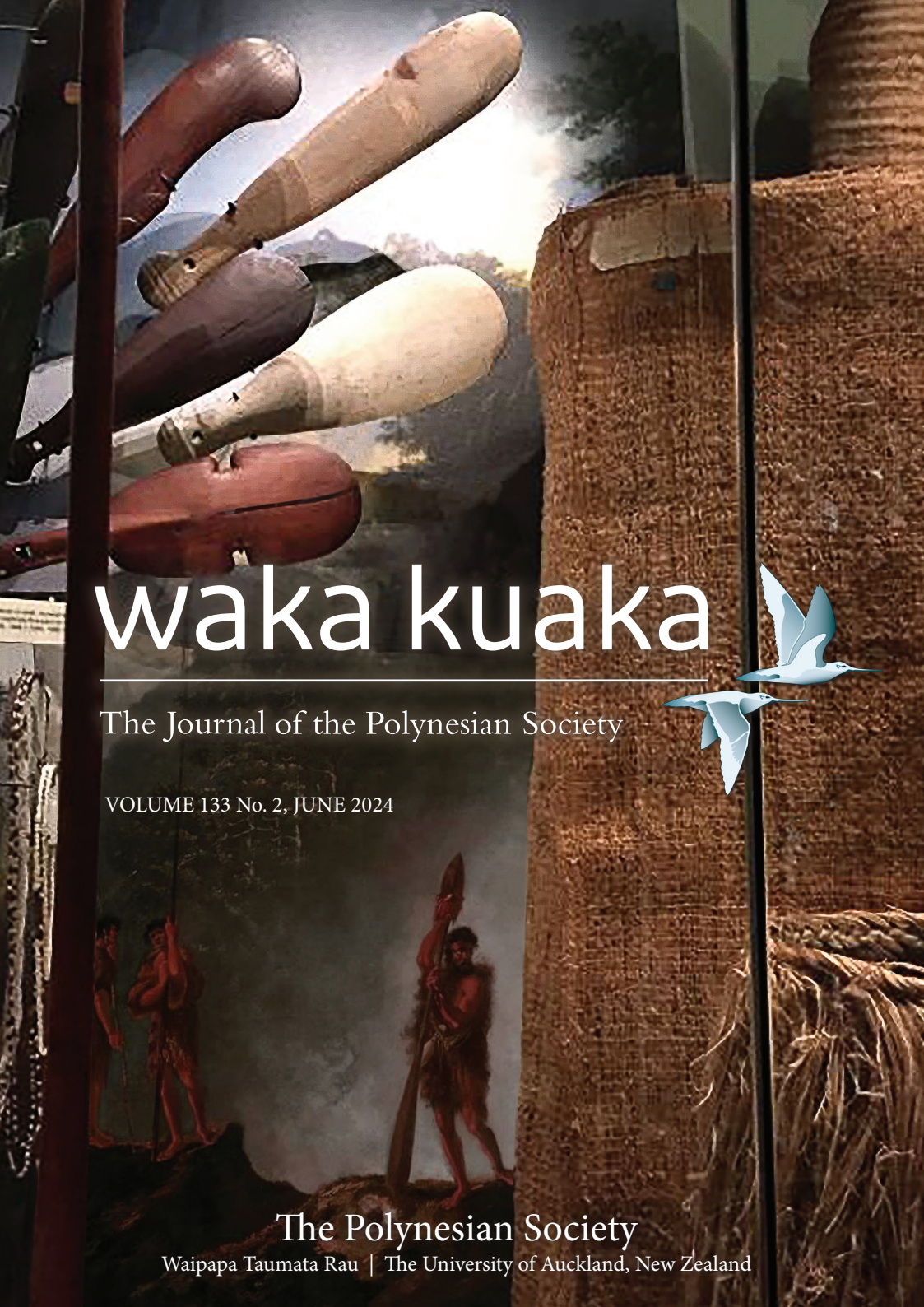




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MINOR ELEMENTS OF THE MĀUI STORY IN AOTEAROA AND TE WAIPOUNAMU AND THEIR CULTURAL CONNECTIONS TO WIDER POLYNESIA

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ABSTRACT: This paper examines three minor narrative elements in the story of Māui, the trickster hero, as retold in Aotearoa New Zealand: the defeat of Tuna, games of dexterity and speed, and the invention of rope. These story elements are linked with similar narratives found elsewhere in Polynesia. The paper discusses the key cultural themes in each of these texts. Tuna is the source of eels and plants, in particular the coconut, and a phallic symbol. Māui is associated with various games found throughout Polynesia, notably juggling games including jackstones, as well as string figures and dart-throwing. In East Polynesia Māui is the inventor of rope-making. The paper elaborates on these various cultural practices, such as how the different games were played or how rope was actually manufactured, with a view to demonstrating the complexity of these various skills and techniques linked through Māui the trickster to the very beginnings of the Polynesian world. The paper's overall intention is to use these minor elements to show the many threads which connect together the peoples and cultures of Te Moana-nui-a-Kiwa (Pacific Ocean).

Keywords: trickster hero, story of Tuna, juggling games, jackstones, string figures, dart-throwing, rope-making

This paper looks at three minor elements found in the Māui story from the southern Polynesian islands named for him: Te Ika-a-Māui (North Island) and Te Waka-o-Māui (South Island), the principal islands of Aotearoa New Zealand.¹ The three elements are the defeat of Tuna, games of dexterity and speed, and the invention of rope-making. In addition, this paper explores the deeper cultural connections between these local Māui story elements and other Polynesian societies. Such ties reveal how generations of raconteurs in these southern islands, also known as Aotearoa and Te Waipounamu, continue to add new layers to an ancient whakapapa (genealogy) of knowledge and practices that reach back to Hawaiki, the name of the ancestral home islands of the Māori peoples.

These three minor story elements exist in the shadows of the better-known episodes, such as slowing down the sun, obtaining fire or fishing up land. Nonetheless, shining more light upon these minor elements of the Māui story reveals yet more of the cultural innovations by this most famous of Oceania's

trickster heroes, the close kin of the culture hero. Both hero types dwelt in the “indeterminate time of transition and change” as the world came into being out of the creative acts of the spirit powers (Luomala 1949: 104–5). The culture hero introduced important cultural knowledge and practices to human societies, strengthening and enhancing them in relation to the spiritual domain (Bacwaden 1997: 332; Gay 1983: 373; Radin 1956: 166–67). The tricksters also transformed human society, but their acts frequently involved deceptions practised against spirit beings. Other trickster characteristics include a restless urge to seek out new challenges; the ability to change shape into other creatures, including birds, often to escape punishment for their trickery; and, most importantly of all, a need to test and break customary rules or practices so as to ensure that human beings might attain an equivalence to the spirit world (Bacwaden 1997: 332–33, 340; Luomala 1949: 28–35; Radin 1956: x, 155, 165, 167–68). This last trait is shared with the culture hero: both strive to destroy the status quo, for both are champions “not of things become but of things becoming” (Campbell [1949] 1975: 284).

Study of the Māui story in Aotearoa and Te Waipounamu has been possible thanks to the labours of three modern editors and translators: Anaru Reedy (1993), Agathe Thornton (1992) and Christine Tremewan (2002). Publishing and translating Māori language manuscripts found in the archives is a rather neglected field, and I count myself fortunate to be able to follow in the footsteps of three local exponents of this kind of scholarship. Their labours bring light and life to the figures that people the remotest histories of these southern Oceanic islands.

A few technical observations are worth noting concerning this paper. When quoting Indigenous-language texts or using Indigenous names, the appropriate diacritics, such as macrons and glottal stop marks, have been added, where these are known. Unless otherwise indicated, any editorial additions in Māori texts, such as brackets or italics, are reproduced from the quoted sources. Lastly, as author I am responsible for the translations (except those in quotation marks).

MĀUI AND TUNA

The story of Māui and Tuna is told by Kāi Tahu raconteurs. In these accounts Tuna’s exact appearance varies, but in all of them he possesses eel-like features and lives in society alongside Māui and others. The principal version of this story looked at here was told to the missionary Johann Wohlers by various unnamed elders living on Ruapuke Island, in Te Ara-a-Kiwa (Foveaux Strait), and written down about 1850 (Natusch [1990] 2017; Tremewan 2002: xii, xxi). The second version is linked to Charles Creed, a missionary based at Waikouaiti, in coastal Otago, between 1844 and 1852, whose manuscripts appear in John White’s *The Ancient History*

of the *Māori* (1887), incorrectly labelled as from Ngāti Hau (Beaglehole 1966; Tremewan 2002: 99). The third version comes from respected Kāi Tahu scholar Teone Taare Tikao, who lived at Rāpaki, in Canterbury, and in 1920 talked to Herries Beattie, a well-regarded recorder of Kāi Tahu knowledge (Anderson 1994: 27–28; Tikao and Beattie [1939] 1990: n.p.).

In the Ruapuke text, the story about Tuna follows on from Māui's successful catching of his fish, Te Ika-a-Māui. After that momentous deed, he returned to the village where he lived with his older brothers. On reaching there he lived with ("noho") Hine, a daughter of Tuna and Te Repo (Tremewan 2002: 78). This marriage suggests Māui's status in his village had changed. He was no longer the precocious, unattached youth but a man living within a web of social responsibilities and expectations.

In this version, Hine went down to the water from which Tuna emerged and, to quote the Ruapuke elders' words, "ka korepekia te hiku, maua ngā para" (p. 78). Tremewan (p. 85) translates this passage as Tuna "twisted his tail round her, and the slime clung to her", but it might also be interpreted as the tail opened her and the watery sediments stayed on her.² Hine went and spoke to Māui: "Tangata nei, e whakapai tangata nei, māene[e]ne ana te kiri te pānga atu!" (p. 78) (This man, this comely man, whose skin as we connected was so very smooth!).³ Clearly, Tuna had intercourse with her, an intimate encounter that gave her pleasure.

According to Creed's manuscript, Māui had married Hine-a-te-repo, Irawaru's sister. Subsequently, Tuna twice had sex ("aitanga") with her. After the first time Hine kept it concealed ("he mea huna") from her husband, but after the second time she disclosed ("whākina") it to him. The story also describes the sex as adultery ("ka pūremutia a Hine ... e Tuna" [Tuna committed adultery with Hine]), because it involved another male having intercourse with a married woman (Waiti 1887: 76). This was a serious matter that could result in the death of the offending party (Heuer 1972: 48–49). In the Ruapuke story, Tuna not only committed adultery but also incest since he was Hine's father (Tremewan 2002: 94). Tikao describes Tuna, a descendant of Takaroa (or Tangaroa to northern Māori), as a taniwha ("aquatic monster"), or a giant eel, which frightened Māui's two wives, Hine-tu-repo and Hine-te-ngahere, who were Irawaru's sisters (Tikao and Beattie [1939] 1990: 13–14).

