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NOTES AND NEWS

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LETTERS TO A MĀORI PROPHET:
LIVING WITH ATUA IN MID-NINETEENTH-CENTURY
TARANAKI (NEW ZEALAND)

JEFFREY SISSONS

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ABSTRACT: The focus of this article is a remarkable collection of letters written in the late 1850s to the Māori prophet Tamati Te Ito Ngāmoke of Taranaki (New Zealand). Building on a translation of and introduction to these letters by Penelope Goode, I focus on letters that are concerned with tapu ‘sacredness’ in relation to sorcery and seasonal activities and argue that they provide a unique insight into tapu as an enduring historical condition in relation to which people were required to develop a new mode of collective engagement or correspondence. I conclude with some reflections on the concept of “correspondence” as recently developed by Tim Ingold and consider how, in light of his argument, the Kaingārara letters can be understood as mode of correspondence in a double sense: both as writing and as ontological becoming.

Keywords: tapu, Māori prophets, human correspondence, Deleuzian anthropology, intense centre, Taranaki (New Zealand)

In December 1859, Rewi Maniapoto, a powerful Waikato chief and leading proponent of the emergent Māori King movement, wrote to the leaders of a rival sovereignty movement in Taranaki:

E hoa ma, whakamutua ta koutou mahi kikokiko. Kaua e tohe. Whakamutu rawatea.

Friends, cease your work of expelling malevolent spirits. Don’t continue with it. Cease completely. (Goode 2001: 140, my revised translation)

The “work” to which Maniapoto was referring included ceremonies orchestrated by Taranaki’s first prophet, Tamati Te Ito Ngāmoke, that were intended to free the district from the presence of malevolent ancestral spirits (*atua kikokiko*). These ceremonies, which included the burning of carvings, clothing and *tapu* ‘sacred’ remains from *wāhi tapu* ‘sacred groves’, had recently been part of a collective effort by Te Ito’s Kaingārara movement to unite the Taranaki tribes in opposition to land sales and to establish an independent polity that included an indigenous school and court system

(Sissons 2016, forthcoming). But it had been more than two years since the prophet had staged one of his fires. Since January 1858, he had been serving as the visionary advisor to Wiremu Kīngi Te Rangitāke, paramount chief of the northern Taranaki tribe, Te Āti Awa (Riemenschneider 1858: 328; *Nelson Examiner and New Zealand Chronicle*, 23 January 1861, p. 3). In this role, he had been a leader in the military defeat of Ihaia Te Kirikūmara, a rival to Te Rangitāke who had offered land at Waitara to the Government, and he was now supporting Te Rangitāke in his efforts to unite Te Āti Awa against land sales (Whiteley to McLean, 25 March 1858; Scholefield 1960: 618–22). For most of this period, Te Ito had been residing at Waitara in a *kāinga* ‘village’ named Te Whānga and, from here, he participated in an extensive written correspondence with his followers living throughout the Taranaki district, guiding them in their relationships with *atua* *kikokiko* and their associated *tapu*. Both Te Ito’s earlier fire ceremonies and this written correspondence would have been of concern to Rewi Maniapoto because, as centralising, pan-tribal activities, they challenged the ambitions of his King movement to extend its influence into Taranaki.

Rewi Maniapoto’s letter is included among 52 letters written to Tamati Te Ito between 1857 and 1863 that were first identified and translated in a groundbreaking MA thesis by Penelope Goode (2001). Goode’s thesis was supervised at the University of Canterbury by Lyndsay Head, whose own path-breaking scholarship on Te Ito’s prophetic successor, Te Ua Haumene, has contributed significantly to my understanding of the nature and origins of prophetic movements in Taranaki. In this article, I seek to extend their work and argue that the Kaingārara letters provide us with a unique insight into *tapu* as an enduring historical condition in relation to which people were required to develop new forms of collective engagement or correspondence. I begin with a reconsideration of *tapu* in nineteenth-century Māori society and propose that it should be understood not as a quasi-legal phenomenon underpinning a hierarchical order but, instead, as a shifting historical condition that necessarily accompanied life lived with *atua*. Next, turning to the Kaingārara correspondence, I argue that through their letters Te Ito and his followers were reaffirming the enduring nature of *tapu* through a new mode of collective engagement with it, one in which Te Ito assumed the role of local *tohunga* ‘priest, shaman, healer’ now writ large at a pan-tribal level. I conclude with some reflections on the concept of “correspondence” as recently developed by Tim Ingold (2018) and consider how, in light of his argument, the Kaingārara letters can be understood as mode of correspondence in a double sense: both as writing and as ontological becoming.

LIVING WITH ATUA

There is now a clear consensus in the anthropological literature that for pre-Christian Māori a state of tapu arose from active relationships with beings termed *atua* (Best 1924, vol. 1: 251; Hanson and Hanson 1983: 50–52; Salmond 1989: 74–75; Sissons 2015: 135–41, 2016: 60–62). The term “*atua*” is often translated as “god”, but this post-missionary gloss is, at best, quite misleading. Although Christian missionaries chose the capitalised term “*Atua*” to refer to their “God”, Māori *atua* were certainly *not* “gods” in the Christian or classical European sense. Pre-Christian *atua* were either distant ancestors, from whom humans and non-humans (forests, birds, fish, crops, winds, etc.) were descended, or they were beings that participated more directly in social life as the embodiments of ancestral spirits controllable by *tohunga*.

Ritual techniques for controlling or directing the power of the latter *atua* were developed and used by *tohunga* to ensure that people could safely and productively dwell in their world. These *atua* could empower leaders but, if offended, they might also kill them, assuming the form of lizards (*ngārara*) and devouring their internal organs. The earliest recorded instance of such a fate was the death of the Bay of Islands chief Ruatara soon after his return to New Zealand bringing the first Christian missionaries in 1814. When Ruatara lay sick and in a tapu state, isolated from the village community, he was visited by two of the missionary party who, by thus violating the relationship of tapu, offended his *atua*. One of the visitors, John Nicholas, later wrote that people had told him that the *atua* had, as a consequence, “fixed himself in the stomach of the chief” (1817, vol. 1: 166).

Tapu was not a transcendent order imposed by transcendent gods. Relationships between chiefs, such as Ruatara, and their vengeful, unpredictable *atua* were ongoing daily concerns as states of tapu were produced, controlled and negotiated by *tohunga*. And yet, it was a governmental, legalistic understanding of tapu that came to predominate in colonial and early ethnographic explanations of the concept. The ethnographer Elsdon Best wrote, for example: “To put the matter briefly, it may be said that *tapu* means prohibition, a multiplication of ‘Thou shalt not’. These may be termed the laws of the gods, and they must not be infringed” (1924, vol. 1: 251). Writing in the 1850s, around the time of the events to be discussed in this article, the Whanganui missionary Richard Taylor defined tapu as “a religious observance, established for political purposes” (1855: 55), and Judge F.D. Fenton later concurred, describing it as “an institution that has had the force of law among the people ... by it a chief or *ariki* was able to exercise a very great influence over his people” (AJHR 1860 F-3 no. 3: 90).

A moral, governmental view of tapu was also widely assumed in accounts of the rapid collapse of tapu as an institution after conversions to Christianity. Richard Taylor, this time in full poetic voice, wrote that the introduction of Christianity had caused the political system to completely collapse and, “like the chaff of the summer’s thrashing floor, the wind of God’s word has swept it away” (1855: 64). In a more prosaic, functionalist tone, Prytz-Johansen pointed out that the demise of tapu required new forms of colonial governance: “When the tapu institution disappears, fields, forests, and fishing grounds lie open to arbitrariness and a new protection is to be built up by the law as understood by Europeans” (1954: 197).

However, as an enduring condition that arose from an active relationship between atua and people, tapu did not simply come crashing down with mass conversions to Christianity in the 1840s—nor did atua suddenly cease to exist. Rather, the relationships *changed*, becoming problematised in new ways as they became, in some contexts, increasingly hostile. Atua, once amenable to knowledgeable control by tohunga with *karakia* ‘chants’, now came to be regarded as uncontrolled, malevolent spirits (termed “atua kikokiko” in Taranaki and Waikato) that were causing widespread sickness and death. Atua, such as the one which attacked the Bay of Islands chief Ruatara, had often assumed the form of ngārara—lizards, reptiles and other “creepy-crawlies”—and this was reflected in the name Kai-ngārara, (lit.) ‘reptile-eaters’, chosen by the followers of Tamati Te Ito; the name referenced the movement’s determination to combat a malevolent multitude of atua, turned atua kikokiko, and their contagious, dangerous tapu. Goldie succinctly equates atua, ngārara and kikokiko in the following comment: “Sickness made a person *tapu* because of the *atua* or demon, *ngarara* or lizard, *kikokiko* or ancestral ghost, entering into the body of the afflicted” (1904: 4).

A top-down, governmental view of tapu misses the point that this is a condition that continually emerges through interaction with atua, both benign and malevolent. It is, to use Deleuze and Guattari’s (1987) term, a mistaken “arborescent” view that assumes society to be ordered by branching categories and sub-categories, reproducing the perspective of a colonial state. Instead, Māori society was, in Pierre Clastres’s sense, a “society against the state” in which tapu, derived from associations with atua, was the precondition for a “rhizomic” emergence of a social order reflected in the shifting dynamics of relative *mana* ‘power/status’ (Clastres 1977).

Lamenting the weakened state of Māori society in the mid-nineteenth century, Te Matorohanga, the tohunga whose teachings are collected in *The Lore of the Whare-wananga* (Smith 1913), put it this way:

Because *tapu* is the first thing, if there is no *tapu* all the actions of *atua* have no *mana*, and if the *atua* are lost everything is useless—people, their actions

and their thoughts are in a whirl, and the land itself becomes broken and confused. (Smith 1913: 12)

Indeed, the neglect of relationships with *atua*, and the resulting transformation of the latter into malevolent *atua kikokiko*, constituted a profound transformation in the nature of both personhood and landscape such that an intimate correspondence between them was lost. Tamati Te Ito would certainly have agreed with Te Matorohanga that the land had become broken and confused, but he and the Kaingārara were more optimistic than the sage, believing that the restoration of a correspondence between people, *atua* and landscape was possible. In what follows I argue that through *written* correspondence with Te Ito, the Kaingārara sought to restore this *ontological* correspondence by attending closely to their *tapu* personhood and the ways they inhabited their *tapu* landscape.

THE KAINGĀRARA LETTERS

For some two years prior to his emergence as the inspired prophet of the Kaingārara movement in 1856, Tamati Te Ito had been travelling throughout Taranaki as the leader of an *ope whakanoa* ‘tapu-removing troop’. This group of about 30 horsemen selected from all the tribes in Taranaki is thought to have visited most of the *pā* ‘hill forts’ in the district, removing stones into which the life force (*mauri*) of the *pā* had been instilled and thus protected, and driving away the *atua kikokiko* that guarded the stones (AJHR 1869 A-13: 15; Smith 1920: 50–51). When, in 1906, Percy Smith (Surveyor General, historian and founder of the Polynesian Society) asked Te Ito why he had removed the *mauri* stones he was told: “We wanted to combine all the Maori people from Mokau to Patea in one body, and remove the *tapu* from the old *pas*, as it was harmful to the people” (Smith 1920: 151). Mōkau and Pātea are at the northern and southern boundaries respectively of the Taranaki district.

The activities of the *ope whakanoa* went unrecorded by the settler press. However, by late 1856, Te Ito had assumed a more public identity in southern Taranaki as an inspired prophet (Riemenschneider 1857: 113), and by mid-1857 his activities were being featured in newspapers throughout the country (*Lyttleton Times* 1857; *Otago Witness* 1857; *Wellington Independent* 1857). In March 1857, the prophet initiated the final phase of what I have elsewhere termed “the Taranaki iconoclasm” (Sissons, forthcoming). Moving northwards up the coast from the southern boundary of Taranaki, the prophet orchestrated a sequence of spectacular *whakanoa* ‘tapu removal’ fires into which cartloads of soil, stones and vegetation from sacred groves were thrown along with *tapu* carvings and ancestral heirlooms (AJHR 1869 A-13: 15; Halse to McLean, 14 September 1857; *Lyttleton Times*, 8 and 15 August 1857; *Nelson Examiner and NZ Chronicle*, 23 January 1861, p. 3; Taylor

journal, 28 March 1857). Te Ito's New Plymouth fire was held in June 1858 and was probably timed to coincide with the New Year (Puanga) marked by the rising of the star Rigel. From here he moved back down the coast, holding fire ceremonies at Oakura in September and Warea in October (Halse to McLean, 19 October 1857). Large numbers of people participated in the building of these fires and hundreds attended the final ceremonies—more than 600 people witnessed the Oakura fire (Halse to McLean, 14 September 1857).

Thus, Te Ito was not working alone. His ritual practice had wide public support, including that of many tribal leaders of Ngāti Ruanui, Ngā Ruahine, Taranaki Iwi and Te Āti Awa, all of whom, as Kaingārara, were fiercely opposed to any land sales (Sinclair 1969). Five days after Te Ito's Warea fire, some of the chiefs who had attended the ceremony wrote to the Government expressing their opposition to the Government's plans to purchase a large block of land—40,000 acres—warning that many places within the block were tapu and guarded by atua, here termed “*kaitiaki*” ‘guardian atua’:

Ko nga kai tiaki o te wahi tapu, he ngarara, he weta, he pungawerewere, he taniwha, he mokonui.

The guardians of these tapu places are reptiles, wetas, spiders, water demons, and lizards. (AJHR 1861, C-No. 1: 218–19.)

The first surviving letter sent by a Kaingārara supporter to Tamati Te Ito also dates precisely from this time of heightened political tension over the ownership and guardianship of the land and its places of tapu—it is dated the day before Te Ito's Warea fire. This letter is included in the collection of 52 letters, written by Kaingārara to Te Ito between 1857 and 1863, and first identified and translated by Penelope Goode in her MA thesis (2001). In addition to providing initial translations of the often very obscure texts, Goode organised them chronologically and contextualised them with useful historical footnotes. These Kaingārara letters are a subset of 252 letters written by Māori to Māori that were plundered from two settlements in 1864 during the Taranaki land wars—Paiaka Māhoe Pā, on the Taranaki coast south of New Plymouth in April, and Mātaitawa, inland of New Plymouth, after it was occupied by colonial forces in October (*Taranaki Herald*, 23 April 1864, p. 2; 15 October 1864, p. 3). Stuffed into sacks by soldiers, they were later passed on to Arthur Atkinson, editor of the *Taranaki Herald* and an enthusiastic militia volunteer, as potential sources of military intelligence. Colloquially (but also unfortunately) known as the “Atkinson Māori letters”, they are now held in the Turnbull Library in Wellington, which has recently digitised them and made them openly available online (Paul Diamond, pers. comm., 2018). It is a rare privilege to have free access to these letters and, especially in light of the violence through which they have become available, we need to approach them and their authors with *aroha* ‘compassion’ and the utmost respect.

The prophetic guidance sought and provided by Te Ito in the Kaingārara correspondence is termed “*ritenga*”, a word that Goode usually translates as “ruling”. *Ritenga* can also be glossed as ‘ritual’ or ‘customary practice’, but in this context, I think it is often better understood as ‘inspired prescription’ or ‘inspired guidance’. In many cases, the inspired prescriptions were sought in order that people might dwell safely with each other and atua and to protect themselves from the malevolent influence of atua *kikokiko*. Te Ito himself was reported to have been inspired by a Waikato atua named Karutahi (*Wellington Independent*, 22 July 1857). Karutahi is today the name of a *taniwha* ‘water guardian’ that inhabits a swamp in Waikato (Keane 2007: 8). It is possible, therefore, that there is a connection between this *taniwha* and the prophet’s atua, but the circumstances in which Te Ito came to be inspired by his atua are not recorded, and so any link must remain pure speculation.

More than a third of the Kaingārara letters (20 of 52) are requests for *ritenga* from Te Ito in relation to two domains of prophetic expertise previously associated with local *tohunga*: (i) *mākutu* ‘sorcery’ and (ii) the seasonal practices of fishing and agriculture. Most of the remaining letters are about the establishment of a Kaingārara settlement (8), records of Kaingārara court hearings (4) and requests for guidance in relation marital relations (5). In the discussion that follows, I interpret the *ritenga* letters that reference the domains of sorcery and seasonality and argue that they provide a window into localised engagements with atua and their *tapu* under the inspired guidance of a prophet whose words now travelled across streams, rivers and tribal boundaries.

The letters identified by Goode in her 2001 thesis have since been renumbered by the Turnbull Library; however, I have retained her numbers (included in brackets below) for ease of reference, especially given that her thesis is now readily available online. In most cases the translations below follow closely those suggested by Goode. Where I have proposed significant revisions I have indicated this in my text.

Mākutu

On 18 October 1857, Taituha, a Ngāti Ruanui chief from southern Taranaki, wrote to Te Ito at Te Whānga, Te Rangitāke’s Te Āti Awa kāinga in northern Taranaki (letter 9). At the time of writing, Te Ito would have been away from home preparing for his last great fire to be held the following day at Warea:

To Tamati Ngamoke at Te Whanga pa
October 18 1857

Go, my loving letter to my son, Tamati Te Ito. Greetings to you. Great is my love for you. Hear this. The things you wrote about have been burnt in the fire. I burnt the shirt in the garden. As for the pipe, it was filled up with tobacco, and I put it inside the bag for you two to open. I heard perfectly well. I have filled that pipe and broken it. Greetings. That is all.

From me, Taituha

Taituha was here informing Tamati Te Ito—whom he refers to in the original as his “*tamaiti*” ‘child/son’ because the prophet is of a younger generation than he—that he had followed Te Ito’s ritenga: he had burned his shirt (and perhaps other items) in the garden and broken his pipe, which he had placed in a bag and sent with the letter to the prophet. The prophet had probably advised the destruction of the items mentioned because they had become tapu through an association with atua kikokiko and were thus causing Taituha to suffer in some way. Taituha may have been unable to attend Te Ito’s October fire and so had, therefore, built his own small fire to destroy them. The way in which atua kikokiko had become associated with the items is unstated, but mākutu was probably suspected. Interestingly, Taituha wrote that he sent his pipe in a bag “for *you two* to open”. The second person in this case was probably the paramount Te Āti Awa leader, Wiremu Kīngi Te Rangitāke, with whom Te Ito was living at the time and with whom he had become closely allied: another letter (25) is explicitly addressed to both men.

A related letter (223) reported a debate about how to deal with a tapu item referred to as a “*mai*”, a general term for garment. There had been a disagreement over where the garment should be destroyed. One opinion was that it should be burned at a Te Āti Awa pā named Matarikoriko, but others said it would be wrong to burn it at the mouth of a stream there and that it should, instead, be returned south to its Ngāti Ruanui owners for them to destroy. Hapurona Pukerimu wrote:

When Ruka arrived I came to fetch the garment [from him]. It is I, Hapurona, who will burn it.

Rapata said, “Where must it be burnt?”

Ruka said, “At Matarikoriko.”

They said, “It is not right to burn it there at the mouth of Heringahaupapa.”

Ruka came back to me and said, “What I told you was wrong, Ha[purona].”

They said it should be taken to Tihoi, to the people who own it. I sat quietly.

My mouth did not speak.

The end.

From Hapurona Pukerimu.

Here, it appears than Te Ito was being asked for advice from a distance on a complex set of relationships, including between the tapu of the garment, which probably needed to be burnt because it had come under the influence of a malevolent atua, and the tapu of the pā and stream, guarded by other atua. Intertribal relations were also at stake. It appears that distinct tribal tapus from north and south were to be kept separate.

A third letter (23) in this domain refers to the use of cooking water (*wai wera*) to expel tapu in a context where there had been accusations of adultery. Tamati Reina, an influential chief of the southern Ngāti Ruanui tribe, wrote to Te Ito:

I have written these words of mine to you for you to instruct me concerning both new and old errors. When the torch shines there is light. The sun is to guide the day and the moon is to guide the night. You, then, are to guide the hidden things of the heart. Who am I to know what is in my heart, or that of another man; is that sin of adultery mine? Show me whether it is someone else's, teach me so I may shortly know. That's all of these words. This is another word. The warm water was poured over my body. That man's work on me has stopped. It's all over.

I have argued in an earlier article (Sissons 2015) that prior to their baptism into the Christian faith, many chiefs throughout the country expelled their atua by pouring cooking water over their heads or touching parts of the body with cooked food, thus rendering themselves *noa* 'free from tapu'. In Taranaki, the whakanoa rites were performed by Wiremu Nēra, who, in the 1820s, had been taken as a slave to Northland where he subsequently converted to Christianity. Returning to Taranaki around 1837, Nēra preached widely and prepared people for baptism with ceremonies, termed "*kokiro*", during which warm water was, in a public ceremony, poured over people's heads from an iron cooking pot (Skevington letters, 19 April 1842; Rogers 1961: 464). In pouring water over himself, the southern chief had followed Te Ito's ritenga and similarly freed himself from the tapu influence of atua, now understood to be atua kikokiko. We do not know who "that man" was, but his "work" which had been "stopped" was probably sorcery.

Also in this domain is a letter (216) written to Te Ito by Te Ua Haumene, a Kaingārara adherent who would himself become inspired as a prophet, founding his own indigenous resistance movement, Pai Mārire, in 1862 (Head 1992: 9 n.15). Te Ua informed Te Ito that he had been unable to discover the cause of a person's emaciated condition, and he asked the prophet if he had completed his search for the appropriate ritenga. It is likely that this ritenga was a prescription to ward off sorcery since the emaciated condition would have suggested the presence of atua kikokiko. The name of the ill person is not provided in this undated letter, but he may have been Honeri, the son of Te Warihi, one of the Kaingārara leaders. In October 1858, Te Warihi wrote to Te Ito asking for help in discerning the cause of this son's illness (letter 31):

To Tamati Te Ito at Te Whanga
Tiw[a]rawara pa
Fifteenth day of October 1858.

Go my loving letter to my elder, Tamati Te Ito. Friend, Tamati, one of us, Honeri, is ill. He is really sick. What is the cause of the illness? You decide what to do.
Well, that's all.

From Te Warihi

The following month Te Warihi wrote to Te Ito to say that his son had died and that he had been left completely bereft (letter 39).

Finally, we should add to this domain letter 74, which I quoted at the beginning of this article, written to Te Ito, Te Rangitāke and leaders of the Taranaki tribes by Rewi Maniapoto. In urging an end to the collective “*mahi kikokiko*” (the work of expelling atua kikokiko) of the Kaingārara movement, Maniapoto sought not only an end to Te Ito’s counter-sorcery but also an end to the movement itself; he must have known that living with atua, including atua kikokiko associated with mākutu, was central to its mode of becoming.

Fishing and Agriculture

This domain of prophetic expertise includes 11 letters that sought advice about seasonal practices which had normally been orchestrated by local tohunga. The earliest of these letters (letter 12) is a report by Ropata Totoinumia, a Kaingārara leader, about a large gathering held at Waitaha, south of New Plymouth, at the beginning of Puanga, the Māori New Year, in June 1858. The rising of Rigel, which marked the start of the year, also signalled the beginning of the lamprey fishing season. Totoinumia reported that lamprey had been wrongly caught and eaten by several people within a tapu area marked by recently established council boundaries:

Next, I asked about the nature of the fault. Hemi Te Pua began the search by the stream at Waitaha . . . they sought out the lamprey, which were roasted and eaten. Hemi saw them; he did not say they should be thrown away.

After that Hemi Te Pua looked for them. He had one fish, which was roasted and eaten.

After that Te Ranapia spoke of his getting bracken for a lamprey weir, but it was not made into a weir. After that he went down to the stream at Pungaereere. He caught two fish, which were roasted and eaten.

The guilty party publicly confessed their sins, but complained that the boundaries of the tapu areas had not been explained to them clearly enough, an excuse that the chief rejected. He asked them if they were willing to cease their transgressive behaviour and they agreed to do so. A second report on this new-year meeting (letter 13) describes in less detail the fishing transgressions but records more fully these confessions of guilt.

Totoinumia also reported to Te Ito (in letter 12) that he had clarified the northern and southern boundaries for line fishing and had warned people not to bring fish caught outside their district into their villages:

I said, “When someone wants to eat fish, he had better go to Te Namu. When he gets there, he eats fish and Te Takapu will be safe. When he returns to his

home, he is not to bring fish to his village. Do not put to sea within these boundaries from Waiwiri from Otaha. Do not cast out a line; however, I will make an announcement so that all the people are aware of the stream, that is, all the streams, the mainland. The people of that place are stink-roaches, skinks, wetas, lizards; the older brother of these things is sorcery.”

The chief’s warning that sorcery is the “older brother” (*tuakana*) of stink-roaches, skinks, wetas and lizards echoed that given to the Government the previous year when Kaingārara leaders opposed the sale of a 40,000-acre block of land. As noted above, the Government was told that atua guarded sacred places within the block; now people were being reminded that these atua also guarded their mainland streams. In such a dangerous context, respect for the boundaries established by the Kaingārara council was vital for safe habitation.

It had always been the responsibility of tohunga to define fishing boundaries and to mark these with rocks (on which designs, often spirals, were painted) or stakes to signal ownership of the ground and that the area was under the protection of an atua (Best 1924, vol. 2: 400–401). Te Ito had now assumed oversight of this role; however, people appear to have been having difficulty reconciling his inspired *ritenga* with local convention. Thus, one local chief wrote to the prophet complaining about the prophet’s numerous prescriptions (*ritenga mahamaha*) of which he and his community had had no previous knowledge. All they had known previously, he claimed, was that fishing canoes needed to stay within certain boundaries (letter 14). And the distance between Te Ito and his Kaingārara followers became a significant issue when advice on fishing was needed quickly. In letter 48, one of Te Ito’s judges asked Te Ito to clarify a *ritenga* that appears to have prohibited fishing for kahawai. Here, a rapid reply from Te Ito would have been hoped for:

To Tamati Te Ito Ngamoke at Te Wanga pa Waitara
Te Hauwai pa Waitaha
December 21 1858

Go, my letter, to my elder, Tamati Te Ito Ngamoke. Old friend, greetings to you. This is [about] a *ritenga* which I have received. The people of War[e]a said some “children” [i.e., the Kaingārara] should paddle about, trawling for kahawai, because they saw the kahawai at high tide. They looked to us to say if they should go out paddling. I am seeking advice on this because it is not clear to me, hence I have written my letter to you. Will you clarify that *ritenga* for me. Well, that’s all.

From Te Watarauhi, Judge
(My revised translation)

There are six letters in the collection requesting ritenga in relation to the construction and launching of fishing canoes. Again, this was an activity in which the tohunga had always played a significant role, directing the “consecrated industry” of construction (Handy 1927: 282) and determining the time and place of launching, placing the activities under the protection of atua. The earliest of the six letters (letter 39), written in November 1858, informed Te Ito that a new canoe for the southern Ngāti Ruanui was planned, but that construction would only proceed if the project had his blessing. This must have been forthcoming because two weeks later the same writer told Te Ito that the construction work had been completed and he requested a ritenga for the launch (letter 42).

