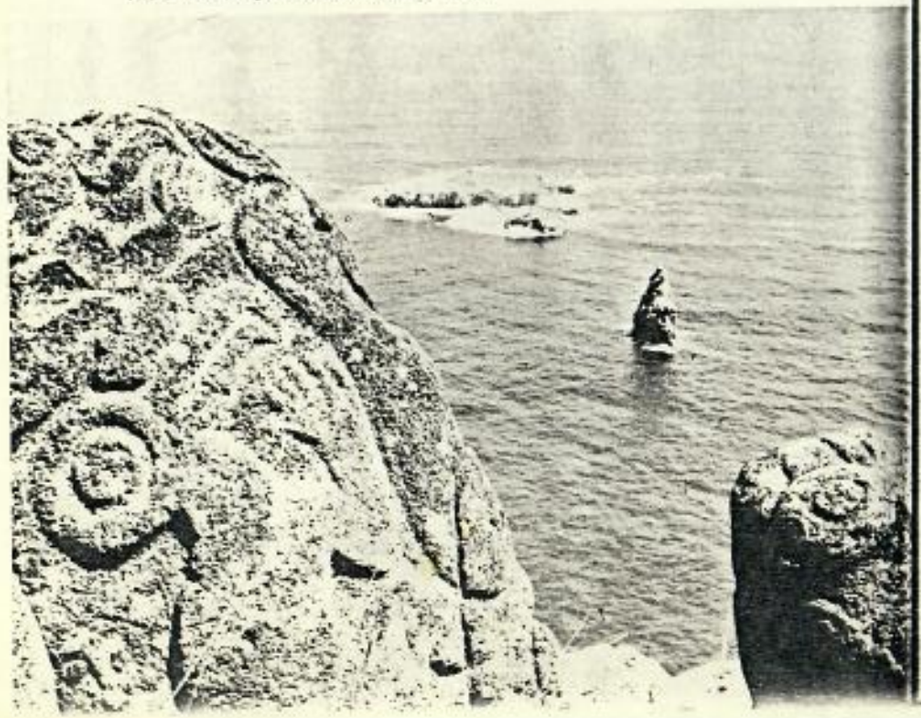
The ornithological situation is unhelpfully complicated by the introduction, in 1928, of a scavenger-predator, the chimango caracara *Milvago chimango* from South America, which has reached a success peak here. The optimum had got to over 50 birds together in February and many were in smaller groups on the slopes leading to the great Orongo Cliff, overlooking the islets, centre of the bird cult and now well labelled as a national park. But the caracaras are all over the island, from peregrine-style cliffs to cultivated land and the airstrip, and the islanders say that they are devastating the sea-bird chicks. Also introduced are the Chilean Tinamou *Nothoprocta perdicaria* (1885), two South American passerines and the house sparrow *Passer domesticus*. The caracara appears to have controlled and probably reduced the populations of these, except the very abundant house sparrow, which escapes largely by nesting in stone walls and the man-made caves which are a striking feature in parts of the island. Both the hawk and the sparrow live to a considerable extent on insects associated with the droppings of imported cattle and large droves of horses, now feral and particularly numerous in the national park area. A list of all the birds is on page 116.

The hitherto neglected marine turtles round Easter Island may turn out to be of special importance. Some remarkably detailed petroglyphs, carapaces retained as heirlooms, and discussion with informants suggest that at least three species, possibly four, visit the beaches and sheltered bays, for food and/or nesting. Wonderfully well-made stone towers were erected along sections of the coastline and are still called turtle towers – though they have not been used in living memory. Again there are strong indications that in the past turtles were not indiscriminately slaughtered but respected, but those sanctions have not operated since the island went Catholic in the last century. Turtle visitors are now much more scarce and irregular.

Finally, the flora and invertebrate fauna of Rapanui, on which I am not competent to speak in any detail. Clearly this also has been highly disturbed in historic times. Most of the original flora must have

CARACARA ON EASTER ISLAND, perched on one of the stone heads in Rananaku Volcano. All the Easter Island photographs are by Christine Harrisson.

KERMADEC PETREL and its egg taken this year, as described by Tom Harrisson.



BIRD ISLANDS off Easter Island where a high proportion of the breeding seabirds are found, seen from the top of the great Orongo cliff, centre of the bird cult. The bird carvings on the cliffs can be seen.

Typical coastal scene on Easter Island with old volcano in the background. The lone coconut-palm and the now feral horses are both introduced.

Despite many past disturbances and present limitations, here we have a uniquely remote tropical ecosystem, which remains of the highest interest by virtue of its physical immunities as well as its unique cultural associations. I suggest the need for closer study, with vigorous support for the Chilean Government. As well as paying the necessary priority attention to conserving the archaeology and prehistory of the island (now actively in hand), attention should be turned to the almost equally immediate problems of the environment there as a whole, including the new hotels and other buildings at present being planned. In such a wonderful, beautiful, completely 'different' place – unspoiled indeed – it would be a tragedy if exploitation were to distort one acre. disappeared. The island has been forested erratically with groves of eucalyptus and other trees. Practically every inch of it not otherwise employed is grazed by the horses and cattle.

However, the Chilean Government is showing a freshly responsible and intelligent attitude to Easter Island. The problem of control is complex. The islanders, splendid people, have a highly independent attitude. They have been trampled upon from the outside too often in the past, and are now determined to have a say in their own destiny.

REFERENCES

BUSTARD, H. R., 1971 – personal comm. from A.N.U. Canberra.

JOHNSON, A. W., MILLIER, W. R. and MOFFETT, G., 1970, Notes on the Birds of Easter Island. *Ibis*, 112: 532-538.

KING, WARREN, B., 1967, *Sea birds of the Tropical Pacific Ocean*, Washington (Smithsonian Institution).

KING, WARREN, B., 1971 – personal communications and identification of specimens.

HARRISSON, TOM, 1971, field notes and photographs; specimens at Cornell University.

PRITCHARD, PETER, 1971 – personal communication as Secretary of IUCN's Marine Turtle Group.

ZUCKERMAN, LORD, 1971 – personal communications.

Easter Island Birds

English Name	Islanders' Name	Scientific Name
Christmas Island Shear-water	Kuma	*Puffinus nativitatis*
Kermadec Petrel	Kakapa	*Pterodroma neglecta*
Herald Petrel	Kapaka	*Pterodroma arminjoniana heraldica*
Great Frigate-bird	Maoche	*Fregata minor*
Red-tailed Tropic-bird	Tavake	*Phaethon rubricauda*
White-tailed Tropic-bird	–	*P. lepturus*
Sooty Tern	Manutara	*Sterna fuscata*
Brown Noddy	Tuao	*Anous stolidus*
Grey Noddy	Tavi	*Procelsterna cerulea*
Grey-backed Tern	Manutara	*Sterna lunata*
White Tern	Kiakia	*Gygis alba*
White Booby	Kena	*Sula dactylatra*
Giant Petrel	Ruru	*Macronectes gigantea*
Cape Pigeon	–	*Daption capensis*

Introduced Birds and Date of Introduction

Chilean Tinamou	*Nothoprocta perdicaria*	1885
Chimango Caracara	*Milvago chimango*	1928
Red-breasted Blackbird	*Leistes militaris* now extinct	1885
House Sparrow	*Passer domesticus*	1928
Common Diuca-finch	*Diuca diuca*	1928

Fur Seals and King Penguins

Fur seals and king penguins had continued to increase on Heard Island, in the Antarctic, a party of the Australian National Antarctic Research Expeditions found in 1969. They counted 2660 fur seals, compared with 440 for the same areas in 1963; the colonies of king penguins at Spit Bay had doubled since 1965, and increased five times since 1963: 97 adults and 103 eggs or chicks were counted, and another colony of 40 adults with 17 eggs or chicks was seen in Southwest Bay. It is thought that the king penguins have probably migrated from the large colonies on the Kerguelen Islands, 430 km. to the north-west.

Wholesale Murder

A horrifying pesticide story from Israel is told in the ICBP President's *Newsletter*. In 1970 flocks of larks, especially wintering skylarks, were doing considerable damage to seedling crops in semi-arid areas of the Negev and south-central Israel. The larks had formerly been kept down by birds of prey, but these had been exterminated by the Plant Protection Department, thus allowing the larks to multiply. To control them the Department spread large areas with sorghum grain poisoned with endrin. Many larks died, but so also did many mammal and migrating bird predators which fed on the poisoned birds. The Department had insisted on using endrin, and not a poison that would have avoided the secondary poisoning, because they thought that 'the convulsions of the poisoned birds would scare away other birds from the area it was desired to protect'.

The Island Civilizations of Polynesia 256r
by Robert C. Suggs 1960

Fig. 16. Easter Island petroglyphs (after Lavachéry, 1939)

Easter Island tattoo designs. Representations of the female genitalia are found by the score, attesting the somewhat earthy character of Easter Island social life.

The possibilities for utilization of the obsidian deposits on Easter Island for cutting implements and spears may not have been realized immediately. According to the findings of the Norwegian Expedition, this did not occur until the very end of the prehistoric period. At that time the Easter Islanders made thousands of obsidian tools, known as *mata*,[29] which were used for scraping and cutting as well as for projectiles. These implements were irregular, roughly flaked, semicircular, or roughly pointed implements with an elongated stem on the side opposite the "cutting edge," if it could be called that. There is some debate as to whether the stems themselves might not also have seen use as drill points. Besides the very common *mata*, other variously shaped cutting and scraping tools were made from obsidian. (See Fig. 15.)

During the evolution of the distinctive Easter Island culture it would have been rather unusual if at one time or another intertribal conflicts did not arise, especially in view of what we know of the sanguinary character of the inhabitants at the time of European contact. As a result of these conflicts there were undoubtedly repetitions of that familiar Polynesian scene of the beaten chieftain and his warriors fleeing the wrath of the enemy in search of a new island where they alone could rule. It was probably as a result of one of these flights that the island of Pitcairn was inhabited.

When the mutineers from the *Bounty* first landed on Pitcairn, they found evidence that others had preceded them but had since departed. Stone adzes were found on the surface of the ground and remains of huts were still visible. Two *ahu* structures were intact with hard red tufa statues on their platforms. The *ahu* and their statues were subsequently destroyed; but some remnants still remained in 1914, permitting Mrs. Routledge to reconstruct the condition of one of the *ahu*. This reconstruction was later verified by Lavachéry in 1934, at which time photographs were made of the only extant fragment of one of the statues, which was found beneath the veranda of a modern house.[30] The evidence indicates that the reconstructed *ahu* was a smaller replica of the Easter Island image *ahu*, with a sloped inner façade 12 meters long. The statue fragment was that of a torso with large hands clasped on its abdomen, also similar to the stat-

answer is simple: by the brute strength of large masses of manpower, strong ropes, rollers, levers, and inclined planes. Stones were dragged long distances if too large to handle or, if smaller, were lashed to carrying frames. Earth ramps were built for rolling large stones over obstacles or into position in upper courses of walls. Many such ramps still survive on the old *tohua* sites. Where possible, effort was minimized by building near large supplies of suitable building rocks. Small pebbles were used to brace and wedge the larger stones in constructing walls, and every care was taken to obtain a good fit between the component stones of the platform façades.

In this development of megalithic architecture Nuku Hiva was the center from which influences slowly radiated out to the other islands of the Marquesas, with the result that the islands of the southern group remained somewhat behind the architectural pace set by Nuku Hiva. This cultural lag is very evident in the simple state of development of the *tohua* plazas and the less spectacular house platforms on the islands of Fatu Hiva and Hiva Oa.

Stone carving was more highly developed in the southern islands than in the northern group, especially carving of a monumental nature. There are several huge statues still standing on the *me'ae* of Te' I'ipona in Puama'u, Hiva Oa,[12] whose size or virtuosity has never been approached by any Nuku Hivan examples. These statues are also made of the soft red tufa used in architecture, representing the typical Marquesan *tiki*, a short squat figure with bent legs and hands clasped over the abdomen, turning the closed lids of huge goggle eyes to the onlooker. The mouth is opened and the tongue protrudes slightly. This figure resembles the pose of *tiki* from elsewhere in Polynesia, but the face is uniquely Marquesan in its execution and style, differing markedly from the stone carvings of the Expansion Period. Other forms of art work are well known from this period: a proliferation of bone carving of small *tiki* figures began, and we may hypothesize that the well-known historic woodcarving for which the Marquesas Islands are justifiably famous took its present form in this period.

Another famous art form of the Marquesas, tattooing, developed into its most complex form in the Classic Period. It is only at that time that the designs used in the tattooers' art are present in the archaeological record, in the form of petroglyphs carved on isolated boulders along warriors' trails or on the stones in house platforms.

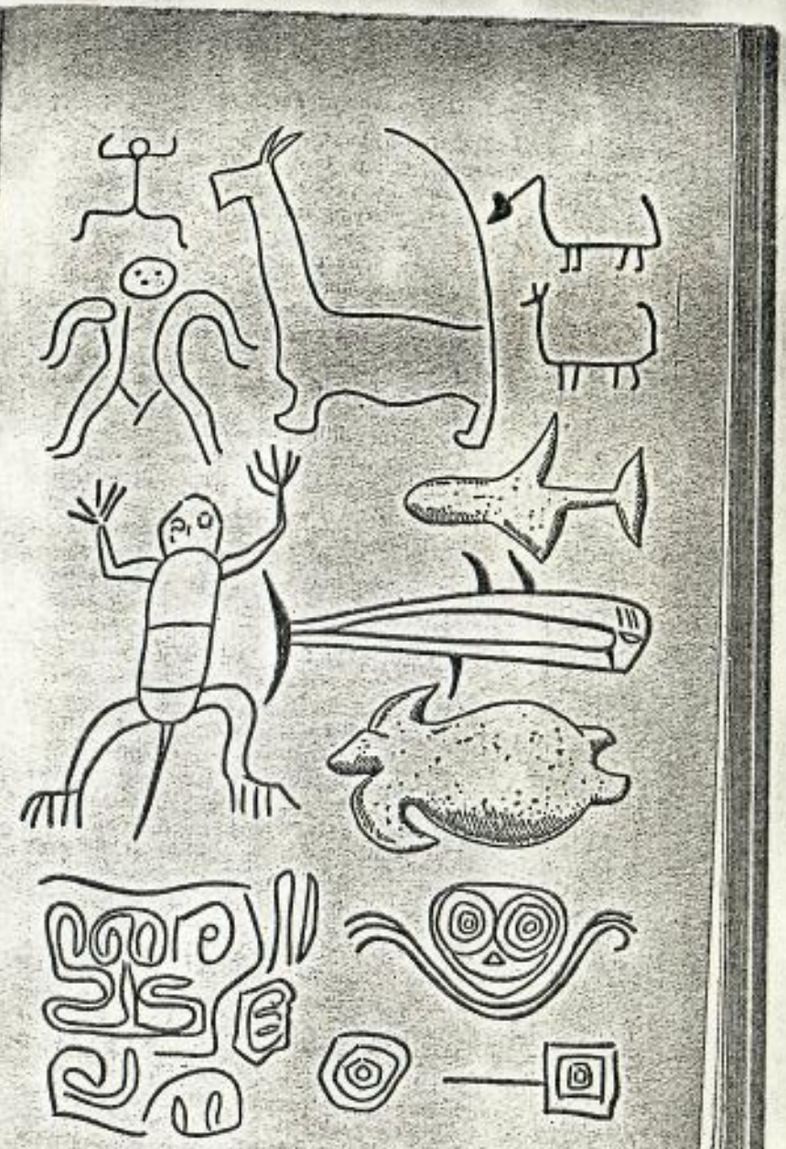


Fig. 10. A selection of Marquesan petroglyph motifs (after Suggs, 1959)

Easter Is. - Mentioned
by Frazier at East Pacific Workshop
July 1983.

Chelgia & C.o. at Easter, no
further information. - They report
nesting, but species unknown.

Check Frazier's MS on Chili

BISHOP MUSEUM PRESS REPRINTS

walk to Church

ETHNOLOGY OF

Easter Island

Alfred Métraux

Bernice P. Bishop Museum Bulletin 160

HONOLULU, HAWAII

1971

put turtles in lake?

I am grateful to many other colleagues and friends for the assistance they have rendered. Miss Yvonne Oddon, Librarian at the Trocadero Museum, Paris, has carried on bibliographical investigations and has forwarded copies of many texts that were not available in Honolulu. Miss Margaret Titcomb, Librarian of Bishop Museum, has described and photographed many rare Easter Island specimens in various European museums. Mr. Roland Grünevald, Chief of the Oceanic Department at the Trocadero, has given me photographs and drawings of objects in my collections deposited at the Trocadero Museum. Dr. Hans Nevermann, head of the Oceanic Department of the Museum für Völkerkunde in Berlin, has generously sent photographs and detailed descriptions of many specimens in the Geiseler collection. Dr. Walter Kaudern, Director of the Göteborgs' Museum, Sweden, permitted me to study directly old specimens preserved in that Museum. Dr. Gerhard Lindblom forwarded photographs and drawings of all the Easter Island specimens in the Etnografiska Museet of Stockholm. Mr. Charles Ratton of Paris kindly authorized me to publish photographs of rare objects in his private collection. Dr. Aureliano Oyarzun, Director of the Museo Historico de Chile, put at my disposal several valuable books from his own library. Reverend Father Alejandro Vicuña, Director of the National Library of Chile, assisted me in bibliographical researches. Dr. Carl Skottsberg kindly checked the chapter on Easter Island plants. Father Maurice Desmedt communicated several interesting data from the archives of the Convent of the Sacred Heart at Braine-le-Comte, Belgium. Dr. André Guillaumin of Paris and Miss Marie Neal, Dr. Harold St. John, and Mr. F. R. Fosberg of Bishop Museum determined the Easter Island plants. Dr. C. K. Wentworth, Geologist at Bishop Museum, and Professor Alfred Lacroix, Secretary of the French Academy of Sciences, helped me in organizing the chapter on geology. Mr. Y. Berlioz of the Muséum national d'histoire naturelle de Paris identified the Easter Island birds. I am under obligation for their assistance to Dr. Alfred Tozzer, Director of the Peabody Museum at Cambridge, to Dr. J. Alden Mason of the Museum of the University of Pennsylvania, to Mr. Edward Gifford of the University of California, to Dr. Frank M. Setzler of the National Museum in Washington, and to Dr. Lawrence W. Jenkins, Curator of Ethnology at the Peabody Museum in Salem. Miss Tamei Tsuchiyama collaborated in editing the section on folklore. The drawings were made by E. Y. Hosaka.

I extend my sincere appreciation to Mrs. Eloise Christian for her sympathetic and constant cooperation in helping to write the English manuscript. I am most grateful to Miss Frances E. Williams who has assumed the editing of my manuscript and has brought to her task much understanding and meticulous care.

GEOGRAPHY

Few places on the earth are more isolated than Easter Island, lying 1,600 miles from Mangareva and about 1,100 miles from Pitcairn, the nearest inhabited islands, and about 2,230 miles from the South American coast. It is the easternmost Polynesian island. Its exact position is 27° 08′ 6″ south latitude and 190° 25′ 54″ west longitude (fig. 1, *a*). The island is triangular in shape with a total area of about 55 square miles. It is exactly 9 miles long from southwest to southeast, 9 2/3 miles from west-northwest to east-southeast, and 13 miles from northeast to southwest.

Easter Island is a typical volcanic island, formed by a series of eruptions originating on the floor of the ocean. Recent petrographic analyses show that no rocks of continental type occur in the structure of the island (11, p. 1609).[1] The lapilli in the ashes of Rano-raraku are exclusively volcanic; no traces of metamorphic rock have been detected (50, p. 41). All craters are extinct and there is no evidence of recent action.

Soundings have revealed depths of 1,145 fathoms at 10 miles from the coast and 1,770 fathoms at 20 miles, thus establishing the existence of a submerged platform around the island "of unknown extent which attains depths generally of 30 to 40 fathoms a mile from the shore" (50, p. 35).

The triangular shape of the island is due to the position of three large volcanoes at the angles—Te Revaka (Rano-aroi) at the northwest point, Rano-kao at the southwest point, and Puakatiki at the eastern point (fig. 1). The highest summit is Te Revaka, generally called Rano-aroi after a small crater lake (*rano*) on its southeastern slope. It is about 1,730 feet above sea level and forms part of the bulkiest volcanic mass of the island. This complex area is composed of a cluster of cones and craters extending in several directions. The water contained in the Rano-aroi constitutes a shallow marsh, overgrown with bulrushes, which overflows into a gorge and a partly underground channel (11, p. 1594). On the northern and western sides of this land mass, wave erosion has developed precipitous cliffs 500 to 600 feet high.

Rano-kao is about 1,050 feet high. Its crater, filled by a fresh-water lake nearly a mile wide and 390 feet above sea level, is the most important reservoir on the island, though it is thickly carpeted with peat, leaving but small openings of free water. The lake, surrounded by steep cliffs, is accessible at only a few places. The shores of the lake, sheltered and humid, support abundant vegetation. Most of the trees growing in the interior of the crater are of recent introduction but in ancient time the vegetation was also more luxuriant here than in any other spot on the island. Here too, bulrushes and reeds are plentiful. The southern side of Rano-kao has been eroded by wave action to form a vertical

[1] Numbers in parentheses refer to Bibliography, p. 421.

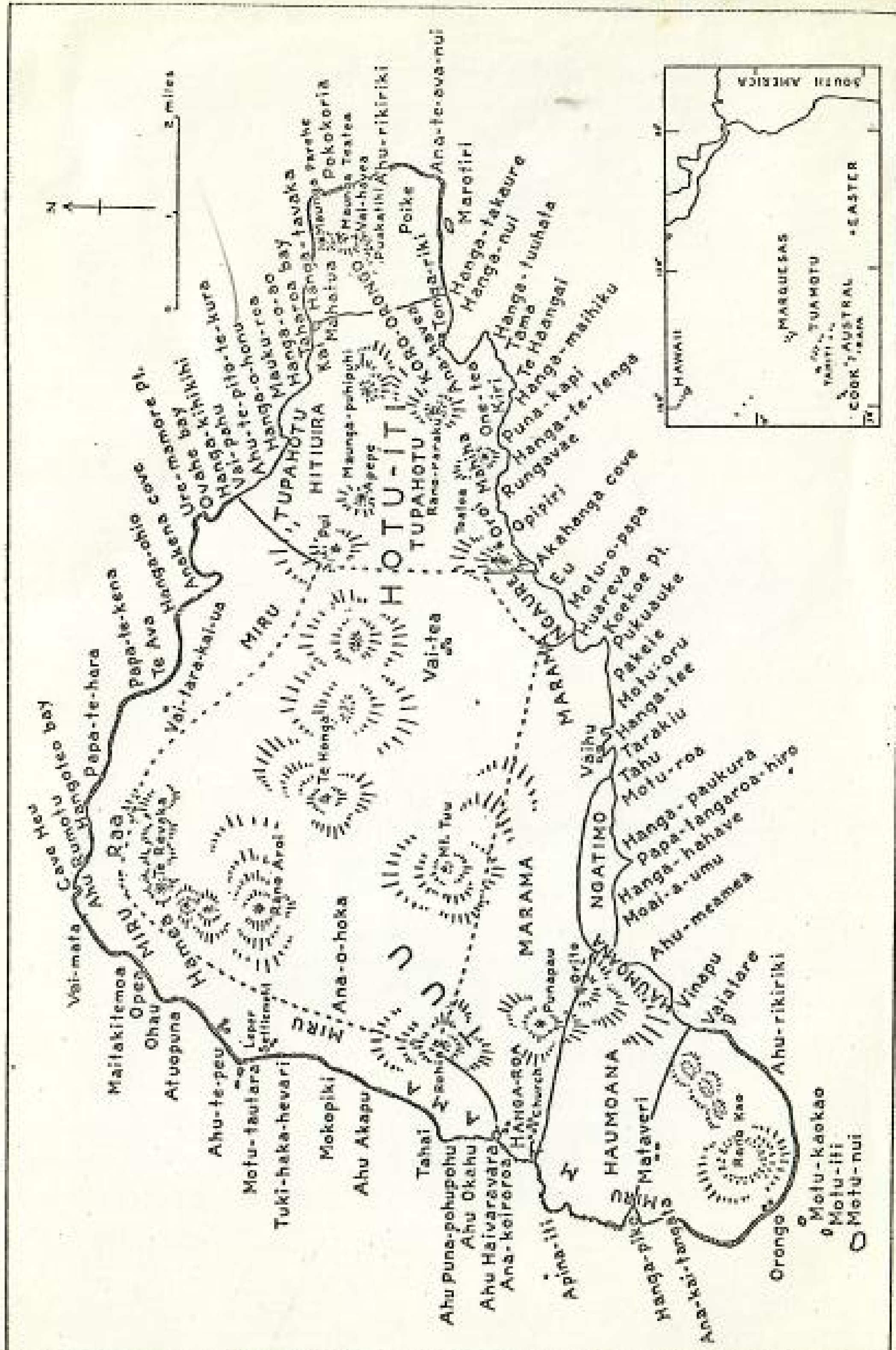


Figure 1.—Map of Easter Island with inset showing relative position in Polynesia.

cliff 1,000 feet high. At Orongo it has been reduced to such a thin wall that it will eventually crumble, giving the sea access to the interior of the crater.

The eastern headland of Poike with its summit Puakatiki, 1,250 feet above sea level, was isolated in the geologic past. It was connected with the rest of the island when it was elevated (11, p. 1592). Wave erosion has considerably reduced its former symmetry.

Except on the seaward side where they have been undercut by the waves, the volcanic masses, composed chiefly of ash and tuff, have been little modified by erosion. They retain their original rounded form and their gentle, smooth slopes which are entirely covered with grass.

The low-lying coastal plains between the three volcanoes have been formed by lava flows or by a succession of uplifts. This region includes part of the western coast between Te Revaka and Rano-kao, the northern coast from Anakena to Mahatua, and the central tract of the island including the southern coast with the exception of the peninsula of Poike and the southwestern promontory. There are also some narrow, level strips produced by lava flows along the northern slopes of Te Revaka, particularly a small plain called Hangoteo on the bottom of an ancient, partially destroyed crater.

From the plains rise parasitic ash craters which radiate outward from Te Revaka. The famous Rano-raraku (quarry of the images, pl. 1, *A*) is the most easterly of a line of five volcanoes beginning at Te Revaka. Like Rano-kao, Rano-raraku was eroded by the sea and contains a lake surrounded by a belt of bulrushes. To the same system of craters belongs Punapau, a low cone of pumice in whose crater the natives quarried the big red cylinders placed on the heads of the statues. Mount Orito is in part composed of black rhyolitic obsidian from which the natives chipped weapons and implements.

The hills on which Gonzalez planted crosses in 1770 are three cones on the north slope of Poike. They are called Maunga Vai-heva, Maunga Teatea and Maunga Parehe. The last of these volcanoes has been destroyed by wave erosion.

The basaltic coast along the low portions of the island is jagged and in some places fringed by an escarpment from 50 to 100 feet high. Sandy beaches are few. The largest is at Anakena Bay (200 feet wide) and other small ones are at Ovahe, La Pérouse, and Vaihu. There are no sheltered harbors large enough for modern ships. Off the coast are small isolated rocks called *motu*. The two largest are Motu-nui and Motu-iti, real islets haunted by thousands of sea birds. Off the high bluffs of Poike on the south coast rises the towerlike islet of Marotiri.

Outcropping rocks, large blocks of lava, and sharp-edged stones of all sizes are strewn over the plains and the northern slopes of Rano-aroi. These are not

the results of recent eruptions but of the weathering of the lava. The soil is not uniformly distributed. On the plains it is often shallow and stony, but where it is thicker it is fertile and suitable for intensive cultivation (208, vol. 2, p. 488). At Poike the soil is deepest though this region does not seem to have been tilled in former days.

It has been stated repeatedly that the surface of Easter Island might have been larger within human time. However, this does not seem to be true. The line of burial platforms follows the shore and, though wave erosion is certainly rapid along the ashy volcano slopes, only two monuments have been attacked by the sea. Ahu-rikiriki, on the southern slopes of Rano-kao has fallen, and the same fate awaits ahu Ohau at the northwestern point. At the time of my visit (1934), one of its wings had been cut away from the main building by a deep fissure and could not be approached without danger.

The contrast between Easter Island and most other high Polynesian islands is striking. It has no rugged peaks, no ridges, no deep valleys, no ravines, only a monotonous succession of cones and rounded capes above the basaltic plains or the high cliffs of the coast. On all sides are smooth, undulating curves.

Climate

Easter Island belongs to the tropical zone, although its barrenness is more suggestive of Scandinavian scenery than of tropical landscape. The island lies near the southern limit of the southeast trade winds which blow constantly in summer. In winter, northwest winds predominate and southwest winds are as common as those of the southeast. The average temperature, as recorded over a period of two years (1912-1913), ranges between 73.4 and 62.6 degrees Fahrenheit. The climate is uniform and very mild. Even the hottest days are made agreeable by constantly blowing winds. However, the slightest change in temperature is noticeable and the nights seem quite cold, even to the islanders. The cool temperature of the sea is one of the factors which has prevented the formation of a coral reef, but, as pieces of coral are often cast ashore by wave action, there must be some growth along the coast.

The rainfall averages about 50 inches a year. Rain is heavy in the winter months, from March to October, and showers are frequent in both spring and summer. Sometimes such showers develop into downpours of great force. Thunder and lightning storms are rare but not entirely unknown. Constant rain and mist for two weeks or more are common in winter. On the other hand, natives recall short droughts, which probably did not last long enough to harm the vegetation. The abundance and frequent violence of the rains have not affected the general contours of the island, due to the fact that water disappears beneath the surface rapidly, leaving the ground dry.

Water Sources

There are no rivers on Easter Island. The little ravines (*awa*) which appear on the north coast are clearly not due to erosion, but may be partly of constructional origin. Water runs in them only rarely and sporadically. The rain filters into the porous ground forming local water tables where it meets impermeable layers. The chief water bodies are only slightly above sea level and thin streamlets often flow toward the shore. Unfortunately the fresh water, especially during high tide, mixes with salt water and becomes decidedly brackish. At several places walls were built to protect the fresh water from being spoiled by the sea. At Tahai there is a kind of basin, separated from the sea by a wall, where fresh water mixes with salt water. Previously the natives drank that water and today the cattle are watered there. Captain Cook obtained water for his ship from such a spring (53, vol. 1, p. 289):

> The little [water] we took on board could not be made use of; it being only salt water which had filtrated through a stony bench, into a stone well. This the natives had made for the purpose, a little to the southward of the sandy beach often mentioned; and the water ebbed and flowed into it with the tide.

Along the shore, where the coast is low, natives dug reservoirs (*puna*) which impounded rain water and perhaps some fresh water springs. A deep ditch, between 2 and 3 meters deep, is dug near the shore. The seaward, lateral sides are perpendicular and lined with stones perfectly fitted (pl. 1, *C*). The landward side slopes at an angle of 45 degrees to the base of the opposite wall and is paved with boulders. After a rain the running water is led to the interior of the basin where, at the same time, water from the underground water body collects. A few of these reservoirs or springs still contain water, but most of them are filled with mud. According to my informant, there is always water in them even though it does not rain. Cook's reconnoitering party report (53, vol. 1, pp. 283-284) that the natives used these reservoirs not only for drinking but also for bathing.

Near Ovahe, at Vai-a-hoa, is a well which has been modified to form a modern water mill. The square pit is several meters deep; its smooth walls are lined with stones laid horizontally. In a few places there are springs, holes among the rocks into which water percolates. Ruins of ancient settlements are always thick around water holes. The most famous are the water pools near Ahu-te-peu, Puna-marengo, and Vai-tara-kai-ua. The water at Vai-tara-kai-ua is in a deep hole which has been covered with big blocks of stones so that only a small, narrow passage remains, just wide enough for one person. Behind Anakena abundant water is found. On the Puakatiki, a hole in a cliff where water collects has been carved all around into the form of a big human face (Vai-a-heva). After a prolonged rain the water of Rano-aroi flows through a gap into another pool. This pool empties into a long, narrow fissure where water is

1880 and 1890). The last one on the island grew near Vai-mata but died recently "because there were no more kings." From the distribution of the sandalwood, it seems likely that the *naunau* was the true sandalwood and not the bastard. Sandalwood is found on the atolls of Elizabeth and Ducie, the nearest islands to Easter Island.

UNIDENTIFIED TREES

De la Maza (208, vol. 1, p. 7) mentions an unknown tree about which he writes: "The *tumahiti* wood is rather hard and more or less pliable. The Kanakas use it to make yokes and ploughs. It is the only tree which grows freely in the island. Its fruit is oval in shape, yellowish, about half an inch in length and it tastes rather bitter."

It is likely that De la Maza has misspelled the name of the *miro-tahiti* (*Melia azedarach*), the wood generally used by the natives for wooden images and implements.

ANIMAL LIFE

Before man settled on Easter Island, animal life in its highest form was represented by flocks of sea birds, which nested on the three islets off the southwestern promontory—Motu-kaukau (Needle Rock), Motu-iti, and Motu-nui. Some birds have made their abode in the interior of Rano-kao, but a few of them are seen flying along the shores of the island itself. The native legends explain this concentration of the birds at a single point as a protective measure adopted by the god Makemake to prevent the extermination of birds by egg hunters.

The importance of sea birds in native mythology and art makes necessary a brief enumeration of the species identified by our Expedition. On Motu-nui, we collected petrels (*taiho, Pterodroma heraldica paschae*), gray terns (*tuvi-tuvi, Procelsterna caerulea skottsbergi*), white terns (*kia-kia, Leucanous albus royanus*), noddy terns (*tuao, Anous stolidus unicolor*), gray-backed terns (*manutara, Sterna lunata*), boobies (*kena, Sula dactylatra* subsp. ?), tropic birds (*tavake, Phaeton* sp.), and *makohe* (*Fregata minor* subsp. ?). A specimen of *Oestrelata incerta* or *leucoptera* was designated under the name of *kumara* and a *Sula Cyanops* as *ruru*. A list of Easter Island birds published by Knoche (123, pp. 141-144) contains the word *nguingui* for the *Gygis alba* (syn. *Leucanous albus royanus*) and *rengurengu* for the *Anous caeruleus* (syn. *Anous stolidus unicolor*).

Partridges (*vivi*) were introduced by the Chileans many years ago and have propagated rapidly. Their eggs are looked for by the natives as eagerly as those of the sea birds. An unsuccessful attempt was also made to acclimatize a Chilean scavenger, the *loica* (*Leistes superciliaris*).

The harmless little lizards (*moko*) may have been stowaways on the Polynesian canoes. They have haunted the imagination of Easter Islanders, who have carved ceremonial objects in their shape.

There are few insects on the island, and their number has certainly increased since European contacts. A sort of cricket is said to have come to the island with the fleet of Von Spee. Flies and cockroaches have become pests.

Of the three domesticated animals of the Polynesians, only fowls were brought to Easter Island or else they alone survived to the time of European discovery. In 1722, there were neither pigs nor dogs, though Behrens (18, vol. 1, p. 131) tells us that the natives who boarded Roggeveen's ship "seemed to be acquainted with pigs." His statement may be inaccurate, but it is not unlikely that the natives did remember pigs. Pigs are mentioned in Mangarevan traditions and, according to history, the last sow was killed and eaten there in the seventeenth century. When pigs were reintroduced to Easter Island, they were called *oru*, probably an onomatopoeic name. Dogs are termed *paihenga*, and the usual Polynesian name for dog (*kuri*) applies to cats.

The small, long-legged, indigenous fowls seem to have been less numerous before European contact than afterwards. Cook (53, vol. 1, p. 288) and La Pérouse (130, vol. 1, p. 76) stress their scarcity. The great value given to this bird in the social and economic life of the islanders upholds this impression in spite of G. Forster's statement (83, p. 157) to the contrary. Fowls must have multiplied in the second half of the last century for in 1882 they are said to have been extremely numerous over the entire island in a wild or semi-wild state. Geiseler (87, p. 37) estimates that there were 10,000 chickens at the time of his visit.

Today there are no wild fowls, but chickens are abundant in Hanga-roa and the natives are prodigal of eggs. When the ancient culture was functioning, chickens were the usual gifts to people who must be honored; they were raised for feasts and appear as a favorite motif in art. The feathers were used in making circlets, eyeshades, and hats. The economic value that chickens once had for the natives is manifest in the care they took of them. Near the sites of most ancient villages or settlements, hen houses are found. Often they are the only testimony of the former existence of a village. One officer under Gonzalez says that "the islanders breed fowls in little runs scraped out in the ground and thatched over" (90, p. 122).

The only indigenous mammal was the Polynesian rat which has since been exterminated by rats from the ships. In former days the natives ate rats; Cook (53, vol. 1, p. 288) guesses that they did, and his supposition is borne out by references to the practice in legends. Present natives remember seeing old men eat rats. However, the following tale shows that certain persons were prejudiced against rats and did not consider them a delicacy:

The girl Kava-komari was brought up and grew. She lived in seclusion in her house, where she daily painted her face red and annointed herself with sugar-cane juice. One year she went to a *koro* (feast). All the men admired her. She lived in the *koro* house. Her father took her a bundle of rats and sweet potatoes to accompany the rats (*inaki*). She opened the bundle and saw the rats. The other girls laughed at her. She asked, "Why do you laugh about the rats?" The other girls answered, "We laugh because you are about to eat the rats." The girl said, "Rats are not bad food. Rats are good. We are like calabashes with the mouth below. There below is something ugly with us. Rats are clean. When you defecate it always falls down."

sound in the Easter Island language which does not exist in other Polynesian dialects. Those of southeastern and southern Polynesia are especially similar.

The vowel sounds are the usual Polynesian *a,e,i,o,u*, given "continental" values. They may be either long or short and occasionally the quantity of a vowel may change the meaning of a word. For instance, *ūi* means to ask; *ui*, to see. The vowels *a,e,o,u* are doubled in a great many common words. This duplication has been clearly perceived by all those who have transcribed Easter Island vocabularies. Even natives, asked to write a text in their own language, use duplicate vowels in some words. Churchill (51, p. 12) considered this a faulty rendition of long vowels. The duplication of the vowel cannot be explained as the dropping of an intermediary consonant, and, so far as I can trust my ear, there is no trace of the glottal stop on Easter Island. If the vowels were long with only an apparent reiteration, I would not have heard two distinct vowels, and surely at least one of the many visitors to this island would have transcribed such sounds as one letter. Geiseler (87, p. 46), whose phonetics is accurate and who gives both the quantity and the accent, writes *túū* (container). The duplication of the vowel in words where no consonant has been dropped is a peculiarity of the Easter Island dialect shared by no other Polynesian language.

