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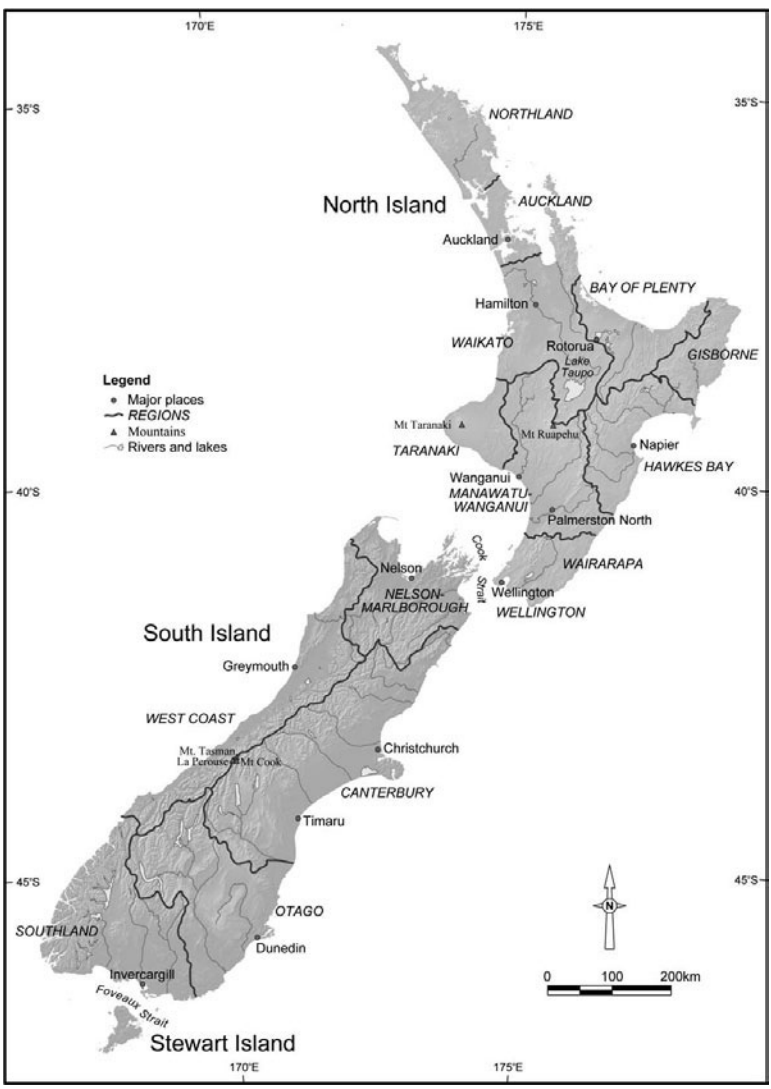
Waka across a watery world

How and when did New Zealand begin? Geologically the archipelago dates back 80 million years when it separated from Gondwana. Other than Antarctica, New Zealand was the last major landmass settled by humans. The first settlers, ancestors of the indigenous people, the Maori, are now thought to have arrived in the thirteenth century, whereas people inhabited the rest of the Pacific Rim from 12,000 to an estimated 60,000 years ago. Europeans arrived very late indeed, with planned settlements only from 1840. The two waves of people from Polynesia and Europe in a flash of time transformed the land and remade the landscapes. These simple facts of place and time explain why the environment is so much associated with the nation's culture and identity.