The Ruapuke elders had Māui initially pondering what to do ("Me aha rā?") before he decided on a course of action against Tuna (Tremewan 2002: 78). He set about digging a deep channel. Māui then instructed Hine to go and sit at the landing place while he went to the river mouth ("tauaaha"). There he constructed a fence ("patatara") comprising a number of rollers ("roko" in the Kāi Tahu language) which he set in place. The story then repeats the same sentence structure to enumerate the number of rollers that

Māui put in place to construct a weir with which to catch Tuna: “Ko te roko pā tahi, ko te roko pā rua” (The first roller for the weir, the second roller for the weir), and so on until, “Ko te roko pā iwa, ko te roko pā ngahuru” (The ninth roller for the weir, the tenth roller for the weir) (p. 79). This is an example of what Albert Lord (2000: 57) calls the “syntactic parallelisms” typical of the oral style: the formulaic counting gives a sense of the size and scale of Māui’s structure.

Tuna appeared in the river and swam toward the weir (described as made up of “ngā harakeke me ngā paki” [“the flax and the frames”]) (Tremewan 2002: 79, 85). He kept swimming towards Hine before he decided to return. At that moment, Māui hit him with an adze and killed him. In the Ruapuke elders’ words:

[K]a rere te hiku ki te moana nui—koia te kōiro. Ka rere te upoko ki te wai māori—koia te tuna. Ko te roro w[h]ero—koia te pukapuka; ko te roro mā—koia te kōare[a]re. Ko ngā huruhuru o te upoko—koia te aka. (p. 79)

The tail raced to the ocean; it is the conger eel. The head raced to the freshwater stream; it is the freshwater eel. As for the red-coloured brain, it is the pukapuka [rangiora, bushman’s friend, *Brachyglottis repanda*], and the white brain, it is the kōareare [edible rhizome of the raupō, *Typha orientalis*]. As for the hairs of the head, they are the aka [the vines of various climbing plants].⁴

Thus was retribution obtained for Tuna’s pūremu, or sexual misdemeanour, with Māui’s wife.

In the account that Creed recorded, Māui went to the forest and made spears, digging sticks and spades. He dug a channel, Kari-tapu, and drained the water from Tuna’s hiding place in the water hole, Muri-wai-o-hata. Māui then caused it to rain, sweeping Tuna down into Māui’s net set across the river. He severed Tuna’s head with his adze. The head and tail flew to the sea, becoming the conger eel (“kōiro”). From the body grew Puku-tuoro (a taniwha, or water creature of great power, in Aotearoa New Zealand) and the taraheke (bush lawyer, *Rubus* spp.); the sinews became the pirita (mistletoes, *Peraxilla* spp.; supplejack vine, *Ripogonum scandens*); the hairs were the toro (long-leaved māpau, *Myrsine salicina*; *Toronia toru*), aka, kareao (supplejack vine, *Ripogonum scandens*), raupō (bulrush, *Typha orientalis*), kōareare and tītoki (*Alectryon excelsus*). With Tuna’s death, Māui’s offspring multiplied (Waiti 1887: 76–77; White 1887: 83–84).

According to Tikao, Māui hired Haere to build him a hīnaki (eelpot) made of tororaro (wire vine, *Muehlenbeckia complexa*). This was the very first hīnaki ever made. Māui placed it in a stream, caught Tuna, pulled the hīnaki onshore and there cut him into two. Tuna’s head flew off to the rising place of the moon at Pikopiko-i-whiti, before jumping into the sea where

it became the conger eel (kōiro). His tail, containing his heart, flew to the rising place of the sun at Pikopiko-i-rangi, before diving into the Muri-waihoata river, where it became the freshwater eel (tuna) (Tikao and Beattie [1939] 1990: 14).

For southern Māori, this story shows another of Māui's achievements as a trickster hero. By catching and killing Tuna, Māui first created all the types of eel: the seagoing kōiro (ngōiro, conger eel, *Conger verreauxi*) and the freshwater tuna (longfin eel, *Anguilla dieffenbachii*; shortfin eel, *Anguilla australis*). For Ruapuke raconteurs he created several new plants from parts of Tuna's brain: the pukapuka shrub, the kōareare and the aka vines. In Creed's account, further plants originated in this killing, as did the taniwha, Puku-tuoro. According to the Ruapuke text, Māui showed people a way to catch the freshwater eels using weirs built across rivers. For Creed, Māui laid a net to achieve the same outcome. In addition, Māui created the tools needed for constructing the channel to direct Tuna into the net. According to Tikao, the eelpot was invented as part of catching Tuna (and later, eels that grew from parts of his body), but not by Māui.

The Ruapuke raconteurs gave a clear description of Māui's construction of his trap for Tuna. He first dug a deep channel (awa), to help create a current to drive Tuna downstream, and then proceeded to the river mouth, where he built a weir (pā tuna). Judging from descriptions of how such pā were constructed, Māui first set the ten roko into the river bed. These large posts or stakes, typically made from kānuka (white tea tree, *Kunzea* spp.), were placed at intervals across the river, usually in a V shape. These posts held the structure in place. In Te Waipounamu, long sticks of mānuka (tea tree, *Leptospermum scoparium*) were lashed to battens with harakeke (New Zealand flax, *Phormium tenax*), although aka (vines) seem to have been the usual lashing elsewhere. Plants like rauaruhe (fronds of bracken fern, *Pteridium esculentum*) could also be used as fencing materials. This is what the Ruapuke raconteurs call the paki: pakipaki was a term for the wing fence of a pā tuna in Te Ika-a-Māui. Tuna would have travelled down the channel till obstructed by the fence, and then travelled along this obstruction until finding the open space, called the kutu in the south (ngutu in the north), located at the base of the V-shaped fence. There Kāi Tahu people would place their kaitara or hīnaki (eel pot) to catch their supply of eels (Beattie 1994: 146–52, 316–20, 502; Best [1929] 1977: 131–47). Hine may have been sitting near this spot, in order to lure Tuna in. Perhaps sensing danger, he tried to turn back, only to be slain by Māui acting the part of the first eel catcher.

Tremewan (2002: 94–95) points out that this story echoes an important tropical Polynesian narrative concerning the origin of one of the most important Polynesian plants, the coconut (niu, *Cocos nucifera*). Various Polynesian traditions about Hina or 'Ina, variants of Hine, contain some

common themes: Hina's sexual relations with Tuna, Māui's killing of Tuna, the origin of eels and the growth of niu from Tuna's decapitated head. These niu are sometimes differentiated as being red and green in colour: southern Māori transferred the colours (red and white) to the brains.

Several versions of this story come from the Tuamotu Archipelago in French Polynesia. In one, Hina, Tuna's wife, was abducted by Māui, who killed Tuna when he pursued them. The coconut tree grew from his head (Beckwith 1970: 103). A drama recounts how Māui killed Hina's loathsome husband, Tuna, and then buried the head, out of which grew the coconut (Luomala 1949: 81). In a third account, by Fariua-a-Makitua of Fagatau, Hina left her husband, Te Tuna (also known as Tuna-te-vai-roa) who lived beneath the sea; she eventually married Māui. Te Tuna attempted to overwhelm Māui with a storm surge but was defeated and lived with Hina and Māui. There was a subsequent contest when Māui entered Te Tuna's body, killed him and cut off his head. Hua-hega, Māui's mother, took the head and told her son to bury it in the corner of their house: it grew into the sea-green-coloured niu variety. A red-coloured niu had earlier grown from the head of Mahu-ika, which Māui had given to his grandfather, Tāne-te-vai-ora. Thus people acquired the niu as a food (Stimson 1934: 28–35). In a further narrative Hina was first married to Tuna-te-vai-roa, a mighty warrior, before living with Māui. Tuna's storm surges failed to overwhelm Māui, who then proceeded to cut off Tuna's limbs, including his phallus, which he gave to Hina, before decapitating him. Māui threw the body into the sea where it became the conger eel. He gave Tuna's head to his mother, Huahega, who buried it in the corner of their house. There it grew into the niu, which subsequently provided people with delicious-tasting food and water (Stimson 1937: 37–44).

Other Hina traditions appear elsewhere in East Polynesia. Stories from the southern Marquesan islands, in French Polynesia, do not mention the head/niu motif, but Hina is either swallowed or abducted by an eel, which is then killed by her husband, Māui. The chief Vaikau of Fatuiva Island said that Māui killed the eel by throwing heated rocks in the water (Von den Steinen 1988: 125). According to Taua-Hoka-Ani, a woman living in Atuona Village on Hiva 'Oa Island, Māui followed his mother's advice and blocked up the creek, found the eel, slit it open and retrieved his wife, who was still alive (pp. 114–15). The people of Pukapuka, in the northern Cook Islands, reported that a husband who had caught Tuna was told by him to cut off his head and bury it, from which grew the coconut. The rest of Tuna's body was given to the man's wife (Beckwith 1970: 104). Madame Butteaud, a descendant of Hina in Tahiti, recounted how her ancestor was promised in marriage to a chief with an eel body and fled to Māui for help. He caught the eel with his

baited fishhook, pulled it ashore, chopped off its head and gave it to Hina (Beckwith 1970: 102–3; Henry 1928: 615–17). Another Tahitian account says that Māui laid rollers across a path from the sea along which Hina had fled. When Tuna climbed the logs, Māui chopped its body into portions, starting from the tail, and gave Hina the head (Henry 1928: 620–21). A further Tahitian version relates how Taitua fled from the pursuing eel which was caught in a trap (Beckwith 1970: 103). According to a story from Mangaia, in the southern Cook Islands, Tuna (“the god and protector of all fresh-water eels”) actually instructed his lover, ‘Ina-moe-aitu, to cut off his head, which she did (Gill 1876: 77–78). In all these traditions from Tahiti and Mangaia, Hina was responsible for burying Tuna’s head, or leaving it on the ground, from which acts grew the coconut. The Mangaian story explains that from the two halves of Tuna’s brain (“te roro o Tuna”) grew the two varieties of coconut trees: one red and the other deep green in colour (pp. 78–79).

Because the niu could not grow in Aotearoa and Te Waipounamu, southern raconteurs, who had inherited this story from their ancestors, simply replaced that detail with local plant varieties (Luomala 1949: 120; Tremewan 2002: 95). The connection between Hina (or Hine), Tuna and Māui is found only in East Polynesian islands. Elsewhere in Oceania, such as in Sāmoa and Tonga, Māui is absent from the stories (Beckwith 1970: 103; Luomala 1949: 183).

The sexual motif associated with Tuna throughout the Pacific is retained in the Ruapuke and Creed stories. “The shape of the eel and its covering of slime make it an obvious phallic symbol, reflected in expressions such as *hiku rekareka* (tickling tail) used of sexual intercourse” (Tremewan 2002: 94). A similar interpretation applies to the Hina and Tuna story in Polynesia. For example, for Katharine Luomala (1949: 200) Tuna is an “erotic symbol” and “the bogeyman of beautiful girls”. The folklorist Martha Beckwith (1970: 488) considers that in Hawai‘i’s traditions the eel form is a phallic symbol. The anthropologist Christian Clerk (1981: 395–8), noting that in pre-Christian Mangaia women were prohibited from eating the eel, describes it as “a phalliform intruder into the female realm”, that is, into the interior of the island where women worked in the irrigated taro swamps.

