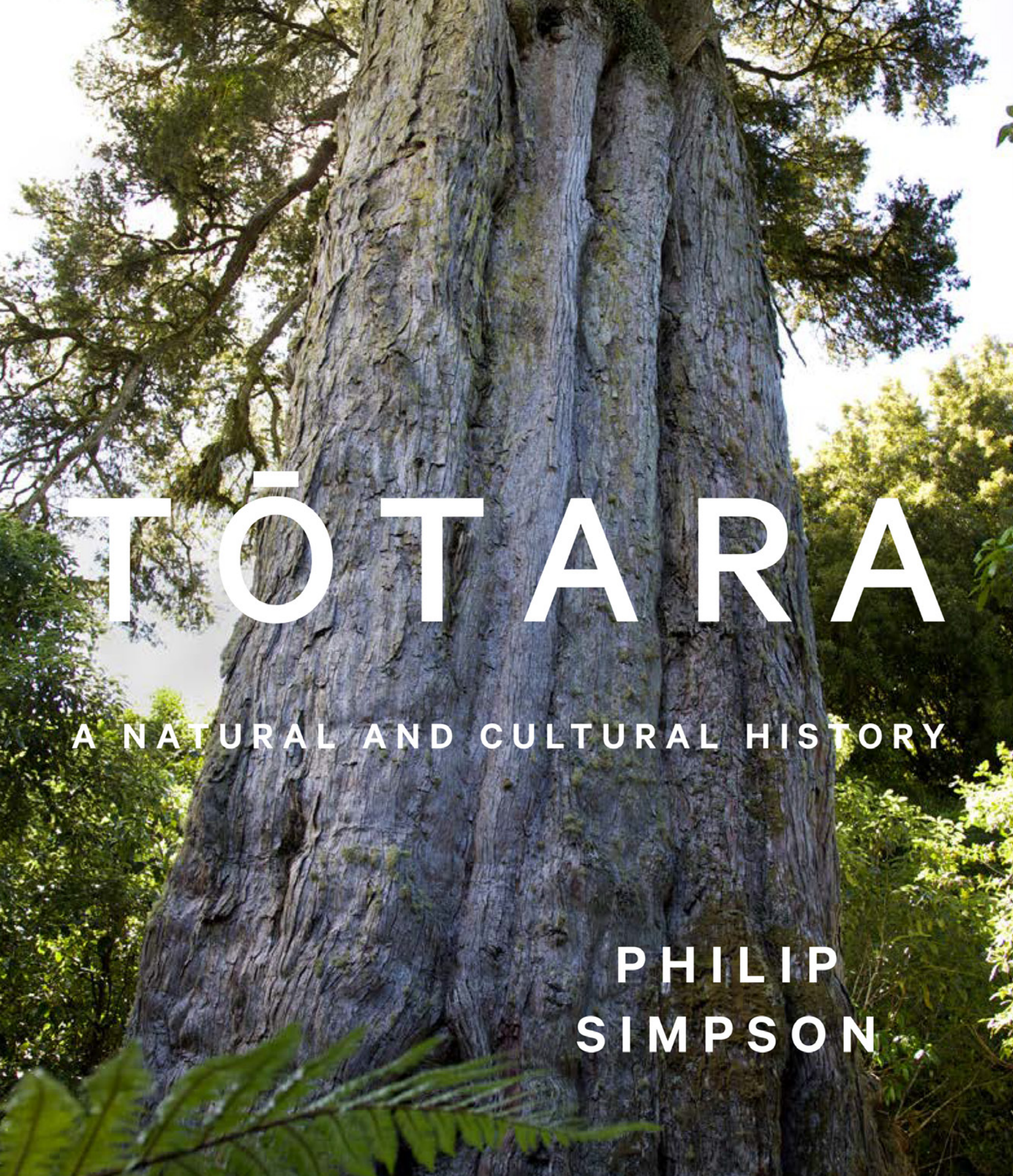

TŌTARA

A NATURAL AND CULTURAL HISTORY

PHILIP SIMPSON

The ‘mighty tōtara’ is one of our most extraordinary trees. Among the biggest and oldest trees in the New Zealand forest, the heart of Māori carving and culture, trailing no. 8 wire as fence posts on settler farms, clambered up in the Pureora protests of the 1980s: the story of New Zealand can be told through tōtara.