There are nine consonants: *r, ng, n, m, h, v, k, t, p*. The *r* is soft and has developed from an intermediate sound *r-l*. This sound has sometimes been transcribed *l*, and the Easter Islanders in speaking Spanish tend to substitute the *r* for *l*. *Ng* (transcribed by Roussel *g*) is the usual palatal nasal of the Polynesian. *H* is an aspirate sound. It is very strong, and even Spanish people confuse it with the *jota*. It represents the *wh* and *h* of New Zealand and the *f* of Tahiti. The frequent appearance of *k* shows the close relationship of Easter Islanders to Tuamotuans, Maoris, and Cook Islanders. The *v* has been derived from the original Polynesian sound *w-v* and still retains a little of its primitive intermediate position.

The modern language of Easter Island is changing; many ancient words have been forgotten, and new words of foreign origin are continually being added. Terms for social activities no longer practiced and names for the plants and animals of the island, in which the present-day natives take no interest, are not remembered. The natives are fully aware of the decadence of their language; only Tepano and a few old women were able to understand the ancient words. Many of the words recorded by Roussel are no longer understood and are said to be entirely out of use. This change in the language is a serious handicap in the translation of traditional songs.

Many Tahitian characteristics have been incorporated in the modern Easter Island language through the influence of missionaries, Tahitian natives living on the island, and the use of Tahitian prayer books. Most of the modern terms for animals and articles of European introduction are taken from French and adjusted to Polynesian phonetics, but some words are derived from English (51, pp. 31-32). Now Spanish is becoming more common, and, since the founding of a school at Hanga-roa by the Chilean government, its use will undoubtedly increase. Most natives are receptive to foreign languages. It is almost inevitable that the Easter Island language will disappear entirely.

By extensive comparisons of vocabularies, Churchill (51) has attempted to determine the exact position of the Easter Island language in relation to the rest of Polynesia, principally to the southeastern division. The statistical method of Churchill is not convincing, but his results are worth mentioning:

> Of the eastern Polynesian languages Churchill found the Tuamotuan dialect to be the most closely related to that of Easter Island. His Tuamotuan material is so incomplete that the affinity of the two languages must be investigated in the light of new evidence. In the vocabularies of Mangareva which were at his disposal, Churchill (51, p. 162) discovered 651 vocables common to Mangareva and Easter Island languages. The dialects differ only in that the Mangarevan *h* has been replaced by the glottal stop. This creates an important phonetic difference between the two languages. The Easter Island dialect shows striking affinity with Maori.

The grammar of the Easter Island language is typically Polynesian and presents no striking individuality. No special gestures accompany speech. The motion of denial consists of throwing the head slightly backward and lifting the eyebrows.

NAMES OF EASTER ISLAND

Easter Island was named by Roggeveen for the day on which he discovered it—Easter Sunday, 1722. In 1770 the Spaniards under Gonzalez had called it San Carlos in honor of Carlos III, the king of Spain, but this name lasted no longer than the memory of the soon-forgotten expedition. At first the Spaniards christened it "Isla de Davis", believing that they had found the island sighted by the English buccaneer, Edward Davis. Captain Cook (53, vol. 1, p. 288) uses Davis's Land as a synonym for Easter Island.

Cook (53, vol. 1, p. 293) and his companions, in 1774, unsuccessfully attempted to discover the native name of Easter Island. The name Teapi was obtained by the Tahitian, Otiti, who understood a little of the native language. Tamariki was also given, but both of these may have been place names. The name Whyhu (Vaihu) was recorded by the reconnoitering party sent by Cook to the interior:

> On its way along the coast the expedition met a chief who was asked his name and whether he was the king of the island or of only one district. The gesture of the *ariki* was interpreted as embracing all the island, and as he uttered the word Vaihu and even made affirmative gestures when called "the *ariki* of Vaihu", the explorers were persuaded that they were speaking with the king of Easter Island. On J. R. Forster's authority (84, vol. 1, p. 589), Easter Island was called Vaihu, until this name was found to apply only to a cove on the south coast near which the interview with the chief took place.

The name Rapa-nui is of recent origin. It is first mentioned in 1864 by Father Eyraud (81, vol. 38, p. 52). A few years later Father Roussel investigated the whole question of names and came to the following conclusion (190, p. 356):

> Native tradition has it that Easter Island never had a maori name which distinguished it from the numerous islands of the Pacific. Rapa-nui is unknown to the natives. This name was introduced by foreigners—that is, by natives of the neighboring islands who called here with the whalers. Over and over I repeated my questions to ascertain the reliability of their statements. They always answered, "We do not know Rapa-nui. Our land has never had a proper name. We only know Hangaroa, Vaihu, Hotu-iti, etc. Everything but the island has a name." This nomenclature extends to houses, mountain peaks, cliffs, the smallest spot of land, stones; hence the names Matavivi, Hanga-piko, Hapina, and so on.

Palmer (171, p. 167), who visited the island while Father Roussel was still there, believes that the name Rapa-nui was given by early immigrants from Rapa (Oparo or Rapa-iti), who called Easter Island the "great Rapa" because of its large size. However, there is no other evidence of an ancient connection between Rapa and Easter Island.

Thomson (215, p. 453) states that the name Rapa-nui was given by the kidnapped Easter Islanders who returned from Peru. They found that Rapa was better known than their own island, so they changed the name Te-Pito-te-henua to Rapa-nui. This explanation was undoubtedly invented by a European to account for a name which was obviously new. Cooke (54, p. 702) writes that the name Rapa-nui was given to the island by Tahitians in 1866 to distinguish it from Rapa-iti. Jaussen (115, p. 240) attributes the name to a sailor.

Rapa-nui is mentioned three times in the Rarotongan traditions as an island visited by early native voyagers (209, vol. 28, pp. 74, 192). Like Stokes (212), I consider the inclusion of Rapa-nui in these traditions to be recent. At the time they were recorded, Easter Islanders had been dispersed throughout Polynesia, some of them residing in the Cook Islands (190 and 89, p. 213). Nowadays the name Rapa-nui is popular on the island itself and is used throughout Polynesia in referring to Easter Island or its inhabitants.

De Lapelin (129, p. 109, note 4) believed that Easter Island was the Mata-ki-te-rangi mentioned in a Mangarevan tradition which he heard in Tahiti. Mata-ki-te-rangi probably refers to Pitcairn or some other island and has been identified with Easter Island only in recent times.

Alexander P. Salmon, a Tahitian and a keen investigator of the island traditions, is responsible for the name Te-Pito-te-henua, transcribed by Geiseler (87, p. 5) and Clark (52, p. 145) into the Tahitian form of *fenua*. Thomson (215, p. 452) and Cooke (54, p. 701) were also told by Salmon in 1886 that this was the original name of the island. They translated it "navel and uterus" and found it appropriate for an island where the volcanic

cones had the form of navels and where the Rano-kao and the Rano-raraku could be considered the "uterus" or the "womb" of the land or perhaps of the statues. If the legend of Hotu-matua was dictated to Thomson in its true native form, the name Te-Pito-te-henua was bestowed upon the island by its first king just after he landed at Anakena. Thomson translates the name "The navel-of-the-deep"; Cooke (54, p. 708) calls it "The-land-in-the-middle-of-the-sea"; Jaussen's posthumous paper (112) calls it "The-navel-of-the-world." The word *pito* means "end" as well as "navel", and thus the mysterious name discovered by Salmon would be "The-end-of-the-land". This interpretation was proposed by Churchill (51, p. 3) and confirmed by some Easter Islanders who pointed out on a map the three promontories as the "pito-te-henua" or the ends of the island.

Te-Pito-te-henua is not unknown to the present islanders who must hear it frequently from visitors. My informant insisted that a large round stone on Ahu-te-pito-te-kura was the "navel" from which originated the name of Te-Pito-te-henua, but I have good reason to believe that he forged this tradition. The name may have some remote connection with the cutting of the navel cords of Tuu-ma-heke and of Ava-reipua, shortly after the arrival of Hotu-matua (p. 56) on the island.

Thomson (215, p. 452) and Cooke (54, p. 702) says that the name Hiti-te-eiranga (misspelled Kiti-te-eiranga) was used by the English. Jaussen (112) gives it as one of the names of the island. Churchill (51, p. 2) discards it as non-existent either in the Easter Island dialect or in any other Polynesian language. Stokes (212) has brought new evidence that during the last century the name Hiti-ai-rangi (The-border-of-the-sky) was, if not the real name of the island, one of the names by which it was known abroad. In Rapa he met natives from Tokelau and central Polynesia who had returned from Peru on the same ship which carried back to Easter Island the survivors of the 1862 kidnapping. These men remembered that the Easter Islanders on board called their home country Hiti-ai-rangi, but one of them also heard the name Rapa-nui from a sailor on the ship. If Hiti-ai-rangi was actually the native name for Easter Island it would have been known to Roussel, who spoke the native language and made special inquiries about it, and to Salmon and others who stayed long on the island. Present natives are totally ignorant of this word. Like Rapa-nui, Hiti-ai-rangi was perhaps a name given to the island by foreigners at the time when European influence brought together natives of distant Polynesian islands.

None of the names discussed here has been accepted unanimously by the islanders. In my opinion, there was no native name for the whole island. If there had been one it could hardly have disappeared by the time the natives were first asked for it. Originally, no need was felt for a general name for the island, as it was probably never visited by the inhabitants of other islands.

The lack of a name for the island as a whole "was quite in accord with the islander's habit of mind to speckle his home with names changing every few feet and to leave the major divisions nameless" (51, p. 4).

EUROPEAN CONTACTS

With no sheltered harbors along its coast and with winds which suddenly shift direction, Easter Island does not afford safe anchorage for any vessel, least of all for sailing ships. This unfavorable geographical feature combined with isolation, lack of resources, and the suspicious attitude of the natives is partly responsible for the enigmas presented by the island's culture. The early discoverers and seafarers were little inclined to stay long on an island considered dangerous for ships and men; information about the native culture was obtained hurriedly and is generally superficial or incomplete, notwithstanding the talent of observers like Cook, the two Forsters, La Pérouse, or Beechey and the enormous interest they took in the strange monuments they saw scattered everywhere. When the missionaries settled on the island, in the beginning of the second half of the eighteenth century, the old life had already disappeared.

The mysterious land, "500 leagues from Copiapo," sighted in 1687 by the buccaneer, Edward Davis, was probably not Easter Island but Mangareva. In his quest for the hypothetical land of Davis, Roggeveen came upon Easter Island on the fifth of April, 1722. The following day a native went on board the flagship, where he made a very favorable impression. He was cheerful, "lively in mien, as well as pleasing in speech and gesture" (18, vol. 1, p. 123). His behavior was observed with much curiosity (186, p. 8). And as the musicians played their instruments for him, "he began at once to caper and dance about" (18, vol. 1, p. 124). He was sent ashore with various small gifts.

Later a great many natives boarded the ships and showed (186, p. 11) "at that time their great cupidity for everything they saw; and were so daring that they took the seamen's hats and caps from off their heads, and sprang overboard with the spoil." Further attempts to pilfer were made when Roggeveen and a party of 137 men landed. The resulting confusion and the threatening appearance of the islanders, who picked up stones, frightened some of the crew, who fired a volley. Ten or twelve natives were killed and the others ran away. But, as no more harm was done them, the fugitives returned with friendly gestures and with no apparent resentment. They were ordered by a chief to bring to the foreigners presents of sugar cane, bananas, fowls, and yams. If Behrens (18, vol. 1, p. 128) is to be relied upon, they even bowed and knelt before the Dutchmen and brought them standards like those they presented to their *ariki*. Behrens (18, vol. 1, p. 134) says that the women proposed themselves quite openly and were offered to the sailors by the men. Roggeveen, however, states that only two or three old women were seen.

From scant information given in Roggeveen's log (186) it is apparent that the ships anchored on the north coast, probably at La Pérouse. Fearing for the security of his vessels when a northerly wind blew up and convinced that Easter Island was not the land of Davis, Roggeveen made no attempt at a more thorough exploration of the island and sailed forth on the tenth of April.

The experiences of all later visitors in their dealings with natives were very much the same as that of Roggeveen at this first contact. Despite the nearly complete change of their culture, the natives of today react no differently to the arrival of a foreign ship. They evince the same curiosity, they are gripped by the same excitement, and the same noisy crowd awaits the landing boats. The women are no less generous with their persons, and the men no less prone to petty thievery if opportunity comes their way.

The main sources for the events which accompanied the discovery of Easter Island are Roggeveen's log book (186) and the narrative of Carl Friederich Behrens (18). Roggeveen's account is precise and accurate in details; Behrens' famous description of Easter Island is one of the most fanciful and misleading documents we have.

In a new effort to reach the land of Davis, a Spanish expedition, under the command of Felipe Gonzalez y Haedo, rediscovered Easter Island in 1770. The two Spanish ships were anchored outside the cove of La Pérouse (Hanga-o-honu), but disembarkation was made on the beach of Ovahe. In order to chart the island which Gonzalez believed he was the first to discover, a boat was sent around the island which returned the following day after having stopped for the night near Vinapu on the south coast. A party was then landed to reconnoiter the interior and distract the natives, while another group ascended the slope of Poike with three crosses to be planted on the tops of the three parasitic cones on the side of Puakatiki, thus solemnly taking possession of the island in the name of Spain. Natives, invited to sign the act of possession, made marks on the lower part of the document and by so doing became Spanish subjects. Relations with the natives were cordial. The crews had been given strict orders not to molest them, and exchanges went on quite satisfactorily, although the Spaniards noticed the thievery of the natives and were bothered by their begging. The women invited the visitors to have sexual intercourse with them, and the island men were often the intermediaries in these affairs. The Spaniards seem to have disembarked infrequently, and the exploration of the interior of the island was neglected. The Spanish ships left after six days.

Captain Cook visited Easter Island during his second voyage to the South Seas (1772-1775). He stopped for three days in the bay of Hanga-roa, now

Cooks Bay, which thereafter became the usual anchorage. Cook himself went ashore for a short while and saw only the beach of Hanga-roa and the ahu nearby, but George Forster and some others made an excursion toward the heights now occupied by the village of Hanga-roa. The second day a party reconnoitered the interior of the island. They followed the slopes of Rano-kao, passed by Orito, and reached the south coast near Vinapu. There they walked along the shore beyond Ovahe, presumably not far from Akahanga Bay, for they saw the first isolated statues standing nearby. Halfway between Ovahe and Akahanga some members of the expedition must have ascended one of the hills of the interior, as they distinctly perceived the north coast. On the way back J. R. Forster, who had joined the party, climbed the crater of Punapau and saw the quarry with the big, red tufa hats scattered about.

During the three days, the natives were friendly and willing to trade the products of their land for small articles, Tahitian tapa, and coconut shells. Sly thievery was manifested on every occasion; one native was wounded by a shot when he tried to steal a bag from an English officer. The women gave themselves to the seamen without restraint and for the most trifling gifts.

Disappointed by the meager resources of the land and anxious about the weather, Cook sailed with an incomplete knowledge of the island. The accounts of Cook (53) and the two Forsters (83, 84) emphasize the barrenness of the island, the small number of inhabitants, and their poverty in contrast with the size of the statues and the impressiveness of the other monuments. Thus began the mystery of Easter Island. Cook's landing may have coincided with a destructive war which went against the people of the Tuu district, decimating the population of the south and west coasts.

La Pérouse, leading a French expedition, landed at Hanga-roa in 1786. His time ashore was devoted to observing native behavior and looking at the monuments. Taking advantage of the moderation and patience he had imposed on his crew, the natives committed the most daring thefts, taking away the hats of the visitors and picking their pockets. The women collaborated in this general pilfering or "offered their favors to those who were willing to give them presents" (130). Some native men, as had been observed by Gonzalez' officers, acted as go-betweens in the hope of reward and even obliged young girls to prostitute themselves. A few natives who seemed to have some authority over the others pretended to stop the thieving, but they never caught the culprits and were discovered to be no more scrupulous than the others. At the end of the day a little fight with the natives took place as the consequence of stealing a grapnel, but nobody was killed. La Pérouse was especially shocked by the apparent hypocrisy of the natives. He complains (130, vol. 1, p. 75) that "the Indian who had just received a present, and

appeared the most eager to render us a thousand services, was, in reality, ever the most to be suspected."

Following Cook's example, La Pérouse sent an expedition to explore the interior of the island. This party, led by M. de Langle, covered almost the same route as that of the English, and very few new data were recorded. The reconnaissance of the south coast was not carried farther than Ovahe. On the way back the party ascended the Rano-kao, and one of the members even descended into the crater, where he examined the lake and the fringe of vegetation around its edge.

The visit of La Pérouse marks the first attempt of white men to modify native culture by introducing new plants and domestic animals. The gardener of the expedition planted in appropriate soil cabbages, carrots, beets, corn, gourds, oranges, lemons, and cotton (130, vol. 1, p. 90). A couple of goats, sheep, and pigs were presented to the natives. The islanders seem to have received no particular benefit from these gifts, and none of the animals or plants is mentioned by subsequent voyagers. Sixty years later, the same food sources were reintroduced by the missionaries. Brown (27, p. 64) claims to have heard a tradition which alluded to the pigs left by the French navigator. They were supposedly kept in a hole, fed on bananas and sweet potatoes, and finally eaten together with their litter. I found no evidence that the pigs referred to in the tradition were the hog and sow given by La Pérouse. They were designated to me as animals put on the island by a boat of more recent times.

The La Pérouse Expedition made an invaluable contribution to the ethnography of Easter Island. A geographical engineer, M. Bernizet, described the houses and the monuments of the natives with the greatest technical accuracy, and an artist represented them with exactness and ability.

In 1804 the Russian boat *Neva*, under Urey Lisiansky, sailed around the island for four days but made no attempt to land (143, pp. 51-60).

Shortly after the visit of the *Neva*, the captain of the American schooner *Nancy* kidnapped 12 men and 10 women after a bloody combat with the natives. The victims were to have been taken to the island of Massafuero, where a colony was to be established for seal hunting. When the boat was three days off Easter Island, the prisoners were allowed on deck. The men immediately jumped overboard and swam in the direction of their home. Efforts of the captain to rescue them were vain. This same captain made several raids on the island to recruit seamen for the same project. These attacks changed the friendly attitude of the natives toward foreigners to distrust and hostility. For this reason, when Alexander Adams, captain of the Hawaiian brig the *Kahu-manu* (1806) and Captain Winship of the *Albatross* (1809) arrived at the island they were unable to land (127, vol. 1, pp. 142-144).

In 1808 Captain Delano (5, pp. 355-358) skirted the north and the west coasts but could not go ashore because of the heavy surf in the bay of Hanga-roa.

In 1816, a Russian expedition under the leadership of Otto von Kotzebue landed at the island and was surprised at the distrust of the natives. However, the islanders were eager to trade the products of their land for scraps of iron. In commercial transactions they manifested their customary cleverness in stealing and cheating. When the rowboats approached the shore the natives "ran about rejoiced, and shouted; signs of peace, threatening, stone throwing and shots, testimonies of friendship were exchanged" (127, vol. 3, p. 225). The first attempt to land was repelled by force "amidst laughing and joking," but a second attempt, supported by musket shots, succeeded. The Russians were immediately surrounded by a big crowd of men with painted faces who "danced with the most ridiculous motions and contortions of the body" and made a terrible noise. Stones were thrown and blank volleys were fired. The natives dispersed and fled behind rocks. Noticing that no harm was done, they poked fun at the intruders and became more and more aggressive. Kotzebue had to order his men to retire, and a few hours later left the island. This hasty departure prevented him and the German scientist, Adalbert von Chamisso, from making observations. The only scientific results of this visit were the inaccurate drawings of Choris. (See Kotzebue, 127, vol. 1, pp. 137-141; vol. 3, pp. 225-226; and Choris, 49, pp. 10-12.)

Beechey's experiences (15, vol. 1, pp. 40-61) with the Easter Islanders in 1825 were similar to those of Kotzebue. At first the natives were friendly and excited, swarming to meet the boat at Hanga-roa. "Bananas, yams, potatoes, sugar-cane, nets, idols were offered for sale, and some were even thrown into the boat, leaving their visitors to make what return they chose." Among the swimmers women were numerous and they "were equally or more anxious to get into the boats than the men, and made use of every persuasion to induce the crew to admit them." The crowd surrounding the boats stole every article they saw and "the women were no less active in these piracies than the men, for if they were not the actual plunderers, they procured the opportunity for others, by engrossing the attention of the seamen by their caresses and ludicrous gestures" (15, vol. 1, p. 44). When the Englishmen had disembarked, the pilfering continued amid terrible confusion and renewed excitement. The natives then turned to real plundering, and the visitors decided to retreat to their boat. This was the signal for a general assault, and showers of stones were thrown at the troup hurrying to reembark. A discharge was made on the natives, and one of them, perhaps a chief, was killed. Beechey left the island that day. No new knowledge was gained by

his visit, but he gave a good description of the north coast, especially of the bay of Hangoteo.

In 1822 the skipper of an American whaling ship paused at Easter Island long enough to kidnap a group of girls who were thrown overboard the following day and obliged to swim back to the island when they left the ship. One of the officers, simply for amusement, shot a native with his gun (162, vol. 2, p. 279).

At a session of the Royal Geographical Society (172, vol. 14, p. 117) Mr. P. P. Blyth reported that he visited Easter Island in 1826.

Moerenhout (162, vol. 1, pp. 23-28) passed Easter Island on one of his voyages from South America to Tahiti. A native boarded the ship and invited the sailors to go ashore, alluding to the charms of the women. Moerenhout was told by other captains that the Easter Islanders made "shameful commerce" of their women and that venereal diseases were common among them. This statement indicates that the natives had already had more contact with white men, probably with whalers, than might be deduced from recorded visits.

A manuscript letter written by H. Cuming to Dr. Hooker (dated London, March 21, 1832) reveals that in 1831 the island was visited by the schooner *Discoverer*. Since the document is still unpublished it is of interest to reproduce the passage concerning Easter Island:

> On the 28th arrived at Easter Island and lay to all the day. Number of the natives came on board; were a lively good natured race, rather inclined to take anything portable but free to give for the merest trifle. Supplied us with Plantains, Yams, Sweet Potatoes and a Root called Cocos in the West Indies. Could not procure any botanical specimens from fear of the numerous inhabitants who lined the shore. Could not discover anything larger than the Plantain and that was not high. The sides of the hills were extremely well cultivated, laid out in squares and in great number together.

Admiral du Petit-Thouars (65, vol. 2, pp. 222-234) sailed along the coast of Easter Island (1838). Several native men and women, who swam to the ship, performed a dance on board. They tried to steal, and some suggested that the crew go ashore where they would find an abundance of food and women.

The visit of the English frigate *Portland* (1852) is known only by the brief allusion of Palmer (171, p. 169) in his address to the Royal Geographical Society in which he mentions some ethnographical observations made by the officers of the ship.

In 1856, The Friend, a journal published in Honolulu, printed a letter from James Hamilton, master of the bark *Prudence*, who lost one man in a fight with the Easter Islanders. He made an attempt to trade with the natives, but they capsized the boat which went ashore, and tried to take the clothes of the crew. The second officer was killed and the boat steersman taken

ashore but rescued the second day. James Hamilton observed that the Easter Islanders had boats of the European type. "I do not think," he remarks, "they came honestly by them, if so I think the master who gave them knowing their character for treachery, is highly culpable for I think a ship would not be safe off here, and I think there are strong reasons for that opinion from the value they appeared to set upon mine, and they know a ship's value; it would be of immense value to them." Frequent visits of the whalers to Easter Island are mentioned by Father Ollivier (165, vol. 38, p. 46).

About 1859, exploitation of the guano on the islands off the Peruvian coast was a prosperous business, but the number of workers was insufficient. The recruiting of labor by force became a flourishing industry. As early as 1859 or 1860 some Easter Islanders were kidnapped from their island and sold as slaves, but in 1862 a real war expedition was planned against the island. The only official version of this raid, which was to have such dire consequences for the island, is the following report of the French Prosecutor in Papeete (129, pp. 543-544):

> The *Cora* left the Callao the 4th of December 1862 with the mission of recruiting workers throughout Oceania. Arrived on Easter Island, the 19th of December, she found 7 ships of the same country which were already there for the same purpose. The captains of these different vessels who had hoped to obtain workers by persuasion resolved to kidnap them. The 23 of December a gang composed of 80 of these scoundrels, among whom were 7 or 8 men of the *Cora*, went ashore with their weapons, under the command of the captain of the *Rosa-Carmen*.
>
> They spread themselves out while several members of the crew attracted the natives by showing them articles which excited their greed. When about 500 natives were gathered, the chief of the pirates gave the signal, which was a revolver shot. To this signal the men answered with a volley, and about ten natives fell never to rise again. The others, terrified, tried to escape, running in all directions, some diving into the sea, others climbing the rocks; but 200 were captured and firmly tied up. A witness says that the captain of the *Cora*, Aiguirre, discovered two Indians in a cave trying to escape. As he could not convince them to come with him, he cruelly killed them. The 200 kidnapped natives were divided among the ships, which sailed some days later.

The commander of the *Topaze* (1868) says in his report (180, p. 141) that the natives who went in their canoes to barter with the Peruvian ships were captured first and then the seamen landed and kidnapped others. Several hundred were taken in that way. In 1915 there were still some old men who remembered this event. For Mrs. Routledge (194, p. 205) they illustrated by action how the raiders threw to the ground gifts which they thought most likely to attract the inhabitants and how, when the islanders were on their knees scrambling for the gifts, they tied their hands behind their backs and carried them off to the waiting ship. Among those kidnapped were the king, Kaimakoi, and his son, Maurata as well as most of the learned men (*maori*). They all died on the guano islands. The raid completely disheartened the natives. To escape from future slave raids the islanders took refuge in the caves, where they lived in great discomfort and constant anxiety, neglecting the cultivation of their fields.

At the request of Mgr. Jaussen, representation was made to the Peruvian government by the French minister in Lima. The British government backed France in demanding justice for the enslaved islanders. Orders were given to assemble the blackbirds at Callao so that they might be sent back to their homes. Tuberculosis, smallpox, and the change of living conditions and climate, together with unsuitable food and the hardships of guano digging on the barren islands off the Peruvian coast had killed about 900 natives in less than one year. Before the surviving 100 could be put on board ship, many of them contracted smallpox and 85 died before the end of the journey. Only 15 were landed on the island, and they carried with them the infection of smallpox, which in a very short time decimated the rest of the population. The casualties caused by the epidemic are said to have been in the thousands (64, pp. 256-257). Zumbohm (230, vol. 5, p. 662) adds: "The inexperience of the natives, the lack of remedies, their imprudent practices, all increased the number of victims to such an extent that they were unable to bury them."

During these few years the native culture crumbled; the old racial order was destroyed, the population reduced to one third or one quarter of its size, and the transmission of the religious and moral traditions was suddenly interrupted. Internecine wars completed the island's ruin. Zumbohm (230, vol. 5, p. 662) writes:

> The former inhabitants of the island had left rather good plantations. Those who remained had an easy living and indulged in their natural laziness, not caring to insure their future by working. But when they came to the time to share the products of the fields, quarrels arose which rapidly degenerated into dangerous wars. These fights brought waste and plundering and consequently starvation. That is why the population decreased so rapidly.

Ollivier (165, vol. 39, p. 257) alludes to this period of anarchy and misery in the following terms:

> The mortality caused by misery and famine is increasing rapidly. The plantations have been plundered and they give scarcely any sweet potatoes, which these unhappy people eat half raw. It must be added that laziness and carelessness make their situation even worse. It is necessary for some brother with the energy of Brother Eyraud to start new plantations in the lands near the sea in order that help may be given to this starving people. It would be possible then to take care of all the children, made orphans by the death of their parents or by abandonment, who lead vagrant lives.

At this time, not before, there developed the gap between present and past which makes so difficult the understanding of many aspects of the Easter Island culture. The missionaries were struck by the native's lack of interest in their traditions and lack of knowledge of their history. They were surprised also to notice how little was left of the old religion and of the ancient social organization.

The first white man who settled on the island was Eugène Eyraud, a layman of the Congregation of the Sacred Heart of Picpus. He landed in Hanga-roa at the beginning of 1863, with some Easter Islanders who had been rescued from a Peruvian ship. The natives were not hostile to him, but they stole most of his goods. During the first year spent among the islanders, Eyraud was constantly exposed to larcenies, especially by one native, Toro-meti, who had made himself a benevolent but tyrannic protector of the missionary. The natives tried to put to practical use the knowledge of Eyraud by obliging him to build a boat. At the time when his life was becoming unbearable, a schooner with two priests arrived and took him back to Chile. Two years later, Eyraud returned to Easter Island, accompanied by Father Hyppolyte Roussel and three Mangarevans who had joined the missionaries to help in the conversion of the natives. At first the natives were openly opposed to the missionaries and hampered their work, but little by little they showed more willingness to learn prayers and hymns and in less than ten months the missionary and his assistants had gained strong influence over them. In the same year (1866) new missionaries went to the island—Father Gaspard Zumbohm and Brother Theodule Escolan.

Christianity made rapid progress among the Easter Islanders. The first to be converted were the children, a few adults, and then the women. The most refractory were the old chiefs. The missionaries had their headquarters at Hanga-roa but tried to spread their teachings throughout the island. Their success was almost complete when the chief of Hotu-iti received them with great ceremony. When, a few hours before his death in 1868, Brother Eyraud asked whether all the natives had been baptized, Roussel could answer that all were Christians. The last pagan had been taken into the church a few days before at the Feast of Assumption (113, pp. 90-154). Henceforth the natives were concentrated at Hanga-roa and Vaihu where they could receive a Christian education and be under the control of the missionaries.

Profound changes took place in the material situation of the natives in the course of four or five years. The missionaries spread new arts and crafts and taught the islanders to build plank houses and to make furniture. The beautiful fig trees of the village of Hanga-roa were planted by Father Roussel, and at that time were introduced the first oranges, peaches, corn, pumpkins, and beans. In 1864 Eyraud had taken with him some sheep, which the natives stole and ate. Five years later, Father Roussel returned from a visit to Chile with a shipload of cattle, sheep, horses, pigs, donkeys, and even cats, for rats were abundant on that island.

Interesting for their native psychology and for the history of the first contact between European and native cultures are the anecdotes told by Zumbohm (230, vol. 5, p. 666):

> When the first horse was taken ashore the natives were greatly excited. "Some ran away as fast as they could, others lay on the ground. Those who were sufficiently brave to consider the strange thing a bit closer were not a little amazed when they saw the animal divide into two pieces when the rider dismounted." The islanders seem to have realized what a marvelous invention the wheel was. "When the wheelbarrow was loaded and set in motion, our islanders shouted with sheer admiration; the turning wheel was to them a living thing."
>
> In 1935, officers of the *Mercator* rode bicycles on the island. Though the natives were acquainted with cars and other vehicles, the bicycles created genuine bewilderment. Many made the sign of the cross and muttered "Tatane", expressing thus the fear that the device was the work of the devil.

In 1868 the English battleship *Topaze* visited the island and took away the statue called Hoa-haka-nana-ia, which stood in a house of Orongo. Palmer (171), the surgeon on the ship, made a rapid survey of the island and went as far as Rano-raraku, which he described for the first time. His scanty information about native life shows how greatly the old culture had been impaired. The most valuable data were given him by Roussel.

Captain Ignacio L. Gana, who has written a much-quoted treatise (86) about the island, visited it on the Chilean corvette *O'Higgins*, which stopped there in 1870. All of Gana's information derives from Roussel; unfortunately the Chilean officer either misunderstood or altered the original statements of the missionary so that his information is misleading.

The successful work of the missionaries was brutally interrupted in 1870 by the activities of a French adventurer, Dutroux-Bornier, who settled on the island. Dutroux-Bornier bought from the natives, for some pieces of cloth, the place called Mataveri, one of the most fertile lands of the island. Later he associated—for the exploitation of the island—with a wealthy trader of Tahiti, Mr. Brander. Very soon Dutroux-Bornier quarreled with the missionaries and started an open war against them. He was supported by the natives who had left the village of Hanga-roa to live with him in Mataveri and by the people of Anakena who were envious of those of Hanga-roa. Toro-meti, who seems to have been a chief or a man with considerable influence, joined Dutroux-Bornier. The people of Mataveri made several raids, which were reciprocated by the people of Hanga-roa. A war broke out in which the huts of both sides were burned and some men killed. Dutroux-Bornier went so far as to shell the village with gunfire. Every day Dutroux-Bornier's men plundered Hanga-roa and Vaihu which were at last entirely destroyed. Finally Bishop Tepano Jaussen ordered the missionaries to depart from a place where no more work could be done. The same year Brander sent a boat to Easter Island to recruit part of the population for his plantations in Tahiti. He had promised that this boat would carry all the natives willing to settle with the

missionaries in Mangareva. The whole population decided to abandon their home country, but about 175 were obliged to remain because the ship was too small or, more likely, because Dutroux-Bornier needed workers and induced the captain to manage so that enough islanders were left.

On June 24, 1871, the Russian corvette *Vitiaz* stopped for a few hours in the bay of Hanga-roa. Apparently nobody went ashore and the information about the island published by Miklukho-Maklay was obtained in Mangareva from Father Roussel where the Russian sloop stopped for four days.

In 1872, the French warship *La Flore*, under Admiral F. T. de Lapelin touched briefly at Easter Island. The head of a large statue on the Hanga-roa ahu (ahu Ana-koiroroa) was taken aboard to be presented to a French museum. Pierre Loti, who was then a midshipman on board the *La Flore*, wrote a description (146) more poetical and romantic than accurate, which has popularized in France the legend and the mystery of Easter Island.

The French warship *Seignelay* visited the island in 1877, a few days after the natives had murdered Dutroux-Bornier. At that time, there was apparently nothing left of the work of the missionaries. The French traveler, Pinart (178), who accompanied the *Seignelay*, made a rapid survey of the archaeological remains on the island, paying slight attention to the native life.

After 1877, the ships which called at Easter Island became so numerous that it is unnecessary to mention their visits unless they have added to our information about the past of the island or have effected some changes in the life of the islanders. Since 1864 white men have been permanently established on the island; through them and Tahitians much of European influence has come to the natives.

After the death of Dutroux-Bornier, Alexander P. Salmon, associate of Brander, took his place on the island. Salmon, who was an intelligent man and half Tahitian, understood native ways. Certainly he has done more than anyone else to modify the ideas and the material life of the Easter Islanders. Economically the changes were important—more cattle were introduced, and in 1886 there were already 18,000 sheep on the island.

Geiseler visited the island in 1882 as commander of the German sloop *Hyane*. In the few days he spent there, he made the most complete ethnological collection which has ever been obtained from the island and gathered much important data.

The American ship *Mohican* stopped at Easter Island for 11 days at the end of 1886. Paymaster Thomson and Dr. Cooke, surgeon of the ship, made a general survey of the archaeology of the island and recorded precious ethnological data. Thomson's report on Easter Island is perhaps, aside from the narratives of the first discoverers, the most important source on the past of the island, but Salmon, who was on the island at the time of the visits of Geiseler and Thomson, must be credited for most of the data and the

documents which have been recorded. The chants and native poetry published by Thomson were transcribed and translated by Salmon, who also obtained the long list of kings which is given in the same paper.

During 1914-1915 Mrs. Routledge spent 16 months on the island and thoroughly studied its archaeology and ethnology. Unfortunately only the popular account (194) of this expedition and a monograph on Orongo (195) have been published. Routledge's survey seems to have been very detailed, and it is regrettable that her findings have not been made available.

Although France had certain rights on the island, she formally renounced them, and in 1888 the Chilean captain, Policarpo Toro, annexed the island for Chile. An unsuccessful attempt at colonization was made by Pedro Toro Hurtado, who took a group of Chileans to the island. Mr. H. Merlet of Valparaiso acquired from the representatives of Brander, Dutroux-Bornier, and Salmon the interests they held on Easter Island. The Chilean government leased the whole island with the exception of the village of Hanga-roa and the near-by lands which remained the property of the natives. The interests purchased by Merlet were sold to the Compania Explotadora de la Isla de Pascua (Williamson and Balfour Co.) who still own the land.

Every year the Chilean training ship *Baquedano* goes to Easter Island. The commander of the ship has a supervisory authority and settles all the conflicts which have arisen during the year. Unfortunately the *Baquedano* stops at the island for only a few days, and the various problems of the natives can receive but superficial treatment. The training ship carries to the island old clothes given by Chilean families. These are distributed among the natives, very often in exchange for curios.

The Williamson and Balfour Co. is the only real link the natives have with western civilization. It gives them work and the opportunity to buy the European articles and food they need. Of the 61 square miles, 7.72 square miles belong to the natives; the rest belongs to the company. At present the natives have more land than they need and cultivate only a part of it. When a young couple marries, the government gives them 10 hectares. Perhaps in the distant future, if the population continues to increase at the present rate, the islanders will need more land. With the exception of employees of the company, the natives are not allowed to cross the boundaries of the strip of land which is reserved for them. This measure, which may seem drastic, has been taken to prevent sheep stealing, which is carried on by natives as a kind of sport. Despite barbed wire, no week passes in which they fail to organize a raid on the sheep. Between two and three thousand animals disappeared thus in 1934.

A few natives are permanent employees of the company. They watch the gates which give access to the company's property, form night patrols, and do routine work on the farms. At shearing time most of the young men and women on the island gather at Vai-tea, the farm in the middle of the island,

for a fortnight of intense activity. Shearing is their only means of making money to acquire necessary goods. They are paid according to the number of sheep they shear per day. Those who are skillful may earn as much as two or three hundred pesos during the season; even young girls make as much as 12 pesos a day. Such salaries, when compared with those of the working classes in Chile, are bountiful. Shearing time is the greatest event of the year, and it has taken the place of the old native feasts. The work, with its competitive aspect and the gathering of the young people in an isolated part of the island, breaks the monotony of daily life.

The standard salary for a day's work, established by the Chilean government, is 4 pesos plus half a sheep and other minor rations. The company has taken great care to give the natives a chance to benefit from the exploitation of the island. Export of corn has recently become a possible source of profit, and the company has tried to encourage the natives to cultivate maize. At the present time only two or three natives have taken advantage of this new source of income.

The most coveted foreign goods are clothes, soap, and perfume. The first things the natives ask for aboard a foreign ship are shirts and trousers. Money is accepted, but a shirt is preferred to a sum of money four or five times as great as the value of the article. In order to obtain clothes, they resort to the making of curios, the most flourishing industry of the island. The men carve wooden images, canes, and swords; and the women plait hats, crowns, or feather strings. Most individuals are able to produce these articles, but some are unusually gifted and have specialized in their crafts. Those who want a stock of curios to trade during the visit of a ship may acquire from the experts articles to trade on their own account. As the ships that visit the island are generally warships or freighters, it is easier for the men to get clothes than for the women, and any textile which may be used by women has a high value on the island.