MĀUI AND GAMES OF SPEED AND DEXTERITY

In 1875, Mohi Ruatapu, the most respected Ngāti Porou tohunga (priestly expert, scholar) of his generation, wrote a manuscript about Māui for the colonial militia officer Captain Thomas Porter, who had married a Ngāti Porou woman of rank, Here Waka: many of the genealogies in the book end with her name (Reedy 1993: 11–12). Amidst the major narratives, Ruatapu twice touched on Māui’s skills and achievements in a variety of activities, including a number of games.

The first of these passages appears after the youthful Māui had been recognised by his parents. “Tēnei anō tētahi mahi a Māui, he w[h]ai, he makamaka i roto i ō rātou ringaringa. He makamaka kai tētahi mahi a Māui” (p. 79). (This is another of Māui’s accomplishments, performing the string game and throwing from hand to hand. Throwing food is another of Māui’s accomplishments.) The second passage introduces Ruatapu’s concluding story of Māui and Hine-nui-te-pō.

Te mahi, he makamaka kai i roto i ō rātou ringaringa. Ka karanga mai ngā tuākana o Māui ki a ia, “Tauia ake ā mātou kai.” Ka tataua a Māui, kitea katoatia ā rātou kai e ia. Ka mea [a]tu a Māui ki a rātou, “Taua ake hoki taku kai.” Na, ka tataua rātou. Kāore i kitea e rātou te kai a Māui; nāna mārie i w[h]akaaatu ki a rātou. Ko tāna whakataukī tēnei. “Ko te kai a Māui, he ringaringa kau tahanga.” Kāore he kai o roto o tōna ringaringa. Ka karanga mai ngā tuākana o Māui ki a ia, “Māui e, ka w[h]ai taua.” Ka paki[a] atu e Māui, kua tū tāna; ko tana w[h]akataukī tēnei: “Ko te w[h]ai wawe a Māui.” (pp. 87–88)

The task was throwing food from hand to hand. The elder brothers called out to Māui, “Count our food.” Māui counted, seeing all of their food. He said to them, “Count my food too.” Now then, they counted. They could not see Māui’s food, so he carefully showed them. This was his saying: “The food of Māui, the hands are empty.” There was no food in his hands. The elder brothers called out to Māui, “O Māui, play string games.” Māui struck [his hands] together, and his was in place. This was his saying: “The quick string game of Māui.”

As Reedy (p. 245 n58) emphasises, such cultural inventions required considerable manual dexterity. The Māori of Aotearoa and Te Waipounamu named the string game whai after its inventor, Māui. Ruatapu’s name for this game, te whai wawe a Māui, refers to Māui’s quickness and dexterity as a player. The game is also known as te whai wawewawe a Māui, te whai a Māui, māui, hūhi or huhu (Best [1925a] 1976a: 74, 77; Williams 1971: 66). European observers often called whai cat’s cradle, the name of similar string games played in Europe (Andersen [1927] 2005: 1–2; Best [1925a] 1976a: 74–75). Appropriately for a game invented by Māui, it was played throughout Oceania, where it is often known by cognates of whai: ‘ai (Cook Islands), fai (Tahiti, Tonga, Tuamotus), whai (Manihiki, Rakahanga), hei (Hawai‘i) and tai (southern Kiribati, Tuvalu); other island names for this game include pe‘e (Mangareva), pehe (Marquesas), tuwanapeti (Kapingamarangi) and wau (northern Kiribati) (Buse with Taringa 1995: 10; Davies 1851: 80; Devonshire 1949: 112; Dickey 1928: 10; Emory and Maude 1979: vii; Handy 1925: 6; Maude and Maude 1936–1938, I: 3; Pukui and Elbert 1986: 64; Savage [1962] 1980: 11; Shibata 1999: 7; Stimson with Marshall 1964: 70; Te Rangi Hiroa 1932a: 197; 1938: 184; 1950a: 272; Tregear [1891] 2001: 604).

Throughout Oceania, people of all ages enjoyed playing these string games. One or more performers manipulated a piece of cord so as to create a series of meaningful shapes, using their hands, sometimes in combination with their feet, mouth or teeth. By this means, performers created a rich and often complex range of images, including significant features of the natural world, such as important mountains, islands, springs, flora and fauna; buildings, boats and other material objects; planets and stars (such as the Pleiades, known as Matariki or its cognates); the spirit domain; episodes concerning the Māui story; narratives about the many ancestral figures who appeared in various island or tribal histories; sexual allusions; parts of the human body; physical activities, such as children playing games; and ritual elements (e.g., Andersen [1927] 2005; Best [1925a] 1976a; Devonshire 1949; Dickey 1928; Handy 1925; Maude and Maude 1936–1938; Shibata 1999: 7).

Some European observers tended to equate the creation of these string figures to children's games, but the evidence indicates that in fact these works were complex performances requiring the rapid manipulation of a cord to form a sequence of visual images while the performer or performers accompanied these actions with short songs, chants or stories linked to the particular images. C.W. Devonshire (1949: 114) noted that a performer had "to work quickly with the fingers to keep time to the beat of the rhyme". It is thought that formerly each Hawaiian *hei*, or string figure, was accompanied by highly figurative chanted poetry, which Lyle Dickey (1928: 11–12) suggests was "the literature of the common folk". One of the *hei*, *Hana Ka Uluna*, had a ritual purpose intended to heal the sick, with the priest chanting prayers while manipulating the cord (p. 143). In Kiribati, string figures are said to have been performed during creation, at the setting of the sun, to bring about an eclipse, as part of death ceremonies and on the spirit's journey after death (Maude and Maude 1936–1938, I: 8–12). In the Marquesas and Society Islands, in French Polynesia, each string figure was accompanied by a metrical chant, called *ha'anaunau* and *pāta'uta'u* respectively, which explained the story being illustrated by the performer (e.g., Handy 1925: 10, 44, 67, 75, 84, 89). It seems likely that many string figures recorded here in Aotearoa and Te Waipounamu were accompanied by an explanatory story (Andersen [1927] 2005: 18). Songs and chants also accompanied particular string figures (e.g., pp. 13, 17, 30, 101, 135, 143). Ngāti Porou expert Tuta Nihoniho quoted *whakataukī* (wisdom sayings) praising the skills of those performers able to create the most complex *whai*. He added that such accomplished performers and the art of *whai* were considered worthy of the *whare wānanga* (schools of higher learning): "He *whare wānanga taua mea te whai*" (Andersen [1927] 2005: 3; Best [1925a] 1976a: 78, 80). Such status is perhaps to be expected for an art form originating from Māui.

Reedy (1993: 245 n60) interprets Ruatapu's reference to throwing from hand to hand ("makamaka") as juggling. This most likely alludes to the game that Nihoniho labels kai makamaka. Amongst Tūhoe it is known as ruru. Other names are kōruru, tutukai and tī kai (Best [1925a] 1976a: 55–57; Williams 1971: 88, 353, 414, 463). Best calls it jackstones, a game also known in English as jacks, fivestones, dibs, knucklebones or hucklebones, an ancient game common to many cultures (*Encyclopaedia Britannica* 2014; *Play and Playground Encyclopedia* n.d.; Wikisource Contributors 2023). The older Māori that Best consulted described it as a game normally comprising five pebbles which were picked up, tossed and caught in the hand, or on the back of the hand, through a series of increasingly challenging stages, each requiring more stones to be used. Success was measured by how many stones were kept on or in the hand at the end of the game (Best [1925a] 1976a: 55–60). "These movements call for remarkable dexterity and swiftness of action, not to mention delicacy of touch; and a successful player was much admired" (pp. 58, 60).

This game appears throughout Polynesia. Cook Islanders called it pere or pere tūtī in Rarotonga and Aitutaki, employing the seeds of the candlenut tree (tuitui, tūtī, *Aleurites moluccana*). The game involved players picking up, tossing and catching the candlenut seeds on the back of their hand through a series of increasingly complicated stages (Buse with Taringa 1995: 338; Te Rangi Hiroa 1927: 326–27; 1944: 261). Te Rangihiroa compared it to jackstones or knucklebones, noting it taught "quickness of eye and dexterity of movement" (Te Rangi Hiroa 1927: 327).⁵ The people of Mangaia played a similar pebble throwing game called peipei, pēpēi or tīri pei (Shibata 1999: 211, 325). In Tahiti, timora'a ("stone hitting"), also known as timo, involved throwing and receiving pebbles in the hands (Davies 1851: 270; Henry 1928: 279). Timo (or simo) was also the local name in Niue for the game of jackstones (McEwen 1970: 332). The game was called kimo in the islands of Hawai'i (Pukui *et al.* 1979: 38; Pukui and Elbert 1986: 152). Girls in Sāmoa frequently played the game of sapo, or jackstones, with five stones. It involved a series of increasingly complicated physical movements requiring speed and dexterity while the stone or stones remained in the air (Te Rangi Hiroa 1930: 553–55).

Reedy (1993: 247 n91) thinks that Ruatapu's mention of food-throwing ("makamaka kai"), or throwing of food from hand to hand, also referred to a form of juggling. Elsewhere in Polynesia there are throwing games that resembled makamaka kai and involved food items. For example, the Mangaian culture hero Ngaru defeated female spirit beings at a game of pē'i (ball throwing) and introduced it to humanity (Reilly 2015: 165, 166, 173–74). This game, also called pē'ipē'i or pēpē'i, and described as juggling, involved the tossing and catching in the hand of round objects, such as the seeds, fruit or nuts of various trees. Players threw four or more such objects

(Buse with Taringa 1995: 335, 337; Savage [1962] 1980: 245; Shibata 1999: 211). Victory went to the person who could keep more objects in the air for longer than anyone else (Te Rangi Hiroa 1944: 260). In Ngaru's contest, they threw seven or eight objects (Reilly 2015: 174). Female performers in Mangareva, in the Gambier Islands of French Polynesia, threw up and juggled (*kita'i*, *pei*) up to eight *rama* (round, walnut-sized candlenut tree seeds) at a time from a sitting position. The victor was the one who kept all their *rama* in the air without dropping one (Te Rangi Hiroa 1938: 185–86). Augustin Krämer (1995: 382) refers to juggling or throwing games in Sāmoa that involved wild oranges (*fuaga*, *te'aga*, *tuaefula* [*tia'ifua?*]).

Clearly, the games Ruatapu calls *makamaka* and *makamaka kai* existed throughout Polynesia and might involve small stones, plant seeds or fruit. To keep track of how many objects each player was catching in their hands, others would have kept a count, as shown in Ruatapu's 1875 text. Typically, Māui's food throwing was so quick that no one could see and count the food he caught in his hands. He was the ultimate contestant. Not surprisingly, in a number of Polynesian islands, Māui is associated with various games, either as their inventor or the most able player (Luomala 1949: 76). If it was not Māui, then a culture hero, like Mangaia's Ngaru, was linked to a game's origins.