Simpson tells that story like nobody else could. In words and pictures, through waka and leaves, farmers and carvers, he takes us deep inside the trees: their botany and evolution, their role in Māori life and lore, their uses by Pākehā, and their current status in our environment and culture. By doing so, Simpson illuminates the natural world and the story of Māori and Pākehā in this country.

Our largest trees, the kauri Tāne Mahuta and the tōtara Pouakani, are both thought to be around 1000 years old. They were here before we humans were and their relatives will probably be here when we are gone. Tōtara has been central to life in this country for thousands of years. This book tells a great tree’s story, and that is our story too.

Philip Simpson is a botanist and author of ***Dancing Leaves: The Story of New Zealand’s Cabbage Tree, Tī Kōuka*** (Canterbury University Press, 2000) and ***Pōhutukawa and Rātā: New Zealand’s Iron-hearted Trees*** (Te Papa Press, 2005). Both books won Montana Book Awards in the Environment category and ***Pōhutukawa and Rātā*** also won the Montana Medal for best non-fiction book. Simpson is unique in his ability to combine the scientific expertise of the trained botanist with a writer’s ability to understand the history of Māori and Pākehā interactions with the environment. He was awarded the Creative New Zealand Michael King Writer’s Fellowship to work on ***Tōtara: A Natural and Cultural History***.

CHAPTER ONE

Tōtara in the natural world

What is a tōtara and where does it fit in the natural world? Māori came to revere the wonderful timber for carving and building, and described the forest giants as rākau rangatira – 'chiefly trees'. Europeans shared the enthusiasm for the timber and used it to build their farms and houses. Botanists identified its relationships with other conifers, noting its soft, resinous wood, its tough needle leaves, and, like the cherished yew, its fleshy, red-footed seed. To understand tōtara, we need to place it alongside its ancestors and relatives in New Zealand and further afield.

Those ancestors are the gymnosperms – the world's first seed-bearing plants, of which the conifers are the most dominant group. Conifers preceded the flowering plants in the history of life on earth, and, though the latter have now far surpassed them in diversity, the conifers seem to do very well in the modern world. Tōtara is a case in point. It belongs in the Podocarpaceae, the dominant family of southern hemisphere conifers. Although podocarps are ancient, they are now diverse, widespread and still actively forming new species, especially in tropical mountains. We will see how tōtara exhibits gymnosperm, conifer and podocarp features, but is also uniquely adapted to present-day New Zealand forest.

DISCOVERING AND NAMING TŌTARA

Māori brought the name with them from Polynesia. There, several things were called totara, including the spiny-bodied fishes known as porcupinefish. In Aotearoa, tara refers to things that are sharply pointed, like the rays of the sun, or the peak of a mountain. Some birds, such as the various species of tern (*Sterna* species), are named tara because of their finely tapering wings. Some plants include tara as part of their name, such as tataramoa, the infamous prickly bush lawyer (*Rubus cissoides*), and taramea, the viciously sharp speargrass (*Aciphylla* species).

So 'the tree with the very straight trunk' (tō), or 'that which possesses the sharply pointed leaves', became tōtara. Tōtara is also the name of a New Zealand moss, *Polytrichum juniperinum*, and a number of other species include tōtara in their names. New Zealand has its own porcupinefish (*Tragulichthys jaculiferus*), named koputōtara or kokopu tōtarawhare. Tōtaramoana is the name of a tōtara tree-like black coral that was

OPPOSITE As in most places, nearly all the old tōtara in the Takaka Valley have been cut down, but this tree – probably too stocky to bother with – has survived, growing very slowly on a dry limestone terrace at Dry River.

Tōtara is the full or part name of several New Zealand plants with needle-like leaves: this is *Polytrichum juniperinum*, a common moss, each little stem looking like a miniature, unbranched tōtara tree.

dredged from deep water and used to form fish-hooks. Pātōtara is the name of an unusual fern (*Botrychium* spp.) whose single frond looks like the broad crown of a tōtara tree in miniature, and which is also sterile (the fertility is 'obstructed', like a palisaded pā). Hard mingimingi (*Leptecophylla juniperina*) was also named pātōtara because of the sometimes great difficulty of moving through dense groves of this shrub owing to its tough, unyielding branches and needle-like leaves. Maori gave the name tōtara papa ('flat growing') to its diminutive relative *Leucopogon fraseri*.[1]