Soap comes after clothes in the scale of value. Natives are always willing to work or to exchange curios for soap. Combs, mirrors, cheap rings, or earrings are begged for, but not so eagerly coveted.

The islanders rely mostly on the products of their land for food, but imported products are always welcome changes in the monotony of their menus. Flour, rice, and sugar are either bought at the company store or received as part payment for their work. The tobacco which grows on the island is considered too strong by the natives, who prefer Chilean cigarettes. Smoking is a widespread habit, especially among women.

Numerous conflicts have arisen between the natives and the company. Stealing has been one of the chief sources of trouble, but many other difficulties have come from the turbulent spirits of the natives and from their easily excited imaginations. Easter Islanders are apt to believe the most unfounded

rumors, and are easily convinced that others nourish bad intentions toward them. The most serious recent conflict occurred in 1914 (194, pp. 141-149); the natives, encouraged by an old woman named Angata, killed a great many animals and claimed possession of the cattle and land. The uprising was provoked by the action of a white man, but Angata kindled the animosity of the natives by dreams in which God supposedly revealed His will to her. Sure of divine protection, they became very daring. The agitation finally subsided, as such things usually do among the natives who indulge in novelties and soon grow tired of them. There have been more recent disturbances, but none so grave as that witnessed by Routledge. However, since the natives are constantly incited against the company, it is probable that trouble will again arise.

The most interesting aspect of the culture of present-day natives is their very sincere and deep attachment to the Catholic church, though the missionaries did not stay long on the island. The last pagans were baptized only two years before the destruction of the mission. After the departure of the missionaries, the island was without a priest for 16 years. In 1886 Father Hippolyte Roussel returned to the island for 6 months. He was accompanied by Father Albert Montiton. Later, several priests visited the island but stayed only a short time. Recently some Chilean priests have remained longer, among them Father Bienvenido Estella, who has written an account of his experience in Easter Island (80). However, for various reasons, no priest resides there permanently and rites are performed by a catechist of Mangarevan origin. Every day the natives gather in the church to make their prayers together; on Sunday they celebrate a kind of mass, and four times a week they spiritually associate themselves with the masses celebrated throughout the world. The hymns taught by the French missionaries are still sung in the church and the tradition is kept alive by a singing school, presided over by women whose mothers had received the teachings of missionaries. The grip of Christianity has been so strong that very few pagan beliefs or practices have survived. The fear of ghosts and the importance given to prayers are the only traces of primitive religion.

METEOROLOGY

Nights of the Moon

The old Polynesian system of counting time by lunar months in which each night had an individual name was abandoned by the natives when they became Christians. The new faith could not be adapted without the Roman calendar upon which are based all the feasts prescribed by the Catholic Church. The natives are so scrupulous in observance of these holy days that it is not surprising that the European calendar has entirely superseded the primitive system of reckoning time. The old life was so deeply transformed by contact

(Hora-nui), April (Hora), June (Maro), July (Anakena). He was unable to obtain other names.

According to Thomson (215, p. 546) and present natives, Anakena was the first month of the year. Thomson translates Anakena as August and suggests that the year began at that time because Hotu-matua landed at Anakena in that month, but my informants and Roussel (190) give Anakena as July. The fact that the ancient year commenced with July is very significant. The Maori dated the commencement of the year by the first moon after the rising of the Pleiades, which occurs in June in the southern hemisphere. The first two months of the year in Mangareva also seem to have been June and July and had some connection with the rising of the Pleiades (Matariki). (See 28, p. 413.)

Ora or Hora seems to have been the name of the warm season during trade winds (*ora*: zephyr, light wind). The trade winds become more regular in November and reach maximum regularity in February. The word *ora* cannot account for Hora-iti and Hora-nui, the terms given for August and September which are cold winter months. The name Hora-nui, given by Roussel to March, is possibly due to confusion. The term for winter is Tonga (Southern Wind).

Sun and Stars

Common expressions are *ka hiti te raa* and *ngaro raa* or *raa topa* (the sun is rising or setting). Dawn is termed *huero*, which is probably a modern word; according to my informant, the old term was *uraura*, which also applied to the color of the sky at sunset. Other terms for periods of the day (*raa*) are: morning (*popohanga*), early morning about 3 a.m. (*te ao popohanga*), dawn (*te he mai te ata*), sunrise (*he otea, kumaehaa*), noon (*raa tini, raa too*), evening (*ahiahi*), night (*po*). The expression for yesterday is *angataiahi*; for the day before yesterday, *angatai-ahi atu* or *angatai-ahi era*. Tomorrow is *apo* and the day after tomorrow is *apo-era*.

The sun or moon in eclipse is *ku kai a te raa* or *ku kai a te mahina* (the sun being eaten, the moon being eaten). Present natives do not remember who eats the moon or the sun. Tepano suggested that it was the demon Katiki or Puakatiki but did not seem sure of it. He suggested also that the moon could be devoured by the sun.

Stars are termed *hetuu*; very luminous ones, *hetuu pupura*. Falling stars are *hetuu rere*; comets, *hetuu huero* or *huero*.

Near ahu Okahu on the west coast there is a small cave called Ana-ui-hetuu (The-cave-where-stars-were-seen). According to tradition this place was an observatory where priests watched the stars and a school where candidates for priesthood were instructed in the science of the stars. The principal duty of these priests was to put people on guard against the evil influence of

Matamea (Mars), Tautoru (The Belt of Orion), and Pau, a star v
appears in October or November. The appearance of these three sta
October foretold death and evil. Fishermen were in danger of being c
by fabulous sharks (*niuhi*). Everyone had to behave properly lest a me
of his family should disappear. At the end of the month, the priests cli
a tower (*tupa*) near the ahu and from there they announced to the c
that the position of the stars had changed and that henceforth they cou
no harm. Matamea and Tautoru were "bad" stars but Pau was some
bad and sometimes good. Reitanga is the name for Sirius. Near ahu Hi
tangi-kotea there are six boulders whose form and position are said to r
sent the Pleiades (Matariki) and to have been put there by Tuu-ko-ihu
culture hero, to remind people that the Pleiades are sometimes dang
and can bring death.

An obscure tradition connects Matamea (Mars) with the raising o
tain crops. A tapu was observed as long as this star did not appear i
sky.

Routledge (194, p. 235) mentions an observatory on Poike:

> On the extremity of the eastern headland there is an outcrop of boulders, one of
> is incised with a spiral design; the place is known as "Ko Te Papa-ui-hetuu", or
> Rock-for-seeing-stars" and here the old men came to watch the constellations. Abo
> hundred yards from these boulders there is another engraved stone on which ten cup-
> depressions are visible; this represented, it is said, "a map of the stars."

The natives did not show me this place and never mentioned it in
cussions. Artificial depressions in rows or files are very frequent nea
ancient settlements. Various natives interpret them differently as dro
rain, enemies slain by a famous warrior, tattooing marks, and so on.

Routledge (194, p. 235) gives the legend of the children changed
stars as the only nature myth she obtained on Easter Island. It was
duced recently by Tahitians and does not refer, as she suggests, to
but to 3° Scorpio or Scorpii. The Tahitian origin of the myth is well re
bered by the natives, who told it to me as follows:

> A woman went to a place where there was a feast. She saw the feast and cam
> with her children. Her husband saw that she was not at home and stayed to watch
> she would come back. When the wife came, he asked her, "Where are you coming f
> "I come from the feast with the children." "Who told you to go to the feast?'
> answered: "I went there by myself."
>
> The man beat the woman, he hurt her, and she fled with the children to the sk
> remained fastened there. The man shouted, "E pipiri ma, come back." "No, we sh
> return; we shall stay here forever."

Routledge (194, p. 235) gives a slightly different version in whic
woman was carried off by a stranger. The husband slew her, and sh
to the sky and was changed into a star. The husband took their two boy
followed her to the sky, " . . . where the three form the belt of Orion

This myth is very popular in Tahiti and from there has spread t

Tuamotus and perhaps to Mangareva (201, p. 488). The original Tahitian myth has been changed on Easter Island. In Tahiti (38, pp. 114-115) and in the Tuamotus (201, p. 488) the two children went to the sky because they were angry at their parents who neglected to give them the products of a fishing party. Both parents fled to the sky in pursuit and the four were changed into stars.

Winds

In Easter Island, as in other parts of Polynesia, the winds are named according to the direction from which they blow, and the same terms are used for the directions. I recorded the following wind names:

Tokerau: north
Papakino: north and west
Tongariki: northeast
Marengorengo (Mareioreio), Matatohio: east
Anoraro, Ohohe (?): southeast
Motu-rauri, Puhi-orongo: south
Vaitarai, Tangaroa-aria: west

The present natives do not know the exact direction of the winds. Tongariki is the name of an important ahu on the south coast, and, as *tonga* means south in most Polynesian dialects, it is very likely that Tongariki was also the name of the south wind. *Tonga* means winter as well. Papakino are bad (*kino*) stormy winds from north and west. Puhi-orongo (south wind) denotes the village of Orongo, on the southwestern promontory, from which the wind blows. Motu-rauri designates a rock off the south shore. Roussel (191) translates *tokerau* as south (*tokerau tai*, south sea), but *tokerau* is also the general name for wind. In Mangareva and the Tuamotus, *tokerau* means north wind. In referring to the north wind as being dangerous to the Miru, Tepano used the word *tokerau*.

A light breeze is *ara*, a strong wind accompanied by a squall is *matangi* or *puhi*, a calm is called *tae makenu*.

Some winds were considered hostile to certain tribes whose enemies are said to have attacked them when those winds blew. The winds called Papakino "made the Miru shy" and favored the Tupa-hotu. The winds Tangaroa-aria and Veki were unlucky for the Marama, and the Marengorengo (Mareioreio) and Runapiropiro boded ill for Ngaure. The members of a tribe are born and die during the blowing of their own wind.

Matangi was the general name given to me for clouds, but it seems to have been used also for a cloud that announced a strong wind. Roussel gives the word *kohu* for mist or fog. The natives classify clouds on a color basis. In this list the word *rangi* (sky) is used as a synonym for cloud. Other terms are: *rangi pungi* (big cumuli), *rangi teatea* (white clouds), *rangi uri* (dark clouds), *rangi punga kirikiri miri* (clouds alternately white and gray like the bark of certain trees), *rangi e ata* (red clouds).

TRADITIONAL HISTORY

There is no other Polynesian island whose past is so little known as that of Easter Island. This is largely due to sudden reductions of population (pp. 20-23) and the complete acceptance of European culture and belief. Fifteen years ago there were still a few men who remembered the ancient culture. Now (1934) there are only two old women who were born before the Christian era. The information on past history which may be gathered is not in the form of direct testimony, but rather in indirect evidence, emanating from a few survivals of the past.

Material on traditional history of Easter Island is limited to several lists of kings which are of dubious value and to a few legends, almost exclusively concerned with the period of settlement, the rivalry between the Long-ears and the Short-ears, and the war between Tuu and Hotu-iti districts. The first period of traditional history deals with the migration, settlement, and great deeds of Hotu-matua and his followers. After this is the long period extending to the present time, in which the only recorded events are intertribal wars, manifestations of the mana of kings, and some incidents such as the discovery of obsidian or the tumbling down of the statues. The struggle between Long-ears and Short-ears is a tale too simple to justify the intercalation of a separate period between the settlement era and the later ages. Lacking genealogies, traditional history of Easter Island has no chronological guide.

SETTLEMENT PERIOD

Sources

Traditions referring to the settlement period were collected at a very early date. Roussel's recently published manuscript (190, p. 357) contains the earliest account of the landing of the first king at Anakena, as told by the natives. It is likely that the brief allusions made by Palmer (171, p. 180) and Gana (86, p. 32) to the same legend derive from the same source and were communicated to them by Roussel. Thanks to the intelligent curiosity of Alexander Salmon, Thomson (215, pp. 526-529) was able to get a complete and detailed native version of the voyage of Hotu-matua and the discovery of Easter Island. Salmon told the same legend to Clark (52, p. 145). Mrs. Routledge had the good fortune to get from an old native another version, abundant with details which even Thomson's text lacks. Juan Tepano, my informant, dictated to me in the native language a fairly good text on the same subject, enabling me to understand much obscure information, discarded or misinterpreted by former investigators. The legend of Hotu-matua as published by Brown (27, pp. 39-42) has the same origin. Despite some divergencies, there is unity between the various versions which seems to indicate a body of traditions which has been transmitted in a fixed pattern.

All sources agree that just after Hotu-matua's canoe had reached shore, Vakai (Vakai-a-hiva) gave birth to a boy, the *ariki*, Tuu-ma-heke, but my version is the only one which connects the birth of Tuu-ma-heke with that of a girl, Ava-reipua, who was born to Tuu-ko-ihu's wife at the same moment. Ava-reipua is given by Routledge (194, p. 278) as the wife of Hineriru the leader of the second canoe, and by Roussel (190, p. 357) as the wife of Hotu-matua. Although there is some possibility that Ava-reipua was the wife of Tuu-ko-ihu, the births of a girl and boy, both children of the canoe leaders, taking place at the same time cannot be merely an incident invented by my informant. Such parallel situations are too characteristic of this type of narrative not to be accepted as ancient.

The cutting of the navel and rites performed by Tuu-ko-ihu over the head of Tuu-ma-heke (p. 65) had a double importance. They fixed the pattern for all future birth ceremonies until a very recent date, and perhaps they were connected with the name Pito-te-henua which is sometimes considered the original name for Easter Island. Whether this name has some link with the legend of the cutting of the navel cord of Tuu-ma-heke is difficult to ascertain, but a passage in the native version of Hotu-matua's story conveys that meaning.

Hotu-matua was credited with having brought to Easter Island not only the cultivated plants but many plants which grew on the island long before the Polynesians occupied it, and all the land animals known to the natives. The plants imported by Hotu-matua are enumerated by Roussel (190, p. 357): taro, sweet potatoes, yams, bananas, *toro-miro, ngaoho,* and sugar cane.[4] With the exception of the *toro-miro* and the *ngaoho,* these plants were actually introduced by the Polynesians from their original home. Ash trees (*marikuru,* not true ash) and sandalwood were considered by the natives as endemic species, but Tepano places them among the plants which were aboard Hotu-matua's canoes. Brown (27, p. 41) refers to a man, Koteke (ko Teke), who "was the guardian of the plants and seeds." Having forgotten the sandalwood (*naunau*) he was obliged to go back to Marae-renga to fetch it. Thomson's early account (215, p. 526) includes potatoes, tobacco, and "the seeds of various plants, including the paper mulberry and the toro-miro trees." This last list shows that at an early date the natives attributed to their first king plants which they had only recently received from Europeans. The same tendency is manifest in regard to domestic animals—pigs which were given to the islanders by Europeans are said to have been brought by the first immigrants as well as the fowls which the first discoverers found on the island. In his desire to heighten the glory of Hotu-matua, Tepano tried to convince me that cats and dogs were among the animals which came at that remote period. He alluded also to the *kekepu,* a rather strange beast which was very like a "pig or a cow" but is probably a large turtle which has disappeared from the

island. On the other hand, pigs, cattle, horses, and sheep were admitt of very recent introduction.

Many other things were probably assigned to the first king, among t the origin of the signs on the tablets. Thomson's tradition (215, p. asserts that "Hotu-matua, the first king possessed the knowledge of written language, and brought with him to the island sixty-seven ta containing allegories, traditions, genealogical tablets, and proverbs rel to the land from which he had migrated." Routledge (194, p. 279) attril the knowledge of reading and writing to Hineriru who "wrote rongo-r on paper he brought with him." Hotu-matua and Tuu-ko-ihu were, sense, culture heroes, and there must have been a general tendency to r them the originators of many inventions and sacred institutions.

Immediately after landing the people started to till the soil, planting cuttings and tubers brought from Marae-renga. During the first three mo while they waited for the crops to be harvested, "they subsisted entirely u fish, turtle, and the nuts of a creeping-plant found growing along the gro which was named moki-oone" (215, p. 527). * Thomson, 18

THE FIGHT WITH OROI

The next episode in Hotu-matua's legend has been recorded in al identical terms by three main sources. It may be called the "fight with and the killing of Oroi." Oroi was Hotu-matua's most bitter enemy: Th son (215, p. 528) makes him the unsuccessful rival of Hotu-matua's bro (Machaa), and Routledge (194, p. 279) says that he was the killer of H matua's children in Marae-renga.

Ko Oroi he piko mai i runga i te vaka o Tuu-ko-ihu, i oho mai ai mai hiva mai Marae-renga. He piko mai Oroi i raro i te vaka o Tuu-ko-ihu. He oho mai tau vaka era, he tomo ki uta ki Hanga-o-hio. He oho mai te tangata, he marere. He oho ki uta i te po, i piko mai nei Oroi. He tomo rua ki uta, he noho i uta nei. Ka tomo takoa ana te vaka o Hotu-matua. He tomo ana, he poreko ana ko Tuu-ma-heke te poki, i poreko a Hotu-matua i te kainga nei ko te Pito-o-te-henua. He poreko rua heki te poki a Tuu-ko-ihu, ariki tamahahine ko Ava-reipua te ariki a Tuu-ko-ihu, o toona vaka. He noho te tangata. He oho atu Tuu-ko-ihu, he hakahiti i te ata o te ariki o Tuu-ma-heke. He oho a Tuu-ko-ihu ki te pito nanangi o te ariki o Tuu-ma-heke. He oti te nanangi e Tuu-ko-ihu, he hoki, he nanangi i te pito o taana ariki tamahahine ko Ava-reipua.

Oroi concealed himself in the be Tuu-ko-ihu,[4] when he came from a from Marae-renga. Oroi was hidd the interior of the boat of Tuu-k This boat arrived, it landed at Han hio. The people came [ashore], scattered. Oroi went ashore at hiding. He also landed on the shor stayed ashore. The canoe of Hotu-m had landed also. When he landed child Tuu-ma-heke was born to H matua in the land [called] the Nav the-land. A child was also born to ko-ihu, the chiefess Ava-reipua o chief Tuu-ko-ihu, on his canoe. The ple settled down. Tuu-ko-ihu wen made magic for the chief Tuu-ma- Tuu-ko-ihu came to bite the navel of the chief Tuu-ma-heke. Tuu-k finished the cutting, he returned, h the navel cord of his chiefess Ava-re

[4] According to Thomson, the boat of Hotu-matua.

All sources agree that just after Hotu-matua's canoe had reached shore, Vakai (Vakai-a-hiva) gave birth to a boy, the *ariki*, Tuu-ma-heke, but my version is the only one which connects the birth of Tuu-ma-heke with that of a girl, Ava-reipua, who was born to Tuu-ko-ihu's wife at the same moment. Ava-reipua is given by Routledge (194, p. 278) as the wife of Hineriru the leader of the second canoe, and by Roussel (190, p. 357) as the wife of Hotu-matua. Although there is some possibility that Ava-reipua was the wife of Tuu-ko-ihu, the births of a girl and boy, both children of the canoe leaders, taking place at the same time cannot be merely an incident invented by my informant. Such parallel situations are too characteristic of this type of narrative not to be accepted as ancient.

The cutting of the navel and rites performed by Tuu-ko-ihu over the head of Tuu-ma-heke (p. 65) had a double importance. They fixed the pattern for all future birth ceremonies until a very recent date, and perhaps they were connected with the name Pito-te-henua which is sometimes considered the original name for Easter Island. Whether this name has some link with the legend of the cutting of the navel cord of Tuu-ma-heke is difficult to ascertain, but a passage in the native version of Hotu-matua's story conveys that meaning.

Hotu-matua was credited with having brought to Easter Island not only the cultivated plants but many plants which grew on the island long before the Polynesians occupied it, and all the land animals known to the natives. The plants imported by Hotu-matua are enumerated by Roussel (190, p. 357): taro, sweet potatoes, yams, bananas, *toro-miro*, *ngaoho*, and sugar cane.* With the exception of the *toro-miro* and the *ngaoho*, these plants were actually introduced by the Polynesians from their original home. Ash trees (*marikuru*, not true ash) and sandalwood were considered by the natives as endemic species, but Tepano places them among the plants which were aboard Hotu-matua's canoes. Brown (27, p. 41) refers to a man, Koteke (ko Teke), who "was the guardian of the plants and seeds." Having forgotten the sandalwood (*naunau*) he was obliged to go back to Marae-renga to fetch it. Thomson's early account (215, p. 526) includes potatoes, tobacco, and "the seeds of various plants, including the paper mulberry and the toro-miro trees." This last list shows that at an early date the natives attributed to their first king plants which they had only recently received from Europeans. The same tendency is manifest in regard to domestic animals—pigs which were given to the islanders by Europeans are said to have been brought by the first immigrants as well as the fowls which the first discoverers found on the island. In his desire to heighten the glory of Hotu-matua, Tepano tried to convince me that cats and dogs were among the animals which came at that remote period. He alluded also to the *kekepu*, a rather strange beast which was very like a "pig or a cow" but is probably a large turtle which has disappeared from the

island. On the other hand, pigs, cattle, horses, and sheep were admittedly of very recent introduction.

Many other things were probably assigned to the first king, among them the origin of the signs on the tablets. Thomson's tradition (215, p. 514) asserts that "Hotu-matua, the first king possessed the knowledge of this written language, and brought with him to the island sixty-seven tablets containing allegories, traditions, genealogical tablets, and proverbs relating to the land from which he had migrated." Routledge (194, p. 279) attributes the knowledge of reading and writing to Hineriru who "wrote rongo-rongo on paper he brought with him." Hotu-matua and Tuu-ko-ihu were, in a sense, culture heroes, and there must have been a general tendency to make them the originators of many inventions and sacred institutions.

Immediately after landing the people started to till the soil, planting the cuttings and tubers brought from Marae-renga. During the first three months, while they waited for the crops to be harvested, "they subsisted entirely upon fish, turtle, and the nuts of a creeping-plant found growing along the ground, which was named moki-oone" (215, p. 527). * Thomson, 1889

THE FIGHT WITH OROI

The next episode in Hotu-matua's legend has been recorded in almost identical terms by three main sources. It may be called the "fight with Oroi and the killing of Oroi." Oroi was Hotu-matua's most bitter enemy: Thomson (215, p. 528) makes him the unsuccessful rival of Hotu-matua's brother (Machaa), and Routledge (194, p. 279) says that he was the killer of Hotu-matua's children in Marae-renga.

Ko Oroi he piko mai i runga i te vaka o Tuu-ko-ihu, i oho mai ai mai hiva mai Marae-renga. He piko mai Oroi i raro i te vaka o Tuu-ko-ihu. He oho mai tau vaka era, he tomo ki uta ki Hanga-o-hio. He oho mai te tangata, he marere. He oho ki uta i te po, i piko mai nei Oroi. He tomo rua ki uta, he noho i uta nei. Ku tomo takoa ana te vaka o Hotu-matua. He tomo ana, he poreko ana ko Tuu-ma-heke te poki, i poreko a Hotu-matua i te kainga nei ko te Pito-o-te-henua. He poreko rua hoki te poki a Tuu-ko-ihu, ariki tamahahine ko Ava-reipua te ariki a Tuu-ko-ihu, o toona vaka. He noho te tangata. He oho ata Tuu-ko-ihu, he hakahiti i te ata o te ariki o Tuu-ma-heke. He oho a Tuu-ko-ihu ki te pito manangi o te ariki o Tuu-ma-heke. He oti te manangi e Tuu-ko-ihu, he hoki, he manangi i te pito o taana ariki tamahahine ko Ava-reipua.

Oroi concealed himself in the boat of Tuu-ko-ihu,* when he came from abroad from Marae-renga. Oroi was hidden in the interior of the boat of Tuu-ko-ihu. This boat arrived, it landed at Hanga-o-hio. The people came [ashore], they scattered. Oroi went ashore at night, hiding. He also landed on the shore, he stayed ashore. The canoe of Hotu-matua had landed also. When he landed, the child Tuu-ma-heke was born to Hotu-matua in the land [called] the Navel-of-the-land. A child was also born to Tuu-ko-ihu, the chiefess Ava-reipua of the chief Tuu-ko-ihu, on his canoe. The people settled down. Tuu-ko-ihu went, he made magic for the chief Tuu-ma-heke, Tuu-ko-ihu came to bite the navel cord of the chief Tuu-ma-heke. Tuu-ko-ihu finished the cutting, he returned, he bit the navel cord of his chiefess Ava-reipua.

* According to Thomson, the boat of Hotu-matua.

to Roussel (190, p. 358) kings, who in the beginning were considered deities and had absolute power on the island, did not retain such authority for long but kept only the prestige of a supernatural power and certain personal privileges. The political power of the king was slight, at least during the last period of Easter Island history; his exalted position rested mainly on the religious beliefs of the natives, and his functions, although limited, had a strong bearing upon the magico-economic structure of the island culture. (For a detailed discussion of the functions of Easter Island kingship, see Métraux, The kings of Easter Island: Polynesian Soc., Jour., vol. 46, pp. 41-62, 1937.)

POSSESSION OF DIVINE MANA

The *ariki-mau* or king of Easter Island was a divine chief who had mana (supernatural power) and was therefore surrounded by tapus; as a member of the Honga lineage of the Miru tribe he was descended from the gods Tangaroa and Rongo. (See genealogy, p. 127.) The following legend shows how a king with an oversupply of mana might bring calamity to his people:

The king Nga-ara slept with three wives, all of whom became pregnant and gave birth to sons. The first two sons had no mana but the third son, Rokoroko-te-tau, mysteriously possessed it. The people brought flower wreaths and standards for Rokoroko-he-tau whom they considered king. Sharks and seals came to the island and chased and ate the people, and white fowls appeared. These three things, together with a white feather diadem, manifested the power of Rokoroko-he-tau. Nga-ara was afraid that the sharks and seals would kill all the people, so he stole Rokoroko-he-tau during the night and hid him near the Rano-aroi and later killed him. The sharks, seals, and white fowls disappeared, never to return.

This brief legend emphasizes the extreme importance of mana; in spite of the tradition that succession to title went to the eldest son, the first two sons of Nga-ara were disregarded because they had no mana, and the third son, who possessed it, was considered king. Throughout Polynesia the birth of the divine chief was often associated with many portents and wonders, but in this tale the phenomena which accompanied the king's birth were emanations from his mana and were the cause of his destruction.

Another legend, strange and incomprehensible in its present form, deals with the mana of the king and of his miraculous birth. Although there is no way of knowing whether this tale refers to a legendary king with great mana or to the son of the god Tangaroa, it contributes to a better understanding of the various aspects of a king's personality.

Tangaroa and his brother went to the beach at Hangavee one night. After catching some fish they went on to Huareva and to Akahanga. At Anavaero Tangaroa copulated with a hen which he saw sitting on a stone. The two brothers continued to Hanga-nui, where they fished, and to Vaimangaro where they bathed in the sea. There Tangaroa killed the hen, plucked it, and put it in a basin. Both returned to Tuu-tapu. An old woman from Hanga-nui went to the well at Vaimangaro. There she heard a child crying from inside the stomach of the hen in the basin. She took the child to her home, cared for him, and named him Tu-ki-haka-he-vari (Curled-up-as-a-chicken-in-an-egg). He grew up and stayed with her at Hakarava. One day he asked the old woman, "Where is my father?" She replied, "There, where there is a dark cloud." Then the boy called to the people, "Make a litter to carry me to Tuu." This the people did and they accompanied him to Pare where he remained. Some died on the way, others died after they had returned to their homes, because of the mana of Tu-ki-haka-he-vari.

Here, as in the preceding tale, the king's mana is so strong that it becomes deadly to those who carry him. Moreover, the king is carried on a litter, probably to prevent any contact between the ground and the mana embodied in him. This is the only hint of such a custom on Easter Island, but the attitude fits the Polynesian pattern of culture.

TAPUS

The sacredness of the *ariki-mau* obliged both him and the people of lesser rank to subject themselves to a series of restrictions in their mutual relations. No one could touch any part of the king's body without running the risk of falling dead or of suffering severe pain. There is no doubt that the head of the king was the most sacred part of his person—so sacred that he was obliged to let his "hair grow without ever allowing the *mataa* (obsidian knife) to pass through it" (190, p. 360). The head of every man was more or less tapu (p. 103), but probably only the king's head was so sacred that the hair on it could not be cut. When the missionaries wanted to cut the hair of the little Gregorio, the last king of the island, "the child opposed it firmly and yielded only through force or fear." The anger was so general that "the hairdresser was on the point of being stoned when he achieved his work" (190, p. 360).

The hands of the king were also tapu. The only activities permitted to him were making fishing lines and nets and fishing in canoes. The extremely contagious nature of his mana extended to all his belongings which were consequently tapu. "Their huts, their enclosure, their food, their entire persons and everything they used were tapu for other persons of both sexes" (190, p. 360).

It was not permissible to see the king or his son eat or sleep, and none but his servants who were noblemen (*ariki*) were allowed to enter his house. There were two classes of servants, the *tuura* and the *haka-paapa*. The first provided for the maintenance of the king, tilling the soil, gathering seashells, and fishing for him; and the latter attended the king in the capacity of valets and served his meals. A fragment of legend mentions only one *tuura* and one *hakapaapa*, but the informant who dictated the legend told me on another occasion that there were several of each class of servants, though he was not sure of the number. I am unable to tell what truth there is in Palmer's statement (168, p. 282) that next to the king there was a "prime minister, who was obliged to be a celibate."

Several foods were tapu to the king. He could never eat rats and it is

WILD PLANTS OF ECONOMIC VALUE

Moki-oone

In Thomson's version (215, p. 527) of the Hotu-matua legend it is said that after they landed, the king and his followers lived on nuts of a creeping plant (*moki-oone*) found growing along the ground, while waiting for their introduced plants to grow. I was unable to get information about the *moki-oone* which may have either disappeared or become known under another name.

Bulrushes

Bulrushes, *ngaatu* (*Scirpus riparius* var. *paschalis*) are abundant in crater lakes (*rano*). They grow particularly high and large in Rano-kao. Formerly *ngaatu* were of great economic value to the natives who used them for covering their huts and for making sleeping mats, baskets, and fishing floats. They compensated to some extent for the lack of wood on the island.

Nightshade

Nightshade (*Solanum forsteri*) is called *poporo* by the islanders. On some native plantations Forster (82, p. 578) noticed "a species of nightshade [*Solanum nigrum?*], which is made use of at Taheitee and the neighbouring islands as a vulnerary remedy and may, for ought I know, be cultivated here for the same purpose." La Pérouse (130, vol. 1, p. 76) mentions as a food "a small fruit which grows on the rocks at seaside, resembling the bunches of raisins found in the neighbourhood of the tropics in the Atlantic Ocean." He probably alludes to the *poporo*, which he correctly classifies as a *Solanum*. La Pérouse and his naturalist, De Langle, believed nightshade was a cultivated plant, but present islanders deny it; they told me that its berries were eaten by children and adults only in time of famine. The *poporo* grows wild near the settlements, especially in cultivated fields.

Plants Eaten in Time of Famine

Several other plants were used as food only in time of famine. The *huataru* (*Chenopodium ambiguum*), of which the vegetative parts were occasionally eaten, is a very common Easter Island plant. Like the old Hawaiians, Easter Islanders were sometimes forced to eat the stems and roots of the beach morning-glory, *tanoa* (*Ipomoea pes-caprae*). The *here-po* mentioned by Cooke (54, p. 777) as edible and described as "ice-plant" was undoubtedly *Tetragonia expansa*. *Kavakava-atua*, a fern, is mentioned among the plants which grew as products of a king's power. The natives used it as a medicine and only occasionally as food. The roots of another fern, *riku*, and those of the *hikikioe* (*Cyperus vegetus*) were eaten when no other food was available. Berries called *pua-nakonako* were also considered edible.

Ngaoho

Ngaoho (*Caesalpinia bonduc*) is almost extinct. According to Knoche (123, p. 123) it was used as a medicine. Its fibers were resorted to for tying together pieces of wood in canoes or fastening poles of hut frames. Fuentes (208, vol. 2, p. 72) says that the natives listed *ngaoho* as a plant introduced by their ancestors, but both Skottsberg and my informants consider it to be indigenous.

Moss

Para (*Campylopus turficola*) is a green moss which covers the lakes of the craters. It is mentioned by Routledge as a *Sphagnum*. Skottsberg (208, vol. 2, p. 501) says explicitly that he has not found *Sphagnum* in the lake, but in its place a species of *Campylopus* which forms a peat. The peat was gathered, washed and dried to be used in the preservation of water. The moss was also used to stop the chinks of canoes.

Seaweed

Rollin, one of the officers under La Pérouse (130, vol. 2, p. 240), noticed that some of the Easter Islanders were eating "a species of marine *fucus*, which they gather on the shore." The names of the edible seaweed are *miritonu*, *miritonu mama*, *auke*, and *ringaringa-pea*. Nowadays only children enjoy eating seaweed.

FIRE

Although the use of matches became general on the island after 1880, the ancient method of making fire by rubbing is still remembered. From what I could learn, *hau* wood (*Triumfetta semitriloba*) was the best for making fire, but a harder wood might have been used (215, p. 471). A rubbing stick preserved in the Anthropological Museum, Berkeley (1142), is made of a light material, probably *hau*. It is 185 mm. long and the tapering end is slightly curved upward. The operator, sitting on the floor, held the stick with both hands and, pressing hard, rubbed it along a longitudinal groove in another piece of *hau* or paper mulberry. The hearth was probably held in place with the foot or by an assistant. Friction ignited some fibers placed at the end of the groove as tinder. The whole operation took between five and ten minutes. *Hau* wood is soft and its particles smolder and glow easily. Therefore, it is very unlikely that the natives kept permanent fires, attended by special watchers, in order to spare themselves the trouble of producing fire by the usual method (56).

During our trip round the island the natives who accompanied us always found sufficient fuel for their fires. They gathered small twigs and dry branches or cut branches of the *miro-tahiti* which grows on several points of

the island. Sheep dung was also used. In ancient times, when the population was far more dense, the fuel problem must have been serious. Yet the natives did not seem to worry about it. Cook (53, vol. 1, p. 292) saw twelve fires burning at the same place morning and evening. Natives burned the straps or tops of sugar cane, plantain heads, and probably branches from the numerous shrubs scattered about the island.

OVEN

Before the introduction of European cooking utensils, natives cooked (*ootu*) all their food in underground ovens (*umu*), similar to those in other parts of Polynesia. Wherever remains of settlements are found there are ancient ovens also.

The ovens are pentagonal in shape, formed of five slabs, generally curbs taken from some house. The slabs are buried in the ground to varying depths and project only 10 or 15 cm. above the surface enclosing a space 2 feet in diameter. My principal informant called my attention to the fact that the stones of the ovens always numbered five or seven and that an odd number of stones was imposed by superstition. I noticed only one oven with six slabs on the island. A screen or covered roof protected the oven from the wind (130, vol. 2, p. 256). This type of oven is no longer used.

Modern natives make earth ovens only when they are in camp or preparing a banquet.

A hole about 2 feet deep is dug, on the bottom of which are placed large stones covered with grass. On this first layer, stones the size of the fist are piled up in a heap with small branches, scraps of wood (*hukahuka*) and grass. Fire is set to the pile (*ka te umu* or *pahi te umu*). The glowing stones are evenly fitted (*uru*) and spread with two sticks handled like tongs. The food—meat, sweet potatoes, yams, taro—is placed (*tao*) in the oven on banana or ti leaves to prevent burning. More hot stones are spread against or above (*puapua*) the leaves protecting the food. Formerly bundles were covered (*pengopengo*) with grass (*tauevu*), today with a sack. Soil is shoveled (*tanu hai oone*) over the pit. After 2 hours the food is generally considered sufficiently cooked and is removed (*maoa*). To cook food well is *kukokope a te umu*. The entrails of the animals are roasted (*kaiui*) on the glowing stones of the *umu*.

PREPARATION OF FOOD

Cooked food is never pounded on Easter Island, and probably never was in the past, since no food pounders have ever been found there. Breadfruit and taro are the staples in other parts of Polynesia and are mashed. Breadfruit does not grow on Easter Island and taro is far less important in diet than sweet potatoes which are never pounded. Pounding food requires a great deal of water and water has always been scarce on Easter Island.

Formerly the natives were reluctant to shed the blood of any animal. This may have had a religious background but it is more probable that the natives simply did not want to waste any blood. Chickens were strangled by twisting the neck; larger animals, such as goats and dogs, were suffocated by burying the head in a hole or in smoke. The hair was then singed and, without further preparation, the animal was put into the oven (81, vol. 38, p. 131). Chickens were cooked by putting hot stones inside the body; they were never plucked beforehand (90, p. 46).

According to a tradition noted by Knoche (123, p. 182), for which I found no evidence, fish were boiled in the natural holes so commonly found on rocks. Raw fish is not eaten by modern natives, but a tradition points out that they used to do so a few generations ago.

Water, for washing new-born babies or sick people, is heated by throwing (*tunu maea vera*) glowing stones into a big calabash (*kaha*) full of water.

Sweet potatoes were generally baked in earth ovens. My informant told me that by means of hot stones they were sometimes boiled in big calabashes. Today sweet potatoes are prepared in many ways, but they are still greatly appreciated when cooked underground.

Taro is cooked in the earth oven, fried, or boiled. Taro leaves (*raupa taro*), which are also cooked in the earth oven, constitute one of the most delicious foods of Easter Island.

Ti roots are no longer eaten but in former times they were cooked (86, p. 25):

. . . The natives put them into a hole, wrapped with leaves and covered them with grass and hot stones. When the stones were getting cold, they were replaced by others, and so on during two or three days. The recompense of all that work is the facility to keep that fruit and its delicious flavor.

Tepano described the preparation of ti in almost the same terms, but he assured me that during the three to five days the food remained in the earth it was necessary to light a fire above the oven. Because of the present abundance of sugar, the ti is no longer a delicacy.

Bananas were ripened quickly for festivals by warming them in a long ditch. A fire was lighted in the ditch, similar to that kindled in ordinary oven cooking. A layer of fresh earth was spread to extinguish the flames, the walls of the ditch were lined with fresh banana leaves (*rito*) and the bananas deposited in the ditch were covered with earth. Three or four days later the fruits were ripe.

In former times arrowroot was eaten after it had been baked either upon or in the earth oven. It is no longer grown on the island.

Little salt, if any, was used to flavor the food, and even today the natives do without it. It has been noted that they do not need salt, since they drink brackish water and absorb air impregnated with sea salt.