In Aotearoa and Te Waipounamu, there was another game frequently associated with Māui. It appears in various stories including the ones told by the Ruapuke Island elders, as well as by other Kāi Tahu raconteurs, and by Ruatapu. In these narratives, Māui contrived to meet his family by playing darts with his elder brothers. According to the Ruapuke raconteurs, Māui came upon his brothers playing darts (*"kōkirikiri"*) together. He then joined the game, throwing his dart so far it smashed into his parents' house and broke the *maihi* or bargeboard, thus setting the scene for him to meet his mother (Tremewan 2002: 75). The game of *kōkirikiri* involved using a stick to launch a dart some distance (Beattie 1994: 75–76, 557).

A similar story is told in other Kāi Tahu accounts. The Moeraki-based scholar Matiaha Tiramōrehu has Māui join his brothers' dart-throwing game (*"tīmatamata"*) and break the *maihi* of his father's house with his dart (Waiti 1887: 72–73; White 1887: 80). Creed depicts Māui playing in his brothers' game of darts (*"niti"*). His dart or *niti* hit the parental house and caused his mother's own house to fall down (Waiti 1887: 74; White 1887: 81–82). Several other versions were told to Beattie around 1920. In one the brothers and Māui threw *pukakaho* reeds (*toetoe*, *Cortaderia* spp.). While the brothers' reeds only went a short distance, Māui again threw his so strongly it broke the *matapihi* (gable-end) of his mother's house (Beattie 1994: 556). Another account explains that the brothers were playing a game of *kōkirikiri* (or *kotiritiri* [*kōtiritiri?*]) where a dart (called *kōauau* after the kelp from which it was made) was projected with a stick. Again, his dart went so far it broke the *maihi* of his grandfather's house (pp. 75–76, 557).

Like Māui, another young man of rank named Hutu also astonished other players with his great skills, being able to throw his dart or teka so far that it reached the doorway of the house where Pare, a puhi or young woman ceremonially dedicated by her community, had been watching him. Just as Māui's teka brought about the meeting with his mother, so Hutu's teka was the means by which he met Pare, who promptly declared her love for him (Orbell 1992: 67, 70).

Ruatapu wrote two versions of the dart-throwing game. A few years before the 1875 text for Porter, he had written another manuscript, in 1871, for the great Ngāti Porou leader, Rōpata Wahawaha (Reedy 1993: 12). In this earlier account Ruatapu describes some of Māui's elder brothers trying to launch darts ("kōkirikiri teka") over the backs of some of their siblings, without much success. Māui, still a child, appeared and took one of their teka and successfully launched it over the brothers' backs—a feat he repeated multiple times, to the amazement of his brothers (p. 19). According to Ruatapu's 1875 version (p. 78), Māui called on his brothers to lie face downwards whereupon he threw his teka over their backs: "[K]oia e papa nei te tuarā o te tangata" (and that is why people's backs are flat). Best explains how the repeated hitting of the dart caused a hollow to be formed in human backs (Best [1925a] 1976a: 63). A similar motif is found in the story about Wharematangi, who cast his teka off the hollow of his mother's back in order to successfully search for his father (p. 65).

In Aotearoa and Te Waipounamu, darts were called teka, neti, niti or pehu, and measured around three feet (0.9 m) in length.⁶ They were made from a thin, light and straight piece of wood, typically a stem (kākaka) of rārahu (bracken, *Pteridium esculentum*; also known as mākaka, manehu, mārohi, rahurahu, rarauhe, rarauhe-mahuika, tākaka [Williams 1971: 175, 183, 320, 326, 368]). Teka might sometimes be made from the light wood of the whau tree (*Entelea arborescens*, also known as hauama, houama, whauama [pp. 40, 63, 492]). The front end would be bound by a narrow strip of harakeke to form a knob (pōike). The game, called neti or whakatekateka, was played on a strip of flat land cleared of any plants or other obstructions. This area was known as the marae teka, marae toro teka or papa pere. A player would hold their teka in their right hand, forefinger resting against the butt, and run in a stooping posture towards a mound of earth at a distance of some 30 feet (9.1 m), launching their dart at the mound with an underhand cast (piu teka, toro teka, tekateka). The dart would glance or graze the top of the mound and be launched off into the air. The winner was the one whose teka landed the farthest away (i a ia te piro). The first player to win ten rounds was the winner. Conventional numbering was used for scoring, except for ten, when people would call out, "Ka piro" (Out). To ensure success people performed karakia (formulaic chant, ritual chant) over their teka. In a number

of narratives Māui invented this game, although in the southern kōrero (story, narrative) he seems to have been the victor in the game his brothers had been playing (Best [1925a] 1976a: 61–64; Williams 1971: 221, 222, 410).

This game is found throughout Polynesia, where the dart was known as *tika* in the west and *teka* in the east. In the Polynesian Outlier of Tikopia, in the Solomon Islands, the *tika* had a shaft about three feet in length (0.9 m) with a heavy head (*fue tika*), some five inches (12.7 cm) long and made from the *toa* tree (ironwood, *Casuarina equisetifolia*). Games were played on the *marae tika* (dart pitch), a strip of land some 130 yards long (118.87 m) and just six to seven feet wide (1.8 to 2.1 m) (Firth 1930: 65–66). Before a match the strip was carefully levelled and cleared of vegetation and other obstructions, “like an over-developed cricket pitch” (p. 65). *Tika* games were immensely popular with large crowds attending, comprising all ages and sexes, all dressed up in their finest (p. 64). The game was always considered a sport of the *atua* (gods) and possessed a degree of *tapu* (sacredness), but in the pre-Christian era certain games were marked by more ceremony involving rituals intended to gain divine support for the success of players (pp. 67, 73–77). The games were played by two teams. For players, the objective was to throw their *tika* so that it landed ahead of all the others (*mua tika*). Such a dart was said to eat (*kai*) the others, that is, to gain a point. The team able to achieve ten *kai* (points) was victorious (pp. 67, 69–70). Raymond Firth provides a vivid description of a player’s throw:

Holding the *tika* across his body, the butt in his right hand, with its end pressed hard against the tip of his fore-finger, and supporting the head with his left, he advances with a graceful swaying motion—the *oriori*—looking straight in front of him, his face serious, with a rather self-conscious air. Then he quickens his pace and covers the last few yards in a sudden sprint, the muscles of his calves standing out noticeably with the effort. At the same time he releases his left hand and swings the *tika* round, poising it in the air and drawing back his right arm to the full as he does so. Reaching the throwing stand, with his eyes firmly fixed on his goal, he checks for an instant and hurls the dart forward in a round-arm movement, with all his strength and no little grace. The arm is not bent at the elbow at the moment of projection, but swung from the shoulder, while at the same time an added impetus is given by twisting the body away and down to the left as the shaft leaves the finger. An energetic player will always throw himself off his balance by the effort, and at the completion of the cast be on his hands and knees or even prone on the ground. (Firth 1930: 82–83)

The aim was not to throw high or horizontally, but rather to jerk the throwing hand downwards so as to elevate the *tika*, ensuring that it flew at an angle to the horizontal plane, the head slowly lowering till the *tika* hit the ground and glided along with limited loss of momentum (p. 83). A normal good throw

averaged about 140 yards (128 m). An exceptional throw would have the crowd applauding, calling out and crowding in to gaze at the tika (p. 86). By contrast, players performed silently, a reflection of their anxiety, since a bad throw in front of everyone caused players to experience shame; such failures had been known to prompt a player's suicide (pp. 88–90).

In Sāmoa ti'a (sticks, javelins) were made of various light woods, commonly the fu'afu'a (*Kleinhovia hospita*) or mamala (*Homalanthus* spp.). The ti'a were differentiated by name depending on their length, from the shortest (tapu'u, tafau) at around 20 inches (50.8 cm), followed by tasali (about 30 inches [76.2 cm]), talu, tafua (about four feet [1.2 m]), velo (about four to five feet), to the longest, ulutoa, at about five feet (1.5 m), with a head (ulu) made of toa wood. Ti'a were played by opposing teams in the tāgāti'a (stick or javelin throwing game [Krämer spells it ta'agati'a]). Players would first recite a chant over their ti'a to ensure success. Games were played on a cleared space, about 100 to 150 feet long (30.5 to 45.7 m), such as a road. A sloping ramp (pāga) was constructed at each end. The aim was to strike the pāga with part of the ti'a. For the short tapu'u and tafau players stood beside the pāga, but for longer ti'a a player would make a short run before throwing their ti'a towards the pāga while standing side on, in either an overhand (velo) or underhand (tasali) sweep. Ti'a could also be launched a greater distance with a throwing cord made from the bark fibres of the fau tree (*Hibiscus tiliaceus*) (ti'a fafau). A successful throw was one where the ti'a glanced off the pāga, maintained a straight flight and went farther than all the others. Each ti'a that went farther than those of the other team achieved a point (Krämer 1995: 382–84, 424 nn35–36; Moyle 1970: 233–39; Te Rangi Hiroa 1930: 566–70).⁷

In Niue, locals played the game of tātika (or tāsika), throwing a tika measuring about 5 feet (1.5 m) in length along a malē tika (cleared space for tika playing) (Loeb 1926: 117; McEwen 1970: 185; Smith and Pulekula 1983: 73, 116–17).

In the Cook Islands teka referred to the dart, to the action of throwing it and to the cane-like stems of the kāka'o plant (*Miscanthus floridulus*) from which darts were made (Buse with Taringa 1995: 142, 482). In 1975 I watched some Rarotongan youths launch their teka down a flat, tar-sealed road. The contest was keen and accompanied by shouts and cheers from those watching as each teenager took his turn. These teka were about an arm's length and made of thin bamboo rods.

In Mangaia, the game (teka, tekanga) was played in the pre-Christian era by either men or women in separate competitions. Before a competition, players would gather a bundle of the longest kāka'o stems from growing places in the valleys. They would then set about strengthening the striking end with strong bark, rounding and smoothing the throwing end, and finally, straightening the stems by slightly singeing them over a fire. At a game,

players were organised into teams. Each player would throw (*teka*) their *tao* (javelin, short throwing-spear)—a much longer object than the Rarotongan *teka*—on a *ta'ua* (cleared space, pitch) using either an underhand (*teka'ia nā raro*) or overhand throw (*teka'ia nā runga*).⁸ The player whose *tao* went the farthest gained a point (*kai*). All the *tao* from that player's team that outdistanced the farthest throw of the other team each gained a *kai* (Buse with Taringa 1995: 439, 470; Gill 1876: 119–20; Reilly 2015: 156–57, 168; Savage [1962] 1980: 364; Shibata 1999: 299, 309; Te Rangi Hiroa 1934: 149–50). Tarauri (“the true patron and chief of all reed-players”), a son of the *atua* (god, spirit being) Tangaroa, threw a *tao* that flew into the sky and remained airborne for eight whole days (Gill 1876: 120–21).