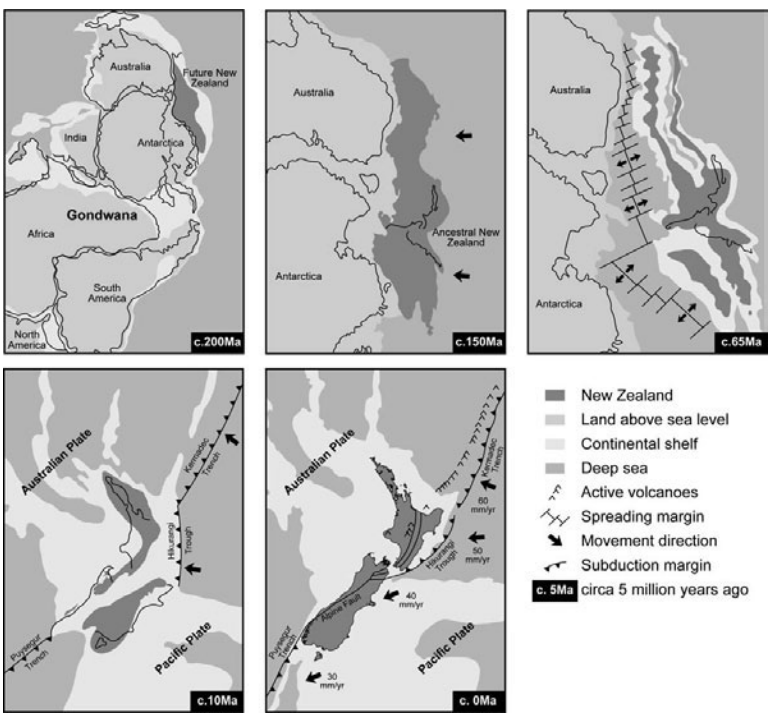
TIME BEFORE HUMANS

Geographically, New Zealand is an archipelago of many islands, from Raoul in the Kermadec group to Campbell Island, although the three main islands account for almost 99 per cent of the land area of 270,000 square km. Its comparable size to the British Isles is important in a once dominant version of the country's history. Ancestral New Zealand, so scientists tell us, was once part of the great southern continent of Gondwana, its rocks forming a mountainous area stretching along Gondwana's eastern margin,



1.1 New Zealand: principal mountains, regions and towns

100 million years ago. Then what is known as the Rangitata landmass broke away and headed eastwards into the Pacific. Ancestral New Zealand was on its own. Flora and fauna have not migrated overland for the last 80 million years, and movement and sea floor



1.2 From Gondwana to New Zealand's emergence

spreading ceased about 55 million years ago when the Tasman Sea reached its full width, separating the New Zealand landmass from south-eastern Australia.

The area that would become New Zealand had eroded to low plains by 65 million years ago. Shifting, swampy and geologically unstable, the low-lying land slowly sank. By about 35 million years ago, in the Oligocene, most of this Gondwanan fragment was under water. Dinosaurs lived on the chain of small islands – drowned remnants of the Rangitata Mountains – that remained above water, as did crocodiles, frogs and tuatara. The mountains thrust upwards millions of years later, and various parts of New Zealand shifted around, moved by plate tectonics as the continental crust of the Pacific Plate began to collide with the Australian Plate underneath the archipelago, from about 25 million years ago. Gondwanan

rocks, the oldest segments of New Zealand's crust, are now confined to the west coast of the South Island, from west Nelson to Fiordland. In the east the land is new. While the South Island evolved through mountain building and glacial activity, the North Island acquired its contours from volcanoes that erupted as the crust crumpled.

The land continues to be in a state of upheaval. New Zealanders live in a dynamic environment, on the margin of the Pacific and Australian plates, amidst one of the Earth's fastest rising mountain systems: in the South Island, the Alpine Fault system marks where the Australian and Pacific plates slide past each other; the island's two segments have moved by an estimated 500 km relative to each other along the Alpine Fault in the last 25 million years. As the colliding plates squeezed New Zealand's crust, high mountains formed right at the coast. Geologists believe that mountain building along the Southern Alps has accelerated in the last five million years, matched by rapid erosion. As recently as 1991 the distinctive tip of New Zealand's highest peak, Mt Cook – increasingly known by its Maori name of Aoraki, and named on road signs Aoraki Mt Cook, to signpost New Zealand's official stance as a bicultural, bilingual nation – tumbled into the Tasman Glacier below.

So much for the certainty imparted to schoolchildren that Mt Cook stood 12,349 ft before metric replaced imperial measures in the 1960s. Even the phrase 'solid as rock' calls for local scepticism when the key national icon, an environmental feature, can be shortened by 10.5 metres in an avalanche. Site and self are shaken: the summit shifts, and with it the vista, the imaginary, the image, that which is sacred.