THE NEW ZEALAND TŌTARA SPECIES

Soon after the first Pākehā arrived, they began to rediscover and rename tōtara in scientific terms. In 1826, English botanist Allan Cunningham, to whom Joseph Banks had given the charge of collecting plants for the Royal Botanic Gardens at Kew, collected the first traceable herbarium specimen of lowland tōtara from the Bay of Islands.[2] First to describe a specimen was English naturalist George Bennett, who visited the Bay of Islands in 1829 and whose specimens are now housed in the British Museum, London.[3] Bennett wrote his notes on tōtara from observations along the Kawakawa River, where Cunningham had been a few years before.[4] *Podocarpus totara* was the first New Zealand plant to have its Māori name formally adopted as the species name. The botanical description reads as follows:

> Podocarpus? Totara, foliis undique versis linearilanceolatus mucronatis subtus glaucus. Dacrydium taxifolium. *Solander MSS*. Habitat in Nova-Zelandia. D. [*sic*] Bennett. Totara *indigenis*.

At that time, formal botanical descriptions were written in Latin, and this translates to 'leaves flattened, narrow, slightly broadened, with a sharp tip, blue-green underneath'. The description seems to imply that tōtara was called *Dacrydium taxifolium* in the unpublished Solander manuscript from Cook's first voyage. David Don, a Scottish botanist, wrote this description, so the formal name for lowland tōtara is '*Podocarpus totara* G. Bennett ex D. Don'.

In 1838, Captain William Symons introduced a living tōtara to Kew, while the visiting French naturalist Etienne Raoul collected tōtara from Banks Peninsula in 1843.[5] These specimens enabled Sir William Hooker, director at Kew, to make a full description and an excellent illustration of tōtara, including the cones.[6] His son, Joseph Dalton Hooker, who would succeed him at Kew, noted that tōtara was cultivated in England by 1853 (probably from plants brought to Kew by Cunningham).[7] In the first comprehensive book on the New Zealand flora, Joseph Hooker states that tōtara wood is 'the most valuable in the islands'.[8]

Early botanists initially regarded other specimens of tōtara as mere varieties of lowland tōtara, but eventually four more species, and one variety (a formally recognised category within a species), were identified. Snow tōtara (*Podocarpus nivalis*) was first collected by

LEFT This is the specimen of lowland tōtara collected by Allan Cunningham in 1826, now in the Paris Herbarium. His label reads 'No 11 Totara'. Subsequently 'Dacrydium taxifolium' was added to the label, which was the name used by Solander for specimens seen on Cook's first voyage.

ABOVE Dried branches of the New Zealand tōtara. From left: needle-leaved, South Westland, snow, lowland and Hall's. The Hall's tōtara leaves bear scale insects.

John Bidwill, naturalist for the New Zealand Company, when he climbed Mt Ngauruhoe in 1839. Thomas Kirk, appointed chief conservator of forests in 1885, was the first to describe the 'acute-leaved totara', now commonly known as the needle-leaved tōtara (*P. acutifolius*),[9] and later published detailed accounts of all the tōtara species.[10]

William Colenso collected a specimen of another species during one of his renowned crossings of the Ruahine Range in the 1840s and named it *P. cunninghamii*; it was also collected by William Hall from the Coromandel Peninsula, and described as *P. hallii* by Thomas Kirk.[11] Recently it has been discovered that a specimen described in 1847, and cryptically labelled as coming from Australia, is in fact this species, and was named *P. laetus*, a reference to the healthy-looking foliage, especially of the juvenile: *laetus* is now regarded as the valid name.[12]

Another significant taxonomic change is the identification of the South Westland tōtara as a hybrid and its recognition as a distinct variety of lowland tōtara, *Podocarpus totara* var. *waihoensis*, as explained below.[13]

Those four species – lowland tōtara, Hall's tōtara, needle-leaved tōtara and snow tōtara – and the *waihoensis* variety make up the New Zealand tōtara.