Seabirds' eggs were once consumed in great quantities and the natives are still very fond of them. The few islanders that accompanied us on the expedition to Motu-nui ate more than a hundred eggs within half an hour.

Nowadays cooking is generally Chilean and maize is an important food in the diet.

TABLE 2. NAMES OF EASTER ISLAND KINGS

Roussel	Janssen	Thomson	Métraux
1. Hotu (J :1 ; T :1 ; M :1)	Hotu-matua (R :1 ; T :1 ; M :1)	Hotumatua (R :1 ; J :1 ; M :1)	Hotu-matua (R :1 ; J :1 ; T :1)
2. Tuumeeke (J :2 ; T :2 ; M :2)	Tumaheke (R :2 ; T :2 ; M :2)	Tuumaheke (R :2 ; J :2 ; M :2)	Tuu-maheke (R :2 ; J :2 ; T :2)
3. Vakai	Miru-a-Tumaheke	Nuku	Miru (R :9 ; T :4)
4. Marama (M :12)	Hata-miru	Miru (R :9 ; M :3)	Ataranga (R :10 ; S :7 ; T :8)
5. Raa (T :7)	Miru-o-hata	Hinariru	Ihu (R :12 ; T :10)
6. Mitiake (J :6)	Mitiake (R :6)	Aturangi	Tuukunga-te-manaru (T :12)
7. Hotuiti (M :21)	Ataranga-a-Miru (R :10 ; T :8 ; M :4)	Raa (R :5)	Mahaki-tapu-vaeti (T :46)
8. Tuukura	Atuuraranga (Atu-ureraga) (T :17)	Ataranga (R :10 ; J :7 ; M :4)	Nga-uka-te-mahaki (T :23)
9. Miru (J : ; T :4 ; M :3)	Urakikena (T :28)	Hakapuna	Hau-moana (R :16 ; T :44)
10. Ataraga (J :7 ; T :8 ; M :4)	Kahui tuhunga (T :33)	O Ihu (R :12 ; M :5)	Anakena (T :48)
11. Tuu (M :20)	Te tuhunga (T :34)	Ruhoi	Tupa-ariki (R :17 ; T :45)
12. Ihu (T :10 ; M :5)	Te tuhunga-nui (T :35)	Tukanga-te-mumaru (M :6)	Marama (R :4)
13. (Ikukana)*	Te tuhunga-marakapau (T :36)	Takahiti (Takahita) (R :15 ?)	Tokoterangi
14. (Tucuiaia)	Ahu arihao	Ouaraa	Kao-arcaro
15. (Tuku-ytu) (T :13 ?)	Nui-te-patu (T :49)	Koroharua (J :23)	Mataivi (R :15)
16. Hau-moana (T :44 ; M :9)	Hirakautehito (T :25)	Mahutu-ariki	Kaohoto
17. Tupa ariki (T :45 ; M :11)	Tupaitetoki (T :26)	Atua-ure-rangi (J :8)	Te Rahai ((R :19 ; J :22 ; T :53)
18. Mataivi (M :15)	Kuratahongo (T :30)	Te-Riri-tuukura	Te Ravarava (J :21 ; T :51)
19. Te Rahai (J :22 ; T :53 ; M :17)	Hiti-rua-anea (Hitiauaanea) (T :27)	Korua-Rongo	Te Hetuke
20. Kaimokohi (J :25 ; T :54 ; M :27)	Havinikoro (Havinikiro) (T :39)	Tiki-te-hatu	Tuu-ko-te-mata-nui (R :11)
21. Gahara (J :28 ; T :56 ; M :25)	Te ravarava (T :51 ; M :18)	Urukena	Hotu-iti-ko-te-mata-iti (R :7)
22. Tepito (J :31)	Te Rahai (R :19 ; T :53 ; M :17)	Te Rurua-tiki-te-hatu	Honga
23. Gregorio (J :32)	Koroharua (T :15)	Nau-ta-mahiki (M :8)	Tekena
24.	Te Ririkatea (T :43)	Te Rika-tea	Tuukoihu (T :47)
25.	Kaimakoi (R :20 ; T :54 ; M :27)	Te Ria-kautahito (Hira-kautehito) (J :16)	Nga-ara
26.	Te Hetukarakura	Ko te Pu-i-te-toki (J :17)	Nga-ara erua
27.	Huero	Ko te Hiti-rua-nea (J :19)	Kaimakoi (R :20 ; J :25 ; T :54)
28.	Kaimakoi-iti (T :56 ; M :28)	Te Urua-kikena (J :9)	Kaimakoi iti (J :28 ; T :56)
29.	Ngaara (R :21 ; T :55 ; M :25)	Tu-terei-manara	Rokorokohetaa
30.	Maurata (T :57)	Ko te Kura-tahcau (Te Kura-tahongo) (J :18)	Rukunga
31.	Tepito (R :22)	Taoraha-Kaihahanga	
32.	Gregorio (R :23)	Tukuma	
33.		Te kahui-te-hunga (J :10)	
34.		Te tuuhunga-nui (J :11)	
35.		Te tuuhunga-roa (J :12)	
36.		Te tuuhunga mare kapiau (J :13)	
37.		Toati-rangi-hahe	
38.		Tangaroa-tatarara	
39.		Havini-koro (J :20)	
40.		Punahako	
41.		Puna-ate-tuu	
42.		Puna-kai-te-vana	
43.		Te Riri-katea (J :24)	
44.		Hau-moana (R :16 ; M :9)	
45.		Tupa ariki (R :17 ; M :11)	
46.		Mahiki Tupuariti (Mahiki Tupa ariki) (M :7)	
47.		Tuukoihu (M :24)	
48.		Anakena (M :10)	
49.		Nui Tupahotu (J :15)	
50.		Rikaau	
51.		Te Ravarava (J :21 ; M :18)	
52.		Te Hiti-huki	
53.		Te Rahai (R :19 ; J :22 ; M :17)	
54.		Kaimokoi (R :20 ; J :25 ; M :27)	
55.		Nga-ara (R :21 ; J :29 ; M :25)	
56.		Kaimakoi-iti (J :28 ; M :28)	
57.		Maurata (J :30)	

*Numbers 13-15, given in parentheses in Roussel's list, are names given by Gana (86) in his copy of Roussel's list, which are not included in Roussel's original list.

in most Maori specimens. The ridging at the poll on some Easter Island dubs is the usual conventionalized representation of hair, characteristic also of wooden images. Hence the similarity to the transverse grooves on the poll of the Maori *patu* is purely accidental.

FISHING

It is impossible to get even an approximate idea of the importance of fishing in pre-missionary times. Fishhooks are found in great abundance in caves, carved fish are common in petroglyphs, and fishing episodes are numerous in folklore. But Eyraud (81, vol. 38, p. 126) states that fish had an insignificant place in the native diet and was considered a great delicacy. At the present time fishermen are few and go out only occasionally. Charli Teao is the only native I know for whom fishing has a special attraction and who derives benefits from this activity. While the *Mercator* was anchored in Hanga-roa Bay he supplied us with tuna which he traded for bread. Deep-sea fishing cannot be maintained on a profitable basis for there are only two boats on the island. Probably the lack of wood for building boats prevented extensive fishing in ancient times.

Numerous causes have contributed to the decline of fishing. The natives have had an ample supply of meat since the introduction of cattle and sheep. Moreover they have free access to only a small part of the coast. If they wish to fish on the north or south coasts, where the coves and low shore are particularly favorable, they must obtain written permission from the Williamson and Balfour Company, and many natives are too shy to ask for it. Easter Island has no protecting coral reef, and in winter months the sea is too rough for the canoes to go far offshore. The fishing season begins at the end of October. The fishing near the island is not good. Ever since Captain Cook's time men have complained of the scarcity of fish.

Fish are said to be most abundant between the islets of Motu-kaokao and Motu-nui. A stone image called Pou-haka-nononga of the Ahu-anakoiroroa was a landmark used by fishermen to find an area in the sea called Haka-nononga where tuna were plentiful. Other places in the deep sea which were traditionally favorable for fishing (*kona-ika-nui*) had proper names. Tuna were caught at points off the coast called Hatehate and Mitiake; the best area for the *ature* fish was at Haka-kainga and for *mahore* fish at Tuaniu. Shore fishing was mostly a feminine occupation, and according to legends was once practiced on a wide scale.

Fishermen were called *rava-ika*; expert fishermen were *maori* or *rava-ika-maa* (fishermen-with-knowledge). Canoe fishing was indulged in even by the king (p. 132). Geiseler (87, p. 37) noticed that next to weapons, fishing implements were the most valued artifacts.

The following list gives the names of fish most commonly caught by the natives, under the methods used to capture them:

Hook fishing: Pei, big fish like tuna.
Kahi, tuna fish.
Miro, red fish with white tail.
Tarakuere.
Matahuira.
Kopuku haharoa.
Remoremo, very like the tuna.
Poopoo (Caranx cheilio).
Toremo.
Kanakana.
Kopuku (Acanthistus fuscus).
Papara-uri.
Mahaki (Girellops nebulosus), fished along shore by women.
Nanue, yellow stripes, fished along shore by women.
Ruhi.
Mango, shark, palatable fish in old days; said also to have been speared.
Aku (dorado).
Ivi-heheu, swordfish.
Koiro, conger eel.

Net fishing: Kotea-hiva (Labrichthys fuentesi).
Ature.
Koreva (Pseudomonocanthus paschalis).
Naumata-hauru.
Nohu.
Matuku.
Varevare-pua-toro.

Torch fishing: Marau.
Nohu.
Ihu.
Aku.
Mahaki.

During winter months—July, August, September—fishing was prohibited by a tapu and fish caught at that time were considered poisonous. This was true especially of the tuna (*kahi*) which was forbidden all the year round except in summer (230, vol. 6, p. 130). According to Roussel (190, p. 428) *kahi* were brought to the king or principal warriors (*mata-toa*). In more recent times tuna were allotted to the owner of the canoe and *pei* fish to his helpers. Several other kinds of fish were reserved for the *ariki*.

During the tapu months only the royal canoe (*vaka vaero*) could be used for fishing, with a crew composed of important men (*tangata-honui*). *Kahi* fished at this time were given to the king and to the oldest *tangata-honui*. Those who ate fish during the winter were under tapu and were obliged to live in separate huts. Even their excrement was considered dangerous and apt to kill people.

Fishermen had charms which were given to them by the king or the *ariki-paka* (probably priests) and which they kept in small baskets. The amulets were stones shaped like fish or decorated with fish; some of them had bird

forms. Near ahu Mahatua is a stone covered with engraved vulvas (*komari*), called Pu-o-Hiro (Trumpet-of-Hiro) because of a natural hole which can be blown through like a trumpet. Legend says that it stood formerly in Hangaroa and was brought to its present place by a raiding party of Tupa-hotu warriors. The shaking of this stone brought shoals of fish to the shore.

Angling

Fishhooks

Modern natives catch most of their fish by hook. Angling (*hi ite ika*) must always have been important, judging from the abundance of fishhooks which may still be discovered in the caves by the shore. The ancient fishhooks were of stone or bone, the latter being either simple or complex.

Legend says that the natives of ancient times used the thorns of the *ngaoho* (*Caesalpinia bonduc*) for making hooks, but the thorns are too small to have been put to any practical purpose. Composite wooden hooks were made for trade by some natives who asserted that they were authentic reproductions of old specimens.

One-piece Hooks

Stone Hooks. Stone hooks were always of the one-piece type, although the stone point of a fishhook (fig. 11, *a*) in the Bernice P. Bishop Museum collection seems to indicate that at least one element of composite fishhooks might have been of stone. According to an ancient myth, long ago the natives had only stone hooks, but the fish would never bite (*pakoo*) at them. Hook fishing proved successful only after the fishermen learned from Ure-a-vai-a-nuhe how to make fishhooks from the bones of the dead. (See p. 363). Had stone fishhooks been the valueless implements the myth indicates, the ancient fishermen would not have put so much work and time into their manufacture. The numerous unfinished stone fishhooks and fragments of finished specimens found on the island deny that they were exceptional and intended only for ceremonial purposes. The myth mentions the *kahi* (tuna) as the fish that could not be captured with stone hooks, but we may infer from the name of the stone hook, *mangai kahi* (215, p. 537), that it was made especially for catching the tuna. Either the name of the *kahi* has been introduced in the myth instead of that of some other fish that required a smaller bone hook, or the legend has arisen after the use of stone fishhooks was abandoned.

At the time of Palmer's visit in 1868, Easter Islanders no longer employed stone fishhooks, and perhaps had given up the use of bone hooks too, after becoming familiar with iron fishhooks. Palmer (171, p. 173) says: "They did not offer any fishing lines for sale, and the only hooks we saw

were the large ones called *rou*, made of stone, and which were of some age, and scarce, about three inches across the head. They are not in use now."

Stone fishhooks[9] (*rou, mangai maea, mangai kahi*) are well represented in the collection of Bishop Museum by five whole specimens (fig. 7) and thirteen fragments. The pieces which illustrate the method of manufacture are particularly fine (fig. 8). During my stay on Easter Island I obtained only one stone hook with a broken point, and a number of fragments.

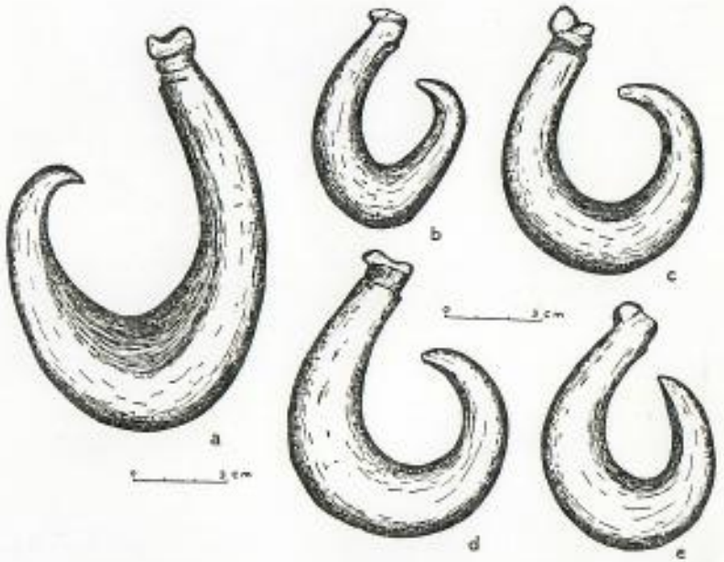


Figure 7.—One-piece stone fishhooks (B3540, measurements given in table 4): *a*, recess under knob 8 mm. wide with two notches on inner side to retain snood; *b*, knob projecting backward, oblique grooves on both sides to hold snood, recess under knob lined by small flange; *c*, knob divided by deep groove, posterior part projecting backward, anterior part with three distinct grooves; *d*, knob slightly concave on top (partly broken), well-marked recess under knob separated from shank by clear-cut flange; *e*, top of knob flat, posterior part polygonal, notching on back and front, no recess on sides.

[9] Easter Island stone fishhooks have been figured by Thomson (215, pl. 58, fig. 3), Beasley (14, pls. 89-91), Brown (27, pl. opposite p. 188, fig. 3), Shapiro (202), Chauvet (45, figs. 70-72), and Skottsberg (208, vol. 1, pl. 14, fig. 4).

Specimens of complete stone fishhooks are in the following museums and private collections: one in U. S. National Museum; one in the American Museum of Natural History; one in the Musée d'ethnographie du Trocadero; one complete specimen and many fragments in the Fuller collection, London; one in the collection of Dr. Stephen Chauvet, Paris; one in possession of J. Brown.

TABLE 4. MEASUREMENTS OF STONE FISHHOOKS

Hook illustrated	Material	Total length	Width[19]	Thickness	Width of bend	Clearance between point and shank
7,*a*	gray, close-grained basalt	130 mm.	84 mm.	16 mm.	39 mm.	33 mm.
7,*b*	gray, close-grained basalt	71 mm.	50 mm.	12 mm.	21 mm.	12 mm.
7,*c*	gray, close-grained basalt	86 mm.	70 mm.	13 mm.		14 mm.
7,*d*	soft, fine-grained, disintegrated basalt of reddish color	90 mm.	75 mm.	13 mm.	27 mm.	16 mm.
7,*e*	soft, fine-grained basalt, gray with reddish tinges	80 mm.	66 mm.	14 mm.	23 mm.	9 mm.

[19] Width measured from outer edge of shank to outer edge of point (limb.

The first stage in the manufacture of a stone hook is the choice of suitable material. The piece of basalt must be not only close-grained and free from flaws but, as far as possible, of convenient form and thickness to obviate the labor of reducing an unwieldy mass. The second stage consists in giving the stone the general outline of a hook, by coarse chipping followed by grinding. When the bulk of the material has been reduced, sometimes even before, the stone within the inner curve is removed by drilling a large hole through the stone and then enlarging it by drilling other holes on the border of the first (fig. 8, *d*). The holes are generally drilled from one side and then broken through from the other side when the hole is near completion. Thus the perforation is larger than it would be if the hole had been pierced from one side only. Judging from the shallow, wide depressions left on specimens in the first stage of drilling, the tool used has a broad working end. It is probably a drill of the general Polynesian type: a spindle with some sort of flywheel turned with a cord. Sand mixed with water is undoubtedly the grinding agent. In the specimens at hand, the upper diameter of the hole is between 19 mm. and 25 mm., but these figures do not give the exact size of the drill bit, since the unsteady movements of the drill tend to enlarge the hole. An unfinished fishhook that I procured on Easter Island was fashioned by drilling a cluster of small holes in the center (fig. 8, *g*). Simultaneous drilling and grinding of the stone explain why some unfinished hooks have the outside edges so perfectly shaped and worked.

The pattern of the stone hooks is uniform throughout, the principal variations being in thickness at the bend and in the distance between the point and the shank. Most of the fishhooks have a continuous curve, but in one specimen (fig. 7, *b*) the limb from the bend to the point is almost straight. The shank is topped by a knob or projecting ridge with transverse grooves. A depression in the knob divides it into two unequal parts—one rounded, and the other small and sharp (fig. 7, *a*) which is generally toward the point. Below the ridge there is a recess, the inner margin of which is sometimes

serrated. The knob so divided strongly resembles the outlines of birds' heads as represented on the tablets.

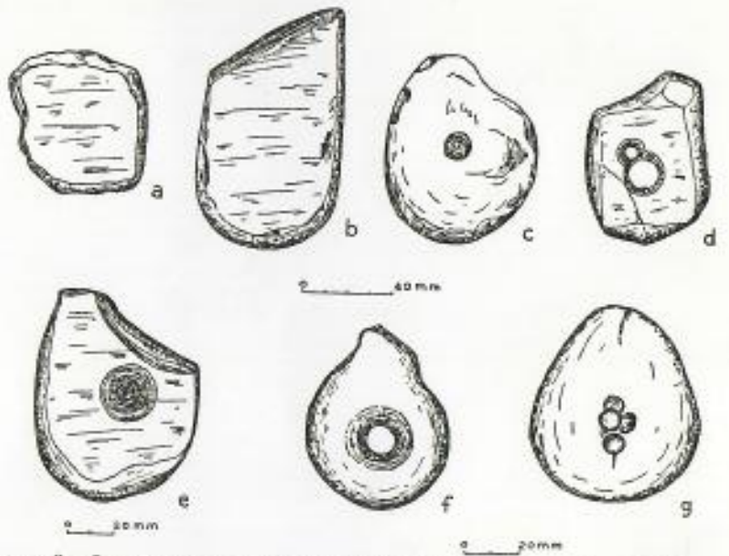


FIGURE 8.—One-piece stone fishhooks in process of manufacture (*a-e*, B3490): *a*, flat piece of stone coarsely chipped at edges into form of hook (72 mm. long, 63 mm. wide, 16 mm. maximum thickness); *b*, stone ground on both faces, sides superficially ground, bottom rim ground to sharp edge on each side (107 mm. long, 67 mm. wide, 17 mm. thick); *c*, slightly polished on both surfaces and edges, hole started on one side (82 mm. long, 70 mm. wide, 17 mm. thick); *d*, edges chipped, central hole drilled through, second hole started (76 mm. long, 54 mm. wide, 14 mm. thick); *e*, well ground on both surfaces and edges, upper slanting edge shows traces of chipping, central hole started (diameter of hole 25 mm., 91 mm. long, 71 mm. wide, 24 mm. thick); *f*, well ground, outline well defined, central hole drilled through (70 mm. long, 60 mm. wide, Trocadero Mus., Paris); *g*, carefully ground, several small holes drilled at center, upper end grooved (70 mm. long, 60 mm. wide, Trocadero Mus.).

Modern stone hooks. The present natives manifest an extraordinary skill in making stone hooks to be sold as curios, but instead of using, as in former days, a fine-grained stone they choose a soft basalt (phonolite or clinker stone) which they carve with metal instruments. In order to give the faked specimens the external appearance of old hooks, the texture of the stone is concealed under a thick layer of black paint. Such precaution is quite recent; the first faked specimens were unvarnished. The workmanship of these curios is remarkable and they might be mistaken for the genuine hooks if they were not thicker and sometimes of an inconvenient form for fishing.

In the Young collection there are three double hooks made of the same

material as the modern forgeries. One of them has been figured by Beasley (14, pl. 129)[11] as a ceremonial hook. There is no doubt that all these clumsy specimens are faked, but it is a matter of conjecture as to where the natives got the idea for making double hooks. No authentic double hooks are recorded and they were never mentioned as ornaments by the early voyagers. I am inclined to consider them modern products with no ethnological significance.

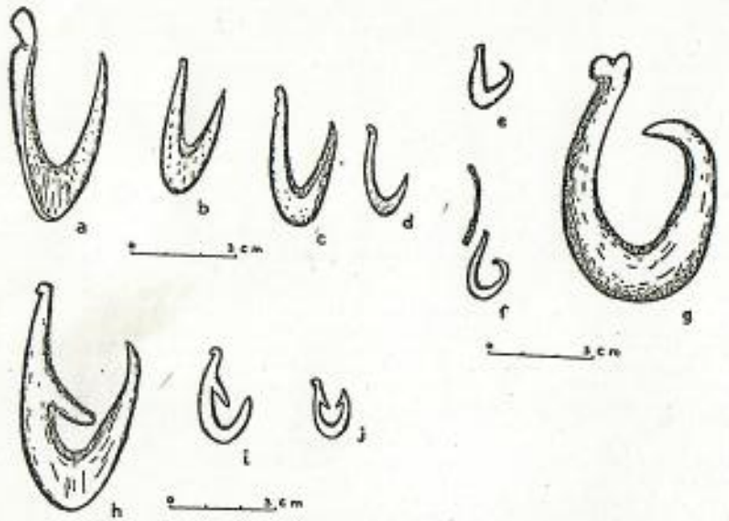


FIGURE 9.—One-piece bone fishhooks. *a-d*, V-shaped hooks with straight points (Trocadero Mus.): *a*, downward-slanting groove under knob, point slightly curved, 60 mm. long; *b*, shank tapering toward small knob, inside edge of bend sharp, 38 mm. long; *c*, knob lacking, snood held by two notches on back of shank, inside of bend shows traces of filing, 40 mm. long; *d*, short point widely diverging from shank, 25 mm. long. *e-g*, hooks with curved points: *e*, 18 mm. long (Trocadero Mus.); *f*, two notches on back of shank hold snood of 3-ply cord wrapped in tapa, 21 mm. long (B3525); *g*, modern hook of beef bone, knob divided like stone hook, point slightly twisted to side, 73 mm. long (B3525). *h-j*, barbed hooks (Trocadero Mus.): *h*, barb on shank almost touching point limb, possibly unfinished, 65 mm. long; *i*, 27 mm. long; *j*, double barb, 16 mm. long.

Bone Hooks. One-piece bone fishhooks (*mangai ivi*; very small ones, *piko*)[12] are found in most of the shore caves used by fishermen as shelters in the old days. These caves were also workshops, as signified by the number of bones and unfinished or broken hooks that may be gathered in them. Formerly the fishhooks were made of human bones, man being the only

[11] Other faked fishhooks have been reproduced by Beasley (14, pls. 91, 179, 181) and Chauvet (45, fig. 69).

[12] Bone hooks from Easter Island are reproduced by Thomson (215, pl. 58, figs. 1, 2); Beasley (14, pls. 88, 92, 95, fig. 21, *a*); and Brown (27, pl. opposite p. 188, fig. 14).
Bone fishhooks are in the U. S. National Museum, Washington, D. C.; the Musée d'ethnographie du Trocadero, Paris; the Museum du Cinquantenaire, Bruxelles; the private collections of Beasley and Fuller, London; and in the collection of Stephan Chauvet, Paris.

available mammal. According to tradition, the most suitable material was the bone of deceased fishermen (215, p. 537). This preference was of course based on belief in magic. Most specimens in Bishop Museum are of cattle bone, but they are recent and it is uncertain whether they were used or manufactured for trade. Whale bones may have supplied material for some fishhooks, for I know that modern natives have forged "ancient" hooks from the skeleton of a whale which had drifted ashore.

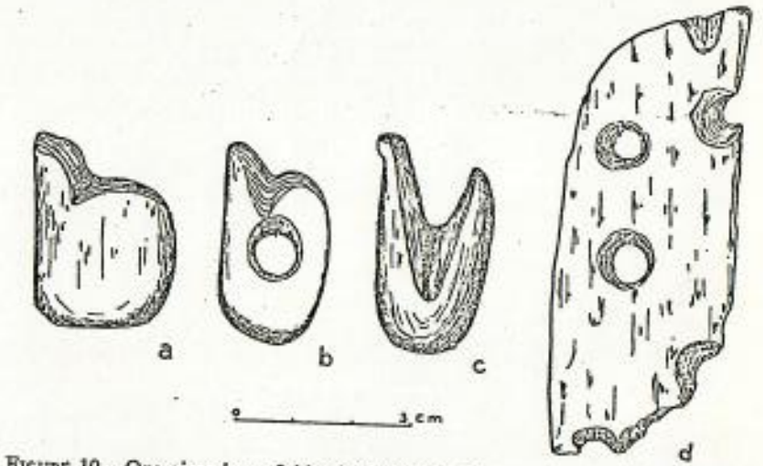


FIGURE 10.—One-piece bone fishhooks in process of manufacture (Trocadero Mus.): *a*, bone grooved at top, slightly smoothed on sides (30 mm. long, 25 mm. wide); *b*, material between shank and point limb removed by drilling (33 mm. long, 19 mm. wide); *c*, V-shaped hook made by notching upper edge of bone plate (38 mm. long, 18 mm. wide); *d*, piece of bone with drilled holes, probably intended for making hooks.

The method followed in making bone fishhooks (fig. 10) was like that for manufacturing stone hooks. Collections I made included samples of various stages in the manufacture of bone hooks from rough fragments of tibia with traces of cutting to the semi-ground specimens.

The general outline of the fishhook is cut in a piece of bone and then the interior is drilled out or notched. The final touch is given by grinding and by filing the edges. Short obsidian points (p. 166) may have been used on the drills. These points could not be handled without some sort of shaft, and their shape and size resemble the quartz or flint pieces attached to the spindle of Maori drills (100, p. 25).

The one-piece bone fishhooks present little variation in form, most of them being more or less V-shaped. The only features on which a classification can be established are the presence or absence of a barb and the form of the point which is straight or curved backward. A few one-piece bone hooks are circular.

The V-shaped hooks with straight point might have been formed by notching a piece of bone or by both drilling and notching. Hooks with a curved point were evidently drilled and then shaped.

Several fishhooks collected by me on Easter Island are barbed. The barb projects downward from the inner side of the shank. In one specimen (fig. 9, *j*) both shank and point are barbed.

end of a rope. The average dimensions of the net were 1½ feet deep and about 1 foot wide.

A net without frame in the Museum für Völkerkunde, Berlin (VI.4965) seems to be a bag net. It is 160 cm. deep, 146 cm. wide at the mouth, and 196 cm. wide at the bottom. The meshes are unusually wide (4 cm.). The catalog states that this net was used on the open sea, which is contrary to the customary use of the dip net.

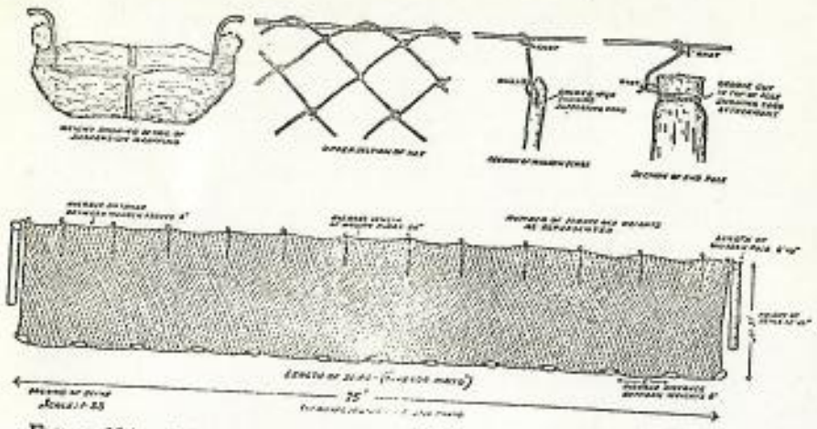


FIGURE 12A.—Seine net (*kupenga maito*) collected by Thomson in 1886 (Nat. Mus. Washington, 129748).

SET NETS AND SEINES

The *kupenga tuku* or *tukuruа* net was used at night in coves. It is said to have been 10 meters long. It was attached to two poles and was carried to the water by six men, three on each side. The poles were set up in the sand, and the shoal of fish was driven into the net, which had considerable bag.

From this description it appears that the ancient *kupenga tuku* of Easter Island was identical with the present *tuturua* net of the Cook Islands (33, p. 294), where the name means "net with two poles (*tutu*)." This is probably the real significance of the term *tuturua*, though today the word designates a net without poles.

The modern *kupenga tukuruа* of Easter Island has no poles, measures 4 to 5 meters long, and has meshes about 2 or 3 cm. wide. A string runs along the upper and the lower edges. Natives use this net to fish in coves along the shore. Two men carry the net, one on each side, and walk in the water slowly and quietly until they are near a shoal of fish—usually *kotote*, a fish about 15 cm. long. As they near the fish, one of the men throws a stone beyond the fish to drive them toward the net. Then one man lifts the lower edge of the net to meet the upper, thus imprisoning the fish. This type of net might have been named after the ancient *kupenga tukuruа* with two poles.

In the Cook Islands *maito* fish are caught with the *kupenga tuturua*; on Easter Island they were caught with a special net called *kupenga maito*, which was similar to the *kupenga tuku* or *tukuruа*, but was provided with floats and sinkers. A specimen of *kupenga maito* was procured by Thomson in 1886 and is preserved in the U. S. National Museum in Washington, where I examined it (fig. 12A). The netting is made of paper mulberry fibers twisted into a thin string. The knots forming the meshes (3 to 4 inches wide) belong to the type known as "weaver's knot", common in Polynesia (fig. 12, *c*). The net is 75 feet long and 12 feet 10 inches broad. It is tied at each end to the top of a pole, probably of *hau* wood (*Triumfetta semitriloba*) 6 feet 10 inches long. A strong cord of hemp, probably of European manufacture, extends along the edges of the net. To this cord at the upper edge of the net are fastened 12 floats (*uto*) of *hau* wood 24 inches long. These are attached approximately every 6 feet to the suspension rope by strings tied through holes in the upper ends of the floats. The middle float was called *pito-o-te-kupenga* (the-navel-of-the-net). The lower edge of the net is weighted by 13 stones wrapped in banana tree bark and tied to the edging cord. These sinkers (*kaka*) weigh 196 grams and have an average length of 5 feet. When a shoal of fish was sighted, the two poles were stuck in the sand and the fish were driven toward the net.

Geiseler (87, p. 37) mentions a net 200 feet long but this is probably exaggerated.

The *kupenga viri* (*viri*, to roll) was identical to the *kupenga maito* and was generally used at night.

The *kupenga matiro* had smaller meshes than those of the *kupenga maito* but the principle of the net was the same. It was used to catch *matiro*, a leaping fish.

The *kupenga ike* was used to catch *ike* (needle fish). It was the same type as the *kupenga maito* but was larger and had smaller meshes. It was carried to its place by several swimmers.

CASTING NETS

Though casting nets were not enumerated by my informants, they were seen by Thomson (215, p. 460): "Their light casting nets were used with great dexterity as they waded along the beach, and when a shoal of small fish appeared, the net was thrown with the right hand."

TURTLE NETS

For a great many years no turtles (*honu*, *kepukepu*) have been seen off the shores of Easter Island. The natives explain their disappearance by the passing of the kings (p. 133). Island folklore has many stories about turtles, and numerous petroglyphs represent them. Turtle shells which were worn as ornaments have been found in caves and graves.

My informant says that when turtles were seen, natives jumped into their canoes and went to meet them. They dived near the turtles and drove them into a special net (*kupenga honu*), similar to the *kupenga matiro* but with wider meshes and stronger ropes.

SINKERS

Twelve net sinkers are preserved in the Bishop Museum collection. Four have an artificial perforation, and the others are basalt rocks with a natural hole (fig. 13, *a*).

Of the four stones intentionally perforated, two are nearly flat with holes near one edge like the net weights of Tahiti (fig. 13, *c*). The remaining two belong to a widespread Polynesian type which, in its most characteristic form, is a sphere with a perforated projection at the top. In the same collection, a stone disc with a central hole (B2614) may well have been a sinker.

Three small oval stones weighing about ½ ounce each (fig. 13, *c-d*) are grooved for attachment of a cord. They are labeled in Young's catalog as "*atua matagaro*, fetish stones used by *tuhunga* (sorcerers)." The natives identified them as ear pendants to increase their commercial value; they emphatically denied my suggestion that the

stones might have been line sinkers. However, the frequency with which such pieces are discovered in fishermen's caves along the shore suggests that they had something to do with fishing, either as line sinkers or net sinkers. The lightness of these stone sinkers cannot be regarded as a serious argument against their practical use.

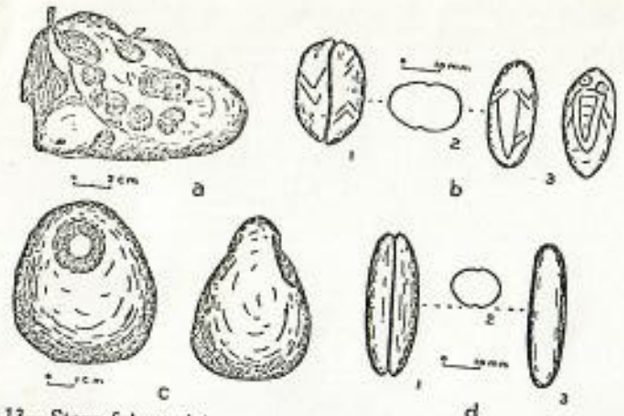


FIGURE 13.—Stone fishnet sinkers: *a*, stone with natural hole used as sinker, 141 mm. long, weight 33 oz. (B3513); *b*, small stone sinker for net or line: 1, lateral view; 2, cross section, 3, front and back views showing incised animal figure, probably a fish or a lizard, 28 mm. long, 20 mm. wide, weight 2/3 oz. (B3557); *c*, biconical hole perforated near top, coarse-grained basalt, 70 mm. high, greatest width 61 mm., 51 mm. thick, weight 10 oz. (B3564); *d*, small stone sinker for net or line: 1, lateral view; 2, cross section; 3, front view, 38 mm. long, 14 mm. wide, weight 1/2 oz. (B3557).

COMPARISON WITH OTHER POLYNESIAN FISHNETS

A comparative analysis of Easter Island nets is almost impossible. With few exceptions they are known only through second-hand descriptions. Also the types of nets have been studied in only a few Polynesian islands, and many of the descriptions are too general to be utilized for comparative purposes.

Scoop nets are general in Polynesia, but nowhere did I find reference to the bow-shaped frame of Easter Island.

Bag nets were used in New Zealand for catching crayfish, and, as on Easter Island, the bait was attached above the hoop. Grooved stones were used as sinkers on these Maori nets. The sinkers were sometimes enclosed in a small net to prevent their being lost. The large bag nets of Easter Island (*kupenga ature* or *koreva*) probably resembled the Maori bag nets for catching *maomao* (32, pp. 626-634). Bag nets have been described for the Marquesas (142, p. 400), the Society Islands (103, p. 88), Manihiki and Rakahanga (29, p. 163), and Tongareva (30, p. 201). In the Bishop Museum collection there is a large bag net from Hawaii which suggests Easter Island *kupenga ature* nets.

To catch needle fish (*ihe*) the Marquesans had a special net of the same type as that used for flying fish. It was a small bag fixed to the arms of a fork lashed to a pole (142, p. 400). It is possible that the description of the *kupenga ihe* given by my informant is inaccurate and that the Easter Island *kupenga ihe* was like the Marquesan. However, in the Tuamotus the needle fish are caught in traps, hence we may assume that set nets could be used for the same purpose.

FISH SPEARS

Spears used by modern natives are of European manufacture. It is impossible to determine whether a spear is old or has been introduced by Tahitian settlers. When Roussel (190, p. 355) landed on Easter Island in 1866, some of the natives were armed with European harpoons. Modern spears are from 3 to 5 meters long and belong to two types, one a simple spear with an iron point, the other with a compound point working on the principle of a fish gorge. The fisherman dives, his eyes protected by glasses, and pierces fish that swim within his reach.

TURTLE WATCHTOWERS

Turtles were watched for from turtle watchtowers (*tupa*) along the shore near ancient settlements.

One tower at La Pérouse Bay (pl. 2, *B*) is 3 meters high and the diameter of its base is about 7 meters. The entrance is 80 cm. high and 1.10 meters broad. The interior of the building consists of big, unhewn stones, well laid. Inside they project gradually until they are spanned by slabs forming a crude corbeled vault. The largest tower is situated between La Pérouse and ahu Mahatua, near ahu Vai-mangeo. The tower has a kind of wing containing an inner chamber.

The *tupa* of ahu Akapu, seen by Cook and his party (83, vol. 1, p. 570) and accurately described by Bernizet (130, vol. 2, p. 254), is still in fairly good condition. Its construction is similar to that of the tower at La Pérouse. The interior chamber is 24 feet long by 6 feet wide and 7 feet high in the center. The walls are 4 feet thick and the door is 2 feet high by 2 feet wide.