Because of this seismic history, New Zealand is no ancient Gondwanan ark. Certainly it was a Gondwanan fragment, at least in the west and south of the South Island, its forests populated by podocarps under whose ancestors dinosaurs might have sought shelter. But the land itself represents a dynamic force, anything but solid and permanent, which – problematically – sank in the Oligocene before the mountains thrust skywards. Pollen records suggest that almost all New Zealand's flora arrived after the underlying land mass had drifted off into isolation. The native flora is the result of recolonisation since the breakup of Gondwana, suggesting a pattern of plant dispersal from Australia followed by radiation through

adaptation to local ecological and climatic conditions, and then by extinction for some plants. Botanists have found that Tasmania and New Zealand share 200 plant species, while the case of the *Nothofagus* beech, which has Gondwanan origins, can be explained by long-distance dispersal (it is also found in Chile). The origins of the beech tree remain contested. Many animals were recent migrants too, and are migratory; for example, seabirds regularly cross the Tasman Sea.

Palaeontologists, however, have questioned how New Zealand's fauna thrived in isolation for 80 million years, and why that fauna proved so vulnerable to humans. New Zealand was a land of birds, many of them uniquely large, naïve and flightless. Prominent among them are the kiwi, adopted as an informal national symbol in the twentieth century, and the moa, whose fossils fascinated Europeans since their first discovery, in the 1840s, of the earlier existence of various species. As for who, or what, killed the moa, naturalists in the nineteenth century thought that people did. By the 1950s the accepted view was that climate change had rendered the moa and other flightless birds extinct before the first people arrived. Today, however, zoologists consider that the continental focus of Northern Hemisphere-trained scientists overrode the initial insights into the disappearance of island faunas. In their view, about half of New Zealand's post-glacial bird species became extinct after humans disturbed their environment. That is, predators were responsible – the first people and the rats that accompanied them in their voyaging waka (canoes). Moa were extinct within 150 years of human arrival. Having hunted down the big game, the people themselves had to adapt their ways of living, and in doing so became New Zealand Maori.

NAVIGATORS UNDER THE SOUTHERN CROSS

The tangata whenua (people of the land, a concept with maritime kin connections throughout the Pacific) were Polynesian venturers whose great journeys denoted one of the last stages of human colonisation of the Pacific region. While Europeans were sailing along familiar coasts to trade with and invade neighbours, Polynesian navigators struck out north and south in search of new lands

across millions of square kilometres of the Pacific Ocean. In diverse traditions about migrations to and within New Zealand, generations passed down stories of dangerous voyages from the ancestral homeland of Hawaiki, and of arrival, dispersal and settlement in these southern islands. To establish their mana whenua (authority over the land) settlers 'brought with them the intellectual order, the mental maps, of the Polynesian world', peopling the spiritual fabric of the new land with their own gods and creation stories.

The North Island, the first landing place, they named Te Ika a Maui (the fish of Maui). In the myth derived from Polynesia, Maui stood on the South Island and hooked a great fish, which the sun turned solid. The eye of the fish is Lake Taupo and the tail is Northland (see 1.1). The South Island became Te Wai Pounamu (water or river of greenstone) because of the precious jade found in its rushing West Coast rivers, which artists carved into tools such as fine chisels, weapons and ornaments. People who migrated there called the South Island Te Waka o Aoraki, the canoe of Aoraki, the name of their ancestor and the highest mountain. Stewart Island took the name Rakiura, which in the latest restatement of propinquity has become the name of the national park on this third largest island.

Tangata whenua – themselves a diversity of people, cultures and histories – subsequently became Maori in their encounter with Europe. They were boat people, a role and experience with which the European migrants could identify. Their feats of ocean navigation, voyages and settlement from Eastern Polynesia to New Zealand and the Chatham Islands continue to generate scholarly debate about when, how and from where the first Polynesian navigators arrived. Latest studies in Western science matched against tribal genealogies suggest a story of deliberate, rather than accidental, voyages.