The following month, in December 1858, the prophet was informed that a canoe named Maru—after the Ngāti Ruanui atua brought to New Zealand on the ancestral Aotea canoe—had been launched (letter 217; Sole 2005: 24). However, there had been significant disagreement about the correct place from which to do this:

To Tamati Te Ito Ngamoke at Te Wanga pa
Keteonetea pa
December 19th of the [days] 1858

Go, my letter, to Tamati. Friend, it was on Friday I arrived. By the time I arrived the canoe had been taken to Ohawe. When I arrived it was discussed with me and I was told that the canoe should be dragged to Waihi. Panapa was dark about their dragging of the canoe to Ohawe. They said it should be dragged to Waihi. Instead, Maru was brought to Waihi. If you disagree, please write to me at once ...

From me, Te Kepa

Soon after, Maru was smashed at sea, no doubt vindicating the opinions of some leaders who thought that it had been launched in the wrong place. In a letter written on 27 December 1858 (letter 49), Te Ito was told of the loss, but the writer urged him not to be depressed or dark-hearted (*pōuri*) because they had already cut down a tree for a new canoe. The local leaders had independently determined that the correct course of action would be to destroy the fish that had been caught from the broken canoe. The fish were probably considered tapu because they had come under the influence of the atua that had been responsible for the destruction of the canoe. Two successful fishing trips had resulted in catches of tuna and 80 dogfish (*mangō*), all of which were burned in a fire. The atua involved here was possibly Maru or one associated with Maru, after whom the canoe was named; a few years earlier, and in the same general locality, Te Ito had destroyed a stone image of Maru by throwing it into one of his fires (Sissons, forthcoming; Smith 1908: 143).

In addition to letters seeking advice on fishing, this seasonal domain includes a letter written in October, the month for planting potatoes, informing the prophet that the Kaingārara leaders had acted in accordance with his guidance and that their potato rite had been completed (letter 35):

To Tamati Te Ito Ngamoke at Te Whanga pa Waitara
Te Hauwai pa Waitaha
October 25 1858.

Go our loving letter to our elder. Old friend, greetings to you and your children. We have received your letter and recognise that your word is right. Listen here, it was not us, it was the people who lived there who kept asking us all the time and therefore we agreed to what they said about that food. Later we pounded [those potatoes], and the potato ritenga was completed. However, we used up all the firewood. Those [uncooked?] potatoes are just lying about. In our opinion, those potatoes should just be left in the pit to rot away. That's all of this ...

Well, that's all.
from Ihaia Te Karewa
(My revised translation)

It is unclear what the purpose of this rite was or why it had involved the building of a large fire. However, in the early 1850s, some six years before Te Ito's spectacular whakanoa fires, many communities had gathered around fires built in sacred groves upon which potatoes were cooked. These were eaten by the assembled villagers in order to drive away the atua kikokiko that inhabited the groves in the form of lizards (Sissons 2016). Perhaps some potatoes had been used in a similar rite in preparation for planting.

DISCUSSION

I have argued elsewhere (Sissons 2013, 2015) that *hapū* 'sub-tribal kin-groups' can be usefully reconceptualised in Deleuzian terms as assemblages that territorialised people, atua and features of the landscape around intensely tapu centres—chiefs, tohunga and meeting houses. From this perspective, Kaingārara might be viewed as a reterritorialisation of multiple Taranaki hapū around a new intense centre—the prophet, Te Ito. However, in his recent call for a “one-world anthropology” Tim Ingold has rightly criticised the often overly static uses of the assemblage concept and has proposed, instead, that we employ the concept of “correspondence” to capture the sense of lives “lived-with” rather than lives as “components of” something bigger:

Thus, in place of assemblage as a way of talking about the multiplicity of soul-life, as if it were an alliance of souls, I propose the term *correspondence*

to connote their affiliation. “Life as a whole”, then, is not the articulatory summation but the differential correspondence of its particulars. (Ingold 2018: 160)

Understanding Kaingārara through a lens of correspondence certainly highlights its distinctiveness as a mode of becoming. If, in Ingold’s Deleuzian anthropology, the universal is “a plane of immanence from which difference is ever-emergent” (p. 165), then the particularity of the Kaingārara was, in large part, that it was a mode of political life “lived with” *atua*, one emerging through a correspondence *about* and correspondence *with* *atua* and their *tapu*. Moreover, the engagement of Kaingārara with *atua* and their *tapu* can also usefully be considered a “task” in Ingold’s sense, as “something that falls to us, as responsive and responsible beings, as part of the life we undergo” (p. 166). The task of engaging with *atua* was, indeed, part of the life-condition in which Kaingārara found themselves after conversion to Christianity.

At the intense centre of Kaingārara correspondence—understood as both writing and becoming—was Te Ito. His becoming-prophet was also the becoming-Kaingārara of the movement’s members, and in the case of the fires, it was also the becoming-*noa* of persons, places and things that had been under the influence of *atua*. *Tapu*, for Kaingārara, was not a transcendent order that was distinct from or imposed upon social life. It was a condition in which people found themselves, the inspired knowledge of which was shared by a prophet whose own becoming unfolded in correspondence with the lives that he guided from a distance.

But “life as a whole” needs to be understood as both differential correspondence and differential *non*-correspondence. The difficulty with Ingold’s view is that when life is treated as nothing but correspondence—as one enormous “meshwork”—then the differentiation of meshworks from each other—which Deleuze and Guattari understood as the reterritorialising of assemblages—is left unaccounted for. For this reason, I wish to retain the concept of “intense centre” to denote the person, place or thing around which correspondence is territorialised. In my view, modes of correspondence are differentiated from each other in terms of the intense centres around which they form or emerge. Rather than view social life as a decentred meshwork within one world of continuous emergence, we might better understand it as the emergence of multiple meshworks of differentially centred correspondence.

Deleuze and Guattari explain the concept of intense centre with reference to their allegory of territorialisation:

There is always a place, a tree or grove, in the territory where all the forces come together in a hand-to-hand combat of energies. ... This intense center is simultaneously inside the territory, and outside several territories that converge

on it Inside or out, the territory is linked to this intense center . . . where everything is decided. (Deleuze and Guattari 1987: 321)

Te Ito represented such a convergence of forces. Inspired by an atua, and through engagement with other atua, including atua kikokiko, he was both the intense centre of the Kaingārara and the point of convergence of hapū (and their distinct territories) where everything in relation to tapu was decided.

* * *

The Kaingārara letters were sent to Te Ito from 16 settlements located throughout the Taranaki district by members of all the main tribes: Te Āti Awa, Taranaki Iwi, Ngā Ruahine and Ngāti Ruanui in the south. Each of these tribes comprised a number of hapū that were territorialised around leaders of high mana. The written correspondence shows that in discerning breaches of tapu and prescribing ritenga to deal with these, Te Ito was essentially performing the same service for multiple hapū across Taranaki as had been performed by pre-Christian tohunga for their particular hapū (Shortland 1856: 121). However, now this work (*mahi*) was understood to be “mahi kikokiko”, and it had become focused on two domains within which potentially malevolent atua and their tapu were considered most active: sorcery and seasonal work. These were domains of local struggle in which the continuity of life was most at risk through a non-correspondence that arose from malign intent or from a failure to respect the guardians of land, waterways and sea. In joining with Kaingārara in their life-struggles, albeit from a distance, Te Ito was restoring a correspondence between people and place and, in the process, contributing to the creation of a new, politically independent mode of dwelling.

In his capacity as the intense centre of a political movement for life, Te Ito was not unlike one of Hocart’s kings. Hocart wrote that the king primarily serves a ritual rather than an administrative purpose: “He is the repository of the gods, that is, of the life of the group” (Hocart 1970: 98–99). Te Ito was both, but he was not a king, nor was his chief, Wiremu Kīngi Te Rangitāke, although the latter may have aspired to such a status. In any case, Rewi Maniapoto of Waikato was taking no chances. Hence his demand that Te Ito and his supporters cease their efforts to unite Taranaki through their engagements with atua. Te Ito did, in fact, cease his correspondence with the Kaingārara some three months later—but not because he had obediently heeded Maniapoto’s command. Rather, it was because government troops had burned down his village, forcing him and Te Rangitāke to flee inland with their people. The Kaingārara movement never recovered.

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LIFE AND DEATH OF AN EGG HUNTER:
PROPOSAL FOR A REINTERPRETATION OF A RAPA NUI
(EASTER ISLAND) STRING FIGURE CHANT

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ABSTRACT: Pre-missionary Rapa Nui (Easter Island) literature has only survived in a small corpus of poorly understood recitations. Their obscurity has been attributed to the disappearance of the old culture as a result of the catastrophic decline of the native population in the second half of the nineteenth century and the considerable change that the Rapanui language has undergone under the influence of other languages. A similar judgement has been passed on one of the most popular songs in the traditional repertoire, a string figure chant that was recorded in the twentieth century by several anthropologists, among them Routledge in 1914 and Métraux in 1934–1935. A complete version of the chant was first published in 1960 by Barthel. However, his uneven translation takes many liberties with the original text and leaves much unexplained. Barthel’s idea that the chant’s main topic is the burial of a man who once held the important ritual position of “birdman” has nevertheless been generally accepted by subsequent researchers. Fortunately, since then the unpublished fieldnotes of both Routledge and Métraux have become available. Despite the fact that they reveal that already in the first half of the twentieth century the chant’s meaning could no longer be explained by the native informants, they shed light on a number of cryptic passages by providing important material for comparison and reconstruction. This has made it possible to propose in this study an alternative interpretation of the text as a lyrical account of the death of a *hopu manu*, a contender in the annual competition for the sacred bird egg to select the new birdman. If this proves to be correct, the chant would constitute a unique example of early Rapanui poetry, an intriguing artefact of the enigmatic birdman cult and an incentive for further research into texts that have been written off as too archaic and obscure.

Keywords: Rapanui language, Rapa Nui (Easter Island), birdman cult, Orongo, string figure chant, *kaikai*

The lifeless body of a young man is lying at the foot of the foreboding cliffs lining the southwestern shore of Rapa Nui (Easter Island). He has fallen to his death in an attempt to climb the 300 m high rock wall that forms part of the extinct volcano Rano Kau. On top of the narrow crater rim perches the ceremonial village of Orongo—his destination. In pre-missionary times, this group of stone houses amidst elaborately sculptured rocks hosted the annual

competition to establish who would take up the ritual position of *tanata manu* ‘birdman’ for the year to come. The cult of the birdman disappeared along with much of the rest of the old culture in the 1860s, a period in which the population of Rapa Nui was decimated by slave raids and imported diseases.

Most of our information on the enigmatic rite was collected by Thomson (1891: 482–83) and Routledge (1919: 254–66). At the beginning of the austral spring, contestants from the elite or their proxies descended the cliff, swam to the tiny offshore islet of Motu Nui and awaited there the arrival of the birds. Initially, the object of their desire appears to have been the egg of the *makohe*, the sacred frigatebird. After this bird stopped nesting there, it was replaced by the egg of the *manu tara*, the sooty tern. Once the first egg was procured the winner had to undertake the hazardous return trip. Again he had to overcome the strong ocean currents, the sharks, the dangerous coastal rocks and the steep cliff.

According to tradition, the possession of the egg made the finder impervious to all these perils, but it seems more likely that whoever was the first to return to Orongo with an egg intact was declared victor. He would then either become the next birdman or—if he was a stand-in—present the precious object to his patron. After the celebrations, the new birdman would spend a year in isolation surrounded by many taboos. Some have suggested that through the acquisition of the egg the supreme god Makemake incarnated in the birdman thereby ensuring a year of plenty (e.g., Métraux 1940: 335).

The unfortunate climber whose body is lying on the narrow strip of rocks behind the turmoil of the roaring breakers of the Pacific Ocean was one of these proxies for the elite, called *hopu* or *hopu manu*. The story of his tragic demise is told in a *kaikai*—a type of traditional chant that is performed accompanied by string figures. The first part of the song tells of his ill-fated return journey—the injuries he sustained from the aggressive seabirds and the jagged rocks surrounding the three offshore islets, Motu Kaokao, Motu Iti and Motu Nui, and the ultimate failure to reach the sculptured rocks of Orongo. The second part fondly reminisces on the life he is leaving behind—the family home, the parents with their daily occupations and the girls he loved. The uniqueness of this particular text lies in the fact that these recollections seem to be told from the perspective of the victim. Taking into account the Polynesian dualistic notion that the soul can function independently of its corporeal receptacle, it can therefore be hypothesised that we are hearing the voice of the young man’s spirit as it is in the process of departing from the body or lingering nearby after having done so.

To be clear, this is not how this *kaikai* chant has been interpreted by scholars of Rapanui culture. On the contrary, their translations suggest that it is an incoherent and in many parts obscure narrative. It is this paper’s aim to tentatively propose an alternative to this generally accepted view.

LOSS OF MEANING

The most important research into the oral traditions of Rapa Nui was undertaken in the second half of the nineteenth and the first half of the twentieth centuries by William Thomson, Katherine Routledge, Alfred Métraux and Sebastian Englert. Unfortunately, by that time the pre-missionary culture had suffered immensely from the impact of slave raids, diseases, foreign languages and conversion to Catholicism. This is reflected especially in the corpus of Rapanui chants that were recorded in sessions with native informants. Although Rapanui were able to produce a significant body of texts from memory, it is clear that many of these were only poorly understood by them. The publications of Thomson and the fieldnotes of Routledge and Métraux amply show that in most cases their informants had to limit themselves to speculations about the subject matter and explanations of isolated words. For example, when inquiring about *He timo te akoako*, a widely known but obscure text that was associated with the enigmatic *rongorongongo* script, Routledge observed:

To get any sort of translation was a difficult matter, to ask for it was much the same as for a stranger solemnly to inquire the meaning of some of our own old nursery rhymes, such as “Hey diddle diddle, the cat and the fiddle”—some words could be explained, others could not, the whole meaning was unknown. (Routledge 1919: 248)

Several explanations have been offered for the difficulty of obtaining a meaningful translation from the native population. It has been suggested that the traditional chants contain many remnants of the ancient language (sometimes called Old Rapanui) which differed very much from the post-missionary—i.e., post-1864—idiom that had rapidly changed under Mangarevan, Tahitian and European influences. It has also been assumed that the texts’ inaccessibility was the result of their being steeped in esoteric knowledge which could only be understood by the initiate and which had disappeared along with the ancient system of belief. All this has led to a general pessimism regarding the possibility of understanding many of the traditional Rapanui chants: “Pictorial and abbreviated locutions, ambiguities and the occurrence of archaic expressions, but in part also a gradual loss of meaning, stand in the way of a really satisfactory translation” (Barthel 1960: 842).¹

To evaluate these claims for the corpus as a whole is not possible in the short space of an article. However, some conclusions can be drawn from the study of the chant that is presented here as it has confronted the various interpreters with a number of the problems raised. Although its language does not give the impression of being very archaic or esoteric, it is apparent that it

had been performed for a considerable time without a clear understanding of its meaning. This suggests that—at least in this particular case—the difficulties encountered may have had a different origin.

VERSIONS

The earliest version of the chant is found in the unpublished fieldnotes of Routledge (1914–15: Reel 2, 0683–84), who stayed on Rapa Nui from March 1914 until August 1915. Her notes are headed by the text “cat’s cradle kai kai” and a rough sketch of a string figure. The labels “wing” and “tail” suggest that the figure is representing a bird. In the transcription below, the Rapanui text has been italicised. Routledge’s glosses—originally placed under the Rapanui words—have been inserted and marked by square brackets. The (added) ellipses indicate where she interrupted the text of the chant with some remarks about the session.

ka me mea [red] *no* | *tó koro* [father] *hami* [“fig leaf”] *méa* [red] | *táve ke ituai*
[it is a long time] *itu ohiro* [?] moon] *ká u úri nó* [it is black] | *tó koró* [cry]
tangáte [men] | *itua* [old] *ohiro* [moon] | *kavária tágne nó* [there is much
crying] | *ma haki* [will cry] *té makoi* [a white bird] *párigni te mátavái* [tears]
| *o te túavi* [a bird] | *kariti* [streams] *te hupé* [nostrils] | *o te kúkúru toua – evé*
pépé-pépé auré | *motu nui* | *étúru* [3] *agnérá* [times] | *ka kai to kóro pero* |
motu iti [motu iti] *motu nui* [motu nui] *motu kákáo* [motu kakao] | *kai ta ui*
mai koe [you will not see] *ma púku rákeráke vae* [foot] *é pau éra* [turned
in] *ki te aku papaku* [corpse] | *hé úha* [hen] *kúri* [cat] *ta pápákúri uha* [hen]
méa [red] *iti iti* [little] *toteháta uma* [(not known)] *he ngau ngau no* [a wood
wh. smells] *ta puku* [(repetition)] *ngau ngau* [wood wh. smells] *he orongo*
tapuku [repetition] *orong ... he orongo noa ta o rongorong*

Routledge gives “Parapina” and “Antonio” as the names of her sources and “Henry” as her translator. According to Van Tilburg (2003: 146; 285), they were the natives Antonio Haoa Pakomio, his wife Parapina Araki Bornier and expedition member Henry MacLean who served as English–Spanish translator. The session must have taken place sometime before 14 August 1914 as on that day MacLean left the island (Van Tilburg 2003: 163).

Routledge’s glosses clearly indicate that by this time the general meaning of the text was no longer understood. The informants resorted to explaining individual terms and did not provide a single complete sentence. Routledge also suspected that they avoided clarifying certain terms that they deemed inappropriate. One of these, *evé* ‘buttocks’, she marked as such. Apparently, she did not undertake a further attempt to elicit a translation of the chant. Although her fieldnotes were deposited at the Royal Geographical Society in London, they were long thought of as lost. As they did not resurface until 1975 (McCall 2006: 251–52), this important version has long been unavailable to subsequent researchers.

The next explorer to mention the chant is Brown, who visited the island in 1922 and also saw it performed accompanied by string figures. Unfortunately, he only published the first eight verses as “Kami mea no, to koro hami mea, tara ke tu aere, Kamiri no, to koro tangata tuao iti Ohiro, karave tangi noa mahaki ke makohe, etc.”, commenting: “It was evidently the frigate-bird and his deeds that supplied the subject of the song; and further on in the song the bird islands, Motunui, Motuiti, and Raukau [*sic*] are introduced and the scene of the bird-watching, Orongo” (Brown 1924: 205). Brown also gives a description of one of the accompanying *kaikai* figures, called “the bird”, which may have resembled the one drawn by Routledge.

During the Franco-Belgian expedition of 1934–1935, Métraux (1934–35, NB 3: 2–4; NB 5rb: 8–10) collected two versions of the chant, one some 11 verses longer than Routledge’s, the other with some 22 additional verses. Apparently, Métraux did not feel very comfortable with the material as he did not attempt to translate the complete text. In his monograph *Ethnology of Easter Island*, he published a mere four verses from the middle part, referring to it as “an old chant” (Métraux 1940: 137):

<i>He naunau no ta Puku-naunau.</i>	There is a sandalwood tree in Puku-naunau.
<i>He rongorongo no ta Orongo.</i>	There is a chanter at Orongo.
<i>He tahonga no ta Puku-tahonga.</i>	There is an expert craftsman in Puku-tahonga.
<i>He kiakia no ta Puku-kiakia.</i>	There is a <i>kiakia</i> bird on Puku-kiakia.

To make sense of these verses, Métraux (1940: 136) assumed that the term *tahonga* is connected to Polynesian *tahunga* ‘expert’. His fieldnotes show that he also changed a word in the second line which had originally been recorded as “he oronjo no ta oronjorojo” (Métraux 1934–35, NB 5rb: 9).

More than twenty years later, sometime between July 1957 and February 1958, Barthel recorded another version of the song, one that was apparently very similar to Métraux’s second version. He was the first to publish the integral text and an annotated translation (Barthel 1960: 854–56). Barthel (p. 842) had Métraux’s fieldnotes in his possession and he states that he used them to clarify some obscure passages. Unfortunately, he gives no further details regarding the text he himself collected or which problems were solved by Métraux’s notes. It is, however, clear that his translation is in close agreement with the glosses provided by Métraux.

Since the chant mentions a death taboo and a corpse, Barthel interprets it as a description of a funeral ceremony [*Totenfest*]. The presence of birds—among them the frigatebird—and locations at the southwestern tip of the island such as Orongo lead him to believe that the deceased has been a birdman during his lifetime. He also points to two traditions which link the sandalwood and the two hens that are mentioned in the text to the birdman cult: a piece of this wood was fastened to the arm of the victor of the egg race, and during

the funeral ceremony for a birdman five cocks were tied to each leg of the deceased. Additionally, he suggests that there is an initiation motif in the chant as other sources mention *tahonga* hangers and the dance called *hikiŋa kauŋa* in connection with children's coming-of-age rites.

The Rapanui text as published by Barthel is presented here with a retranslation of his German translation. The markers //: and :// surrounding lines 13–14 indicate repetition. The question marks in lines 14 and 26 are also in the original.

	<i>ka memea no</i>	How red
	<i>to koro hami mea</i>	the painted loincloths at the feast are
	<i>tavake i tua e</i>	the <i>tavake</i> bird on the backside
	<i>ka uuri no</i>	How black
5	<i>to koro tangata</i>	the men at the feast are
	<i>tuao i te ohiro</i>	the <i>tuao</i> bird in Te Ohiro
	<i>ka rava tangi no</i>	How bitterly weeps
	<i>mahaki te makohe</i>	the younger sister, the frigatebird
	<i>ka riti te hupee</i>	How it streams—while crying—from the nose
10	<i>o te kukuru toua</i>	of the yellowish <i>kukuru</i> bird
	<i>eve pepepepe</i>	with the very short tail
	<i>a ure motu nui</i>	from Ure-Motu-Nui
	//: <i>etoru ange ra</i> ://	
	//: <i>ka kai to koro pera</i> ://	What a food at the funeral feast (?)
15	<i>motu nui</i>	Motu Nui
	<i>motu iti</i>	Motu Iti
	<i>motu kaokao</i>	Motu Kaokao
	<i>kai tuu mai koe</i>	You will not come—
	<i>e papa rona</i>	o rock with relief figures,
20	<i>rakerake era e</i>	where there is evil
	<i>vae pau era e</i>	and where there are clubfeet—
	<i>ki taaku papaku</i>	to my corpse
	<i>he uha uri</i>	A black hen
	<i>ta papaku uri</i>	belongs to a dark corpse
25	<i>uha mea itiiti</i>	A very small red hen
	<i>to te hatauma</i>	belongs to the corpse lying in state (?)
	<i>he naunau no</i>	A single sandalwood tree
	<i>ta puku naunau</i>	belongs to Puku Naunau
	<i>he orongo no</i>	---
30	<i>ta orongorongo</i>	---
	<i>he retu no</i>	A single tattoo on the forehead
	<i>ta hu hatu retu</i>	belongs to the group of tattoo experts
	<i>he tahonga no</i>	A single wooden hanger
	<i>ta puku tahonga</i>	belongs to Puku Tahonga

35	<i>he kiakia no ta puku kiakia to koro vaka tere ko haho ko vai vaka ta koro paoa mau</i>	A single white tern belongs to Puku Kiakia To father who fishes in his boat belongs Vai Kava out there To father who grabs the club
40	<i>ko vai paoa oa ta koro toa rei ko te ngaatu a hurirenga ka huhuti to koro hare moe</i>	belongs Vai Paoa Oa To father who breaks the sugarcane belong the rushes of Huri Renga Pull them out! To father who sleeps in the house
45	<i>ko raro ko te paenga to koro papa hiki kaunga ko runga ko papa rona ta koro manu mau ko te vai hopu manu</i>	belong the foundations below To father who dances on the rocks belong the sculptured rocks above To father who grabs the bird belongs Vai Hopu Manu
50	<i>ta nua heke too ko haho ko koro heke ta nua hetuke tunu ko vai hetuke tunu ta nua kumara keri</i>	To mother who catches the octopus belongs Koro Heke out there To mother who cooks the sea urchin belongs Vai Hetuke Tunu To mother who digs up the sweet potatoes
55	<i>ko te pua a hurirenga ta nua umu ka ko te ehuehu ko te kapuapua</i>	belongs the yellow root of Huri Renga To mother who lights the earth oven belongs the grey smoke belongs the fog

Apart from the two segments Barthel left untranslated, his interpretation has several other problematic aspects. In the first lines, the presence of the different birds gives rise to incoherent and implausible sentences. Particularly odd are the notions that birds would weep with runny noses for a deceased birdman and that a rock would come to a corpse. Why there would be “clubfeet” involved is also left unexplained. For a number of translations such as “sister” for *māhaki* and “group of tattoo experts” for *hatu retu*, no justification can be found in the vocabularies.

As can be learned from the fieldnotes of Routledge and Métraux, their informants showed a strong tendency to explain unknown words or passages as proper names of persons, gods and places. In the case at hand, Barthel has accepted this uncritically. As a result, his interpretation of the second part of the text in particular relies heavily on unattested toponyms. By his own admission, Barthel (1960: 856) considerably changed the order of the verses in the second part: “We have arranged the paired verses from the three text variants at our disposal according to the keywords *koro* and *nua*, respectively.” He remarks that the original order may have alternated between the activities of the father and mother. Although he does not motivate this reorganisation

into a strict father–mother division, it can be accepted as it makes the text more coherent and does not influence the interpretation.

After Barthel, at least three additional versions were published accompanied by a translation. Campbell (1971: 403–6) recorded words and music in 1966 from Amelia Tepano, describing it as a “rhythmic recitative” more than 100 years of age. Unfortunately, his “free translation” reduces most of the text to nonsense.

The translation by Felbermayer (1972: 277–79) is almost as problematic. His version has an additional 13 lines at the end of the text. These have apparently been created in more recent times based on the interpretation of the chant as a description of a funeral ceremony. Possibly, they were added to clarify some of its obscurities. It says, for example, *Ka oho de [sic] Kuhane o koro o oku ki Havaiki* ‘Let the spirit of my father go to Havaiki’. However, in the older sources on Rapa Nui, Havaiki—or Hawaiki—is not found as a name for the ancestral homeland or the spiritual afterworld. Yet another version was published by Blixen (1979: 90–98) in his study of Rapa Nui string figures. Apart from the marking of the glottal stop, his Rapanui text is largely in agreement with Barthel’s publication, as is his translation.

It will not be necessary to discuss the last three translations in greater detail as they add little to the understanding of the text. The reconstruction and interpretation of the chant presented here have been based primarily on a comparison of the versions of Routledge, Métraux and Barthel. Some of the string figures provided by Routledge, Campbell, Felbermayer and Blixen represent objects mentioned in the chant—such as a bird and a boat—but most of them lack recognisable features. They also contribute no additional information and will not be further examined here.

REINTERPRETATION

Barthel’s translation suggests that the chant is confused and in part obscure. However, a few minor adjustments in the text and a different interpretation of some of its keywords turn it into an intelligible and coherent narrative. The fieldnotes of Routledge—which were unavailable to Métraux and Barthel—can be used to clear up a number of problematic passages.