Thomson (215, p. 484) and Routledge (194, p. 218) were told that these towers were lookout stations whence the movements of turtles and fish could be watched, and I was given the same explanation. Skottsberg (208, vol. 1, p. 12) was puzzled by the importance of the towers with their lower apartments, which are in no reasonable proportion to the purpose for which they were built. Though they are along the shore, these towers do not give the watchers any better view of the sea than any near-by hill. There are no such towers on the south coast; on the north they are few—I know of only five. In the Tuamotus and Hawaii, watchers sat at certain points along the coast to signal the arrival of turtles or fish. Heaps of stones served as elevations. The *tupa* of Easter Island were probably most similar to the Hawaiian fishermen's shrines (*ko'a*), which were terraces of stone. On some of them stood

Necklaces of common shells (*pipi-vaka*), shark's vertebrae, ti and sugarcane leaves, and fruits of *Sapindus* were enumerated by my informants when discussing the ancient ornaments.

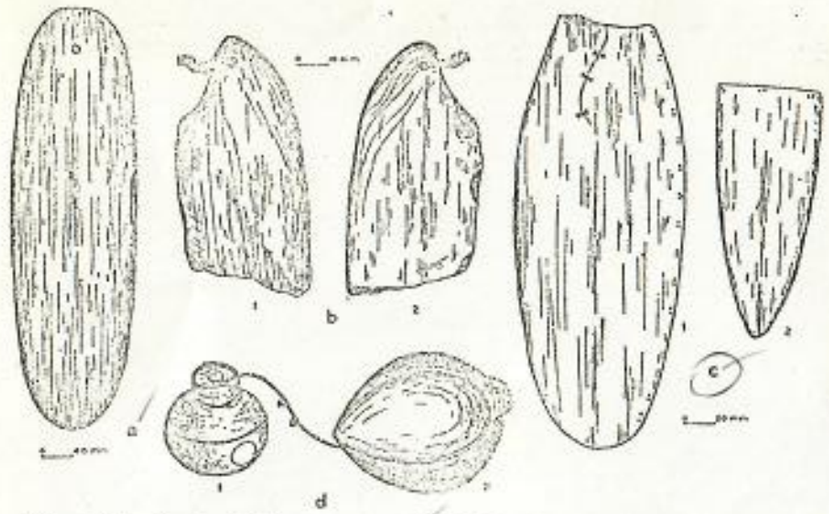


FIGURE 27.—Neck and belt ornaments: *a*, oval plate of turtle bone (*ivi taoraha*), 576 mm. long, 136 mm. wide, with suspension hole near upper end (B2579), *b*, fragment of a shell neck ornament 43 mm. wide, with suspension hole near upper end pierced from one side (B3577). *c*, plates of tortoise shell, parts of belt: 1, ellipse with holes along one side, crack mended by threads pulled through holes perforated along crack, 300 mm. long, 120 mm. in greatest width (B3652); 2, half ellipse with holes along straight edge, 170 mm. long, 75 mm. wide (B3552). *d*, wooden ball neck pendants (*tahonga*; British Mus. 6817): 1, wooden ball, total height 68 mm.; greatest diameter 62 mm.; upper cylindrical projection 15 mm. high, 30 mm. in diameter; upper surface of projection cut down to depth of 5 mm., forming an outer rim 1.5 mm. thick and central knob 13 mm. in diameter with horizontal perforation for suspensory cord; 2, coconut-shaped ball; length 100 mm.; greatest diameter 83 mm.; four raised ridges radiate out from pointed end to divide ball into four equal segments; near base each ridge bifurcates and each bifurcation joins the adjacent one to form even curves, convex toward the base.

WOODEN ORNAMENTS

Crescent-shaped Breast Ornaments

A crescent-shaped breast ornament (*rei-miro*, fig. 28) was made generally of wood (*miro*), more rarely of whalebone. The word *rei*, widespread in Polynesia, usually means a neck ornament, but its original sense was a cachalot tooth, whale ivory. Cachalot teeth were worn by peoples of many islands (New Zealand, Mangareva, Marquesas, Hawaii) as highly esteemed neck pendants. In the language of Easter Island *rei* also means mother-of-pearl. Some shells used in necklaces are called *rei-pipipi*.

There is a common tradition on the island that the *rei-miro* were worn especially by women at feasts. However, they were also insignia of the king and other men of high rank. The king appeared in the ceremonies with two *rei-miro* hanging on his breast and two others on his shoulders. The *rei-miro* of the women were smaller than those of the men and were called *rei-mata-puku* (chicken embryo).

The first visitor to speak of the *rei-miro* is Palmer (171, p. 171): "At their dances the men wore a gorget made of hard wood, lunate in shape, and

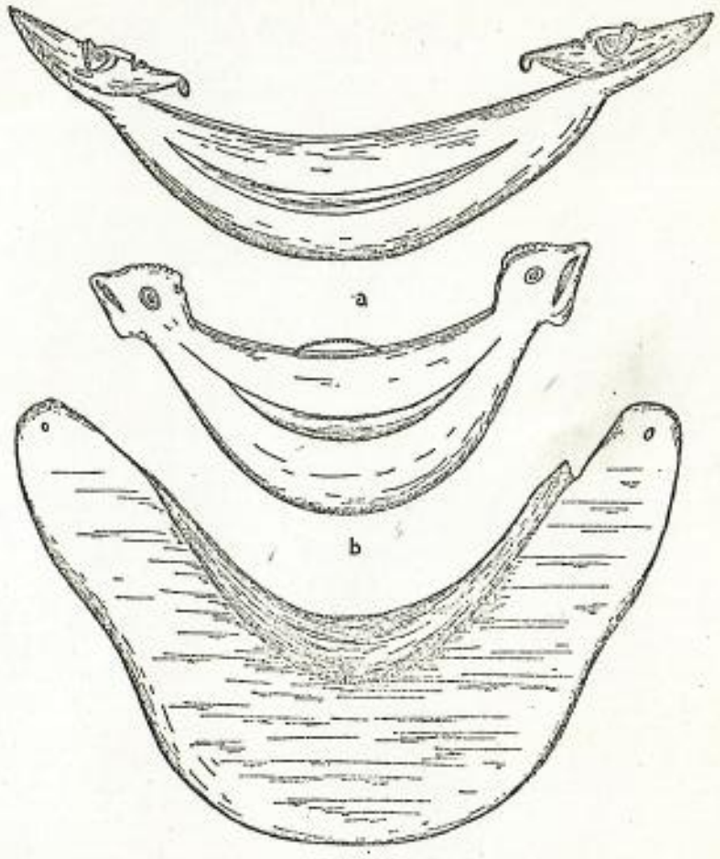


FIGURE 28.—Crescentic breast pendants (*rei-miro*): *a*, wooden pendant 690 mm. long, 120 mm. in greatest width (B3624); *b*, wooden pendant 240 mm. long (Ratton coll., Paris); *c*, whalebone (*rei-taoraha*) pendant 576 mm. long, 174 mm. wide, front bulges along upper edge, suspension holes at ends (B3578).

each end terminated in a head, the concavity was worn uppermost, the profile of the face in the oldest gorget was very aquiline."

Some authors have advanced the theory that the crescentic *rei-miro* were images of the boats with high stern and bow which brought the natives to their present home. Not a single fact confirms this fanciful conjecture. In collecting the *rei-miro* which are in Bishop Museum, Young (229) received some information from Easter Island natives which is perhaps worth reproducing here though Young is an unreliable authority:

I have been assured by old natives of Rapanui, that these are practically reproductions of similar objects which were hidden in caves after the introduction of Christianity, and which have disappeared. These objects are furnished with holes for strings to enable them to be worn as breast plates on ceremonial occasions. Hence, the name *rei* (breastplate). But they were also called *rei-maromu* (*maromu*, moon) and the old natives declared that the shapes of the different crescents were meant to represent different phases of the luminary and were worn at feasts held at the time of the planting of the *kumara*. I have been unable to obtain any description of the prayers or chants which were used at these ceremonies . . . I have possessed these crescents since 1888, when I obtained them from Rapanui through a reliable agent.

Tepano's assertion that only men's *rei-miro* had an oval-shaped depression on the front is dubious. So perhaps is his statement that three or four variegated shells (*rei-pipi*) were tied as tassels to the wooden crescent. On those that I have examined, there are no holes to which ornaments might have been attached. However, a petroglyph representing a *rei-miro* is provided with two perpendicular lines which can be interpreted as two conventionalized strings with tassels

A *rei-miro* in the British Museum (195, fig. 115) has a row of tablet signs on its lower border. Another, obtained during Geiseler's visit to Easter Island and now in the Australian Museum (216, p. 149), is also decorated with signs, many of which are similar to those on the tablets. According to Geiseler's report (87, p. 35) and the label which accompanies the specimen (216, p. 149), it belonged to the king's family for many generations. After the kidnapping of Maurata, it was left to a chief called Hangaio. However, the signs engraved on this *rei-miro* look like crude imitations of the original symbols. They have been marked with little care, and symmetry has been neglected. As far as one may infer from the photograph, a steel implement was used to incise them.

A large *rei-miro* in Bishop Museum (fig. 28, *a*) is ornamented with a male head at each end. These heads have the goatee and resemble in all respects, except the painted poll, the representation of the face in the male wooden images. The upper edge of the crescent is grooved from end to end. The *rei-miro* was supported by a cord which passed round the neck of the wearer and through holes perforated in two lugs near the upper margin of the crescent. On the reverse side a small crescent is sunk within the margins. A small *rei-miro* in Bishop Museum is 345 mm. long.

A very small *rei-miro* in the collection of Charles Ratton, Paris (fig. 28, *b*) has ends ornamented by cock's heads with eyes of inlaid rings of bone and a piece of obsidian. A groove extends along the top from end to end. The suspension holes are pierced obliquely through the upper edge.

A *rei-miro* of whale bone in Bishop Museum (fig. 28, *c*) is called *rei-teoraha* (*teoraha* is the humpback or blackfish whale).

A *rei-miro* in Braine-le-Comte, Belgium (187, p. 5), demonstrates the scarcity and value of wood on Easter Island. The human head at one tip is lacking. It was not carved from the same piece of wood but was sewn on through a series of small holes.

Wooden Balls

Wooden balls, called *tahonga*, were apparently feminine ornaments worn around the neck, on the breast, and on the shoulders. But Tepano, under the direction of old men, drew a figure of the *poki-mauu* (initiated boy ?) with *tahonga* hanging down his back. Tepano also told me that the king had the privilege of wearing six such pendants simultaneously, three in front and three in back, and that other men were adorned with these balls on certain occasions. However, these exceptions may well be misunderstandings or erroneous statements. *Tahonga* were tied in pairs with a rope of woman's hair and were thus suspended around the wearer's neck. Many *tahonga* have been collected by visitors, and the natives still carve them to sell as curios.

The rounded shape, slightly elongated at the lower part, ends in a conical tip and resembles a coconut. The resemblance is accentuated by four ridges which meet at the bottom of the pendant and diverge toward the top to form four arches (fig. 27, *d*, 2). Some authors advance the theory that *tahonga* are imitations of coconuts that grew in the homeland of Easter Island ancestors. The supposition finds no support in native tradition and the resemblance of *tahonga* to the nuts may well be fortuitous. At the upper end of the ornament there is a slight projection which is perforated for a string to pass through. This is sometimes carved into the form of a human head, single or double, or into the head of a bird. A *tahonga* in the Musée missionnaire at Braine-le-Comte (187, fig. 3) has two "eyes" of obsidian set in rings of bone inlaid on each side of the projection.

Some *tahonga* are very small. In Bishop Museum there is one 78 mm. long and 47 mm. wide. The British Museum has a wooden ball which may be considered a *tahonga* (fig. 27, *d*, 1). It has a circular flange at the top, the upper surface of which is cut down to about 5 mm., leaving a round central projection which is transversely perforated for a cord.

Carved Wooden Pendants

Turtle head ornaments. The wooden turtle head (*honu*) has the general form of the *tahonga* (fig. 29, *a*). The eye is surrounded by a band decorated with chevrons and the eyeball is represented by concentric circles in relief. In the central cavity which represents the pupil, a piece of obsidian has been inserted, probably at a recent date. The mouth is crossed by a series of inlaid slanting lines. The same hollowed lines run lengthwise along the entire head, imitating the wrinkles of the turtle head. The nape and the throat are excavated so that the jaws protrude. A suspension hole is pierced through the top of the head. There is little doubt that such tortoise heads were worn about the necks in the same fashion as the *tahonga*.

Human foot. It is impossible to ascertain whether the wooden pendant in the form of a human foot (fig. 29, *c*) was an amulet or merely an ornament with no supernatural value. Perhaps the foot figured is only a fragment of a wooden statue, transformed into a pendant by grinding off the broken part.

Octopus. The octopus (*heke*), esteemed as food, fired the imagination of native artists who not only carved its figure in wood but represented it in the petroglyphs and on the signs of the tablets.

Bishop Museum has a fragment of an old wooden octopus image (fig. 29, *b*). The tentacles have been broken off, but the animal is easily recognized by the oval shape of its body and the position of its eyes. The eyes are made in the traditional way with a bone ring and a piece of obsidian and inlaid in both lateral and circular projections on either side of the head. The image is double and the two identical figures of octopuses

are joined in the central part of the body. The suspension hole is perforated through this central ridge. The shape of the completed specimen may be inferred from another octopus (fig. 29, *d*) which is in good condition.

Sow bugs. Sow bugs or pill bugs (*Isopoda*) swarm under every stone and have been taken as models by the wood carvers of Easter Island. A wooden pendant in the shape of a sow bug is shown in figure 29, *f*. The convex back of the animal with its tergites or segments, and the sides laneflately expanded have been reproduced as faithfully as possible. The lower surface is slightly concave and raised throughout at a distance of 15 mm. from the edges. Although not very old the specimen represents an ancient type, as the good workmanship testifies.

Phallus. Figure 29, *c* shows a curious wooden figure which represents the phallus. This piece is exceptional. However, the natives on the island sold to me a stone partly broken which was a very realistic representation of the penis and which I believe to be genuine. It is highly improbable that such a stone had any magical importance.

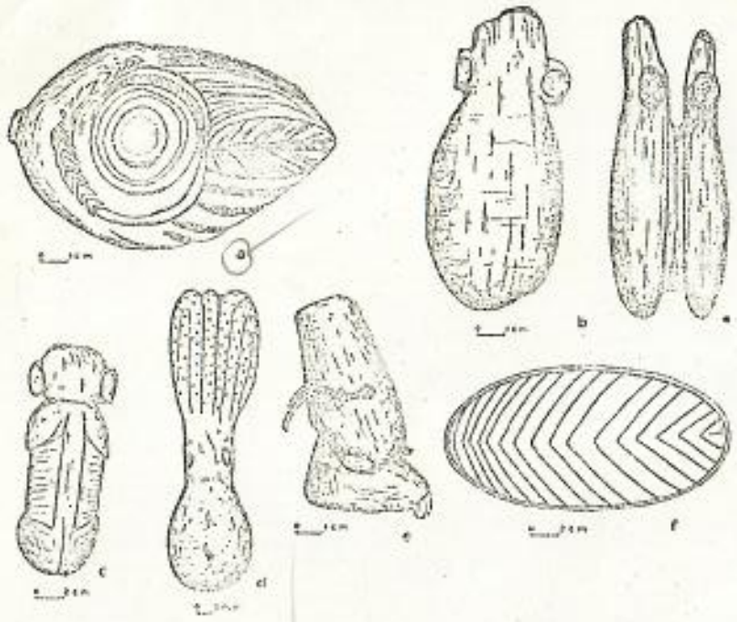


FIGURE 29.—Wooden pendants: *a*, turtle head, 120 mm. long, 67 mm. wide (6351); *b*, octopus fragment, 109 mm. long, 50 mm. wide, 45 mm. thick (C4172); *c*, phallus with one end shaped like glans of penis and other end carved, hole pierced evidently to represent urethra but cut away at back in middle portion to expose urethra, 140 mm. long, 60 mm. wide (Mus. f. Völkerkunde, Vienna, 22853); *d*, octopus with eyes made of pieces of obsidian inlaid in a shell ring, tentacles carved in relief, suction cups represented by bosses or knobs on back and by small holes on front, 188 mm. long, 55 mm. wide at tentacles (Mus. f. Völkerkunde, Vienna, 22808); *e*, human foot, heel separated from rest of foot by flange, toes doubled under, 84 mm. long, 48 mm. wide (B3653); *f*, sowbug (*Isopoda*) 218 mm. long, 104 mm. wide, 37 mm. thick (B3630).

Tortoise-shell Belts

Formerly, "when there were kings in Easter Island," turtles were caught by the natives both for their meat and for their shell. Tradition tells that in olden days the men wore tortoise-shell belts (*honu-toro*). During my stay on the island I received from a native some tortoise-shell plates which had been found in a cave. They had small suspension holes.

These plates are of two forms. Most of them are ellipses and have holes in groups of two, set in a row along one edge (fig. 27, *c*, 1). Others are tongue-shaped with holes along the straight edge (fig. 27, *c*, 2). Of the first type the largest specimens are between 320 and 340 mm. long and 125 and 132 mm. wide. The smallest are 260 mm. long and 90 mm. wide. The plates of the second type are 170 to 180 mm. long and 73 mm. wide.

It is difficult to get a clear idea of the original appearance of the ornaments made from such plates. They are so long that it seems impractical to have them tied around the waist and the two forms do not combine. Since all definite information is lacking we are forced to accept the tradition and consider the plates as pieces of ceremonial belts.

Comparisons with Other Polynesian Ornaments

Deformation of the ear lobe to introduce wooden or bone plugs is restricted in Polynesia to Easter Island. The nearest parallel is found in the Marquesas where men and women used to wear in their ears heavy bone ornaments which distorted the lobes, but never to such an exaggerated size as on Easter Island (104, p. 288). In the Tuamotus the men pierced their ears to introduce ornaments but they never deformed their lobes. The Maoris must have had large holes in their ears in order to wear in them the objects mentioned by early observers. However, no reference has been made to an abnormal stretching of the lobe (20, vol. 2, pp. 535-540). Maori ear ornaments cannot well be compared to the plugs of Easter Island since most of them were pendants of bone or stone. Maoris, like Easter Islanders, occasionally wore strips or rolls of *aute* bark in their ears. The ear deformation of the Easter Islanders has been emphasized as a culture trait suggesting Melanesian affinity. Though enlargement of the ear occurs in Melanesia, it is not general and the Easter Island fashion may well have developed locally. The big ear plugs of the Marquesas are sufficiently close to the Easter Island ornaments to serve as an intermediate link between the custom of piercing the ear and of enlarging the lobe for insertion of pieces of wood or bone.

The oval plates of Easter Island, worn on cords round the neck, were substitutes for the whale teeth pendants common in other parts of Polynesia. The tongue-shaped neck ornaments resemble those worn by the Maoris in the time of Captain Cook (100, p. 20). The broken shell plaque (fig. 27, *b*) may be compared to the Marquesan plaques ground from the large end of a species of *Conus*. Linton (142, p. 428) attaches great importance to this ornament because it is rare in Polynesia but common in Micronesia. Since only one specimen is recorded from Easter Island, the parallel is of little significance.

been collected which are so crude that they must be fancies of the commercialized art of the present natives.

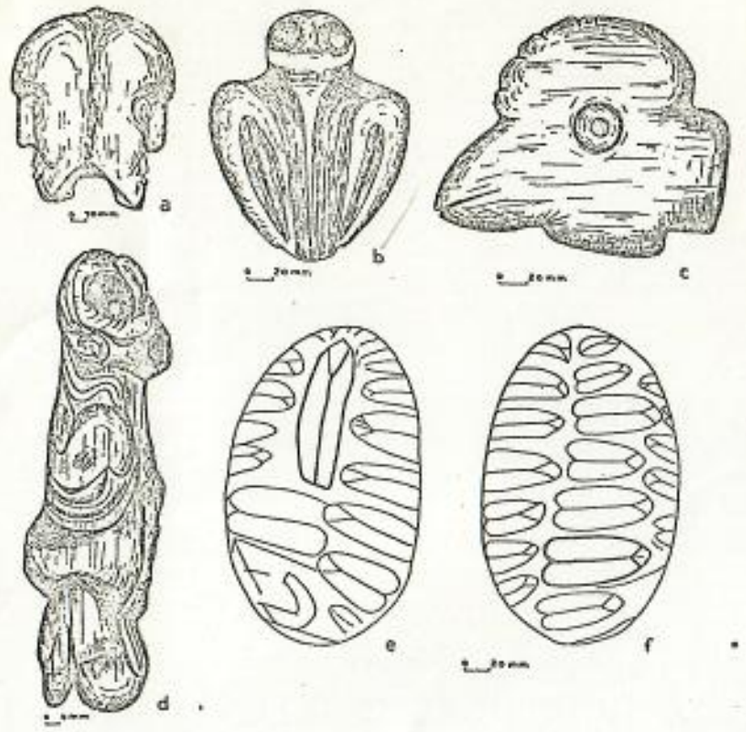


FIGURE 42.—Good-luck objects: *a*, double-headed wooden pendant, 887 mm. high, 76 mm. wide (Peabody Mus., Salem, E5307); *b*, stone turtle with eyes bulging, nose formed by raised triangle on same plane as forehead, neck depressed, flippers indicated by depression on each side, raised ridge along back, ventral surface plain, 212 mm. long (3502); *c*, stone cock head, protruding eye with central cavity, 169 mm. long, 137 mm. wide (C4154); *d*, wooden lizard with suspension hole through one vertebra, 216 mm. long, 52.7 mm. wide, and 63 mm. thick (Peabody Mus., Salem, E13896); *e-f*, two sides of boulder with incised representations of the vulva, 260 mm. long, 159 mm. wide (B4454).

On the tablets there are some representations of human beings with two heads and the upper part of the ceremonial staff is carved into the form of two heads placed back to back. The Peabody Museum, Salem, has what is apparently a wooden pendant (fig. 42, *a*) which could be mistaken for the upper part of a double-headed image. The two heads are back to back, they have no neck, and the lower part of the pendant is deeply notched. On the top of the head there is a suspension hole. The bird with double head on a

single body is figured among the petroglyphs and occurs commonly among signs of the tablets.

Significance of Wooden Images

Like the stone images, the *moai kavakava* and *paapaa* are enigmas. Their true significance was not even clear to the natives 50 years ago. Though our information about them is vague, we know their ritual use. The earliest evidence on this subject is contained in a letter of Eyraud (81, vol. 38, p. 69):

> I was unable to discover any positive act of a religious cult. In all the huts are found small images 30 cm. tall, representing men, fish, and birds. Beyond any doubt they are idols, but I never noticed that any kind of respect was payed to them. Sometimes I saw the Kanakas lift their images up in the air, make some gestures, and accompany the whole thing with a sort of dance and with an insignificant chant. What was their purpose? I think they did not know it themselves. They simply did what they had seen their fathers do, without reflecting longer about it. If you ask them what it means, they will answer you . . . that so is the custom of the country.

Palmer (171, p. 180), though he calls them "lares" or "household gods", asserts that they were not worshipped and that the natives knew nothing about the significance of the motifs carved on them. Zumbohm (230, vol. 6, p. 128) states definitely that these images were considered sacred. Gill (89, p. 181) learned from an Easter Islander that such images were worshipped.

Fifty years ago Geiseler (90, p. 32) was told, probably by Salmon, that these images represented secondary gods which were exhibited during the feasts, notably those celebrated at harvest time or when the first fruits were offered. The rest of the time, the images were kept in huts, carefully wrapped in tapa. During feasts, everyone displayed the images he possessed, hanging them on his person. The more images a man could wear, the greater chance he had of having his requests granted by the deity. Sometimes individuals were loaded with 10 or 20 images. The images were unwrapped amid chants and rocked in cadence on the arms of the owners. The natives took pride in the number of images they owned and in their workmanship. In confirmation of Geiseler's information, I was told repeatedly that the images were taken out during feasts by men who danced with them. My informants demonstrated vividly the grotesque and often obscene gestures made by those who carried images.

Though Thomson (215, p. 534) had access to the same source of information as Geiseler, he mentions only that the images "were given a place of honor at feasts and ceremonies." However, he seems certain that they were representations of spirits and that they figured deceased chiefs and persons of note. There is perhaps some truth in Knoche's statement (126, p. 95) that "the images of *toro-miro* were carved when the member of a family died whose name was given to the figure."

Routledge (194, p. 270) concludes that "on the whole the female figures and those with ribs seem to have been considered to be supernatural beings; they are generally called *akuaku*, and sometimes *atua*, while the others represent men."

Edge-Partington (68, p. 180) writes that the images were kept in the huts "either in niches (?) or suspended from the ridge pole, and were carefully wrapped up in nature cloth or tapa."

The wooden images showing protruding bones were intended to represent the spirits of dead people. This conception, which was very ably suggested by Desmedt (59, pp. 134-135) is borne out by traditions and by the statements of natives who still conceive the spirits of the dead as identical with the wooden images.

The legend accounting for the origin of the first images has been recorded several times (194, pp. 269-270; 222, pp. 61-64; 27, pp. 137-138). Most of the natives know the story, and their version may be useful for a true understanding of the nature of wooden images:

He manau Tuu-ko-ihu mo (o)ho ki Hare-koka i Hanga Hahave. He noho Tuu-ko-ihu, he moe i Ahu-te-peu. He otea i te po a, he ea, he oho ki Vaitaka-tiki, ki Puku-takaure, ki Ahu-ava-a-atea, ki te Henua-kava. He iri, he oho, he tau ki Punapau. I ka tuu atu ki mua ki te hitirau, ko te varua e momoe roa i te aro o te hitirau. He kavakava no, he ivi no, ina he hakari. Te ingoa nga varua era ko Hitirau ko Nuku-te-mango. He oho Tuu-ko-ihu. He rangi mai etahi varua ko Hauriuri te ingoa: "Ka ara korua, ku tikea ana te korua kavakava e te ariki." He veve veveri, he ara, he ui atu ko te tangata. He oho ro ana, he ea ki runga, he oho ararua, he pu mai amua, he ui ki te ariki: "Pehe taau mea maa." He ki te ariki: "Ina." He ki hakahou: "Atikea te mee aau i ui." He ki te ariki: "Ina." He ngaro hakahou tau nga varua era.

He oho Tuu-ko-ihu. He piri hakahou ki a Tuu-ko-ihu i Mataengo. He ui hakahou: "Pehe taau mee maa, e te ariki e." He ki Tuu-ko-ihu, "Ina." He oho hakahou Tuu-ko-ihu he piri hakahou i Puku-rautea. He ui hakahou ki a Tuu-ko-ihu: "Pe he taau mee maa e te ariki e." "Ina." Ana i haaki Tuu-ko-ihu ku tingai ana o te ui i to raua kavakava oira ana tingai. He ngaro hakahou.

Tuu-ko-ihu decided to go to the house called Hare-koka (House-of-the-cockroaches) at Hanga Hahave. Tuu-ko-ihu was living then in Ahu-te-peu. Early in the morning he left and went to Vaitaka-tiki, to Puku-takaure, to the Ahu-ava-a-atea, to Henua-kava. He went up and climbed to Punapau. He happened to see in front of the red stone two spirits who were sleeping near the (cliff) of red stone. They were just ribs and they had no bodies. The names of these spirits were: Hitirau and Nuku-te-mango. Tuu-ko-ihu went on. Another spirit, named Hauriuri, cried: "Awake, the king saw your ribs." They woke with a start and saw this man. They went, (they) climbed and crossed the way in front of Tuu-ko-ihu. They asked: "What do you know?" "Nothing", answered the king. They said again: "Perhaps you noticed something." "No", said the king. The two spirits disappeared again.

Tuu-ko-ihu went on. (But) the spirits met him again at Mataengo. They asked again: "What do you know about us, O King?" Tuu-ko-ihu answered, "Nothing." Tuu-ko-ihu went on and he met them again at Puku-rautea. They asked Tuu-ko-ihu again: "What do you know about us, O King?" "Nothing." If Tuu-ko-ihu had told them he had seen their ribs, they would have killed him. They disappeared again.

He turu, he oho Tuu-ko-ihu he tuu ki Hare-koka. I ka tuu atu Tuu-ko-ihu ki Hare-koka ko te tangata, e uru ana i te umu, te umu ava, he hoahoa i te tutuma o te toro-miro. He oho atu Tuu-ko-ihu, he too mai te tutuma, he mau ki roto ki te hare. He tarai i te moai e rua etoru rua. He oti te moai rae, he too mai i te rua tutuma, he tarai hakaou. He oti te rua moai ko Hitirau, ko Nuku-te-mango.

He moe mata hakahou Tuu-ko-ihu i te po, e hauru no a Tuu-ko-ihu, he ui atu te mata o te varua o Tuu-ko-ihu ki te nga vie erua ko Paapa-ahiro, ko Paapa-akirangi. He ui atu te mata o te kuhane o Tuu-ko-ihu. He kokomo ro ana i te rima. He veveri te kuhane o Tuu-ko-ihu. He ara, he otea, he too mai, he tarai hakahou erua hoki moai paapaa. He oti te tarai ararua moai, he too mai ahaha moai. He amo, he oho ki Ahu-te-peu, he tuu ki Ahu-te-peu ki roto ki te hare. He hakarere, he hakamaronsaro a i roto i te hare. He nobo.

He tanu mai te moai o te tangata ki a Tuu-ko-ihu mo anga tangata. I puhi i te umu i tau, i te moa, i tao i te ika, i te uhi, i te kumara, he mau mai ki a Tuu-ko-ihu o te anga i te moai. He noho Tuu-ko-ihu, he tarai, he oti te moai nei. He oti te moai nei, te raa ananake anga era Tuu-ko-ihu i te moai. O kope era o kope era e ku tata mai a te moai hoou he tarai hakahou. He moai umu ana ka vaai ki te hoa moai. He moai umu kore ana ka hakarere i ai ananake te moai e anga era.

He tuu ki toona raa, he oho mai te tangata ananake moai tne vaai. He ki ki te ariki ki a Tuu-ko-ihu: "E te ariki e, e Tuu-ko-ihu e, e ka vaai mai koe i tamatou moai." "Ka noho mai." He too mai Tuu-ko-ihu, he hakahaere i te moai i roto i te Hare-hakahaere-moai. He nape iho te ingoa o te hare ko te Hare-hakahaere-moai. He haere te moai kavarikavari i roto i te hare. He ui te nata o te hoa moai e haere mai era. He ki te tangata: "Kareka te moai ku haere ana iroto i te hare." Ai ka ui no te mata ai ka maharo no: "Kareka te moai e haere mai era." He tuu ki te ahiahi, he hohoki te tangata ki toraua hare ina kai vaai Tuu-ko-ihu i te moai i hohoki ro ai.

Tuu-ko-ihu went down and arrived at Hare-koka. When he arrived there the people were taking the stones from the oven. They were throwing away firebrands. Tuu-ko-ihu took two firebrands and carried them into the house. He carved first one image, then another from the firebrands. He finished two images [representing] Hitirau and Nuku-te-mango.

Tuu-ko-ihu fell asleep and dreamed of two women: Paapa-ahiro and Paapa-akirangi. His soul in the dream had seen they were hiding their sex with their hands. Tuu-ko-ihu awoke with a start; he got up and when it was day he took wood and carved two flat images. He loaded them on his back and went back to Ahu-te-peu. He left the images standing in the house where he lived.

The people went to Tuu-ko-ihu with images to be carved. They lit their oven and cooked in it leaves, fowls, fish, yams, and sweet potatoes; and they brought this food to Tuu-ko-ihu, so that he would carve images. Tuu-ko-ihu carved and finished various images. He was working all day long. People and more people came with new figures to be carved. They [got] the images when they offered an earth oven to the owner of the images. But if there was no earth oven for the images, he [Tuu-ko-ihu] kept all the images he had made.

One day all the men whose images were not returned went to Tuu-ko-ihu and said: "O king, o Tuu-ko-ihu, give us our images back." "You wait." Tuu-ko-ihu made the images walk in his house and thereafter the house was called "The-house-of-the-walking-images." The images walked and made turns and turns. The owners of the images saw their images move and said: "How amusing are these images moving in the house." When they saw that, they were full of admiration. "How funny are these moving images." In the evening these people went to their houses, but Tuu-ko-ihu did not give [back] their images when they returned.

Routledge's version of this legend (194, p. 270) presents a single variant. The two spirits, in order to be sure that Tuu-ko-ihu has not seen their ribs after dark "prowled around the house, listening with their hands up to their ears, to hear if he gossiped about what he had seen, intending if he did so to kill him. The ariki, however, held his tongue." In the version published by Vives Solar (222, p. 62) the two spirits are awakened by a spirit called Akere-kere, who tells them that their ribs have been seen by Tuu-ko-ihu. Discarding the magical element of the tale, Vives Solar (222, p. 64) has Tuu-ko-ihu move the images by cords. On this misunderstanding, Knoche (126, p. 98) and later Brown (27, pp. 132-145) built their theory of the Easter Island marionettes and the parallels with Indonesia.

There is another tale about Tuu-ko-ihu and the images:

> There was a young man living in Riu-o-hatu. He planned to make a feast (*koro*) for his father. For that purpose, he raised chickens and had a house built. All his people worked on it. When the *koro* house was finished, he left his people and went to Ahu-te-peu to call on Tuu-ko-ihu and ask him for a statue. He arrived at Tuu-ko-ihu's place and asked: "Give me a statue, o king, in loan for the feast in honor of my father." The ariki said: "It is all right." Tuu-ko-ihu gave him an image. The young man took it and returned to his *koro*. He broke sugar-cane stalks, dug out yams and sweet potatoes and put bananas in a ditch. He lit the oven and put in it fowls, yams, and sweet potatoes. Some people sang *riu* chants, others, *ei* chants and others *a te atua*. They took all the foods—bananas, sugar cane, fowls—to the *koro* house. They set up the image at the door of the *koro* house, and the people went to admire this image. They spent three days in the *koro* house. This *koro* house was nice, and the people ate plenty of sugar cane and bananas.
>
> When the *koro* was finished, the young man stayed there. The third day, the *koro* caught fire. Men, women, and children shouted: "The *koro* is burning, the *koro* is burning." This cry sounded at Hanga-roa, at Motu-tautara, at Ahu-te-peu. Tuu-ko-ihu heard it and said: "O my brother 'The jumping-little-bird' (*pin-kekerere*) jump!" A servant of Tuu-ko-ihu was sent to Riu-o-hatu. When the young man saw him, he said: "Your image is burnt up." The servant said: "No, it did not burn." He looked for it and found it lying far away. The servant called the owner of the *koro* and said: "Here is your image." He returned it to Tuu-ko-ihu.

The connection of the images with the spirits of the dead is made evident in the first myth. The second shows that these images were exhibited during feasts and that perhaps their presence was indispensable. Numerous details about their handling, such as their ceremonial unwrapping, would be incomprehensible unless we suppose that these images were really gods or representations of deified ancestors. The handling of the images and the chants addressed to them correspond to the various methods of coddling and flattering the gods used in the Tuamotus and Tahiti.

In the course of time the artistic element may have become predominant; thus many of the images may have been carved and carried merely as ornaments or precious property, displayed during a feast.

Comparisons with Other Polynesian Wooden Images

Wooden images of humans are common to the cultures of eastern and central Polynesia. The decayed condition portrayed in Easter Island images is foreign to other Polynesian art, except that of the Chatham Islands. A Moriori image (206, pl. 4) has protruding ribs and a retracted abdominal region. However, all other features are treated quite differently from those on Easter Island images. Ribs are frequently represented on the famous tree carvings of the Chatham Islands and ribs may be seen in some Maori *hei-tiki* (206, p. 66) and in the cave drawings from the South Island of New Zealand. The position of the arms—slightly flexed and lying along the thighs—is the same in Easter Island and Hawaiian images (142, p. 89).

Small wooden images seem to have been used throughout Polynesia as temporary tabernacles for gods and ancestral spirits. Probably such was their function on Easter Island. In New Zealand sticks with conventionalized figures carved on one end were used as temporary shrines for the gods (20, vol. 1, p. 281). In the Whanganui district small images were kept in the house "each of which is dedicated to the spirit of an ancestor of the family, who is believed to enter into its substance, on particular occasions, in order to hold converse with the living" (203, p. 63). Occasionally Maori wooden images were made to represent defunct relatives before which the living wept while food was offered to them (20, vol. 2, p. 60). Tahitian *ti'i* (wooden images) were also temporary receptacles for lesser gods or spirits who were called into the image by a priest or a magician (107, p. 203). The naturalistic Mangarevan wooden figures represented gods, especially the god Tu. The small stone and wooden images of Hawaii and the Marquesas were probably ceremonial objects but their exact use is not known.

Good-Luck Objects

The magic significance attributed by one of my informants to the signs on the tablets probably derived from the fact that the natives consider as talismans or amulets every stone with an incised figure. Numerous boulders with engraved designs on them have been found on the island. The design which is most frequently reproduced on the stones is that of the vulva, stylized as in figure 42, *e-f* (p. 258). Rarely the outline of a fish, a bird, a turtle, or a man is seen (fig. 42, *b-c*). The carved figures might have increased the magic power of the stones or simply distinguished them from ordinary boulders.

J. L. Young, who collected some magic stones with the incised representation of the vulva, was given the correct name, *maea no moa* (stone for fowls) and was told that the stones "were placed under domestic fowls with the idea that the fertility of the eggs was thus promoted" (229, p. 171). A

PETROGLYPHS

The petroglyphs on the rocks at the end of the village of Orongo were the first to be studied in detail and reproduced in drawings and photographs (pl. 7, *c*). The basalt rocks that overhang the sea east of the village are covered with carvings in high relief that have been made at different periods. Some are entirely worn down while others are fairly well preserved. The most easterly houses of the village have been built upon carvings, thus giving good evidence that some of the petroglyphs are older than parts of the village.

Most of the petroglyphs represent the fantastic bird-man with the head of a frigate bird, recognizable by its curved beak and pouch, and a human body in a crouching position. With one exception these images are in profile. One is combined with a feather-like appendage. Three carvings show the bird-man holding an egg (fig. 45, *a*). Four small carvings of birds, mentioned by Routledge (194, p. 448), are outlined in the usual style and are real masterpieces of graphic art. The head of one of the bird-men is merged with the face of the big-eyed god, a common motif of the Easter Island petroglyphs (134, p. 212). The big-eyed face was carved first and then transformed into a bird-man. We recorded several other occurrences of the big-eyed face. The bird-man motif occurs about 120 times among the petroglyphs of Orongo. The figure is outlined by pecking the surface around the design so that it stands in relief.

A common design at Orongo, especially on a flat rock overhanging the cliffs, is the conventionalized representation of the vulva. This figure is traditionally connected with puberty rites. Two wooden crescents (*rei-miro*) figure among the petroglyphs of Orongo (194, pl. 17, no. 6). The fanlike motif that occurs three times is correctly interpreted by Routledge (194, p. 449) as the tail of a bird.