Lowland tōtara, *Podocarpus totara*

Lowland tōtara is the 'big tree' of the podocarps.[14] Mature individuals, at least in pre-European times, grew well over 40 metres tall and had trunks up to 4 metres

Lowland tōtara is best known to New Zealanders as a tree on farms. In a dense forest these same trees would be tall and straight.

in diameter. With its scarred crowns from the many storms it has experienced, and the deeply furrowed, red-brown bark, an old lowland tōtara is an impressive tree. And a pure, old-growth stand is a wonder to behold. Lowland tōtara vigorously regenerates in alluvial plains and valleys or on fertile hills, and creates some of the finest rural landscapes in New Zealand. It is distributed throughout the country, usually below 600 metres altitude, but is rare on infertile soil. In cold, wet places, such as Westland and Southland, it is mostly restricted to coastal sand and the lowland habitat supports Hall's tōtara instead.

When people speak of 'tōtara', they are usually referring to lowland tōtara. Sometimes it has been called true tōtara,[15] but 'lowland tōtara' is a better name because the tree is the characteristic lowland podocarp in most parts of New Zealand.[16]

Hall's tōtara, *Podocarpus laetus*

Hall's tōtara is sometimes called paper-barked tōtara (tōtara kōtukutuku – 'the tōtara with bark like that of the tree fuchsia') or thin-barked tōtara. However, bark is an unreliable diagnostic characteristic owing to widespread hybridisation with lowland tōtara, as well as natural variation. It is also often called mountain tōtara because it is usually montane through most of its considerable range – it grows across nearly 13 degrees of latitude, from North Cape to South Cape. On poor soil, however, or in wet places or cool latitudes, it can be a lowland tree, even to sea level. Bushmen have identified the timber as 'white tōtara'. It is, however, widely known as Hall's tōtara, and I have been encouraged to use the name.[17]

Mature Hall's tōtara are generally smaller than lowland tōtara, but they can be very large in some places. Trees growing in the open are strongly conical, the trunk

CHAPTER FIVE

Ngā mahi o te tōtara: using tōtara wood

Māori used tōtara largely because it was durable, easy to work and readily available. But tōtara carried a mana as well, and Māori used the wood for the most sacred of places and objects. Nearly all of the most treasured carvings in Aotearoa/New Zealand are made from tōtara.

The first Polynesian settlers brought with them some tools, plants and animals, but most of all they brought knowledge. The knowledge of using wood was ancient in a culture that knew no metal. Tools, weapons and household items were mostly wooden. In Aotearoa, however, the diversity of large trees and their idiosyncratic woods was far greater than on small Pacific islands. The new arrivals also found better and more varied materials with which to make tools. New approaches were not only possible but essential, because the new land had marked seasons and the settlers needed better protection for themselves and their food. The ancestors of Māori likely turned to wood on day one; the beaches were piled high with immense logs delivered by the rivers and thrown up by the waves. Tōtara was abundant among these logs because it grew in the habitat where most logs came from – the banks of big rivers.

WORKING THE WOOD

Māori had to fell tōtara trees, or trim those that had already fallen, and for most uses they split the logs into boards. This was done with stone adzes, mallets and wedges.[1]

Although some adzes appear to have been made for specific uses on particular species of tree, such as thin blades for trimming tī kōuka (cabbage trees) for the manufacture of kāuru (sugar, for consumption),[2] most adzes and carving chisels would have been made to deal with tōtara. Māori favoured volcanic basalt (karā), the metamorphosed greywacke called argillite (pakohe) and greenstone (pounamu) for woodworking. From these materials they constructed tools in a range of sizes, from giant tree-felling toki (axes) to small carving chisels (whao). Basalt was local but widespread, argillite came from quarries in the Nelson region, and pounamu came from Westland. Iwi and hapū closely guarded these resources and established countrywide trading routes.

Pounamu is a magnesium-rich rock formed when molten magma (dunite, common in the mineral belt of New Zealand) is 'cooked' with greywacke sandstone during mountain building. It forms blocks

NAMING TŌTARA WOOD

One of the distinctive features of a tōtara trunk is the contrast between the narrow outer band of yellowish sapwood and the predominant dark heartwood inside. Sapwood is named taitea (tea meaning 'pale'); heartwood in all trees is taikaka. Many words containing the suffix -kaka refer to a dark colour, often brown. In tōtara, there may be other meanings because the word ka pertains to fire and redness, and kaka is a specific term for the hard central wood of tōtara.[3] Very resinous heartwood of kauri, kahikatea, rimu and tōtara is known as kāpara (or ngāpara/māpara), referring to the soot (para) used as tattooing dye. Rangiura specifically refers to the inner bark — a red line — but is sometimes used as a general name for the red heartwood. Tōtara heartwood of a dark colour was also termed ate ('of the heart'), whatu toto ('blood centre'), and mauri (also 'the centre'). Mauri wood was dark but lightweight and was valued for making waka. This might refer to wood from very old trees, which is softer than wood from younger trees.[4] For words relating to the very distinctive honeycomb wood of many tōtara trees, see chapter 3.