Aitutaki had five local types of darts (*okaoka*, *teka kioire*, *teka kōki'i*, *teka tā manu'iri*, *tumutumu*). Most were made from the *teka* of the *kāka'o* plant, although the *okaoka* could also be made from thin rods of the 'au (beach hibiscus, *Hibiscus tiliaceus*) tree. The *okaoka* was the longest at “two spans in length” whereas the other dart types were “much shorter”, measuring about 10 inches to 4 feet long (25.4 cm to 1.2 m) (Te Rangi Hiroa 1927: 335–38). In the *teka* game Te Rangihiroa observed in 1926, most players favoured the *tumutumu*, individual specimens of which varied in length between about 2 to 4 feet (0.6 to 1.2 m), although the more successful ones were the longest (at 3 feet 9 inches or 1.14 m); all were quite thin, measuring three tenths to two thirds of an inch in diameter (0.76 to 10.16 mm). Like other *teka*, the *tumutumu*'s front end was bound by bast or inner bark (*kouma*), usually from the 'au tree or the banana plant (*meika*, *Musa* spp.), and covered in the sap or resin (*tāpao*, *tāpau* or *tāpou*) of the breadfruit tree (*kuru*, *Artocarpus altilis*). This corrected a dart's tendency to fly skywards (*rere tuārangi*) and so lose the all-important distance (Buse with Taringa 1995: 204, 448, 452; Savage [1962] 1980: 352–53; Te Rangi Hiroa 1927: 335–38). Te Rangihiroa's description of a player's throw is arguably the best one for East Polynesia:

The *tumutumu* was held with the right forefinger over the unbound end. This end was trimmed to suit the taste of the owner. Some were cut straight across, others slanted, and others grooved to fit the forefinger. With the forefinger bent over the end, the shaft was gripped between the thumb and middle finger. In advancing to throw, the *teka* was held in a natural position across the breast. The player took his run, and as he neared the mark he brought the right hand back to full stretch, turned sideways, and, stooping, dashed the *teka* forwards and downwards, so that the head struck glancing against the ground immediately to the front. A slight rise in the ground favours the throw, but no artificial mound was made. In fact, the properly cast dart will rise off the level ground. The dart glances off the ground, and the effect is surprising. A good cast will rise in a swift, low trajectory, reach its maximum height like a golf ball, and come gracefully down. It is the straight throw with the right trajectory that denotes skill. A poor throw will not rise, or will rise too

high, and so lose distance. Some strong throws will turn to the right or left, and also lose distance. The competition is for distance. Distance cannot be obtained unless direction is maintained, as well as strength and trajectory. In competitions there are no restrictions as to the length of the dart. [A longer okaoka can compete against the shorter tumutumu.] ... *Scoring*. In matches all the competitors had one throw from a given mark. They could take as long a run as they liked, but crossing the mark disqualified the throw. The longest throw counted one. The first competitor to reach six won. The counting of the numbers is not the usual numeration, but is peculiar to the game. ... [Kereti = 1, Karua = 2, Kiha = 3, Kiono = 4, Ituku = 5, Rē = 6. Rē = victory.] A dead heat between throws is called *mua te kai*. (Te Rangi Hiroa 1927: 338–39; my summaries in brackets)

In the 1926 competition, a young man called Tahunga (Ta‘unga?) won with a throw of 86 yards (78.64 m) (pp. 336, 340). Ngata-ariki, the founder of the game in Aitutaki, recited a chant and cast a dart which disappeared over the horizon (pae o te rangi) (p. 340).

In the Hawaiian Islands the ke‘a was made from the flowering stem (pua) of the sugar cane (kō) (Pukui and Elbert 1986: 156, 344). The ke‘a pua measured about two feet (0.6 m). The game was only played by adults and children during the Makahiki season. As in other islands players would run in and launch their ke‘a at a mound, causing the dart to fly off “with as graceful a trajectory as a well-hit golf ball”. Victory went to the player who first landed their dart farther than any competitor ten times (Te Rangi Hiroa 1957: 377–78). In a tradition paralleling the Māori Pare and Hutu story, a dart belonging to a young man, Hiku (the equivalent Hawaiian name to Hutu), possessed magical powers, which enabled it to travel great distances until it landed at the feet of the chiefly young woman, Kawelu, who fell in love with him (Thornton 1987: 13–15).

In Tahiti, the game appears to have transformed into an elite and sacred sport of archery (te‘ara‘a) played on stone platforms (vāhi te‘a) and associated with much ritual, at least for male players. Women seem to have played in separate competitions. Illustrations of the arrow (te‘a) show how much it resembled the teka of other islands, being made of bamboo (‘ohe, ‘ofe, *Schizostachyum glaucifolium*), measuring between about two feet six inches (0.76 m) and three feet in length (0.9 m), without feathers or barbed point, the latter instead tipped with a hard point of ‘aito (ironwood, *Casuarina equisetifolia*) (Handy 1930: 58–59; Oliver 1974, vol. 1: 320; Wahlroos 2002: 556, 681; Whistler 2009: 55, 187). Even the objective of the game resembles the darts game since shooting an arrow farther than any other competitor, not marksmanship, was the objective. Using a bow enabled te‘a to travel much greater distances, sometimes as far as 300 yards (274.3 m) (Henry 1928: 276; Oliver 1974, vol. 1: 320, 377–78). The similarities are also found in the meanings of the relevant words. Thus te‘a is glossed

as both arrow and dart, while a nineteenth-century synonym, ‘ohe (dart), clearly functioned as an arrow, as suggested in historical words such as ohemoepiha (“dart preserved in a quiver”) (Davies 1851: 160, 263; Wahlroos 2002: 664). The nearby Tuamotu Archipelago resembles Tahiti, defining teka as an arrow (Stimson with Marshall 1964: 520). While in other islands darts were sometimes launched from sticks, here the bow provided an even more effective launching device.

In other East Polynesian islands, dart- or javelin-throwing games used different terminology in place of teka. In Manihiki, in the northern Cook Islands, the to (tō?) or dart measured about six feet (1.8 m), although one specimen was 6 feet 9 inches (2 m) in length. The game was the same as elsewhere except the to was launched using both hands (Te Rangi Hiroa 1927: 340; 1932: 196–97). In Mangareva darts were called pau (Te Rangi Hiroa 1938: 183).

If other islands had their own distinctive inventor or first user of teka, here in Aotearoa and Te Waipounamu that honour was always awarded to Māui. The athleticism, technical virtuosity and competitiveness required for success in this game reflect exactly the attributes of a hero like Māui.

MĀUI AND THE INVENTION OF ROPE

Wiremu Maihi Te Rangikāheke, a young man of rank from the Ngāti Kererū hapū (smaller descent group) of Ngāti Rangiwehewehi, had begun by the later 1840s to acquire a reputation for writing down Māori oral traditions and providing them to interested Pākehā (New Zealand European) officials, including the governor, Sir George Grey. Subsequently, Te Rangikāheke began working for Grey from 1849, acting as his tutor in the Māori language. From then until 1853, the year Grey left New Zealand, Te Rangikāheke wrote an enormous body of manuscripts for him (Curnow 1985: 98, 101–5). Around the time he began working for Grey, Te Rangikāheke wrote an account about Māui as the concluding section to a larger narrative, known as “Nga Tama a Rangi” or GNZMMSS 43, which begins with the creation and the conflicts amongst the sons of Rangi and Papa (p. 120).

When recounting the story of how Māui slowed down the sun, Te Rangikāheke explained how this hero made the rope with which the sun was bound while Māui beat him into submission. In this adventure he was accompanied by his four older brothers.

Kātahi rātou ka whiri taura, ka kitea i reira te whiri tāmaka, te tari kākāriki, te whiri pāraharaha, te rino. Ka oti ngā taura te whiri. (Thornton 1992: 22)

Then they plaited rope. There they discovered the round plaited rope with four or more strands, the plaited rope of four strands, the flat plaited rope with three strands and the twisted rope of two or more strands. The plaiting of ropes finished.

Grey's translation of this passage has Māui and his brothers making the rope from harakeke (Grey [1855] 1956: 26). With the aid of his brothers, Māui had invented rope-making: "Theirs was the primal performance of these arts from which all later practice derived" (Thornton 1992: 75 n9). It was another of Māui's innovations that would benefit subsequent generations.

Te Rangikāheke was also the author of another manuscript about the killing of three taniwha by Te Arawa warriors. In December 1849, he gave this document to G.S. Cooper, the governor's assistant private secretary, who was accompanying Grey and his party during the latter's visit to Rotorua (Cooper 1851: 128–29; Curnow 1985: 102). In this text a party out searching for missing travellers came upon the taniwha Hotupuku, which killed many of them (Grey 1971: 126–27). Realising this powerful creature had slain all those people, a large force of warriors ("te rau mā whitu") set out for the plains of Kapenga, where Hotupuku dwelt.⁹ There they stayed,

kei te muru whanake, kei te whiri taura; ka kitea i konei te whiri maha nei, te tari, te tāmaka, te whiri pāharahara, te rinorino; ka rūpeke te whiri. (p. 127)

gathering [or plucking off] leaves of whanake [cabbage tree, *Cordyline australis*] and plaiting rope; they discovered here many [rope] plaitings: the eight-stranded square rope, the five-stranded round rope, the three-stranded flat rope, the twisted rope of two or more strands. The plaiting was completed.

These ropes were subsequently used to catch and hold Hotupuku until the warriors were able to slay it (pp. 127–28).

These two stories by Te Rangikāheke relate different origins for rope-making. In the first story, it is discovered in the era when tricksters and culture heroes were wresting knowledge from the spirit powers and passing practices like rope-making on to humanity. The second story takes place in a later era, soon after the historic migrations of the ancestral waka (ships, vessels, boats) from Hawaiki, a key moment in the histories of Māori iwi (tribes, peoples). Te Rangikāheke locates this story in a world peopled by the sons of Tama-i-hu-toroa, whose own father, Ihenga, the grandson of Tamatekapua, had helped establish descendants from the Te Arawa waka inland around the lakes of the Rotorua region (Grey 1971: 126; Stafford 1967: 24–42). This was a world still under threat from dangerous and very powerful beings in the form of taniwha. Hotupuku is described as being as big as a southern right whale (tohorā) or a sperm whale (parāoa) and having the form of a reptile (ngārara) or a tuatara (*Sphenodon punctatus*) (Grey 1971: 128). The challenge these warriors face resembles Māui's own struggles against the supernatural forces, perhaps explaining why both are linked to the invention of rope, since each has a need of it. The similar

wording of the discovery of rope-making in these stories is a reminder that Te Rangikāheke saw the two narratives as connected: just as Māui was for him a descendant of Tū-mata-uenga, so too were Te Rangikāheke's Te Arawa ancestors descended from Māui (see Thornton 1992: 21, 44). Nor should Te Rangikāheke's two different origins be entirely surprising, since the oral world accepted diversity and difference as part of the art of storytelling. For Te Rangikāheke, as an inheritor of that world, there was never a single, fixed and authoritative origin story for rope-making but rather a range of explanatory accounts in circulation that he set about to record and pass on to interested Pākehā.

