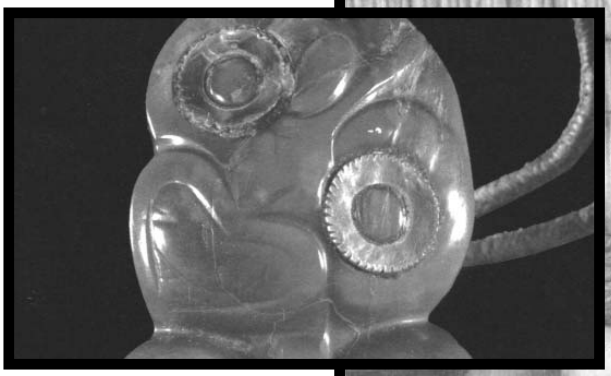
Auckland Museum

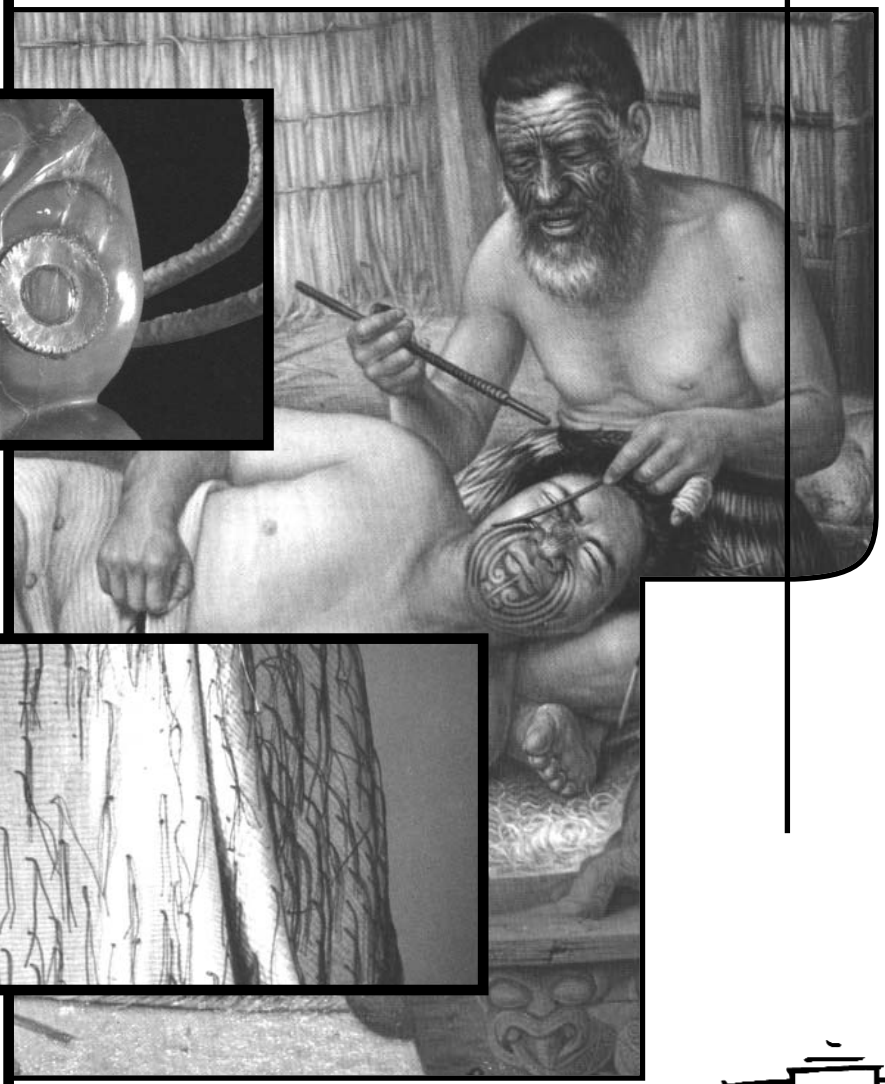
Maori Technology

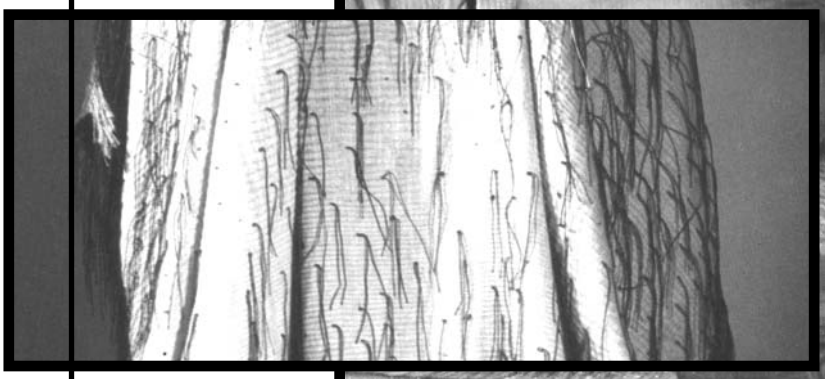
TE AO KOHATU

education kit

Tamaki Paenga Hira







TAMAKI PAENGA HIRA
AUCKLAND MUSEUM

BACKGROUND NOTES YEARS 1 TO 10

Contents

INTRODUCTION TO THE RESOURCE:

The education resources provided by Auckland War Memorial Museum focus on specific galleries or on specific exhibitions in those galleries. There are a small number of resources that were developed for exhibitions that are no longer present but which have been maintained on the website by popular demand.

Visiting education groups may book to request the following learning opportunities:

- Self-conducted visits based on supporting resource materials.
- Gallery Introduction with a Museum Educator or trained guide (approx 15 minutes), using resource materials. Longer gallery tours and Highlights Tours are also available.
- Hands-on activity session for school groups with a Museum Educator (approx 45-50 mins), using resource materials. Students have the opportunity to handle real or replica items from museum collections,

Sessions will be tailored to suit the level and focus of the visiting group.

ABOUT THIS EDUCATION RESOURCE:

This kit has been designed to meet the needs of a wide range of education groups.

The kit is in three separate sections and includes:

1. Teacher Background Material suitable for all levels
2. Curriculum Links from Pre-school to Adult [these are still under development]
3. Pre and Post Visit Activities and Gallery Activity Sheets

Some education services at Auckland Museum are provided under a contract to the Ministry of Education under the LEOTC programme and Ministry support is gratefully acknowledged.

BOOKING INFORMATION

All education group visits must be booked.

Phone: 306 7040 Fax: 306 7075

Email: schools@aucklandmuseum.com

Service charges apply to education groups depending on the level of service required.

Numbers and Adult/Child ratios:

Pre-school	1:3 or better
Y 1-6	1:6
Y 7-8	1:10
Y 9-13	1:30

All groups including Adult groups ought to be accompanied by their teacher or educator.

Adult/child interaction is vital to maximize the value of the museum experience. Group leaders need to have some background knowledge of what the students are expected to cover and they do need to participate in the introduction process on arrival. Knowing about the expectations of the class teacher and the museum will make the visit smoother for everyone.