One of the terms that has caused problems is *koro*, a word that is used in different meanings. In one instance, Routledge glosses it, inexplicably, as ‘cry’; in another it is left untranslated. To Métraux, the occurrences in the first part of the chant were explained as ‘*papa*’ and ‘*fiesta*’, in the second part as ‘*padre*’. Barthel assumed that the word was used in the first part as ‘feast’ and in the second part as ‘father’. This division works well for the interpretation of the text. The “feast” is interpreted by Barthel as a funeral ceremony for

this “father”, who is assumed to have been a birdman. The second part of the chant is supposed to describe the activities of the deceased and his wife.

The most important reason for the assignment of these roles appears to be the phrase *taaku papaku* ‘my corpse’ in line 22. In Rapanui, as in other Polynesian languages, the body and the body parts are typically *o*-possessed (Mulloy and Rapu 1977: 13). Mulloy and Rapu define the *o*-class as marking “a possession which is responsible for its owner, one upon which the owner is dependent”, whereas the ‘*a*-class that is used here marks “a possession for which the owner is responsible, one which is dependent upon its owner” (p. 8). More recently, Kieviat has suggested that *o* is actually the default possessive marker while “‘*a* is only used when the possessor is dominant and/or active in relation to the possessee” (2017: 311). Presumably, the use of the ‘*a*-possessive pronoun in this phrase has led Barthel (and others) to rule out the possibility that pronoun and noun refer to the same person and to assume that the possessor is someone who has the responsibility of taking care of the corpse. There is, however, an alternative explanation possible if the traditional belief system is taken into account:

As everywhere else in Polynesia, the underlying idea of the Rapanui theogony was that of the *tangata* ‘living human being’ as a dichotomy of *hakari* ‘body’ and *kuhane* ‘soul’. It was believed that the *kuhane* left the *hakari* at the death of the person, surviving it to lead an independent human life and preserving all characteristics and abilities of the former living person, in addition acquiring the capability to adopt any shape, including that of the former living person. (Bierbach and Cain 1993: 135)

In this conception, a spirit that is leaving a deceased person could be held responsible for the transformation of the living body into a corpse and could therefore be regarded as the initiator of the possessive relationship. If it is assumed that the voice we are hearing is that of the spirit of the hapless egg hunter that is detaching itself from the body—or, having done so, is still lingering nearby—it would explain the fact that “my corpse” is ‘*a*-possessed.

Moreover, if the chant as a whole is interpreted as a reflection of the spirit on the young man’s death in the context of the birdman ritual and on his past family life, other puzzling pieces of the text start to fall into place. Most importantly, the change of perspective makes it possible to account for the way other items are distinguished as alienable (*ta*) or inalienable (*to*).

The forms *ta* and *to* ‘that of’ are contractions of the article *te* + possessive prepositions ‘*a* and *o*, respectively, and survive in modern Rapanui mainly in a series of possessive pronouns. In Barthel’s interpretation, however, the choices for either *ta* or *to* make little sense. In lines 23–26, for example, the possessive relations of the “black hen” (marked as *ta*) and the “little red hen” (marked

as *to*) are interpreted as grammatically identical. In addition, certain rocks are named as places to which—for some unexplained reason—items such as a *tahona* pendant and a white tern “belong”. It seems unlikely that these objects were marked as *a*-possession to signal an “active” or “dominant” role on the part of their stony “possessors”. If, on the other hand, it is assumed that the young man’s death has been caused by these boulders and that his body and belongings in time will become part of them, this would imply a much more active role of these rocks.

In the second part of the chant, a similar situation is encountered. In Barthel’s interpretation, a number of water bodies are mentioned as “belonging” to the father or the mother. Without an apparent difference in function, these are either marked by a *ta*- or a *to*-possessive. However, if the interpretation of these locations as belonging to certain persons was correct, they would more likely be *o*-possessed (see Mulloy and Rapu 1977: 13; Kieviet 2017: 292). Furthermore, the lines structured as “to father/mother doing X, belongs *ko te Vai X*” seem very awkward. If these indeed were existing bodies of water, they would more likely be named “*Vai X*”, and therefore the expected phrase with the marker would be “*ko Vai X*”. However, if the phrase *ko te vai* is read as *ko te va ‘ai*, i.e., as a nominalisation of the verb *va ‘ai* ‘to give’, this would produce a series of plausible sentences. It is therefore proposed that in this text *ko te* + verbal noun constructions are used to indicate habitual action. To be sure, this is different from modern Rapanui where “[t]he construction *ko te* + verb signifies that an action or situation is ongoing or persisting” (Kieviet 2017: 91).

An additional problem posed by the proper names of the “rocks” and “waters” is that they are not mentioned in other sources. As will be demonstrated below, a different interpretation not only does away with these fictitious toponyms but also satisfactorily explains the use of the possessives *ta* and *to* according to the grammatical rules concerning the alienable–inalienable dichotomy: marked for *a*-possession are the tasks of the father (carrying a club; crushing sugarcane; carrying the birdman) and the mother (digging up potatoes; catching octopus; lighting the earth oven; cooking sea urchins); marked for *o*-possession are the house, the boat and the loincloth. This leaves only the inalienable marking of the “dancing on the rocks” as somewhat problematic.

RECONSTRUCTION AND RETRANSLATION

The text as published by Barthel requires only minor adjustments to be transformed into a coherent and intelligible text. The reconstruction below follows his rearrangement of the second part of the chant. No attempt has been made to fit the material into some hypothetical metrical scheme. Given the

shortcomings of the source material—Routledge and Métraux, for example, often differ in their marking of stress—this would have been a fruitless exercise. The modern musical performance, typified by Campbell (1971: 405) as “irregular”, also fails to provide any clues in this respect.

The text has been adapted as much as possible to modern orthography. Glottal stops and vowel length have been marked in so far as reliable sources were available. The marking of the latter, however, is not to be taken as an indication of how the performance actually sounded as vowels tend to be freely shortened or stretched in chants. The repetition of lines 14–15, 28–30, 39 and 43 in some of the sources has been ignored.

	<i>ka memea nō</i>	How brightly coloured (it) is,
	<i>to koro hami mea</i>	the red loincloth of the ritual,
	<i>tava kē 'i tu 'a i te 'ōhiro</i>	(and) how pale (he) is, (lying) behind the turbulent surf.
	<i>ka u 'uri nō</i>	How bruised (he) is,
5	<i>to koro tanata</i>	the man that took part in the ritual,
	<i>'i tu 'a i te 'ōhiro</i>	(lying) behind the turbulent surf.
	<i>ka vara tanji nō</i>	How (it) keeps on screeching,
	<i>māhaki te makohe</i>	(his) companion, the frigatebird!
	<i>pariŋi te matavai 'o te tu 'aivi</i>	(He) has shed tears on account of (his) back as (it) scratched (his) spine.
10	<i>kari i te hope</i>	And because of the <i>kukuru toua</i> bird,
	<i>'o te kukuru toua</i>	(his) buttocks were badly injured,
	<i>eve pe 'epe 'e</i>	while (his) penis was maltreated by Motu Nui.
	<i>pe 'epe 'e 'ā ure motu nui</i>	But (he) got the better of those three!
	<i>etoru haje rā</i>	How sharp (they) were, the graveyards of the ritual:
15	<i>ka kai to koro pera</i>	Motu Nui,
	<i>motu nui</i>	Motu Iti
	<i>motu 'iti</i>	and Motu Kaokao.
	<i>motu kaokao</i>	But you (he) could not reach,
20	<i>kai tu 'u mai koe</i>	wretched sculptured rock!
	<i>e papa rona rakerake ē</i>	(You) have chosen the “coffin” for my dead body!
	<i>vae pahu era e</i>	There was a dark-skinned girl
	<i>ki tā 'aku papaku</i>	that belonged to this bruised corpse,
	<i>he uha 'uri</i>	and a little fair-skinned girl
25	<i>ta papaku 'uri</i>	that belonged to this disflashed “shadow”.
	<i>uha mea 'iti 'iti</i>	(Now) there are only sandalwood trees,
	<i>to te 'ata ōma</i>	(he) will be part of the rocks with the sandalwood trees.
	<i>he naunau nō</i>	(Now) there is only Orongo,
	<i>ta puku naunau</i>	
	<i>he 'ōroŋo nō</i>	

- 30 *ta puku 'ōroŋo* (he) will be part of the rocks of Orongo.
he 'ōroŋo nō (Now) there is only Orongo,
ta roŋo o 'ōroŋo (he) will be part of the tales about Orongo.
he retu nō (He) has a single tattoo on the forehead,
ta hū hatu retu (it) will be part of these “tattooed” boulders.
- 35 *he tahoŋa nō* (He) has a single *tahoŋa* pendant,
ta puku tahoŋa (it) will be part of these egg-shaped boulders.
he kiakia nō (Now) there are only these white terns,
ta puku kiakia (he) will be part of these rocks with (their) white terns.
- to koro vaka tere* Taking the boat out was (his) father’s job,
 40 *ko haho ko te va 'ai vaka* (but) out at sea (he) would let (him) have (control of) the boat.
ta koro pāoa mau Carrying a club was father’s job,
ko te va 'ai pāoa oa (he) would let (him) have that club! Ouch!
ta koro toa rei Crushing sugarcane was father’s work.
ko te ŋatu 'ā huri reŋa (He) planted the yellow shoots
 45 *ka huhuti* and then (he) pulled out the weeds.
to koro hare moe The house (he) slept in belonged to father,
ko raro ko te paeŋa the *paeŋa* stones were the foundation.
ta koro papa hiki kauŋa Dancing with flexed knees in a line was father’s task,
 on top of that sculptured rock.
- ko ruŋa ko papa rona* Carrying the birdman was father’s task,
 50 *ta koro manu mau* (he) provided (him) with a proxy!
ko te va 'ai hopu manu Digging up sweet potatoes was mother’s work,
ta nua kumara keri (she) covered up the yellow shoots.
ko te pua 'ā huri reŋa Catching octopus was mother’s work,
ta nua heke to 'o (she) was out there when there were octopuses.
- 55 *ko haho koro heke* Cooking sea urchins was mother’s work,
ta nua hetuke tunu (she) served (him) those cooked sea urchins.
ko te va 'ai hetuke tunu Lighting the earth oven was mother’s work,
ta nua umu ka (it) produced a thick smoke,
ko te ehuehu (it) produced a dense fog.
- 60 *ko te kapuapua*

Commentary

Where relevant, the alternative lines of the source texts are cited. They are referred to as R (Routledge 1914–15, Reel 2: 0683–84); Br (Brown 1924: 205); M1 (Métraux 1934–35, NB 3: 2–4); M2 (Métraux 1934–35, NB 5rb: 8–10); Ba (Barthel 1960: 854–56). In R and M1, stress is usually marked with an acute accent on the vowel. In M1, short vowels are occasionally indicated with a breve.

- 1) *ka memea nō*: Likely, the redness of the loincloth also refers to the blood covering the victim’s body.

- 2) *to koro hami mea*: The fact that the birdman ritual is marked as possessor of the loincloth suggests that the competitors were wearing ceremonial dress.
- 3) *tava kē 'i tu'a i te 'ōhiro* (R: *tāve ke ituai itu ohiro*; Br: *tara ke tu aere*; M1: *tāvākē i tūā e*; M2: *tavaké i tua e*; Ba: *tavake i tua e*): In R, the first two words are not glossed; in M2 they are glossed as '*otro lado*', i.e., read as *taha kē* 'other side'. M1 and Ba interpret *tavake* as a bird name, which may have been inspired by the mentioning of the colour red in the previous verse and the presence of two other seabirds—the *makohe* and the *kukuru toua*—in the lines that follow. On Rapa Nui, *tavake* was the name of the red-tailed tropicbird (*Phaethon rubricauda*). Its elongated red tail feathers were in high demand for ornamental usage (Englert 1978: 261). However, the fact that in R it is written as two words and that in the metrical notation of R, M1 and M2 not the expected second syllable but the first or third are marked for stress makes this interpretation questionable. This gives room to the alternative possibility that the first part is the short form of *tavatava* 'pale' (Englert 1978: 261), followed by *kē* 'different'. In this way, the bright red colour of the loincloth is contrasted with the pale complexion of the deceased.

Because of the absence of *ohiro* in M1, M2 and Ba, the complex preposition '*i tua i* was turned into *i tua e*, i.e., *tua* became interpreted as a noun. This has led to awkward translations such as Barthel's "the *tavake* bird on the backside".

To Routledge the word *ohiro* was explained as 'moon' since *Ohiro* was the name of the night of the new moon. However, as "behind the new moon" fails to make much sense, it can be tentatively proposed that *ohiro* is the abbreviated form of '*ōhirohiro* 'waterspout', which would be an apt description for the turbulent waves below Orongo. Lying on the small strip of rocks at the foot of Rano Kau, the victim was positioned immediately "behind" the breakers.

- 4) *ka u'uri nō*: The word *uri* 'dark, black' is also used to describe severely bruised skin (Fuentes 1960: 878: 'bruised'; Englert 1978: 279: 'black and blue').
- 6) '*i tu'a i te 'ōhiro* (R: *itua ohiro*; Br: *tua o iti ohiro*; M1: *itúáo ĭ tē ó hiro*; M2, Ba: *tua o i te ohiro*): The confusion about this phrase has led to the introduction of another seabird, the *tua o*. In M2 it is glossed as 'black rock-dwelling bird' [*pajaro negro de roca*]. Barthel translates the phrase as "*tua o* bird in Te Ohiro", but in a later publication he identified the bird as *Anous stolidus unicolor* (the brown or common noddy) (Barthel 1974: 169) and changed the interpretation of *ohiro* to "new moon" (p. 172).

- 7) *ka vara taŋi nō*: As Routledge has *kavária tágne nó*, an alternative possibility is *vari* in the meaning of ‘to circle round’. However, in all later versions the verb is preceded by *rava* ‘very’—a variant of *vara*.
All translations interpret *taŋi* as ‘to weep’ or ‘to mourn’, but the word can also mean ‘to scream, to wail, to groan’. As such it is also applied to the sounds of animals (e.g., Roussel 1908: 219: ‘to mew’; 227: ‘to squeal’).
- 8) *māhaki te makohe*: The frigatebird is—perhaps ironically—called a “companion” because it has followed the egg hunter all the way from Motu Nui to the mainland. Alternatively, as *māhaki* can also be translated as “colleague” (see Englert 1980: 50–51), it may be an allusion to the correspondence between an egg thief and a bird species known for its preying on the eggs of other seabirds.
- 9–10) *pariŋi te matavai ‘o te tu ‘aivi kari i te hope* (R: *párigni te mátavái | o te túavi | kariti te hupé*; M1: *káritī tē húpee*; M2: *pariŋi te hupee*; Ba: *ka riti te hupee*): In R the word *túavi* is explained as ‘a bird’, *mátavái* as ‘tears’, *kariti* as ‘streams’ and *hupé* as ‘nostrils’. The contractions show that the last part was thought to be more or less equivalent with *pariŋi te matavai* ‘to shed tears’. Métraux (NB 5rb: 9; NB 7: 48), for example, translates both *pariŋi te hupee* and *ka riti te hupe* as ‘to blow the nose’. This was probably deduced from the supposed presence of *hupe* ‘e ‘nasal discharge’. The problem is that the word *riti* or *kariti* does not appear as such in the vocabularies. If, however, *túavi* is read as *tu ‘aivi* ‘back, spine, shoulder’, and the frequently occurring alternation of vowels *o* and *u* in speech and notation is taken into account, it can be hypothesised that *hupee* originally was *hope* ‘spine, backbone’. As a result, *kariti* can be explained as a contraction of *kari i te* (see Fuentes 1960: 756: *karikari* ‘cut, incision’; Tregear 1891: 130: Māori *kari* ‘maimed’; *karikari* ‘to strip off’; Mangarevan *kari* ‘scar’).
- Remarkably, the verses as recorded by Routledge resurfaced in their original order in the version of Felbermayer (1972: 277): *Ka paringi te matavai ote Tuvi / Ka kariti te hupe ‘e ote Kukuru toua*. In *Das Achte Land*, Barthel (1974: 169) published a fragment of the text in which *paringi te matavai* is inserted wrongly after *kariti te hupe ‘e*. Apparently, the error resulted from the fact that it was taken from Campbell (1971: 404) whose version lacks the latter line.
- 11–13) *‘o te kukuru toua eve pe ‘epe ‘e pe ‘epe ‘e ‘ā ure motu nui*: The name and species of the bird which Barthel gives as “yellowish *kukuru* bird with the very short tail” has caused some problems. Apart from the islet’s name this part of the text was left unexplained to Routledge (1914–15: Reel 2, 0683). Métraux collected both *kukuru toua* (NB 3: 3) and *kukuru touo* (NB 5b: 9) and noted for *kukuru toua* ‘bird species’ and for *eve pepepepe* ‘not very prominent behind’ [*derrière peu*

proéminent] (NB 7: 48). Englert ([1948] 1974: 209) also lists the *kukura toua* as an unspecified seabird. In his later publication, Barthel (1974: 170) suggests the yellow-nosed albatross (*Diomedea chlororhynchos*) with *kukuru* ‘handle’ and *toua* ‘yellow’ describing the peculiar shape and yellow colour of the beak, and *eve pepepepe* ‘with short tail’ as an accurate observation of the species’s relatively short tail feathers. He points out that the bird’s name and the term for “short tail” also appear in the recitations that were improvised in 1873 by a Rapanui islander named Metoro to three Rapanui tablets inscribed with *rongorongo* in the possession of Bishop Jaussen of Tahiti.

The main problem with Barthel’s identification is the second part of the epithet since the meaning ‘short’ for *pepe* or *pepepepe* is not found in any Eastern Polynesian vocabulary. In Metoro’s “readings” of the inscriptions—in a Rapanui idiom heavily influenced by Tahitian—the word *pepepepe* appears in three segments (Barthel 1958: 177, 180, 188). In two of these, the bird occurs as *kukurutou* (pp. 177, 188), but only in one *pepepepe* is preceded by *eve*: *kua hura te tagata / tona hura i roto i te pa / eaha te huri / o te manu kukurutou / ko te manu eve pepepepe* (p. 188).

A comparison of Metoro’s recitation with the corresponding glyphs on tablet Tahua as transcribed in Barthel (1958) (Fig. 1) clarifies what this means: “The man uses a sling. His slinging stone is in that circle (lit. ‘enclosure’). Why does (he) throw (it)? Because of that *kukurutou* bird!” This suggests that the last part indeed could be translated as “It is the bird with the short tail”.

However, in a similar bird-hunting scene on tablet Aruku Kurenga *pepepepe* clearly is a verb while *eve* is missing (Fig. 2). The context shows that *pepepepe* would make more sense if it is interpreted as ‘to be exhausted’: *kua rere te manu / vae oho / ku pepepepe te manu kukurutou / kua mau ia ki to vero*: “The bird flees. (Its) feet are running. The *kukurutou* bird is exhausted. He impales (lit. ‘fastens to’) (it) on this spear”. This suggests that *pepepepe* is a reduplication of Rapanui *pe‘epe‘e* ‘(to feel) tired, worn out, maltreated’ (Fuentes 1960: 290; Englert 1978: 224).

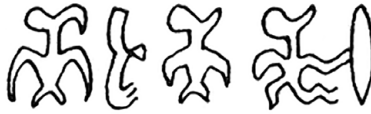
This is confirmed by the third occurrence of *pepepepe* on the same tablet. The segment has a similar meaning, but here the *kukurutou* is absent (Fig. 3): *ko te tagata itiiti mau rima ra / eaha te manu iti pepepepe mau i te hokohuki*: “The little man raises (his) hand. Why does (he) maltreat the little bird, impaling (it) on the lance?”

As Barthel’s suggestion of “short” for *pepepepe* does not make much sense in two of the three contexts, it seems likely that in the first fragment *ko te manu eve pepepepe* should be translated as “It is the bird with the maltreated behind”. This would mean that it is used in a very similar



kua hura te tagata - eaha te huri - o te manu ko te manu
 tona hura i roto i te pa - kukurutou - eve pepepepe

Figure 1. Fragment of tablet Tahua, side a, line 5.



kua rere vae ku pepepepe - kua mau iā
 te manu - oho - te manu ki to vero
 kukurutou

Figure 2. Fragment of tablet Aruku Kurenga, verso side, line 1.



ko te tagata itiiti eaha mau
 mau rima ra - te manu iti i te hokohuki
 pepepepe -

Figure 3. Fragment of tablet Aruku Kurenga, verso side, line 9.



Kukurutou.
Mouette

Figure 4. Detail of the “Jaussen list” (Chauvet 1935: fig. 137).

way as in the chant under consideration, the only difference being the exchange of roles: the “maltreated behind” is that of the unfortunate egg hunter who has been under attack from an infuriated *kukuru toua* bird. That the protagonist himself is the owner of the buttocks in question is supported by the presence of *ure* in the next line. If this is simply translated as “penis” instead of Barthel’s unattested place name Ure-Motu-Nui, the ingenuity of the text is revealed: whereas the climber’s back has suffered from the fury of the aggressive birds, his front side has been exposed to the sharp rocks of Motu Nui.

One intriguing question that remains is why Metoro associated the term *pepepepe* exclusively with birds. A possible answer is that he was familiar with the song under discussion. His references to other texts such as the Atua Mata Riri chant and the legend of Hotu Matu‘a certainly suggest that he had a broad selection of traditional material at his disposal. If he knew the meaning of *pe‘epe‘e* and had some general understanding of the chant, this would explain his use of the word in the context of confrontations with birds as well as his use of the specific term *eve pepepepe* in connection with the *kukurutou*.

With the “short tail” no longer available for determination, the identification of the *kukuru toua* as an albatross also becomes uncertain. Interestingly, the so-called “Jaussen list”, which was compiled from Metoro’s recitations, translates the name as “seagull” [*mouette*] (Fig. 4). This may well be correct as some of the species are quite large and many of them sport yellow bills. Another complicating factor is that *toua* could have another meaning than ‘yellow’. Roussel (1908: 181), for example, has *toua* as a variant of *tau‘a* ‘to fight, battle, enemy’.

- 14) *etoru haje rā*: The “threesome” referred to consists of the two birds *makohe* and *kukuru toua* and the islet of Motu Nui. Englert (1978: 119) gives *haje* (and *haje haje*) as ‘to outdo, to surpass’. An alternative interpretation could be *etoru aña rā* ‘Did those three cause (this)?’
- 15) *ka kai to koro pera*: The word *pera* describes the three islets as taboo locations and/or graveyards (see Roussel 1908: 231: ‘to forbid’; Englert 1978: 225: ‘cemetery, taboo place’).
- 16–18) *motu nui motu ‘iti motu kaokao*: Returning from Motu Nui, a swimmer would first pass Motu Iti and then Motu Kaokao (Fig. 5). Only Barthel’s version has the islets arranged in this order.
- 19–20) *kai tu ‘u mai koe e papa rona rakerake ē*: Routledge has *kai ta ui mai koe ma pūku rákeráke*, with *ta ui mai koe* glossed as ‘you will not see’. Assuming that the first part is a mistake for *kai tu ‘u mai koe*, this could be translated as “You were not reached with (your) wretched peaks” (Englert 1978: 234: *puku* ‘peak’). This means that in her version “you”



Figure 5. View from Orongo (left) towards Motu Kaokao, Motu Iti and Motu Nui, respectively. https://www.flickr.com/photos/travel_aficionado/6602357797/sizes/o/ (detail); Creative Commons license: <https://creativecommons.org/licenses/by-nc/2.0/>

refers to Orongo as the place of destination, whereas in the others the “sculptured rock” is addressed. In both variants, the destination is designated as the deictic centre of the phrase by the directional particle *mai* (see Kieviet 2017: 351–52).

Although Routledge’s version suggests otherwise, it is tempting to translate the sentence as “(He) did not reach that wretched sculptured rock” (for the third person interpretation of the construction *koe e ... ē*, see Kieviet 2017: 145).

21–22) *vae pahu era e ki tā’aku papaku*: See Roussel (1908: 184): *pahu papaku* ‘coffin’.

23–24) *he uha ‘uri ta papaku ‘uri* (R: *hé úha kúri ta pápákúri*; M1: *héuha kúri / tá papa kúri*; M2: *he uha kúri ta papaku kúri*). The fieldnotes of Routledge and Métraux show that the glottal stop of *‘uri* had changed into /k/ and that the word was interpreted as *kuri* ‘cat’, an animal unknown to pre-contact Rapa Nui. Barthel (1960: 855, n50) remarks that this was also how it was recited to him.

25–26) *uha mea 'iti 'iti to te 'ata ōma*: The last part, rendered as *totehátá uma* (R), *tóte hataúma* (M1), *to te hataura* (M2) and *to te hatauma* (Ba), is difficult to explain. Métraux (NB 5rb: 9) notes “chicken brochette” [*brochet de poulet*] for *hatauma* while Barthel suggests “corpse lying in state” [*Aufbahrung*]. However, if the term is assumed to be more or less equivalent to the “bruised corpse” in line 24, it can be read as *'ata ōma* ‘disfleshed shadow’. In Polynesia, *'ata* ‘shadow, image, reflection’ was also applied to animals or objects incarnated by gods or other supernatural beings. The term may have been used here to denote that the body of the deceased had hitherto functioned as a receptacle for the spirit. Interpreted as *ōma* ‘emaciated’ (Englert 1978: 213: *ōmaōma* ‘emaciated’), the second term could then allude to the condition of the corpse—“disfleshed” by birds and rocks—as well as to the appearance of the spirit—on Rapa Nui, the spirits of the dead were imagined as emaciated corpses.

Barthel (1960: 855–56) interprets *uha* literally as ‘hen’, pointing to the tradition that five cocks were tied to each of a deceased birdman’s feet. However, the text does not speak of cocks but of hens, and does not give a number. Furthermore, the word *uha* was also commonly used to refer to women (Englert [1948] 1974: 37). An important argument for this figurative interpretation is that all versions have possessive *ta* referring to the first “hen” and possessive *to* to the second. Barthel’s interpretation does not account for this difference. It could, however, be explained if it is assumed that the deceased was both married and involved in an extramarital relationship as spouses are *'a*-possessed (alienable) whereas friends are *o*-possessed (inalienable) (see Kieviet 2017: 296–97).

The term “hen” for the two fondly remembered women may have been specifically chosen to contrast them with the two hostile birds in the first part of the chant.

- 27) *he naunau nō*: Sandalwood used to grow on the steep slopes of the coast (Englert 1978: 206). The tree disappeared from the island in the 1880s (Métraux 1940: 17–18). Several traditions attribute magical properties to this wood, which was highly valued for its fragrance (e.g., Brown 1924: 148; Routledge 1919: 243, 262).
- 29–30) *he 'ōroŋo nō / ta puku 'ōroŋo*: An alternative interpretation is “Orongo will always be here, (he) will remain part of the rocks of Orongo”. These lines only appear in Routledge’s version.
- 33–34) *he retu nō / ta hū hatu retu*: The word *retu* is explained as ‘tattoo on the head’ by Roussel (1908: 246). The term *hatu* means ‘big lump’ or ‘compact mass’ (e.g., Englert 1978: 125: *hatu matá* ‘piece of obsidian’). The term is preceded by the demonstrative determiner *hū* indicating that the referent, the “tattooed” boulder, has been mentioned previously.