FIGURE 45.—Petroglyphs: *a*, bird-man carved in low relief with egg in hand, 36.5 cm. long (after Routledge, 194, fig. 112); *b-c*, big-eyed figures in Heu cave (from Lavachery, 134, p. 109).

Blocks with the bird-man treated in the style of the petroglyphs of Orongo are preserved in the Museum of Natural History at Santiago de Chile and in the Peabody Museum at Cambridge. There is no indication as to the origin of these stones. An interesting feature is the presence of conventionalized vulvas around the outline of the bird-men. Two bird-men are often shown opposite each other.

One of the main endeavors of our expedition was to record all the petroglyphs that are scattered on rocks throughout the island. We discovered about 300 of them, upon which a report will be published by Dr. Lavachery. Except at Orongo, these petroglyphs are not in high relief, but the outlines are formed by a groove pecked in the rock. Most of the designs carved in the rock represent sea animals, especially tuna (*kahi*). Near Hanga-o-honu we found several beautiful designs of turtles carved with a realistic touch. An octopus with human head is among the most outstanding products of graphic art in Polynesia. Birds are figured on several rocks and on the stone of two ahus.

The most spectacular group of petroglyphs is on a slab near ahu Hanga-o-honu (La Pérouse). It is composed of intermingled motifs, some of which seem to represent boats, though certain features of the design certainly do not resemble the shape or structure of the ancient boats. One of these "boats" is 33 feet long.

A favorite motif is a schematic figure of two big eyes represented by concentric circles like a pair of glasses (fig. 45, *b-c*). These big eyes are identical to the conventionalized figures of the *tiki* in Marquesan art. A few big-eyed figures are associated with a goatee. Heu cave near Puna-marengo was entirely decorated with this motif.

Human figures are rare. Near Vai-tara-kai-ua we discovered a head with a feather headdress carved in the rock. Near ahu Papa-o-pea there is a figure of a man holding in his hand a short club or a *timo-ika* paddle. Near ahu Tonga-riki there is a human figure treated exactly as on the tablets. This is the only instance of a sign of the tablets being reproduced on a rock. This fact is important for, if the signs on the tablets were a form of writing, natives would undoubtedly have engraved inscriptions on the basalt ledges which they so constantly decorated with other designs.

The red ash material from Punapau was incorporated in the platform of ahu Akahanga. It has grooves and hollows, probably intentionally carved, which cannot be interpreted now. The same fanciful and incoherent designs have been incised on the red hats that still lie near the quarry.

the island, of which 20 were inland. Lavachery listed only 183 but this is probably far below the actual figure.

Ahus may be classified into four types: 1, image ahus which are the largest and most elaborate; 2, rectangular ahus (*ahu-avanga*); 3, ahus with one or both ends sloping toward the center or outer extremities (*ahu-poepoe*); 4, semi-pyramidal ahus (*ahu-paepae*), simplest of the four types. All ahus are essentially mounds of stones. The differences between the various types are in the number of stones piled up and the degree of care taken in their disposition. The ahus are said to have been decorated with white stones, similar to those used on the tapu signs and the hats of stone images. (See p. 300.)

Image Ahus

The large image ahus are the masterpieces of Easter Island architecture. The principles of construction are identical with those of smaller ahus, but the workmanship has been perfected, and the primitive heap of stones has taken a definite shape due to the development of retaining walls (fig. 51).

These retaining walls (fig. 52, pl. 4, *A*), made of slabs or of regular blocks carefully fitted, extend on the seaward side of the structure and conceal the coarse central heap of stones and rubble. The central portion of this wall projects outward toward the sea to form a platform or stage on which the statues were erected. This salient corresponds to the body of the ahu and the two lateral walls may be considered the wings. A little below this stage the main body of the construction, made of piled-up stones, slopes inland, extending into a long, slanting surface (*takwa*) which stops at a low row of slabs. The approach to the slope is sometimes paved with big boulders which continue onto the large surface (*takwa*). On some ahus the wings or walls on either side of the central portion are lower than the middle platforms. They slant to the ground level, and narrow from the median line toward the ends, thus giving the landward side of the ahu the appearance of a semipyramid. On other ahus (ahu Mahatua, Hanga-o-honu) the wings, though lower than the stages, do not slant to the ground; they are limited by two sloping walls of fitted masonry on both sides of the *takwa*.

In ahu Vinapu the seaward wall is formed of rectangular slabs of lava fitting one against the other, whose surfaces have been perfectly smoothed by grinding with sand and water (pl. 7, *B*). The corners of the central portion are rounded in elegant curves. Usually the seaward wall is made of basalt blocks of fairly regular, square shape. Most of the material is lava which cooled in regular beds. The rectangular blocks are laid in rows of approximately the same depth.

The slab-lined vaults for the dead were sometimes located under the stage but more often under the sloping terrace. Many vaults were probably built while the terrace was being constructed and were left accessible as tombs; others were apparently later additions.

One of the largest ahus on the island is that of Hanga-o-honu near La Pérouse Bay (pl. 4, *A*). The following description is taken from the notes of Lavachery (134, pp. 155-156):

The seaward wall, 84 meters long and 5 meters high, is made of rectangular blocks of stone. The salient is 30 meters long and 4 meters wide and rises above three steps, which, according to Lavachery, are 1 meter wide and 1.5 meters high. The middle step contains the burial vaults. The slope of the wings, on both sides of the salient, forms a continuous surface with the back part of the stage. The ahu is delimited on each side by a wall 30 meters long which slopes to the ground. The surface between the two parallel walls is paved with flat stones. On the platform once stood six statues, set on large flat slabs and surmounted by the red stone hats which now lie among the ruins.

The seaward wall of ahu Ohau is made of large rectangular slabs which are finely wrought and perfectly fitted. The salient, which protrudes 3 meters from the wings, is 10 meters long and 2.3 meters high. One wing is 16 meters long and the other 25.5 meters. The greatest width of the ahu measured from the center of the salient down the slope is 7 meters. The wings converge to a point. The landward face of the ahu has the appearance of a solid triangle.

Very close to ahu Ohau is another ahu, 12 meters long and 1.2 meters high in the salient. Three steps of unequal length lead up to the seaward face.

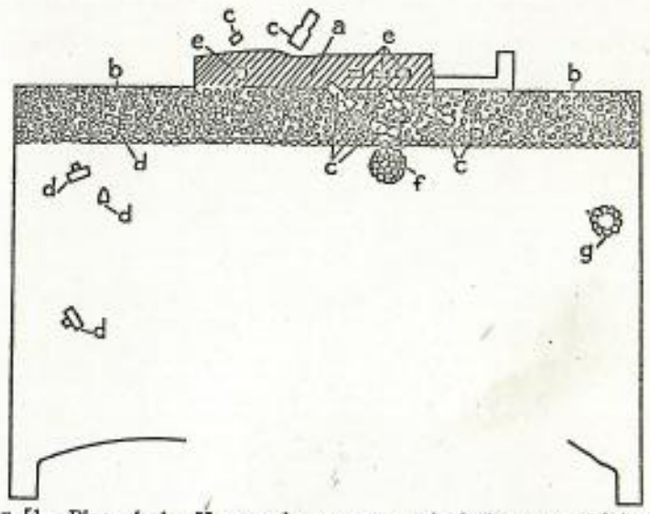


Figure 51.—Plan of ahu Hanga-o-honu: *a*, central platform on which statues are erected; *b*, wings of ahu; *c*, statues and fragments of statues; *d*, hats of statues; *e*, platforms for statues; *f*, circle for *paùa*; *g*, tapu cairn (from Lavachery, 134, p. 157).

Skottsberg (208, vol. 1, p. 9; quoted in 153, p. 110) gives an accurate description of ahu Te Pito-te-kura near La Pérouse Bay.

Image ahus are mentioned by neither Roggeveen nor Gonzalez Gonzalez, or some of his lieutenants, must have seen ahu Hanga ahu Mahatua on the way to the heights of Poike, where they set u crosses. Ahus are first described by Cook (53, vol. 1, p. 295) Forster (83, vol. 1, pp. 566-567). Both describe the ahus near H which, being near the village, have suffered most from the dest both natives and white men. Ahu Hanga-roa, nearest the lan been destroyed by Chilean authorities to make the present material forming the structure of this jetty, one may see that good workmanship.

revan wooden images than between the wooden and stone images of Easter Island. Mangarevan images share with the Easter Island stone statues the typical pursed mouth, but the differences are numerous.

Balfour (9, pp. 361-371), overlooking the Mangarevan parallels, stresses the similarity between the Easter Island stone images and canoe-prow gods and other representations of human form from New Georgia, San Cristoval, and other parts of the Solomon Islands. The proposed analogy strikes me as unconvincing, for the only similarities between the two types of image are the overhanging brows and the long upward-curving nose.

Comparative studies of the religious structures in eastern and central Polynesia reveal a remarkable analogy between the position of the Easter Island statues on the ahus and the uprights on the religious platforms of the Tuamotus, Society Islands, and Necker Island. Detailed research has convinced Emory that the uprights at the back of Tuamotuan ahus, bearing the names of ancestors, were either backrests for the gods or memorials to deified ancestors. In the Tuamotus and in Tongareva the unrights were sometimes trimmed. In the Tuamotus the shaping is often a crude attempt to express the human form. On Necker Island the small stone images of the gods rested against the slabs set on the platform. Between a carved upright and a statue, transition is logical, and it seems to have taken place on Easter Island. The development of the slabs into statues was facilitated by some knowledge of carving which the Easter Islanders already possessed when they settled on their isolated island. On some Easter Island ahus, pillars take the place of statues. At Mataveri such a pillar has one surface carved like the back of a statue.

The first immigrants to Easter Island probably came from eastern Polynesia and were acquainted with the carving of human figures from wood. Lacking wood in their new home, they applied their skill to the Rano-raraku tuff which is more easily worked than stone. Stimulated by the abundance of tuff and the ease with which statues could be transported across the open country, they created larger and larger statues until stone carving reached there a development greater than in any other part of Polynesia.

RELIGION

Easter Island religion was more deeply affected by the several catastrophes which befell the people than any other phase of their culture. Roussel (190, p. 424) says that the downfall of the religion took place long before the arrival of the missionaries and that "there remained only a few tapus of which they made little ado" (190, p. 495). Zumbohm (230, vol. 6, p. 128), in 1866, found no ceremony or religious cult in honor of any deity; the premissionary decadence of religious beliefs facilitated conversion to Christianity. Even the feasts had lost much of the ancient character, and had become "but

entertainments and debauches with competitions between parties from the different bays" (230, vol. 6, p. 125). Eyraud (81, vol. 38, p. 69), who lived many years among the islanders, declares that he never saw any outward expression of religion.

Now that three generations have passed since the Christianization of the island, almost nothing is remembered about the beliefs and rites of paganism. My attempt to reconstruct some of the pattern of ancient religion rests on bits of evidence taken from several sources. These I checked as best I could.

GODS

Not even a summary classification of the ancient deities can be expected from present-day natives of Easter Island. The word *atua*, which formerly designated pagan deities is now applied to the Christian God. All supernatural beings are classified today under the name of *akuaku*, or more frequently *tatane* (derived from the French satan), or sometimes *varua* (from the Tahitian word meaning spirit). Though memory of the great Polynesian gods and heroes had faded, Routledge (194, p. 236) in 1915 obtained the names of about 90 *akuaku*, lesser gods or spirits. Now, even the old men remember only 30 names.

It is likely that the various lists of *akuaku* contain the names of gods who were worshipped by certain tribes or lineages and whose influence was restricted to a definite district; Makemake who, beyond any doubt, was the greatest functioning god of the island has been relegated by the pious natives to the file of *akuaku* or *tatane*.

Easter Island gods, like those everywhere in Polynesia, must have belonged to two classes. The first class included the great figures of creation and major gods like Tangaroa, Tu, and Rongo; the second class embraced an infinity of deities who ranged probably from the sons of the great gods to deified ancestors or simple spirits. The place of a god in one or the other of these two categories did not correspond to his actual importance in religion and in the sentiments of the worshipper. Makemake, who seems to have been the principal god of the islanders, does not figure in the pantheon of the major gods, though he has absorbed many an attribute or power originally invested in the major gods.

The gods of Easter Island, like other Polynesian gods, could be embodied in objects and animals. This power of incarnation is shown most clearly by the bird-man cult and by numerous representations of the god Makemake as a human being with a bird's head.

Major Gods

The most striking feature of Easter Island religion is the unimportance of the great gods and heroes of other Polynesian religions. Seldom is there a

definite reference to Tangaroa, Tu, Hiro, Rongo, or Tane—the most prominent characters of mythology throughout Polynesia. However, these gods were not entirely unknown; they seem to have had a purely academic existence and, as in Mangareva (28, p. 418), they were recorded only as legendary figures or as divine ancestors heading genealogies. The only definite evidence that Rongo and Tangaroa were known is their mention at the beginning of the genealogy of the king's family.

HIRO

The name of Hiro appears in a very old invocation for rain (p. 330). A stone near ahu Mahatua on the northeast coast is named Pu-o-Hiro (the Trumpet-of-Hiro). It is pierced by a natural hole and it is said that when the northwest wind blows, a sound like that of a trumpet is produced. The stone is covered with carved representations of the vulva (*komari*). An ahu on the south coast is called Tangaroa-Hiro. Hiro in the Society Islands is the protector of thieves. The Easter Islanders had a god invoked by those who had committed a larceny in order not to be caught. Presumably this unknown patron of thieves was Hiro.

TANGAROA

The kings of Easter Island, like those of Mangareva and other Polynesian islands, traced their origin back to Tangaroa. The exalted position of Tangaroa at the head of the genealogy of kings might be interpreted as a sign that he was one of the gods. As in Samoa and the Society Islands a month name of the local calendar (November) is called after the god (Tangaroa-uri). On Easter Island there is still a myth about a King Tangaroa who came to the island and manifested his supernatural powers in many ways. Although modern natives maintain that this Tangaroa was merely a human invested with mana, there is little doubt that he was originally a god. One informant told me that his name was Tangaroa-mea, the name of one of the great gods of Mangareva. As my informants had heard of the god Tangaroa of Mangareva, the analogy between the two names may be due to recent borrowings, but the tale itself was given to me as being purely local. Simon Riroroko, the last descendant of the kings, and Tepano, who told me the tale, insisted that King Tangaroa came from Mangareva.

The king, Tangaroa-mea said: "I shall enter the water like a seal and go to a country where I shall be king." The king, his brother, said: "You will die, it is a distant country, you cannot go quickly. I can go there and return the same day."

They quarreled. Victory was Tangaroa's and he went to Easter Island. His mana was over the sea, in which he was like a seal. The mana of his brother was over the land.

He landed at Tonga-riki, and he was seen by the people. The clamor resounded: "People of the land, a seal has landed at Tonga-riki." People said: "He has seal's feet, seal's hands, but a man's face." They wanted to kill him. The king, Tangaroa, said: "I am the king, Tangaroa, I am not a seal." The people said: "No, he is a seal with a voice."

They assaulted him with stones. They shouted: "Haul him to the shore." They carried him to Pito-kura. They dug out an oven, put Tangaroa inside, and closed it with stones. Later they opened the oven, but the meat was still raw. They covered the oven again and they stayed there waiting. They opened the oven again, and the meat was not cooked.

The people said: "It was true, he was really a king, he was Tangaroa and not a seal. Therefore he is half raw."

The brother of Tangaroa, Teko-of-the-long-feet, saw that his brother did not come back in one month. This king of a foreign country cried for his brother. He went to search for him. He landed on the islet. He put his foot at Retu (near Vai-tea). He was looking for his brother. He lifted his foot and stepped on Poike, but he did not see his brother. "Where is Tangaroa, the king?" he asked at Rano-kao, again at Retu, and at Pui. The men of the land were afraid. He lifted his foot again at Puku-puhipuhi, the place Where-Teko-planted-his-digging-stick. He again lifted his foot beyond Poike. He asked again, "Where is Tangaroa, the king?" He asked for the last time for the king, Tangaroa. He turned back, he disappeared to the foreign country. His feet trampled on the earth, but his head reached the sky. He was always asking about Tangaroa, the king.

It is highly significant that in this myth Tangaroa appears in the form of a seal. In the Tuamotus, Society Islands, and Samoa sea animals are the favorite incarnations (*ata*) of this god, for throughout Polynesia, Tangaroa was a sea god. The character of the deity is evidenced by the passage of the myth telling of Tangaroa's mana (power) over the sea and his brother's over the land.

RONGO

Rongo is mentioned in the kings' genealogy after Tangaroa and is given as the son of Tangaroa. There is no evidence that the site of Orongo was named after Rongo.

MAKEMAKE

The greatest god of the Easter Islanders was Makemake. He is the only one whose memory has been preserved until the present day. The first allusion to Makemake is found in the early account of Gonzalez expedition (90, p. 100):

I observed that on the day on which we erected the crosses, when our chaplains went accompanying the litanies, numbers of natives stepped forward onto the path and offered their cloaks, while the women presented hens and pullets, and all cried *Meca Meca*, treating them with much veneration until they had passed beyond the rocks by which the track they were following was encumbered.

This passage proves that in the middle of the eighteenth century Makemake was so important in religion that the natives were convinced that the god of the foreigners could be none other than Makemake. The offering of clothes and chickens indicates that such gifts were regularly presented to

Geiseler (87, p. 16) was told that the name of the human figure with conventionalized big eyes, painted on a slab at Orongo, was the god Oreooreo. This is the only mention of such a god in Easter Island traditions.

Lesser Gods

Most of the lesser gods are mere names to us. We do not know even the customary residences of some of them, although all the *akuaku* of high rank were supposed to haunt a particular spot on the island and maintain connections with the people living near by. They were supernatural beings who belonged to a certain district or family. A few of them were real gods, others were demons or nature spirits, and others were spirits of deified dead. All lesser gods are now grouped under the general term *akuaku*, which is applied also to the spirits of the dead when they appear as ghosts. Minor gods are still designated by a name and given residence and some of them by a personality defined in myths or tales. But any separation of minor gods from spirits and ghosts based on defined personality is artificial and may be imposing a clarity of distinction which never existed. Likewise it is difficult to distinguish between minor gods who were worshipped and legendary characters who were endowed with superhuman power but who never functioned as actual gods. *Akuaku* figures, mentioned in tales, who have no apparent connection with religion and who probably have no independent existence outside of myth, are given elsewhere (p. 318).

Akuaku were both male and female. They were often represented as human beings, who might have been mistaken for ordinary creatures had the story teller not classified them as *akuaku* or *tatane*. They married ordinary men or women, had children by them and died. They could even be killed if their adversary was strong enough or sly enough. At times their supernatural power manifested itself in the ability to fly through the air and change rapidly from one place to another.

Some *akuaku* were embodied in animals, in natural or artificial things, or in phenomena. Generally the animals were considered as supernatural beasts rather than as spirits transformed into or embodied in animals. Spirits embodied in things or phenomena bear the names of their material representation and probably were believed to have no existence independent of their apparent form. Thus, Te Emu is a "Landslide"; Mata-vara-vara "the Rain-with-heavy-drops"; Paepae-atari-vera "a House."

Men are indebted to the minor gods or demons for many important discoveries and improvements in their culture. The art of tattooing was introduced by the sons of two *akuaku*—Vie Moko (The Lizard Woman) and Vie Kena (The Gannet Woman). The female *akuaku*, in the form of birds, taught men to extract dye from turmeric (*Curcuma longa*). The first bone fishhooks were made by Ure, a capricious and strange character of Easter Island folklore. An *akuaku* bird (the frigate) brought a new kind of yam as a gift to a man called Rapu.

Not all *akuaku* were well disposed toward men. In remote times the island was full of mischievous and murderous demons. Thirty of them were destroyed by a man called Raraku in a temporary fit of madness. The general slaughtering by Raraku did not relieve the land from all its devils, for tales describe monsters, like the Woman-of-the-long-arm, who were constant menaces to men until they were killed. Some demons proved helpful in difficult circumstances. Hiva-karere (The-flying-foreigner), Mata-mata-vara-vara-ahu-Raai (The-rain-with-large-drops-of-the-ahu-Raai), and Paepae-a-Tari-vera (Stone-house-of-Tari-vera) saved a famous warrior (*matatoa*), whose soul (*kuhane*) was kidnapped by another spirit.

Through old Viriamo, some information has come to us about the relations between men and *akuaku*. The spirits or gods of Viriamo's district were Tare and Rapahango. Rapahango was also the family name of my informant, Victoria, who claimed for her ancestors some association with that *akuaku*. Rapahango and Tare were especially well disposed toward the Tupa-hotu and brought their friends in this tribe food they had stolen from other people. In exchange, the *akuaku* received an offering each time an *umu* (earth oven) was opened in a house they favored with their visits. Before starting the meal, the host or some important guest would say: "This is for such-and-such an *akuaku* . . . " I understood that a small portion of the meal was presented to the god or the spirit; but Routledge (194, p. 237) got the impression that "the invitation to the supernatural power was purely formal, or restricted to the essence of the food only."

The spirits had long talks with men or women who succeeded in winning their confidence. They foretold the future, announced impending dangers, and revealed secret things. I was told by Viriamo's son that in her youth Viriamo had been seen at night speaking familiarly with the two spirits, Tare and Rapahango. The voices of these spirits were always high-pitched and recognizable. When the *akuaku* were in a house, those who wanted to have an interview with them or make offerings to them had to crawl into the hut backwards.

Direct evidence that the corpses of the victims were eaten is given by Zumbohm (230, vol. 6, p. 117) and Geiseler (87, p. 31) who writes as follows:

> The oldest people remember, and still recall, that war prisoners were eaten. When many of them were caught they were shut into huts built for the purpose in front of the stone idols and they were kept in them and fed until the time of festivities of the victory feast. On occasion of such ceremonies the prisoners were killed in honor of the gods and eaten.

Ceremony to Invoke Rain

A faint memory has been preserved of ceremonies performed to invoke rain from the god Hiro. When a drought threatened crops the people resorted to various magic rites and to the *ariki-paka* (noble priests?) who addressed prayers to the god. According to Routledge (194, p. 242), the people anxious to obtain rain first asked the king for help. The king then sent to the scorched fields a younger son and another *ariki-paka*. No reference to this special choice was made by my modern informants, but Estella (79, p. 21) was also told that the king acted as an intermediary between the people and the priest.

The *ariki-paka* who presided over the ceremony were painted "on one side red, on the other black with a strip down the center" (194, p. 242). They went to the top of a hill, taking seaweed (*miri-tonu*) and pieces of drift coral (*karakama*). The magical significance of this offering of things soaked with sea water is obvious. The priest addressed a prayer to Hiro to obtain rain (*he ako ki te ua*, he sang for rain). A fragment of this prayer is still remembered by the natives:

E te ua, mata-vai roa a Hiro e,
Ka hoa mai koe ki raro,
Ka rei mai koe ki raro,
E te ua, mata-vai roa a Hiro e.

O rain, long tears of Hiro,
You fall down,
You beat down,
O rain, long tears of Hiro.

The natives told Estella (79, p. 31) that the priest remained on the hill where he had made the prayer until rain came, even though he might wait a long time. When the water fell, he descended the hill and ran about so that the rain would follow him and benefit all the land.

Private Rites

Certain rites were observed in behalf of a household or an individual. A new house could not be occupied until suitable rites had been performed and special food eaten in it. The food prepared for this purpose was cooked in a special earth oven and served to the priest in a corner of the new house where he ate alone. There is some evidence that the same duty was likewise incumbent on the king.

Rites for fertility of the fields required priests to bury or spread pieces of coral or seaweed on the plantations. Such charms had a favorable influence on the crop.

Easter Islanders who wanted to increase their poultry so that they might celebrate a feast (*koro*) had the *ariki-paka* make a charm which contributed to the rapid increase of chickens. When invited to eat chicken meat, the priests received the rump (*huahua*) of the bird.

Bird Cult

Until the second half of the nineteenth century the annual feast of the bird man (*tangata-manu*), held at Orongo, was extremely important to Easter Islanders. The rites performed were not only connected with the cult of the greatest god of the island, Makemake, but were endowed with special social significance, since ideas of prestige and economic privileges were closely associated with these ceremonies. The ostensible purpose of the ceremony was to obtain the first egg of the *manu-tara* (*Sterna hirundo*, sooty tern), the quest for which was entrusted to servants (*hopu*). The chief whose servant discovered the first egg received the envied title of bird-man (*tangata-manu*). This title, surrounded with tapus, brought to its holder and to members of his lineage certain material advantages and vast moral and religious benefits.

The far-reaching significance of the bird cult is illustrated by the extensive remains at Orongo, one of the most interesting archaeological sites on the island, and by the frequent use of bird and bird-man motifs in all forms of Easter Island art—tablets, wooden images, petroglyphs. The importance of birds in Easter Island culture and the use of birds as the basis for a religious cult are undoubtedly due to the poverty of the island fauna in which birds were the only conspicuous creatures. Not only were they the most interesting living thing next to man, but they contributed thousands of eggs for food.

The bird cult did not die out until about 50 years ago, long after the introduction of Christianity. Almost all recent visitors to Easter Island have studied the bird-man cult. Consequently there is a mass of contradictory material. Routledge, realizing the essential part this cult must have played in the ancient religious and social life, devoted much attention to it, and interviewed the last man who had participated in the ceremonies at Orongo. My information was gained mostly from Tepano, who was well acquainted with some details because his uncle was one of the last bird-men. The information he gave substantiates that gathered by Routledge and adds a few more details.

Orongo

The ceremonies and feasts connected with the bird cult were performed at Orongo, on the slopes of Rano-kao at the southwest point of the island. The village of Orongo lies on the narrow ridge separating the sea from the crater lake. It was temporarily occupied at the time of the yearly feast and deserted the rest of the year.

The first part of the most common treatment consisted of steaming the sick man, a practice which may have had a magical significance. A ditch, as long as a man, was dug in the ground. Heated stones were scattered in the bottom and covered with a thick layer of banana leaves and grass upon which the patient was laid. Heat and steam were believed to have a favorable action upon his health. After the steaming, the *ivi-atua* completed the cure. First he entered the sick man's hut and stayed there for a long time, trying to learn which spirit had entered the patient. He then held a mysterious conversation with the god or demon who had taken possession of the man's body. This interview was considered very beneficial to the patient. If the demon proved reluctant to leave the sick man, the *ivi-atua* conducted a violent expulsion. The hut was closed; sometimes it was covered with a net. The *ivi-atua* chased the demon and, taking up the clothes of the sick man, he shouted, "Light a fire." Holding the object in which the demon was supposed to be, he ran toward the fire and threw his bundle into it. He remained beside the hearth until everything was burned; then he returned to his patient and said to him, "Now you are in good health." In a severe case the *ivi-atua* might burn the house. He stayed near the fire trying to capture the demon or to keep it in the flame. If, despite all his efforts, the patient died, death was attributed to another spirit (*akuaku*) who had taken possession of him. The *ivi-atua* received food and carved objects of wood as reward for his services.

The medical art included much knowledge and many practices which were efficient aids in healing, and probably was far richer than our present information shows. Massage was used on tired people. Thomson (215, p. 571) tells that during his trip around the island he fell down completely exhausted several times. He yielded " . . . to the dexterous kneadings and frictions and palmings and pinchings of those skilled in the treatment," and adds that " . . . the hardfisted native is by no means gentle in the operation, but with palms and knuckles vigorously tests every muscle and tendon, as well as every joint of the vertebrae, until the exhausted patient sinks into a state of oblivious somnolence." A most popular method of removing stomach pains, especially those produced by starvation, was to bind a cord tightly around the waist. Another method was to pile on the stomach a large heap of stones. This treatment is similar to that practiced by Easter Island women after childbirth in which they pressed their wombs with stones to prevent the formation of folds (121, p. 660).

The Easter Island pharmacopoeia was probably small. The flora of the island is extremely poor and I doubt if there are many plants with medical virtues. The present natives, when asked about their local drugs, mentioned only the introduced bamboo (*kohe*), which is said to be good for toothache when boiled or roasted and placed on the aching tooth. Thomson (215, p. 471) writes: "The thistle is bruised and applied to sores and ulcers, arrow-root is used for burns, and a species of nightshade is used as a vulnerary remedy." Sea water is drunk as a purgative. The introduced verbena (*puringa*) is used as a remedy against leprosy. Knoche (123, p. 195) mentions a decoction of ti as a remedy but he does not say for what it is used and modern natives know nothing about its medicinal use. They rely mostly on European remedies.

RECREATION

FEASTS

Modern Easter Islanders rely entirely on feasts to break the monotony of their lives. Formerly, frequent wars gave a thrill to existence, and when peace reigned festivities were continuous, according to Eyraud. Every lineage or village considered it a duty to entertain in turn the other villages or lineages. As soon as a feast was finished in one place a new one began at another point of the island.

The general name for feast, used in tales, is *koro* which applies also to the big house erected for festal occasions. Whatever the real meaning of *koro* might have been, the feasts were named according to their purpose, their nature, and the time of the year when they were celebrated. The main feasts which have been recorded by missionaries or mentioned in traditions are the *paina*, the *are-auti*, the *tangata-manu* (feast of the bird-man) at Orongo, and the ordinary *koro*, including feasts to honor a parent and those given at harvest time by rich landowners. "When the crops were ripe, every plantation, whatever its products were became the subject of a feast for a village or even for several villages. Everything depended on its extension and the importance of the owner" (190, p. 428).

At every feast there was a great display of food, especially of chickens. Food was piled on stages or conical towers. It is said that feasts were often disturbed by quarrels among warriors (*mata-toa*), who demanded large contributions of food and fought for shares (190, p. 498).

Paina

The exact purpose and form of the *paina* feast is rather vague. Various visitors have collected widely differing accounts. But the *paina* apparently celebrated the memory of a dead parent, generally a father, and was an indirect part of the funeral duties of a son. The feast could be held soon after the death or several years later. It was always celebrated in the summer, and the right time for it was indicated by the position of the three central stars in Orion. The entire family of the deceased, especially the brothers and cousins, contributed to the expense of the ceremony. Over a period of years they raised chickens, planted extensively, and probably stored food to

The Child Changed Into Nanue

Two women went at night to catch *tuamingo* fish. One of them had a little boy called Ahina-oioi, whom she took with her. The mother put the child to sleep and went catching *tuamingo* and crabs. While she was away, a spirit called Hiti-kapura came and took the child. He threw him into a pool of water. The child cried:

E nua e, i oti au,
I te rima o te varua o Hiti-kapura,
O Ura uranga te mahina.

O mother, this is my end,
I am in the hands of the spirit Hiti-kapura,
Reflection of the moon.

The two women heard the voice and said, "Listen, you. The child is crying over there." They went to the child. The mother took the child in her arms, but he fainted. She became afraid and put him back into the pool. The child came back to life. The mother wept for the child. The child also wept and lamented (chant repeated).

The tide rose and the place where the two women were crying was washed by the sea. A wave came and took the child away. The child was changed into a red fish. He swam to Marotiri. The two women followed him along the coast. The women arrived at Orongo and the fish at Motu-kaokao. He turned round and round the rock. The two women wept but the fish still turned round and round. The fish finally disappeared below the islet Motu-kaokao. The name of this fish, very good to eat, is *nanue-ahinaoioi*.

The Turtle Veri-pupura-vai-a-pakia

A man called Vini-aika-noho-ne-ananake lived with his son in a house. They had two friends. One day Vini said to his son, "My boy, when I die, you look. A turtle called Veri-pupura-vai-a-pakia is going to land."

The man died and his son put his body on a platform, then deposited it in the ahu Hanga-o-honu. The two friends took care of the child and helped him prepare the funeral of his father. They made for him the ceremonial earth oven (*takapu*).

One night the child had a dream of the turtle Veri-pupura-vai-a-pakia. He told his dream to his friends. One of them said, "Whom are you speaking to, oh boy? You are a liar." The boy said, "It is true. My turtle has landed." The other man made an earth oven in which he cooked a fowl and sweet potatoes. He gave the food to the child.

The following day the child left and went to Mahatua where he planted bananas, yams, and sweet potatoes. The turtle had really landed at Hanga-o-honu. The friend of the father who had laughed at the boy came and saw the turtle. He danced around it and made magic. He cried, "This is my turtle, Veri-pupura-vai-a-pakia." The child, Vini-a-ore-are, heard about the turtle from other people. He took a chicken, gathered sugar cane, loaded them on his back, and went to Hanga-o-honu. There he saw the man who had laughed at him singing over the turtle. Holding a white chicken, he cried, "You man, you are going to die. Do not chant over the turtle. You are going to die." The man fell down dead. Vini stepped on the turtle and cried over it. Afterwards he looked for the man who had made an earth oven for his dream. He heard that this man had made another earth oven. He had cooked a chicken and sweet potatoes which he wrapped in sugar-cane leaves. With his five sons carrying these bundles he went to Hotu-iti and gave the food to Vini-a-ore-are. Vini asked them, "Are you lost?" The man answered, "I came from my place to see the turtle." Vini-a-ore-are gave him the turtle. The man said, "Your turtle will arrive at Omohi." Vini answered, "There you will catch it." Vini-a-ore-are said to his turtle, "My father, you go to the region of Omohi." The turtle swam. The man and his sons went by land, the turtle by sea. The turtle landed at Omohi and its owner gave it as a present to his brother-in-law.

Uho and the Turtle

A young girl, called Uho, went to the beach to sprinkle her bark cloth. She untied the knot of her stained belt and put it aside. After she had returned home with her calabash full of bark cloth she remembered her belt and said, "Alas, I have forgotten my stained belt." She returned to get it but a turtle had stolen it and swam off with it. Uho shouted, "Leave my stained belt." The turtle replied, "I shall leave your stained belt over there." Uho dived into the water and swam after the turtle. She cried, "Little turtle of the red penis, leave my stained belt." "Over there I shall leave your stained belt." She went on swimming after the turtle and arrived at another land. The turtle landed on the beach of this country and so did Uho. There she married a man called Mahuna-te-raa and gave birth to a girl.

Uho used to complain:

O te henua mata-po-uri oou,
E Mahuna-te-raa kenu aaku
E tae pe uta oe tomatou.
Henua mata-maeha i te uinga.
Aue, nua e, aue koro e, aue matua
E, aue nga kope.

This country of yours is dark,
O Mahuna-te-raa my husband,
It is not like our country.
On the bright side.
Alas, my mother, alas, my father,
Alas, the boys [her brothers].

Mahuna-te-raa asked, "Why are you crying?" "My eyes are sore with the smoke of the old woman. That is why they are swollen." The husband told his mother, "Decrease the smoke of your earth oven because it irritates the eyes of your daughter-in-law" who taught her child to sing:

E nua e, maea o runga ki raro koe,
Maea o raro ki runga koe,
E kara koe, e uko,
E huruhuru koe, e uko,
E ngutu koe, e uko,
E vae koe, e uko.

O child, when the stones are above, you get below,
When the stones are below, you get above,
You put on wings, and fly,
You put on feathers, and fly,
You put on a beak, and fly,
You put on feet, and fly.

At dawn Uho went to the beach and asked a bird that was passing by, "Come and take me on your back." The bird answered, "You are very heavy." Uho asked the turtle again, "Come, carry me on your back." The turtle said, "You are very heavy." She asked the little turtle again, "Little turtle of the red penis, come and carry me on your back." "With what are you going to pay me?" Uho called "With my vulva." The little turtle with the red penis shouted, "All right." He came to carry Uho and said, "If I dive, hold me firmly, if I go up, go up too, and if I dive, dive also." They arrived in Uho's land. The father of Uho saw her. He shouted, "Woman, do not come. It is a tapu of the girl Uho." Uho cried, "I am Uho." The father went down and asked, "Who are you?" "I am Uho." The father wept and took her to the house where her mother and brothers were. They all cried. Uho stayed with them.

Much later a feast was celebrated at Vinapu. Uho and her parents went there. The daughter of Uho flew from the land of Mahuna-te-raa, who was the husband of Uho. She arrived at Vinapu where her mother was. The people shouted, "There is a bird, there is a bird. Perhaps it belongs to Uho, the young girl." They threw stones at the bird. When the stones passed above it, the bird went down; when the stones passed under it, the bird went up. The men and the women cried to Uho, "Call the bird; it may be yours." Uho cried to the bird, "Here, here." The bird alighted. She shed her feathers. This bird was a person, the very daughter of Uho. All the men and women shouted, "She belongs perhaps to Uho." All the men, women, and children had a good laugh.

The Story of the Octopus Akaverio of Hanga-tee

An urchin and a shell married. The shell became pregnant and gave birth to the octopus, Akaverio. The octopus nursed by his mother grew up.

The Child Changed Into Nanue

Two women went at night to catch *tnauingo* fish. One of them had a little boy called Ahina-oioi, whom she took with her. The mother put the child to sleep and went catching *tnauingo* and crabs. While she was away, a spirit called Hiti-kapura came and took the child. He threw him into a pool of water. The child cried:

E nua e, i oti au,
I te rima o te varua o Hiti-kapura,
O Ura uranga te mahina.

O mother, this is my end,
I am in the hands of the spirit Hiti-kapura,
Reflection of the moon.

The two women heard the voice and said, "Listen, you. The child is crying over there." They went to the child. The mother took the child in her arms, but he fainted. She became afraid and put him back into the pool. The child came back to life. The mother wept for the child. The child also wept and lamented (chant repeated).

The tide rose and the place where the two women were crying was washed by the sea. A wave came and took the child away. The child was changed into a red fish. He swam to Marotiri. The two women followed him along the coast. The women arrived at Orongo and the fish at Motu-kaokao. He turned round and round the rock. The two women wept but the fish still turned round and round. The fish finally disappeared below the islet Motu-kaokao. The name of this fish, very good to eat, is *nanue-ahinaoioi*.

The Turtle Veri-pupura-vai-a-pakia

A man called Vini-aika-noho-ne-ananake lived with his son in a house. They had two friends. One day Vini said to his son, "My boy, when I die, you look. A turtle called Veri-pupura-vai-a-pakia is going to land."

The man died and his son put his body on a platform, then deposited it in the alu Hanga-o-honu. The two friends took care of the child and helped him prepare the funeral of his father. They made for him the ceremonial earth oven (*takapu*).

One night the child had a dream of the turtle Veri-pupura-vai-a-pakia. He told his dream to his friends. One of them said, "Whom are you speaking to, oh boy? You are a liar." The boy said, "It is true. My turtle has landed." The other man made an earth oven in which he cooked a fowl and sweet potatoes. He gave the food to the child.