www.aucklandmuseum.com

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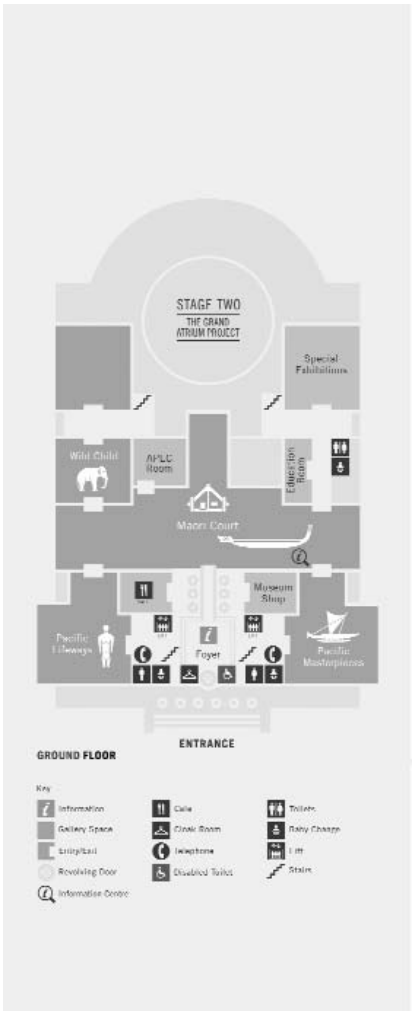
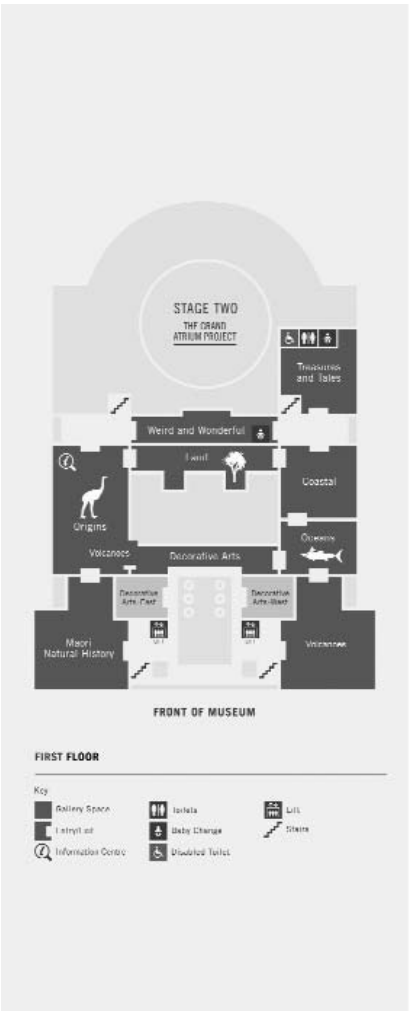
introduction

AN INTRODUCTION TO TE AO KOHAU

The Maori who first came to New Zealand had to adapt to a colder climate with unfamiliar natural resources. Warmer clothes had to be made, new horticultural techniques had to be developed and food had to be stored. New materials such as flax and pounamu (greenstone) were readily taken advantage of.





TE AO KOHATU
Maori Technology

The Maori who first came to New Zealand had to adapt to a colder climate with much more marked seasons. Warmer clothes had to be made and food could no longer be cultivated and collected all year round. New horticultural techniques had to be developed and food had to be stored.

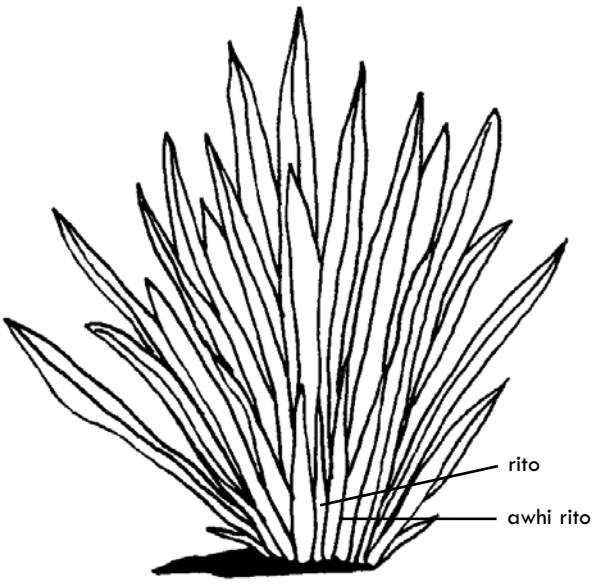
Many of the plants that were brought over to New Zealand did not survive the colder climate and had to be replaced with already existing plants. New materials such as flax and pounamu (greenstone) were readily taken advantage of.

FLAX

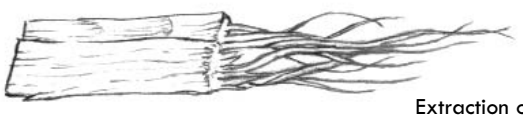
The first people to arirve in New Zealand wore clothes made from the bark of the Aute tree (paper mulberry). The New Zealand climate was too cold for this plant to survive and flax (harakeke) was used as an alternative. Flax had many other uses including: kete (baskets), whariki (mats), ra (sails), and taura (rope).