This suggests that it is identical with the “sculptured rock” of Orongo in line 20. In the modern language the marker is always accompanied by a postnominal component, either a demonstrative (*ena, era, nei*) or an identity marker (*‘ā, ‘ana*) (Kieviet 2017: 195).

- 35) *he tahōja nō*: The *tahōja* is an ovoid, usually wooden pendant which is mentioned in different ritual contexts. During an initiation ceremony for children which usually took place at Orongo, the so-called *poki manu* ‘bird children’ wore *tahōja* in pairs on their back (see Routledge 1919: 267, fig. 114). They are also mentioned as part of the king Nga‘ara’s regalia (Englert [1948] 1974: 42). Orliac and Orliac (2008: 197–98) suggest that the *tahōja* represents the sacred egg of the birdman ritual, arguing that the fine ridges in low relief that divide the hanger into three or four equal parts indicate the strings by which the egg was suspended in the house of the birdman near Rano Raraku. Routledge (1919: 262) notes that the bird egg was transported in a “little basket” that was tied round the forehead. Another tradition states that a pumpkin (*kaha*) was used (Englert 1980: 200). The presence of an object called *tahōja* among the *hopu manu*’s possessions opens the possibility that it originally was a simple net or small basket. As the bearer would have been lying on a reed float (*pōra*) during the swim, it would likely have hung on his back. That it may have served as a container for precious contents is perhaps also indicated by its name, which may be cognate with Māori *taonga* ‘property, treasure’ (Tregear 1891: 468).
- 40) *ko haho ko te va ‘ai vaka*: *Ko haho* is an abbreviation of *ko haho ko te tai* ‘out on the sea’.
- 41) *ta koro pāoa mau*: The fact that the term *paoa* is used for the club suggests that the father had a special function. The guards of the tribe in power—i.e., the tribe that supplied the birdman—were called *tanata paoa* or simply *paoa* after the clubs they carried (Englert [1948] 1974: 103; 1978: 220). As such, the father was apparently involved in the rituals of the birdman cult: in line 48 he takes part in the ceremonial dancing and in line 50 he is described as carrying the birdman.
- 44) *ko te ŋatu ‘ā huri reŋa*: In an agricultural context, the verb *ŋatu* ‘to press, to squeeze, to tighten’ is used for the planting of shoots, etc. (see Englert 1978: 113: *he-ŋatu te rau* ‘to press shoots into the soil’). The term may actually be *ŋatua*—a variant given by Englert.

According to Fuentes (1960: 747), in old times the word *huri* ‘banana shoot’ simply meant ‘sprout’, to which the name of a specific plant was added. As the shoots in this line are from the sugarcane whereas in line 53 they belong to the sweet potato, it is proposed that *reŋa* is an obsolete term for ‘yellow’, referring to the light colour of sprouts and new leaves. This colour term occurs in several Polynesian languages and derives from *renga*, the general name for the turmeric

(*Curcuma longa*), the source of a yellow or orange dye. As such it was also known on Rapa Nui (Métraux 1940: 236).

- 47) *ko raro ko te paeŋa*: The traditional boat-shaped houses were called *hare vaka* ‘boat house’ or *hare paeŋa* after the foundation stones that were laid in an elliptic groundplan. Each *paeŋa* had two or more holes to support the framework of the thatched roof.
- 48) *ta koro papa hiki kauŋa*: Ritual dances were an important part of Rapanui ceremony and were also performed during the birdman ritual (Routledge 1919: 259, 263). However, the *kauŋa* or *hikiŋa kauŋa* ceremony and the dance called *hikiŋa kauŋa* are generally considered to have been part of the initiation rites of secluded children (see Métraux 1940: 350; Englert [1948] 1974: 163, 229–30). For Barthel (1960: 856), this was one of the reasons to suspect an initiation motif in the chant, despite the fact that the text clearly states that it is the father who is partaking in the dance. Moreover, there is nothing in the term *hiki(ŋa) kauŋa* to suggest that it was performed exclusively by children at their initiation ceremony: *hiki* means ‘to flex the knees’ (Englert 1978: 131) and *kauŋa* ‘to line up’ (see Roussel 1908: 193: *kauga*, *hakakauga* ‘two by two’; 176; 191: *hakakauga* ‘to align, in file’). Routledge (1914–15: Reel 2, 0816) was told that the dance was also performed by adults and on different occasions, such as the celebration of a victory or the feast given in honour of a mother. Brown (1924: 201) supports this by describing it as “dancing in file, one woman followed by one man in a long row”. In the chant, the addition of *papa* refers to the fact that the dance was performed on paths of flat stones (*papa*). These dancing grounds were also called *kauŋa* (Routledge 1919: 234).

In the reconstruction, the initial possessive—which is *to* in all versions—has been changed to *ta* to correspond to the other activities of the father. Possibly, this *to* was caused by the interpretation of *koro* as ‘ceremony’ (“the *hiki kauŋa* dance was part of the ceremony”).

- 59–60) *ko te ehuehu / ko te kapuapua*: These lines may have been stock phrases for the ending of poetic texts as they also appear in the final part of the Apai recitation collected by Thomson (1891: 518) and at the end of a short chant published by Barthel (1960: 842). In the Apai chant, the “smoke” and “fog” are the clouds into which the daughter of Tangaroa disappears on her way to the sky (see De Laat 2014: 30). Here, they refer to the steam from the earth oven that is starting to blur the recollections of the past life—a poignant illustration of the severance of the last bonds connecting the spirit to the body. As *kapua* also means ‘to be covered with moss’ and *ehuehu* also ‘ashes, dust’, the imagery may also include allusions to the physical decay of the body.

In this paper a popular Rapanui string figure chant has been reinterpreted in the context of the annual egg hunt of the birdman ritual. As such it has emerged as a vivid and surprisingly lyrical variation on the universal motif of life flashing before a dying person's eyes. In its Rapanui guise, fragments of an unfortunate contender's past are relived by his spirit as it is in the process of detaching itself from the dead body. The text appears as a coherent narrative that first gives an account of the events that have led to the young man's death and then dwells on the cherished memories of the life that he has left behind.

If the results of the approach proposed in this paper prove to be valid, they would constitute an improvement on previous interpretations that consist of garbled collections of only partly comprehensible verses. There would be no lines that have to remain unexplained because they are supposedly written in an unknown ancient idiom or require access to some arcane knowledge. On the contrary, with its clear, concise language, its evocative imagery and its display of authentic emotion, the chant would stand as a remarkable example of the level of sophistication of pre-missionary Rapanui literature.

To illustrate the latter, the text can be analysed as an intricate pattern of contrasted and repeated elements. In the opening lines, the red of the (bloody) loincloth and the "black and blue" of the bruised body of the *hopu manu* are reflected in the red gular pouch and the black feathers of his "companion", the frigatebird. Further on, the same colours return in the dark and ruddy complexions of the two girls—the lovingly remembered "hens" that are contrasted with the two aggressive seabirds. And finally, the colours establish a link with the newly elected birdman who will return triumphantly from Orongo with his face painted in red and black (Métraux 1940: 337). The red and the black in turn are contrasted with the white colour of the "pale" corpse and the plumage of the *kukuru toua*—likely a seagull or albatross—and the white tern.

Stones and rocks are another important motif in this play with analogous and opposite images. The sharp beaks and claws of the birds are juxtaposed to the jagged rocks of the three offshore islets. The precise arrangement of the carefully hewn *paēna* stones of the protagonist's paternal home is contrasted to the disorderly heaps of rock below Orongo that have become his final resting place. The father who has laid these foundation stones is compared to the man who is ritually dancing on "flat stones". The "tattooed"—i.e., sculptured—boulders of Orongo where he is performing are connected to his dead son through the tattoo on the latter's forehead. Possibly, the author intended the father to emerge as the real tragic figure of the story. He has sent his son into the service of a candidate birdman and can therefore be held responsible for his death. And while he will probably be unable to bring his son's body home, he seems to be part of a group of men who are tasked with carrying the victorious birdman back from Orongo.

It could be argued that the complexity of the chant and the disappearance of the traditional culture have facilitated the gradual loss of meaning that resulted in a largely misunderstood text. This likely happened in the time period after the 1860s when the birdman cult was abandoned and the majority of the population perished through slave raids and diseases. It is not difficult to imagine that once the main theme was no longer fully comprehended the tightly structured narrative could easily have disintegrated into a collection of cryptic and unrelated fragments.

Several Rapanui manuscripts that have surfaced in the twentieth and twenty-first centuries suggest that the inquiries of researchers such as Thomson, Geiseler, Knoche and Routledge sparked the interest of literate natives to preserve their cultural heritage by recording—and sometimes reconstructing—the remains of the rapidly disappearing traditions. It could be hypothesised that someone with an intimate knowledge of Rapanui language and culture would have been able to compose a chant of this type in the post-missionary period, incorporating perhaps fragments of older texts. There is, however, one notable obstacle to this scenario. If the chant had been manufactured in the late nineteenth or early twentieth century, it would be difficult to explain how its meaning could already have been largely forgotten when Routledge recorded it in 1914. It seems therefore far more plausible that the chant is a pre-missionary text dating from a time when the birdman cult was still in full flower. The fact that it continued to be performed as a string figure recitation long after the demise of this institution may have contributed substantially to its survival.

Apart from the presence of a number of obsolete words and archaic expressions, there are three—perhaps four—circumstances that point to an ancient provenance of the text:

1. Barthel (1960: 856–57) notes that the chant's vocabulary has remained free of Tahitian influence. This influence started in the 1880s with the return of Rapanui from Tahiti and the arrival of Tahitian catechists and labourers (Kieviet 2017: 16).
2. The recitations of Metoro suggest a familiarity with the chant. According to Fischer (1997: 49), these were probably recorded in August 1873.
3. The description of the attack by the frigatebird and the *kukuru toua* has the appearance of an authentic detail. Their unusual aggressive behaviour can only have been the result of a direct threat to their nests. However, the fact that in the final stage of the birdman competition the egg of the sooty tern had become the sacred object indicates that the frigatebird had stopped nesting on Motu Nui before the 1860s. Although the bird could still be seen soaring above the island's fishing grounds, it laid its eggs on the Juan Fernández Islands—some 2,800 km away.

4. The origin and function of the ceremonial *tahoŋa* pendant were no longer remembered in post-missionary times. If it was present among the *hopu manu*'s possessions because it originated as a net or protective carrier for the bird egg, this would be another indication of the chant's antiquity.

In all, these arguments establish with reasonable certainty that the chant dates back to at least the 1860s—and possibly to a period well before that time. This means that this remarkable specimen of traditional Rapanui literature bears witness to the fact that orally transmitted texts can survive relatively intact even when much of their meaning is no longer understood. Hopefully, this study has shown that once seemingly cryptic texts are placed in their proper context, they may reveal themselves as perfectly coherent narratives. In my opinion, there is a substantial corpus of traditional Rapanui texts—both published and unpublished—that have been dismissed too easily as inaccessible or that have not yet received proper scholarly attention.

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NOTES

1. All English translations from Rapanui, French, German and Spanish sources are the responsibility of the author.

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HAWAIIAN SEASCAPES AND LANDSCAPES: RECONSTRUCTING ELEMENTS OF A POLYNESIAN ECOLOGICAL KNOWLEDGE SYSTEM

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ABSTRACT: Early western appreciations of the Hawaiian way of life in the late eighteenth and early nineteenth centuries suggested the pre-contact presence of highly structured regional chiefdoms and well-developed political economies founded upon elaborate knowledge of maritime and terrestrial environments. These first brief reports were substantiated and amplified in the mid- and late nineteenth-century published works of Native Hawaiian scholars who described a number of named landscape and seascape elements from which Hawaiians drew most of their subsistence base and material culture. Beginning in the 1950s, ethnologists, archaeologists and other investigators built upon these earlier accounts while studying Polynesian colonisation and occupation of Hawai'i. From the 1960s to the present, this research trajectory expanded into Hawaiian human ecology and political economy, refining former portraits of the subsistence strategies, environmental modifications and ecological knowledge employed by Hawaiians before Euro-American acculturative forces radically changed customary land-use patterns. Using an innovative theoretical framework recently proposed for ethnoecological research by Eugene Hunn and the author as the analytical backdrop, this paper will draw upon these sources, as well as new data from the Hawaiian Native Register of land claims (1846–1862) and unpublished contemporary reports, to evaluate aspects of traditional Hawaiian ecological knowledge as it may have existed to order and permit exploitation of late eighteenth- and early nineteenth-century marine and terrestrial environments.

Keywords: ethnoecological classification, Polynesia, traditional Hawaiian landscapes and seascapes, ecotopes

Recent re-evaluations of remote Eastern Polynesian radiocarbon dates place colonisation of Hawai'i at around AD 1000–1100 by long-distance open-ocean voyagers from one of the central Polynesian archipelagos (Athens *et al.* 2014).¹ In the late eighteenth and early nineteenth centuries the first European visitors found the approximately 17,000 km² of the main Hawaiian Islands occupied by Polynesians practising a highly structured agricultural and piscicultural economy supplemented by natural-resource

harvesting. The earliest written accounts of Hawai‘i revealed that production was organised within a socio-political-cosmological system dominated by chiefly religious classes.

While many features of traditional Hawaiian culture were overwhelmed during the nineteenth century by a developing Euro-American political economy, some older patterns of sea and land use appear to have remained relatively intact. By the 1830s many Hawaiians had gained literary skills and, concerned with the loss of their customary way of life, a number of prominent individuals throughout the nineteenth and early twentieth centuries produced important accounts of Hawaiian culture containing substantial detail of traditional ecological knowledge. First published mostly in Hawaiian-language newspapers, some of this literature has since been translated into English, and it is this body of work that began to reveal to the western world the sophistication of Hawaiian economic production and its grounding in elaborate bodies of environmental knowledge. At the same time, as the conversion to non-Hawaiian modes of ownership and production was underway, elements of traditional sea and land use continued to be recorded in government-sponsored land claim programmes and related boundary testimonies. Using a theoretical framework recently developed for ethnoecological research by Hunn and Meilleur (2010), this paper reconstructs indigenous Hawaiian ecological knowledge of marine and terrestrial environments as it may have existed between the late eighteenth and early twentieth centuries.

METHODOLOGY

The method employed for this analysis was to mine customary Hawaiian land-use and related terms and concepts from published, unpublished and archival documents and then to evaluate these within the landscape ethnoecological framework devised by Hunn and Meilleur (2010). They define a landscape ethnoecological classification as “a partition of a ‘subsistence space’ into *patches*, such that every point of that space will fall either within a patch or on the boundary between adjacent patches. ... These patches are tokens [referents] of types we prefer to call *ecotopes*” (p. 15). Ecotopic patches will generally map onto closed regions of the earth’s surface, and their classifications will reflect more or less continuous patterns of variation among a range of partially independent dimensions, such as soil chemistry and plant associations. The possibility exists for a hierarchy of ecotopes.

The elements of the Hawaiian ecological knowledge system reconstructed here represent patterns that emerged from the reviewed documentary evidence, as they may have existed during the late traditional Hawaiian

period. Key sources were the English-language works of several well-known nineteenth-century Hawaiian intellectuals, especially Kamakau ([1869–70] 1976), Kahā‘ulelio ([1902] 2006), Kepelino in Beckwith ([1932] 2007), and Malo ([1898] 1903). Unpublished mid-nineteenth-century land claims and associated Boundary Commission testimonies (in Hawaiian and English) arising from the 1848 land redistribution and privatisation programme known as the Great Māhele were also used. These materials were complemented by the more recent *Hawaiian Dictionary* of Pukui and Elbert ([1957] 1986), by ethnographic and archaeological publications dealing largely with traditional land and resource use (e.g., Allen 2001; Allen and McAnany 1994; Fornander 1919a, 1919b; Handy 1940; Handy and Handy 1972; Handy and Pukui 1958; Holland 1971; Kelly 1983; Kikuchi 1973; Kirch 1985; Major 2001; McEldowney 1983; Newman 1970, 1971), and by unpublished contemporary culture-history reports for several islands and districts (Maly 1999; Maly and Maly 2001, 2002a, 2002b, 2003, 2005a, 2005b, 2006, 2012).

It is important to note that there are several weaknesses with the approach used here. For one, the data sources are exclusively literary and archival, and some of them are nearly 200 years old. Customary Hawaiian knowledge was not only passed down orally, it was often highly specialised and linked to family history and place of residence. Thus, written accounts of a small number of nineteenth-century Hawaiian intellectuals represent a snapshot of the diversity and complexity of cultural knowledge across the archipelago and its many varied landscapes as portrayed by a minimal set of culture-bearers over a short time period. Translating these compilations into English distances them even more from an ideal cultural authenticity. As I do not speak Hawaiian, I was obliged to work with English-language texts that had been translated from the original Hawaiian, sometimes several times (e.g., W.D. Alexander’s “Introduction” to Malo’s *Hawaiian Antiquities* [1903: 18]). Because of this, some Native Hawaiian scholars have advised caution and care in using English-language translations of Hawaiian texts in academic research (see e.g., Arista’s “Foreword” in *Kepelino’s Traditions of Hawaii* [Beckwith 2007]). Nonetheless, several of the most important of these sources were translated by Native Hawaiian speakers, foremost among these being Mary Kawena Pukui. While Pukui was undoubtedly familiar with most of the terms and concepts presented here, other translators, especially those of the nineteenth century, seemingly were not. Moreover, not all of the Hawaiian terms or concepts presented were identically translated, including those from the mid-nineteenth-century land claims and Boundary Commission testimonies, even when the translator was the same person. It is also clear that even Pukui was sometimes uncertain about the precise semantic

content of some Hawaiian environmental terms as applied by the nineteenth-century Hawaiian scholars. Lastly, this paper focuses almost exclusively on the practical economic implications of Hawaiian ethnoecological terms and concepts. In reality, Hawaiian subsistence space was permeated with spiritual and political content, the latter related especially to the traditional Hawaiian administrative land divisions (in descending order of size: *moku*, *ahupua'a*, *'ili*, *mo'o*, *paukū*), but no attempt has been made to weigh the degree to which these phenomena influenced the environmental patterning briefly reported here.

Hawaiians invested heavily both cognitively and linguistically in many domains of natural and anthropogenic environmental phenomena. While much intellectual focus was placed on types of heavenly bodies (with over 375 general terms and proper names recorded), aspects of weather (Malo 1903: 32–35; Pukui *et al.* 1974), and constructed space for shelter, religious practice, etc., this paper focuses almost entirely on the traditional oceanic and terrestrial knowledge that permitted Hawaiians to sustain a growing population and a complex, hierarchically organised society for nearly a thousand years.

THE OCEANIC ENVIRONMENT

Hawaiians related to the sea in many ways. They angled, netted, speared and trapped fish, octopus, crustaceans and turtles in the open ocean; gathered crustaceans, molluscs, turtles and algae on the shore; and raised, ensnared and gathered fish and other resources in littoral and inshore man-made saltwater ponds and traps. The emphasis placed on these resources varied over time and by place. They also enjoyed the sea for leisure and used it for interisland and coastal travel, and many of its features were prominent in Hawaiian songs, poetry, chants, tale-telling and cosmology (Finney 1959: 338–39; Kahā'ulelio 2006; Maly and Maly 2003: 162; Manu [1992] 2006; Titcomb 1952). Saltwater areas of the Hawaiian Islands were overlain by a dense conceptual grid of lexicalised traditional ecotopes, named places and oceanic forms and states. To give just two examples of oceanic nomenclatural elaboration, Pukui *et al.* (1974) identified over 1,700 surfing sites, most if not all marked by proper names. Similarly, many general terms and proper names were recorded by them and others for oceanic currents, straits and types of surf, tides and waves (Finney 1959; Kamakau 1976: 12–13; Malo 1903: 49), as well as for prominent geographic and topographic shoreline features. The Hawaiian terms for these features often show astonishing lexical complexity.

Where the sea cuts into the land in coves and bays, or where coral reefs or rocky flats or shoals were extensive, Hawaiians altered the natural coastline by fashioning saltwater ponds and traps using stone walls and sand embankments. Hundreds of these were constructed. Their formal and functional complexity

allowed Hawaiians not only to exploit the geomorphological variation of island coastlines but also to diversify the oceanic resources gathered or captured there. Kikuchi (1973: 9–11), for example, recognised four principal types of saltwater ponds or traps, and several secondary ones, whose terms in Hawaiian could be modified according to form or function. While most of the saltwater ponds were relatively small, some of the larger ones covered several hundred hectares.

Saltwater ponds were designed to allow seawater to flow in at rising tide via channels or over their walls, thereby facilitating the acquisition of desirable species at ebb tide when capture was easier. Some saltwater ponds were located immediately coastward of the freshwater or brackish ponds described in more detail below. The two types (saltwater and freshwater) were distinguished by the different ecotopic zones in which they were located and their construction methods, associated species and distinct management principles.

As for the freshwater ponds (*loko wai*), the Hawaiian head term for pond, *loko*, was used with modifiers to differentiate saltwater pond types. For instance, *loko kuāpa* were made by constructing stone walls on a reef to create artificial enclosures. In contrast, *loko pu'uone* (or *pu'uone*) were constructed behind sand-dune ridges running more or less parallel to the coast, with seawater in- and outflow controlled by channels. Once the exterior walls or embankments of both types were completed, interior compartmentalisation might occur, permitting various methods of trapping different species and fish-farming, and such ponds (*ki'o*) or pond enclosures (*pā*) were labelled accordingly. The principal groups of species captured or gathered were saltwater fishes, crustaceans, turtles and algae (Kahā'uilelio 2006; Kikuchi 1973; Manu [1992] 2006; Titcomb 1972).

Complementing these humanised coastal ecotopes, the gathering of other saltwater resources (e.g., Field *et al.* 2016, Kirch 1985) was practised in natural oceanfront ecotopes. Shorelines or seacoasts (*kapa kai*) on the eight main islands vary in physical composition, shape, abruptness and species preferences, and resources ranged from salt to fishes, crustaceans, molluscs, turtles, algae and corals. Multiple terms exist for kinds of beach, sand, waves, swells or whitecaps, for reefs and shoals, and for a range of physical features that occurred at or near the water's edge. Hawaiians recognised many smaller-scale named ecotopes in this zone. For example, anchialine ponds or tidal pools (*kāheka*: many kinds), sometimes used as temporary fish-holding ponds (Kikuchi 1973: 10) or as salt-producing ponds ('*alia*: many kinds and lexical forms, natural and man-made), were common elements of the flatter shorelines. Where sandy beaches existed, crabs and turtles were obtained. Along shorelines strewn with smooth boulders (*pa'ala*), limpets, crustaceans and seaweeds were gathered. Many hydrological-topographical features of irregular shorelines, like whirlpools, waterspouts and capes, were

recognised using general terms, as were the straits between islands, with specific examples given proper names.

Even though human modifications lessened and progressively ended as one moved seaward from the shore, substantial bodies of traditional ecological knowledge at several conceptual levels were projected over, as well as under, the deepening ocean waters. Early appreciations of customary Hawaiian organisation of the oceanic environment are mostly based on descriptions provided by the nineteenth-century scholars Malo ([1898] 1903: 48–49), Kamakau ([1869–70] 1976) and Kahā‘ulelio ([1902] 2006) with later additions and corrections provided by others, mostly Pukui in her many translations and publications. As we will see for the terrestrial environment, the Hawaiian maritime world was viewed generally as a series of ecotopes, at several levels of inclusion, which were depicted as a relatively steady progression from inshore to deeper waters with multiple “belts” or “parts” recognised. Indeed, a multitude of terms and concepts overlies both the inshore and deeper water zones, with these two sectors appearing to form an initial conceptual division of the maritime environment. As shown below, most of the Hawaiian oceanic categories were associated practically with resource acquisition, leisure activities and travel.

As one moved from the shoreline to inshore waters, generically referred to as *kai papa‘u* [*kai pāpa‘u*]² ‘shallow seas’ by Kamakau (1976: 60), and then progressively out to the deeper ocean, generically indicated as *kaiuli*, *kai uliuli* or *kai o‘o* ‘the deep blue sea’ (see also Beckley 1883: 18), a sophisticated nomenclatural system employing well over 50 terms was applied to conceptualise and organise approximately 20 subdivisions of the ocean identified here as traditional maritime ecotopes. These were often translated as “belts”, “parts”, “places” or “areas” in the works of the Hawaiian intellectuals (Kamakau 1976: 11–12; Malo 1903: 48–49), who used expressions like “a little further out”, “outside of this lay a belt” and “beyond this lies a belt”, showing that the ocean (*kai*) at this level of abstraction was viewed more or less as a sequential series of zones each located progressively further from the shore.

The first detailed treatment of this pattern was produced by David Malo (Table 1). Born around 1793 and probably writing mostly in the 1830s, he was the first Hawaiian scholar to provide a meticulous account of the maritime environment. Samuel Kamakau presented the second important description of the Hawaiian oceanic environment. Born in 1815 and writing in the 1860s, Kamakau’s Hawaiian-language texts were deemed by Dorothy Barrère (1976: v) to be “an amplification of Malo’s earlier work”. While much of Kamakau’s scheme corresponds well with Malo’s, the two formulations are not identical. Dissimilarities in detail exist, especially for the inshore sectors; he and later writers like Pukui defined some of Malo’s terms for “belts” or oceanic zones differently, made corrections to them or added others. Generally, Kamakau’s terms and phrases are more “analysable” than

Malo's, that is, they employ more descriptive terms emphasising activities, ocean states or species associated with the labelled zones. His treatment of the open ocean is similar to Malo's.

Table 1. Malo's oceanic zones or "belts" (1903: 48–49) (approximate sequence, from the shore outwards).