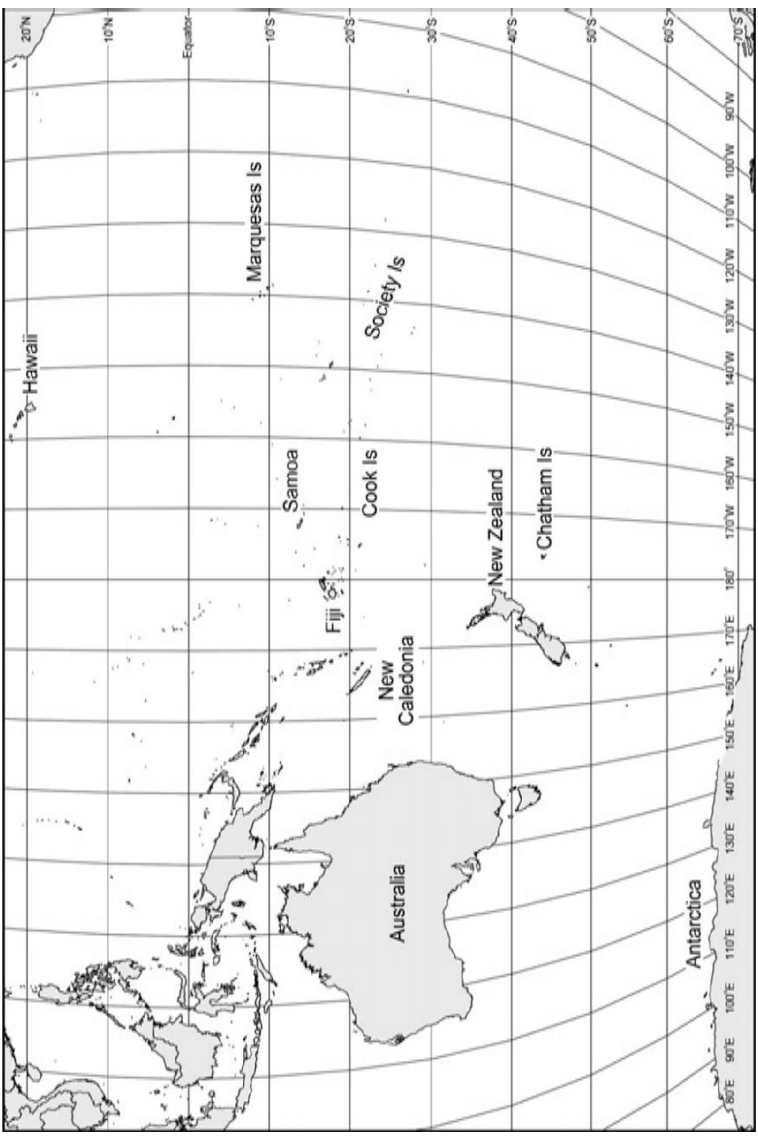
Anthropologists surmise that the first navigators from Eastern Polynesia settled New Zealand only relatively recently. There are three competing hypotheses about the time of settlement: that New Zealand has been peopled for about 2000 years; that the first people arrived between 800 and 1000 AD; and that the Polynesians reached New Zealand late, between 1200 and 1400 AD. The second hypothesis is now redundant. Current understanding is that the East Polynesian ancestors of the Maori colonised New Zealand

around 1300 AD. Archaeologists argue that there is no evidence of human habitation before about 1250. Subsequently New Zealand Polynesians migrated to the Chatham Islands in the fourteenth or fifteenth century.

The first settlers set out from a place called Hawaiki, a homeland that recurs in stories throughout Polynesia. Hawaiki was probably an island group or zone that was a referent for the Marquesas or Society Islands and perhaps for the southern Cook Islands. The first settlers were descended from Austronesians who sailed eastwards from Southeast Asia into the Pacific Ocean 4000 years ago. Like other eastern Polynesians, the first New Zealanders were more direct descendants of Lapita people in the central Pacific, who were agriculturalists and maritime traders. An 'ancestral genetic trail' can be traced from Southeast Asia to New Guinea/Near Oceania to the central and eastern Pacific islands. Until very recently it was thought that East Polynesia, the site of Hawaiki, was settled about 2200 years ago. Ventures east to Easter Island about 300 AD, north to Hawaii 100 years later and, after another 1000 years, south to the cold and treacherous waters around New Zealand completed this remarkable oceanic exploration.

Anthropologists have since advanced a radical new model for the settlement of East Polynesia which suggests that this oceanic dispersal was far more rapid and recent than previously understood. Easter Island, and even Hawaii, they argue, were colonised 'in one major pulse' about the same time as New Zealand. Based on high-precision radiocarbon dating, this model suggests that the colonisation of East Polynesia occurred in two phases: first out of West Polynesia to the Society Islands about 1025 to 1120 AD; and second in one 'pulse' to the remote islands, including New Zealand. The significance for Polynesian voyages to Aotearoa is that these then occurred alongside – not after – migration north and east across the Pacific. A shorter chronology of this sort may explain the uniformities found in East Polynesian culture and language, and compels a rethink of human impacts by highlighting the speed of environmental change in the islands. If it is proved correct, Pacific history, not New Zealand history, will need to be revised.