Certain conventions were and still are adhered to in collecting flax, much of which is to ensure longevity of the plant. The rito (young shoot in the center) and the awhirito (two leaves either side of the rito) are not cut, as it weakens the plant. Any trimmings and waste material are returned to the flax plant to rot, helping the growth of the plant by returning it to papa and enriching the soil.

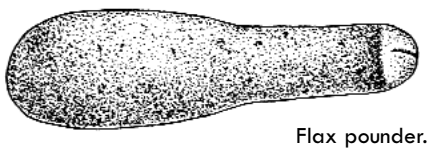
The different types of flax plants were used for different purposes depending on their properties. The flax leaf itself could be woven, or the muka (flax fibres) could be used from flax rich in fibre. The muka was extracted by removing the outer green layer from the leaf with a mussel shell.



Muka could be soaked in water and pounded with patu muka (flax pounders) to make it soft before plaiting or weaving. Feathers could be incorporated into the weaving of muka to make a feathered cloak. Muka could be dyed using mud or an infusion of boiled bark. The mud was chosen for its black or dark gray colour. It would be fed with particular combinations of decomposing leaves to enrich the colour. The colour was set by rolling the dyed fibre in hot white ashes.



Extraction of muka.



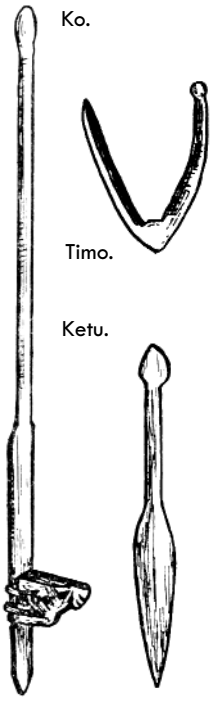
Flax pounder.

Piupiu are made from strips of flax leaves that have been dried in the sun. Drying causes the leaves to curl into the tube-like strands that make up the piupiu. The black stripes are made by scraping off the outer part of the leaf to expose the muka which is then dyed by the mud.

Piupiu.

GARDENING

The plants that were brought to New Zealand and successfully survived were kumara, gourd (hue), taro and yam (uwhi). Kumara was successfully cultivated at latitudes well south of its normal growing range. This was achieved by keeping the tubers alive in storage pits over the cold winter months and maximizing the sun's warmth in the growing season. They were planted in mounds of earth and stones. The stones absorbed the heat of the sun, providing warmth for the growing kumara.

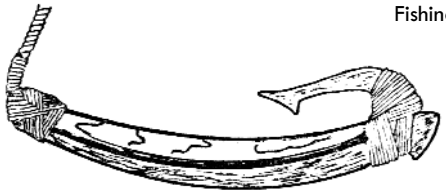


To prepare an area for cultivation, the scrub was first burnt and the ashes used as fertilizer. The ground was loosened with ko (pointed digging sticks) and sand and gravel was scattered over heavy clay soils to break it up. Windbreaks were built to protect the young plants and a smoke insecticide was created by burning kawakawa leaves or kauri gum to rid the plants of caterpillars. Timo and ketu were used to weed the crops. All gardening utensils were made out of hard wood such as matai and manuka. They were lashed together with aka, the tough pliant stem of climbing plants. Timo were fashioned from a forked branch and therefore required no lashings.

The stars and moon were carefully observed for each stage of cultivation. The appearance of certain constellations showed the coming of a new season and indicated when to begin planting or harvesting.

FISHING

Fishing techniques were already well developed throughout Polynesia by the time Maori reached New Zealand. The first settlers brought with them established technologies including nets, hooks, lures, spears, traps and dredges.



Fishing lure.

Flax replaced coconut fibres and other plant material to make fishing lines and nets. Paua shell replaced mother of pearl shell on fishing lures to attract fish. Traps were made from flexible branches such as vines or manuka branches.

Fishing Nets

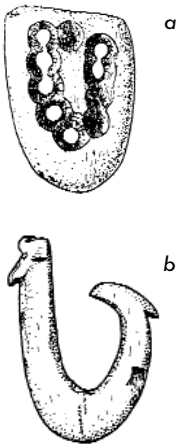
Fishing nets varied from tutoko — small hand nets, to kaharoa — huge seine nets more than a kilometer long and ten meters deep. Kaharoa may have caught several thousand fish in one haul. The bottom of the larger nets were weighed down with mahe (stone sinkers). Whau and houama, particularly lightwoods, were fashioned into poito, (floats). Gourds and pumice were also sometimes used as floats.