The surface of a tōtara stump cut using stone adzes. One of three scarves is shown, each sloping up towards the trunk centre. The variable pattern suggests different angles and different tools, that used at centre-right being much sharper than those used in other areas where the wood is more or less prised off. Small blocks of wood were cut at each angle. *Te Papa*

within the greywacke, but is usually found when boulders are released into rivers. It maintains a very sharp edge – not as sharp, perhaps, as steel, but more durable.[5] Toolmakers cut rough pieces using sandstone grindstones and then began the arduous polishing process, which included rubbing on the skin. Some iwi used the fine-grained red sandstone named tōtara for grinding, and local sources of good sandstone were highly valued. Owing to the effort needed to obtain and shape pounamu into adzes, weapons and ornaments, the stone was very highly esteemed. For example, a pounamu mere (war club) was sometimes traded for a completed tōtara waka.

To fell big trees, Māori would haft an adze end-on to a pole. They would hang the pole from a branch of the selected tree, suspending it by a rope that acted as a pendulum, so that the adze could be pounded into the trunk like a battering ram. The tree fellers would cut several scarves around the tree and use fire to enlarge them. Smaller adzes, hafted to hardwood handles in the manner of a grubber, would be used for enlarging each

scarf. Side-hafted adzes were often used so that adzing could be done on an angle. The fibres used to connect the adze and the handle had to be especially strong, and two types were favoured: the split vines of young climbing rātā (aka) and the split aerial roots of kiekie. Soft packing material – often tōtara bark – was used between the adze and haft to make the binding tighter. It could take days to fell a large tree.

While I have never seen a tōtara stump in the bush that was cut by stone tools, in former times they were frequently found. Fortunately there are several in museums. In 1854, a settler in the Motueka Valley observed 'several moss-covered totara stumps up to eight feet in diameter which had been hacked down by Maoris with stone tools'.[6] The chewed, irregular surface attests to the great difficulty of this task.

Wedges

When builders and carvers wanted thick planks they used wedges (kahi) to lever them off the log. Slabs were taken off from the side, tangentially, rather than radially, because this enabled them to be flat. Wedges were very important items and the source of several proverbial sayings, owing to the ability of such small things to achieve large results. 'He pipi te tuatahi, he kaunuku te tuarua' ('First the small entering wedge, second the large splitting wedge'): a small group can gain in strength and overcome a former dominant force.[7] Woodworkers made wedges from hardwoods, such as pūriri (*Vitex lucens*), maire, mānuka, akeake (*Dodonaea viscosa*) and kōwhai (*Sophora* spp.), and often hardened them further by heating them in fire.

After the bark was carefully removed and kept safe for other uses, the workers adzed the sapwood off the log, leaving the red heartwood. They hammered small wedges (ora pipi, ora mataiti) into the wood along a chosen line until a small surface crack appeared.[8] Then they used medium-sized wedges (ora matakahi, ora wāhi, ora whakatangitangi) to open the crack further until the first sound of rending was heard. Finally, they pounded in large bursting wedges (ora whakapakuru, kaunuku) to lever off the slab. One reason why tōtara was so often used is because long slabs of similar thickness could be obtained in this way.[9]

Wedges (kahi) were made of hardwood such as mānuka, and pounded by a wooden mallet (tā) into an adzed surface of a tōtara log to split off a flat slab for building and carving. *Auckland War Memorial Museum*

CHAPTER SIX

Te kiri o Tāne: the bark of tōtara

In the past, traditional cultures throughout Europe, Asia and North America used birch bark (*Betula* spp.) for all manner of containers (such as maple syrup vessels), tools and clothing.[1] Strips of bark, sewn together, formed bark canoes. The Miwok Native Americans used cedar and redwood bark – which is very similar to tōtara – to make conical houses, mimicking in form the triangular hollows formed by fire at the base of these huge trees. The Australian Aborigines removed large sections of bark from *Eucalyptus* trees to create many items, including canoes from a single piece. Today, these surviving trees are esteemed as 'canoe trees'.[2]