The making of rope in Polynesia was a critical cultural invention, for rope literally held things together, enabling and sustaining the economies that allowed these island societies to prosper both on land and at sea. It is not surprising therefore that a hero like Māui was associated with such an important product. In Aotearoa and Te Waipounamu, rope or cord (taura) was manufactured from different plant materials, most commonly from varieties of harakeke but also, as the Hotupuku story reveals, from leaves of the whanake tree (also known as tī kouka), as well as other types of tī (tī pore, *Cordyline fruticosa*; tī ngāhere, *Cordyline banksii*; tī rauriki, *Cordyline pumilio*), and from lacebark (ribbonwood, *Hoheria populnea*; variously known as whauwhi, houhi, hoihere, houhere and houī) (Best 1924, vol. 2: 531; Hamilton 1896: 273; Simpson 2000: 144; Te Rangi Hiroa 1923: 707–9; Williams 1971: 56, 63, 492). Whanake leaves did not shrink in water and were known to be strong and durable. Such qualities meant they were particularly favoured for making multistranded ropes capable of handling heavy weights, such as dragging a waka, holding an anchor in water or tightly clamping house rafters to the wall posts and ridgepole (Best 1924, vol. 2: 565; [1925b] 1976b: 103; Colenso 1891: 467; Simpson 2000: 160–61; Te Rangi Hiroa 1950b: 125–26).

The Māori economy needed a lot of plants to be harvested and processed. Māori communities generally had a pā harakeke (plantation, garden or grove of harakeke) conveniently nearby for this reason (Best 1924, vol. 2: 514; Te Rangi Hiroa 1923: 707). Presumably the Te Arawa warriors stayed on the Kapenga plains to access a good supply of leaves, since the whanake tree preferred such open spaces (Simpson 2000: 52, 56). Māori planted pā tī (groves of cabbage trees) to catch the kererū attracted to the tree's fruit (p. 82), and doubtless such groves also provided the abundance of leaves needed for rope-making.

The manufacturing of rope from whanake is not well described in sources, but a rough and ready rope could be made simply from gathering dead leaves into a bundle ("How to Make Rope" 2020). However, other sources

suggest whanake leaves were subjected to more preparation. According to the nineteenth-century ethnographer William Colenso (1891: 467), unscraped whole leaves were gathered, then laid carefully in the shade so as to wilt them before being soaked in water to make the leaves more pliant, presumably for plaiting (whiri) rope. For modern weaver Erenora Puketapu-Hetet (1989: 14), green leaves gathered from the trees only needed to be boiled (kōhua, kōhue) before being ready for use. Another modern guide recommends separating the fibres of dry, dead leaves and cutting off the leaf bases in readiness for plaiting the split fibres into a rope (Auckland Botanic Gardens n.d.).

The commonest fibre used for making taura was the harakeke, explaining perhaps why Grey assumed Māui and his brothers used this material for rope-making. In preparation the harakeke leaves were split into strips (toetoe), separated (tākirikiri) from the leaf base or butt (pūtake, take) and then softened by scraping (hāpine, hāro, kaku or pīahu). The strips or strands (whenu, io, wenu, whengu, kāwiriwiri, kanoi) were then ready for making taura. Alternatively, to obtain a whitening effect, whenu might also be subjected to additional preparation stages involving boiling (kōhua, kōhue) and drying (whakamaroke). Taura might also be made from muka, although such ropes were not as strong. Muka (also known as whītau or hītau) was the fibrous material exposed by the stripping off of the outer layers of a harakeke leaf. Once cleaned, lengths of muka were then rolled or twisted (miro) on the right thigh to form a cord. Larger ropes of the harakeke or whanake were manufactured by plaiting (whiri) multiple whenu or io together.¹⁰ This required two people: one plaiting by hand and another holding the start of the taura; alternatively, the plaiter held the knotted beginning of the taura between their big and index toes or underfoot ([Ahipene] 2015; Auckland Botanic Gardens n.d.; Best 1924, vol. 2: 514, 516; [1929] 1977: 34; Brown 2008; [Gillbanks] 2018; “How to Make Rope” 2020; Muka Rope 2020; Puketapu-Hetet 1989: 9–10, 20–22, 41–44, 75–78, 86–88; Te Rangi Hiroa 1923: 706–13; Tregear 1904: 231; Williams 1971: 78, 94, 111, 372, 402, 494, 496, 497).¹¹ The preparation and manufacturing processes for whanake and harakeke explain why groups of men were involved: rope-making required a team approach.

As the passages from Te Rangikāheke’s two stories make clear, taura were classified by the number of whenu or io they contained, with more strands making a stronger, larger rope, and by their shape: round (tōpuku), flat (pāharahara) or square (porowhā or tapawhā). The following list of taura, arranged by number of whenu and rope shape, is a testament to the inventiveness of Māui and the early Māori ancestors (list compiled from Best 1898: 652–53; 1924, vol. 2: 531; Hamilton 1896: 295; Puketapu-Hetet 1989: 43; Tregear 1904: 231; Williams 1971: 80, 111, 247, 259, 275, 295, 331, 341, 381, 391, 402, 406, 437, 446).¹²

Two: tāwai (twist);
 Two or more: tōpiki, rino (twist), rinorino, whiri rino;
 Three: whiri kawē, whiri pārahara (both flat), whiri kōrino (round),
 whiri papa (flat; or general term for flat plait);
 Three or more, or five or six: rauru (flat);
 Four: tuapuku, whiri tōpuku, whiri tuapuku (all round), whiri mekameka
 (flat), tari kākārīki, whiri puku;
 Four or more: whiri tāmaka (round);
 Four or eight: iwituna (round);
 Five: tāmaka (round);
 Five or six: tuamaka (round);
 Eight: tari, tari karakia, whiri o Raukatauri or whiri raukatauri (all square),
 whiri tarīkarika, whiri tuawaka;
 Eight or more: whakaiwituna (round);
 Eight or nine: whiri pekapeka (flat);
 Ten: whiri taurakaka, whiri taurakeke (square).

Elsewhere in Polynesia, Māui is also linked with the invention of rope-making. In Mangaia, Māui was the child of Puataranga and her husband, Rū. Māui decided to capture the sun in order to lengthen the day (Gill 1876: 51, 61).

Karanga atu a Rū, “E a’a tā’au rāvenga e rauka [a]i?” Karanga atu Māui ē, “E ‘ere i te taura.” Kua ‘iri i te taura. I iri amoamoa ē 6 taura: 2 angaka’a te roa i ngā taura ē 6. (“Tērā mai taua kete ‘amo rā, n.d.”; my brackets, diacritics, punctuation)

Rū said, “What is your plan to achieve it?” Māui said, “Tether him with rope.” He plaited the rope. The six ropes were placed upon a carrying pole: the six ropes were two angaka’a long [about 36 m].¹³

The rendering of this passage by the nineteenth-century missionary ethnographer William Wyatt Gill provides additional details: “Māui now carefully plaited six great ropes of strong cocoa-nut fibre, each composed of four strands, and of great length. These wonderful cords of his were named by the inventor Aei-ariki [‘Ā’ei-ariki], *i.e. royal nooses*” (p. 61; my brackets, italics in original). This name was also rendered “Taei-ariki” (Tā’ei-ariki) (p. 61). Māui’s six ropes caught parts of the sun’s body, with the sixth one catching round his neck. Māui then secured the ropes to a stone. As a result the sun travelled more slowly (Tērā mai taua kete ‘amo rā, n.d.; Gill 1876: 61–62). According to Gill, Māui refused to take the ropes off, and they remain today: “te taura a Māui”, or the rays seen at the sun’s rising and setting (Gill 1876: 62–63; Savage [1962] 1980: 366).

A story recounted by various experts in Porapora and Ra‘iātea, in the Society Islands, describes how Māui responded to the short days by taking ten ropes in order to tie each of the sun’s ten rays to rocks, thus fixing the sun in place so that people could finish their work (Henry 1928: 430). According to experts in Hawai‘i, Māui made strong coconut fibre rope (‘aha) with which he then lassooed the sun’s rays to slow it down (Beckwith 1970: 230–31), an act recalled in the Kumulipo creation chant: “I kipuka ‘ahele a Māui i ka La” (“With the loop of Māui’s snaring-rope” [Beckwith 1972: 136, 238; my diacritics]).

Stories from other islands say that Māui made ropes from local plant materials and human hair. According to several experts in Tahiti, Māui decided to make nooses to catch and slow the sun. He made strong nooses from a variety of plants used to provide cordage: the rō‘ā (*Pipturus argenteus*), considered to have one of the strongest bark fibres in all of Polynesia; the mati (Dyer’s fig, *Ficus tinctoria*), which also had a strong bark fibre; the ‘ie‘ie (*Freycinetia arborea*); the more or bark of the young pūrau tree (fau, hau, beach hibiscus, *Hibiscus tiliaceus*); and nape or cord made from coconut husk fibre (a‘a) (Davies 1851: 146; Henry 1928: 431; Wahlroos 2002: 110, 260, 594, 647; Whistler 2009: 119–20, 132–33, 174). In addition, Māui braided head hair (“firi rouru”) from his sister, Hina-hinatō-tō-io. Māui threw all his nooses over the sun and then fastened them to a nearby stone. The sun was able to burn all the nooses except for the one made from Hina’s hair, which held him, forcing him to go slower. The other ropes, “te taura a [Māui]”, remain on the sun (Henry 1928: 431–32).

In Manihiki, in the northern Cook Islands, Māui made rope from coconut fibre (ka‘a), considered “the strongest rope available to islanders” (Kauraka 1989: 50), and placed it over the opening from which the sun emerged from ‘Avaiki. No matter how strong he made these ropes they all failed. Māui then cut the long hair of his sister, Inaika (‘Ina‘ika?), plaiting (‘iri) it into rope which successfully constrained the sun, forcing him to agree to move more slowly and permit people to do their work (Gill 1876: 70–71). A late twentieth-century version by the elder Tokatina Masters depicts Māui using nets instead of ropes. He first put his sennit net (“pū‘ere ka‘a”) over the hole from which the sun emerged, but it burned. He sought advice from his grandmother, Hina-poraria, who instructed him to make a net from the head hair (“rouru”) of his sister, Hina. He wove (“‘iri”) the strands to form a hair net (“pū‘ere‘ere rouru”), which he then placed over the hole. The net did not burn, and the sun, unable to move, agreed to slow down (Kauraka 1987: 78; 1989: 22–23).