Fish Hooks

Hooks were fashioned from wood, bone and shell. Wooden hooks could be made by coiling a growing branch and securing it so it would continue to grow in the desired curved form. Once cut from the tree, the hooks were buried in the hearth beneath a fire to render them inflexible.

Bone hooks were made by drilling out the central part of the hook and filing smooth with sandstone.

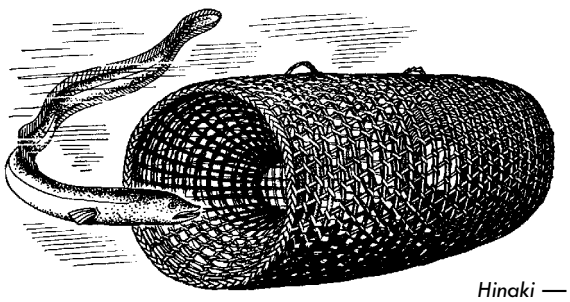
Mahe — Sinker.



Making a bone hook.

HINAKI

Hinaki were used to trap eel (tuna). The entrance of the hinaki narrows like a funnel. Eels could enter the trap by forcing their way through the funnel. Once inside, it was difficult for them to exit the narrow end of the funnel. In the north of the North Island, they were made of the strong flexible branches of mangemange (climbing fern). In the south, mangemange was not available and stronger traps had to be made for swifter flowing rivers. Split aerial roots of kiekie were used.

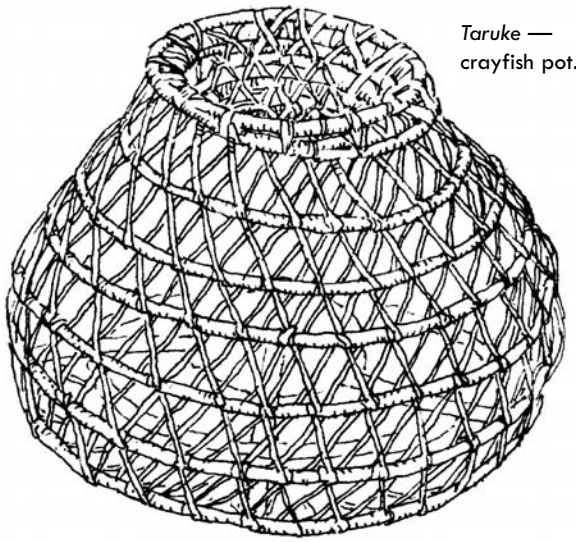


Hinaki — eel trap.

Eels migrating seaward in autumn were directed into hinaki by barriers (weirs) built of posts driven into the riverbed.

Taruke

Taruke were used to catch crayfish. Crayfish would fall through the opening and the flax net at the mouth of the opening prevented them from escaping. They were made from young manuka stems, bent round a supplejack and manuka frame and tied together with flax and vines.



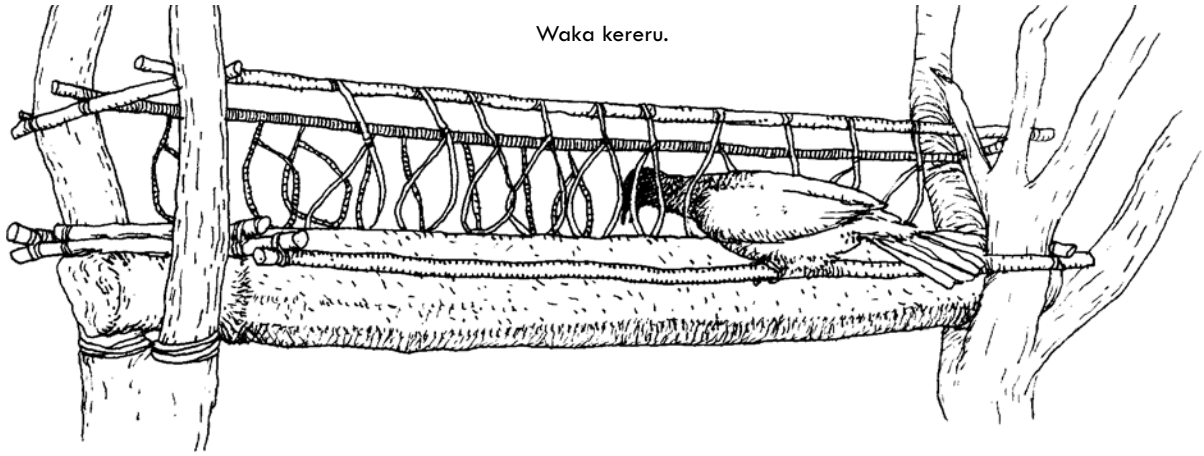
Taruke — crayfish pot.