The potent chemistry of the inner bark of many trees has led to an enormous range of medicinal and other uses of bark. In Nigeria, for instance, 35 per cent of the total value of medicinal herbs comes from bark.[3] Famous examples worldwide are quinine, an antimalarial drug from the *Cinchona* tree, the national tree of Peru; slippery elm, a mucilaginous gastric medicine from the North American elm; aspirin, a pain-killer from willow bark; and tannin (from a range of tree species) for curing leather. Cinnamon is a spice derived from bark. And where would we be without cork, the bark from the Mediterranean oak (*Quercus suber*)?

Māori used the bark of many trees and shrubs. One of the 'waka plants' brought to Aotearoa was aute, the paper mulberry (*Broussonetia papyrifera*), whose bark was used to make tapa cloth. Aute failed in the cold climate, but some native species, such as houi (lacebark, *Hoheria*), served for fibre. Hīnau bark (*Elaeocarpus dentatus*) was used for tannin to toughen fibres; some barks, such as tānekaha and kāmahi (*Weinmannia racemosa*), were used for dye, and many, for example kōwhai, for medicines. Tōtara bark was probably the most useful to Māori of any species.

The fibrous outer bark of tōtara is lightweight and dry, and is easily peeled, levered or cut off into strips. It can be readily split to any width or thickness required; it can be broken into papery fragments or pounded into fibrous dust. It is dead material, and remarkably resistant to decay because it contains totarol and other resins (the ingredients also present in tōtara heartwood that render it durable). Māori harvested the

OPPOSITE No other New Zealand tree has bark that holds such ecological authority and cultural value as tōtara. Here, the climbing fern *Blechnum filiforme* attaches its roots in the cracks of totara bark.

The author removes the bark from a storm-fallen 80-year-old tōtara tree. It comes off easily once the cuts are made, although care is needed to prevent splitting. The outer bark is developing characteristic dry, reddish-brown vertical strips, although it is still too thin to be useful. The inner bark is a dense, unbroken orange skin – heavy, tough and impervious to water. This is the size needed for the pātua on page 150.

outer bark for sheets and strips for shelter and packing material, and powdered it for tinder – tōtara being one of the few fire trees. The leathery inner bark went into making pātua: bird-preserving baskets and cooking containers.

BARK VESSELS

The outer bark of tōtara was a durable strengthening material. The inner bark was valuable for vessels of various kinds because it was usually readily available, the vessel could be made on the spot (or after heating) in any size required, and it was light in weight, but strong, durable and waterproof.

Pōhā tītī

Cut into strips, kiri (bark) was used to strengthen the kelp bags (pōhā) for preserving tītī (muttonbirds). A pōhā tītī consists of a kelp inner bag packed with cooked birds. The pōhā is seated within a harakeke kete (flax basket), which is lined at the base with papery strips of tōtara bark so that the bag is cushioned when carried. The kelp bag is then completely coated with thin strips of tōtara bark and seated in the kete, and harakeke twine is carefully tied around the bag and woven into a thick handle.[4]

Tiny Metzger of Bluff makes traditional pōhā tītī. He explained to me that, one year, his father thought that oat chaff would do a better job as a cushion instead of the laboriously prepared tōtara bark fragments, but instead found that the kelp bag inside became mouldy. The antiseptic character of tōtara is necessary to ensure good storage. And there are other reasons why tōtara bark is perfect for the task of protecting the kelp bag. It is easy to split by hand into varied widths; soft so as not to damage the kelp beneath; strong, and yet lightweight, to ease the task of carrying an otherwise heavy pōhā containing 20 or more birds preserved in their fat.

Sheets of outer bark about a metre long are collected by carefully cutting through the bark, top and bottom, but not injuring the living tissue beneath. Only old trees are used because the bark of young trees is insufficiently

Tiny Metzger demonstrates how the outer bark of tōtara is split into very thin strips and the leftovers from tidying these up form the soft, antiseptic seating placed under the kelp bag in the kete. He proudly stands with a completed pōhā tītī.

