

All this is the more necessary because the Maori of to-day knows little of his forefathers' arts—knows very often neither their names nor their uses. Indeed, curio-hunters have bought so largely that the Maoris themselves retain scarcely any of these old works, and to-day, at the close of 1904, the only chance for a new collector is to ransack European shops, and occasionally buy from a European collector. The few Englishmen who really have a great knowledge of these things are dying out, and several are letting their knowledge die with them. Ere it is lost I put into this paper what I have learnt about these dredges.

RARITY.

Looking over Edge Partington's and other works describing Polynesia, I find no trace of these dredges outside New Zealand. They were invented by the Maoris, and were theirs solely, their Polynesian kinsfolk knowing nothing of them. *Roukakahi*, having been invented by Maoris, cannot be of an older date than the advent of the canoes from Hawaiki, and doubtless were not invented till long after—probably were invented within the last two centuries. In New Zealand to-day they are amongst the rarest of their works of art. I got one about two months ago, and, strange to say, another about a week later. There is one in the British Museum figured in Partington's book, one in the Christchurch Museum, and two in the Auckland Museum; there are two in a shop, and Mr. Hamilton and Mr. Turnbull, in their fine collections, have one each; the Wellington Museum also owns one: making the total number, including mine, eleven. Of course there are others, but nevertheless they are rare.

As Maoris now get plenty of animal food, and as their numbers are smaller, the need for getting large supplies of fresh-water mussels lessens year by year: there are ample in shallow waters. Elsdon Best, that splendid worker and authority upon all Maori works, says that shellfish in Tuhoeland are not now eaten. These dredges, therefore, are now never used, and no new dredges are made. After a diligent search amongst the Maori literature of Angas, Colenso, White, Hamilton, &c., I have found only very brief stray references to them. This is an attempt to detail their history, their structure, and their uses, and these are the first ever exhibited before this society.

NAME.

The Maoris had two sorts of dredges, one with teeth, the other without. The rake dredges were used in the shallow lakes abounding in the hot-lakes district: these were called *roukakahi*. The plain or toothless dredges were employed in Lake Taupo, and were used to catch crayfish (*koura*). Best says

another name for *roukakah* was *heki*. Tregear's Dictionary gives *rou*, "a long stick to reach anything with, to reach by means of a long pole, or to move or stir about with a pole." As these dredges were always tied to long poles, and by these means were rolled or stirred about at the bottom of the lake to collect the shell-fish, the origin of the word *roukakahi* is clear. *Kakahi* is the common fresh-water shell-fish (*Unio*) lying partly imbedded in the lacustrine mud. Every dredge consisted of a long pole, a *rou*, a dredge, and a net and sinker. The stone sinker was called *mahikea*, the rope *kaha*, and the flax-net *rori*. *Roukakahi* were also used to catch crayfish.

The *hao* was the toothless dredge used for crayfish-gathering in the waters of Lake Taupo. Its frame was stouter, it was uncarved, and less care was bestowed on its construction. *Hao*, in Maori, means "to draw round, or to collect fish, as in a net."

I have an extremely rare Maori curio, shaped like a marlin-spike, called *ahao*. At the base a hole was bored in it, and it was used to pass strings through the gills of dead sharks, &c., to collect them together.

In Tuhoeland Best says Maoris fished sometimes for *koura* with a net drawn along the bottom, but without a dredge attached, and such nets were called *paepae*. In the Horowhenua Lake to-day Maoris fish for *kakahi* with a net like a *paepae*, but never trouble to create a dredge.

I happened to show this carved *roukakahi* to Major Whitney, a sportsman of the widest culture, and the moment he saw it he exclaimed, "An English oyster-catcher." As a boy he had seen oyster-dredges, made of iron, exactly similar in make and principle—a triangle with raking teeth, and holes as seen in this one, and notches to tie on the net-strings. He knew all about this dredge directly he saw it. As dredges were used by Maoris long before Captain Cook's arrival, it is clear the Maori and the Severn fisher evolved an almost similar instrument to meet almost identical needs. In Cornwall similar toothed dredges were called "rake dredges."

DISTRIBUTION AND USES.

My black *roukakahi* was bought from a chief of the Ngati-rangiwehewi Tribe, of the Awahou Pa, a few miles from Rotorua. The other, with the net, was owned by a member of another hapu of the great Arawa Tribe.