BIRDING

The extensive forests of New Zealand teemed with bird life. Maori developed birding techniques that were unknown in the rest of Polynesia. Methods of catching birds utilized knowledge of their feeding habits on various trees when flowering and producing fruit. Domesticated birds were sometimes used to attract prey to traps. Some of the snares used included:

Waka kereru

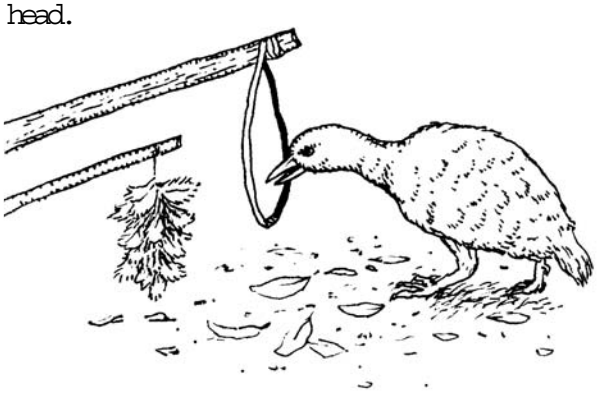
This trap was filled with water and was set out when the miro berries were in season to catch kereru (wood pigeon). The berries made the birds very thirsty and they were attracted to the troughs of water. If they put their head through a noose, it tightened when the bird attempted to fly away.



Waka kereru.

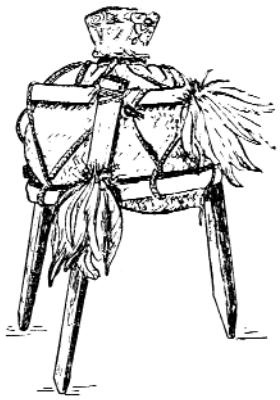
Taki weka

While the inquisitive weka was attracted to the bundle of feathers the noose was slipped over its head.



FOOD STORAGE

Much of the food was collected in the warmer months and needed to be preserved for winter. Fish were dried in the sun. The removal of water ensured bacteria could not survive in the flesh. Birds were cooked and placed in gourds sealed in their own fat. Cooking killed any bacteria present and the fat seal prevented contamination by subsequent bacteria. The gourds would be decorated with the feathers of whatever bird was inside to label its contents.



Decorated gourd.

Kumara, unable to grow all year round, were stored in rua kumara – low roofed storage pits in the ground. Soil, an effective insulator, maintained an even temperature necessary to keep the tubers alive over winter. The location of the pits were carefully chosen in slopping ground to ensure good drainage. Once dug, the pits were disinfected using fire. They were lined with decaying wood and ferns to absorb moisture and aid insulation.

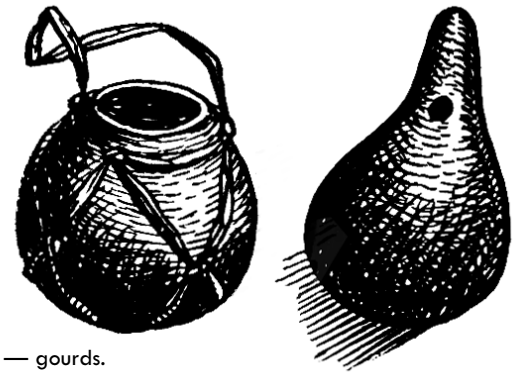
HANGI

Hangi are earth ovens that cook food using steam generated by water and heated stones.