A lament from Fatuiva, in the southern Marquesas Islands, suggests that Māui caught the sun with ropes made from the bark fibre of the fau (beach hibiscus, *Hibiscus tiliaceus*), from coconut fibre or sennit and another made

from human hair mixed with the fibre derived from the bark of the ‘onā (*Pipturus argenteus*), one of the strongest rope fibres in Polynesia (Von den Steinen 1988: 127; Whistler 2009: 132, 135, 174). In an accompanying text by Vaikau, Māui took a rope plaited from the head hairs of all the people in his tribe, stood on the highest mountain (Mouna Nui) and caught the sun around its neck. He only overpowered the sun after breaking one of its legs. Māui then took the sun’s hair, which, after Māui’s death, Hina shared out amongst her various lovers (Von den Steinen 1988: 126–27).

For other islands, Māui is associated solely with the invention of rope made from human hair. In Mangareva Māui successfully slowed the sun by lassoing it with rope made from hair (Luomala 1949: 151, 155). According to Fariua-a-Makitua from Fagatau in the Tuamotu Archipelago, Māui’s mother, Hua-hega, instructed him on how to slow the sun. Following her directions he cut her head hair (“te rouru o taku upoko”) and braided (“firi”) the strands together to form a number of ropes of hair (“taura rouru”): Tahitu-verovero, Te Hihiri-o-te-Ra, Fautumu and Patau-hoe. With these he caught the sun, who, frightened (“mataku”) by Māui’s threat to kill him, agreed to travel more slowly (Stimson 1934: 8–12). In another Tuamotu account, Māui sought rope to slow the sun from Tavaka, but he was instructed that to catch the sun he needed more suitable rope made from his mother’s head hair. When Māui asked Huahega she initially declined, saying the head was sacred, but eventually agreed to his request in order to lengthen the day. He made a series of ropes, Hiti-ma-te-verovero-i-ragi, Tu-verovero-mate-i-toga, Tu-verovero-mate-i-takerau and Tu-verovero-mate-i-Havaiki, which together held the sun. These are known as “Te taura a Māui” (“The rope of Māui”) (Stimson 1937: 25–28; my diacritics).

Huahega’s objection to Māui’s request points to the common Polynesian understanding that the head was the most sacred or tapu part of a person’s body. Since atua fostered growth, be it of plants, human pregnancy or indeed a person’s head hair, this meant the latter was the most tapu part of the head (Hanson 1982: 344–45, 368; Hanson and Hanson 1983: 50). Most stories point out that only female head hair would serve Māui’s purpose; more specifically, only head hair from his nearest female kin (his sister or his mother). In the stories of Māui, his relationship with his mother is the central one: she rejected him at birth but recognised him as a youth and brought him back into his family. Commenting on Māui, Tremewan (2002: 95) points out that brothers in the Māori world “had a very close relationship with their sisters”. The Cook Islands scholar Kauraka Kauraka (1989: 51) adds that a brother “has to respect the sister because she has certain powers”. Only the hair from these women could successfully tame the sun. In the Marquesan story where rope is made from tribal members’ hair, presumably men and

women, it is still not strong enough on its own to subdue the sun. Applying a structuralist analysis to the Manihiki story, Kauraka (1989: 51) points to the male sun being attracted to its opposite, female hair, but being unable to destroy it for that reason, whereas the sun could destroy the sennit as it was the work of men. The tapu of these women's head hair was something the sun, powerful as it might be, was unable to overcome. By contrast, Māui's close kin ties meant he was able to touch and make rope from the head hair of his mother and sister without any such negative consequences.

Later descriptions of the making of rope in East Polynesia give a sense of the strength of "te taura a Māui". According to Gill (1876: 61), the ropes Māui made in Mangaia were of four strands of coconut fibre (ka'a). A strand was variously called 'ēnū (or 'enu) or kata (Buse with Taringa 1995: 100, 160; Savage [1962] 1980: 63, 90; Shibata 1999: 83). A range of taura were manufactured in Mangaia and other Cook Islands by plaiting ('iri) multiple 'ēnū: taura kiri 'au (rope made from bark of the 'au tree), taura ka'a, taura varavara (three-strand rope) and taura viriviri (six-to-eight-strand rope). A three-strand rope was also plaited from ka'a ('iri ka'a) while a two-strand taura was made by rolling strands of ka'a on the thigh with the palm of a hand ('iro [or miro] ka'a) (Buse with Taringa 1995: 132, 250; Savage [1962] 1980: 77, 162, 366; Shibata 1999: 65–66, 301–2).

Using knowledge from Aitutaki and Rarotonga, Te Rangihiroa reports that Māui used the taura rahiri (ra'iri?), or three-strand twisted rope, which was given the name Kurumoumou. This rope was made from the bast, or inner bark, of the 'au tree. Each 'ēnū was twisted (tāviri, takaviri) into the others by the operator, using both their hands, with the rope end either held by someone else or attached to something. This produced a very strong rope (Te Rangi Hiroa 1927: 65–66, 71). Other ropes included a four-strand twisted rope as well as taura made by plaiting ('iri) three or four 'ēnū, including taura puna (four-strand round rope). Besides using ka'a or the inner bark of the 'au (a fibre also known by its Tahitian name, pūrautea), other natural materials used for making taura included the inner bark of the 'ōrongā (*Pipturus argenteus*) and papako (no modern identification found). The bark was soaked in sea water for several days to separate the bast, which was then dried before use (Savage [1962] 1980: 283–84; Te Rangi Hiroa 1927: 62, 66–70).

In the northern Cook Islands of Manihiki and Rakahanga, fishing lines were made from ka'a twisted into three-strand taura. Some lines needed to be a "considerable length" to reach the depths where fish dwell (Te Rangi Hiroa 1932a: 163). In Tongareva, the ka'a or fibres from a coconut husk (puru) were first soaked and beaten to remove any interfibrous materials before being twisted into two-strand cords by rolling (miro) 'ēnū of ka'a

on the operator's thigh. Lengths of ka'a were also braided ('iri) to form three-strand taura (Te Rangi Hiroa 1932b: 136–37, 202).

In Tahiti, as in the Cook Islands, the commonest material used for rope-making was the fibre (a'a) found in coconut husks (puru). Given Māui's role as inventor, it is perhaps not surprising that, as in other parts of the Pacific, making taura was the responsibility of the men in a community. The a'a formed a strong and durable taura. These husks were soaked in seawater for a couple of months (or in muddy water), then beaten so as to detach the a'a before combing them. The smaller fibres were used to make a two-strand fishing line ('ānave), which involved twisting the a'a together by pressing the right-hand palm down upon the strands ('ave) and pushing them to and fro across the operator's thigh, a pan-Polynesian technique called nino or hiro in Tahiti. A taura was also made by twisting together three 'ave of a'a. Longer 'ave would be plaited together (firi), with one end tied to the big toe or a stick, to form a nape, a three-'ave taura made of a'a (also known as sennit): a strong rope well able to handle strain being used, for example, to hold the outrigger in place on a vessel. The next commonest material used for rope-making was the fibres from the more or inner bark of the pūrau tree (beach hibiscus, *Hibiscus tiliaceus*), or taura more. These fibres were extracted by immersion in muddy water followed by a process of cleaning and beating to detach the inner bark followed by combing. Taura of three or four strands (taura firi toru and taura firi maha respectively) would be plaited (firi) from the more, with the operator tying an 'ave to a post and then plaiting the three or four strands towards themselves. The strongest taura in Tahiti was made from the fibres of the rō'ā shrub. Wood would be cut from the tree, the outer skins removed and the inner bark left out in the night for several nights till it became snowy white, at which point it would be combed into fine threads. The nino technique was used to form 'ānave rō'ā, cords much prized for fishing lines and nets. The finest-quality taura were made from the "soft, white, flaxlike fibers" (Handy 1927: 107) of the inner bark of the pipipiri (hibiscus bur, *Urena lobata*). The bark was immersed in mud beside a river for up to two weeks so as to detach the fibrous material, which would then be washed and combed, ready for use. Other materials were also used in taura. Tahitians braided or plaited taura comprised of six or nine 'ave or strands of human hair (firira'a rouru): eighteenth-century examples were said to be up to a mile long. The hair apparently belonged to deceased relations. These taura were worn as headdresses, or sometimes as maro (girdle, loincloth), and were considered very valuable. In the eighteenth century a high-ranking woman once gifted a visiting European friend (taio) a rope of hair. Taura were also made from the mati, fē'i (mountain plantain,

Musa troglodytarum) and aute (paper mulberry, *Broussonetia papyrifera*) (Davies 1851: 105, 155; Handy 1927: 9, 102, 105–9; Oliver 1974, vol. 1: 139–43, 157; vol. 2: 932, 1058; Wahlroos 2002: 73, 385; Whistler 2009: 212).

Kaula (rope, cord) in the Hawaiian Islands was made from several plant materials: the fibre (‘a’a) of the coconut husk (pulu); ‘ahu’awa, a sedge (*Cyperus javanicus*, *Cyperus hypochlorus*); the fibres from the bast or inner bark of the lowland tree, hau (*Hibiscus tiliaceus*); the wauke (paper mulberry, *Broussonetia papyrifera*); and the olonā shrub (*Touchardia latifolia*). As elsewhere, human hair, possibly from deceased kin or friends, was also braided (hili) into kaula. Making kaula from the coconut husk fibres required the latter first to be separated from the husks before being twisted together (hilo, milo [also translated as braiding or spinning]). In Hawai‘i, this pan-Polynesian process was performed by women, who rolled the fibres together across their thighs to form coconut fibre cords (hō‘aha). The men then braided or plaited (hili) these lengths of ‘aha into kaula. These ropes were particularly favoured for lashing outriggers to canoe hulls on account of their durability in salt water and for making carrying nets for calabashes (kōkō). Freshly plucked stems of ‘ahu’awa, found around the kalo (taro) swamps, were compressed between two sticks and then twisted (hilo, milo) into cords (hōaho) for kōkō and tying roof thatch. The other three plants (hau, wauke and olonā) were all steeped in running water and then scrapped with a shell or turtle rib, before apparently undergoing the complementary female hilo and male hili manufacturing processes. The wauke was weaker and favoured for more ornamental uses. The olonā, a stronger material, was preferred for fishing lines and nets. Hau provided a hard fibre and was principally used for making heavy ropes (Andrews [1865] 2003: 155, 394; Pukui and Elbert 1986: 1, 5, 7, 8, 60, 70, 136, 161, 286, 354, 382; Stokes 1906: 105–6; Te Rangi Hiroa 1957: 290).¹⁴

To slow the sun Māui required something that would successfully restrain such a powerful being. He came up with rope, still named te taura a Māui in memory of this heroic inventor of Polynesian culture: an innovation that enabled the development of the Polynesian economy, including the building of great structures, most notably the seagoing waka with which Pacific peoples discovered new lands, such as Te Ika-a-Māui and Te Waka-o-Māui, named in his honour. Māui’s creation of useful flora and fauna and cultural innovations such as sport, along with the invention of rope, together reveal some of the threads that connect the cultures of the many islands of Oceania. They remind us that the history and whakapapa of all the Indigenous peoples of Te Moana-nui-a-Kiwa (Pacific Ocean) are bound together: a rope comprised of many strands, enduring and strong.