Hawaiian term	Description
<i>a'e-kai</i> ['ae kai]	"that strip of the beach over which the waves ran after they had broken"
<i>pu-ao</i> [pua 'ō], <i>ko-aka</i> [ko 'akā]	"that belt of shoal where the breakers curl"
<i>poi'na-kai</i> [po 'ina kai] or <i>pue-one</i> [pu 'e one]	"a little further out where the waves break"
<i>kai-kohala</i> [kai kohala]	"shoal water extended to a great distance"
<i>kai-hele-ku</i> [kai hele kū], <i>kai-papau</i> [kai pāpa 'u] or <i>kai-ohua</i> [kai 'ōhua]	"a belt ... water in which one could stand"
<i>kua-au</i> [kua 'au]	"a belt ... where the shoal water ended"
<i>kai-au</i> [kai 'au], <i>ho-au</i> [hō 'au], <i>kai-kohola</i> [kai kohola], <i>kai-o-kilo-hee</i> [kai 'ōkilo he'e] or <i>kai-hee-nalu</i> [kai he'e nalu]	"outside [of this] a belt ... for swimming deep ... for spearing squid [actually octopus, <i>Octopus</i> spp.] ... a surf-swimming region" [see Errata, p. 17]
<i>kai-uli</i> [kai uli], <i>kai-lu-hee</i> [kai lū he'e], <i>kai-malolo</i> [kai mālololo] or <i>kai-opelu</i> [kai 'ōpelu]	"outside ... was a belt ... blue sea ... the squid-fishing sea ... sea-of-the flying-fish [<i>Parexocoetus brachypterus</i>] sea ... or sea-of-the <i>opelu</i> [mackerel scad, <i>Decapterus</i> spp.]"
<i>kai-hi-aku</i> [kai hī aku]	"beyond ... lies a belt ... sea for trolling the <i>aku</i> [bonito, <i>Katsuwonus pelamis</i>]"
<i>kai-kohola</i> [kai koholā]	"outside of this lay a belt ... where swim the whales" [<i>koholā</i> , humpback whale, <i>Megaptera novaeangliae</i>]
<i>moana</i> , <i>waho-lilo</i> [waho lilo], <i>lepo</i> , <i>lewa</i> , <i>lipo</i>	"beyond this lay the deep ocean"
<i>Kahiki-moe</i> [Kahiki moe]	"the utmost bounds of the ocean"

However, one significant difference was noted in Malo's scheme by Kamakau and others. When Malo (1903: 48) labels two zones *kai-kohala*, "where shoal water extended to a great distance" and then again "where the shoal water ended", his translator (Emerson) claims that this second use "is clearly a mistake ... [the actual term *kohola* being] applied only to the shoal water inside the surf" (Emerson in Malo 1903: 50, n6), much as Kamakau (1976: 11) and Pukui and Elbert describe it ([1957] 1986: 116, 159). Several minor differences also exist in translations by these latter authors. For instance in the *Hawaiian Dictionary*, *pu'e one* is defined as "sand dune, sand bar" (1986: 348), in contrast to Malo's and Kamakau's zone where waves "break and spread toward the land". Beginning with the shallower zones, Pukui and Elbert (p. 168) also define *kua'au* differently, as a "basin inside the reef; lagoon", while *kai'au* is defined as "sea too deep to walk in" and *kai he'e* as "receding sea or wave" (p. 115). They also add *ko'akā* as "coral shoal" (p. 420), a term not found in the Malo or Kamakau schemes, though presumably occurring variously in this same shallow water zone. Pukui (in Titcomb 1972: 15) also defines "*kilohe'e* grounds" as "the area shallow enough for wading, or examining the bottom from a canoe" and "*lūhe'e* grounds" as "the area where the water was too deep for the bottom to be in sight", again somewhat differently than Malo and Kamakau, who emphasise octopus fishing in this zone. With the exception of *moana*, also defined by Pukui and Elbert (1986: 249) as "ocean, open sea", Malo's expressions for the "deep ocean belt"—*waho-lilo*, *lepo*, *lewa* and *lipo*—are not noted by Pukui and Elbert specifically as maritime terms. However, they state that *lipo* (and *lepo*) can be used as adjectives meaning "deep blue-black ... for the sea" (see also Kepelino in Beckwith 2007: 120, *moana lipolipo*, "the deep blue ocean"; and Kamakau 1976: 11).

Thus inconsistencies are found in the patterning and the semantic content presented by the two nineteenth-century Hawaiians as one moved seaward, and the boundaries described are imprecise based on a reading of this literature. Nevertheless, each zone or "belt" was associated variously (by these and later Hawaiian scholars) with increasing distance from the shore, water depth, and sometimes the shape of waves or the ocean floor and the current flow that occurred there. The sort of human activity and especially the resources that were captured there were also important. Capture methods ranged from angling to spearing to netting and trapping, even poisoning (Cobb 1903: 735; Fornander 1919b, vol. 6: 174–88; Kahā'ulelio 2006: 53), with different strategies often associated with each "belt". Bathing, surfing and ocean travel also occurred in these ecotopes.

The principal terms and their modifiers associated with the open-ocean belts thus shifted from a perception of the readily visible elements of the near-shore to those aspects of the sea linked to distance from land and to the species likely to occur in each belt and at different depths, with differences in wave

forms, currents or colours associated with each belt, and with irregularities of the sea floor (*papakū*) such as crevices (*naele*), natural caverns (e.g., *'a'aka*, *lua*) and holes or man-made stone cairns (*ahu*, *'āhua pōhaku*, *imu*, *umu*). While some species occurred widely, others had narrower distributions. Traditional knowledge associated with these belts and their oceanic features was employed to predict resource presence, determine desirable spots for leisure, and/or as aids or hindrances in open-ocean travel. Some, like the shape or colour of waves or the strength of tides or swells, were useful in predicting weather or events like undersea volcanic eruptions or tsunamis.

However, an awareness of the land, especially when heading toward preferred fishing areas (*kai lawai 'a*), was always present. For example, when approaching an appropriate belt in search of a desired species, the exact fishing station (*ko 'a*, *ko 'a i 'a*, *ko 'a-lawai* [*ko 'a lawai 'a*], also *āukauka*) might be located by a method that aligned two or more prominent land features from one or more islands (Cobb 1903: 738; Fornander 1919b, vol. 6: 186; Kahā'ulelio 2006: 43; Malo 1903: 278). In some instances this involved the use of landmarks at considerable distances from the shore. According to Kamakau (1976: 78) the fishing grounds specifically located by the use of landmarks were called *kuapu'e* or *ko 'a kuapu'e*.

Terrestrial points of reference at several elevations were employed to locate many of the more distant offshore fishing stations, since fog or clouds could hide any of the landmarks at any time. Once the station was reached by triangulating these points, in effect by a Hawaiian version of fixing latitude and longitude, a cavern, hole or other seafloor feature known to host a particular resource could be found. If hook and line were used to catch a species known to prefer a certain water depth, distance from the surface was determined with a marked, weighted line. Such fishing stations were thus located using a three-dimensional calculation. The landmarks furnished the reference points on a two-dimensional horizontal axis, while depth, the vertical axis, was determined by the line. Each preferred station was unique and labelled by a proper name, even though most were invisible—that is, they had never actually been seen or visited below the ocean's surface.

In addition to the individual fishing stations, which were often kept as family secrets, four or five deeper-water ecotopic zones seem to have been recognised and named generically. According to Kamakau (1976: 75), deep-sea fishing areas were called *ko 'a hohonu*, while those located at “eighty fathoms more or less” (around 146 m) were named *kūkaula* (see also Kahā'ulelio 2006: 131). Deeper still, the zone preferred by *kāhala* fish (amberjack or yellowtail, *Seriola dumerilii*) and *'ahi* (yellowfin tuna, *Thunnus albacares*) was called *ka 'aka 'a*, and the deepest ecotope of all, “two or three hundred fathoms deep [366–549 m] and even up to four hundred [732 m]”,³ was called *pōhākialoa* (possibly also *kialoa* or *kaka* [*kākā*])

(Kamakau 1976: 90, fn14). The Kamakau text suggests that several of these terms could be applied polysemously, both to the deeper water ecotopes and to the techniques employed in capturing their desired resources.

Over time, Hawaiians had thus discovered, cognitively mapped and named many of the most productive resource acquisition areas in their offshore waters. These were perceptually organised and located through a discovery process involving at least five levels of environmental conceptualisation. The broadest or most inclusive level, the undifferentiated sea (*kai*), was subdivided first into inshore versus offshore waters. These then were divided into around 20 customary ecotopic belts at various distances from the land, sometimes at considerable depths, that I will call broader-scale ecotopes. Each of these was variably composed of smaller-scale surface and/or underwater ecotopes at a fourth level of abstraction. This latter group of Hawaiian ecotopes, which are essentially habitats, constituted a range of water layers or zones located at different depths, current confluences, or sea floor sites that were known to be preferred by different species generally and/or at certain times of the day or year (Titcomb 1972). Categories at these latter two conceptual levels were labelled generically with common terms, as they could conceivably exist in the offshore waters of any island, although, like offshore fishing in the Society Islands (Nordhoff 1930: 150) and at Tobi Island in Palau (Johannes 1981: 101), windward and leeward differences and sea-bottom and current-flow variation undoubtedly conditioned their presence within the archipelago. Evidence suggests that the three broader-scale ecotopic types—the ocean itself, the inshore–offshore distinction, the 20 or so surface and subsurface “belts”—were more general-purpose categories, while the smaller-scale ecotopes were more special-purpose, though this distinction was not always clear. For example, many fishing stations (*ko ‘a*) widespread in offshore waters could be labelled by addition of descriptive modifiers, thus in effect designating predictable zones of presence for desired species, as, for example, *ko ‘a-ahi* [*ko ‘a ‘ahi*], place where yellowfin tuna could be found, or *ko ‘a aku*, place for bonito (Malo 1903: 278). The specific fishing station itself that was regularly used by an individual fisherman constituted a fifth level of abstraction. These were unique places with the most limited spatial extent, either occurring within the larger-scale “belts” or as exemplars of the smaller-scale ecotopes, and all of these were labelled with proper names. The Hawaiian fisherman Kahā‘ulelio, born in 1835 in Wailehua, Lahaina, Maui, knew over 100 of these deep-sea fishing sites, each labelled by a proper name (Kahā‘ulelio 2006: 55; see Nordhoff 1930: 143 for similarities with early twentieth-century Tahiti).

By developing skills in identifying and classifying their saltwater environment at five levels of abstraction, and by combining this expertise with

the recognition, naming and classification of many oceanic species and an extensive knowledge of their behaviour, Hawaiians were consistently able to locate unique places in the ocean. Importantly this system allowed them to capture associated resources, sometimes at substantial distances from the land and at great depths. When considering the deeper-water resource-acquisition strategies, along with Hawaiian saltwater pisciculture and inshore fishing and gathering with the many forms of agriculture and natural-resource gathering on land described below, one gains an appreciation of the exceptional nature of the Polynesian adaptation to one of the most remote island archipelagos in the world. As we will see, the ecotopic patterning on land is similar to that developed by Hawaiians for the sea.

THE TERRESTRIAL ENVIRONMENT

As for their oceanic world, the nineteenth-century Hawaiian writers conceptualised their terrestrial landscapes at several levels of abstraction. The first conceptual level is that of the Hawaiian Islands themselves (*kō Hawai‘i pae ‘āina*), with each of the eight main islands attributed a proper name. This nomenclature recognising uniqueness is complemented by a set of generic referential terms such as island (*moku, mokupuni, moku‘āina, mō*) and another set of terms distinguishing geomorphological types of islands: submerged, low-reef island, islet, many islets, double island, atoll, etc. (Kamakau 1976: 7; Pukui and Elbert 1986). A third level of abstraction organised all the land on each of the main islands into a dozen or so broader-scale, named ecotopic zones. While some variation exists in the description of these zones, often also called “belts” in the nineteenth-century Hawaiian literature, they are portrayed by the early Hawaiian writers as a series of partitions that succeed each other in descending order from the mountains to the sea. Though their limits and even their presence undoubtedly varied from one island and district to another, their conceptual similarity with the oceanic belts is striking. Evidence suggests that each of these terrestrial zones was perceived by nineteenth-century Hawaiians as a combination of physiognomic, biotic, hydrologic and geologic-edaphic elements, as well as by the human activities (and cosmological beliefs and political-administrative subdivisions) associated with it. A fourth level of terrestrial conceptualisation occurred at a smaller scale. Here, Hawaiians recognised a set of what might be called “classic” ecotopes or landscape patches. Also, zonation here was more random, though the ecotopes at this level could occur with some predictability within one or another of the broader-scale “belts”. As for the oceanic ecotopes at the third level of abstraction, their specific tokens or exemplars had substantially narrower spatial ranges. Hawaiian conceptualisation of the terrestrial environment is examined below.

Hawaiian Patterns of the Terrestrial Landscape

Like for the oceanic world, our understanding of how Hawaiians conceptualised their terrestrial landscapes is derived mainly from nineteenth-century descriptions by Hawaiian intellectuals and from mid-nineteenth-century land-use records, and secondarily from interpretations of these sources in more recent historical, ethnographical and archaeological accounts. The Hawaiian writers most likely furnished firsthand or near-firsthand descriptions of their terrestrial environments, identifying about a dozen broader-scale environmental “belts” or zones that were distributed more or less predictably over the land. These were depicted as beginning at the highest points on the main islands and succeeding each other sequentially as they descended to the sea.

The highest elevation zones were reflected in Hawaiian knowledge of mountain-tops, peaks, volcanic craters and high-altitude ridges (Malo 1903: 37; Pukui and Elbert 1986: 168). Mostly residing in the botanists’ alpine zone (Wagner *et al.* 1990) occurring only on Hawai‘i Island, the highest zone, called *kua-lono* [*kualono*] by Malo (1903: 37), referred to “the peaks or ridges which form [the mountain] summits” while collectively “the mountains in [an island’s] centre” are called *kua-hiwi* [*kuahiwi*]. Both areas were infrequently visited by Hawaiians, except periodically for burials or trips by specialists to preferred stone quarries. “Below the *kua-hiwi* comes a belt adjoining the rounded swell of the mountain called *kua-mauna* [*kuamauna*] or *mauna*, the mountainside” (p. 37). Again, according to Malo, the first belt to have biotic content, called *kua-hea* [*kuahea*], occurs immediately below or seaward (*makai*) from the highest elevation belts; this was where “small trees grow”.⁴ Continuing downslope, this zone is followed by the *wao, wao-nahele* [*wao nahele*] or *wao-eiwa* [*wao ‘eiwa*] “belt ... where the larger ... forest-trees grow” (p. 37; but on p. 41 Malo defines *nahele* or *nahele-hele* [*nāhelehele*] as “small growths [such] as brush, shrubs, and chaparral”). *Wao-eiwa* is succeeded by the *wao-maukele* [*wao ma ‘u kele*], where “the monarchs of the forest grew” (probably mostly *koa* [*Acacia koa*]) (p. 38; see also Fornander 1919a, vol. 5: 615) who calls “*wao kele* ... tall forests” but also the place where *maile* [*Alyxia olivaeformis*] grows; and Pukui and Elbert 1986: 382, who define *wao kele* as “rain belt, upland forest”). The *wao-akua* [*wao akua*] belt comes next, “in which again trees of smaller size grew” (Malo 1903: 38). This zone is followed by the *wao-kanaka* [*wao kanaka*] or *mau* [*ma ‘u*] belt, where “grows the *am ‘au* [*‘ama ‘u*] fern [*Sadleria* spp.] and [where] men cultivate the land”. Continuing downslope, one enters the “hard, baked, sterile” *apaa* [*‘apa ‘a*] belt, seemingly once dominated by grass, possibly by *pili* (*Heteropogon contortus*). Now well into areas of human habitation and dense economic activity, the ‘*apa ‘a* is succeeded by *ilima* [*‘ilima*], a belt presumably dominated by ‘*ilima* (*Sida fallax*) (without explanation, Pukui and Elbert 1986: 28 claim equivalency between ‘*apa ‘a* and *wao ‘ilima*). Below ‘*ilima* is the *pahee* [*pahe ‘e*] belt,

translated in English as “slippery” (Pukui and Elbert 1986: 299), possibly by reference to an unidentified grass that was said to occur there (Malo 1903: 39, n8). Below *pahe’e* comes the *kula* belt or “plain, open country ... near to the habitations of men” and which undoubtedly represented the dominant terrestrial zone on all the islands. After *kula* comes *kahakai*, “the belt bordering the ocean” (p. 38).

As for the oceanic environment, Kamakau modified Malo’s scheme by naming several “belts” differently, defining some terms differently, recognising additional named zones and somewhat changing Malo’s order of zones as they descended to the sea. For example, he states that the “*kuahiwi* proper” (Malo’s high mountain ridge belt) occurred below Malo’s *kuaheha* zone, and he recognised a *wao-lipo* [*wao lipo*] zone between Malo’s *wao-nahele* or *wao-eiwa*, and which he separated into two belts. He also added *wao la’au* [*wao lā’au*] as a wide-ranging zone of “timber land ... dry forest growths from the ‘*apa’a* up to the *kuahiwi*” (Kamakau 1976: 9). Moreover, he recognised a distinct “‘*ama’u* fern belt” (also called *amaumau* [‘*ama’uma’u*] in Maly and Maly 2002b: 147–48; partial repetition indicating a concentration of ferns; see a similar pattern for “mud” below). This latter zone occurred below Malo’s *wao-kanaka* belt.

While it is difficult today to assess fully the significance of these revisions, in reality the two schemes are quite similar. It may be important to note that Kamakau, who was born on O’ahu’s north shore but moved as a young man to Lahaina, Maui, only to return in later life to O’ahu, may actually have refined Malo’s pattern based on his seemingly more extensive travel within the Hawaiian Islands. For instance, he added a dry forest zone (*wao lā’au*) that is lacking in Malo’s rendition. Pukui and Elbert define the *wao lā’au* more loosely as the “same as *wao nahele* ... or inland forest region, jungle, desert” (1986: 382) and they translate *lā’au* in this context as “forest ... thicket” (p. 188). The term *nahele* is found in many *mo’olelo* (Hawaiian stories) and other accounts in the Fornander collection where it is mostly employed generically, usually translated simply as “woods”. In *Kepelino’s Traditions of Hawaii*, Beckwith defines the term as “underbrush” (2007: 118) and even as “weeds” (p. 152). In a prayer cited by Kamakau (1976: 137), designed to aid timber-seekers in house construction, *kele* and *ma’ukele* are translated by Pukui as “rain forest” and *wao koa* as “koa forest”.

While the Malo and Kamakau schemes represent our core understanding of customary broader-scale Hawaiian landscape conceptualisation, several revisions were later made to their schemes that are now accepted by most informed observers. This process began in 1940 when the ethnologist E.S. Craighill Handy reprised the notion of traditional Hawaiian terrestrial zonation in his study (Handy 1940) of customary land use in Kona, Hawai’i Island. But instead of framing his analysis in terms used by the earlier Hawaiian writers, he employed terms like “upland plantations”

(pp. 47, 197), “forest zone” (pp. 9, 147), “fern-forest zone” (p. 52) and “intermediate zone” (p. 116). While he referred at least once to the *wao akua* (“jungle of the gods”, p. 46), he surprisingly described only the *kula* zone (pp. 52, 59, 64, etc.) as a native environmental concept. However, a major change occurred in his 1958 volume *The Polynesian Family System in Ka‘u, Hawai‘i*, co-authored with Mary Kawena Pukui (and see Handy and Handy 1972: 554–56). Here they present a more detailed assessment of the broader-scale Hawaiian landscape terms and concepts as found in Ka‘u, Hawai‘i Island, where Pukui was born and raised. Their map (p. 19) somewhat modified the order of the “belts” described by the earlier Hawaiian writers, and they split the *kula* into two zones (*kula uka* ‘upland slopes’ and *kula kai* ‘lowest habitable zone’). The Hawaiian terms also were sometimes defined differently in English than in the Malo and Kamakau accounts. Nevertheless, their interpretation recognised, in descending order, eight customary environmental “zones” ranging from the mountain top (*piko*) to the shore (*kahakai*). Though supposition, these small differences from the earlier accounts may have resulted from different objectives, the nineteenth-century intellectuals perhaps producing idealised landscape patterns capable of capturing a wider range of terrestrial zones, while the goal of Handy and Pukui was probably to portray a traditional environmental arrangement as it existed in Ka‘u within a much smaller geographical area. The Handy and Pukui account also differed from the earlier schemes in that it identified more of the dominant wild and crop plants associated with each zone as well as the human activities practised there. It also recognised that the Ka‘u zones were “not fixed as to altitude” (p. 21) and that they “gradually merge” into each other rather than having distinct boundaries—issues that the nineteenth-century accounts did not address.

“Discovery” of a Kaluulu Zone in West Hawai‘i

In her 1983 report *Nā Māla O Kona* on the agricultural history of Kona, Hawai‘i Island, Marion Kelly drew more heavily from the Hawaiian environmental zonation schemes of Malo and Kamakau to interpret her archival research on the 1848 West Hawai‘i Māhele land claims. Because the translators of these records were unaware of English equivalencies for some Hawaiian words, numerous Hawaiian terms occur within the English-language texts, including several for the broader-scale terrestrial zones portrayed by Malo and Kamakau. Kelly found references in the land claim records not only to the *kula* but also to the *‘apa‘a* and the *‘ama‘u* zones, thereby affirming the validity of the Malo and Kamakau schemes. Moreover, Kelly “discovered” a possible “new” Hawaiian ecotopic zone, the *kauulu*, *kaluulu* or *ulu* that was placed by property claimants between the *kula* and the *‘apa‘a* zones. While uncertainty remains as to the exact meaning and/or landscape referent for these terms, in part because they were written in

the mid-nineteenth century in several ways, but also because *ulu* without the glottal stop has been defined as “grove” in English, and because *kaulu* has been lexically glossed to several native tree species and places (Pukui and Elbert 1986: 137), Kelly’s contention that *kaluulu* likely refers to a vegetation zone dominated by breadfruit (*ulu*) is a reasonable and now generally accepted conclusion. A massive pre-Euro-American upland area of intensive breadfruit arboriculture above Kealakekua Bay is now well substantiated (Allen 2004: 191, 216–20; Kelly 1983; Lincoln and Ladefoged 2014; Meilleur *et al.* 2004).

It would be difficult today to establish equivalencies between the broader-scale Hawaiian landscape belts and contemporary ecological concepts such as physiognomic zones or vegetation communities, though modest attempts have been made (Mueller-Dombois 2007: 24–27). Nevertheless, despite their dimensional and definitional imprecision, the Hawaiian landscape belts provide a valuable rendition of at least one traditional knowledge pattern that was undoubtedly employed by Hawaiians in the mid-nineteenth century to conceptualise major elements of their terrestrial environment. More recently, some aspects of the agriculture-dominated belts first raised by Handy and Pukui (1958)—their associated crop plants and their spatial intergradation—have been reprised by several authors working mostly on the distribution and intensity of Hawaiian dryland agriculture in relation to environmental variables in Kona, Hawai‘i Island (Allen 2004; Lincoln *et al.* 2014; Lincoln and Vitousek 2017). Nevertheless, when emphasising traditional Hawaiian landscape conceptualisation and the relation between ecotopes and their defining features, it is important to note that their associated plant and animal (Hawaiian folk taxa) and geologic-edaphic elements (see below) were not always resources, since agricultural pests and weeds might also occur there (Malo 1903: 270).

Smaller-scale ecotopic patterning of the terrestrial environment also occurred, with most of the exemplars of these categories located within one or more of the broader-scale zones presented above. These are typified by narrower biotic and/or physical content; in fact, in the older Hawaiian texts they are often associated with a single dominant plant species, physical element or function. I begin by examining several of the better-known Hawaiian biotic assemblages.

*The Terrestrial Biotic Ecotopes*⁵

Many Hawaiian terms applied to terrestrial environments designate ecotopic patches dominated by one or more of the plant (or animal) taxa that predictably occurred there. The semantic content of such terms thus reflects not only an awareness of specific vegetation formations or densities, whether wild or domesticated, but also implicitly the activities that occurred there, usually wild plant gathering or farming.

“Natural” *Hawaiian Terrestrial Ecotopes*. Though Hawaiian subsistence was overwhelmingly grounded in farming, fish-farming and fishing, and productive emphasis varied by island and district and over time, wild plants and animals were also gathered and/or tended to satisfy dietary and medicinal needs and other uses ranging from house and canoe building to domestic, decorative and religious applications. Hawaiians knew of course where to obtain these plants and animals in the ecotopes in which they occurred. While other natural environmental components were also often associated with the terrestrial ecotopes, like soil qualities or hydrographic features, some appear to be most closely associated conceptually with a single or a small number of biotic elements. This is reflected in a pattern of polysemy that can be found for both the broader- and smaller-scale terrestrial ecotopes. Indeed, many Hawaiian terms for important wild plants appear to mark not only the plants themselves but also the ecotopic patches where concentrations of these plants occurred. This phenomenon is found for at least three of the broader-scale Hawaiian ecotopic zones—the *‘ilima* belt (*‘ilima*, *Sida fallax*), the *ma‘u* or *‘ama‘u* belt (*Sadleria* spp.) and the *kaulu*, *kaluulu* or *ulu* zone (*‘ulu*, breadfruit, *Artocarpus altilis*). This conclusion is confirmed by Pukui who glossed the term *‘ilima* both to the *Sida fallax* plant and to the “area where *‘ilima* plants may grow” (Pukui and Elbert 1986: 98). The same is true for *‘ama‘u*, which she defines both as the *Sadleria* tree fern and as the “place where *‘ama‘u* ferns are found” (p. 23). Hawaiian land and resource claims and Boundary Commission testimonies suggest that this phenomenon also occurred at a narrower spatial scale for many other well-known plant species and for the smaller-scale Hawaiian ecotopes in which they commonly occurred. Polysemy seems to be true for: *hāpu‘u* (*Cibotium splendens*) and *olonā* (*Touchardia latifolia*), found in wetter areas of the *‘ama‘u* and *wao* belts; *pili* (*Heteropogon contortus*) (McEldowney 1983: 415), once common in the *kula* and probably the *‘apa‘a* belts; *māmane* (*Sophora chrysophylla*), common in the drier upland zones and possibly in the *pahe‘e* belt; *‘ie* or *‘ie‘ie* (*Freycinetia arborea*), common in the lower *wao* belts; *‘aka‘akai* (*Scirpus validus*), encountered on the edges of freshwater ponds; possibly also *pāpala* (*Charpentiera* spp.), found in upland Ka‘u, Hawai‘i Island (E. Handy in Handy and Pukui 1958: 217–18); and for several other species and their associated smaller-scale ecotopic patches.

A second lexicographic and cognitive pattern that seems to have existed in Hawaiian environmental classification at this narrower level of abstraction applies to patches of mixed wood or forest species. In the absence of metal, stone and wood took on great importance, and areas where desirable woody species were concentrated were named accordingly. The Hawaiian literature and archival records reveal what appear to be several binomially labelled ecotopes that are dominated by woody species, where the head term for forest, wood or thicket (*lā‘au*) or grove (*mō*, *moku*, *ulu*) is followed by the

name of the species in question. Among the many examples found are the expressions *ulu hala* (pandanus grove), *ulu niu* (coconut grove) and *ulu kou* (*Cordia subcordata* grove). The whereabouts of these woody patches or groves were widely known and shared, as for the polysemously defined smaller-scale ecotopes, and all of them seem to have occurred within one or more of the broader-scale Hawaiian ecotopic belts already described. Finally, and perhaps in part because of the continual need for indeterminate wood and brush species for fuel, several Hawaiian terms that are more general-purpose mark ecotopic concepts such as woody or brushy thickets (*ōpū nāhelehele*, *pūo ‘a*, *ulueki*).