The following day the child left and went to Mahatua where he planted bananas, yams, and sweet potatoes. The turtle had really landed at Hanga-o-honu. The friend of the father who had laughed at the boy came and saw the turtle. He danced around it and made magic. He cried, "This is my turtle, Veri-pupura-vai-a-pakia." The child, Vini-a-ore-are, heard about the turtle from other people. He took a chicken, gathered sugar cane, loaded them on his back, and went to Hanga-o-honu. There he saw the man who had laughed at him singing over the turtle. Holding a white chicken, he cried, "You man, you are going to die. Do not chant over the turtle. You are going to die." The man fell down dead. Vini stepped on the turtle and cried over it. Afterwards he looked for the man who had made an earth oven for his dream. He heard that this man had made another earth oven. He had cooked a chicken and sweet potatoes which he wrapped in sugar-cane leaves. With his five sons carrying these bundles he went to Hotu-iti and gave the food to Vini-a-ore-are. Vini asked them, "Are you lost?" The man answered, "I came from my place to see the turtle." Vini-a-ore-are gave him the turtle. The man said, "Your turtle will arrive at Omohi." Vini answered, "There you will catch it." Vini-a-ore-are said to his turtle, "My father, you go to the region of Omohi." The turtle swam. The man and his sons went by land, the turtle by sea. The turtle landed at Omohi and its owner gave it as a present to his brother-in-law.

Uho and the Turtle

A young girl, called Uho, went to the beach to sprinkle her bark cloth. She untied the knot of her stained belt and put it aside. After she had returned home with her calabash full of bark cloth she remembered her belt and said, "Alas, I have forgotten my stained belt." She returned to get it but a turtle had stolen it and swum off with it. Uho shouted, "Leave my stained belt." The turtle replied, "I shall leave your stained belt over there." Uho dived into the water and swam after the turtle. She cried, "Little turtle of the red penis, leave my stained belt." "Over there I shall leave your stained belt." She went on swimming after the turtle and arrived at another land. The turtle landed on the beach of this country and so did Uho. There she married a man called Mahuna-te-raa and gave birth to a girl.

Uho used to complain:

O te henua mata-po-uri oou,
E Mahuna-te-raa kenu aaku
E tae pe uta oe tomatou.
Henua mata-maeha i te uinga.
Aue, nua e, aue koro e, aue matua
E, aue nga kope.

This country of yours is dark,
O Mahuna-te-raa my husband,
It is not like our country.
On the bright side.
Alas, my mother, alas, my father,
Alas, the boys [her brothers].

Mahuna-te-raa asked, "Why are you crying?" "My eyes are sore with the smoke of the old woman. That is why they are swollen." The husband told his mother, "Decrease the smoke of your earth oven because it irritates the eyes of your daughter-in-law" who taught her child to sing:

E nua e, maea o runga ki raro koe,
Maea o raro ki runga koe,
E kara koe, e uko,
E huruhuru koe, e uko,
E ngutu koe, e uko,
E vae koe, e uko.

O child, when the stones are above, you get below,
When the stones are below, you get above,
You put on wings, and fly,
You put on feathers, and fly,
You put on a beak, and fly,
You put on feet, and fly.

At dawn Uho went to the beach and asked a bird that was passing by, "Come and take me on your back." The bird answered, "You are very heavy." Uho asked the turtle again, "Come, carry me on your back." The turtle said, "You are very heavy." She asked the little turtle again, "Little turtle of the red penis, come and carry me on your back." "With what are you going to pay me?" Uho called "With my vulva." The little turtle with the red penis shouted, "All right." He came to carry Uho and said, "If I dive, hold me firmly, if I go up, go up too, and if I dive, dive also." They arrived in Uho's land. The father of Uho saw her. He shouted, "Woman, do not come. It is a tapu of the girl Uho." Uho cried, "I am Uho." The father went down and asked, "Who are you?" "I am Uho." The father wept and took her to the house where her mother and brothers were. They all cried. Uho stayed with them.

Much later a feast was celebrated at Vinapu. Uho and her parents went there. The daughter of Uho flew from the land of Mahuna-te-raa, who was the husband of Uho. She arrived at Vinapu where her mother was. The people shouted, "There is a bird, there is a bird. Perhaps it belongs to Uho, the young girl." They threw stones at the bird. When the stones passed above it, the bird went down; when the stones passed under it, the bird went up. The men and the women cried to Uho, "Call the bird; it may be yours." Uho cried to the bird, "Here, here." The bird alighted. She shed her feathers. This bird was a person, the very daughter of Uho. All the men and women shouted, "She belongs perhaps to Uho." All the men, women, and children had a good laugh.

The Story of the Octopus Akaverio of Hanga-tee

An urchin and a shell married. The shell became pregnant and gave birth to the octopus, Akaverio. The octopus nursed by his mother grew up.

Aio planted bananas, sugar cane, and potatoes and made heaps of soil for yams. When these plants were ripe, he prepared a big feast above the little mountain called the "Mountain of Aio". He plucked sugar cane and bananas and buried them in a big pit to hasten their ripening. He dug out yams and sweet potatoes and caught tuna, *pei* fish, and eels.

He sent a messenger to his mother in the mountain to invite her with his brothers to eat at the *koro* feast. She came with his aunts, uncles, and cousins. Not a single relative, even far apart, was forgotten. When they arrived the earth oven was opened. Aio said, "My mother and I are going to stay outside. You enter the *koro* house and eat." The uncles, aunts, the brothers, the cousins, the distant relatives entered the *koro* hut and ate. Aio cried to his people, "Put in bananas, put in sweet potatoes, put in sugar cane." "The sugar cane in the house is not finished," said the people in the house, "Stop sending more, be moderate, the house is already full." But Aio said to his men, "Press it, make it tight." They pressed the food in the house very tightly. The people in it could hardly breathe. Then Aio said to his men, "Burn the house."

After this, Aio said to his mother, "I am going to take care of you. I made a pile of sugar cane and shall put the load on your back." The mother said, "Aio, put a smaller load." He piled up more and more sugar cane until the woman succumbed under the weight and died. This was Aio's revenge.

The Revenge of Hera-kekeu-nui

Hera-kekeu-nui had caught a turtle which he left in a big deep cave. A man admired the turtle, "Big is your turtle, oh, Hera. His body is full of water." Hera killed the man who had uttered this insult. He stayed there and killed all the people who said, "His body is full of water." The turtle was certainly big and for that reason people admired it for days and months, but Hera-kekeu-nui killed them. Finally Hera-kekeu-nui was defeated by Marama and Ureohei.

Hera-kekeu-nui and Hera-kara-kama who belonged to the defeated party took refuge in the house of a man called Hopohopo. Hera-kara-kama and the children of Hopohopo went to dig sweet potatoes, for there was a famine. Hera-kekeu-nui remained alone with the father, Hopohopo.

Hera-kara-kama and the children of Hopohopo arrived at a place where they looked for sweet potato shoots. The young sons of Hopohopo killed Hera-kara-kama and buried him in the ditch from which they had dug out the sweet potatoes. Hera-kekeu-nui looked for his cousin Hera-kara-kama from the top of Mount Kahu-rea. The young sons of Hopohopo returned to their house. The father asked, "Where is your relative, Hera-kara-kama?" The young men lied, saying that he had returned to his place. Hera-kekeu-nui heard the lies and on the next day went back to his place at Omohi. He planted bananas and went out to fish tuna. When he landed, people said that he had caught a great many tuna fish. Hera-kekeu-nui distributed them among the people. The young sons of Hopohopo heard about this. Their father Hopohopo advised them, "Beware, do not hide the things you have heard about the tuna of Hera-kekeu-nui." But the young men did not listen to him. The three went to Omohi where Hera distributed his tuna. Hera killed two of the boys and loaded the tuna on the third saying, "Carry the tuna. The people whom I killed to take revenge for the death of my cousin Hera-kara-kama, have been exterminated. That is why I killed the two young sons of Hopohopo." The father Hopohopo went up to Mount Kahu-rea. He looked for the young men and saw that only one was coming down. He said to himself, "They are dead, for only one is coming."

Engo

A warrior, named Engo, constantly looked at the bay of Hanga-roa where another man lived with his wife and two children. One night, while everybody was sleeping he entered the other house, a spear in his hands, and cut the throats of the children. The parents awoke and saw that their children were dead. The woman said to her husband, "Who killed our children?" The parents stayed there with the hope of hearing something about the killing of the children, but they learned nothing.

One day the woman lit an earth oven to cook sweet potatoes. At night the husband said to his wife, "Go out to the earth oven, the food must be done. It is late in the evening; night is coming." The woman went out alone and opened the earth oven. Engo came just at that moment and killed her. The woman died in her earth oven. The husband, seeing that his wife did not return with the sweet potatoes, started to shiver without reason. Unable to move, he lay down. He went at dawn to the earth oven to see what had happened. He saw that his wife was dead. He wrapped her up and buried her.

The husband went in search of the murderer. He went from Hanga-roa to Vinapu, and to Hanga-tee, always listening to rumors. He finally arrived at Anakena where lived Ure-a-toro a warrior who was watching prisoners. Engo also lived at this place where one of his daughters gave birth to a child. The daughter of Engo left with her three children. She arrived at Vinapu by the bay called Hanga-te-pau. There she dug a pit among the loose stones and entered it with her three children. She covered the opening with gravel. People walked above this woman and her children causing them pain. One day two men came to catch crayfish and conger eels, entering the water in the direction of Motu-topu. When they had a full basket they returned to the shore where the woman and the three children were concealed. They left the basket containing the crayfish and the conger eels and went to drink at a place called Ite-tahe-te-vae. The daughter of Engo took the basket and hid it under the stones. The owners looked for it everywhere, but could not find it. One of them said, "Our basket of crayfish has been stolen." Then they departed.

The woman took the basket and with her two children left the place. She arrived at Hanga-parera. There she hid her children in a cave and went to Aputha where lived one of her aunts. The husband of this aunt looked at her and asked, "Where are your children?" "In a cave at Hanga-parera." The aunt said, "Go back and fetch your children. Let us all stay here." The woman returned to the cave, took her children, and went back to the house of her aunt.

The father of the murdered children saw the daughter of Engo and went to kill her. But the aunt shouted, "It is all right. If you take away the people protected by a great man, my husband will kill you." The injured man was afraid. He did not take the revenge for the murder of his children and of his wife killed in Hanga-roa.

The Two Cannibals

Two men were weeding around banana trees for another man. The owner of the field went to fish shark, and left his red cape on a rock. When the two workers were sure he had left, they seized a child to cook as compensation for their labor in weeding grass around the banana trees.

Later the owner of the land looked for his red cape which had disappeared. He finally found it in a cave where it had been pulled by a child. The owner of the field asked, "Who are you?" The child answered, "I came here to get some fire. These two men took me and put me in this cave to eat me." The owner of the field shouted to the two men, "Get out, go away from my land. I don't like cannibals on my land. Get out, leave." He untied the child and said, "Return to your parents."

The Two Friends

A man from Marama came to Hanga-tee. There he met Iri-a-hiva-a-te-kena. Together they made an earth oven and ate the food cooked in it. When war broke out, the young man returned to his home, but Iri-a-hiva-a-te-kena joined a war party and fought. When the war was over they met again. They were good friends and were very fond of each other. Another war started. The young man of Marama returned to Hanga-tee,

is a good sense of movement and a harmonious combination of conventionalized and naturalistic elements.

The signs are made in boustrophedon arrangement, that is every other line of figures is upside down so that the sequence is continuous. Every line is read from left to right (115, p. 252; 194, p. 242) and the tablet must be turned at the end of each line or else half the lines must be read upside down. The heads of the animals generally face toward the right.

There is great need of a list of all the signs used on the tablets. I have attempted to classify the 1,000 signs which occur on the tablet Aruku-kurenga. Jaussen (115, pp. 259-270) made a general list of the signs of the so-called Easter Island script, but his list is not valuable because it is based on only five tablets, the signs are poorly copied and are repeated, and the classification is based on assumed meaning rather than on form of drawing. A study of many tablets, photographs, and casts shows that, though there are many variations and combinations of signs, the basic figures are few. Apparently the artist paid little attention to uniformity. The principal signs are of men, birds, bird-men, double-headed birds, parts of the body (vulva, hands, and feet), fish turtles, crabs, octopuses, centipedes, plants of various descriptions, implements, weapons, ornaments, ships, celestial bodies, geometrical motifs like series of triangles, lozenges, perpendicular sticks, series of circles, and so forth. These signs are sometimes combined to form strange groups. Some of the associations are casual and must be regarded as a sort of cursive writing, but other combinations may have a definite significance.

Recent informants say that there were several kinds of tablets, each named after its subject. Tablets recording feasts were *tau*; those for the dead, *kohau-o-te-tangata-mate*; those for wars, *kohau-o-te-ranga* (literally, sticks-of-the-expulsions); those for prayers, *kohau-kiri-tuku-ki-te-atua-kia-Rarai-Hova* (sticks-for-the-invocations-to-the-god-Rarai-Hova). In the native version of the legend of Hotu-matua, the first king is said to have founded schools in which pupils were taught to make the various kinds of tablets.

My informant was probably mistaken when he mentioned the *kohau-o-te-ranga* as a special category of tablets. Routledge (194, p. 249) speaks of *kohau-o-te-ranga* as the name of a single tablet, "reported to have been brought by the first immigrants; it had the notable property of securing victory to its holders, in such a manner that they were able to get hold of the enemy for the *ranga* that is, as captives or slaves for manual labour." This tablet belonged to Nga-ara, but was stolen by a man called Kaara, who gave it to an expert chanter, Arohio. The son of Arohio traded it to the French missionaries and it may be one of the tablets at Braine-le-Comte. There were undoubtedly other similar lists of wars.

The *tau* was an inferior writing to record the deeds of a man for whom a *koro* or feast was given. On this occasion a tablet was incised telling "how many men he had killed in war, how many chickens he had stolen." A man named Kapiera told Routledge (194, pp. 251-252) that the earliest *tau* was made by an ancestor of Hotu-matua, the first king of the island. A large tablet contained a list of the lesser tablets "giving merely the name of each hero and the year of his *koro*." The names were enumerated and followed with figures corresponding to the year when the *koro* was celebrated. The numbers went to ten, then began again. "If there were two *koro* in a year, they came under the same numeral."

There was also a tablet for *ika* (murdered men). It was known to only one person, "who taught it to a pupil, and the two divided the island between them, the master taking the west and the north coast to Anakena and the pupil the remainder. A connected, or possibly the same tablet, was made at the instance of the relatives of the victim and helped to secure vengeance" (194, p. 248).

Some tablets dealt with ceremonies, and others were part of ceremonies themselves. They were in evidence at *koro*, where Nga-ara and the professors used to "pray for the father" and where a woman went onto the roof of the house holding the "kohau-o-te-pure" (prayer tablet). "In another case, a woman who wished to honour her father-in-law, and at the same time secure fertility, set up a pole round which she walked holding a child and a tablet, given her by Nga-ara while he and other *rongorongo* men who brought their *kohau* at his order stood by and sang" (194, p. 249). Thirteen subjects were dealt with in the tablets. No mention was made either to Routledge or me of genealogies, lists of *ariki*, or the wanderings of the people.

The tablets were said to be tapu and were handled only by the *rongorongo* men and their servants. When kept in the hut they were wrapped in mats and hung from the roof. During war they were regarded by the victorious party as valuable spoils.

Tablets are first mentioned in 1864 by Eyraud (81, vol. 38, p. 71) who says they were found in almost every house although the natives did not understand their meaning and showed little respect for them. Several years later Zumbohm (230, vol. 6, p. 232) collected some tablets and attempted unsuccessfully to learn the meaning of the incised signs. He gathered the most learned natives who "seemed pleased" to see the tablet and told him its name. Then some started to read the page by "chanting." But others disagreed on the chant and the discouraged missionary gave up his inquiry. Roussel (190, p. 464) scarcely mentions the tablets and assumes that the characters never had a meaning. "The few natives who pretended to know them, recited when tested only ridiculous and meaningless tales." It is worth stressing that Roussel speaks of the tablets in connection with the native chants.

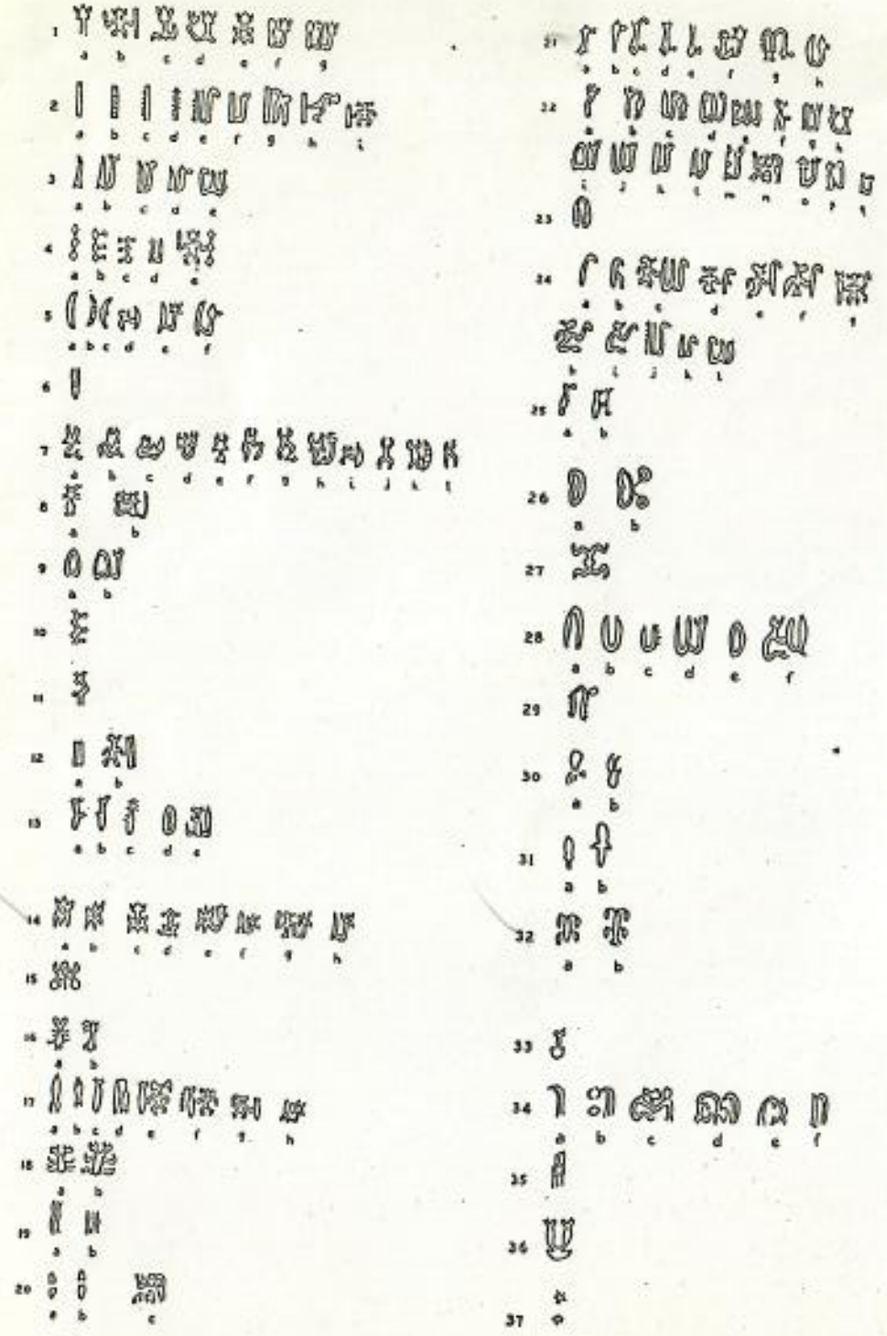


FIGURE 58.—Signs on tablet Aruku-kurenga.

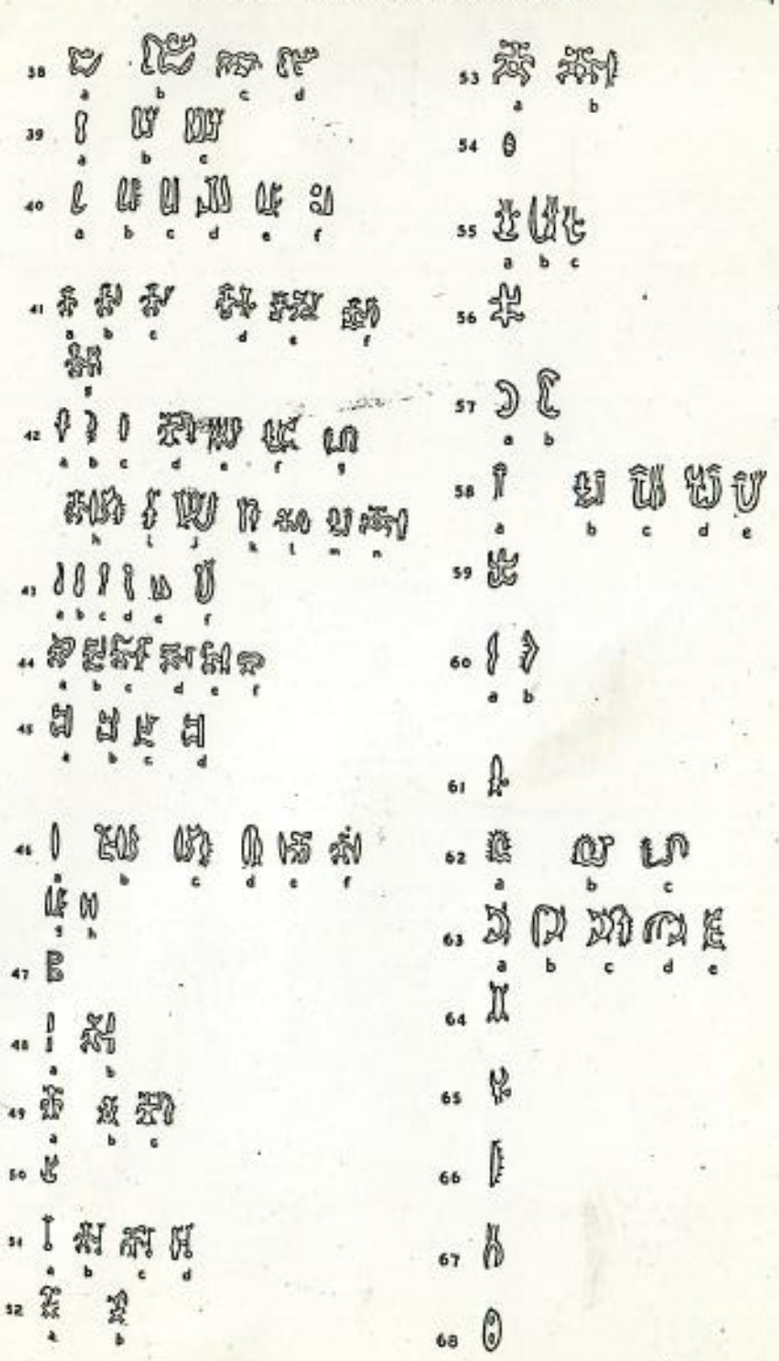


FIGURE 58.—Signs on tablet Aruku-kurenga (Continued).

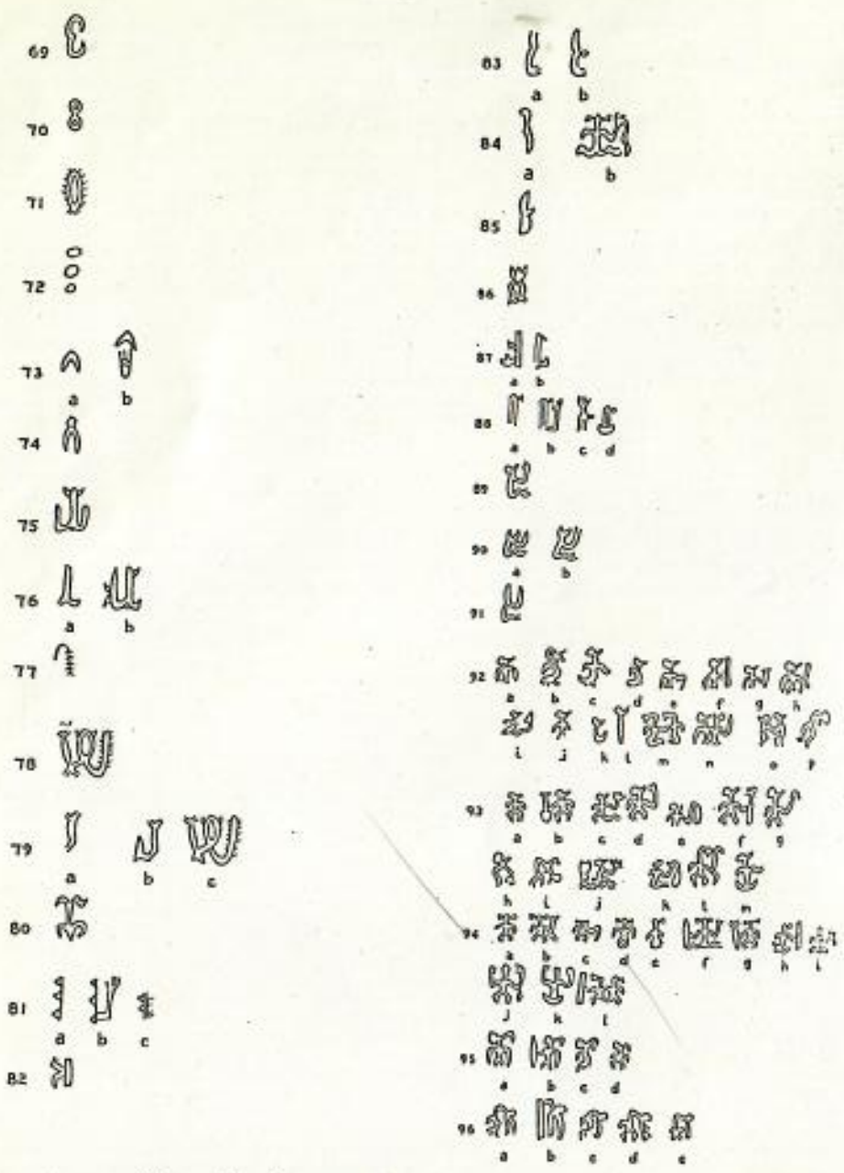


FIGURE 58.—Signs on tablet Aruku-kurenga (Continued).

A Hungarian linguist, Mr. de Hevesy, has supposedly found striking similarities between the Easter Island symbols and a script recently discovered in the Indus Valley at Mohenjo-daro and Harappa. This theory, accepted by many, needs a thorough revision and an analytic study such as the one I attempted in a special article (154).

TABLE 5. SYMBOLS USED ON THE TABLET ARUKU-KURENGA: ANALYTICAL LIST OF THE SIGNS[25]

1. Symbol characterized by triangle with two hornlike appendages. Appears 14 times: as head of human figure (6), isolated in rows V, IX, XII (3), combined with other figures (5). Two combinations: in some symbols the triangle is part of symbol and forms a head on a body as in *b-c*; combination in others possibly accidental, or may be independent.

2. Symbol isolated, appears 23 times: in row V (5); *b-d* are variants or morphologically close to symbol; *b* in rows VII, XV, XVI (3); *c-d* in rows III, VI (2).

3. One of the most common symbols, occurs 20 times: combined as in *b* (12); as in *c* (1); as in *d* (1).

4. Occurs 17 times: most lozenges have human ear on one side; rarely combined as in *c* and *d*.

5. Symbol simple but rare, isolated (6): *b* and *c* probable variants.

6. Symbol represents vulva, not restricted to tablets but carved on rocks and boulders: occurs on tablet (10); connected with adjacent symbol (1), but as same group appears divided farther on, we may assume combination is casual in row I.

7. Numerous variants of symbol, outline of a large sea animal, probably a whale. Appears 16 times, never reproduced identically. Form *g* illustrates how signs were modified by fancy of artist; carver added a hand to one fin of *b* (3) with no apparent purpose to form *g*. Body of animal has been interpreted as human leg, distorted outline of whale's body and fins suggesting appearance of two limbs to carver. Sometimes body of whale terminates in appendage at lower limbs as in *c*; sometimes combined as in *h* and *i* (2). Forms *j-l* seem to be related to *i*, though this cannot be ascertained; occurs 5 times: combined (4); isolated in row XI (1).

8. Symbol common on other tablets, appears here only 4 times combined in row XXII (*b*).

9. Symbol appears twice in row V: isolated (1), combined with hand (1).

10. Occurs 7 times.

11. Symbol closely related morphologically to preceding one: appears 7 times, never combined.

12. Occurs twice: isolated (1), combined with bird-man (1).

13. Occurs 15 times: concentrated chiefly in row IX (8) and row XII I (4); enclosed in oval in *d* (1).

14. Symbol interpreted by Metoro as sun or fire. Occurs isolated 14 times: combined into single symbol *c-d*; connected with fish, bird, or crescent *f-h*.

15. Appears once in row VI.

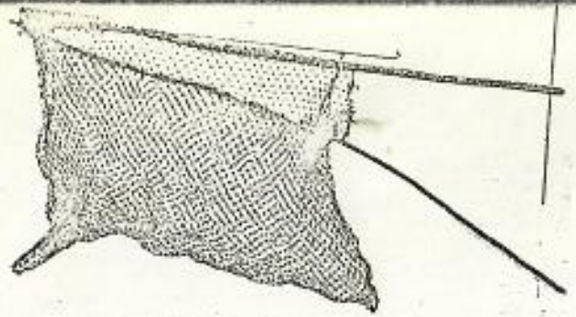
16. Insect or sea animal: sign *a* occurs in line V (2); *b* isolated in row VII.

17. Isolated fish occurs 25 times: fish held by frigate bird, *e* (4), by tern (1), by human figure, *f* (12).

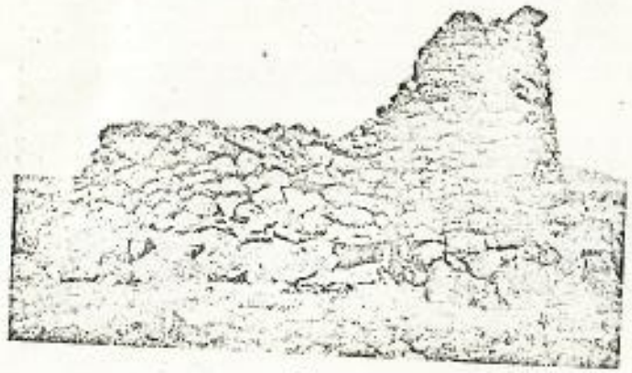
[25] Bold-faced arabic numerals correspond to numbered rows on figure 58 and italic lower-case letters refer to lettered parts on the same figure. Roman numerals correspond to order of rows as given by Janssen. Row I is at the base of the convex side and along the longest edge of the tablet. Numbers in parentheses indicate number of times a sign is found on the tablet.

18. Crab or crayfish: in rows VII and VIII (3).
19. Appears isolated 8 times, combined as in *b* (2).
20. Occurs 3 times (rows I, II); *c*, row XVII.
21. Appears 4 times as in *a* and *b*. Reversed position in *c-e* (6). In rows IX and XIII this symbol has symbol 13 on each side.
22. Represents hand: isolated (5); combined into single sign with fruit, *b* (9); next to bird-man with open hand in rows IX, XI, XII, XIII; combined in sign *c* (1), in *d* (3), in *e* (1), in *f* and *g* (2), in *h* (3); *i* is isolated; *j* occurs in rows XV and XVI; *k* (5); *l* (1); *m* (2).
23. Appears twice in row II, preceding sign of hand.
24. Probably conventionalized adz: appears isolated (14), concentrated in rows IV-VI. Occurs in row VI (11), combined with human figures and bird-men (8). Total: 22 times.
25. Appears 12 times.
26. Occurs as single sign (1), as compound sign *b* (1).
27. Appears only once.
28. Symbol has opening up 10 times, down 4 times; provided with small barbs in *c*.
29. Occurs 3 times: in row XVI (2) the two sides are contiguous.
30. Occurs in rows XIV and XXII with hand up or down (2).
31. Two isolated figures, possible variants of same symbol.
32. Symbol formed of two ovals hanging from larger oval or from outline of fish: occurs as in *a* (3), as in *b* (2). Total 5.
33. This symbol should hardly be listed as it is carved near edge at place where symbols are reduced and simplified: occurs only once in row XVI.
34. Symbol never isolated: occurs 6 times. Combined with pectoral (*rei-miro*) (2).
35. Appears only once, row XVI.
36. Isolated symbol, row XVI.
37. Isolated symbol, row XVII.
38. Symbol represents animal whose body suggests eel, head suggests bird-man: in *a* sign is isolated, occurs as in *b* (7). Variants show clearly affinity of this animal with bird-man in symbol 92, *b*. Total: 11 times.
39. Never isolated, figures in two compound signs with symbol 1, each appearing only once.
40. Same as in 39.
41. Extraordinary personage represented 8 times.
42. Metoro interpreted this sign as yam or flower, probably banana blossom. Sign appears in form *a* (1); form *c* (5); form *b* always connected with other compound signs but usually so loosely that it may be inferred that the artist linked them with contiguous symbols for design. Sign combined with hand in *l* may form special symbol (9). Total: 25 times.
43. Five signs, rather indistinct, classed together because of resemblance, but this classification is perhaps arbitrary
44. Headless personage represented 6 times in combination.
45. Symbol never isolated but has independent meaning, as it is associated with other geometrical figures; probably a conventionalized outline of legs: form *b* (6); *b* and *d* in row XVIII, each (1).
46. Conventionalized pole: isolated (5), in combination (8).
47. Sign appears only once, row X.
48. Sign appears isolated only once, in combination *b*.
49. Design of turtle appears only twice, rows IX, XII; *c* possible variant of same symbol.
50. Occurs only once.
51. Represents plant: isolated (3), combined with different figures in *b*, *c*, *d* (6).
52. Occurs in rows VIII, XVIII, and XIX (3).

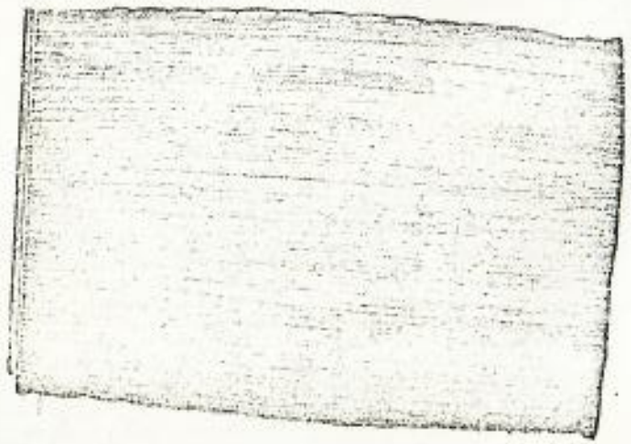
53. Conventionalized turtle (7).
54. Sign appears only twice.
55. Occurs 4 times, in combination (1).
56. Represents lizard; occurs only twice.
57. Two variants of same symbol.
58. Occurs 4 times, never isolated.
59. Occurs 3 times.
60. Appears without barbs (2), with barbs (4).
61. Isolated symbol in row XII.
62. Isolated, occurs 3 times; combined with bird-head (2), with fruit (1).
63. Sign represents pectoral (*rei-miro*): occurs isolated (4), combined (4), duplicated as in *e* (1).
64. Occurs in combination in row XII (1).
65. Symbol isolated, perhaps reduced as consequence of its position in corner.
66. Symbol occurs in row XII (3), in row XXI (2).
67. Occurs in row XII (2).
68. Isolated, in row XIX.
69. Occurs in rows XIX and XXI (2).
70. Isolated in row XXI.
71. Symbol supposed to represent headdress (*hau*): in row II (7), in row XXII (2). Total: 9 times.
72. Series of circles, usually in groups of three but sometimes of two, one of the most common signs (27).
73. Occurs 4 times: placed above sign representing vulva (3), upon symbol 74 (1).
74. Occurs twice.
75. Compound symbol whose elements cannot be dissociated.
76. Appears isolated on other tablets, occurs here only once, as compound.
77. One of the most frequent signs, appears 41 times, usually connected with contiguous sign.
78. Compound sign, occurs only once.
79. Element occurs in different compound signs, never isolated.
80. Isolated sign.
81. Sign appears in only 2 combinations, *b* and *c*.
82. Occurs 3 times.
83. Represents leg, occurs 8 times.
84. Occurs only 3 times, always in combination.
85. Isolated in row VII.
86. Isolated sign, probably combined.
87. Two isolated signs occurring in same row IV at short interval.
88. Symbol and its compound occur 10 times.
89. Bird-man represented in same posture as on petroglyphs and at Orongo (34).
90. Outline of figure same as preceding symbol; beak and head are same size but head suggests sea animal on symbol 92, *b*, (14).
91. Another figure in same position (3).
92-93. Symbol represents bird, probably tern (*manu-tara*); occurs 149 times. The god Makemake was incarnated in this bird, hence motif most frequently carved on rocks or painted on slabs. It is difficult, if not impossible, to differentiate between representation of this bird as an animal and as a human being with bird-head.
94. Next to bird-man motif this human figure is the most frequently carved on tablet; occurs 94 times.
95. Represents frigate bird; variations few, all indicated in list; occurs 32 times.
96. Represents a species of pelican. Occurs 10 times.



A



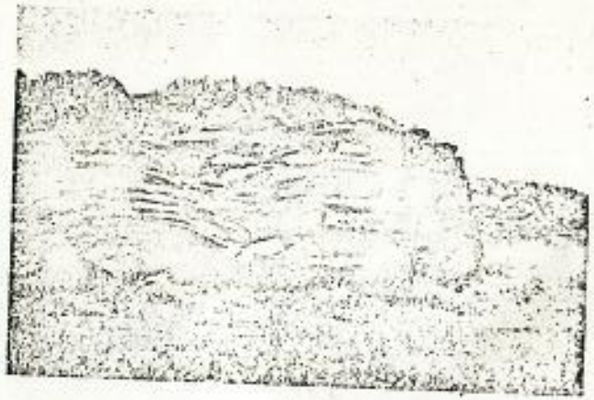
B



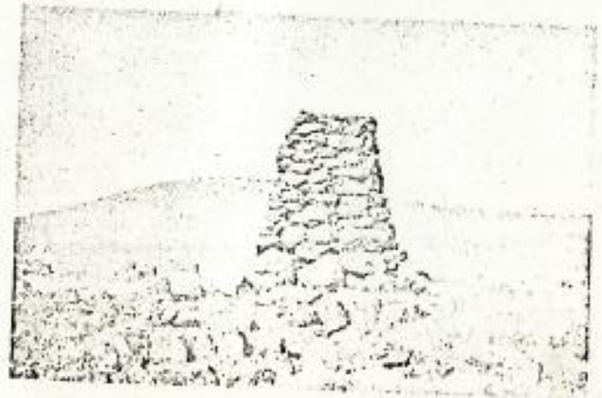
C

A, DOUBLE-HANDLED DIP NET, BAG 76 CM. DEEP, 140 CM. LONG, MESHES 2 CM. WIDE, POLES 149 AND 161 CM. LONG (MUS. F. VOLKERKUNDE, BERLIN, VI.4962); B, TURTLE WATCHTOWER (TUPA) NEAR LA PÉROUSE; C, REED MAT (MUS. F. VOLKERKUNDE, BERLIN, VI.4970).