Roukakahis were used in shallow lakes, but never in rivers or on the sea-shore. Apparently they did not exist south of Lake Taupo, where the *hao* was used in the shallower parts about Toka-anu. They were in use in Rotorua and adjacent lakes, and scarcely at all elsewhere. From all time Maoris, and especi-

ally Maori women, have collected shell-fish by wading into water as deep as they could go, but as they found the *kakahi* lived in great numbers in the deeper waters they invented this clever and complex machinery for gathering them at greater depths, and these dredges served admirably. The limit of depth at which they could be used was bounded by the length of the tallest pole they could find in the adjacent forest.

When Maoris fished with a *roukakahi* they acted as follows : A Maori stood up in the stern of the canoe, and this *roukakahi* was slipped over the side with its attached net, and tied to it was a sinker of volcanic stones. Some dredges had three sinkers. Attached to the apex of the triangle, firmly bound to it by strong flax string, was a long pole, the one end at the apex, the other in the hands of the fisher. The Maori felt about until the dredge touched bottom, then he began to work. He rolled the stick about from side to side, and, of course, the dredge at the bottom, and so he went on dragging the dredge and the net, now fast filling with shell-fish. This was very laborious and tiring work. Mr. J. T. Smith says in a previous article in the Transactions that this work was hard and fatiguing, and an old Maori couplet praised a Maori who worked long and industriously at it as being a particularly good husband—a great provider of shell-fish. Colenso, in his collection of Maori proverbs, mentions "*Taane roukakahi moea*," which he translates, "The husband who is dexterous at getting shell-fish in deep water will find a loving wife." Strange to say, Colenso adds in his comment that the work of gathering shell-fish in deep water was very arduous, and writes as though he had never seen or heard of these dredges. Having *roukakahi*-ed one patch of lake-bottom, the canoe was paddled to fresh ground, and the work began anew.

On Lake Taupo, where fresh-water crayfish were caught, the method of using a toothless dredge, or *hao*, was slightly different. My friend Mr. L. Grace tells me that the canoe was fastened to a tree on the bank, and then rowed out to the full length of a many-fathomed rope. The *hao* was put overboard, but not worked from side to side in the same way as a *roukakahi*; the long pole was so held that the apex and part of the dredge were a little distance above the lake-floor. In this way the hopping crayfish were enfolded in the net. The Maori in the bow slowly pulled the canoe over the lake's surface till it got to the tree anchor, whilst the Maori in the stern held the dredge in proper position to catch the *koura*. The upper lid of the net was kept open by means of a string tied to it and the long pole, and thus it was kept open wide enough to engulf the *koura*. The apex of the dredge was held a few inches from the bottom in order better to catch the jumping crayfish.

A *roukakahi* thus richly carved, with its attendant implements, was a work of toil and care and art. In bygone times it was highly prized, and was the property of a *rangatira*. When out of use it was hung up carefully high in the whare, where smoke and soot have given this one its rich deep-black colour. Nets wore out quicker than the dredges, but these were easily replaced: one dredge would serve for whole generations of nets.

DESCRIPTION OF DREDGE.

Every dredge consisted of a long pole, the dredge proper, a net, and sinker or sinkers to complete the outfit. Any rough-cut pole out of the bush was used: this was not carved. Dredges were usually made out of *manuka*, and of two pieces of wood. They were never carved out of a solid block of wood. In shape each dredge was an isosceles triangle—a long base and two short sides. My ancient black one is 36 in. over all at the base, and the space between the sides at the base is 29 in.; from base to apex is 15 in. The other dredge, with net attached, and uncarved, is 41 in. at the base, and inside is 33 in.; distance from base to apex, 11 in. At each of the basal angles the timber of the sides was thick and wide, but the sides tapered off to a blunt point. These sides never met at the apex: they were cut 1 in. or $1\frac{1}{2}$ in. apart there, and their ends bored with two holes each. These holes were tied together with many folds of strong flax twine bridging the gap. To these collected strands of tough twine the end of the pole was tied, and thus a sort of hinge was made and freer play was allowed between the pole and dredge. Along the base was studded a row of teeth. These teeth consisted of rounded black hard pegs, each about 6 in. long. They were most tightly bound to the base, and pointed forward, but not in the same plane as the dredge, but at such an angle as would dip slightly into the mud and rake up the shells into the net. In one the teeth are twenty-four in number. Starting from the left-hand corner there are eight teeth; then comes down the upright beam, then eight more teeth; the upright beam again, and eight more in the third space. These pegs were tied in the strongest possible manner to the base by flax and other harder plants. The dredge, its timbers all blackened by lake mud and *whare* smoke, with its beautiful carvings, thus makes a most charming specimen of ancient Maori art.