Other general-purpose terms for ecotopes seem to have been applied by Hawaiians to natural biotic and physical phenomena for use primarily in spatial reckoning. Foremost among these are terms marking concepts of contiguity or proximity such as edges or clearings associated with dense vegetational formations. For example, *pili lā ‘au* is defined by Pukui and Elbert as “edge of a forest” (1986: 330), while *‘okipu ‘u* is marked as “forest clearing” (p. 282). Both terms appear regularly in Boundary Commission testimonies on O‘ahu in the nineteenth century (Maly and Maly 2012: 519). Notions for edges or borders are even more widely applied by Hawaiians in the anthropogenic landscapes associated with farming and pisciculture, as discussed below.

Anthropogenic Terrestrial Ecotopes. Hawaiians modified significant areas of their terrestrial environment for economic purposes.⁶ Natural vegetation was cleared for agriculture via burning. Also, various forms of earth and rock movement were undertaken, including wall and mound building; the alteration of river mouths, floodplains and nearby valley walls via terracing; the creation of irrigation systems drawing water from freshwater streams; and incising of hillsides to reach the water table (Kirch 1977). Natural animal (especially bird) communities were also altered by gathering, hunting or trapping, as were wild-tended and domesticated plant species via transplanting for easier access. Freshwater ponds were created for taro cultivation and for pisciculture. These were fed and drained by inflow and outflow channels, and domesticated and semi-domesticated plants were often established on their walls and edges. Hawaiians might dam or otherwise modify freshwater streams to facilitate fishing and gathering crustaceans, and some upland areas were modified for stone quarrying.

Cultivated lands ranged from small house gardens or individual plots, both near and at some distance from coastal and/or upland habitations, to the hundreds of small to large irrigated ponds and massive dryland field systems controlled by chiefs and cultivated primarily by Hawaiian commoners. The recent summaries by Noa Lincoln and Peter Vitousek (2017) and by Ladefoged *et al.* (2018) of Hawaiian cultivated landscapes and their relation to island age, soils, climate and/or water availability, steepness and elevation, and their evolution after Polynesian arrival, show the extent to which the

understanding of Hawaiian agricultural diversity has come since Newman's analysis (1971) of missionary William Ellis's trip around Hawai'i Island in 1823. All the major crops—taro (*kalo*), sweet potato (*'uala*), banana (*mai'a*), breadfruit (*'ulu*), sugar cane (*kō*) and yam (*uhi*)—were cultivated in many settings. Secondary foods like coconut (*niu*), bottle gourd (*ipu*, *Lagenaria siceraria*) and arrow root (*pia*, *Tacca leontopetaloides*) were grown in appropriate habitats, as were paper mulberry (*wauke*, *Broussonetia papyrifera*), the Hawaiian cloth plant, and *'awa* (kava, *Piper methysticum*), the lightly psychoactive central nervous system depressant commonly consumed in liquid form. A diversified dryland farming pattern (Lincoln *et al.* 2014; Lincoln and Vitousek 2017) ranged from massive field systems to colluvial slope cultivation to cleared forest settings to small mounded or isolated lava-dominated patches (e.g., *ala'alai* or *kipi* 'type of taro patch'; *kīpohopoho* 'small arable patch surrounded by lava beds', Pukui and Elbert 1986: 17, 155; Figs 1 and 2). Dryland farming was complemented by substantial and well-organised irrigated taro-pond farming, largely in windward areas (Kirch 1977, 2010; McIvor and Ladefoged 2018). Kamakau (1976: 31) makes an important linguistic and conceptual distinction between "dry" lands (*aina malo 'o*) and "wet" lands (*aina wai*), especially in agricultural contexts (see also Fornander 1919b, vol. 6: 160; Kepelino in Beckwith 2007: 152–54; Malo 1903: 269). Many economically important near-crops like *kou* (*Cordia subcordata*), *olonā*, *kī* (ti, *Cordyline fruticosa*), *hala* (screw pine, *Pandanus tectorius*) and *loulou* (*Pritchardia* spp.) were regularly tended and/or transplanted to more convenient locations for easier access.

At least a dozen Hawaiian terms have been glossed by authorities to garden and/or to cultivated plot, patch or field (*kaikā*, *kīhāpai*, *kula*, *mahi*, *māla*, *waena*, etc.), and these terms are regularly cited in Māhele land claims. The terms marking what appear to be the same or similar concepts beg the question of the degree of functional equivalency among them and/or the extent of synonymy within the archipelago, since islands and/or districts had developed distinct lexicons for environmental and other phenomena (Kamakau 1976: 3–5). While Dorothy Barrère (pers. comm., n.d.) considered *kīhāpai* and *māla* to be "interchangeable" referents for "garden", the two terms are sometimes cited in the same claim, suggesting the possibility of functional differences, and some authors have defined them differently. Handy (1940), for example, defines *kīhāpai* as "garden patches" (p. 49), "dry land farms" (p. 51), "upland planting grounds" (p. 196), "abandoned inland homesteads" (p. 198) and "old garden plots" (p. 199), while the term is also found in Māhele claims for irrigated terrace ponds (*lo'i*) (Maly and Maly 2002b: 276–77). Kamakau (1976: 28–29) seems to make a distinction between *kīhāpai* ("garden") and *waena* ("field or cultivated area") in several of his *kāhea* planting chants, suggesting a conceptual distinction based on plot location or size. Handy (1940: 47), quoting the planter Kalokuokamaile, defines *waena*



Figure 1. *Lehua*-type cultivar of taro (*kalo*, *Colocasia esculenta*) and ti (*kī*, *Cordyline fruticosa*) cultivated in an old lava flow at about 500 m elevation, ‘Ōlelomoana Ahupua‘a, South Kona, Hawai‘i Island. Author’s photo, 7 November 1987.



Figure 2. *Lehua*-type cultivar of taro (*kalo*, *Colocasia esculenta*) and *maoli*-type banana (*mai‘a*, *Musa* sp.) cultivated in older ‘ōhi‘a *lehua* (*Metrosideros polymorpha*)—dominated lava flow at about 500 m elevation, ‘Ōlelomoana Ahupua‘a, South Kona, Hawai‘i Island. Author’s photo, 7 November 1987.

as “upland plantations in clearings in the forest zone”. Some of these terms are encountered in binomial form in land claims where the head term is followed by a plant modifier (*māla kalo*, *māla ‘uala*, *māla mai’a*, and even for wild plants, e.g., *kīhāpai ‘ie* and *kīhāpai olonā*) (Maly and Maly 2002b: 115, 285–86) indicating that taro, sweet potato, banana, *Freycentia arborea* and *Touchardia latifolia* were being grown (or tended) in the claimed plots. Many of the smaller cultivated parcels were located in or close to the once well-developed dryland field systems, while others were located further away, in valleys or gulches (*kahawai*) (see colluvial slope agriculture below), in holes in lava fields and at the limit of or in openings in the natural upland forest.

In some cases claimants specified in which of the broader-scale “belts” their gardens or plots were located, thereby recognising an element of scale between the two ecotopic levels introduced above, as predicted by Hunn and Meilleur (2010). This is evident when considering claims like “4 *mala* are in [the] *ulu*”, “3 *mala* of sweet potatoes are in the *kula*”, “6 [are] in the *apaa*” or “1 [is] in the *amau* fern zone” (LCA 7745, Keohoaoae, Maigret n.d.).

Anomalous terms denoting arable patches were found, and it is uncertain where their exemplars were physically located within the traditional Hawaiian agricultural scheme (e.g., as presented by Lincoln and Vitousek 2017). For instance, it is unclear where *makaili*, *kīpohopoho* or *kīpohopoho makaili* might have been found, though these presumed ecotopes are often linked to taro and sweet potato cultivation in or near rocky places and lava beds (Fornander 1919b, vol. 6: 164; Handy 1940: 51; Kamakau 1976: 40; Pukui and Elbert 1986: 155, 226). The same applies to *‘āina palawai* or *palawai*, glossed as “bottom lands . . . where sweet potato and sugar cane were planted [and which often] flooded” (Kamakau 1976: 23–25; see also Pukui and Elbert 1986: 311). None of these presumed smaller-scale Hawaiian ecotopes are cited in Malo or in the customary Ka‘u land configuration described by Handy and Pukui. The first group of terms seems to refer to small cultivated patches, probably mulched, within lava-dominated areas with little topsoil, possibly located within the *kula* belt. The latter terms may refer to some sort of fertile, low-lying area (river valley floodplain?) that regularly flooded and was burned before planting, perhaps within either the *kahakai* or *kula* belts. It is possible that some of the smaller-scale cultivated ecotopes associated with dryland taro or sweet potato, involving planting mounds (*pu‘e*, Kamakau 1976: 26; Pukui and Elbert 1986: 348; or *puepue* [*pu‘epu‘e*], Handy 1940: 12; Maly and Maly 2002b: 131), and once located in lava-dominated or sandy areas, were no longer being cultivated by the mid-nineteenth century following Hawaiian population collapse from introduced diseases (Ladefoged *et al.* 2009: 2376; Vitousek *et al.* 2004: 1666). As a result, the physical tokens for some of these Hawaiian terms may have become ambiguous or lost by the time the early Hawaiian scholars were writing, even where terms existed (see

Barrère 1976: v). Recent archaeology and land-use modelling in Hawai'i have recognised the importance of rain-fed agriculture on colluvial slopes above irrigated valley floors, especially on the older islands (Kurashima and Kirch 2011: 3667–68), and Kamakau (1976: 33) describes taro plantings “on mountain slopes” in the *'apa 'a* zone, but thus far it has not been possible to identify Hawaiian terms clearly linked to this potential ecotope, even though land claims appear to have been made on some of these slopes (Anderson 2001: 114–19; Maly and Maly 2002b).⁷

Several Hawaiian terms were found marking smaller-scale ecotopes where domesticates or wild species were grown or tended far from the lower-elevation ecotopes or densely cultivated field systems. For example, wild *olonā* and domesticated *'awa* grew best in moist upland soils, and the term *olonā* was applied polysemously to the higher-elevation patches where it was grown or tended. Bananas, commonly grown in lower-elevation *māla* and along rock walls or embankments in field systems or freshwater ponds, were also cultivated in *'e 'a mai 'a* or *'e 'a*, called “mountain banana patches” (Kamakau 1976: 36; Pukui and Elbert 1986: 33) or “banana field” (Fornander 1919a, vol. 5: 598–99). One instance was found of this last ecotope being claimed in a nineteenth-century land record (LCA 5810, Kaopukaui, Maigret n.d.).

Concepts of contiguity and proximity also occurred in Hawaiian agricultural land nomenclature. Terms for edges, borders (*lihi, nihi*) and banks (*kaikā, kapaha 'i, pae*) occur regularly in nineteenth-century land claims and Boundary Commission testimonies and, in many instances, they are associated with domesticated plants. For instance, rock walls or piles (*kuaiwi*) paralleling the vertical mountain fall line within field systems, especially in Kona, were often planted with sugar cane, paper mulberry, sweet potato and ti. Taro pond embankments (*kuakua, kuāuna*) “were [also] kept under cultivation” in sugar cane, banana, ti and kava (Kamakau 1976: 41; Nakuina 1893: 83).

Concepts of temporality such as freshness or newness versus overuse, harvested or exhausted were also found in the customary agricultural lexicon, and in noun form their physical-biotic referents can be viewed as ecotopes. The Hawaiian terms *kīpahulu*, *mahakea* and *pahulu* are defined as “place where soil is worn out”, “once cultivated land”, “over-farmed soil” and/or “fallow” (Pukui and Elbert 1986: 154, 218, 301). *'A 'ae* is defined by these same authors (p. 2) as a “taro patch where the taro has been pulled up” (see also Fornander 1919b, vol. 6: 160), and Fornander defines *kahili pulu* [*kāhili pulu*] (p. 164) as a cleared sweet potato field. New taro patches are called *hakupa 'a* and their freshly packed embankments *kuakuakū*. A field readied for planting after burning (or recently turned) might be called *makawela* or *wela* (Handy and Handy 1972: 129; Kamakau 1976: 26, 33; Pukui and Elbert 1986: 50, 170, 228, 383).

The Freshwater Landscape: Terms and Concepts

Malo does not describe freshwater environmental categories at length in his discussion (1903: 39) of broader-scale ecotopic belts. But streams cut perpendicularly across these belts, other natural water features (springs, seeps) were more or less randomly dispersed within them, and most of the freshwater ponds were constructed immediately behind or within the seashore belt or strand (*kahakai*) or in adjacent stream valleys mostly on the older islands. Permanent watercourses occur primarily on the windward (*ko'olau*) sides of the larger islands (except for Ni'ihau, Lana'i and Kaho'olawe) (Kikuchi 1973: 40–41), while intermittent streams, springs and seeps are located throughout the archipelago. Those in leeward (*kona*) settings were of particular importance to humans because of the rain-shadow effect common to the larger islands.

Over two dozen Hawaiian terms have been used to denote elements of freshwater hydrographic systems, such as natural streams, waterfalls and cascades, watercourse banks or edges, and headwaters and their mouths, as well as lakes, natural or man-made ponds, puddles, water sources or springs, freshets, hot springs and wetlands, marshes or swamps (Kamakau 1976: 10–11; Kepelino in Beckwith 2007; Pukui and Elbert 1986). As for other oceanic and terrestrial elements glossed by multiple terms, it is unclear at what level synonymy or island lexical variation occurred among these hydrographic terms, or whether some marked functional or conceptual differences. The relationship between freshwater and saltwater and their uses was complex, especially where the two types of water mingled to form brackish water, as at estuaries.

Hawaiians modified many aspects of natural freshwater systems for ease of access and use, bathing, irrigation and, in upland streams and lowland lakes and ponds, the exploitation of freshwater fisheries and other resources. Much of the earlier human effort in this domain was directed towards flatter near-shore areas and larger stream valleys where extensive taro ponds (*lo'i*) and freshwater aquacultural ponds (*loko i'a*) were created. In later periods, effort was extended to irrigated terraces in narrower upland gulches and to adjacent tablelands (McCoy and Graves 2010). Most were fed by freshwater ditches or canals (*'auwai*) that were drawn from natural streams or springs. While most of the humanised watercourses were short, some are known to have been several miles long (Kikuchi 1973: 64–65). Freshwater ponds drained to the sea via outlet canals.

Springs were sought by Hawaiians for drinking water, and thus collectively constituted a traditional ecotope in their own right. Natural and constructed ponds and their canals and enclosures, as well as lakes, streams and wetlands, were similarly defined by physical features, but also by biotic elements and the levels of human modification and management. Some natural streams were periodically blocked or diverted by dams into channels (*hā*) (Fornander 1919a, vol. 5: 512; Kikuchi 1973: 64), permitting freshwater fish (Kahā'ulelio 2006: 211), probably mostly stream gobies (*'o'opu*, including species of *Awaous*, *Lentipes*, and *Sicyopterus*) and freshwater shrimp (*'ōpae*, including

species of *Atyoida*, and *Macrobrachium*) (Yamamoto and Tagawa 2000), to concentrate and be gathered, sometimes following incapacitation by plant poisons (Kikuchi 1973: 127; see Stokes 1921 for plants used). Some wetter upland Hawaiian ecotopes, as mentioned above, were associated with important plant resources like *olonā* and *‘awa*.

Hawaiians modified or built hundreds of lowland ponds for taro production (*lo‘i kalo*) and for aquaculture (*loko i‘a*) involving several fish species. For example, *loko ‘ama‘ama* were specifically designated for mullet (*Mugil cephalus*) or for both fish and taro (*loko i‘a kalo*) (see Kikuchi 1973: 93, 116 for preferred species; see Kirch 1977 for an “etic” classification of *lo‘i* types). Species of edible algae are associated with freshwater ponds, as was a poorly known sort of edible mud (Kikuchi 1973: 94–95). Some freshwater ponds or sections of ponds (*ki‘o*) were created specifically for fish spawn and fry (p. 57), and these ponds and others were sometimes equipped with stone piles (*umu*) where smaller fish could feed and hide from predators. *Loko ‘aka‘akai* ponds, cited in Māhele land claims, produced a wild but tended bulrush (*Schoenoplectus lacustris*) and probably *makaloa* (*Cyperus laevigatus*), both well-known thatching and weaving materials. Other sedges with economic value like *kili‘o‘opu* or *mokae* (possibly *Cyperus* spp. and/or *Torulinium odoratum*) were also found there. As we have seen, freshwater pond walls (*kuāuna*) were often planted with sugar cane, banana, kava and paper mulberry. According to Kamakau (1976: 33) marshlands (*pohō*) were planted with taro and constituted an “important ... kind of wet taro plantings”. Apart from the benefits accrued by Hawaiian commoners in their exploitation of upland streams, substantiated by mid-nineteenth-century fishery rights claims (Maly and Maly 2003), evidence points to the chiefly religious classes as the principal motivators and beneficiaries of the man-made freshwater ecotopes (Kikuchi 1973: 51 citing Kamakau 1869: 180).

Hawaiian Geographic-Topographic Terms, Concepts and Ecotopes

Hawaiian geographic-topographic terms and concepts reflect an awareness of the archipelago (*pae ‘āina*) within an oceanic expanse (the central Pacific Ocean) and an appreciation of the irregular nature of island landscapes resulting from volcanism and erosion. As we have seen, several geomorphological island types were recognised and named, as were passages or straits between islands. The central calderas and mountain ranges of several of the islands were noted for their high-elevation features, their effects on weather, the associated presence of wetter or drier zones, and their relationships with naturally occurring streams (*kahawai*), desert-like areas (*wao one*) and vegetational differences. Hawaiian terms refer to windward and leeward sides of each island and, as a result at least in part of the prevailing northeast trade winds that variously interact with island shapes and orientations, many distinct weather phenomena were recognised, with hundreds of terms and concepts for winds, clouds and types of precipitation.

Similarly, the uphill–downhill directionality inherent in the often gently sloping island topographies, oriented from central mountains to seashore, was often marked either as “toward the uplands” (*uka*) or “toward the sea” (*kai*), depending on the physical location of the speaker, much as one finds elsewhere in the world (Meilleur 1985). Such terms and associated phrases like *kō kula kai* ‘belonging to the lowlands’ or *kō kula uka* ‘belonging to the uplands’, though not ecotopic categories, were undoubtedly applied in discussions involving travel, weather prediction and resource production or acquisition (Holland 1971: 28; Pukui and Elbert 1986).

At more specific spatial levels, the irregular physiognomic natures of the eight main islands resulting from approximately 5 million years of volcanism, sedimentation and terrestrial erosion (Kikuchi 1973: 36; Newman 1970), when combined with nearly a thousand years of exploitation by a growing human population (Schmitt 1968), contributed to Hawaiian recognition of many ecotopic patches that are primarily linked to topographic features. Terms and concepts (Kamakau 1976; Malo 1903; Pukui and Elbert 1986) range from the summits of the three major volcanoes (Mauna Kea and Mauna Loa on Hawai‘i Island; Haleakalā on Maui) to large and small hills, valleys and gulches, ravines, ridges, peaks, caves/caverns, crevices, holes, plains and cliffs. Shoreline or strand features like seashore, tidal pools, sandy beach, sand dunes and capes are also lexically encoded in a manner that distinguishes size, shape, density, edges and ledges, depth and steepness, proximity to other features, and dominant associated plants or animals (e.g., *kahaone pōhuehue* ‘beach with beach morning glory plants’ [*Ipomoea pes-caprae*]) (Kamakau 1976: 11). The Hawaiian term for cliff (*pali*) possesses over a dozen binomial variants where the head term is followed by a descriptive modifier, and the term for hill (*pu‘u*) has at least eight binomial variants for hill types. The orientation of a mountain might be distinguished by reference to its flanks—the front or the back (*kaha alo, kaha kua*)—depending on point of observation. Such geographic-topographic segregates and the qualitative aspects of directionality inherent in customary landscape conceptualisation (Malo 1903: 28–32), as also found in Hawaiian trail system nomenclature (*ala hele, alalooa*, many terms/phrases) (Kamakau 1976: 10; Malo 1903: 38; Maly 1999: 7), were used for spatial reckoning and way-finding and, more specifically, to help establish boundaries in the traditional political-economic system. Several are mentioned by the nineteenth-century Hawaiian writers as qualifying features of the broader-scale ecotopes described above, especially for the higher mountain belts.

Hawaiian Geologic-Edaphic Terms, Concepts and Ecotopes

In the absence of metal, Hawaiians focused on the harder rocks to fashion weapons, cutting tools, pounders and other domestic implements. At least 15 general-purpose terms were found that gloss to kinds of stone associated

with these uses (Malo 1903: 40–41; Pukui and Elbert 1986). The cultural importance of the harder stones is reflected in some instances by their classification at four or more levels of inclusion: rock or stone (*pōhaku*), hard rock or stone (*pōhaku pa'a*), and the many kinds of hard stone such as basalt (*'alā*), this last which can then be subdivided into several “kinds” of basalt, where separate terms are used (e.g., *'elekū* ‘coarse vesicular basalt’) (Pukui and Elbert 1986: 40) or the head term *'alā* is modified by a descriptive epithet (pp. 16–19). The same applies to several other kinds of rock that were used domestically or for building material, and for dirt or soil. At least 15 terms are used to denote softer stones like pumice (*'ana*) that were used as abraders and for polishing. At least 25 terms for stones used as fishing weights were found, and at least 10 terms refer to stone types used in making leisure activity items, such disks used in *'ulu maika*, a Hawaiian bowling game. Similarly, many Hawaiian terms denote types of dirt or soil (*lepo*), including hard-baked (*lepo pa'a*), rocky/gravelly (*makaili*), sandy (*'āone, lauone*) or muddy areas (*kelekele*) of the landscape, as well as kinds of volcanic rock (especially *'a'ā* ‘craggy lava’ versus *pāhoehoe* ‘smooth lava’, and *ākeke* ‘cinder’ (Handy 1940: 4; Pukui and Elbert 1986). Lincoln *et al.* (2014) describe high spatial variability of soil types in Kona, Hawai'i Island as a function primarily of lava flow age and chemistry and precipitation, and several of these soil types are recognised within the Hawaiian lexicon.

In cases where substantial landscape patches were dominated by geologic-edaphic features, whether used for referential or utilitarian purposes, they are recognisable as Hawaiian ecotopes. Some examples include dirt, mud, clay (*pālolo*); sand (*one*); pebbles (e.g., *'ili'ili, unu*); rocky flat land (*hāpapa*) or rutted ground (*māluhua*) (Kamakau 1976: 40); alluvial soil (*lauone*) preferred by farmers (Pukui and Elbert 1986: 197); and soils purposely created by decomposition of specific plant species such as *pākukui* ‘candlewood-based soil’ and *pāpūlupulu* ‘tree-fern-based soil’ (Fornander 1919b, vol. 6: 160–62; Handy 1940: 51–52; Pukui and Elbert 1986: 306). Other soil types, such as *'alaea*, defined as “water-soluble colloidal ochreous earth ... brick-red soil containing hematite” (Handy 1940: 4; Pukui and Elbert 1986: 17), were used for ritual or medicinal purposes. Many of these terms were applied polysemously to the specific resources and to the sites where they were concentrated, as for several of the biotically dominated ecotopes. For example, *'a'ā* is defined by Pukui and Elbert (p. 2) both as a type of lava and as an area “abounding with” this lava. In other cases, partial or full repetition of a head term for a soil type, like *kele* for mud and *kelekele* for where much mud occurred, was used to designate an ecotope where the geologic or edaphic feature was plentiful.

While many of the geologic-edaphic terms that denote ecotopes were primarily distinguished by their physical characteristics, several, as we have seen, also had biotic content, such as alluvial soil or soils formed primarily of decomposed vegetal matter, which were then planted with taro and other

domesticates. The same is true for *makaili*, defined by Pukui and Elbert (1986: 226) as “rocky patches where sweet potatoes or taro were cultivated ... soil consisting of coarse sand, cinders, or gravel”, and for *mālua* ‘rutted ground’ that was planted with *wauke* (Kamakau 1976: 40).

Nevertheless, many of the Hawaiian terms associated with stones, rocks, dirt and soil have not yet been linked to geologic or edaphic segregates recognised by modern specialists: thus some may be synonyms, island variants, or descriptive phrases emphasising shape or color. Those terms that denote areas (*lua* ‘*eli pōhaku*) where types of valuable stone were predictably found or quarried, where stones were used as boundary markers, or where kinds of useful soils were concentrated are most likely examples of customary Hawaiian ecotopes.

* * *

Using highly dispersed data from published and unpublished sources, some nearly 200 years old, and the recently proposed theoretical framework of Hunn and Meilleur (2010) as the analytical framework, it has been possible to reconstruct elements of customary Hawaiian classification of their oceanic and terrestrial environments in a manner that may have some cultural validity. Lexicalised Hawaiian ecotopes were shown to have existed at several levels of abstraction, with smaller-scale ecotopes generally distributed within broader-scale ones, and both appear to have been conceptualised as variable mixes of biotic, hydrographic, topographic, geographic, geologic, edaphic and anthropogenic elements. These ecotopes were variously linked by Hawaiians for practical purposes to plant and animal species and to physical elements and their use or acquisition, to a set of terms indicating directionality depending on context, and to a myriad of unique places marked by proper names.

High levels of agricultural and aquacultural production were attained by Hawaiians through substantial modification of natural landscapes and seascapes. The tokens of the anthropogenic ecotopes, along with those of the wild ecotopes, created a semantic and practical grid of real spaces and places. These were often conceptualised hierarchically, from where a range of oceanic and terrestrial resources were harvested, thereby sustaining a large Native Hawaiian population well into the nineteenth century.

Several ethnoecological patterns emerged from this study. Possibly the most notable was Hawaiians’ classification of their oceanic and terrestrial space into over 30 broader-scale, general-purpose named ecotopes, often called belts in the historical literature, which progressively succeeded each other from the mountainous summits to the seashore and from there to the utmost bounds of the ocean. These categories were secondarily composed of smaller-scale, more special-purpose ecotopic patches, also named, that were more randomly distributed within the larger-scale ecotopes or belts,

and whose semantic content was often more specifically definable. A third level of ethnoecological conceptualisation equates to the thousands of named places, each variably denoting a unique geographic space. Leaving the islands, their districts and the larger inhabited sites aside, the majority of the Hawaiian place names marked highly restricted areas, their uniqueness making these the most special-purpose of the Hawaiian landscape concepts. Combining these three ethnoecological domains into a complex referential system that overlaid their seascapes and landscapes permitted Hawaiians to predict resource presence and availability and to engage in fact-based communication and decision-making, all of which led to appropriate action, both planned and spontaneous, in suitable places.