A Birpai Aboriginal from Port Macquarie removes bark from a eucalypt for a canoe, first by cutting around the edge, then using a wooden tool to prise off the bark. This process seems very similar to that used by Māori to remove bark from tōtara. This photograph was staged in about 1905 by Thomas Dick, who set out to collect and write the history of these people before the traditional skills were lost. *Australian National Gallery BCP 04735U*

ABOVE The raw materials for pōhā tītī: uninflated and inflated, untrimmed kelp bags and reams of tōtara bark. Each bundle has approximately six sheets, each about 2 metres long, 20 centimetres wide and 1–2 centimetres thick, enough for about 200 pōhā. Location, identity and date unknown. *Otago Daily Times*

BELOW Mrs S. Burke placing bark around kelp/flax bags of salted muttonbirds, at Solomon Island, *ca*. 1920s. *ATL PAColl-6001-58*

layered. Trees that have never been 'worked' are not good sources of bark because the outside layer is too rough and brittle. The softness of bark from previously worked trees means that the cushion of fragmented bark is more effective. Some trees and districts produce better bark than others. (The hybridisation of lowland and Hall's tōtara creates not only wood of less value, but also bark that is less fibrous.) When collecting the bark from the tree, any 'rubbish' is left around the tree as protection for the roots.

Metzger seeks bark from tōtara populations in Owaka, Waikawa and Waiau. When I visited the trees at Talbot Bush in Waiau, there was ample evidence that bark has been collected there for a very long time. The cut-marks from former working are clearly evident, as is the freshly exposed reddish bark, indicating more recent working. Because of the very slow production of bark by a tree, it might be decades before the same tree can be worked again. Hence, with the dwindling

Bark strips about a metre long have been removed from this tōtara tree to make pōhā tītī. Parts of the top and bottom cuts are visible, as is the re-forming new bark.

number of old tōtara trees, finding sufficient bark for the annual tītī harvest is a task, and conservation is important.

Pātua

A pātua is a food storage basket made from bark. In contrast to the tropical homeland of ancestral Māori, New Zealand's climate is seasonal in character. In the north, the hue (gourd), a 'waka plant',[5] could be grown successfully and used as a container; but to survive in most parts of New Zealand, new techniques of portable food storage were required. Vessels that were strong enough to be carried long distances were essential. The inner bark of the tōtara – thick, pliable, impervious and immensely strong – was perfect for these pātua, and moreover the trees grew throughout the land. Sometimes mānuka, hīnau, miro or tānekaha were used if tōtara was not available, but these barks are more brittle and difficult to remove from the tree.

Pātua were also called papa-pātua or papa tōtara, papa here referring in general to a 'box or chest'. There is a place in western Southland called Papatotara, where Kai Tahu went to collect the bark from the tōtara growing there: the living trees remain today.[6]

Elsdon Best described pātua as 'ingenious' and noted that they were unknown elsewhere in Polynesia.[7] It is possible that the earliest settlers fashioned the first tōtara bark vessels in the shape of a gourd – that is, pear-shaped – by drawing together all the sides and tying with cord at the top. This type of vessel, named pōtete, is referred to in East Coast tradition.[8] Tōtara bark does not easily bend to the degree required for such a pōtete, and hence the more appropriate pātua form may have been developed.

Tōtara bark is now a scarce resource, but, if carefully removed without damage to the tree, it can be 'worked' repeatedly over time. Taylor Bush, Waiau, Southland.

THE LANGUAGE OF TŌTARA BARK

When a culture values a resource, its many forms and roles need to be described with precision. Māori dictionaries contain a great deal of information about tōtara bark.[9] However, the Māori use of bark was largely terminated by European settlement, and some key terms have probably been lost. Additional difficulties result from spelling an oral language with dialects. Kiri is the word for 'skin' (of people) and 'bark' (of trees). 'Te Kiri o Tāne' is a reverential term for the bark of tōtara, being Tāne's first, and therefore most important, tree. More descriptive is tuanui, a name for the roof of a dwelling, which was frequently made of tōtara bark. Tua is the 'outside of something solid', like a tree, and is also a 'ridge' (tuatara means 'ridge of spines'). As a verb, tua means 'to chop repeatedly', in other words to divide, like the tōtara bark. The other element, nui, is a well-known reference to 'something large, strong and conspicuous'. So tuanui aptly describes the thick, strong, furrowed outer bark of tōtara.