HOW THE DREDGE IS STRENGTHENED.

On reference to the photographs it will be seen that the dredge is greatly strengthened by two beams extending at right angles from the base to the sides. The long base was strengthened by these beams. The base between the angles was divided into

thirds, and from the junction of each third ascended a beam. Each beam was a hook, and the hook embraced the base, and by its projection formed an additional but shorter tooth. Each beam was about $\frac{3}{4}$ in. wide. For about its final inch it laid flat against the side, and was tightly fastened by passing plaited flax through a hole in the side. Near where each upright beam touches the side ran a beam parallel with the base, and crossing the upright beams at right angles. This beam reached from side to side, being firmly lashed to each side and to each beam the three beams making the dredge far stronger.

THE CARVED FIGURES ON THE DREDGE.

My ancient Maori dredge and all the older ones were adorned with carvings of human figures, almost certainly in all cases representing a deity. Both the ends of the sides near where the directing-pole was tied carry a carved figure, the head of a man. On either side of the base is carved the figures such as one sees on a greenstone *heitiki*. The carving on this dredge is very clean, and a Maori expert declares it to be very fine and old.

Europeans often think these carved figures were placed there for mere decoration, and because the Maori loved art and liked to have pretty things about him. In the vast majority of Maori carvings, however, they were done not for decorative but for religious purposes. Figures on bone and greenstone *tiki*s always depicted an ancient god or a revered half-deified ancestor. An ancient Maori's whole life was immersed in religion and religious ceremonies. If he went to war, or got married, or was baptized, or planted a *kumara*, or went rat-catching or fishing, he or his priests performed religious rites and chanted figures. He scarcely made any move without performing some act of religion—to give him success or to avert disasters. The old Maori world was peopled with gods whom he did not love, but whom he feared. His gods were nearly all cruel gods. These *roukakahi* carvings, therefore, were representations of some ancient Maori god or gods. In the "Transactions of the New Zealand Institute" Best gives a hymn sung by the Maoris when about to eat the shell-fish dredged by the *roukakahi*. It was sung when the shells were brought to the feasts—"Tane *roukakahi e*"—and thanks Tane for giving such a liberal supply of food. Best's translation reminds one of the harvest hymn—

Lord of the harvest, once again
We thank thee for the ripened grain.

My more modern dredge with net attached has no carving. The old one was carved when Maoris began a fishing excursion with religious rites: he took a dredge with these half-human,

half-divine figures carved—carried his god or gods with him. The modern Maori, performing no ancient rites, never bothers about carving semi-divine figures—hence this modern dredge is quite plain. The old dredges exhibit kindred carvings of deities, and probably, as Tane was addressed in Best's hymn, these figures are images of that great god.

THE NET.

The net (*rori*) is a sort of basket: it is 31 in. from top to bottom, and averages from side to side 33 in. Its meshes are diamond-shaped, of knotted flax; each open space is $1\frac{1}{2}$ in. long by 1 in. wide; the meshes are wide enough to let all the mud run away, but fine enough to hold the shell-fish. This net is a rectangular parallelogram: it has length and breadth, but has no sides for its thickness. The under side is tied closely along the under side of the dredge along its whole length. The upper side is tied to the holes in the dredge's sides. The upper side of the net of the *hao* was tied by a string to the pole about 2 ft. above its attachment to the *hao*: in this way the mouth of the net was kept open some inches above the *hao*, so that even if an affrighted *koura* tried to jump above the approaching *hao* it would not jump high enough to clear the net, but fall into it.

THE SINKER.

A necessary part of the *roukakahi* was a sinker: some had three small sinkers instead of one large one. Occasionally sinkers made of soft stone were slightly carved. The sinker photographed is a large, round, heavy stone. All round it is a shallow groove for the rope to lie in, and another runs round at right angles to the first. Each groove is 24 in. in length. The base of the sinker, instead of being rounded like the rest, has been cut off smoothly, and thus a broad, flat surface lies in the lake-mud. When three smaller sinkers were used one was attached to each angle of the dredge.

ART. IV.—*The Early History of the Morioris.*

By A. SHAND, Chatham Islands.

Communicated by Professor H. B. Kirk.

[Read before the Wellington Philosophical Society, 3rd August, 1904.]

THE predisposing cause of the advent of the Moriori people to the Chatham Islands from their ancestral homes in Polynesia, as stated by themselves, was war and fighting—or, as they phrase it, “the trouble in Hawaiki.” This is detailed by them in their