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NOTES

1. This portrait of Hawaiian colonisation is not accepted by all scholars (see Kirch 2010, 2011, 2014 for further details). Summaries of the most commonly proposed colonisation dates and scenarios are found in Allen (2014) and Lincoln and Vitousek (2017: 6).
2. Where terms in Hawaiian from original texts are spelled differently than modern renditions, these latter spellings, taken from the *Hawaiian Dictionary* (Pukui and Elbert 1986), follow in brackets.
3. Fathoms were converted to metres using the generally accepted equivalent of six feet or approximately two metres to a fathom. Nevertheless, in her translation of Kamakau's texts, in note 3, Pukui (in Kamakau 1976: 50–51) describes his use of the fathom (*anana*) in some contexts to mean about one metre and in other instances approximately two metres. In maritime matters she believed that Kamakau's fathom was equivalent to two metres. Nevertheless, she cites Kahā'ulelio's estimation of fishing zone depths (Kahā'ulelio 2006: 43–45; Kamakau 1976: 90) as somewhat shallower than those proposed by Kamakau, though overlap exists between the two renditions. Fornander (1919b, vol. 6: 186) shows similar estimates.

4. Malo's text was first published in Hawaiian in 1838 and translated into English in 1839. It was revised in 1858 and then retranslated and annotated by Emerson in 1898 [1903]. According to Emerson (1903: 11) in his "Biographical Sketch of David Malo", while working on his history of Kamehameha, Malo "made an extended visit to the island of Hawaii for the purpose of consulting the living authorities who were the repositories of the facts or eye-witnesses of the events to be recorded". While the timing of this visit and that of the preparation of his book *Hawaiian Antiquities* is unclear, it seems possible that some information in Chapter 7, "Natural and Artificial Divisions of the Land", may have been obtained during this visit, and it is possible that his terrestrial scheme may apply primarily to Hawai'i Island and especially to its leeward side.
5. Meilleur (2010: 163) states, "The folk biotope is proposed ... as the basic folk ecological unit employed ... to cognize and order biotic space at a level more extensive than that of the individual folk botanical or zoological taxa." It is equivalent to a biotically dominated folk ecotope. To avoid confusion, I will continue to use ecotope throughout this paper.
6. A recent geospatial analysis of native vegetation by The Nature Conservancy of Hawai'i (Gon *et al.* 2018) demonstrated that the pre-contact Hawaiian population substantially modified about 15 percent of the native terrestrial ecosystems, with the majority of changes occurring in the lowland dry and mesic vegetation zones. Since Euro-American contact, over 50 percent of native habitats has been lost.
7. On p. 112 Maly and Maly (2002b) cite a sweet potato patch claimed by Hanauapuaa "on the slope—*he wahi pali uala* [*he wahi pali 'uala*]" in the *ahupua'a* of Kuiuaha, east Maui. They identify similar claims on other hillsides in east Maui *ahupua'a*, not only for sweet potato cultivation but for paper mulberry, coconut, banana, screwpine and breadfruit. These claims are described as located near or on the cliff or cliff-side, in the gulch, etc. (pp. 116, 125–26).

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EYES TOWARDS THE HORIZON:
STRUCTURE-FROM-MOTION PHOTOGRAMMETRY
ENHANCES UNDERSTANDING OF SHIP PETROGLYPHS
FROM RAPA NUI (EASTER ISLAND)

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ABSTRACT: In this paper we present two petroglyphs of western sailing ships that were recently discovered on Rapa Nui (Easter Island). The far-reaching social ramifications of the arrival of the first Europeans have been discussed in a number of papers, but these newly found images allow for further insight into the effect their arrival had on the Rapanui population. Using structure-from-motion (SfM) macro photogrammetry we created detailed 3D images of the petroglyphs. This helped identify a hitherto unrecognised sense of accuracy and attention to detail employed in the depiction of a European ship by Rapanui artists. Their interest in the construction of European sailing ships, and reproductions thereof, are best understood in the context of the island's isolation and the lost traditions of building ocean-going canoes.

Keywords: Rapa Nui (Easter Island), rock art, petroglyphs, structure-from-motion (SfM) photogrammetry, European sailing ships

European sailing ships are known to have made an immense impression on the Rapanui people. Regardless of who and what came on them, and the far-reaching repercussions thereof (cf. Campbell 2003; Pollard *et al.* 2010), the people of this remote island are described to have had a deep fascination for those giant vessels that first appeared on their shore on Easter Sunday of 1722. The big and complex sailing ships of Europeans were a stark contrast to the small indigenous Rapanui canoes made of sewn-together pieces of

driftwood that are described to have been used by the islanders at the time of contact (see Hooper 2006: 51). Jacob Roggeveen, the commander of the Dutch fleet that arrived that day, commented that the canoes of the islanders (Fig. 1) were of “poor and flimsy construction” (Corney 1903: 19).

Later descriptions talk about just a few or even no canoes on the island (Corney 1903: 121; Gassner 1969: 19; La Pérouse 1798: 76; Lisiansky 1814: 58). These small canoes were used in the waters around the island, but no mentions are made of big voyaging canoes that could take the islanders to faraway destinations. The Polynesian tradition of open-ocean voyaging was no longer practised by the time of contact (Fitzpatrick *et al.* 2007: 233). The lack of suitable building materials for ocean-voyaging canoes had led to the isolation of the islanders probably for at least a couple of generations (see Pollard *et al.* 2010: 568). The Rapanui were thus restricted to their island and the surrounding waters, where for the longest time only the seabirds had been messengers of a world behind the horizon.

In this article we consider some possible reasons why the Rapanui were so fascinated by European sailing vessels and why they incorporated them into their petrographic art. Here we describe two newly discovered petroglyphs and insights gained from the use of structure-from-motion (SfM) photogrammetry and macro photography. We also describe the recorded details of the images and the location where they were found. We argue that the petroglyphs depict European sailing vessels as they were used in the eighteenth and nineteenth centuries and offer some considerations on the importance that ships and their images had for the Rapanui people.



Figure 1. Rapanui canoe (*vaka*). Note the small sewn-together planks. Original drawing by Blondela, from the Library of Lithographic Services of the Navy, which was included in the atlas of La Pérouse’s voyage.

RAPANUI INTEREST IN EUROPEAN SHIPS

Efforts to Document and Replicate

Accounts of the earliest European explorers that arrived on Rapa Nui in the eighteenth century describe how the islanders who came aboard their ships were astounded by the elaborate construction (La Pérouse 1798: 68; Von Saher 1994: 96). All the instruments were scrutinised in detail, and the interest went so far that some of the Rapanui came on board to take exact measurements of anything they could reach, using strings for measuring tapes (Dunmore 1994: 68).

The first missionary to the island, Eugène Eyraud, who arrived in 1864, describes how the islanders insisted that he build them a boat and would not accept that he, as a westerner who came on board a ship, did not have the necessary skills or tools to do so. Regardless of his protests the Rapanui all collaborated in contributing small pieces of wood and gave this project great importance. Due to unsuitable caulking the boat sank shortly after being let to water, much to the dismay of the islanders (Eyraud [1864] 2008: 27–28).

Decades later, after ships calling on Rapa Nui had become a more common event (see McCall 1990; Richards 2008), earthen “boats” (*miro o’one*) were built by the islanders. Katherine Routledge (1919: 239–40) was the first to describe these ceremonial structures, during her fieldwork in 1914–15. They consisted of elongated earthen mounds that have the shape of the hull of a ship. In some cases, they were encircled by stones. Their dimensions resemble those of European sailing ships of the eighteenth and nineteenth centuries (ca. 40 m length, ca. 15 m width) (Kersten *et al.* 2010: 131).

The excavation of one of these boats showed that much attention was given to a detailed reproduction of European ships and their technical details (Love 2009). The earthen boats had been dug out of the hard subsoil and were plastered in yellowish clay. A trench surrounding the hull-shaped mound was lined with greyish clay, as if to resemble the water surrounding the ship. Earthen structures represented the fore deck, the captain’s station and the poop deck. The *miro o’one* even carried ballast in the form of wire-wrapped rocks. Obviously never designed to be used as watercraft, they served as a stage for reenacting the behaviour of sailors who came to the island in the nineteenth century. The Rapanui dressed up in garments that they had previously obtained from seamen, the different roles of crewmembers were assigned, commands were shouted and songs about the sailors were composed and performed (Métraux 1940: 351; Routledge 1919: 239–40; Van Tilburg 2003: 141). This has been interpreted as a kind of cargo cult, possibly with the objective of ensuring that more ships, and of course cargo, would arrive at Rapa Nui (Lee 1992: 113; Love 2009). Bartered goods and gifts from the

sailors were highly sought-after objects. Cloth and iron tools were especially prized by the Rapanui, and the only way of obtaining them was from sailors that arrived at the island. These cargo cults may have been the result of a new demand for these exotic goods. However, Pollard *et al.* (2010: 575) argue that these cults may be an expression of an interest not only in the cargo but also in the vessels themselves and the strangers that arrived on them.

Overall, the petroglyphs, the accounts of Eugène Eyraud and the construction of the earthen boats suggest that there was an immense interest among the Rapanui to rebuild a sailing vessel—if only there had been sufficient wood to do so.

Rapa Nui's Isolation and Motivations to Leave

The arrival of the first Europeans on their ships had a profound impact, with Pollard *et al.* suggesting that “the sheer isolation of Rapa Nui may have amplified the impact” (2010: 568). The interest of the islanders in the construction of sailing ships must be seen in the light of this isolation. The thorough descriptions of Eugène Eyraud about how the islanders harassed him until he agreed to build them a boat shows that they were very interested in the possibilities of obtaining watercraft that could carry them further out to sea than the small sewn-plank canoes that were available.

One possible explanation for Rapanui's desires to obtain or build vessels that would allow them to leave the island is the steep population decline that occurred following initial European contact. Introduced diseases and blackbirding had decimated the island's population (Fischer 2005: 121; see also Maude 1981). As a result, the social, political and religious structures of Rapanui society were severed; much traditional knowledge was lost forever. In 1877 only 111 Rapanui were left. In the first half of the twentieth century the low population numbers led to a wave of escapes from the island, mainly due to traditional marriage restrictions that made it exceedingly difficult to find a partner (see Foerster and Montecino 2012: 206). More specifically, within the Rapanui social code marriage between even distant relatives was not permitted and was often punished by the family. These social rules within Rapanui society are not a product of the twentieth century and must have had particularly dire repercussions in the second half of the nineteenth century, when population numbers were at their lowest.

During the nineteenth century the island was regularly visited by foreign ships (Lee and Horley 2013: 26). They were constant reminders of a world beyond the horizon. The only means of accessing that world were the big sailing ships. The interest in them and their details of construction can thus be seen as an interest in overcoming the island's isolation and the social restrictions that came with it.

RAPANUI IMAGES OF EUROPEAN SAILING SHIPS

The depictions of sailing ships in the rock art of the island are further indicators of the significance that western ships had for the Rapanui (cf. Lee 1992: 41, 113). There were painted ship motifs in the Kai Tangata Cave on the southwestern coast and inside one of the houses at the birdman village ‘Orongo (Métraux 1940: 272; Routledge 1919: 259; 1920: 433). These painted images can no longer be seen today due to fading in the salty, humid air. The fact that the motif of a western ship was included in the rock art at this very important religious centre implies the importance the objects had for the Rapanui. Lee and Horley (2013: 30–31) emphasise the connection between migratory birds and sailing ships. They stress that both visited the island from afar and—in contrast to Rapanui—had the possibility to leave the island again. Besides the painted images of sailing ships there are a number of petroglyphs thereof. The majority of the depictions were recorded by Georgia Lee (1992) during her petroglyph survey on the island (Fig. 2).

Rapa Nui is not the only Polynesian island where petroglyphs of European ships have been found (e.g., Kikuchi 1964, American Samoa; Millerstrom and

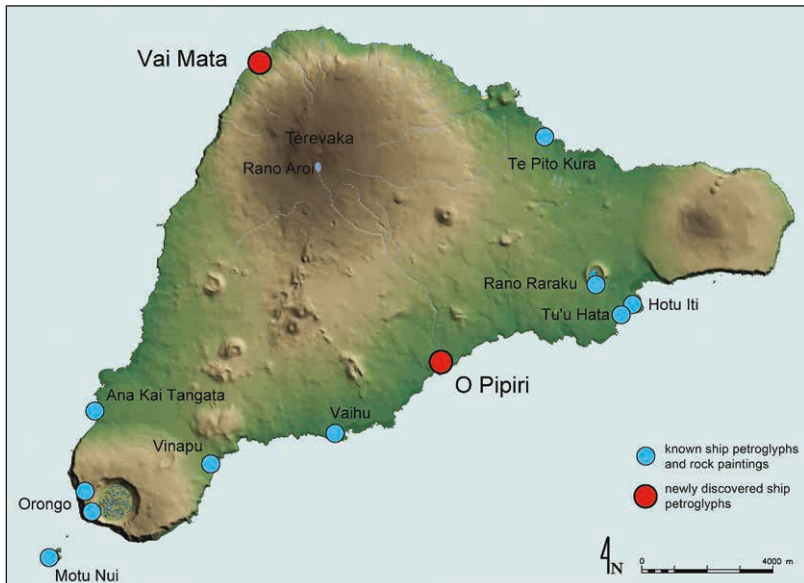


Figure 2. Map of the island with known and newly discovered ship petroglyph sites.

Kirch 2004, Hawai‘i; Millerstrom and Rogers 2005, Marquesas; Stasack and Lee 1992, Hawai‘i), but an important distinction has to be made: the other islands where ship petroglyphs have been documented were incorporated into trade networks and/or had large vessels of their own; thus open-ocean seafaring was part of their reality. On Rapa Nui, to the contrary, the necessary technology for open-ocean voyaging no longer existed (Métraux 1940: 204–8). The appearance of an ocean-going vessel on the shore must have had a much deeper effect than on other islands. The geographic isolation of the island also makes it unlikely that Rapa Nui was ever part of a regular trading network, as was the case on many other Polynesian islands (see Hermann *et al.* 2017; McAlister *et al.* 2013). So far, there is no evidence thereof. As a Polynesian people that came from a seafaring tradition, the Rapanui were no longer able to go to sea. At the same time petroglyphs of Polynesian canoes, some of them double-hull canoes (cf. Ferdon 1961, Fig. 66a; Mulloy 1975; Lee 1992; Lee *et al.* 2015), on Rapa Nui show that there was still a collective memory of seafaring.

Probably the best-known petroglyph of a sailing ship on Rapa Nui can be seen in the statue quarry, Rano Raraku, where the image was carved onto the chest of a *moai* ‘megalithic statue’ (Heyerdahl and Ferdon 1961) (Fig. 3). Its three masts and the square rigging are typical of European ships; however it has been discussed whether it may be a hybrid with a Polynesian canoe (see Skjolsvold 1961: 353). In lieu of an anchor there is the depiction of a sea turtle that is connected to the ship’s hull with a curved line. As with the painted images in ‘Orongo, this petroglyph is located within a sacred site. It is the largest known ship petroglyph on Rapa Nui but by far not the only one. The other known rock engravings are much smaller and fainter, made of thin fine lines (see Pollard *et al.* 2010: 572). The majority depict three-masted vessels as they were used by merchants, explorers and whalers in the eighteenth and nineteenth centuries (McCall 1976; Richards 2008). It is interesting to note that the majority of the ship petroglyphs are found along the south coast of the island whereas the majority of the earliest ships that called at Rapa Nui were anchored off the northeast coast (Corney 1903; La Pérouse 1798; Von Saher 1994). If the petroglyphs were carved to represent a real ship, one that was in sight while the image was being executed, one would expect to find more petroglyphs along the northern coast of the island.

TWO NEWLY DISCOVERED PETROGLYPHS

Two previously unrecorded ship petroglyphs were recently discovered by the authors: one of them on the south coast, where a number of other such petroglyphs have already been described, and the other on the north coast, where none had been previously found.

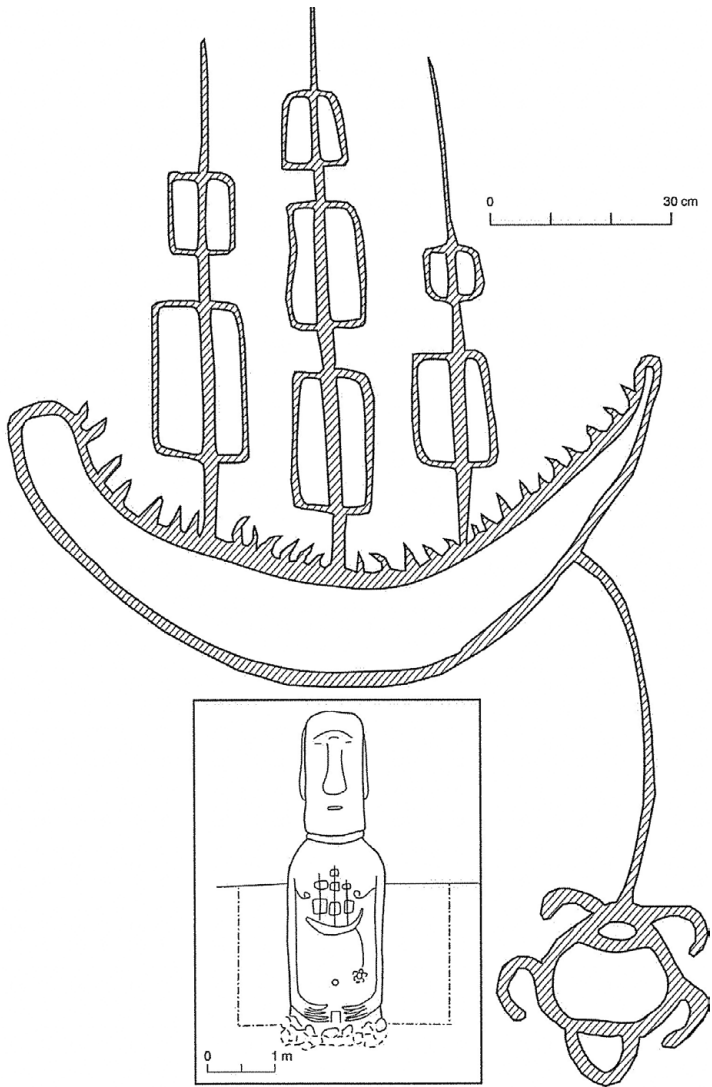


Figure 3. Ship petroglyph on the chest of moai 263 at the Rano Raraku statue quarry. Modified from Pollard *et al.* (2010) after Heyerdahl and Ferdon (1961).

The Petroglyph from O Pipiri

The first newly discovered ship petroglyph was located doing a survey along Quebrada Vaipú, a seasonal creek that runs from the crater lake of the Terevaka volcano to a little bay called O Pipiri on the south coast. The ravine is a collapsed lava tube with the volcanic rock exposed along the sides. On one of these rock faces, almost at the mouth of the creek, a small and very faint petroglyph of a sailing ship was found. The depiction was impossible to capture with conventional photography (Fig. 4a), so it was documented using structure-from-motion (SfM) photogrammetry (see Westoby *et al.* 2012; Zeppelzauer *et al.* 2016). Overlapping photos from all angles were taken using a macro lens, before creating a 3D image using the Aspect3D photogrammetry software. These images were texturised with a grid of 1.3 million triangles and revealed more detail than was visible with the naked eye: the depicted ship is three-masted with an anchor and a lot of rigging (Fig. 4b). The lines of the ship, its mast and sails, and the anchor and line are noticeably deeper than the rest of the image (here depicted in yellow). Below the ship there is a series of crossed lines, possibly representing the wave pattern of the sea or a fishing net; these lines—here depicted in white—are much fainter and thinner and with much less depth than the ones of the ship and anchor.

Above the ship there is another set of lines that form a roughly triangular shape. These lines and the lines of the rigging are thinner than the outline of the ship and anchor, but as deep (here depicted in light blue). Seeing the triangular outlines in combination with the vessel, it resembles the profile of the island itself, with the top of the Terevaka volcano creating the uppermost angle (see Fig. 2). Terevaka is the highest point on the island and even today is used by fishermen as a marker for the maximum distance one should travel from shore (Enrique Tuki, pers. comm., 24 April 2017). This is particularly interesting considering the perspective of the artist. All the other ship petroglyphs on the island give the impression that the artist was depicting the view of the ship as seen from the shore. In the case of the three-master in O Pipiri the opposite might be the case: the ship seems to be depicted in its location relative to the island.

In comparing the ship petroglyphs with the images of historical ships that were known to have anchored off Rapa Nui (McCall 1990; Richards 2008), many resemblances can be seen, but no specific ship can be identified with certainty. This poses the question of whether the ship petroglyphs show actual vessels that were anchored off the island or whether they depict the general idea of a ship of which the artist remembers the basic outline. Pollard *et al.* (2010: 570) proposed that some of the ship petroglyphs show hybrids between Polynesian canoes and European ships, including elements of both vessel types such as a curved hull in the case of the Polynesian canoes and



Figure 4b. The digitally traced lines of the different elements of the petroglyph.



Figure 4a. The rock face with the ship petroglyph at O Pipiri.



Figure 5. The narrow stretch of sea that is visible from the rock face at O Pipiri.

the three masts in the case of the European ships (Fig. 3). In these cases, the image is clearly not a representation an actual historical ship, but for other ship petroglyphs, this might be the case.

The stretch of sea that is visible from the location of the petroglyph at O Pipiri is very narrow (Fig. 5). A ship would have had to be anchored exactly in that small visible area for the artist to have a motif in front of his/her eyes while carving the image. The alternative is that the artist did not draw from a visible model but from memory. The second newly discovered ship petroglyph provides some further considerations of that question.

The Petroglyph from Vai Mata

The second ship petroglyph was found a couple of years ago by two of the authors during a field excursion in the bay of Vai Mata on the north of the island. The location on the north coast is interesting in its own right, since the majority of known ship petroglyphs are found along the south coast. We know that the Dutch expedition in 1722, the Spanish expedition in 1770 and the expedition of La Pérouse in 1786 all navigated close to shore, just off the north coast, for several days, where they must have been well visible from land (Corney 1903; La Pérouse 1798; Von Saher 1994: 97). Thus, this

is the area where one expects to find ship petroglyphs. However, until the discovery of the Vai Mata petroglyph this had not been the case.

The ship petroglyph of Vai Mata is extraordinary in many respects. Again, the motif is a three-masted sailing ship which resembles the representations of eighteenth- or nineteenth-century ships found along the south coast (Fig. 6). The “canvas”, however, is very different; the image is carved onto a flat beach pebble or *poro* of 22.5 cm height and 17.5 cm width. This smooth stone was a surface find in an area with numerous archaeological remains. It forms part of the pavement of one of the boat-shaped houses (*hare vaka* or *hare*

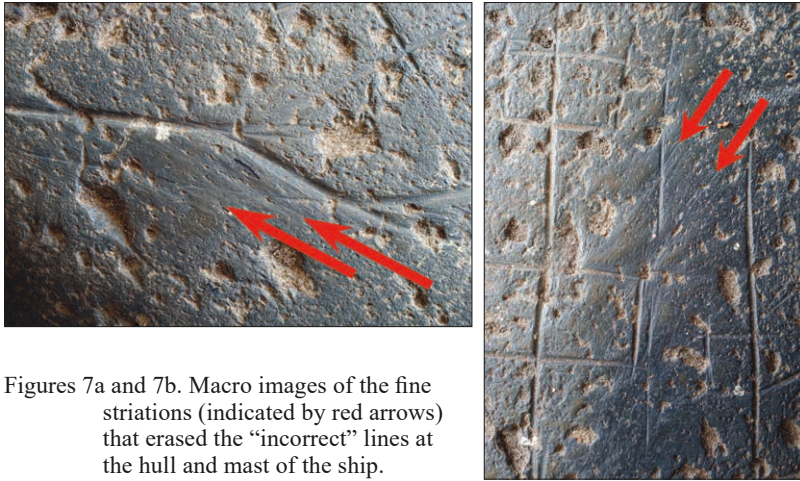


Figure 6. The ship petroglyph on the poro found at Vai Mata (width: 17.5 cm, height: 22.5 cm).

paenga) of a small hamlet associated with the Ahu Vai Mata. What sets this image apart from the other ship petroglyphs is the fact that it is carved onto a movable object. The only other ship petroglyph for which this is the case is the one on the chest of the moai in Rano Raraku. It is highly unlikely though that the statue was moved for the artist to have a better view of what he/she was trying to represent. For the ship depicted on the poro, however, this was possible, and there are indeed indications that this was done.

Again, three-dimensional imaging of the petroglyph revealed the most interesting information, specifically about the techniques used for the engraving. It can be observed that the lines of the masts were first inscribed lightly and then later grooved using more pressure. Analysis of the depth and width of the cuts shows that the ubiquitous obsidian on Rapa Nui was probably used for those techniques (Peter Kozub, pers. comm., 20 March 2014).

The fact that the lines were drafted before the final execution of the engravings gives an idea that the artist wanted to be exact about what he/she was trying to depict or that he/she was trying to do justice to a certain aesthetic. Lines were not only drafted but also corrected. In the macro image of the lower line of the hull it can be observed that the original line was longer and lower than that of the final grooved image. There are very fine parallel striations where an abrasive material has been used to erase the “incorrect lines” (Fig. 7a). The same can be observed at the central mast, which was originally further to the right (Fig. 7b). The lines were then erased and smoothed over before finishing the image with the mast in the centre of the ship.



Figures 7a and 7b. Macro images of the fine striations (indicated by red arrows) that erased the “incorrect” lines at the hull and mast of the ship.

There is a desire for accuracy that is transmitted through those fine lines. The petroglyph seems to be an image that did not come from memory but rather was the product of direct observation. The fact that the poro could be taken closer to the ship, held in hand, moved and turned for better perspective gives the artist the possibility to be more exact in the depiction of the object that he/she had in front of his or her eyes.

Bearing in mind how meticulously the Rapanui measured the lengths and widths of the ships they boarded and how precise they were in the reproductions in the form of the *miro o'one*, it seems that this poro is a medium on which someone had made an effort to correctly depict the relative position of hull and mast on a sailing ship. This led us to consider the possibility that the petroglyph from Vai Mata not only shows the idea of a sailing ship but rather an actual vessel that was in sight while the image was carved. The location where the poro was found, on a cliff high above the north coast, where we know from historic records that the earliest ships passed by or even anchored, makes this a plausible scenario. Which specific vessel that might have been is impossible to tell despite our efforts to find a match from the many historic images of the ships that called on Rapa Nui.

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What can be said with certainty is that the sailing ships, the messengers from a world beyond the horizon, held an immense fascination for the Rapanui. The fact that ships were incorporated into the rock art of Rapa Nui and that ship images appear within sacred sites such as 'Orongo and Ana Kai Tangata show their significance. As elsewhere in Polynesia (e.g., Lee 1992: 2), petroglyphs here served mainly to convey religious and status-related information and were used as markers of social change. Undoubtedly, the arrival of the European ships brought just that—change with far-reaching implications for the religious and social concepts that had structured the world of the Rapanui on their island. The importance of the sailing ships manifests itself in the island's petroglyphs, the building of earthen boats with such attention to detail and the associated cargo cult rituals that were held on them. Further, Rapanui interest in the construction of European ships, their insistence that the first western inhabitant build them a boat, and the problems arising from low population numbers and strict marriage rules indicate that the Rapanui also had a desire to overcome their isolation. However, the challenges of Rapa Nui's vegetation, specifically the lack of suitable trees, made it impossible to build the ocean-going canoes that would have permitted them to venture across the horizon. To ensure that ships kept calling on the island, new religious manifestations like the cargo cults emerged

in post-contact times. Attention to detail in depicting European ships seems to have been an aspect of that, as shown by the construction of the earthen boats and efforts to accurately depict observed vessels, as illustrated by the newly discovered ship petroglyph from Vai Mata.