A fire is started in a pit, using slow burning hardwood such as manuka, kanuka or puriri. Stones are placed in the fire. These stones are chosen for their ability to hold heat without shattering. Once the fire has burnt out, shellfish (if available) are first placed on the heated stones. They release salt water to provide steam and flavour. Mats are layered on next, followed by meat and lastly vegetables. The food was traditionally wrapped in leaves of particular plants to add flavour and prevent drying out. Water is sprinkled over the food to provide steam. Lastly, topsoil covers the hangi to insulate the cooking food and prevent loss of steam.

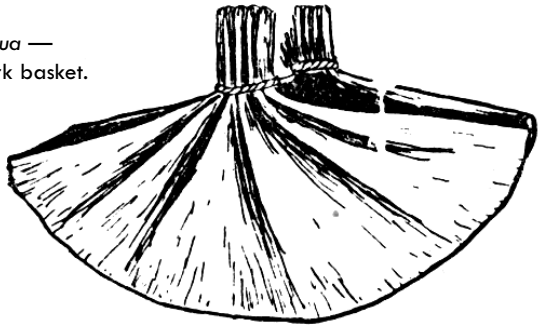
VESSELS

Hue (gourds), patua (bark baskets) and kumete (carved wooden bowls) were used for storing liquids. When ripe, the rind of hue becomes very hard and the inner flesh dries into a spongy matter that adheres to the inside of the gourd. Small stones were placed inside and the vessel shaken to loosen the desiccated flesh from the rind.



Hue — gourds.

Patua were made from a single sheet of inner bark from totara or manuka. The bark was generally steamed, aiding pliability so it could be bent into shape. The ends were tied to maintain the desired form. Apertures were filled with vegetable gum or clay.



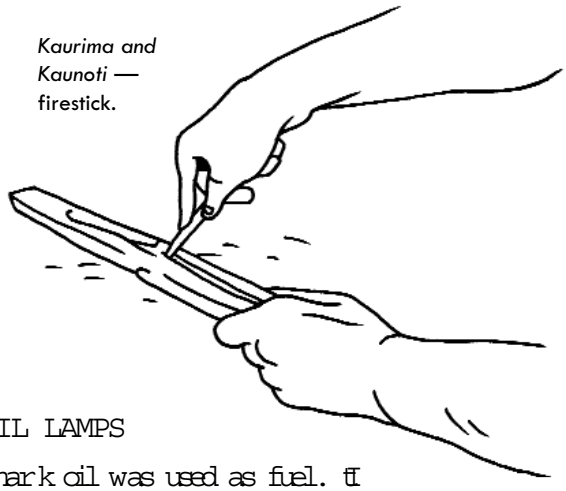
Patua — Bark basket.

BOILING WATER

Without metal or pottery, Maori did not have the materials to make containers that could be directly heated by fire. Water was boiled by placing stones heated by fire into a vessel filled with water. Wooden tongs were used to transfer the heated stones.

MAKING FIRE

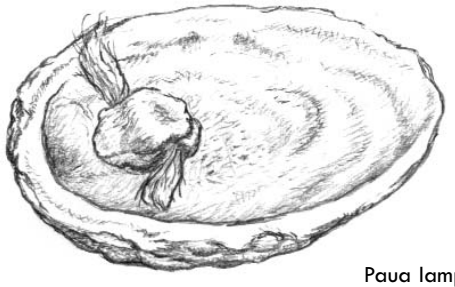
Fire was made using a fire plough. Kaurima (sticks) were rubbed briskly against kaunoti (grooved battens), producing both sawdust and heat. When smoke appeared, the charred sawdust was placed on kindling and blown until it caught alight.



Kaurima and Kaunoti — firestick.

OIL LAMPS

Shark oil was used as fuel. It was extracted by placing heated stones on minced shark livers and then placed in shells such as paua. Clay was used to plug the holes in paua shells and attach a flax-fibre wick.