Tūhoe refer to the tōtara with the tuanui bark as karaka, the colour orange. Tōtara bark is sometimes orange, especially after rain or after the outer bark falls to expose the younger, smoother bark inside. The innermost surface (exposed when a sheet is removed) is also a beautiful orange colour. Women of high rank in the Coromandel iwi Ngāti Whanaunga are likened to the inside of the bark of the tōtara (tuakiri), the skin of both being smooth.[10]

Tūhoe and some other iwi use the terms tōtara kōtukutuku, or tōtara kiri kōtukutuku, when referring to Hall's tōtara. As earlier mentioned, these reference the tree fuchsia, which is well known for its orange-brown, papery bark. Sometimes the bark of these two trees is almost indistinguishable. To the Tūhoe, tuanui is the male tōtara (tāne), with its strongly 'masculine' bark, whereas tōtara kōtukutuku is the female tōtara (uwha), with its softer, smoother bark.

In the far south, both species of tōtara, but especially tōtara kōtukutuku, are named amoka, and a derived word, amoko, is applied to the papery bark of both tōtara kōtukutuku and mānuka. But the meaning of amoka is not obvious. Amo is associated with chiefliness, being the name of a litter on which a tapu or important person is carried, or of various supports of a dwelling. Metaphorically, therefore, amo refers to a chief who carries his people on his shoulders, as tōtara does in the forest.

Furthermore, the word amonga (amoka in the southern dialect) is a highly reverential reference to the heart. This association with the chiefly colour red and the endurance of tōtara heartwood suggests another thread by which amoka was derived, while also exemplifying the sometimes complex ways in which names can evolve.

Tōtara trunks reveal historical stories. On McShanes Track, Sandy Point, Southland (named for the notorious cabbage-tree-booze distiller who lived here), the original tōtara forest has been cleared for timber to build Invercargill, except for this tree which was no good for timber because the bark was removed earlier by Maori inhabitants for a pātua. The trunk has subsequently been chipped away with an axe, but these molesters of history missed an unusual feature – a musket ball embedded in the wood.

These terms are references to the outer surface of the bark. The leather-like inner bark is named rangiura. It is a word loosely applied to the red (ura) wood of tōtara as in whakarangiura, meaning 'to produce red wood'. Literally, and more specifically, rangiura means 'red line', and this is a reference to the narrow, red inner bark around the outside of the pale sapwood and inside the dead layers of kiri (outer bark). The rangiura is personified in a lament to a lost son: *Taku tōtara whakarangiura* – 'My growing red-wooded tōtara'.[11]

While kiri was used for certain purposes such as thatching, rangiura was highly valued for its use in making containers, and several words relate to this use. When removed from a tree, a curved piece of bark is called kiripāro: pāro is the hollow of the hand. The process of beating the bark to aid removal is termed whakapākōkō, and the process of peeling the bark off is termed whakatākōkō. An interesting element of these words is kōkō, which is a type of shovel, the word derived from kō (a digging stick). In fact, a detailed description of the making of a bark vessel refers to a type of kō.[12] The kōkō used to carefully remove tōtara bark was a very important tool, designed specifically for this purpose, because the vessels so made were vital for survival and needed to be flawless. However, the exact name for this implement has not been found. One type of kōkō was made from the inner bark itself, taking on a natural curve when dry.[13]

Another word for stripping off the bark is tīhore. Herries Beattie recalls: 'One of my informants deplored the fact that the houi (ribbonwood) was now so scarce that the New Zealand Government would not permit *"tihore te rakau"* (barking the trees).'[14] This is a reference to the practice of removing the bark of the lacebark (or ribbonwood, *Hoheria* spp.) for weaving.

Remarkably similar baskets were made by the north-west Pacific tribes, using the inner bark of western red cedar (*Thuja plicata*), which in many respects is the exact ecological and cultural equivalent of tōtara. The bark was pleated in the same way as tōtara and used to make temporary serving dishes or more sturdy canoe bailers. In these cultures the inner bark was also split into thin, soft strips and used in weaving. And it was pounded so that the fibres were separated and softened into a form that could be twisted into rope. Innumerable household, food-gathering and clothing items were made in this way.[15] One wonders why similar uses did not evolve from tōtara bark. The logical answer is that in Aotearoa

This small pātua may have been a cooking vessel because it has a lid through which hot stones could be placed. *Whanganui Museum 1800.50*

A small, shallow pātua, possibly for cooking or food presentation. *Southland Museum IMG 8181*

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