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REVIEWS

BELGRAVE, Michael: *Dancing with the King: The Rise and Fall of the King Country, 1864–1885*. Auckland: Auckland University Press, 2017. 452 pp., biblio., index, maps, notes. NZ\$65.00 (cloth).

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When I was invited to write a review of *Dancing with the King*, a book about the King Country in Aotearoa/New Zealand from 1864 to 1885, I weighed up the work's 374 pages of text and was hesitant to accept the request. I knew the time and effort required to write the review would be onerous. Yet I felt obliged as the book was about Waikato and Ngāti Maniapoto ancestors to whom I *whakapapa* 'trace my ancestry' and also the mysterious Te Rohe Pōtae, a once resilient political area about which I wanted to know more. The book had lifted the 2018 Ernest Scott Prize for best Australasian history publication and already had many reviews attached to it. Its reviewers included Harry Broad, Martin Fisher, Lincoln Gould, Paul Meredith, Nicholas Reid, Michael Reilly and Te Hau White, who come from a range of disciplines and backgrounds. My summation of their commentaries is that for the most part they approved of Belgrave's history, though a criticism all the reviewers shared was that Belgrave's research relied too heavily on a limited number of primary sources. Meredith and Reilly also provided detailed notes on the historical inaccuracies and spelling mistakes within the text. I add to their list the incorrect spelling of the name of my ancestor Pokaia. On page 183 he is recorded as Poukia, who attended a gathering with his brothers, Tū Tāwhiao and Ngaka, and then on page 191 he is recorded as Te Pouku, with his brothers, Tū Tāwhiao and Te Ngaehē. I admit to feeling irritated by the misspelling of the name of my *tupuna* 'ancestor'.

I was drawn into the book on the first page when the Raukawa ancestress, Ahumai Te Paerata, was described at the battle of Ōrākau as taking "four hits to her body", with one of the blows removing her thumb (p. 1). The text further explained that she "escaped with one of her brothers, but her father and another brother died in the siege, as did around 150 of the defenders". For me, the imagery of female heroism was an effective way to begin the story. However, this admiration and regard for Tainui women was to be short lived, for as I worked my way through the text I began to notice a flaw in the history unravelling. While there were elaborate explanations of meetings between Māori and Pākeha 'British' men, and great attention to detail around the role of food (pp. 124, 133, 135, 138, 183, 244, 246, 248) and adornment (pp. 67, 86, 97, 104, 191, 242, 327) toward the politics of the day, the contributions of women were largely missing. Quotes taken from a diary written by Mary Rolleston give some voice to Pākeha women, though the accounts described are not particularly charitable toward Māori and do not represent Pākeha women of the time in a positive light (pp. 243–47). Māori women, on the other hand, are not well integrated into the work. When they are mentioned their roles are perfunctory. They are described

as wives, sisters and daughters who are attached to influential males (pp. 77, 183, 191, 370). There is a brief acknowledgement that King Tāwhiao sent “his sister Tiria, his wife Parehauraki and his infant daughter to open a new meeting house at Mōtakotako” (p. 78). Though Belgrave remarked that the presence of the women at the event symbolised an important gesture of peace, there is no explanation of why this was so. There are other brief mentions of women peppered throughout the text, such as “Tāwhiao and his wife, sister, sister-in-law and sons Tū Tāwhiao, Poukia and Ngaka were seated at one end of the hall” (p. 183), “Werawera, Tāwhiao’s wife, requested harbour dues on behalf of the King, a levy laid down by her forefathers” (p. 244) and “There was a *karanga* [‘call’] from Whitoria’s wife” (p. 207). There is, however, no elaboration of the *whakapapa* ‘genealogical ties’ or agency of the women mentioned in the statements.

The story draws to a close when the first sod of earth is symbolically turned, denoting the opening up of Te Rohe Pōtae. Belgrave writes that an official photograph was taken to commemorate the event (p. 370). At centre stage is Rewi Maniapoto’s nameless granddaughter. She is positioned next to a wheelbarrow, a plank and a small pile of earth. Belgrave describes the Māori chiefs and Pākeha government representatives on either side of her. This scene of the young woman strategically placed between the men left me wondering what roles women played in the politics and decision-making of Te Rohe Pōtae.

In Tainui narratives women such as Te Paea Tiaho (Tāwhiao’s sister, whose name is spelt incorrectly as Tiria on p. 78 and Te Ako on p. 191) and Parehauraki (Tāwhiao’s second wife) were known property owners with *mana* ‘prestige’ in their own right; however, they are given little space and acknowledgement in the book. Throughout my life I have listened to *kaumātua* ‘male elders’ and *kuia* ‘female elders’ who have emphasised the complementarity of men and women, and the leadership contributions that female *tūpuna* ‘ancestors’ like Whakaotirangi, Princess Te Pūea, Te Arikinui Te Atairangikaahu and others have made to Tainui narratives and the success of the Kīngitanga. The male-dominated Te Rohe Pōtae, as represented in Belgrave’s history, makes the story incomplete and is unfamiliar Tainui territory to me.

BRYANT-TOKALAU, Jenny: *Indigenous Pacific Approaches to Climate Change: Pacific Island Countries*. Cham, Switzerland: Palgrave Macmillan, 2018. 133 pp., biblio., illus., index, notes, €53.49 (cloth).

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As global narratives of climate change cite ever shrinking windows for action, people living in the Pacific Islands are already experiencing its effects. Storms seem to strike with growing intensity while rising seas slowly swallow entire islands. Pacific nations have become iconic to the climate justice movement, and portraying Pacific peoples as particularly vulnerable to climate change has proven a potent strategy for international development agencies working in the region. Much of their work targets this perceived vulnerability through “adaptation” or “resilience-building” programmes. However,

Bryant-Tokalau shows that Pacific peoples are not vulnerable in the manner they are so often depicted. People throughout the region have long accommodated changes in their environments, but their knowledge is usually overlooked by organisations seeking to help those very people “adapt” to climate change.

Bryant-Tokalau does not deny that the present climate crisis demands new solutions or that Pacific Island countries might benefit from assistance. Change is unfolding at a rate and scale never previously experienced, constraining people’s ability to acclimatise. Rather, her point is that development policies and activities must be informed by local and traditional knowledge if they are to succeed. In addition, Bryant-Tokalau suggests that Pacific experiences can provide lessons for people around the world as they meet the challenges of climate change. This book was specifically written to accompany Lyn Carter’s *Indigenous Pacific Approaches to Climate Change: Aotearoa/New Zealand* (2019) and in so doing inform policy making throughout the region.

Bryant-Tokalau opens with an overview of the institutions and actors (both formal and informal) that shape policy in the Pacific Islands and the initiatives that have laid the groundwork for climate change adaptation schemes. This is followed by thematic chapters that each focus on an element of climate change adaptation in the Pacific, especially in Fiji, the Solomon Islands and Kiribati. In the first, Bryant-Tokalau shows how traditional practices have preceded contemporary adaptation schemes, a point best demonstrated in her discussion of plans to build artificial islands for countries under threat from sea level rise. Here, Bryant-Tokalau does the classic anthropological trick of turning assumptions on their head. Building artificial islands may at first seem wildly utopian, yet this has traditionally been an adaptive method in the Pacific, and any future plans to build artificial islands should be informed by people’s historical experiences with them. The second thematic chapter discusses traditional cyclone mitigation, where Bryant-Tokalau shows that people are able to access this knowledge through cultural memory and oral histories, even though it may not be visible to development agencies or codified in the manner they favour. Bryant-Tokalau emphasises this point in the following chapter, focusing on urban settings where traditional knowledge remains relevant for people despite their changing lifestyles. Adaptation policies and programmes increasingly target urban communities who are assumed to be disconnected from traditional social institutions and therefore especially vulnerable to the extreme weather events associated with climate change. However, these assumptions mean that local forms of expertise emerging in urban settings are often overlooked.

This book has enormous applied potential. Bryant-Tokalau avoids bogging down her readers in theoretical detail, instead providing a compelling, accessible and practicable argument that deserves to make a mark on the development sector. The scope speaks to Bryant-Tokalau’s own expertise and experience as an applied scholar, bringing together a lifetime of work in the Pacific. It is largely built around case studies that exemplify the central mantra: Pacific peoples have existing knowledge and resources, which the climate change sector should work with. While this first text in the series *Palgrave Studies in Disaster Anthropology* uses case studies rather than ethnography and contributes most to best practice rather than anthropological theory, it does lay out useful avenues for further anthropological inquiry. There is a need, both

academic and applied, for ethnographic investigation of the dynamics that Bryant-Tokalau introduces here. For instance, how does the notion of vulnerability circulate in the daily lives of development practitioners, donors, recipients and brokers? What symbolic work does it do? How might we interrogate the documents, discourses and everyday practices of people working on climate change adaptation? In what ways do they engage with communities or their knowledges and institutions?

Indigenous Pacific Approaches to Climate Change might have been strengthened through some engagement with its scholarly implications, even if these are not its primary ends. In addition, the core argument could be strengthened with some discussion of how climate change-related initiatives have suffered by not engaging with local knowledges or successful syntheses of knowledge systems and technologies. Most importantly, the text could have been structured around Pacific voices. Their absence is notable given the text's purpose. These comments aside, Bryant-Tokalau has provided us with an exemplar of applied scholarship that is both an intervention into the development sector and a primer for those interested in what disasters, climate change and "adaptation" might tell us anthropologically.

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Carter, Lyn, 2019. *Indigenous Pacific Approaches to Climate Change: Aotearoa/New Zealand*. Cham, Switzerland: Palgrave Macmillan.

KA'ILLI, Tēvita O.: *Marking Indigeneity: The Tongan Art of Sociospatial Relations*. Tucson: University of Arizona Press, 2018. 180 pp., biblio., index, photos. US\$50.00 (cloth).

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Tā 'time' and *vā* 'space' are central to Tongan sociospatial relationships as well as those of other indigenous Pacific islanders, but for decades, they have not justifiably been understood or conceptualised as an integral part of their reality. Tēvita O. Ka'ili, a leading proponent of the *tā-vā* 'time-space' theory of reality, has confidently substantiated the significance of *tā* and *vā* in the current reality of the Tongan people in his book *Marking Indigeneity: The Tongan Art of Sociospatial Relations*. It is to the author's credit that he situates this indigenous philosophical principle in his own Tongan culture, and intelligently weaves it through a reflexive, person-centred approach. This book is a monumental joy to read because the author has astutely crafted the emerging *tā-vā* theory of reality through his life experiences to enlighten a prominent cultural aspect of social-spatial relationships amongst the Tongans as an indigenous group in the Pacific. The author proves that this theory is front and centre in the Tongan culture. I do credit the author for this book because it contains crucial information that explains the reasons for the struggles that Tongans and other minority groups go through in foreign lands such as New Zealand, Australia and the United States.

The book begins with a deep but clear philosophical *Talamu'aki* 'Foreword' by Hūfanga 'Ōkusitino Māhina, the principal proponent of the tā-vā theory of reality. He briefly explains the theory and its significance in the field of anthropology. This is followed by a very heartfelt, detailed *Fakamālō* 'Acknowledgements' by Ka'ili to all those that helped him in his journey in writing the book. This is a practical example of "marking indigeneity through the Tongan art of sociospatial relations" shown by the author to keep good relationships (*tauhi vā*) with his supporters. Right from the outset there is a harmonious relationship milieu consistent with that of the Tongan culture that confirms the book's cultural credibility in the field. Greater clarity of the content of the book is concisely laid out in the *Talateu* 'Introduction', where an autoethnographic discussion is crafted through linking the author's life experiences to the main tenets of the book. This also includes an overview of the whole book with summaries of chapters 1 to 7 plus the author's own views on the significance and the limitations of the book.

The book is an indigenous ethnographic narration of life stories of Tongan people living in Hawai'i. Their stories resonate with other Tongan people who, for whatever reason, decided to cross the vast ocean and settle somewhere else, especially in New Zealand, Australia and the United States. In the foreword Māhina states his position: "This book provides a solid front for indigenous knowledge, as it does for the tā-vā theory of reality, to establish validity in the academic, aesthetic, and social struggle." The book finishes with 74 pages of rich extra information covering the glossary, notes, references and index sections. These valuable sections not only help with the clarity of the discussion in the book but are also a great resource for others working on Tongan culture.

I must acknowledge the significance of this work by a Tongan for Tongans (*Tonga ma'a Tonga*). Ka'ili crafts the book in such a way that it can be useful for anyone Tongan or non-Tongan, from academics through to lay people, with interest in either the tā-vā theory of reality or the Tongan culture in general. He weaves his stories elegantly to show how the tā-vā theory of reality describes the sociospatial relationships of the Tongans, from their family to the wider community events of *fai'aho* 'birthdays', *faimali* 'weddings', *faiputu* 'funerals', *failotu* 'prayer vigils', *faikava* 'kava drinking gatherings', *faka'osiako* 'graduation celebrations', *lī pa'anga* 'giving money' and *feinga pa'anga* 'fundraising'. Ka'ili's description of the tā-vā theory of reality relative to his life experiences eases the difficulty of understanding theories as complex phenomena.

The appropriate use of Tongan words and proverbs to highlight difficult concepts allow for an effective and meaningful understanding of the book. For example, he explains the word tā by stating that tā in the Tongan language means "to beat, to mark, to form, or to perform", and that "in a temporal sense, tā is the time marker that marks time with beats, markings, or social acts" (p. 25). Alternatively, the proverb "*tangi ke vikia ka e 'au e kāinga*" (seeking self-praise impoverishes one's kin), where someone gives many of his resources to others for self-praise while ignoring his *fatongia* 'obligations' to his own kin, is also relevantly used. The significant Tongan expression of "*tuku ia mo e fakahela*" (do not burden yourself) is also foregrounded by Ka'ili to alert Tongans to avoid placing burdens on the *kāinga* 'kin' by carefully reducing

the amount of money, food, *koloa* ‘woven mats’ and labour that is exchanged during their *faifatongia* ‘cultural obligations’. His inclusion of relevant photographs provides mental breaks for the heavy theoretical storyline, adding to the clarity of the discussion.

In his *Tātuku* ‘Concluding Note’ Ka‘ili enlightens the readers on yet another dilemma about time that Tongans and Pacific peoples have faced since colonisation. The negative connotation of the expression *taimi faka-Tonga* ‘Tongan time’ or *taimi faka-Pasifiki* ‘Pacific time’ whenever events are late is a stigma that sometimes sounds like a curse. Ka‘ili beautifully explains this as a Tongan practice of actively mediating time-space by extending the time-space structure of certain activities and places in order to practice *tauhi vā* and create beautiful sociospatial relations. He affirms that this extension of time-space is rooted in the indigenous Moana ‘Oceanian’ oral traditions and that Tongans are continuing a long tradition that began with their ancestors. He also signals that more investigation is needed in this area, which I think could be done in another project.

This is an excellent book in a highly readable format. In the foreword Māhina identifies it as a “groundbreaking book [that] stands to contribute philosophically to the formulation of new anthropological theories as well as to offer an original contribution to artistic and literary studies, indigenous studies, and migration studies” (p. xiv). This book will be consulted by both Tongans and non-Tongans, including indigenous groups, around the globe who have special interests in all things Tongan as well as in areas such as educational underachievement, social problems, health issues, poverty and political problems. I believe that readers will find this book very useful to explain Tongan, Pacific and indigenous realities in a variety of sectors of their lives. The credibility of the book is for the readers to judge, but I think that the majority would agree with the author that “indigenous anthropology should include more indigenous theories and practices” (p. 114), such as is presented in books similar to this one.

MOYLE, Richard: *Ritual and Belief on Takū: Polynesian Religion in Practice*. Adelaide: Crawford House, 2018. 253 pp., biblio, illus., index, notes. NZ\$134.00 (softcover).

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Richard Moyle has done extraordinary work in Polynesian ethnography. He has recorded, transcribed and translated fables from Tonga and songs and fables from Sāmoa. On Takū, a Polynesian Outlier in the Solomon Islands, he has recorded, transcribed and translated songs and fables and compiled a dictionary of the language. This impressive body of work provides important material for scholars, and just as importantly it is an invaluable resource for indigenous heritage. He now adds a book about Takū ritual and religion to this body of work.

This book has special importance because Takū is a Polynesian society that maintains an active indigenous ritual system. Moyle is clear that there are major challenges that accompany any description of Takū religion and the traditional culture in general. Takū underwent a severe population decline in the late nineteenth

century. From the late nineteenth century into the first part of the twentieth century, the population was removed from the atoll's main islet which was made into a coconut plantation with immigrant labourers. (Readers might want to consult Moyle's earlier work for a full discussion of Takū's history of European contact [see Moyle 2007: 9–46]). Recently in the twenty-first century, the atoll has experienced rising sea levels and many people are migrating to Bougainville and other parts of Papua New Guinea. Nevertheless, the atoll's people remained somewhat isolated for much of the last 150 years, both geographically and culturally, and maintained many traditional institutions. Moyle conducted his research on Takū between 1993 and 2010, many years after the population had resettled and increased, and before the recent large-scale emigration. Unlike many others in Polynesian regions, most Takū people have resisted efforts to convert to various forms of Christianity and maintained a religious system that was based on traditional practices.

Moyle is refreshingly forthright in describing the contexts of his research and data collection. He found that over the course of his 17 years of research, people sometimes changed their memories in discussions of specific ritual events. He describes occasions when the community did not consider a potential ritual successor knowledgeable enough to perform certain roles, most of which require a very precise performance to be effective. Moreover, some individuals, when questioned about ritual issues, sent him to leaders that they considered more knowledgeable. Some of these issues are likely to exist in long-term research into many societies' traditional culture, although ethnographers do not always acknowledge them.

Despite these many challenges, Moyle is able to record Takū's ritual traditions, especially in personal efforts to ensure success. Many community-wide ceremonies have been lost or abandoned, except, notably, a funeral ceremony, the *tukumai*, which remains the major community-wide ritual. The daily rituals performed by individuals to ensure their welfare are still vibrant and are themselves shared across the community. Traditional leaders are still the main authorities on the atoll in performing religious and secular functions. These leaders hold offices that are cognate with leadership roles in other Polynesian societies, including the two most important community leaders, the *ariki* and *pure*, and the patriline leaders, the *mākua*.

The book is organised topically with chapters about the following subjects: the soul, human spiritual essences and ghosts; religious offices; different types of spirits; spirit mediums; the material culture used in ritual; fishing ritual; and a short chapter about animals. Readers will find detailed descriptions of some common Polynesian cultural themes including hereditary leadership, spirit mediums, founding hero-deities, ritual language, a *marae* 'ritual arena' (transformed by historical factors) and fishing ritual. The book's subtitle, *Polynesian Religion in Practice*, underscores the author's main approach to the material. The book is highly detailed and interpretation is grounded in Takū daily practice. Moyle takes a generally functional approach to Takū ritual in describing how it is used to ensure a sense of security and success in an uncertain environment. There is also a wealth of detailed transcriptions and translations. Many ritual events are embedded in songs, and Moyle's expertise in the language and Takū's songs are important assets.

Takū ritual has several major themes. There is a constant effort to seek success and welfare through appeals to supernatural forces. Some of the help comes from the

island's deified founders, but very often people turn to more immediate genealogical ancestors. Material objects, such as amulets, are used to ensure success. Verbal invocations are remembered and must be spoken exactly to be effective. The ritual leaders have an important role for their knowledge about how to ensure success and welfare. There is also widespread use of mediumship to contact deceased ancestors who provide information and assistance. In the *tukumai* funeral service, this ancestral contact results in ritual songs from the ancestors. One of the most important deities, Pakeva, is associated with success in fishing and can only be contacted through a willing ancestral spirit. Takū inhabit a world in which the living and dead interact frequently.

Takū cultural life continues to undergo extreme pressure to change (see pp. 74, 82–83, 112–13). In a postscript dated 2017, Moyle discusses recent emigration and depopulation of the atoll, mostly the result of rising sea levels, and he questions whether the religious system can be sustained. Whatever the future holds, it is remarkable that the people of Takū preserved their ritual system for as long as they did under many adverse conditions.

This book is recommended to readers of this journal and others who have an interest in Polynesian culture, especially in detailed examples of Polynesian ritual and religion. It will be of interest to a broader community of people who want to learn about the religious system of a small-scale society. It will also be of interest to ethnomusicologists and linguists because of its detailed presentation of ritual expression in songs, invocations and legends. Finally, this book will be an important heritage resource for many Polynesians and the future descendants of Takū's people. Moyle is to be commended for presenting this material. This detailed account of an indigenous Polynesian ritual system with extensive texts and translations is a rare and valuable resource.

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Moyle, Richard M., 2007. *Songs from the Second Float: A Musical Ethnography of Takū Atoll, Papua New Guinea*. Honolulu: Center for Pacific Islands Studies, University of Hawai'i Press.

SILVA, Noenoe K.: *The Power of the Steel-Tipped Pen: Reconstructing Native Hawaiian Intellectual History*. Durham and London: Duke University Press, 2017. 288 pp., biblio., glossary, illus., index, notes. US\$25.95 (softcover).

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Silva's book aligns well with the global political and academic project known as indigenous studies. Silva challenges settler colonialism by privileging Hawaiian epistemology and ontology in an academic context that has ignored, misinterpreted or sought to erase the philosophies, histories and literatures of Kanaka Hawai'i (native Hawaiian people). *The Power of the Steel-Tipped Pen* examines the complicated

lives of Joseph Kānepu‘u (1824–ca.1885) and Joseph Poepoe (1852–1913) and their complex written works found in Hawaiian-language newspapers. They are depicted as historical agents, public intellectuals, scholars and cultural authorities in their contexts and beyond their time. Silva reveals layers of rich history, Hawaiian knowledge, practicality and resilience in the face of rapidly changing sociopolitical contexts in the Kingdom of Hawai‘i.

Silva grounds her text in various Hawaiian theoretical concepts, of which three continually reoccur and appear to be paramount throughout the book. The first is *aloha ‘aina* ‘deep love and commitment to people and land’, which is manifested in writing and teaching through publication, reflecting one’s *kuleana* ‘responsibility’. The next is *mo‘okū‘auhau* ‘genealogical consciousness’, which is central in the Hawaiian literatures presented, encompassing a temporal mindfulness that bridges past, present and future generations. The third is *kaona* ‘meanings, metaphors and evocations contextually hidden in place and people’, which are key in interpreting chants, songs, epics, poems and past publications by Kanaka Hawai‘i.

Joseph Kānepu‘u appears first in the book. He was a public intellectual who continued to learn beyond the dominant formal institutional schooling of his youth. Kānepu‘u engaged in an accessible medium of transmitting traditional knowledge in a changing material context by publishing in Hawaiian-language newspapers. He documented Hawaiian traditions, such as *mele* ‘chant(s)’ and *mo‘olelo* ‘narratives’, in written forms as well as encouraging their printed preservation for future generations. Silva clearly demonstrates Kānepu‘u’s foresight in facing both the challenges of his day and the anticipated necessities of the future in a rapidly and drastically changing landscape, population and way of life. Silva demonstrates that the newspapers he published in are of great significance as they are discovered by a new generation, and that they can be appreciated and recontextualised within Hawaiian epistemological and ontological frames. Kānepu‘u’s writings reflect an intimate holistic relationship with place, space and time including the ancestors, geography, birds and more. Through contextualisation and reinterpretation, Silva demonstrates the *aloha ‘aina*, *mo‘okū‘auhau* and *kaona* in Kānepu‘u’s writings. Kānepu‘u’s work reveals characteristics of historical and ancestral figures as well as their political status and geographical orientations and how they are embodied in *kaona* through specific birds, locations and place names.

Silva discusses Joseph Poepoe in the second half of the book. Poepoe was a public intellectual who followed Kānepu‘u in history. A multilingual legal professional and scholar who anticipated a future for Kanaka Hawai‘i, Silva shows him to be a complex and complicated individual and intellectual. Poepoe, a legal advocate for his people, was at one time arrested and pleaded guilty to conspiracy, for which he was incarcerated. Later in life, controversially and somewhat paradoxically, he supported the annexation of the Kingdom by the USA, seemingly for pragmatic reasons. Poepoe not only wrote about many forms of Hawaiian traditions, such as *mele* and *mo‘olelo*, he also actively translated political and legal works into Hawaiian and explained how to interpret *kaona*. Silva argues that Poepoe’s work in contextualising and guiding contemporary and future readers in how to interpret *kaona* in order to understand *mele* is “evidence of his *mo‘okū‘auhau* consciousness” (p. 151) and of his fulfilment

of kuleana to aloha 'aina. Silva explains that Poepoe foresaw “generations who [would] grow up deprived of the knowledge of our kupuna [‘ancestors’] that would allow us to interpret on our own” (p. 151).

The Power of the Steel-Tipped Pen manages to organise, revitalise and make more visible the historical and intellectual traditions of Kanaka Hawai‘i. This book portrays the adaptability and foresight of Kānepu‘u and Poepoe to expand the modes of the Hawaiian intellectual record from ancestrally traditional forms of expression to the adopted medium of print publication. They recorded ideas and ontological maps that assist in understanding the concepts embedded in Hawaiian language and culture while also reflecting negotiations with changing realities. Hawaiian intellectuals have a long history of thinking, applying and expanding their knowledge, yet their intellectual contributions and legacies have been occupied by settler-colonial projects just as their ancestral land(s) are. However, despite occupation, the knowledge of these intellectuals remains and continues to grow and evolve as new generations discover their work. This text reminds us of this continuum of Hawaiian knowledge, bringing hidden histories out and contesting physical and intellectual settler-colonial space in the process. Silva stands in between the past and future, communicating across time in reconstructing, expanding and perpetuating the legacy of Hawaiian knowledge production alongside Kānepu‘u and Poepoe, her intellectual kupuna.

This book is presented in an academic fashion complete with glossary, notes and index as well as historical documents and illustrations. The author walks the reader through contexts that reveal layers of meaning in Kānepu‘u and Poepoe’s writings. This book is well suited for scholars and university courses in Hawaiian studies, anthropology, sociology, history, literature and languages, Pacific studies, indigenous studies, cultural studies, ethnic studies and philosophy.

PUBLICATIONS RECEIVED*

June to August 2019

COOPER, Annabel: *Filming the Colonial Past: The New Zealand Wars on Screen*.
Dunedin: Otago University Press, 2018. 304 pp., biblio., illus., index, notes.
NZ\$49.95 (softcover).

DONALDSON, Emily C.: *Working with the Ancestors: Mana and Place in the
Marquesas Islands*. Seattle: University of Washington Press, 2019. pp., biblio.,
illus., index, notes. US\$30.00 (softcover).

* The inclusion of a publication in this list neither assumes nor precludes its
subsequent review.