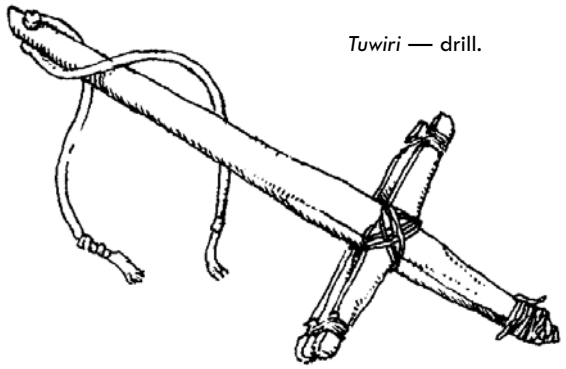


Paua lamp with wick.

STONE TOOLS

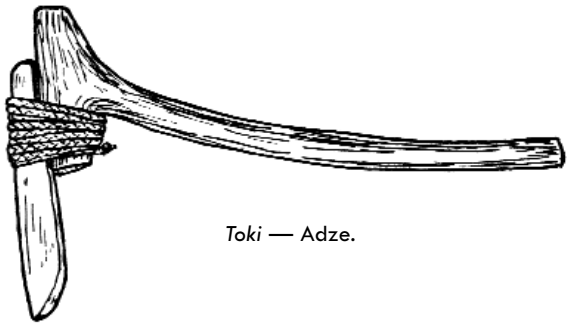
Chips struck from blocks of obsidian (volcanic glass) and chert gave sharp edged, ready-made knives. Sandstone was used as a grindstone to give a smooth surface and sharpen blades. Sharp-edged flakes were struck off greywacke boulders to saw through bone and stone.

Holes were made using a tuwiri (drill) that was manipulated with two cords. A hard sharpened stone was used as a drill tip and sand and water was added as an abrasive to aid the process.



Tuwiri — drill.

Toki (adzes) and whao (chisels) were used for chopping and carving wood. The blades were made from fine-grained rock such as argillite, basalt, greywacke and pounamu (greenstone, jade). Most stones were first roughly shaped by removing chips with a hard round rock (hammerstone). The roughly shaped tool was then ground against sandstone to give the finish blade. Flax cord was used to lash the blade on to a wooden handle.



Toki — Adze.

Pounamu was prized amongst all rocks. It was treasured not only for its beauty and rarity, but also its toughness and the thinness to which it could be cut, making it perfect for sharp hard-wearing implements and weaponry. Pounamu is difficult to chip, a property that is ideal for blades but makes it difficult to fashion. It was first sawn with greywacke before being worked with sand stone. A pierced gourd filled with water provided a continuous drip of water to aid the sawing.

Since so much labour was put into making such a tool, they were generally passed down from generation to generation. Pounamu tools and weapons were most treasured and gained value through the contact of the great ones of the past. Fame of a pounamu mere could be so great that prisoners of war asked to be killed by it.

CARVING

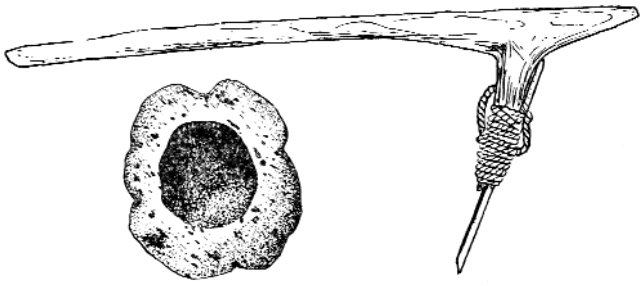
Toki (adzes) were used to roughly shape the outline of a wooden carving. Whao (chisels) were then employed for the finer detail. Wooden structures were lashed together with flax rope. Red and white ochre mixed with shark oil, provided paint of the respective colours. Carvings could be stained black by soaking them in a rich black mud or using paint made from charcoal.

Bone and stone were carved using various stones to chip, saw, drill or file them. (See stone tools).

TA MOKO (TATTOOING)

Uhi, a fine bone comb, was employed to make perforations in the skin. Blood was wiped away with wisps of soft flax fibre and pigment was inserted in the cut groove. Pigment was made from burning kauri gum, resinous heartwood and a wheto (vegetable caterpillar). The resultant soot was moistened into a fine black pigment. When the face was too painful for chewing, the person would be feed finely prepared food through a korere, a carved wooden funnel.

Uhi — Bone toothed comb.



Pigment pot.

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