A



B



C

A, STONE FOUNDATION OF A HOUSE; B, STONE HOUSE AT ORONGO; C, TAPU PILLAR (PIPI-HEREKO) NEAR AHU TONGA-RIKI ON THE SOUTH COAST.

A HANGA-O-HONU

B

C

A, FACADE OF AHU HANGA-O-HONU MADE OF FITTED, SQUARE SLABS OF BASALT; *B*, AHU TAVARI, SEMI-PYRAMIDAL TYPE (*AHU PAEPAE*); *C*, *AHU POEPOE* NEAR AHU MAHATUA ON THE NORTH COST.

A

B

C

A, AHU-TE-AVA NEAR ANAKENA, WEDGE-SHAPED AHU; *B*, RECTANGULAR AHU NEAR ANAKENA; *C*, UNFINISHED STATUE AT RANO-RARAKU, ATTACHED TO ROCK BY FLANGE.

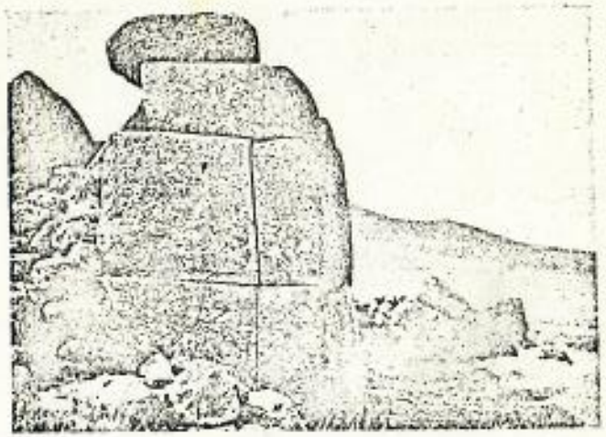
A

B

C

A, HEAD OF STATUE ON AHU TONGA-RIKI; B, STANDING STATUE AT RANO-RARAKU; C, STONE HAT, AHU-TE-PITO-TE-KURA.

A



B

C

A, STATUE FROM AHU NEAR ANAKENA BAY; B, AHU VE-NAPU, CORNER; C, PETROGLYPHS AT ORONGO.

From Heyerdahl

Cavachery, 1939

Vol. 2

Fig 19, 171, 174, 177, 178,
184, 185, 186,

Pls. 11, 12, 91, 93, 94 -
99–101.

"MANUTARA"

Island do not seem so exceptional or contrary to the Polynesian genius. They also represent a specialization and an achievement which local conditions explain sufficiently without the interpolation of a sunken continent or Melanesian invasion.

The aim of this book has been to show that Easter Island is a local Polynesian culture which developed from an archaic and undifferentiated Polynesian civilization. But I hope that another lesson may be drawn from this book—the fact that cultures are not static, that they do not need external stimulus and influence to develop and reach some degree of perfection. On the most solitary inhabited island in the world, Easter Islanders were able to develop and perfect the culture which they received from their Polynesian ancestors to the west.

BIBLIOGRAPHY

1. Agassiz, Alexander, Reports on the scientific results of the expedition to the eastern tropical Pacific: Mus. Comp. Zoology Harvard College, Mem., vol. 33, pp. 53-62, Cambridge, 1906.
2. Ahnne, E., Les hiéroglyphes de l'Ile de Pâques: Soc. d'études océaniennes, Bull., vol. 5, no. 47, pp. 185-193, Papeete, 1933.
3. Aichel, Otto, Österinselpalaeolithen in prähistorischen Gräbern Chiles: Cong. Internat. des Américanistes, Compte-rendu de la 21ème session (pt. 2, Göteborg, 1924), pp. 267-269, Göteborg, 1925.
4. Aitken, R. T., Ethnology of Tubuai: B. P. Bishop Mus., Bull. 70, 1930.
5. Amasa, Delano (correctly Delano, Amasa), A narrative of voyages and travels in the northern and southern hemispheres, Boston, 1817.
6. Andree, Richard, Ein Moi Toromiro (Hausgötze) von der Österinsel: Globus, vol. 76, pp. 389-390, Braunschweig, 1899.
7. Baessler, Arthur, Neue Suedsee-Bilder, Berlin, 1900.
8. Bahnson, Christian, Ethnografien, 2 vols., Copenhagen, 1900.
9. Balfour, Henry, Some ethnological suggestions in regard to Easter Island, or Rapanui: Folklore, vol. 28, pp. 356-381, London, 1917.
10. Balfour, Henry, The statues of Easter Island: Folklore, vol. 32, pp. 70-72, London, 1917.
11. Bandy, M. C., Geology and petrology of Easter Island: Geol. Soc. America, Bull., vol. 48, pp. 1589-1610, 1937.
12. Barclay, H. V., Easter Island and its colossal statues: Geogr. Soc. Australasia (South Australian Branch), Proc. (11th Session, 1897-98), vol. 3, pp. 127-137, Adelaide, 1899.
13. Barclay, H. V., Mission à l'Ile de Pâques (Communication faite par M. Jules Garnier): Comptes rendus des séances de la Soc. de Geogr. et de la commission centrale, 1899, pp. 169-176, Paris, 1900.
14. Beasley, H. G., Pacific island records; fish hooks, London, 1928.
15. Beechey, F. W., Narrative of a voyage to the Pacific and Beering's Strait (1825-28), 2 vols., London, 1831.
16. Bédault [Bidault] de Grésigny, Léonce, Piéces préhistoriques de l'Ile de Pâques (Australie): 6ème Congr. préhist. de France, pp. 268-270, Louis-le-Saunier, 1913.
17. Bergman, Bengt, "Easter Island" in the Ethnographical Museum of Sweden: Ethnos, vol. 2, pp. 102-115, Stockholm, 1937. This article contains the translation of Sparrman, Anders, Resa omkring Jordklotet i sällskap med Kapit. J. Cook och Hrr. Forster, Åren 1772-75, Stockholm, 1818.
18. Behrens, C. F., Histoire de l'expédition de trois vaisseaux, 2 vols., La Haye, 1739.
19. Bennett, W. C., Archaeology of Kauai: B. P. Bishop Mus., Bull. 80, 1931.
20. Best, Elsdon, The Maori, 2 vols., Wellington, 1924.
21. Best, Elsdon, The Maori canoe: Dominion Mus., Bull. 7, Wellington, 1925.
22. Best, Elsdon, The stone implements of the Maori: Dominion Mus., Bull. 4, Wellington, 1912.

22a. Bidault de Grésigny, see Bédault . . . (16).

23. Bonin, Gerhardt von, A contribution to the craniology of the Easter Islanders (with a note to table VIII by G. M. Morant): Biometrika, vol. 23, pp. 249-270, London, 1931.
24. Branchi, E. C., L'isola de Pasqua, Santiago de Chile, 1934.

25. Brigham, W. T., The ancient Hawaiian house: B. P. Bishop Mus., Mem., vol. 2, no. 3, 1908.
26. Brigham, W. T., Ka hana kapa: B. P. Bishop Mus., Mem., vol. 3, 1911.
27. Brown, J. M., The riddle of the Pacific, London, 1924.
28. Buck, P. H. (Te Rangi Hiroa), Ethnology of Mangareva: B. P. Bishop Mus., Bull. 157, 1938.
29. Buck, P. H. (Te Rangi Hiroa), Ethnology of Manihiki and Rakahanga: B. P. Bishop Mus., Bull. 99, 1932.
30. Buck, P. H. (Te Rangi Hiroa), Ethnology of Tongareva: B. P. Bishop Mus., Bull. 92, 1932.
31. Buck, P. H. (Te Rangi Hiroa), Mangaian society: B. P. Bishop Mus., Bull. 122, 1934.
32. Buck, P. H. (Te Rangi Hiroa), The Maori craft of netting: New Zealand Inst., Trans., vol. 56, pp. 597-646, 1926.
33. Buck, P. H. (Te Rangi Hiroa), The material culture of the Cook Islands (Aitutaki): Bd. Maori Ethnol. Research, Mem., vol. 1, 1927.
34. Buck, P. H. (Te Rangi Hiroa), Samoan material culture: B. P. Bishop Mus., Bull. 75, 1930.
35. Burrows, E. G. Western Polynesia, a study in differentiation, manuscript in Yale University Library.
36. Buschan, Georg, Illustrierte Völkerkunde, vol. 2, Stuttgart, 1923.
37. Butaye, Isidore, Ile de Pâques; un mot des tablettes et des statues colossales de l'Ile de Pâques: Ann. des Sacrés Coeurs, n. ser., 8ème année, no. 1, Paris, 1901.
38. Caillot, A. C. E., Mythes, légendes et traditions des Polynésiens, Paris, 1914.
39. Capitan, L., Contribution à l'étude des rapports de l'Amérique avec l'Océanie: les bois parlants et les pierres taillées de l'Ile de Pâques: Soc. des Américanistes de Paris, n. ser., vol. 17, pp. 300-304, Paris, 1925.
40. Carroll, A., The Easter Island inscriptions: Polynesian Soc., Jour., vol. 1, pp. 102-106, 233-253, 1892; vol. 6, pp. 91-93, 1897.
41. Casey, R. J., Easter Island, New York, 1931.
42. Chamisso, Adalbert von, Reise um die Welt mit der Romanzoffischen Entdeckungs-Expedition in den Jahren 1815-1818, 4 vols., Berlin, 1864.
43. Chapin, J. P., The Templeton Crocker Pacific Expedition: Sci. Monthly, vol. 41, pp. 281-285, Lancester, Pa., 1935.
44. Charlin, Carlos, Ensayo bibliográfico sobre la isla de Pascua: Seminario de derecho publico, Bol., anexo 1, Santiago de Chile, 1935.
45. Chauvet, Stephen, L'Ile de Pâques et ses mystères, Paris, 1936.
46. Chauvet, Stephen, Outils anciens et de formes inédites (en obsidienne éclatée) ressortissant à la civilisation de la pierre polie de l'Ile de Pâques: Soc. préhist. française, Bull., vol. 32, pp. 406-408, Paris, 1935.
47. Chauvet, Stephen, Présentation d'un hameçon de l'Ile de Pâques: Soc. préhist. française, Bull., vol. 32, pp. 406-408, Paris, 1935.
48. Choris, Louis, Voyage pittoresque autour du monde, Paris, 1822.
49. Choris, Louis, Vues et paysages des régions equinoxiales, Paris, 1826.
50. Chubb, L. J., Geology of Galapagos, Cocos, and Easter Islands: B. P. Bishop Mus., Bull. 110, 1933.
51. Churchill, William, Easter Island; the Rapanui speech and the peopling of southeast Polynesia, Washington, 1912.

52. Clark, B. F., Reporting calling at Sala-y-Gomez and Easter Islands (letter from the Commander of the *Sappo* to Rear-Admiral Algernon Lyons): Roy. Geogr. Soc. Australasia (South Australian Branch), Proc. (11th Session, 1897-98), vol. 3, pp. 143-146, 1899.
53. Cook, James, A voyage towards the south pole and round the world (1772-75), vol. 1, 2d. ed., London, 1777.
54. Cooke, G. H., Te Pito te Henua, known as Rapa Nui . . . : U. S. Nat. Mus. Rept., pt. 1, pp. 689-723, 1899.
55. Coutkaud, Dr., Les origines de l'Ile de Pâques: Rev. de l'Ecole d'Anthrop. de Paris, 20ème année, pp. 86-87, 1910.
56. Croft, Thomas, Letters accompanying presentation of photographs of hieroglyphics from Easter Island: California Acad. Sci., Proc., vol. 5, pp. 317-323, 1873.
57. Dalton, O. M., The Easter Island script: Man, no. 78, 1904.
58. Dalton, O. M., On an inscribed wooden tablet from Easter Island (Rapa-nui), in the British Museum: Man, no. 1, 1904.
58a. Delano, Amasa, see Amasa (5).
59. Desmedt, Maurice, Les funérailles et l'exposition des morts à Mangareva (Gambier): Soc. des Américanistes de Belgique, Bull., pp. 128-136, 1931.
60. Dixon, R. B., The building of cultures, New York, 1928.
61. Dixon, R. B., Oceania: The mythology of all races, vol. 9, Boston, 1926.
62. Drapkin, Israel, Contribución al estudio antropológico y demográfico de los Pascuenses: Soc. des Américanistes de Paris, Jour., n. ser., vol. 27, pp. 266-302, 1935.
63. Dumont d'Urville, J. S. C., Voyage au Pôle sud et dans l'Océanie, 10 vols., Paris, 1841.
64. Dunbabin, Thomas, Slavers of the South Seas, Sydney, 1935.
65. Du Petit-Thouars, Aubert, Voyage autour du monde sur la frégate "La Venus" (1836-39), 4 vols., Paris, 1841.
66. Easter Island wood carvings: Mus. Univ. Pennsylvania, Bull., vol. 6, pp. 21-29, Philadelphia, 1935.
67. Echeverria y Reyes, Anibal, Datos sobre los jeroglificos de la Isla de Pascua: Congr. Interna. de los Americanistas, Actas (7th session, Buenos Aires), p. 444, 1910.
68. Edge-Partington, James, A "domestic idol" from Easter Island (Rapa-nui): Man, pp. 73-74, 1904.
69. Eich, Georges, Lettre de P . . . : Ann. des Sacrés Coeurs, n. ser., 5ème année, no. 11, pp. 415-423, Paris, 1898.
70. Ellis, William, Polynesian researches, 4 vols., London, 1840.
71. Emory, K. P., The archaeology of Mangareva: B. P. Bishop Mus., Bull. 163, 1939.
72. Emory, K. P., Archaeology of Nihoa and Necker Islands: B. P. Bishop Mus. Bull. 53, 1928.
73. Emory, K. P., Archaeology of the Pacific equatorial islands: B. P. Bishop Mus., Bull. 123, 1934.
74. Emory, K. P., Ethnology of the Tuamotus, manuscript in B. P. Bishop Museum.
75. Emory, K. P., The island of Lanai: B. P. Bishop Mus., Bull. 12, 1924.
76. Emory, K. P., Review of Bulletin de la Société des Américanistes de Belgique for December 1932: Polynesian Soc., Jour., vol. 42, pp. 125-126, 1933.
77. Emory, K. P., Stone remains in the Society Islands: B. P. Bishop Mus., Bull. 116, 1933.

78. Emory, K. P., Tuamotuan stone structures: B. P. Bishop Mus., Bull. 118, 1934.
79. Estella, Bienvenido de, Los misterios de la Isla de Pascua, Santiago de Chile, 1920.
80. Estella, Bienvenido de, Mis viajes a Pascua, Santiago de Chile, 1921.
81. Eyraud, F. E., Lettre du F. Eugène Eyraud au T. R. P. supérieur général: Ann. de l'association de la propagation de la foi, vol. 38, pp. 44-71; vol. 39, pp. 250-259, Lyon, 1866-67.
82. Forster, G., Florulae insularum australium prodromus, Göttingen, 1786.
83. Forster, George, A voyage round the world in H.B.M.'s sloop "Resolution" (1772-75), London, 1777.
84. Forster, J. R., Observations made during a voyage round the world, London, 1778.
85. Fuentes, Francisco, Reseña botánica sobre la Isla de Pascua: Mus. Nat. de Chile, Bol., vol. 5, no. 2, pp. 320-337, Santiago de Chile, 1913.
86. Gana, I. L., Descripción científica de la Isla de Pascua: Biblioteca Geográfica é Historica Chilena de L. Ignacio Silva, vol. 1, pp. 11-52, Santiago de Chile, 1903.
87. Geisler, (Kapitänlieutenant), Die Öster-Insel, Berlin, 1883.
88. Giglioli, E. H., La collezione etnografica del Prof. Enrico Hillyer Giglioli, pt. 1, Australasia, Firenze, 1911.
89. Gill, W. W., Jottings from the Pacific, London, 1885.
90. Gonzalez, Don Felipe, The voyage of . . . to Easter Island in 1770-71 (translated by B. G. Corney): Hakluyt Soc., 2d ser., vol. 13, Cambridge, 1908.
91. Gracia, Mathias, Lettres sur les Iles Marquises, Paris, 1845.
92. Gray, H. St. G., Another type of "domestic idol" from Easter Island: Man, no. 96, 1904.
93. Gusinde, Martin, Bibliografía del Museo de Etnología y Antropología de Chile, vol. 2, nos. 2-3, pp. 201-383, Santiago de Chile, 1920-22.
94. Gusinde, Martin, Catálogo de los objectos originarios de la Isla de Pascua conservados en este Museo: Mus. Etnología y Antropología de Chile, Pub., vol. 3, pp. 200-244, Santiago de Chile, 1922.
95. Gusinde, Martin, Mütterrechtliche Eigentumsmarken von der Österinsel: Anthrop. Gesell. Wien, Mitt., vol. 60, pp. 352-355, 1930.
96. Haberlandt, M., Die Schrifttafeln der Österinsel: Globus, vol. 61, pp. 274-277, Braunschweig, 1892.
97. Haberlandt, M., Ueber Schrifttafeln von der Österinsel: Anthrop. Gesell. Wien, Mitt., vol. 16, pp. 97-102, 1886.
98. Hall, H. U., The orator's staff: Museum Jour., Mus. Univ. Pennsylvania, vol. 15, pp. 293-309, Philadelphia, 1924.
99. Hall, H. U., A woodcarving from Easter Island: Museum Jour., Mus. Univ. Pennsylvania, vol. 16, pp. 125-131, Philadelphia, 1925.
100. Hamilton, Augustus, Fishing and sea-foods of the ancient Maori: Dominion Mus., Bull. 2, Wellington, 1908.
101. Hamilton, James, Massacre at Easter Island; letter of . . . Lahaina, June 9th, 1856; The Friend, p. 50, Honolulu, July 1856.
102. Handbook to the ethnographical collections, British Museum, London, 1925.
103. Handy, E. S. C., Houses, boats, and fishing in the Society Islands: B. P. Bishop Mus., Bull. 90, 1932.
104. Handy, E. S. C., The native culture in the Marquesas: B. P. Bishop Mus., Bull. 9, 1923.
105. Harlez, C. de, L'Ile de Pâques et ses monuments graphiques, Louvain, 1896.

106. Harrison, J. P., Exhibition of photographs and implements from Easter Island: Roy. Anthrop. Inst. Great Britain and Ireland, Jour., vol. 3, pp. 177-178, London, 1873.
107. Henry, Teuira, Ancient Tahiti: B. P. Bishop Mus., Bull. 48, 1928.
108. Hentze, Carl, Notes sur l'Ile de Pâques. Perruque de la statuette Pinart (Trocadéro): Soc. des Américanistes de Belgique, Bull., pp. 118-119, Brussels, December 1932.
109. Hornell, James, The canoes of Polynesia, Fiji and Micronesia; vol. 1 of Haddon, A. C., and Hornell, James, Canoes of Oceania: B. P. Bishop Mus., Sp. Pub. 27, 1936.
110. Im Thurn, Everard, The island of the stone statues: Nature, vol. 105, pp. 583-584, London, 1920.
111. Ivens, W. G., Island builders of the Pacific, Philadelphia (n.d.).
112. Jaussen, Tepano, Les bois parlants de l'Ile de Pâques: Soc. des Etudes Océaniennes, Bull., vol. 5, no. 55-56, pp. 537-542, 583-588, Papeete, 1936.
113. Jaussen, Tepano, Destruction d'une Chrétienté: Les Missions Catholiques, vol. 6, pp. 382-386, Lyon, 1874.
114. Jaussen, Tepano, L'Ile de Pâques. Historique et écriture: Bull. de Géorg. Hist. et Descriptive, no. 2, pp. 240-270, Paris, 1893.
115. Jaussen, Tepano, L'Ile de Pâques. Historique et écriture: Bull. de Géogr. Hist. et Descriptive, no. 2, pp. 240-270, Paris, 1893.
116. Karutz, Mittheilungen aus dem Museum für Völkerkunde zu Lubeck: Internat. Archiv. f. Ethnogr., vol. 13, pp. 151-155, 1899.
117. Knapp, G., Deux statuettes de l'Ile de Pâques; Soc. Neuchâteloise de Geogr., Bull., vol. 20, pp. 464-466, 1910.
118. Knoche, Walter, Beobachtungen und Erkundigungen auf der Österinsel: Deutschen Wissenschaftl. Vereins zu Santiago de Chile, vol. 7, pp. 401-402, 1920.
119. Knoche, Walter, Cráneos marcados de la Isla de Pascua: Revista Chilena de Hist. y Geogr., vol. 12, pp. 344-346, Santiago de Chile, 1914.
120. Knoche, Walter, Ein atypischer Kopf aus Pechstein von der Österinsel: Zeit. f. Ethnol., vol. 60, p. 386, Berlin, 1929.
121. Knoche, Walter, Einige Beobachtungen über Geschlechtsleben und Niederkunft auf der Österinsel: Zeit. f. Ethnol. vol. 44, pp. 659-661, Berlin, 1912.
122. Knoche, Walter, Ein Märchen und zwei kleine Gesänge von der Österinsel: Zeit. f. Ethnol. vol. 44, pp. 64-72, Berlin, 1912.
123. Knoche, Walter, Die Österinsel, Concepción de Chile, 1925.
124. Knoche, Walter, Tres notas sobre la Isla de Pascua: Revista Chilena de Hist. y Geogr., vol. 2, pp. 442-466, Santiago de Chile, 1912.
125. Knoche, Walter, Vorläufige Bemerkung über die Entstehung der Standbilder auf der Österinsel: Zeit. f. Ethnol., vol. 44, pp. 873-877, Berlin, 1912.
126. Knoche, Walter, Waren die Toromiro der Österinsel Marionetten?: Zeit. f. Ethnol., vol. 59, pp. 95-98, Berlin, 1928.
127. Kotzebue, Otto von, A voyage of discovery into the South Sea and Bering Straits, 3 vols., London, 1821.
128. Lacroix, Alfred, Composition minéralogique des roches volcaniques de l'Ile de Pâques: Comptes rendus des séances de l'Acad. des Sci., vol. 202, p. 527, séance du 17 fevrier, Paris, 1936.
129. Lapelin, T. de, L'Ile de Pâques: Rev. maritime et coloniale, vol. 35, pp. 105-125, 526-544, Paris, 1872.

130. La Pérouse, J. F. de G., Voyage de . . . autour du monde, Paris, 1797 (English translation, London, 1798).

131. Lavachery, Henri, Les bois employés dans l'Ile de Pâques: Soc des Américanistes de Belgique, Bull., pp. 67-71, March 1934.

132. Lavachery, Henri, Contribution à l'étude des statuettes en bois de l'Ile de Pâques: Soc. des Américanistes de Belgique, Bull., pp. 13-43, June 1932.

133. Lavachery, Henri, Easter Island, Polynesia: Smithsonian Inst., Ann. Rept. Board of Regents, pp. 391-396, 1936.

134. Lavachery, Henri, Ile de Pâques, Paris, 1935.

135. Lavachery, Henri, La Mission Franco-Belge dans l'Ile de Pâques: Soc. Roy. de Geogr. d'Anvers, Bull., pp. 3-51, 1935.

136. Lavachery, Henri, Notes sur l'Ile de Pâques. Perruque de la statuette Pinart (Trocadéro): Soc. des Américanistes de Belgique, Bull., pp. 118-119, December 1932.

137. Lavachery, Henri, Notes sur l'Ile de Pâques: Soc. des Américanistes de Belgique, Bull., pp. 96-100, Brussels, August 1933.

138. Lavachery, Henri, Tablette Keiti: Soc. des Américanistes de Belgique, Bull., pp. 101-102, August 1933.

139. Lehmann, Walter, Essai d'une monographie bibliographique sur l'Ile de Pâques: Anthropos, vol. 2, pp. 141-151, 257-258, Salzburg, 1907.

140. Lesson, P. A., Les Polynésiens, leur origine, leur migration, leur language, 4 vols., Paris, 1880-84.

141. Linton, Ralph, Archaeology of the Marquesas Islands: B. P. Bishop Mus., Bull. 23, 1925.

142. Linton, Ralph, The material culture of the Marquesas: B. P. Bishop Mus., Mem., vol. 8, no. 5, 1923.

143. Lisiansky, Urey, Voyage round the world, 1803-1806, London, 1814.

144. Loppé, Etienne, Note sur une sculpture en pierre d'Ile de Pâques: L'homme Préhistorique, nos. 6-8, 15th year, pp. 172-174, Paris, 1928.

145. Loti, Pierre (Julien Viaud), Expedition der Fregatte "La Flore" nach der Österinsel 1872: Globus, vol. 23, no. 5, pp. 65-68, Braunschweig, 1873.

146. Loti, Pierre (Julien Viaud), Reflets sur la sombre route, Paris (n.d.).

147. McKern, W. C., Archaeology of Tonga: B. P. Bishop Mus., Bull. 60, 1929.

148. Maclay, Miklukho, N. N., Ostrova Rapa-Nui, Pitkarn i Mangareva: Isvestia Imperatorskago Russkago Geographicheskago Obshchestva, vol. 8, no. 2, pp. 42-55, 1872.

149. Maclay, Miklukho, Ueber die "Rohau rogo rogo" oder die Holztafeln von Rapa-Nui: Gesell. f. Erdkunde, Zeit., vol. 7, pp. 79-81, Berlin, 1872.

150. Mahler, Richard, Siedelungsgebiet und Siedelungslage in Oceanien: Internat. Archiv f. Ethnogr. Suppl., vol. 11, Leiden, 1898.

151. Martinez, Edgardo, Vocabulario de la lengua Rapa-nui, Isla de Pascua, Santiago de Chile, 1913.

152. Meinicke, C. E., Die Inseln des Stillen Oceans, Leipzig, 1888.

153. Métraux, Alfred, Easter Island sanctuaries: Ethnol. Stud., vol. 5, pp. 104-153, Göteborg, 1937.

154. Métraux, Alfred, The proto-Indian script and the Easter Island tablets. (A critical study): Anthropos, vol. 33, pp. 218-239, 1938.

155. Métraux, Alfred, Numerals from Easter Island: Man, vol. 26, no. 254, 1936.

156. Métraux, Alfred, Polynesian traditions of voyages to Easter Island: Soc. des Américanistes de Belgique, Bull., pp. 129-138, Brussels, December 1937.

157. Métraux, Alfred, Relief carving on stone in Polynesia: Ethnos, vol. 2, pp. 340-344, Stockholm, 1937.

158. Métraux, Alfred, Two Easter Island tablets in the Bernice P. Museum, Honolulu: Man, vol. 38, no. 1, 1938.

159. Meyer, A. B., Bilderschriften des Östindischen Archipels und der Südsee: Königl. Ethnogr. Mus. zu Dresden, Pub. 1, 1861.

160. Meyer, A. B., and Jablonowski, J., 24 Menschenschädel von der Öster Insel: Königl. Zool. und Anthrop-Ethnogr. Mus. zu Dresden, Abh. und Ber., vol. 9, no. 4, 1901.

160a. Miklukho-Maklay, N. N., see Maclay (148, 149).

161. Moeller, Klara von, Die Österinsel und Peru: Zeit. f. Ethnol., vol. 69, pp. 7-22, Berlin, 1937.

162. Mokrenhout, J. A., Voyages aux Iles du Grand Océan, 2 vols., Paris, 1837.

163. Mott, A. H., Notes on Easter Island: Lit. and Phil. Soc., Liverpool, Proc., vol. 35, pp. 159-191, London, 1880-81.

164. Mouly, R. P., Ile de Pâques, ile de mystère, Paris, 1935.

165. Olliver, Pacôme, Lettre du R. P. . . . au T.R.P. Euthyme Rouchouze: Ann. de l'association de la propagation de la foi, vol. 38, pp. 46-51; vol. 39, pp. 250-259, Lyon, 1867.

166. Ovarzun, Aureliano, Romas de la Isla de Pascua: Congr. Interna. de los Americanistas (25th session, La Plata, 1932), vol. 2, pp. 107-111, Buenos Aires, 1934.

167. Ovarzun, Aureliano, Toromiros de la Isla de Pascua: Revista Chilena de hist. nat., vol. 25, pp. 133-140, Santiago de Chile, 1921.

168. Palmer, J. Linton, Davis or Easter Island: Lit. and Phil. Soc., Liverpool, Proc., vol. 29, pp. 275-297, London, 1875.

169. Palmer, J. Linton, Observations on the inhabitants and the antiquities of Easter Island: Ethnol. Soc., London, Jour., vol. 1, pp. 371-377, 1869.

170. Palmer, J. Linton, On some tablets found in Easter Island: Lit. Phil. Soc. Liverpool, Proc., vol. 30, pp. 255-263, London, 1875-1876.

171. Palmer, J. Linton, A visit to Easter Island, or Rapa Nui, in 1868: Roy. Geogr. Soc. Jour., vol. 40, pp. 167-181, London, 1870.

172. Palmer, J. Linton, A visit to Easter Island, or Rapa Nui: Roy. Geogr. Soc., Proc., vol. 14, pp. 108-119 (discussion p. 117), London, 1870.

173. Park, H. J., The hieroglyphics of Easter Island: Roy. Anthrop. Inst. Great Britain and Ireland, Jour., vol. 3, pp. 370-383, London, 1874.

174. Park, H. J., Note on five hieroglyphic tablets from Easter Island: Roy. Anthrop. Inst. Great Britain and Ireland, Jour., vol. 5, pp. 248-250, London, 1876.

175. Petri, Helmut, Eine Schädelserie von der Österinsel: Anthrop. Gesell. Wien, Mitt., vol. 66, pp. 17-29, 1936

176. Philippi, R. A., Iconografia. De la escritura jerográfica de los indígenas de la Isla de Pascua: Univ. de Chile, Ann., vol. 47, pp. 670-683, Santiago de Chile, 1875.

177. Philippi, R. A., Sobre la Isla de Pascua: Revista de Santiago, vol. 3, pp. 227, 292, 424, 442, Santiago de Chile, 1872-1873.

178. Pinart, Alphonse, Voyage à l'Ile de Pâques: Le Tour du Monde, vol. 36, pp. 225-240, Paris, 1878.

179. Piotrowski, A., Deux tablettes, avec les marques gravées de l'Ile de Pâques, de la collection de N. N. Mikloukho-Maklay (Musée d'Anthropologie et d'Ethnographie de l'Académie des Sciences de Russie): Rev. d'Ethnogr. vol. 6, pp. 425-531, Paris, 1925.

180. Powell, W. A., Detailed report upon Easter Island, or Rapa-nui: Roy. Geogr. Soc. Australasia (South Australian branch), Proc. (Session 1888-89), vol. 3, pp. 138-142, Adelaide, 1899.

181. Prat, Augustin, La Isla de Pascua: La Tarde, January 7 and 10, Santiago de Chile, 1903.

182. Rahm, Gilbert, Observaciones sobre los grupos sanguineos en la Isla de Pascua: Soc. Biologica de Concepción (Chile), Bull., vol. 56, pp. 59-64, 1931-32.

183. Rahm, Gilbert, Die Rätsel der Österinsel: Die Umschau, vol. 38, Frankfort a.m., 1934.

184. Ratzel, Friederich, Die Naturvölker Ozeaniens, Amerikas und Alten: Völkerkunde, vol., 2, Leipzig, 1886.

185. Rivers, H. R., The statues of Easter Island: Folklore, vol. 31, pp. 294-306, London, 1920.

186. Roggeveen, Jacob, Extracts from the official log of Mynheer J. Roggeveen (1721-22): Hakluyt Soc., 2d ser., vol. 13, London, 1908.

187. Ropiteau, André, Une visite au Musée missionaire des Pères des Sacrés Coeurs de Picpus: Soc. des Etudes océaniennes (Polynésie orientale), Bull., vol. 5, no. 55, pp. 518-527, Papeete, 1935.

188. Ross, A. S. C., Fontes linguae Paschalis saec. XVIII: Soc. des Américanistes de Belgique, Bull. pp. 15-39, Brussels, March 1937.

189. Ross, A. S. C., Preliminary notice of some late eighteenth century numerals from Easter Island: Man, vol. 36, no. 120, 1936.

190. Roussel, Hippolyte, Ile de Pâques: Ann. des Sacrés Coeurs, nos. 305-309, pp. 355-360, 423-430, 462-466, 495-499, Paris, 1926.

191. Roussel, Hippolyte, Vocabulaire de la langue de l'Ile de Pâques ou Rapa nui: Le Muséon, nos. 2-3. pp. 159-254, Louvain, 1908.

192. Routledge, C. S., The bird cult of Easter Island: Folklore, vol. 28, pp. 337-381, London, 1917.

193. Routledge, C. S., The mysterious images of Easter Island: Wonders of the Past, by J. A. Hammerton, vol. 3, pp. 791-804, 1924.

194. Routledge, C. S., The mystery of Easter Island, London, 1919.

195. Routledge, C. S., Survey of the village and carved rocks of Orongo, Easter Island, by the Mana Expedition: Roy. Anthrop. Inst. Great Britain and Ireland, Jour., vol. 50, pp. 425-451, London, 1920.

196. Rüdinger, N., Die Rassenschädel und Skelette in d. Königl. Anatom. Anstalt zu München: Archiv f. Anthrop., vol. 20, p. 116, Braunschweig, 1892.

197. Sandberg, H. O., Easter Island, the mystery of the Pacific: Pan-American Union, Bull., vol. 35, pp. 897-908, Washington, 1912.

198. Schüller, Rudolf, Ergänzungen zur "Monographie bibliographique sur l'Ile de Pâques", par le Dr. W. Lehmann: Globus, vol. 92, pp. 270-271, Braunschweig, 1907.

199. Schulze-Maizier, Friedrich, Die Österinsel, Leipzig.

200. Seligman, C. G., Note on an obsidian axe or adze blade from Papua: Man, no. 91, 1915.

201. Seurat, L. G., Légendes des Paumotu: Rev. des Traditions Populaires, vol. 20, pp. 433-440, 481-488, Paris, 1905.

202. Shapiro, H. L., Mystery Island of the Pacific: Nat. Hist. vol. 35, no. 5, pp. 365-377, New York, 1935.

202a. Schmidt, Hans, Die Steinbilder-Typen der Österinsel und ihre Chronologie (Doctor's thesis of the University of Hamburg), 1927.

203. Shortland, Edward, Traditions and superstitions of the New Zealanders, London, 1854.

204. Skinner, H. D., The Easter Island figures: Folklore, vol. 33, pp. 296-299, London, 1922.

205. Skinner, H. D., The Easter Island script: Polynesian Soc. Jour., vol. 41, p. 323, 1932.

206. Skinner, H. D., The Morioris of Chatham Islands: B. P. Bishop Mus., Mem., vol. 9, no. 1, 1923.

207. Skinner, H. D., Manuscript in B. P. Bishop Museum.

208. Skottsberg, Carl, The natural history of Juan Fernandez and Easter Island, Uppsala, 1920.

209. Smith, S. P., History and traditions of Rarotonga: Polynesian Soc., Jour., vols. 28, 29, 30, 1919-21.

210. Steele, R. H., Experiments in Kaitahu (Ngai-Tahu) methods of drilling: Polynesian Soc., Jour., vol. 39, pp. 181-188, 1930.

211. Steele, R. H., The Maori sewing-needle: Polynesian Soc., Jour., vol. 39, pp. 310-314, 1930.

212. Stokes, J. F. G., Ethnology of Rapa, Manuscript in B. P. Bishop Museum.

213. Stolpe, Hjalmar, Pask-ön: Ymer, Tredje Arg. H. 5, pp. 150-199, Stockholm, 1883.

214. Stolpe, Hjalmar, Ueber die Taetowierung der Öster-Insulaner: Königl. Zool. und Anthrop.-Ethnogr. Mus. zu Dresden, Abh. und Ber., Festschrift, no. 6, 1899.

215. Thomson, W. J., Te Pito te Henua or Easter Island: U.S. Nat. Mus., Ann. Rept., pp. 447-552, 1889.

216. Thrope, W. W., An inscribed wooden gorget from Rapanui (Easter Island); Polynesian Soc., Jour., vol. 33, pp. 149-150, 1924.

217. Thrum, T. G., Hawaiian temple structures: B. P. Bishop Mus., Sp. Pub. no. 7, pp. 86-90, 1921.

218. Tregear, Edward, Easter Island: Polynesian Soc., Jour., vol. 1, pp. 95-102, 1892.

219. Valenzuela, Zósimo, La Isla de Pascua, Santiago de Chile, 1912.

220. Vives Solar, J. I., Una antigua guerra en la Isla de Pascua: Rev. Chilena de Hist. y Geogr. vol. 23, pp. 237-320, 1919.

221. Vives Solar, J. I., Orejas grandes y orejas chicas: Rev. Chilena de Hist. y. Geogr. vol. 34, pp. 116-121, 1930.

222. Vivés Solar, J. I., Rapa Nui: cuentos Pascuences, Santiago de Chile, 1920.

223. Vivés Solar, J. I., Te poki Rapanui (El niño Pascuense), Santiago de Chile, 1923.

224. Volz, Wilhelm, Beiträge zur Anthropologie der Südsee: Archiv f. Anthrop. vol. 22, pp. 97-160, Braunschweig, 1894.

225. Watelin, L. C., Note sur l'ecriture de l'Ile de Pâques: Soc. des Américanistes de Belgique, Bull., pp. 63-66, Brussels, March 1934.

226. Weisser, Sammlung von der Österinsel: Original-Mittheil aus der Ethnol. Abt. d. Königl. Mus. zu Berlin, vol. 1, p. 2, Berlin, 1885.

227. Williams, H. W., The Maori whare: Polynesian Soc., Jour., vol. 5, pp. 145-154, 1896.

228. Williamson, R. W., The social and political systems of central Polynesia, 3 vols. Cambridge, 1924.

229. Young, J. L., Remarks on phallic stones from Rapanui: B. P. Bishop Mus., Occ. Papers, vol. 2, no. 25, p. 31, 1904.

230. Zumbohm, Gaspard, Lettres du R. P. . . . au Directeur des Annales sur la mission de l'Ile Pâques: Ann. de la Congregation des Sacrés-Coeurs de Jésus et de Marie, vols. 5-6, Paris, 1879-80.