NOTES

1. There are several alternative Māori names for the North and South Islands, including the ones that identify these lands with Māui. Today, the South Island is more commonly known as Te Waipounamu. Historically, the North Island was also called Aotearoa, and only in more recent times has this place name been extended to mean the whole country. When naming these islands in this paper I have adapted an older southern Māori phrase, Aotearoa me Te Waipounamu, which recognises the distinctive identities of each land. Aotearoa New Zealand is used as an alternative to the official country name.
2. According to Williams (1971: 141), korepe means “split, tear off, rip up”. Other Māori words glossed as split (see Biggs 1981: 184) include translations such as divide, separate, crack, open in fissures, with sentence examples referring to rock, earth, timber or tree (Williams 1971: 7, 74, 128, 141, 148, 194, 432). All these interpretations suggest that korepe refers to the action of a tail opening, separating or splitting, that is, entering Hine’s vagina. Para here refers to the watery sediment from which Tuna has emerged and which adheres to Hine after coition (Williams 1971: 262).
3. Tremewan (2002: 85) translates this passage: “This man, this pleasing man, the skin so smooth to the touch!”
4. New Zealand plant and fish nomenclature in this paper come from several sources: Moorfield (2011); *Ngā Tipu o Aotearoa: New Zealand Plants*, <https://nzflora.landcareresearch.co.nz>; *Ngā Tipu Whakaoranga: Maori Plant Use*, <https://maoriplantuse.landcareresearch.co.nz>; Strickland (1990); Williams (1971). Pacific plant nomenclature is mostly from Whistler (2009) or relevant island dictionaries.
5. Te Rangihiroa, derived from Te Rangi Ihiroa, is the version of the ancestral name given to Peter Henry Buck by his mother’s people, Ngāti Mutunga. Later on, Buck modified the form to Te Rangi Hiroa, apparently to help Pākehā pronounce it correctly (Condliffe 1971: 20, 244). I have preferred the form accepted by Ngāti Mutunga, but when citing publications I have retained the one found on the title pages: Te Rangi Hiroa.
6. Almost without exception, the historical sources in this paper used imperial units of measurement. I thought it important to retain these so that readers can access the actual figures given by the authors of these sources. These measurements are followed by their metric equivalents in parentheses.
7. Thanks to Tema Alailima-Eteuati, who provided me with the Moyle (1970) reference.
8. A nineteenth-century Mangaian text about the local culture hero Ngaru uses va’a to denote the player and the act of throwing a tao (“te va’a e va’a”) (Reilly 2015: 153, 154, 181 n9).
9. In this passage the number “te rau mā whitu” indicates an army or large body of warriors, irrespective of the actual number involved (Williams 1971: 328). In his translation of this passage Stafford (1967: 68) states that the force numbered 340.

10. Mick Pendergrast (2005: 50, 174) prefers to define whiri as braiding as this technique was used for making long narrow strips of plaiting known as braiding. He reserves plaiting for raranga, a technique for making baskets, mats and other items.
11. No one seems to have written a comprehensive study of Māori rope-making. Te Rangihiroa promised to examine it in his two-part study of Māori plaitwork, but unfortunately he never did (Te Rangi Hiroa 1923: 706).
12. This list of taura may be incomplete and certainly contains some discrepancies regarding the precise number of whenu for some ropes. Best (1898: 652) defines tōpiki as a type of taura, but Williams (1971: 437) says it is a method of plaiting.
13. An angaka'a forms part of a Mangaian system for measuring length. The system was based on the paru (fathom, stride [Shibata 1999: 29], "the outstretched arms of a tall man" [Gill 1876: 325]): 20 paru equalled 2 angaka'a (Shibata 1999: 379). In nineteenth-century Mangaian letters the paru was considered equivalent to six feet or 1.8 m (Reilly 2007: 44, 46, 55 n5).
14. Elsewhere in Polynesia there are extensive descriptions of rope-making in Sāmoa (Te Rangi Hiroa 1930: 231–47) and Kapingamarangi (Te Rangi Hiroa 1950a: 123–32). These have the advantage of being based on contemporary observation rather than historical reconstruction from skimpy, fragmented sources as is often the case with the East Polynesian material used in this paper.

GLOSSARY

The terms in this glossary are New Zealand Māori unless otherwise stated.

a'a	fibre from the coconut husk used for rope-making, sennit (Tahitian)
'a'a	coconut husk fibre used for making rope (Hawaiian)
'aha	cord made from coconut husk fibre, sennit (Hawaiian)
'ahu'awa	a sedge, <i>Cyperus javanicus</i> , <i>Cyperus hypochlorus</i> , used in rope-making (Hawaiian)
aka	vines of various climbing plants
'ānave	fishing line (Tahitian)
atua	gods, god, spirit being (many Polynesian languages)
'au	beach hibiscus, <i>Hibiscus tiliaceus</i> (Cook Islands Māori); also known as fau (Samoan, Marquesan); pūrau, fau, hau (Tahitian); hau (Hawaiian)
'ave	strand of plant material or hair used in rope-making (Tahitian)
'ēnū, 'enu	strand of plant material or hair from which rope was made (Cook Islands Māori) (compare with whenu, New Zealand Māori)
harakeke	New Zealand flax, <i>Phormium tenax</i>
hau	see 'au
hilo	pan-Polynesian process performed by women, who

	rolled the fibres together across their thighs to form coconut fibre cords (Hawaiian) (see also <i>miro</i>)
<i>hīnaki</i>	eelpot
<i>io</i>	strips or strands of harakeke or other plant materials used in rope-making; also known as <i>kanoi</i> , <i>kāwiriwiri</i> , <i>wenu</i> , <i>whengu</i> , <i>whenu</i>
<i>ka‘a</i>	coconut fibre, sennit, strong fibre of the coconut husk (Cook Islands Māori)
<i>kai</i>	eat; point in <i>tika</i> or <i>teka</i> game (various Polynesian languages)
<i>kāka‘o</i>	a plant, <i>Miscanthus floridulus</i> ; stems used to make darts (Cook Islands Māori) (see <i>teka</i>)
<i>karakia</i>	formulaic chant, ritual chant
<i>kaula</i>	rope, cord (Hawaiian); see also <i>taura</i>
<i>kōareare</i>	edible rhizome of the <i>raupō</i> , <i>Typha orientalis</i>
<i>kōiro</i>	conger eel, <i>Conger verreauxi</i> (New Zealand Māori—Kāi Tahu)
<i>kōkirikiri</i>	game in which a dart was launched from a stick (see <i>teka</i>)
<i>kōkō</i>	carrying nets for calabashes made from sennit (Hawaiian)
<i>kōrero</i>	story, narrative
<i>maihi</i>	bargeboard or gable-end of house
<i>makamaka</i>	game of throwing and catching pebbles in the hand, jackstones
<i>makamaka kai</i>	food-throwing or juggling game, throwing of food from hand to hand
<i>mati</i>	Dyer’s fig, <i>Ficus tinctoria</i> , which produced a strong bark fibre used in rope-making (Tahitian)
<i>milo</i>	see <i>hilo</i> , <i>miro</i>
<i>miro</i>	action variously described as rolling or twisting strands of plant material on the thigh to form a cord or rope; known as <i>miro</i> , <i>‘iro</i> (Cook Islands Māori); <i>nino</i> , <i>hiro</i> (Tahitian); <i>hilo</i> , <i>milo</i> (Hawaiian), in which the action is also translated as braiding or spinning
<i>more</i>	inner bark of the <i>pūrau</i> tree (beach hibiscus, <i>Hibiscus tiliaceus</i>) used for making rope (Tahitian)
<i>muka</i>	the fibrous material exposed by the stripping off of the outer layers of a harakeke leaf; also known as <i>whītau</i> , <i>hītau</i>
<i>nino</i>	see <i>miro</i>
<i>nitī</i>	dart
<i>niu</i>	commonest Polynesian name for coconut, <i>Cocos nucifera</i>
<i>ngōiro</i>	conger eel, <i>Conger verreauxi</i>
<i>okaoka</i>	long dart used in Aitutaki throwing game (Cook Islands Māori) (see <i>teka</i>)
<i>olonā</i>	shrub, <i>Touchardia latifolia</i> , used in rope-making (Hawaiian)

pā (tuna)	weir for catching eels
pāga	the sloping ramp used in ti'a throwing game (Samoan) (see ti'a)
Pākehā	New Zealand European
pukapuka	rangiora, bushman's friend, <i>Brachyglottis repanda</i>
rārahu	bracken, <i>Pteridium esculentum</i>
rauaruhe	fronds of bracken fern, <i>Pteridium esculentum</i>
rō'ā	a shrub, <i>Pipturus argenteus</i> , considered to have one of the strongest bark fibres in all of Polynesia (Tahitian)
roko	rollers, large posts or stakes (New Zealand Māori—Kāi Tahu)
taniwha	aquatic monster, giant eel, water creature of great power, dangerous and very powerful being
tao	a javelin or short throwing-spear used in the game called teka (Mangaian)
tapu	sacred, sacredness
taura	rope, cord (many Polynesian languages); see also kaula
teka	in East Polynesia, a dart of light, straight wood, typically several feet or about a metre long; name of dart-throwing game; cane-like stems of the kāka'o plant (<i>Miscanthus floridulus</i>) from which darts were made (Cook Islands Māori); action of throwing a dart (Cook Islands Māori)
ti'a	stick or javelin used in throwing game (Samoan) (variant of tika)
tika	a dart of light, straight wood, typically several feet or about a metre long (West Polynesian languages)
tohunga	priestly expert, scholar
tumutumu	dart used in throwing game (see teka) and measuring about 3 to 4 feet (1 to 1.2 m) (Cook Islands Māori)
tuna	freshwater eel; longfin eel, <i>Anguilla dieffenbachii</i> ; shortfin eel, <i>Anguilla australis</i>
waka	ship, vessel, boat
wauke	paper mulberry, <i>Broussonetia papyrifera</i> (Hawaiian); also known as aute (Tahitian, Cook Islands Māori, New Zealand Māori)
whai	string game, cat's cradle
whakapapa	genealogy
whanake	cabbage tree, <i>Cordyline australis</i> ; also known as tī kouka
whenu	strips or strands of harakeke or other plant materials used in rope-making; also known as io, kanoi, kāwiriwiri, wenu, whengu; compare 'ēnū, 'enu (Cook Islands Māori)
whiri	plait or braid strands or strips to form rope (see also io, whenu); cognate terms elsewhere in Polynesia for the same manufacturing process include firi (Tahitian, Tuamotan), 'iri (Cook Islands Māori), hili (Hawaiian)

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