There are several possible reasons for the late odyssey to Aotearoa, all of which are disputed. If Pacific colonisation occurred



1.3 A watery world

in one 'pulse', people may have been driven to leave their home islands by a catastrophe, whether famine, climate change, or an environmental disaster such as a major earthquake or tsunami. Those who fled demonstrated by their feats that they possessed the skills necessary for oceanic migration: maritime technology in the form of the dugout canoe, stabilised by outriggers, and with a lateen sail, that allowed long-distance travel across the Pacific; and expertise in agriculture, the use of crops and domesticated animals. Whether their urge to migrate was religious, entrepreneurial, or desperate, and motivated by scarcity or calamity, it took more than technological innovation for Maori ancestors to navigate such a watery world.

Polynesian navigators had to be resilient and experienced in reading environmental cues to reach Aotearoa in the south-west Pacific. On their voyages they followed the paths of migratory land-based birds, observed the currents and 'lapa', the phenomenon of underwater phosphorescence that appeared as flashes or streaks of light 50 to 130 km from land, and sailed towards the clouds that appeared stationary above islands far ahead (hence the name Aotearoa, the 'land of the long white cloud'). Possibly they saw ash cloud from a volcanic eruption. The Southern Cross was their guide south of the equator, and they voyaged south in the summer, when the winds were favourable. Sailing down a narrow corridor of stars, they took their main direction from Venus, with the Southern Cross to the port side, always pointing to Aotearoa.

The first settlers may not have used this name for New Zealand because they had no word for the country as a whole, instead giving names to islands. This alternative name for the North Island only became accepted as the Maori name for New Zealand in the twentieth century. Naming is a political act; and what matters is that Aotearoa has become the Maori term for New Zealand. It is now common, the word used in oral traditions that express emotions and show affinity to place, and provide a template for life in the present.

Scholars now believe that Aotearoa and remote islands of the Pacific were populated through deliberate seafaring. In the 1980s independent teams of scholar–sailors reconstructed Polynesian outrigger canoes, determined to rebut the thesis of accidental

voyaging in vogue in the mid-twentieth century. The team that left Rarotonga in better weather conditions reached northern New Zealand in little more than two weeks. It could be done, strengthening the likelihood that sailor ancestors succeeded in navigating a course in the summer. Only a 'landlubber', the modern sailors asserted, could theorise that the first people were blown off course rather than charting their way to New Zealand, using their knowledge of astronomy and seasonal winds. Maori traditions matched the seasonal evidence, that the best time of year to sail to Aotearoa was in summer, when the red-flowered pohutukawa, the New Zealand Christmas tree, was in bloom.

The early navigators conveyed their seafaring knowledge through oral culture, and stored it in waka traditions. According to one story, the navigator of the Te Arawa canoe (from which the iwi (tribe) Te Arawa takes its name) 'understood the language of the stars, the children of the lord of light, Tane-nui-a-rangi; he conversed with the moon, Hinauri; and he kept the prow of Te Arawa pointed in a direction that was a little to the left of the setting sun'. Historians who took such oral traditions as factual statements thought that traditional stories told of return voyaging before the planned sailings by the mythical ancestor Kupe, who returned to Hawaiki and reported his discovery of a land inhabited only by birds. When he heard such stories in 1769, Tupaia, a Tahitian traveller who sailed with Captain James Cook, was sceptical about the likelihood of two-way voyages, because the tangata whenua's ancestors did not bring their prized pigs back with them. Only rats and dogs survived the oceanic voyages from Hawaiki with the first people; Cook, perhaps 500 years later, supplied the pork.

TRADITIONAL STORIES

Oral traditions are mythic narratives, not historical texts, so 'Maori oral history is not merely another source of information, nor even of perception' for Western historians. Its purposes are to give meaning, and validate a family's claims to knowledge. Stories of return voyaging by ancestral heroes are not factual but refer metaphorically to constellations of stars as canoes crossing the heavens, which descendants greet in the present when they see the ancestral canoe